Altivar Process ATV6000

Variable Speed Drives

Programming Manual For Operator and Advanced Operator

QGH83265-05
07/2022

www.se.com

Legal Information

Table of Contents

Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Qualification Of Personnel

Only appropriately trained persons who are familiar with and understand the contents of this manual and all other pertinent product documentation are authorized to work on and with this product. In addition, these persons must have received safety training to recognize and avoid hazards involved. These persons must have sufficient technical training, knowledge and experience and be able to foresee and detect potential hazards that may be caused by using the product, by changing the settings and by the mechanical, electrical and electronic equipment of the entire system in which the product is used. All persons working on and with

the product must be fully familiar with all applicable standards, directives, and accident prevention regulations when performing such work.

Intended Use

This product is a drive for three-phase synchronous, asynchronous motors and intended for industrial use according to this manual.

The product may only be used in compliance with all applicable safety standard and local regulations and directives, the specified requirements and the technical data. The product must be installed outside the hazardous ATEX zone. Prior to using the product, you must perform a risk assessment in view of the planned application. Based on the results, the appropriate safety measures must be implemented. Since the product is used as a component in an entire system, you must ensure the safety of persons by means of the design of this entire system (for example, machine design). Any use other than the use explicitly permitted is prohibited and can result in hazards.

Product Related Information

Read and understand these instructions before performing any procedure with this drive.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Before performing work on the drive system:

- Follow the instructions given in the section ”Complete drive system power Off procedure” of the installation manual.

Before applying voltage to the drive system:

- Verify that the work has been completed and that the entire installation cannot cause hazards.
- Remove the ground and the short circuits on the mains input terminals and the motor output terminals.
- Verify proper grounding of all equipment.
- Verify that all protective equipment such as covers, doors, grids is installed and/or closed.

Failure to follow these instructions will result in death or serious injury.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Only appropriately trained persons who are familiar with and fully understand the contents of the present manual and all other pertinent product documentation and who have received all necessary training to recognize and avoid hazards involved are authorized to work on and with this drive system.
- Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- Verify compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment.
- Only use properly rated, electrically insulated tools and measuring equipment.
- Do not touch unshielded components or terminals with voltage present.
- Prior to performing any type of work on the drive system, block the motor shaft to prevent rotation.
- Insulate both ends of unused conductors of the motor cable
- Do not create short circuits across the DC bus terminals or the DC bus capacitors.

Failure to follow these instructions will result in death or serious injury.

Damaged products or accessories may cause electric shock or unanticipated equipment operation.

⚠⚠DANGER

ELECTRIC SHOCK OR UNANTICIPATED EQUIPMENT OPERATION

Do not use damaged products or accessories.

Failure to follow these instructions will result in death or serious injury.

Contact your local Schneider Electric sales office if you detect any damage whatsoever.

This equipment has been designed to operate outside of any hazardous location. Only install this equipment in zones known to be free of a hazardous atmosphere.

⚠DANGER

POTENTIAL FOR EXPLOSION

Install and use this equipment in non-hazardous locations only.

Failure to follow these instructions will result in death or serious injury.

Your application consists of a whole range of different interrelated mechanical, electrical, and electronic components, the drive being just one part of the application. The drive by itself is neither intended to nor capable of providing the entire functionality to meet all safety-related requirements that apply to your application. Depending on the application and the corresponding risk assessment to be conducted by you, a whole variety of additional equipment is required such as, but not limited to, external encoders, external brakes, external monitoring devices, guards, etc.

As a designer/manufacturer of machines, you must be familiar with and observe all standards that apply to your machine. You must conduct a risk assessment and determine the appropriate Performance Level (PL) and/or Safety Integrity Level (SIL) and design and build your machine in compliance with all applicable standards. In doing so, you must consider the interrelation of all components of the machine. In addition, you must provide instructions for use that enable the user of your machine to perform any type of work on and with the machine such as operation and maintenance in a safe manner.

The present document assumes that you are fully aware of all normative standards and requirements that apply to your application. Since the drive cannot provide all safety-related functionality for your entire application, you must ensure that the required Performance Level and/or Safety Integrity Level is reached by installing all necessary additional equipment.

⚠WARNING

INSUFFICIENT PERFORMANCE LEVEL/SAFETY INTEGRITY LEVEL AND/ OR UNINTENDED EQUIPMENT OPERATION

- Conduct a risk assessment according to EN ISO 12100 and all other standards that apply to your application.
- Use redundant components and/or control paths for all critical control functions identified in your risk assessment.
- Implement all monitoring functions required to avoid any type of hazard identified in your risk assessment, for example, slipping or falling loads.
- Verify that the service life of all individual components used in your application is sufficient for the intended service life of your overall application.
- Perform extensive commissioning tests for all potential error situations to verify the effectiveness of the safety-related functions and monitoring functions implemented, for example, but not limited to, speed monitoring by means of encoders, short circuit monitoring for all connected equipment, correct operation of brakes and guards.
- Perform extensive commissioning tests for all potential error situations to verify that the load can be brought to a safe stop under all conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Product may perform unexpected movements because of incorrect wiring, incorrect settings, incorrect data or other errors.

⚠WARNING

UNANTICIPATED EQUIPMENT OPERATION

- Carefully install the wiring in accordance with the EMC requirements.
- Do not operate the product with unknown or unsuitable settings or data.
- Perform a comprehensive commissioning test.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop, overtravel stop, power outage and restart.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.
- Observe all accident prevention regulations and local safety guidelines (1).
- Each implementation of the product must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(1) For USA: Additional information, refer to NEMA ICS 1.1 (latest edition), Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control and to NEMA ICS 7.1 (latest edition), Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems.

Machines, controllers, and related equipment are usually integrated into networks. Unauthorized persons and malware may gain access to the machine as well as to other devices on the network/fieldbus of the machine and connected networks via insufficiently secure access to software and networks.

⚠WARNING

UNAUTHORIZED ACCESS TO THE MACHINE VIA SOFTWARE AND NETWORKS

- In your hazard and risk analysis, consider all hazards that result from access to and operation on the network/fieldbus and develop an appropriate cyber security concept.
- Verify that the hardware infrastructure and the software infrastructure into which the machine is integrated as well as all organizational measures and rules covering access to this infrastructure consider the results of the hazard and risk analysis and are implemented according to best practices and standards covering IT security and cyber security (such as: ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/ IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security, SE recommended Cybersecurity Best Practices*).
- Verify the effectiveness of your IT security and cyber security systems using appropriate, proven methods.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(*) : SE Recommended Cybersecurity Best Practices can be downloaded on SE.com.

⚠WARNING

LOSS OF CONTROL

Perform a comprehensive commissioning test to verify that communication monitoring properly detects communication interruptions

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

DESTRUCTION DUE TO INCORRECT MAINS VOLTAGE

Before switching on and configuring the product, verify that it is approved for the mains voltage.

Failure to follow these instructions can result in equipment damage.

About the Book

Document Scope

The purpose of this document is to:

- show you the different menus, modes, and parameters based on HMI Panel with restricted access,
- show you the different menus, modes, and parameters based on DTM with restricted access,
- show you the different functions and parameters displayed ,
- show you how to program the drive,
- help you in maintenance and diagnostics.

Validity Note

Original instructions and information given in this manual have been written in English (before optional translation).

This documentation is valid for the Altivar Process ATV6000 drives.

The technical characteristics of the devices described in the present document also appear online. To access the information online, go to the Schneider Electric home page www.se.com/ww/en/download/.

The characteristics that are described in the present document should be the same as those characteristics that appear online. In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the document and online information, use the online information as your reference.

Related Documents

Use your tablet or your PC to quickly access detailed and comprehensive information on all our products on www.se.com.

The Internet site provides the information you need for products and solutions:

- The Handbook for detailed characteristics and selection guides,
- The CAD files to help design your installation,
- All software and firmware to maintain your installation up to date,
- Additional documents for better understanding of drive systems and applications
- And finally all the User Guides related to your drive, listed below:

(Other option manuals and Instruction sheets are available on www.se.com)

Title of Documentation	Catalog Number
Altivar Process range brochure	998-20307132 (English)
Recommended Cybersecurity Best Practices	CS-Best-Practices-2019-340 (English)
ATV6000 Handbook	QGH83255 (English), PHA51119 (French), PHA51121 (German), PHA51120 (Spanish), GDE94089 (Italian), PHA51122 (Russian), PHA51118 (Chinese)
ATV6000 Installation Manual	QGH83258 (English), QGH83259 (French), QGH83261 (German), QGH83260 (Spanish), GDE94087 (Italian), QGH83257 (Chinese)
ATV6000 Programming Manual for Operator and Advanced Operator	QGH83265 (English), QGH83266 (French), QGH83268 (German), QGH83267 (Spanish), GDE94088 (Italian)
ATV6000 Embedded Ethernet Manual	PHA30472 (English)
ATV6000 Modbus SL Manual	MFR24213 (English)
ATV6000 PROFIBUS Manual	PHA30474 (English)
ATV6000 DeviceNet Manual	PHA30471 (English)
ATV6000 EtherCat Manual	PHA30473 (English)
ATV6000 Profinet Manual	PHA30475 (English)
ATV6000 CANopen Manual	PHA30470 (English)
SoMove: FDT	SoMove_FDT (English, French, German, Spanish, Italian, Chinese)
Altivar Process ATV6000: DTM	ATV6000 DTM Library EN (English)
Recommended Cybersecurity Best Practices	CS-Best-Practices-2019-340 (English)

You can download these technical publications and other technical information from our website at www.se.com/en/download

Terminology

The technical terms, terminology, and the corresponding descriptions in this manual normally use the terms or definitions in the relevant standards.

In the area of drive systems this includes, but is not limited to, terms such as **error, error message, failure, fault, fault reset, protection, safe state, safety function, warning, warning message**, and so on.

Among others, these standards include:

- IEC 61800 series: Adjustable speed electrical power drive systems
- IEC 61508 Ed.2 series: Functional safety of electrical/electronic/ programmable electronic safety-related
- EN 954-1 Safety of machinery - safety-related parts of control systems
- ISO 13849-1 & 2 Safety of machinery - safety related parts of control systems
- IEC 61158 series: Industrial communication networks - Fieldbus specifications
- IEC 61784 series: Industrial communication networks - Profiles
- IEC 60204-1: Safety of machinery - Electrical equipment of machines – Part 1: General requirements

In addition, the term **zone of operation** is used in conjunction with the description of specific hazards, and is defined as it is for a **hazard zone** or **danger zone** in the EC Machinery Directive (2006/42/EC) and in ISO 12100-1.

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Introduction

What's in This Part

Application Functions

ATV6000 is designed to fit a variety of applications in different segments. The following list shows some typical applications which are possible to be operated by ATV6000.

The functions in the tables below relate to the following applications:

- Mining, Mineral, and Metal (MMM):
  - Long-distance conveyor
  - Slurry pump
  - SAG/ball mill
  - HPGR
  - ID/FD fans
- Water and Wastewater:
  - Raw water pump
  - Lifting station
  - Blower/compressor
  - Booster pump
  - High-pressure pumps
- Oil & Gas:
  - ESP
  - Crude oil transfer pump
  - Pipeline compressor
  - ID/FD fans
  - FPSO
  - Mixer
- Power plants:
  - Feed water pump
  - ID/FD fans
  - Coal mill
  - Cooling water circulation pump
  - Fuel gas compressor

Each application has its own special features, which will be set during commissioning.

⚠WARNING

UNANTICIPATED EQUIPMENT OPERATION

Multiple functions can be assigned to and simultaneously activated via a single input.

- Verify that assigning multiple functions to a single input does not result in unsafe conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

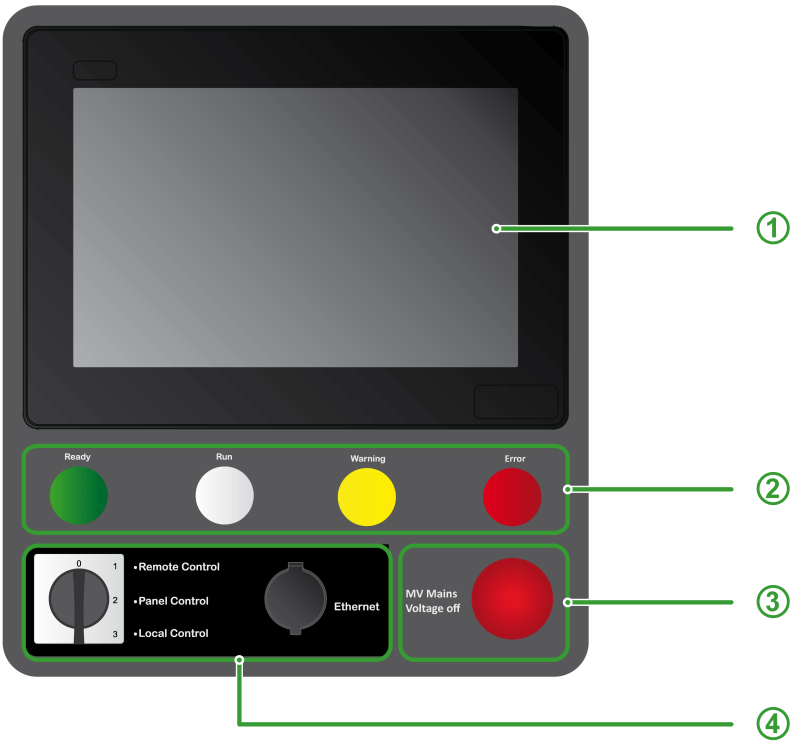
Interface

Introduction

Functions and parameters described in this document are based on the ATV6000 HMI and ATV6000 DTM for operator and advanced operator.

HMI Panel

The HMI Panel is a local control unit which is mounted on the front door of the product. The HMI Panel embeds a real time clock used for the time stamping of logged data and all other functions which require time information.



The HMI Panel is divided into 4 zones

Number	Description
1	**Interface display:** 10" Touch advanced display
2	**Drive status pilots light:** • **Ready:** Indicates that the drive is not running, ready to start. • **Run:** Indicates that the drive is running. • **Warning:** Indicates a drive detected warning. • **Error:** Indicates a drive detected error.
3	**MV Mains Voltage Off:** Pushing the button will disable the output and open the user's MV switch.
4	**Front HMI options:** • **Local/Remote/Panel Switch:** Used to switch between local, remote and panel control of the drive. See Command Status, page 244 Menu. • **Ethernet Socket:** RJ45 port for Ethernet IP or Modbus TCP. Allows access to the frequency inverter without opening the enclosure door, the plug must be covered by the dust protection cap when the port is not used.

NOTE: In this manual, the terms HMI Panel and Graphic display terminal can be used interchangeably when referring to the HMI Magelis terminal.

SoMove Software

The use of SoMove FDT and Altivar DTM is required to perform the actions described in this Manual.

Use the links below to download these files:

File	Links
SoMove: FDT	SoMove_FDT (English, French, German, Spanish, Italian, Chinese)
Altivar Process ATV6000: DTM	ATV6000 DTM Library EN (English)

NOTE: The working space description is available and described on ATV6000 DTM.

Structure of the Parameter Table

General Legend for DTM

Pictogram	Description
★	These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and adjusted from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.
( )	Setting of this parameter can be done during operation or when stopped. **NOTE:** It is advisable to stop the motor before modifying any of the settings.
	To modify the assignment of the parameter, reinforced validation is required.

Parameter Presentation for DTM and HMI Panel

Below is an example of a parameter presentation:

[Sample Menu] C o d E **– Menu**

Access
Parameters described below can be accessed by:
[Path] → [Sub-path]

About this menu
Description of the menu or function

[Parameter1] C o d E 1
Description of the parameter

Example of a table with a setting range:

Setting ( )	Description
0.0… 10,000.0	Setting range Factory setting: 50.0

[Parameter2] C o d E 2
Description of the parameter

Example of a table with a list of choices:

Setting ( )	Code / Value	Description
[50 Hz IEC]	5 0	IEC **Factory setting**
[60 Hz NEMA]	6 0	NEMA

Finding a Parameter in This Document

With the Manual

It is possible to use either the parameter name or the parameter code to search in the manual the page giving details about the selected parameter.

Difference Between Menu and Parameter

A dash after menu and submenu codes is used to differentiate menu commands from parameter codes.

Example:

Level	Name	Code
Menu	**[Ramp]**	rAMP-
Parameter	**[Acceleration]**	ACC

NOTE: The code shown in this manual, is used to be consistent with the Altivar process platform, it is also more convenient for multi languages support.

Cyber Security

What's in This Chapter

Overview

The objective of Cybersecurity is to help provide increased levels of protection for information and physical assets from theft, corruption, misuse, or accidents while maintaining access for their intended users.

No single Cybersecurity approach is adequate. Schneider Electric recommends a defense-in-depth approach. Conceived by the National Security Agency (NSA), this approach layers the network with security features, appliances, and processes.

The basic components of this approach are:

- Risk assessment
- A security plan built on the results of the risk assessment
- A multi-phase training campaign
- Physical separation of the industrial networks from enterprise networks using a demilitarized zone (DMZ) and the use of firewalls and routing to establish other security zones
- System access control
- Device hardening
- Network monitoring and maintenance

This chapter defines the elements that help you configure a system that is less susceptible to cyber-attacks.

Network administrators, system integrators and personnel that commission, maintain or dispose of a device should:

- Apply and maintain the device's security capabilities. See Device Security
- Capabilities sub-chapter for details
- Review assumptions about protected environments. See Protected
- Environment Assumptions sub-chapter for details
- Address potential risks and mitigation strategies. See Product Defense-in-Depth sub-chapter for details
- Follow recommendations to optimize cybersecurity

For detailed information on the system defense-in-depth approach, refer to the TVDA: How Can I Reduce Vulnerability to Cyber Attacks in the Control Room (STN V2) on se.com.

To submit a Cybersecurity question, report security issues, or get the latest news from Schneider Electric, visit the Schneider Electric website.

⚠WARNING

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Change default password to help prevent unauthorized access to device settings and information.
- Disable unused ports/services and default accounts, where possible, to minimize pathways for malicious attacks.
- Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection).
- Use cybersecurity best practices (for example: least rights, separation of duties) to help prevent unauthorized exposure, loss or modification of data and logs, interruption of services, or unintended operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Protected Environment Assumptions

Machines, controllers, and related equipment are usually integrated into networks. Unauthorized persons and malware may gain access to the machine as well as to other devices on the network/fieldbus of the machine and connected networks via insufficiently secure access to software and networks.

⚠WARNING

UNAUTHORIZED ACCESS TO THE MACHINE VIA SOFTWARE AND NETWORKS

- In your hazard and risk analysis, consider all hazards that result from access to and operation on the network/fieldbus and develop an appropriate cyber security concept.
- Verify that the hardware infrastructure and the software infrastructure into which the machine is integrated as well as all organizational measures and rules covering access to this infrastructure consider the results of the hazard and risk analysis and are implemented according to best practices and standards covering IT security and cyber security (such as: ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/ IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security, SE recommended Cybersecurity Best Practices*).
- Verify the effectiveness of your IT security and cyber security systems using appropriate, proven methods.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(*) : SE Recommended Cybersecurity Best Practices can be downloaded on SE.com.

Before considering cybersecurity practices on the device, please pay attention to following points:

- Cybersecurity governance – available and up-to-date guidance on governing the use of information and technology assets in your company.
- Perimeter security – installed devices, and devices that are not in service, are in an access-controlled or monitored location.

- Emergency power – the control system provides the capability to switch to and from an emergency power supply without affecting the existing security state or a documented degraded mode.
- Firmware upgrades – the ATV6000 upgrades are implemented consistently to the current version of firmware available on request from Schneider Electric Customer Care Center.
- Controls against malware – detection, prevention, and recovery controls to help protect against malware are implemented and combined with appropriate user awareness.
- Physical network segmentation – the control system provides the capability to:
  - Physically segment control system networks from non-control system networks.
  - Physically segment critical control system networks from non- critical control system networks.
- Logical isolation of critical networks – the control system provides the capability to logically and physically isolate critical control system networks from non-critical control system networks. For example, using VLANs.
- Independence from non-control system networks – the control system provides network services to control system networks, critical or non-critical, without a connection to non-control system networks.
- Encrypt protocol transmissions over all external connections using an encrypted tunnel, TLS wrapper or a similar solution.
- Zone boundary protection – the control system provides the capability to:
  - Manage connections through managed interfaces consisting of appropriate boundary protection devices, such as: proxies, gateways, routers, firewalls, and encrypted tunnels.
  - Use an effective architecture, for example, firewalls protecting application gateways residing in a DMZ.
  - Control system boundary protections at any designated alternate processing sites should provide the same levels of protection as that of the primary site, for example, data centers.
- No public internet connectivity – access from the control system to the internet is not recommended. If a remote site connection is needed, for example, encrypt protocol transmissions.
- Resource availability and redundancy – ability to break the connections between different network segments or use duplicate devices in response to an incident.
- Manage communication loads – the control system provides the capability to manage communication loads to mitigate the effects of information flooding types of DoS (Denial of Service) events.
- Control system backup – available and up-to-date backups for recovery from a control system failure

Security Policy

⚠WARNING

ACCESSIBILITY LOSS

- Setup a security policy to your device and backup the device image with security administrator user account.
- Define and regularly review the password policy.
- Periodic change of the passwords, Schneider Electric recommends a modification of the password each 90 days.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Cybersecurity helps to provide:

- Confidentiality (to help prevent unauthorized access)
- Integrity (to help prevent unauthorized modification)
- Availability/authentication (preventing the denial of service and assuring authorized access)
- Non-repudiation (preventing the denial of an action that took place)
- Traceability/detection (logging and monitoring)

For an efficient security, the instructions and procedures should structure the roles and responsibilities in terms of security within the organization, in other words, who is authorized to perform what and when? These should be known by the users.

The anti-intrusion and anti-physical access to any sensitive installation should be set up.

All the security rules implemented in the ATV6000 are in complement of the points above.
The device does not have the capability to transmit data encrypted using the following protocols: HTTP, Modbus slave over serial, Modbus slave over Ethernet, EtherNet/IP, SNMP, SNTP. If other users gained access to your network, transmitted information can be disclosed or subject to tampering.

⚠WARNING

CYBERSECURITY HAZARD

- For transmitting data over an internal network, physically or logically segment the network, the access to the internal network needs to be restricted by using standard controls such as firewalls.
- For transmitting data over an external network, encrypt protocol transmissions over all external connections using an encrypted tunnel, TLS wrapper or a similar solution.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The access through the digital inputs is not controlled.

Any computer using SoMove, DTM, Webserver or EcoStruxure Control Expert should have an updated anti-virus, anti-malware, anti-ransomware application activated during the use.

The ATV6000 have the capability to export its settings and files manually or automatically. It is recommended to archive any settings and files (device backup images, device configuration, device security policies) in a secure area.

Product Defense-in-Depth

Use a layered network approach with multiple security and defense controls in your IT and control system to minimize data protection gaps, reduce single-points of failure and create a strong cybersecurity posture. The more layers of security in your network, the harder it is to breach defenses, take digital assets or cause disruption.

Device Security Capabilities

ATV6000 offers the following security features:

Threats	Desired security property on Embedded Device	security features
Information disclosure	Confidentiality	Password encrypted in a non-reversible way
		User access control
Denial of Service	Availability	Device backup/restore
		Achilles Level 2
Spoofing/Elevation of privilege	User Authenticity / Authorization	Strong password policy
		Access control commissioning tools Modbus TCP
		Access control commissioning tools Web Server

Confidentiality
Information confidentiality capacity prevents unauthorized access to the device and information disclosure.

- The user access control helps on managing users that are authorized to access the device. Protect user credential at usage.
- The user's passwords are encrypted in non-reversible way at rest

Information affecting the security policy of the device is encrypted in transit.

Device Integrity Protection
The device integrity protection prevents unauthorized modification of the device with tampered or spoofed information.
This security capability helps protect the authenticity and integrity of the firmware running on the ATV6000 and facilitates protected file transfer: digitally signed firmware is used to help protect the authenticity of the firmware running on the ATV6000 and only allows firmware generated and signed by Schneider Electric.

- Cryptographic signature of the firmware package executed at the firmware update

Availability
The control system backup is essential for recovery from a control system failure and/or misconfiguration and participate on preventing denial of service. It also helps ensure global availability of the device by reducing operator overhead on security application/deployment.

These security capabilities help manage control system backup with the device:

- Complete device backup/restore available on local HMI, DTM and FDR. Regarding the communication robustness, the ATV6000 embedded Ethernet fieldbus successfully passed the certification Achilles L2.

User Authenticity and Authorization
The user authentication helps prevent the repudiation issue by managing user identification and prevents information disclosure and device integrity issues by unauthorized users.

These security capabilities help enforce authorizations assigned to users, segregation of duties and least rights:

- User authentication is used to identify and authenticate software processes and devices managing accounts
- Device Password policy and password strength configurable using SoMove, DTM or EcoStruxure Control Expert
- Authorization managed according to channels

In line with user authentication and authorization, the device has access control cryptographic features to check user credential before access is granted to the system.

In the ATV6000, the control of accessibility to the settings, parameters, configuration, and logging database is done with a user authentication after "Log in", with a name and password.

The ATV6000 controls the access through:

- SoMove DTM (Ethernet connection)
- The webserver
- EcoStruxure Control Expert

Potential Risks and Compensating Controls

Address potential risks using these compensating controls:

Area	Issue	Risk	Compensating controls
User accounts.	Default account settings are often the source of unauthorized access by malicious users.	If you do not change default password or disable the user access control, unauthorized access can occur.	Ensure User access control is enabled on all the communication ports and change the default passwords to help reduce unauthorized access to your device.
Secure protocols.	Modbus serial, Modbus TCP, EtherNet/IP, SNMP, SNTP, HTTP protocols are insecure. The device does not have the capability to transmit data encrypted using these protocols.	If a malicious user gained access to your network, they could intercept communication.	For transmitting data over internal network, physically or logically segment your network. For transmitting data over external network, encrypt protocol transmissions over all external connections using an encrypted tunnel, TLS wrapper or a similar solution. See Protected Environment Assumptions, page 24.

Data Flow Restriction

A firewall device is required to secure the access to the device and limit the data flow.

For detailed information, refer to the TVDA: How Can I Reduce Vulnerability to Cyber Attacks in the Control Room (STN V2) on the Schneider Electric website.

Password

Changing Password

The user password can be changed from the DTM Admin options screen.

Reset Password

User and password are stored during commissioning, before reset password, contact your local Schneider representative.

If user forgets or has lost the user authentication password, user can restore the default password regarding his access level control .

- Standard Level access: contact your local Schneider representative
- Expert Level access: reset password using HMI Panel

Using HMI panel:
Go to the menu **Settings > My preferences > Webserver** and push the Reset button to reset the embedded Ethernet password.

Note: Upon first use, the commissioning tools and webserver requests the user to change this password prior to connecting. The cybersecurity policy does not change when the password is reset.
Note: When password is reset, the old password saved during commissioning (and also available at your Local Schneider Electric Representative) does not work anymore.

Password Policy

By default, the password policy of the ATV6000 complies with IEEE 1686–2013 as following:

- 8 characters minimum with ASCII [32 to 122] characters
- At least one digit (0-9)
- At least one special character (for example @, $)

In addition, for password changes, the password history is saved and help prevent the reuse of a password that has been set at least once in the last 5 times.

The password policy can be customized or totally disabled to match with password policy in place in the system of which the device is part.

The following settings are available:

- Password policy: enabled/disabled. If disabled, a password is requested as authentication factor but there is no specific rule defined regarding the password robustness
- Password history: No restriction, Exclude last 3, Exclude last 5
- Special character required: YES/NO
- Numeric character required: YES/NO
- Alphabetic character required: YES/NO
- Minimum password length: any value between 6 and 20

This password policy customization can only be done with SoMove, DTM or EcoStruxure Control Expert. Please refer to DTM online help for details.

Upgrades Management

When the ATV6000 firmware is upgraded, security configuration remains the same until changed, including usernames and passwords.

It is recommended that security configuration is reviewed after an upgrade to analyze rights for new or changed device features and revoke or apply them according to your company’s policies and stand

Description of the Main HMI Screens

What's in This Part

Working Area

What's in This Chapter

Before you begin

Before Powering up the Drive

⚠WARNING

UNANTICIPATED EQUIPMENT OPERATION

Before switching on the device, verify that no unintended signals can be applied to the digital inputs that could cause unintended movements.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

General Information

Drive systems may perform unexpected movements because of incorrect wiring, incorrect settings, incorrect data or other errors.

⚠WARNING

UNANTICIPATED EQUIPMENT OPERATION

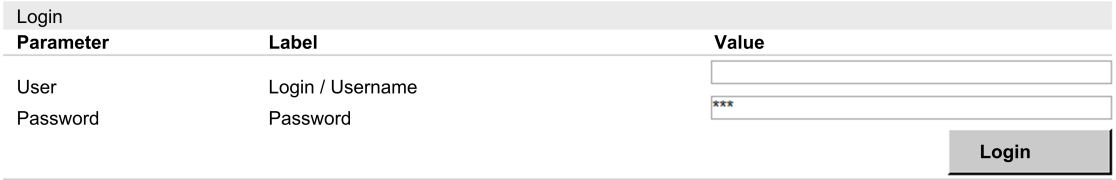
- Only appropriately trained persons who are familiar with and understand the contents of all pertinent product documentation and who have received safety training to recognize and avoid hazards involved are authorized to work on and with this drive system.
- Only use this software for setup and commissioning tasks and to display status information.
- Verify that other applications on your computer such as, but not limited to, screensavers, cannot interfere with the proper operation of this software.
- Very that an integrated and functioning emergency stop push-button is within reach.
- Verify that all parameter settings are suitable for the application.
- Do not operate the product with unknown and unsuitable settings or data.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

User Log-in

Click on **Settings > My preferences** tab, then select the user type and the password:

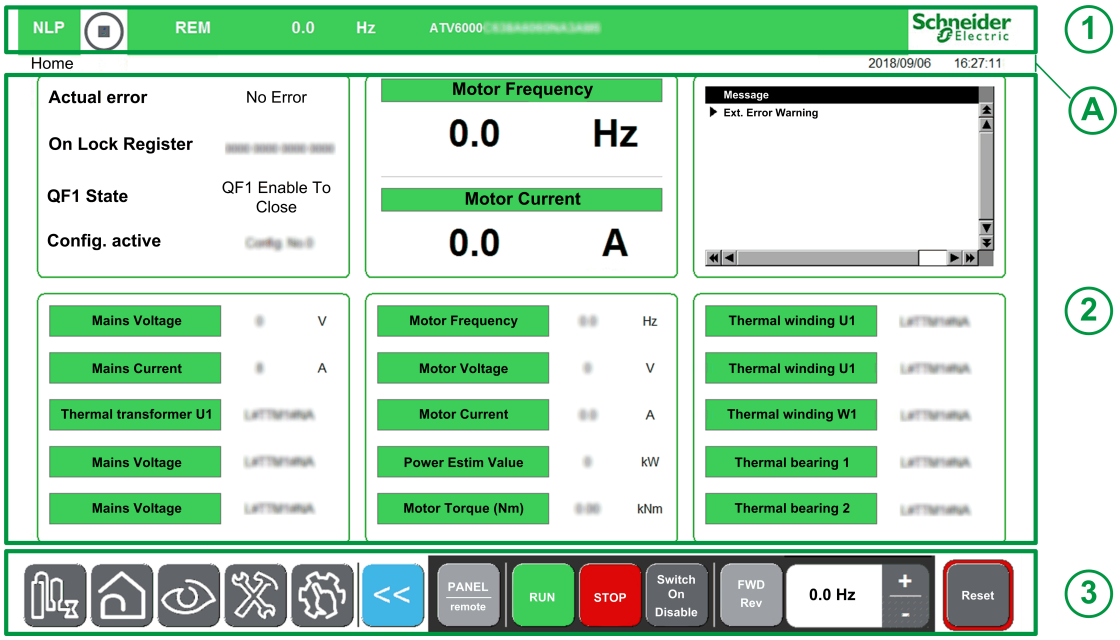
- Basic users
- Expert users
- Services expert users



You can login to the system to set the corresponding parameters , page 264.

Note: These access levels are defined during the commissioning.

Working Space Description



The main works area is divided into 3 main zones:

1. A **Status bar** at the top

   For details, refer to **Status Bar**, page 35.

2. **Screens** area

   For details, refer to:

   - **Home Panel**, page 39
   - **Display Panel**, page 69
   - **Diagnostics Panel**, page 70
   - **Settings Panel**, page 71

3. A **Toolbar** at the bottom of the working area.

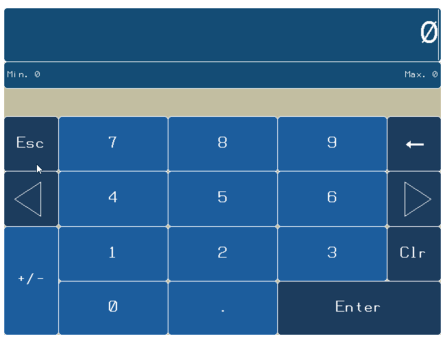
   For details, refer to **Toolbar**, page 37.

General current information

A	Display the current Menu Path Display the current User profile , page 264. Display the actual date and times , page 263.

Keyboard

The keyboard is available on various dialogs and screens by pressing the touch Screen.
(Numeric or Alphanumeric Keyboard)



Toolbars and Status Bar

Status Bar

Description

The status bar, located at the top of the working area, is divided in 6 zones:

Items	Description
①	Indicates the drive status: • TUN: Autotuning • RDY: Drive Ready • NST: Freewheel stop control • RUN: Motor in steady state • ACC: Acceleration • ... For more status and details, see **[Drive State]** *HMI SYS* , page 85
②	Indicates whether the motor is stopped or running.
③	Indicates your actual configurable values: • Motor frequency • Motor current • ... **NOTE:** Note: Can be customized from predefined elements, page 40.
④	Indicates your drive part number
⑤	Indicates your application name. For more details , page 263
⑥	Click on the Schneider-Electric Logo opens "**About**" page with: • Languages selection • QR code

Color of Status Bar

Displays color bar during operating by customer.

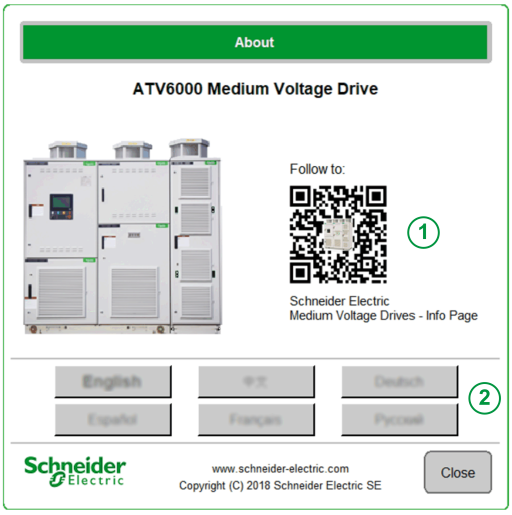
State	Description
No error detected	• A green banner is displayed. 
Error detected	• A red banner is displayed to indicate a detected error. 
Internal Communication interruption	• An orange banner is displayed over the header to indicate an internal communication interruption between HMI and Master Controller (Modbus SL Internal / Ethernet Internal). 

Displays color bar with simulation mode activate during commissioning

State	Description
In Simulation and no error detected.	• In simulation mode (and no error in master controller) green banner is replaced by a dedicated blue banner. 

“About” Menu

Click on the Schneider logo opens this Menu. It allows user to select HMI languages and QR Code for extended information.

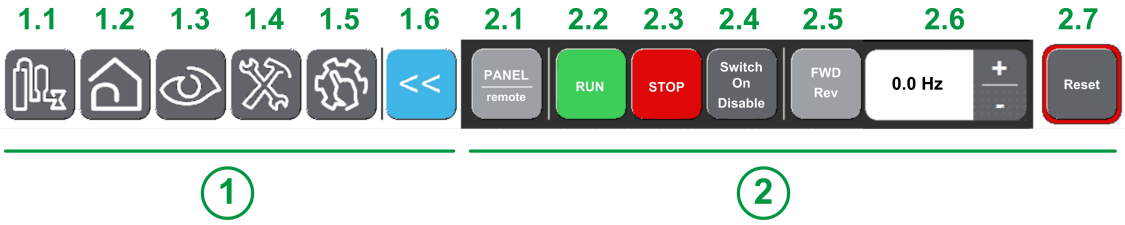


Items	Description
①	• **QR Code** Scan of this QR code brings to a landing page on Internet with the information on: ◦ General Characteristics of the product. ◦ Presentation ◦ Connections and Schema ◦ Diagnostics
②	• **Languages selection**: By pushing the respective button, HMI language is changed accordingly.

Toolbar

Description

This first bar, located at the bottom of the working area, can be used to access the device-specific Menu and functions. This bar is divided in 2 zones:



① Navigation area: Allow the user to navigate among the main pages.

Items	Description
1.1	**Application:** used to access directly the application page. Dedicated for your application, this panel is only available if customized applications are programmed. It is managed during commissioning.
1.2	**Home:** used to access directly the home page. For details, refer to **Home**, page 39 Tab.
1.3	**Display:** used to access directly the display page. For details, refer to **Display**, page 69 Tab.
1.4	**Diagnostics:** used to access directly the diagnostics page. For details, refer to **Diagnostics**, page 70 Tab.
1.5	**Settings:** used to access directly the settings page. For details, refer to **Settings**, page 71 Tab.
1.6	**Back:** used to quit a menu/parameter or remove the currently displayed value. Used to go back to the previous Screen.

② Control/Command Panel: Allows the user to control/command the motor.

Items	Description
2.1	**Panel/Remote:** used to switch between local and remote control of the drive. (Optional, for more details see Command Status, page 244 Menu.) **Panel:** Control system drive receives inputs via HMI Panel. **Remote:** Control system drive receives start/stop inputs via IO or fieldbus.
2.2	**Run:** run command.
2.3	**Stop:** stop command.
2.4	**Switch On Disable/Switch On Disabled:** used to stop the motor in freewheel. The stop command is sent when the button is pressed, the drive locks into NST, until the button is pressed again. When the button is released, a new Run order is needed to start the motor. **NOTE:** This button is only available if **[Stop Key Enable]** PSt is set to **[Yes]** YES. (Settings managed during commissioning). **NOTE:** The stop command is sent when the button is pressed, the drive Locks into NST, until the button is pressed again. If the input returns to state 1 and the run command is still active, the motor will only restart if **[2/3-wire control]** tCC is set to **[2-Wire Control]** 2C and if **[2-wire type]** tCt is set to **[Level]** LEL or **[Fwd priority]** PFo. If not, a new run command must be sent.
2.5	**Forward/Reverse:** used to reverse the direction of the motor.

Items	Description
	Active if **[Reverse inhibition]** rIn is set to **[No]** nO. (Settings managed during commissioning).
2.6	Button “+” and “-” with scaling to 0.1 or 1 Hz
2.7	**Reset:** apply a Fault Reset. **NOTE:** Fault Reset mode is always active regardless of which Command channel has been selected.
NOTE: Depending on operating condition and settings, some buttons can be unavailable.	

The button Reset available on the HMI Panel applied a Fault Reset on the drive whatever the active control mode selected with the Local/Remote/Panel switch or with the Panel/Remote button available on the HMI panel. Depending on the wiring and the configuration of the drive, this may result in immediate and unanticipated operation.

⚠WARNING

UNANTICIPATED EQUIPMENT OPERATION

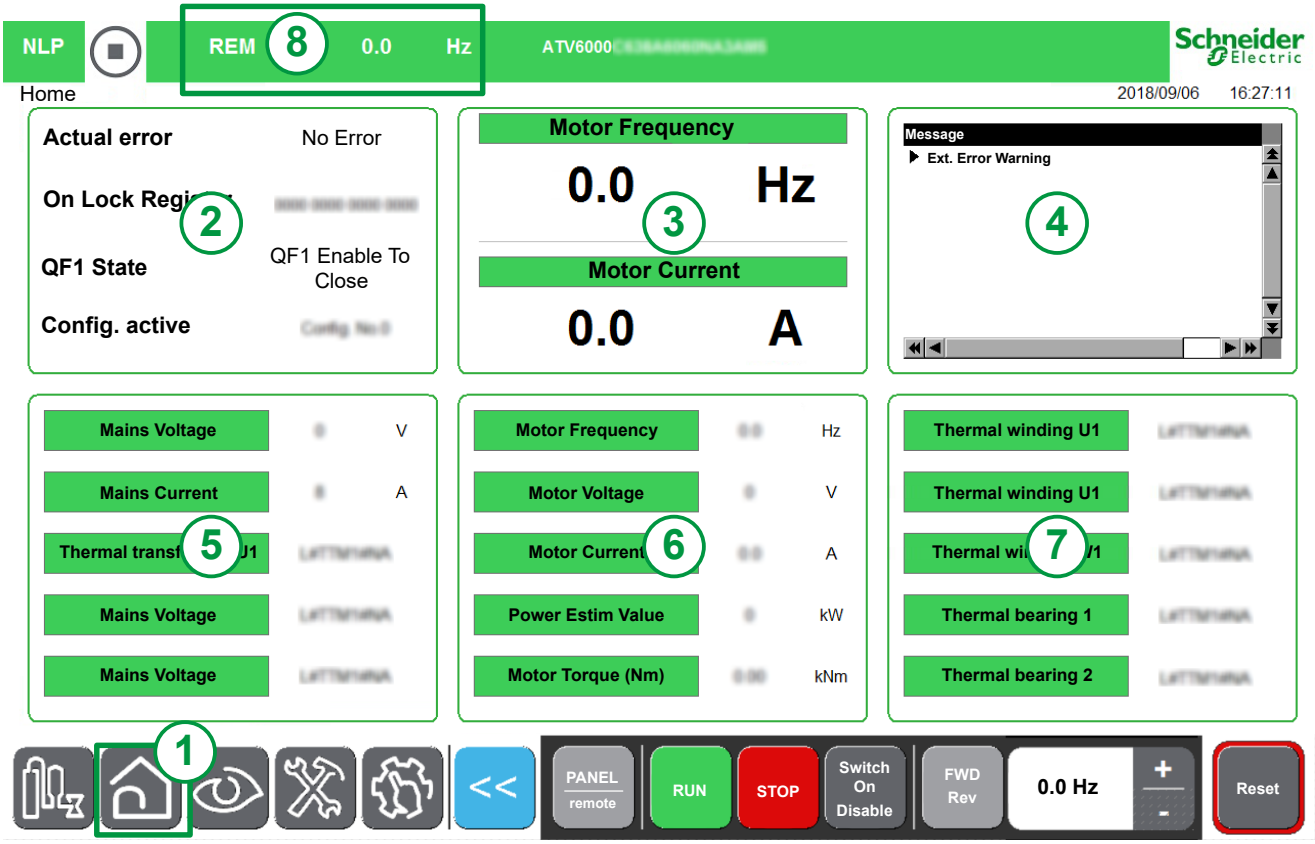
Verify that using the button Reset cannot result in unsafe conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Home Menu Panel

Overview

Description



The **Home page** area is divided into 8 zones:

1. Actual position
2. Displays the real-time value of the drive status related parameters (1).
3. Displays two real-time value of parameters selected (1).
4. Displays all active warnings, error codes, Onlock and freewheel status.
5. Displays the real-time value of the supply-related parameters (1).
6. Displays the real-time value of the drive-related parameters (1).
7. Displays the real-time value of the motor-related parameters (1).
8. Displays the real-time value of the drive status of related parameters (1).

NOTE: (1) These parameters can be customized from predefined elements (see procedure below).

Display Customized Monitoring Parameters

The following table details the procedure to add or change Elements to this Home page:

Step	Action
1	Click on the actual element to be changed. **Result:** New page is opened with all Elements available.
2	Select the new element needed. **Result:** Home page is updated with your Element.

Selectable List of Elements.

This table describes the predefined list which could be used to select actual values to be displayed.

Menu	Code	Label	Units
[Mains Data], page 43	uLn	**[Mains Voltage]**	V
	uL1	**[Mains Voltage phase 1-2]**	V
	uL2	**[Mains Voltage phase 2-3]**	V
	uL3	**[Mains Voltage phase 3-1]**	V
	iLn	**[Mains Current]**	A
	iL1	**[Mains Current L1]**	A
	iL2	**[Mains Current L2]**	A
	iL3	**[Mains Current L3]**	A
	GiVd	**[Input Ground Value]**	%
	unV	**[Mains Unbalance Ratio]**	%
	iSrW	**[Apparent Input Power]**	kW
	iPrW	**[Active Input Power]**	kW
	iqrW	**[Input Reactive Power]**	kW
	PWF	**[Input Power Factor]**	%
	FAC	**[Mains Frequency]**	Hz
[Power stage Data], page 46	tt1n	**[Transfo Cab Temp 1]**	°C
	tP1u	**[Thermal transformer U1]**	°C
	tP1V	**[Thermal transformer V1]**	°C
	tP1W	**[Thermal transformer W1]**	°C
	tt2n	**[Transfo Cab Temp 2]**	°C
	tP2u	**[Thermal transformer U2]**	°C
	tP2V	**[Thermal transformer V2]**	°C
	tP2W	**[Thermal transformer W2]**	°C
[Motor Parameters], page 48	rFr	**[Motor Frequency]**	Hz
	FrH	**[Pre-Ramp Ref Freq]]**	Hz
	Fro	**[Ramp output frequency (signed)]**	—
	SPd1	**[Signed Mech Speed]**	—
	SPdn	**[Motor Mechanical speed]**	rpm
	uoP	**[Motor Voltage]**	V
	LCr	**[Motor Current]**	A
	GoVd	**[Output Ground Value]**	%
	EPr	**[Active Electrical output power estimation]**	%
	EPrW	**[Acv Elc out pwr estm]**	kW
	oPr	**[Motor Power]**	%
	oPrW	**[Power Estim Value]**	kW
	otr	**[Motor Torque]**	%
	otqn	**[Motor Torque (Nm)]**	Nm
	trr	**[Torque reference]**	%

Menu	Code	Label	Units
[Motor Thermal data], page 51	tHM1	**[Thermal winding U1]**	°C
	tHM2	**[Thermal winding V1]**	°C
	tHM3	**[Thermal winding W1]**	°C
	tHM5	**[Thermal winding U2]**	°C
	tHM6	**[Thermal winding V2]**	°C
	tHM7	**[Thermal winding W2]**	°C
	tHM4	**[Thermal bearing 1]**	°C
	tHM8	**[Thermal bearing 2]**	°C
[Drive Parameters], page 54	LFrA	**[Ref Frequency]**	Hz
	LtrA	**[Torque ref.]]**	%
	rFCC	**[Ref Freq Channel]**	-
	CMdC	**[Command Channel]**	-
	CMdS	**[Cabinet Switch Status]**	-
	PLo1	**[On Lock Register]**	Bit
	dP0	**[Actual error]**	-
	CnFS	**[Config. active]**	-
	MVCb	**[QF1 State]**	-
	9F0S	**[QF1 Command State]**	-
	9F4S	**[QF91 Command State]**	-
	tLS1	**[Overload State 1]**	%
	tLS2	**[Overload State 2]**	%
[Thermal System], page 58	tH1V	**[AI1 Th Value]**	°C
	tH3V	**[AI3 Th Value]**	°C
	tH4V	**[AI4 Th Value]**	°C
	tH5V	**[AI5 Th Value]**	°C
	tHEV	**[Enc Th Value]**	°C
	tHM9	**[Thermal Sensor 9]**	°C
	tHMA	**[Thermal Sensor 10]**	°C
	tHMb	**[Thermal Sensor 11]**	°C
	tHMC	**[Thermal Sensor 12]**	°C
	tHMd	**[Thermal Sensor 13]**	°C
	tHME	**[Thermal Sensor 14]**	°C
[Bypass Drive], page 61	byS0	**[Drive Bypass Status]**	-
	byS1	**Bypass Circuit Breaker Status**	-
	PLo2	**Drive Bypass On Lock Register]**	-
	StMM	**[SM Monitoring]**	-
	StdM	**[SD Monitoring]**	-
	9F1S	**QF11 Command State**	-
	9F2S	**QF2 Command State**	-
	9F3S	**QF3 Command State**	-
	9F5S	**QF5 Command State**	-
[Bypass PoC], page 65	byPS	**Bypass PoC Status**	-

Menu	Code	Label	Units
	PoCr	**Power Cell Load Ratio**	-
[PID display], page 66	rP1	**[Internal PID ref]**	-
	rPC	**[PID Reference]**	-
	rPF	**[PID feedback]**	-
	rPE	**[PID Error]**	-
	rPo	**[PID Ouput]**	-
[Pump Display], page 67	SLFV	**[Est. Pump Flow]**	-
	SLHV	**[Est. Pump Head]**	-
	EFY	**[Efficiency]**	%
	EC1	**[Energy Cons. Ind.]**	-

[Mains Data] Menu

About This Menu

This menu shows the mains-related parameters displayed from the **Home Page**, page 39.

Read-only parameters cannot be configured.

[Mains Voltage] uLn

Mains voltage based on AC bus measurement, motor running or stopped.

Setting	Description
According to nominal input voltage of product.	Setting range: **[no meas.]** - - - - is displayed if no value is measured. **Factory setting**: –

[Mains Voltage phase 1-2] uL1

Mains voltage phase 1-2 measurement.

Setting	Description
According to nominal input voltage of product.	Setting range **Factory setting**: –

[Mains Voltage phase 2-3] uL2

Mains voltage phase 2-3 measurement.

Setting	Description
According to nominal input voltage of product.	Setting range **Factory setting**: –

[Mains Voltage phase 3-1] uL3

Mains voltage phase 3-1 measurement

Setting	Description
According to nominal input voltage of product.	Setting range **Factory setting**: –

[Mains Current] iLn

Actual mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Current] iL1

Mains estimated current phase 1

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Current] iL2

Mains estimated current phase 2

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Current] iL3

Mains estimated current phase 3

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Frequency] FAC

Actual mains frequency.

Setting	Description
-3476.7...3276.7 Hz	Setting range **Factory setting**: –

[Active Input Power] iPrW

Active electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Reactive Power] iqrW

Reactive electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Apparent Input Power] ıSrW

Apparent Electrical input power estimation

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Power Factor] PWF

Mains input power factor.

Setting	Description
According to the drive rating	Setting range displayed as a percentage **Factory setting**: _

[Mains Unbalance Ratio] uNV

Mains unbalance ratio.

Setting	Description
-327.67...327.67%	Setting range **Factory setting**: –

[Power Stage data] Menu

About This Menu

This menu shows the transformer-related parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[Transfo Cab Temp 1] tt1n

Thermal Transformer Cabinet Monitoring 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer U1] tp1u

Thermal transformer 1 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer V1] tp1v

Thermal transformer 1 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer W1] tp1w

Thermal primary transformer 1 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit

Value range	Code / Value	Description
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Transfo Cab Temp 2] tt2n

Thermal Transformer Cabinet Monitoring 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer U1] tP2u

Thermal primary transformer 2 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer V1] tP2V

Thermal primary transformer 2 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer W1] tP2W

Thermal primary transformer 2 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Motor Parameters] Menu

About This Menu

This menu shows the motor-related parameters from the **Home Page**, page 39. Read-only parameters cannot be configured.

[Motor Frequency] rFr

Motor frequency.

This parameter displays the estimated rotor frequency without motor slip.

Setting	Description
-3,276.7...3,276.7 Hz	Setting range **Factory setting**: 0.0 Hz

[Pre-Ramp Ref Freq] FrH

Frequency reference before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Ramp output frequency (signed)] Fro

Ramp output frequency

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Signed Mech Speed] SPd I

Signed motor mechanical speed.

Setting	Description
[Undefined] und...32,767 rpm	Setting range **Factory setting**:–

[Motor Mechanical speed] SPdM

Motor mechanical speed.

This parameter displays the estimated rotor speed with motor slip.

Setting	Description
[Undefined] uNd or -32,767...32,765 rpm	Setting range **Factory setting**:–

[Motor Voltage] uoP

Motor voltage.

Setting	Description
0...65,535 V	Setting range **Factory setting**:–

[Motor Current] LCr

Motor current.

Setting	Description
0.00...65,535 A	Setting range according to drive ratings **Factory setting**: –

[Output Ground Value] GoVd

Ground output monitoring display.

Setting	Description
0...32767	Read only, unit: 0.1% output reference voltage **Factory setting**: _
Output reference voltage : example for “ATV6000••••A••66” = 6.6 kV	

[Acv Elc out pwr estm] EPrW

Active electrical output power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Motor Power] oPr

Motor power.

Output power in % (100% = nominal motor power).

Setting	Description
-300...300%	Setting range **Factory setting**: –

[Power Estim Value] oPrW

Motor shaft power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Motor Torque] otr

Motor torque.

Output torque value (100% = **[Nom Motor Torque]** tqn).

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-300.0... 300.0%	Setting range **Factory setting**: –

[Motor Torque (Nm)] otq

Motor torque (Nm).

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-32,767 Nm...32,767 Nm	Setting range: according to drive ratings **Factory setting**: –

[Motor Torque (Nm)] otrn

Motor Torque in Nm

Setting	Description
-32,767 Nm...32,767 Nm	Setting range according to drive ratings **Factory setting**: –

[Torque reference] trr

Torque reference.

Setting	Description
-32,767...32,767	Setting range **Factory setting**: –

[Motor thermal data] Menu

About This Menu

This menu shows the thermal motor-related parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

For the thermal monitoring, up to 8 PT 100 sensors are available for **thermal motor** and 4 PT100 for **thermal system**.

[Thermal winding U1] tHA1

Motor Thermal Monitoring: Temperature of winding U1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V1] tHA2

Motor Thermal Monitoring: Temperature of winding V1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W1] tHA3

Motor Thermal Monitoring: Temperature of winding W1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 1] tHA4

Motor Thermal Monitoring: Temperature of bearing 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding U2] tHS5

Motor Thermal Monitoring: Temperature of winding U2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V2] tHS6

Motor Thermal Monitoring: Temperature of winding V2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W2] tHS7

Motor Thermal Monitoring: Temperature of winding W2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 2] tHSB

Motor Thermal Monitoring: Temperature of bearing 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit

Value range	Code / Value	Description
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Drive Parameters] Menu

About This Menu

This menu shows the drive-related parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[Ref Frequency] LFrA

Reference frequency.

This parameter only appears if the function has been enabled. It is used to change the reference frequency from the remote control.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: –

[Ref Freq Channel] rFCC

Channel of reference frequency.

Identical to **[Command Channel]** CMdC below.

[Command Channel] CMdC

Command channel.

Setting	Code / Value	Description
[Ref.Freq-Rmt. Term]	tEr	Terminal block source **Factory Setting**
[Ref.Freq-Rmt. Term]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	Mdb	Command via Modbus
[Ref. Freq-CANopen]	CAn	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	nEt	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	Mdb2	Modbus 2 source
[HMI Panel]	HMI	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC	PLC Inside source

[Cabinet Switch Status] CMdS

This parameter describes the actual control channel of the drive. This can be realized by digital cabinet inputs (from Remote) or the Mode selector switch on the front panel of the drive.

Setting	Code / Value	Description
[Not selected]	nO	No command selected
[Remote]	rEM	Remote command selected
[Local]	LOC	Local command selected
[Panel]	PAn	Panel (HMI) command selected

[On Lock Register] PLO 1

Device On lock status register

The drive will inhibit the medium voltage to be energized by a relay interlocked with the medium voltage circuit breaker or fused switch. (Check circuit diagram for contact "Enable to close")

Bit	Description, Value
0	1 = Door Open
1	1 = Fan not Ready
2	1 = Mains OFF Button
3	1 = MV Circuit breaker Tripped
4	1 = MV Circuit breaker grounding contact
5	1 = MV Circuit breaker Isolated
6	Reserved
7	Reserved
8	Reserved
9	1 = QF1 Tripped
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Actual error] dPO

Last error which occurred.
The list of error codes is available in the chapter "Diagnostics and Troubleshooting", page 430

[Config. active] CnFS

Active configuration.

Setting	Code / Value	Description
[In progress]	nO	Transitory state
[Config. No.0]	CnF0	Configuration 0 active
[Config. No.1]	CnF1	Configuration 1 active
[Config. No.2]	CnF2	Configuration 2 active
[Config 3 active]	CnF3	Configuration 3 active

[QF1 state] ΠVCb

QF1 state

Setting	Code / Value	Description
[QF1 Locked]	LoCK	QF1 Locked
[QF1 Closed]	ΠVCS	QF1 Closed
[QF1 Not Available]	no	QF1 Not Available
[QF1 Enable To Close]	rdY	QF1 Enable To Close
[QF1 Tripped]	trıP	QF1 Tripped

[QF1 Command State] 9F0S

QF1 Command State

Setting	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according to stop pulse
[Open]	Cbos	Circuit Breaker in Opened State

[QF91 Command State] 9F4S

QF91 Command State

Setting	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according to stop pulse
[Open]	Cbos	Circuit Breaker in Opened State

[Overload State 1] tLS1

Over-load monitoring state 1.

Setting	Description
0...100 %	Setting range **Factory setting**: -

[Overload State 2] ᴱ L 5 2

Over-load monitoring state 2.

Setting	Description
0...100 %	Setting range **Factory setting**: -

[Thermal System] Menu

About This Menu

This menu shows the thermal system parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

For the thermal monitoring, up to 8 PT 100 sensors are available for **thermal motor** and 4 PT100 for **thermal system**.

[Thermal Sensor 9] tHn9

Thermal Monitoring: Temperature of sensor 9

Value range	Code / Value	Description
-200 °C…850 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 10] tHnA

Thermal Monitoring: Temperature of sensor 10

Value range	Code / Value	Description
-200 °C…850 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 11] tHnb

Thermal Monitoring: Temperature of sensor 11

Value range	Code / Value	Description
-200 °C…850 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 12] tHnC

Thermal Monitoring: Temperature of sensor 12

Value range	Code / Value	Description
-200 °C…850 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 13] tHMd

Thermal Monitoring: Temperature of sensor 13

Value range	Code / Value	Description
-200 °C…850 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 14] tHME

Thermal Monitoring: Temperature of sensor 14

Value range	Code / Value	Description
-200 °C…850 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[AI1 Th Value] tH I1

AI1 thermal value.

Setting	Description
-15...200°C	Setting range **Factory setting: –**

[AI3 Th Value] tH I3

AI3 thermal value.

Setting	Description
-15...200°C	Setting range **Factory setting: –**

[AI4 Th Value] tH I4

AI4 thermal value.

This parameter can be accessed if VW3A3203 I/O extension module has been inserted.

Setting	Description
-15...200°C	Setting range **Factory setting: –**

[AI5 Th Value] tH5V

AI5 thermal value.

This parameter can be accessed if VW3A3203 I/O extension module has been inserted.

Setting	Description
-15...200°C	Setting range **Factory setting: –**

[Enc Th Value] tHEV

Encoder thermal sensor value

Setting	Description
-15...200°C	Setting range **Factory setting: –**

[Bypass Drive] Menu

About This Menu

This menu shows the Bypass drive-related parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[Drive Bypass Status] bYS0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass Drive not configured
[Undefined]	Und	Cabinet bypass control undefined
[Drive]	drV	Cabinet bypass control Drive
[DOL]	doL	Cabinet bypass control DOL
[DOL On Error]	doLF	Cabinet bypass control DOL detected error

[Bypass Circuit Breaker Status] bYS 1

Bypass Circuit Breaker Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS 1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	bYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	bYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	bYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	bYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	bYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	bYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	bYS A	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	bYS b	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1

Setting	Code / Value	Description
[QF11=1 - QF2=1 - QF3= 0]	bYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3= 1]	bYSd	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

Drive Bypass On Lock Register PLo2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[SM Monitoring] SEnn

Synchronization to mains monitoring

Setting	Code / Value	Description
[No Synchroniza- tion]	no	No synchronization
[Synchro Pending]	PEnd	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	SEAb	Stabilization to mains frequency
[Synchroniza- tion]	SYnC	Synchronization
[Synchro Stabilization]	SYSE	Synchronization stabilization
[Ready To Transfer]	rEE	Ready to transfer
[Synchroniza- tion Error]	SEF	Synchronization error
[Transfer completed]	CPLE	Transfer completed

[SD Monitoring] SYdM

Synchronization to drive monitoring

Value	Code / Value	Description
[No Synchronization]	no	No synchronization
[Synchro Pending]	PEnd	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	StAb	Stabilization to mains frequency
[Synchronization]	SYnC	Synchronization
[Synchro Stabilization]	SYSt	Synchronization stabilization
[Ready To Transfer]	rtt	Ready to transfer
[Synchronization Error]	StF	Synchronization error
[Transfer In Progress]	tt i	Transfer is in progress
[Transfer completed]	CPLt	Transfer completed

[QF11 Command State] 9F 15

Circuit breaker QF11 Command State

Setting	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according to stop pulse
[Open]	Cbos	Circuit Breaker in Opened State

[QF2 Command State] 9F 25

Circuit breaker QF2 Command State

Setting	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state

Setting	Code / Value	Description
[Not Open]	CbnO	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF3 Command State] qF3S

Circuit breaker QF3 Command State

Setting	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	CbnO	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF5 Command State] qF5S

Circuit breaker QF5 Command State

Setting	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	CbnO	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[Bypass PoC] Menu

About The Menu

This menu shows the Bypass PoC display related parameters from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[Bypass PoC Status] bYPS

Bypass PoC status

Setting	Code / Value	Description
[PoC Stage Not Bypassed]	no	No PoC bypassed
[1 PoC Stage Bypassed]	bYP 1	1 PoC stage is bypassed
[2 PoC Stage Bypassed]	bYP2	2 PoC stage are bypassed
[3 PoC Stage Bypassed]	bYP3	3 PoC stage are bypassed
[4 PoC Stage Bypassed]	bYP4	4 PoC stage are bypassed
[PoC Stage Bypass Error]	FLt	PoC stage bypass error

[Power cell load ratio] PoCr

Power cell load ratio

Setting	Description
in %	Setting range **Factory setting**: _

[PID Display] Menu

About This Menu

This menu shows the PID-related parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[Internal PID ref] rPI

Internal PID reference.

Setting	Description
0...32,767	Setting range **Factory setting**: 150

[PID Reference] rPC

PID setpoint value.

Setting	Description
0...65,535	Setting range **Factory setting**: 0

[PID feedback] rPF

PID feedback value.

Setting	Description
0...65,535	Setting range **Factory setting**: 0

[PID Error] rPE

PID error value.

Setting	Description
-32,767...32,767	Setting range **Factory setting: –**

[PID Output] rPo

PID output value.

Setting	Description
[PID Min Output] PoL ...**[PID Max Output]** PoH	Setting range **Factory setting**: _

[Pump Display] Menu

About This Menu

This menu shows the pump-related parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[Est. Pump Flow] SLFV

Estimated pump flow value.

This parameter can be accessed if **[Flow Estimation Mode]** FEM is set to **[No]** nO.

Setting	Description
-32,767...32,767	Setting range **Factory setting: –**

[Est. Pump Head] SLHV

Estimated Pump head value

Setting	Description
-32,767...32,767	Setting range **Factory setting: –**

[Efficiency] EFY

The efficiency is based on mechanical power.

Setting	Description
0.0...100.0 %	Setting range **Factory setting**: _

[Energy Cons. Ind.] EC_I

Energy consumption indication is based on the consumption of the electrical power

Setting	Description
-32,767...32,767	Setting range **Factory setting: –**

[Analog Function] Menu

About This Menu

This menu shows the analog inputs parameters displayed from the **Home Page**, page 39.
Read-only parameters cannot be configured.

[AI Monitor 1 Physical Value] AN Io... [AI Monitor 4 Physical Value] AN4o

Analog monitoring input physical value 1 to 4

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Process Value] AN IP... [AI Monitor 4 Process Value] AN4P

Analog monitoring process value 1 to 4

Setting	Description
–32767...32767	Setting range **Factory setting**: _

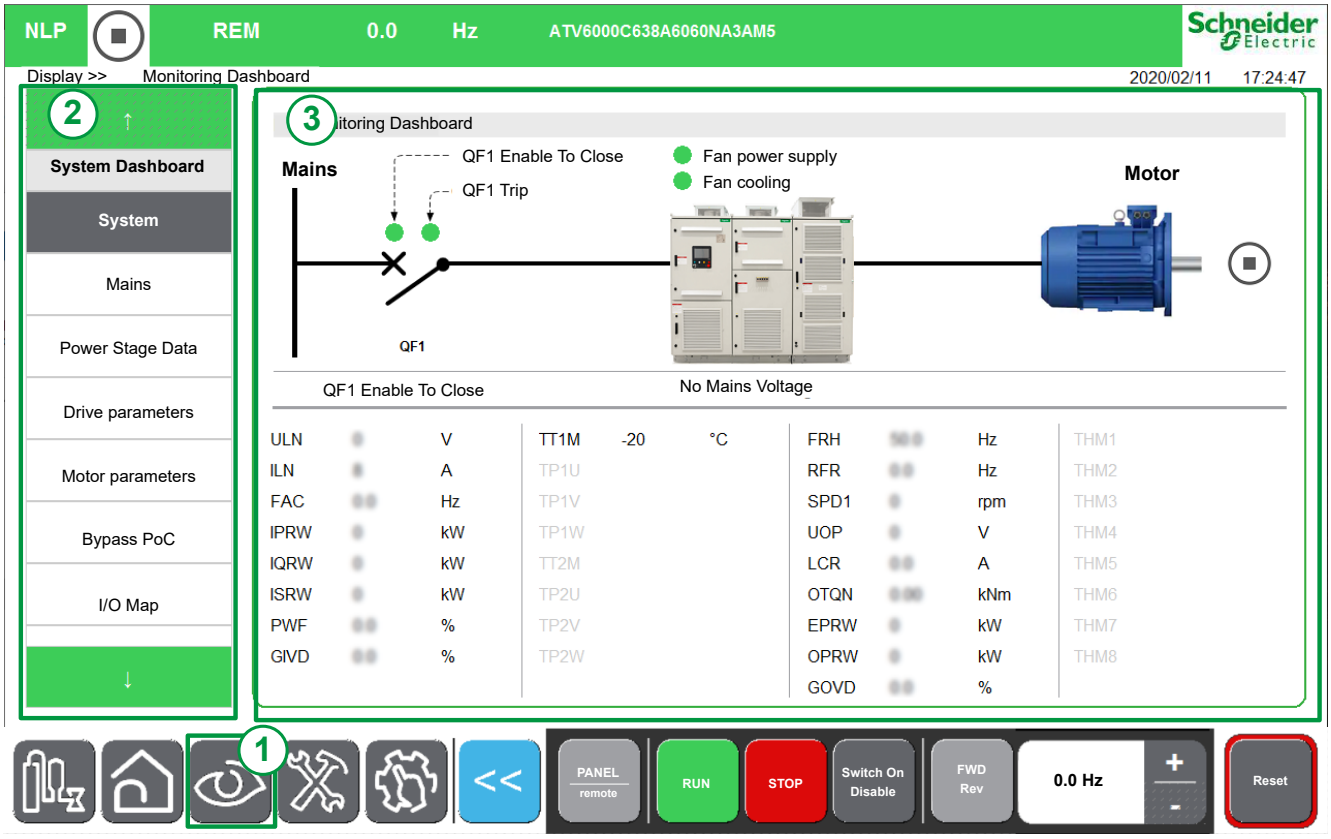
Display Menu Panel

Overview

Description

The Display Panel is divided into 3 main zones:

1. Actual position
2. Vertical tree view - Allows you to select an item that will be displayed on the display area.
3. Display area - This area displays the screen associated to the selected item



Tree view presents the hierarchical vertical view of drive functions information.

The different tree view nodes are:

- **System Dashboard** , page 271
- **Dashboard Energy** , page 339
- **Dashboard Pump** , page 349
- **Dashboard M/S** , page 355
- **Oscilloscope** , page 124
- **Identification** , page 143
- **Motor Control** , page 145

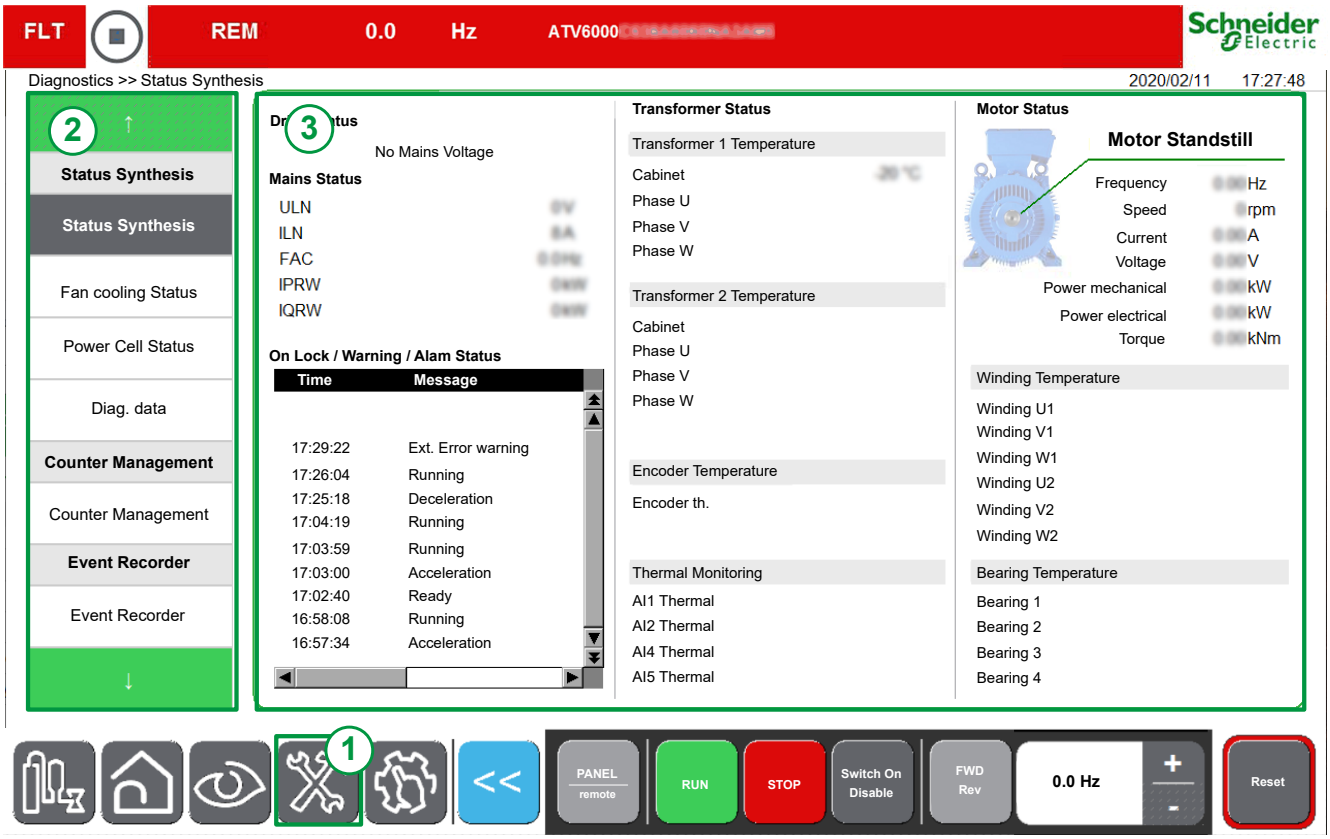
Diagnostic Menu Panel

Overview

Description

The Diagnostics Panel is divided into 2 main zones:

1. Actual position.
2. Vertical tree view - Allows you to select an item that will be displayed on the diagnostics display area.
3. Diagnostic display area - This area displays the screen associated to the selected item.



Tree view presents the hierarchical vertical view of drive functions information.

The different tree view nodes are:

- **Status Synthesis** , page 159
- **Counter Management**
- **Event Recorder** , page 189
- **Error History** , page 191
- **Warning history** , page 194

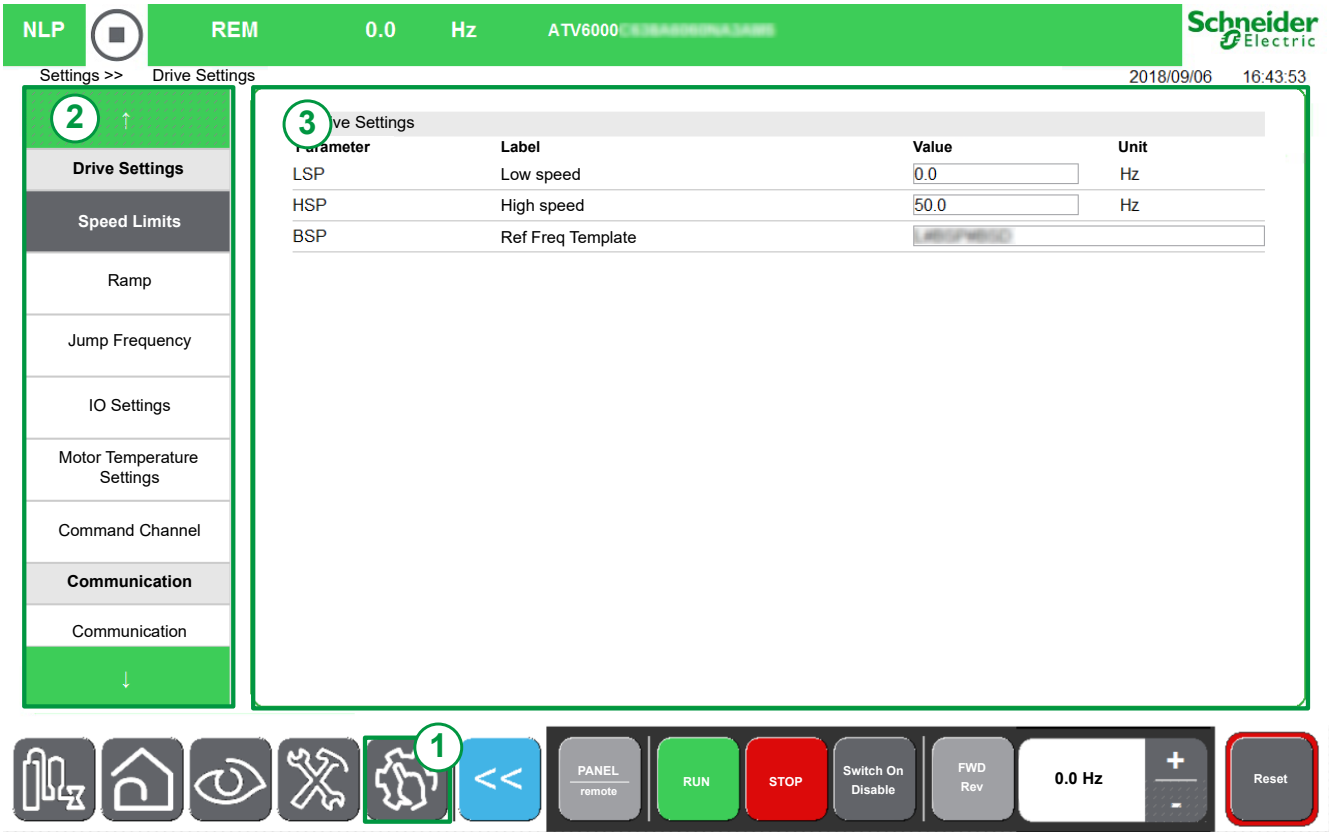
Settings Menu Panel

Overview

Description

The Settings Panel is divided into 2 main zones:

1. Actual position.
2. Vertical tree view - Allows you to select an item that will be displayed on the setting display area.
3. Setting display area - This area displays the screen associated to the selected item.



Tree view presents the hierarchical vertical view of drive functions information.

The different tree view nodes are:

- **Drive Settings** , page 199
- **Communication** , page 251
- **My Preferences** , page 263
- **File Management** , page 268

Assign a Value.

You can set a value to the corresponding parameters in this menu

Step	Action
1	Select the parameters value in the display area **Result**: The software keyboard will pop up.
2	Type your value and: • press **Enter** to save changes. **Result**: The new parameter value is automatically applied. • or press **Esc** to abort the changes

NOTE:

- The parameter values are automatically refreshed at regular intervals.

Display Functions for HMI Panel

What's in This Part

Overview

This information can be accessed using the **Display** Menu Panel available on the ATV6000 HMI Panel.

System Dashboard

What's in This Chapter

[Monitoring Dashboard] Menu

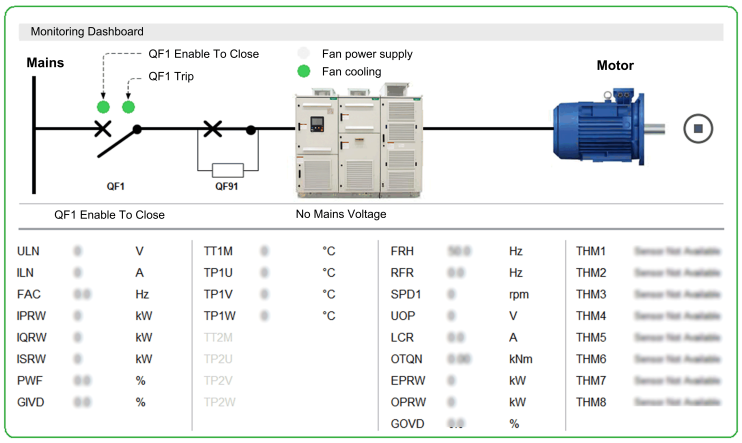
Access

[Display] ➡ [System Dashboard] ➡ [Monitoring Dashboard]

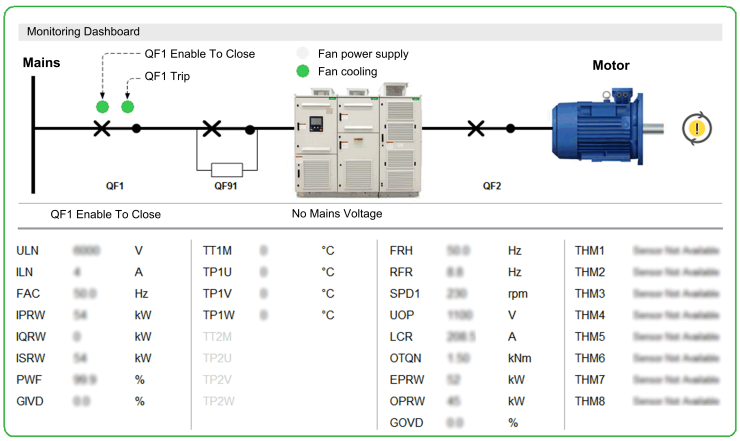
Overview

This information can be accessed using the **System Dashboard** Menu available through the ATV6000 HMI Panel.

Here is monitoring dashboard with Circuit breaker QF1 and QF91 if configured.



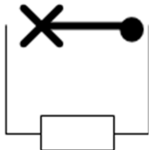
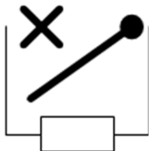
Here is monitoring dashboard with Circuit Breaker QF1, QF91 and QF2 if configured.



Status

The following tables provides the details of each elements available to the dashboard.

Circuit Breaker QFX state

Element	Description
	**QF1 or QF2 are closed:** **[QF1 Command State]** qF 1S or **[QF2 Command State]** qF2S = **[Close]** CbCS Circuit breaker in Closed State.
	**QF1 or QF2 are open:** **[QF1 Command State]** qF 1S or **[QF2 Command State]** qF2S is different to Close state.
	**QF91 is close:** **[QF91 Command State]** qF4S = **[Close]** CbCS Circuit breaker in Closed State.
	**QF91 is open:** **[QF91 Command State]** qF4S is different to Close state.

Motor State

Element	Description
	Loss communication between HMI and master controller.
	Motor is not running.
	Motor at 0Hz.
	Motor is running (Forward or Reverse

Additional information

Element	Description
QF1 Enable to Close	Cabinet IO: Fixed Logic outputs R70 Status **Green**: Ready to close MVCB Status **Orange**: enable to close actived (Onlock state)
QF1 trip	Cabinet IO: Fixed Logic outputs R71 Status **Green**: QF1 is in normal state Status **Red**: QF1 is tripped

Element	Description
Fans Cooling Ready	Cabinet IO: Fixed Logic inputs DI76 Status **Green**: Fan is running Status **Grey**: Fan is stopped
Fan Power Supply	Cabinet IO: Fixed Logic inputs DI77 Status **Green**: Fan power supply is available. Status **Orange**: Fan in lock state (Onlock state) Status **Red**: Fan power supply error

Parameters

The rest of **System Dashboard** menu allows you to:

- Displays the real-time value of the mains-related parameters , page 281
- Displays the real-time value of the drive-related parameters , page 288
  - Drive parameters
  - Drive status, cabinet Switch and on-lock status register parameters
  - Command status parameters
  - PID display parameters
  - Thermal monitoring parameters
- Displays the real-time value of the motor-related parameters , page 302
  - Motor parameters
  - Thermal motor data
- Display the information of the Power Cells functions , page 103
- Displays the information of Inputs/Outputs , page 114

[Mains Data] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Mains Data]

About This Menu

This menu shows the mains-related parameters.
Read-only parameters cannot be configured.

[Mains Voltage] uLn

Mains voltage based on AC bus measurement, motor running or stopped.

Value range	Description
According to nominal input voltage of product.	Value: **[no meas.]** - - - - is displayed if no value is measured. **Factory setting**: –

[Mains Voltage phase 1-2] uL1

Mains voltage phase 1-2 measurement.

Value range	Description
According to nominal input voltage of product.	**Factory setting**: –

[Mains Voltage phase 2-3] uL2

Mains voltage phase 2-3 measurement.

Value range	Description
According to nominal input voltage of product.	**Factory setting**: –

[Mains Voltage phase 3-1] uL3

Mains voltage phase 3-1 measurement

Value range	Description
According to nominal input voltage of product.	**Factory setting**: –

[Mains Current] iLn

Actual mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Value range	Description
According to drive rating	**Factory setting**: –

[Mains Current] iL1

Mains estimated current phase 1

Value range	Description
According to drive rating	**Factory setting**: –

[Mains Current] iL2

Mains estimated current phase 2

Value range	Description
According to drive rating	**Factory setting**: –

[Mains Current] iL3

Mains estimated current phase 3

Value range	Description
According to drive rating	**Factory setting**: –

[Mains Frequency] FAC

Actual mains frequency.

Value range	Description
-3476.7...3276.7 Hz	**Factory setting**: –

[Active Input Power] iPrW

Active electrical input power.

Value range	Description
According to the drive rating	Value in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Reactive Power] iqrW

Reactive electrical input power.

Value range	Description
According to the drive rating	Value in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Apparent Input Power] iSrW

Apparent Electrical input power estimation

Value range	Description
According to the drive rating	Value in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Power Factor] PWF

Mains input power factor.

Value range	Description
According to the drive rating	Value displayed as a percentage **Factory setting**: _

[Mains Unbalance Ratio] uMV

Mains unbalance ratio.

Value range	Description
-327.67...327.67%	**Factory setting**: –

Power Stage Data

[Power Thermal data] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Power Stage data] ➡ [Power Thermal data]

About This Menu

This menu shows the transformer-related parameters.
Read-only parameters cannot be configured.

Thermal monitoring for:						
Cabinet	**Transformer 1**			**Transformer 2**		
	Winding U	**Winding V**	**Winding W**	**Winding U**	**Winding V**	**Winding W**
tt1n	TP1U	TP1V	TP1W	-	-	-
tt2n	-	-	-	TP2U	TP2V	TP2W

[Transfo Cab Temp 1] tt1n

Thermal Transformer Cabinet Monitoring 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer U1] tP1u

Thermal transformer 1 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer V1] tP1V

Thermal transformer 1 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available

Value range	Code / Value	Description
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer W1] tP 1W

Thermal primary transformer 1 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Transfo Cab Temp 2] tt2n

Thermal Transformer Cabinet Monitoring 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer U1] tP2u

Thermal primary transformer 2 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer V1] tP2V

Thermal primary transformer 2 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal transformer W1] tP2W

Thermal primary transformer 2 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Power-cell over-voltage data] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Power Stage data] ➡ [Power-cell over-voltage data]

About This Menu

The parameter **[DC Bus Overvoltage Time]** *PoVt* allows to monitor how long **[DC Bus Overvoltage]** *obF* is present during PoC charging sequence.

Note: The inhibition function of **[DC Bus Overvoltage]** *obF* during PoC charging sequence, and parameter which allows to adjust PoC charging sequence timing are configured on **[Advanced Function]** Menu, page 242.

[DC Bus Overvoltage Time] *PoVt*

DC Bus overvoltage time during PoC charging sequence

Power cell overvoltage time in seconds (unit 0.01s).

The monitoring of the **[DC Bus Overvoltage]** *obF* error is only inactive during PoC charging sequence (For all other drive states, the monitoring of **[DC Bus Overvoltage]** *obF* error remains active).

Setting	Description
0...655.35 s	Range value **Factory setting**: _

[Drive parameters] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Drive parameters]

About This Menu

This sub menu shows

- the drive-related parameters.
- the status of the drive, cabinet Switch and on-lock status register.
- the monitoring parameters linked to the command selection. For settings and configuration refer to the Command and Reference Channels Menu, page 244.
- the present thermal value measured via analog inputs used.

Note: All following parameters are in read-only mode.

[AIV1 Image input] AIV1

AIV1 Image input.

This parameter is read-only. It enables to display the speed reference applied to the motor, or the sensor value, via the fieldbus channel.

Setting	Description
-8,192...8,192	Setting range **Factory setting**: –

[Pre-Ramp Ref Freq] FrH

Frequency reference before ramp.

This parameter is read-only. It enables to display the speed reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: 0 Hz

[Ref Frequency] LFrA

Reference frequency.

This parameter only appears if the function has been enabled. It is used to change the reference frequency from the remote control.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: –

[Torque ref.] LtrA

Torque reference.

This parameter only appears if the function has been enabled. It is used to change the torque reference value from the remote control. OK does not have to be pressed to enable a change of reference value.

Setting	Description
-300.0...300.0%	Setting range **Factory setting**: –

[Torque reference] trr

Torque reference.

Setting	Description
-32,767...32,767	Setting range **Factory setting**: –

[Drive State] HMIS

Drive state.

Value range	Code / Value	Description
[Autotuning]	tUn	Autotuning, the motor identification is running.
[Ready]	rdY	Drive ready, all conditions to start the drive are ok.
[Freewheel]	nSt	Freewheel stop control, One or more Freewheel stop command are active. Check parameter **[2/3-Wire Control]** tCC and **[Local 2/3-wire Control]** PLIO for 3 wire control and verify the status of the dedicated inputs.
[Running]	run	Motor in steady state or run command present and zero reference
[Accelerating]	ACC	Acceleration
[Decelerating]	dEC	Deceleration
[Current limitation]	CLI	In current limitation, the drive has reached the current limitation threshold according to parameter **[Current Limitation]** CLI.
[Mot. fluxing]	FLU	Fluxing function is activated
[No Mains Voltage]	nLP	Control is powered on but the DC bus is not loaded
[control.stop]	ctL	Control stopping
[Dec. adapt.]	obr	Adapted deceleration
[Undervoltage Warning]	USA	Undervoltage warning
[TC Mode Active]	tC	TC indus mode activated
[In autotest]	St	Self test in progress
[Autotest error]	FA	Self test not successful
[Autotest OK]	oK	Self test Ok

Value range	Code / Value	Description
[EEprom test]	EP	Self test Eeprom error
[Operating State "Fault"]	FLt	Product has detected an error
[DCP Flashing Mode]	dCP	DCP flashing mode
[Firmware Update]	FWuP	Firmware update
[Angle test]	ASA	Angle Value range
[ON Lock active]	onLK	Input MV ON Lock, input MV On Lock active, one or more interlocks are active to inhibit the MV Circuit Breaker closing contact.
[POE active]	Pod	Power output disable active, the digital input POEA or POEB is not supplied with 24V.
[Torque Limitation]	tLI	Torque limitation, the drive has reached the torque limitation threshold according to parameter **[Motor torque limit]** tLIM, **[Gen. torque limit]** tLIG.
[Power Limitation]	PLI	Power limitation
[Init]	InI	Drive is initializing
[Reset]	rSt	Drive is reset
[Synchro. To Mains]	SYtM	Synchronization to Mains
[Rdy Transfer To Mains]	rtM	Ready to transfer to mains
[Transfer In Progress]	ttMI	Transfer in progress
[Synchro. To Drive]	SYtd	Synchronization to drive
[SD Transfer Ready]	rtd	Ready to transfer to drive
[Transfer to drive in progress]	ttdI	Transfer to drive in progress
[Run Delay In Progress]	rdIP	Run delay in progress

[Cabinet Switch Status] CMdS

This parameter describes the actual control channel of the drive. This can be realized by digital cabinet inputs (from Remote) or the Mode selector switch on the front panel of the drive.

Setting	Code / Value	Description
[Not selected]	no	No command selected
[Remote]	rEM	Remote command selected
[Local]	LoC	Local command selected
[Panel]	PAn	Panel (HMI) command selected

[On Lock Register] PLo I

Device On lock status register

The drive will inhibit the medium voltage to be energized by a relay interlocked with the medium voltage circuit breaker or fused switch. (Check circuit diagram for contact "Enable to close")

Bit	Description, Value
0	1 = Door Open
1	1 = Fan not Ready
2	1 = Mains OFF Button
3	1 = MV Circuit breaker Tripped
4	1 = MV Circuit breaker grounding contact
5	1 = MV Circuit breaker Isolated
6	Reserved
7	Reserved
8	Reserved
9	1 = QF1 Tripped
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Command Channel] CMdC

Command channel.

Setting	Code / Value	Description
[Ref.Freq-Rmt. Term]	tEr	Terminal block source **Factory Setting**
[Ref.Freq-Rmt. Term]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	Mdb	Command via Modbus
[Ref. Freq-CANopen]	CAn	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	nEt	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	Mdb2	Modbus 2 source
[HMI Panel]	HMI	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC	PLC Inside source

[Cmd Register] CMd

Command register.

[Control Mode] CHCF is not set to **[I/O profile]** IO

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	Set to 1: "Switch on"/Contactor command
1	Set to 0: "Disable voltage"/Authorization to supply AC power
2	Set to 0: "Quick stop"
3	Set to 1: "Enable operation"/Run command
4 to 6	Reserved (= 0)
7	"Fault reset" acknowledgment active on 0 to 1 rising edge
8	Set to 1: Stop according to the **[Type Of Stop]** STT parameter without leaving the operation enabled state
9 and 10	Reserved (= 0)
11 to 15	Can be assigned to commands

Possible values in the I/O profile. On state command **[2-Wire Control]** 2C:

Bit	Description, Value
0	Forward (on state) command: 0: No forward command 1: Forward command **NOTE:** The assignment of bit 0 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bit 0 CD00 is only active if the channel of this control word is active.
1 to 15	Can be assigned to commands

Possible values in the I/O profile. On edge command **[3-Wire Control]** 3C:

Bit	Description, Value
0	Stop (run authorization): 0: Stop 1: Run is authorized on a forward or reverse command
1	Forward (on 0 to 1 rising edge) command
2 to 15	Can be assigned to commands
NOTE: The assignment of bits 0 and 1 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bits 0 CD00 and 1 CD01 are only active if the channel of this control word is active.	

[Ref Freq Channel] rFCC

Channel of reference frequency.

Identical to **[Command Channel]** CNCC

[Pre-Ramp Ref Freq] FrH

Frequency reference before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[CIA402 State Reg] E t A

CIA402 State Register.

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	"Ready to switch on", awaiting power section line supply
1	"Switched on", ready
2	"Operation enabled", running
3	Operating detected error state: 0: Inactive 1: Active
4	"Voltage enabled", power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present **NOTE:** When the drive is powered by the power section only, this bit is always at 1.
5	Quick stop
6	"Switched on disabled", power section line supply locked
7	Warning: 0: No warning 1: Warning
8	Reserved (= 0)
9	Remote: command or reference via the network 0: Command or reference via the Display Terminal 1: Command or reference via the network
10	Targets reference reached: 0: The reference is not reached 1: The reference has been reached **NOTE:** When the drive is in speed mode, this is the speed reference.
11	"Internal limit active", reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits **NOTE:** When the drive is in speed mode, the limits are defined by the **[Low speed]** L S P and **[High speed]** H S P parameters.
12	Reserved
13	Reserved
14	"Stop key", STOP via stop key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal

Bit	Description, Value
15	"Direction", direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The combination of bits 0, 1, 2, 4, 5 and 6 defines the state in the DSP 402 state chart (see the communication manuals).	

Possible values in the I/O profile:

Bit	Description, Value
0	Reserved (= 0 or 1)
1	Ready: 0: Not ready 1: Ready
2	Running: 0: The drive does not start if a reference other than zero is applied 1: Running, if a reference other than zero is applied, the drive can start
3	Operating detected error state: 0: Inactive 1: Active
4	Power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present
5	Reserved (= 1)
6	Reserved (= 0 or 1)
7	Warning 0: No warning 1: Warning
8	Reserved (= 0)
9	Command via a network: 0: Command via the terminals or the Display Terminal 1: Command via a network
10	Reference reached: 0: The reference is not reached 1: The reference has been reached
11	Reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits **NOTE:** When the drive is in speed mode, the limits are defined by LSP and HSP parameters.
12	Reserved (= 0)
13	Reserved (= 0)
14	Stop via STOP key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal

Bit	Description, Value
15	Direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The value is identical in the CiA402 profile and the I/O profile. In the I/O profile, the description of the values is simplified and does not refer to the CiA402 (Drivecom) state chart.	

[Internal PID ref] rPI

Internal PID reference.

Setting	Description
0...32,767	Setting range **Factory setting**: 150

[PID Reference] rPC

PID setpoint value.

Setting	Description
0...65,535	Setting range **Factory setting**: 0

[PID feedback] rPF

PID feedback value.

Setting	Description
0...65,535	Setting range **Factory setting**: 0

[PID Error] rPE

PID error value.

Setting	Description
-32,767...32,767	Setting range **Factory setting: –**

[PID Output] rPo

PID output value.

Setting	Description
[PID Min Output] PoL ...**[PID Max Output]** PoH	Setting range **Factory setting**: _

[AI1 Th Value] tH1V, [AI3 Th Value] tH3V, [AI4 Th Value] tH4V, [AI5 Th Value] tH5V

AI1 thermal value, AI3 thermal value, AI4 thermal value and AI5 thermal value.

NOTE: AI4 and AI5 can only be accessed if the I/O extension option module (VW3A3203) has been inserted.

Setting	Description
-15.0...200.0 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of **[Temperature unit]** tUnP). **Factory setting:** Read-only parameter.

[Enc Th Value] tHEV

Encoder thermal sensor value.

Setting	Description
-15...200 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of **[Temperature unit]** tUnP). **Factory setting:** Read-only parameter.

[Thermal Sensor 9] tHM9, [Thermal Sensor 10] tHMA, [Thermal Sensor 11] tHMb and [Thermal Sensor 12] tHMC

Thermal Monitoring: Temperature of sensors 9 to 12.

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

Motor Parameters

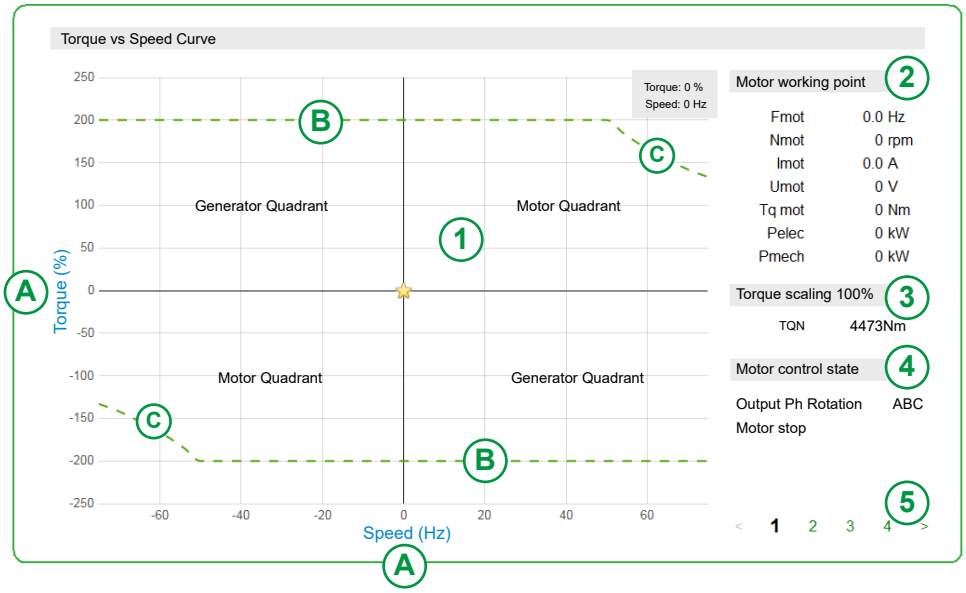
[Torque vs Speed Curve] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Motor Parameters]

Overview

This menu allows to see the relationship between speed and torque, the following information displayed are available:

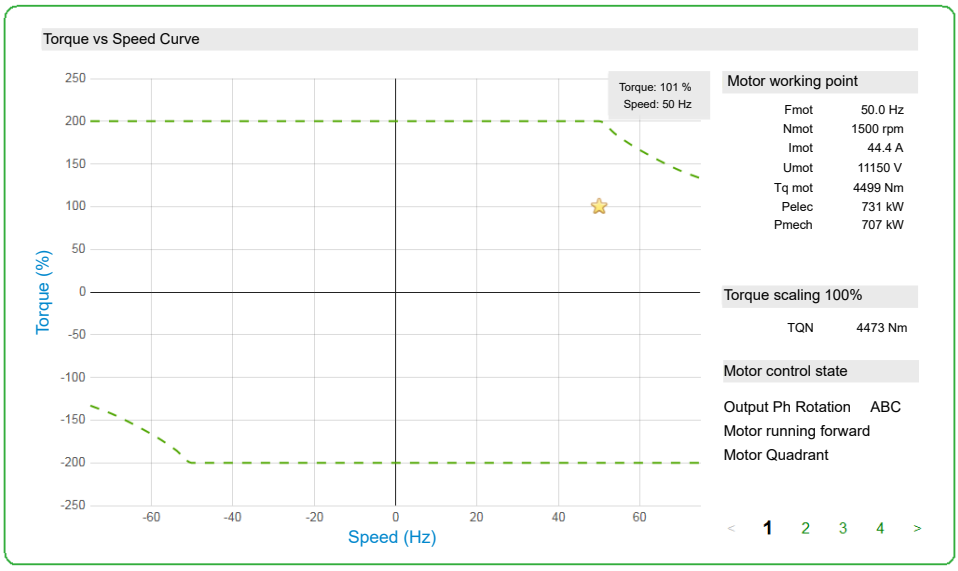


Legend	Description
1	Curve area: Displays the torque/speed graph of the motor used for your application.
A	X and Y axes are scale: • X-axis (Hz) scalable according to the nominal motor Frequency and / or maximum speed motor (HSP), • Y-axis (Nm) scalable if the estimated load of the Drive exceeds 250%, there is an auto scaling of the Y-axis regarding the green dotted trend.
B	The dotted green trend: • Will never move, but it is adaptable according to the autoscaling in X-axis. • **C)** Field weakening will always be placed from the nominal motor frequency.
2	**Motor working point** • Fmot: Motor frequency. • Nmot: Real mechanical motor speed in rmp. • Umot: Motor voltage. • Tq mot: Torque of the motor measured in Nm. • Pelec: Electrical power of motor measured in kW. • Pmech: Mechanical power of motor measured in kW.
3	**Torque Scaling given at 100%** • TQN: Nominal motor torque in Nm.

Legend	Description
4	**Motor control state** • Output Phase rotation ABC/ACB. • State of the motor: Stop, running forward, running reverse. • Motor quadrant / Generator quadrant.
5	Page selection: • **Page 1:** Torque vs speed curve. • **Page 2:** Motor thermal data menu, page 95. • **Page 3:** Motor control data menu, page 98. • **Page 4:** Motor parameters menu, page 98.

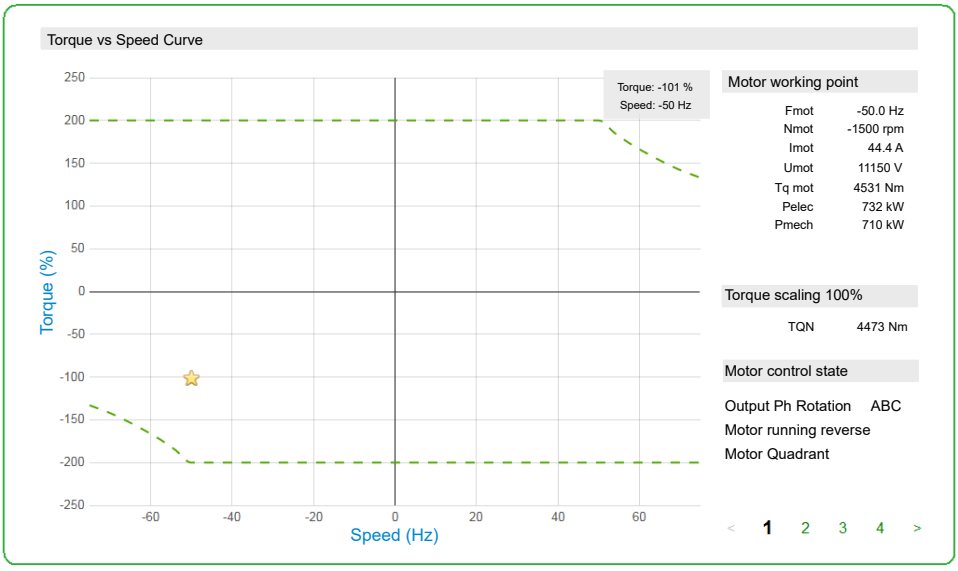
Motor Running Forward

The sign of the torque depends entirely on the quadrant in which the drive is located. The display value of motor torque is positive in motor quadrant whatever the direction.



Motor Running Reverse

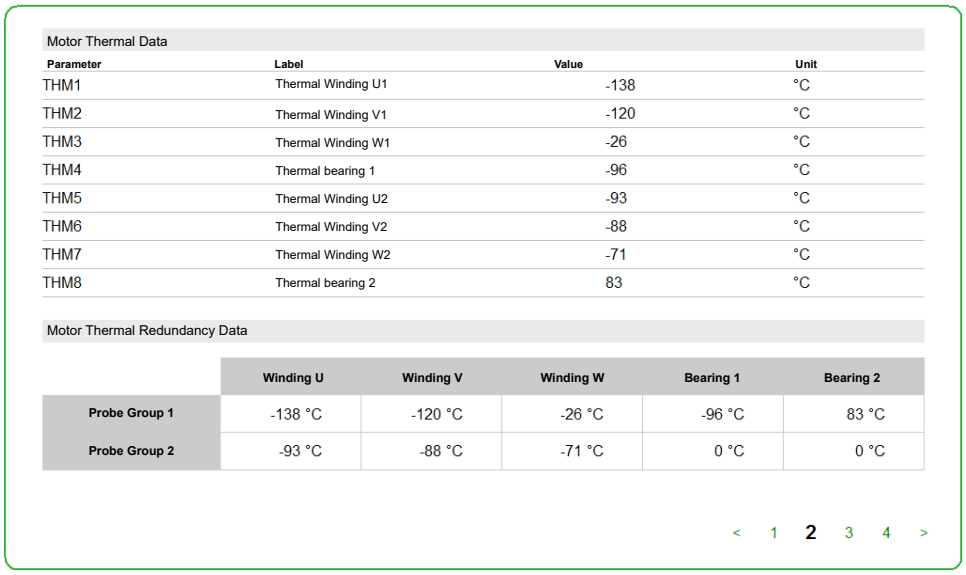
The sign of the torque depends entirely on the quadrant in which the drive is located. The display value of motor torque is negative in motor quadrant whatever the direction.



[Motor Thermal data]

About This Menu

This menu shows the motor thermal parameters on page 2, depending on your personal function requirements this panel can be different. (Read-only parameters cannot be configured)



Motor Thermal Data

Parameter	Label	Value	Unit
THM1	Thermal Winding U1	-138	°C
THM2	Thermal Winding V1	-120	°C
THM3	Thermal Winding W1	-26	°C
THM4	Thermal bearing 1	-96	°C
THM5	Thermal Winding U2	-93	°C
THM6	Thermal Winding V2	-88	°C
THM7	Thermal Winding W2	-71	°C
THM8	Thermal bearing 2	83	°C

Motor Thermal Redundancy Data

	Winding U	Winding V	Winding W	Bearing 1	Bearing 2
Probe Group 1	-138 °C	-120 °C	-26 °C	-96 °C	83 °C
Probe Group 2	-93 °C	-88 °C	-71 °C	0 °C	0 °C

< 1 2 3 4 >

Motor Thermal Redundancy Data

Regarding which option are used **Motor Thermal Redundancy Data** can be displayed differently;

- Without winding and bearing information,
- Winding and bearing information on probe group 1 & 2
- Only Winding information on probe group 1 & 2

[Thermal winding U1] tHM1

Motor Thermal Monitoring: Temperature of winding U1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V1] tHM2

Motor Thermal Monitoring: Temperature of winding V1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit

Value range	Code / Value	Description
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W1] tHP3

Motor Thermal Monitoring: Temperature of winding W1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 1] tHP4

Motor Thermal Monitoring: Temperature of bearing 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding U2] tHP5

Motor Thermal Monitoring: Temperature of winding U2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V2] tHP6

Motor Thermal Monitoring: Temperature of winding V2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W2] tHn7

Motor Thermal Monitoring: Temperature of winding W2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 2] tHnB

Motor Thermal Monitoring: Temperature of bearing 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Motor control Data]

About This Menu

This menu shows the motor-related parameters available on page 3.
Read-only parameters cannot be configured.

[Pre-Ramp Ref Freq] F r H

Frequency reference before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Ramp output frequency (signed)] F r o

Ramp output frequency

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Motor Frequency] r F r

Motor frequency.

This parameter displays the estimated rotor frequency without motor slip.

Setting	Description
-3,276.7...3,276.7 Hz	Setting range **Factory setting**: 0.0 Hz

[Motor Speed] S P d

Motor speed.

This parameter displays the estimated rotor speed without motor slip.

Setting	Description
0...65,535 rpm	Setting range **Factory setting**:–

[Measured output fr.] M M F

Measured output frequency.

This parameter can be accessed only if the encoder module has been inserted, and the available selections will depend on the type of encoder module used.

Setting	Description
-3,276.7...3,276.7	Setting range **Factory setting**: –

[Motor Mechanical speed] SPdM

Motor mechanical speed.

This parameter displays the estimated rotor speed with motor slip.

Setting	Description
[Undefined] Und or -32,767...32,765 rpm	Setting range **Factory setting**:–

[Signed Mech Speed] SPd I

Signed motor mechanical speed.

Setting	Description
[Undefined] Und...32,767 rpm	Setting range **Factory setting**:–

[Motor Current] LCr

Motor current.

Setting	Description
0.00...65,535 A	Setting range according to drive ratings **Factory setting**: –

[Motor Current Id] IdM

Measurement motor current Id

Setting	Description
-32,767 A...32,767	Setting range according to drive ratings **Factory setting**: –

[Motor Current Iq] IqM

Measurement motor current Iq

Setting	Description
-32,767 A...32,767	Setting range according to drive ratings **Factory setting**: –

[Motor Voltage] uoP

Motor voltage.

Setting	Description
0...65,535 V	Setting range **Factory setting**:–

[Motor Torque] otr

Motor torque.

Output torque value (100% = **[Nom Motor Torque]** tqn).

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-300.0... 300.0%	Setting range **Factory setting**: –

[Motor Torque (Nm)] otqn

Motor torque (Nm).

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-32,767 Nm...32,767 Nm	Setting range: according to drive ratings **Factory setting**: –

[Motor Power] oPr

Motor power.

Output power in % (100% = nominal motor power).

Setting	Description
-300...300%	Setting range **Factory setting**: –

[Power Estim Value] oPrW

Motor shaft power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Motor Parameters]

About This Menu

This menu shows the motor-related parameters available on page 4.
Read-only parameters cannot be configured.

[Active Output Power] EPr

Active Electrical output power estimation (100% = nominal motor electrical power).

Setting	Description
–300 ... 300%	Setting range in % **Factory setting**: _

[Acv Elc out pwr estm] EPrW

Active electrical output power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Nom Motor Torque] tqn

Computed nominal motor torque in Nm (+/- 2% tolerance).

Setting	Description
0.01...65,535 Nm	Setting range according to drive rating. **Factory setting**: –

[Overload State 1] tLS1

Over-load monitoring state 1.

Setting	Description
0...100 %	Setting range **Factory setting**: -

[Overload State 2] tLS2

Over-load monitoring state 2.

Setting	Description
0...100 %	Setting range **Factory setting**: -

[Rotor Frequency] rFq

Rotor frequency.

This parameter displays the estimated rotor frequency with motor slip.

Setting	Description
[No Freq Applied] nO...300.0 Hz	Setting range **Factory setting**: –

[Stator Frequency] SFq

Stator frequency.

Setting	Description
[No Freq Applied] nO...300.0 Hz	Setting range **Factory setting**: –

[Output Ground Value] GoVd

Ground output monitoring display.

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.
- Value only displayed when PoC PWM is enabling to avoid “capacitor parasite” value.
- When PoC PWM is not enabling GoVd = 0

Value range	Description
0...32767	Read only, unit: 0.1% output reference voltage **Factory setting**: _
Output reference voltage : example for “ATV6000••••A••66” = 6.6 kV	

Bypass PoC

[Bypass PoC Display] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Bypass PoC Display]

About This Menu

This menu is used to display Bypass Power Cell information, un-bypass information and related parameters, depending on your personal function requirements these panels can be different. (read mode only)

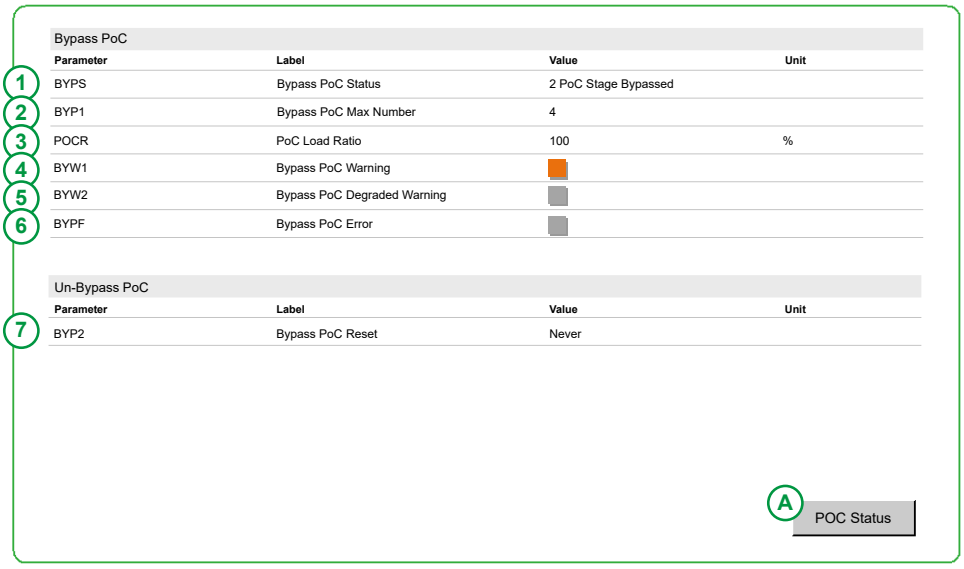
It is recommended to have a power cell bypass option for critical process, in which case a reduction in capacity is preferable to a complete shutdown.

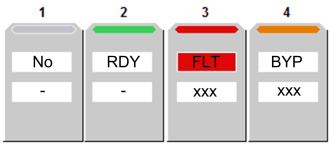
- When a power cell breaks down it will automatically bypass the power cells in order to keep the VSD system running according capacity. This prevents production downtime or unexpected interruption.
- The PoC bypassed can be un-bypass when drive is in stop mode according to **[Bypass PoC Reset]** BYP2 selection, page 110 :
  - **NEVER**: PoC stays always bypassed until product power OFF (control and power).
  - **MANU**: PoC can be un-bypassed at drive stop if the PoC event generating the bypass is removed through *manual un-bypass DI sequence*, page 107 or through *HMI button*, page 107.
  - **AUTO**: PoC can be un-bypassed at drive stop through *automatic retry un-bypass sequence*, page 107, *manual un-bypass DI sequence*, page 107, or through *HMI button*, page 107.

Note: This setting and function is managed during the commissioning, refer to your local Schneider representative.

Un-bypass PoC By Product Power OFF

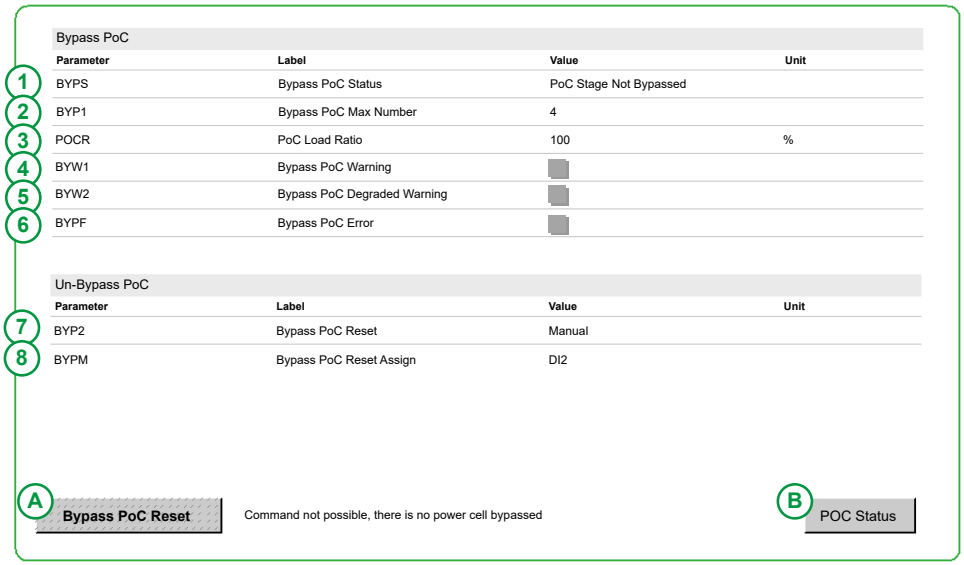
This panel show Bypass function already configured and Un-bypass PoC function is set to **Never**.

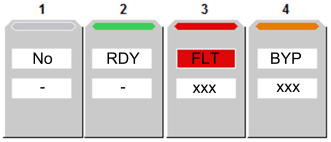


Item	Description
1	Indicates Bypass PoC status, here 2 PoC level are bypassed, refer to BYPS, page 109
2	Indicates number of maximal bypass sequence allowed, refer to BYP1, page 110
3	Indicates PoC load ratio (in %); refer to POCR, page 110
4	This warning indicates when the bypass sequence is active. (**[Bypass PoC Warning]** b y W 1, refer to the example below, page 109) • Grey: warning not active • Orange: warning active
5	This warning indicates when the bypass sequence is active in degraded mode. (**[Bypass PoC Degraded Warning]** b y W 2, refer to the example below, page 109) • Grey: warning not active • Orange: warning active
6	Bypass PoC Error, refer to error code BYPF, page 447 • Grey: no bypass error detected. • Red: a bypass error is triggered
7	Un-bypass PoC Configuration mode set to **Never**, refer to BYP2, page 110. • PoC stays always bypassed until product power OFF (control and power).
A	Press on **PoC Status** button opens **Diagnostics Menu** which described the status of each Power Cell installed , page 162. 

Manual Un-bypass

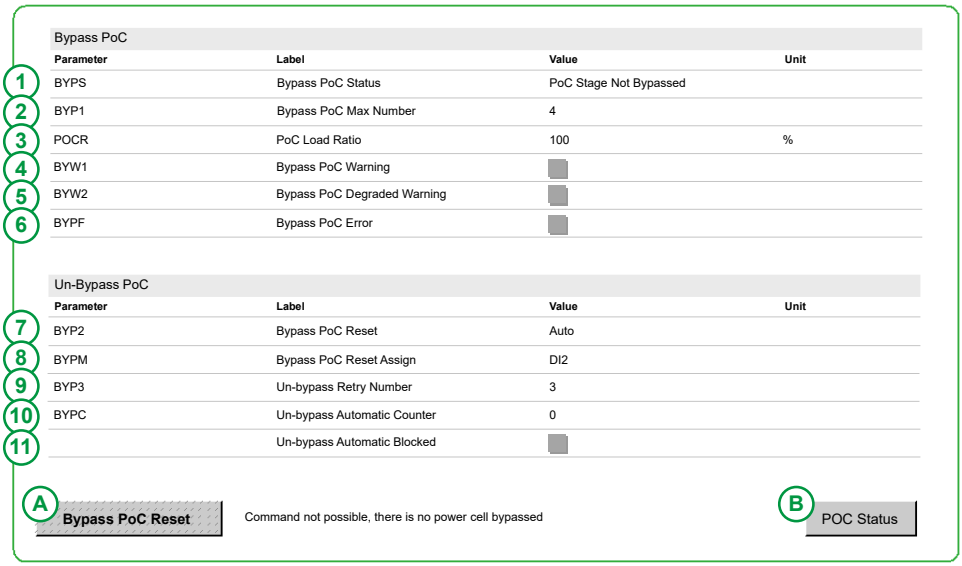
This panel show Bypass function already configured and Un-bypass PoC function set to **Manual**.



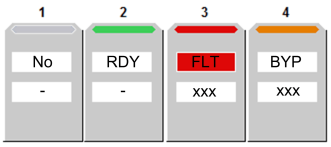
Item	Description
1	Indicates Bypass PoC status, here PoC level are not bypassed, refer to BYPS, page 109
2	Indicates number of maximal bypass sequence allowed, refer to BYP1, page 110
3	Indicates PoC load ratio (in %); refer to POCR, page 110
4	This warning indicates when the bypass sequence is active. (**[Bypass PoC Warning]** *b y W 1*, refer to the example below, page 109) • Grey: warning not active • Orange: warning active
5	This warning indicates when the bypass sequence is active in degraded mode. (**[Bypass PoC Degraded Warning]** *b y W 2*, refer to the example below, page 109) • Grey: warning not active • Orange: warning active
6	Bypass PoC Error, refer to error code BYPF, page 447 • Grey: no bypass error detected. • Red: a bypass error is triggered
7	Un-bypass PoC Configuration mode set to **Manual**, refer to BYP2, page 110.
8	Bypass PoC reset is assigned to **DI2** (*manual un-bypass DI sequence*), refer to BYPM, page 110.
A	Press on **Bypass PoC Reset** button allows to reset PoC bypassed. **NOTE:** In case of PoC still not un-bypassed, refer to the **Diagnostics Menu** in order to identify which PoC is triggered (ie. PWF7, OHF, OBF) , page 162.
B	Press on **PoC Status** button opens **Diagnostics Menu** which described the status of each Power Cell installed , page 162. 

Automatic Un-bypass

This panel show Bypass function already configured and Un-bypass PoC function set to **Auto**.



Item	Description
1	Indicates Bypass PoC status, here PoC level are not bypassed, refer to BYPS, page 109
2	Indicates number of maximal bypass sequence allowed, refer to BYP1, page 110
3	Indicates PoC load ratio (in %); refer to POCR, page 110
4	This warning indicates when the bypass sequence is active. (**[Bypass PoC Warning]** *b y W 1*, refer to the example below, page 109) • Grey: warning not active • Orange: warning active
5	This warning indicates when the bypass sequence is active in degraded mode. (**[Bypass PoC Degraded Warning]** *b y W 2*, refer to the example below, page 109) • Grey: warning not active • Orange: warning active
6	Bypass PoC Error, refer to error code BYPF, page 447 • Grey: no bypass error detected. • Red: a bypass error is triggered
7	Un-bypass PoC Configuration mode set to **Auto** (defined during commissioning), refer to BYP2, page 110.
8	Bypass PoC reset is assigned to **DI2** (*manual un-bypass DI sequence*), refer to BYPM, page 110.
9	Indicates number of automatic Un-bypass PoC retry allowed, refer to BYP3, page 110.
10	Indicates counter of automatic Un-bypass PoC performed, refer to BYPC, page 110.
11	Indicates if automatic un-bypass is locked. • Grey: Un-bypass automatic possible. • Orange: Un-bypass automatic locked, reset must be done through **DI2** (*manual un-bypass DI sequence*)

A	Press on **Bypass PoC Reset** button allows to reset PoC bypassed. **NOTE:** In case of PoC still not un-bypassed, refer to the **Diagnostics Menu** in order to identify which PoC is triggered (ie. PWF7, OHF, OBF) , page 162.
B	Press on **PoC Status** button opens **Diagnostics Menu** which described the status of each Power Cell installed , page 162. 

Manual un-bypass DI sequence

A manual un-bypass DI sequence can un-bypass the PoC and reset the **[Un-bypass Automatic Counter]** bYPC .
This DI is defined by **[Bypass PoC Reset Assign]** bYPn.

The purpose of the bYPC counter is to avoid continuous sequence “automatic un-bypass → bypass →un-bypass…” when a PoC is triggered (ie. PWF7, OHF, OBF)

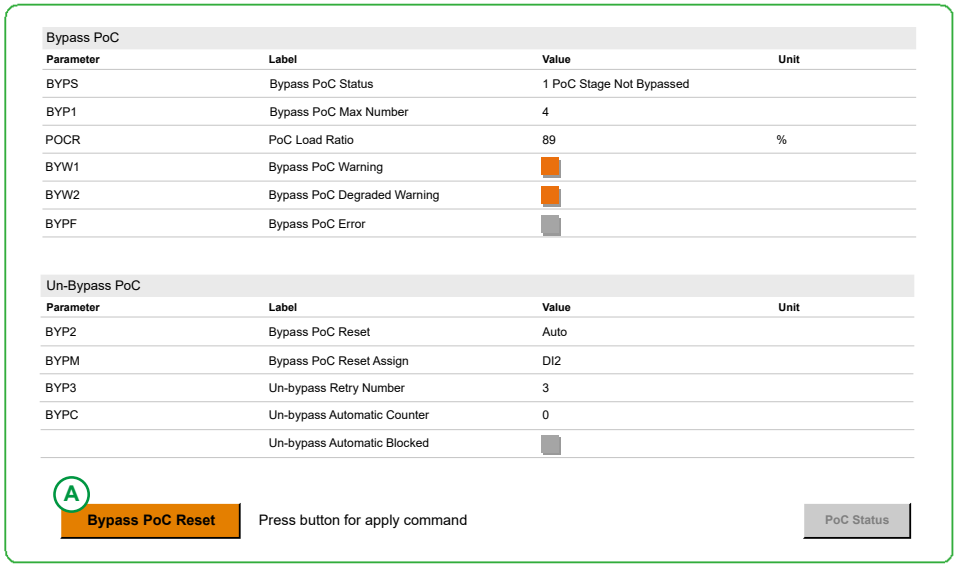
- Display parameter bYPC is reset at each drive power-on or product reset.

Automatic retry un-bypass sequence

- **At run command:**
  - If a new bypass PoC occurred during internal timer bYP4 (set during commissioning), automatic counter bYPC is increase by 1.
  - If a new bypass PoC is not occurred during internal timer bYP4 (set during commissioning), automatic counter bYPC is reseted.
- **When drive is in stop mode** (PoC not commanded):
  - If the automatic counter bYPC ≤ **[Un-bypass Retry Number]** bYP3 the automatic un-bypass sequence can be performed.
  - If the automatic counter bYPC > **[Un-bypass Retry Number]** bYP3 the automatic un-bypass sequence cannot be performed.

Bypass PoC Reset Button

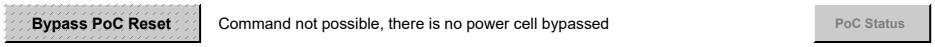
This bypass PoC Reset button allows to un-bypass the power cell through the HMI. Regarding drive and PoC state this button can be activated or not activated.



A. This can be used only if Un-bypass PoC Configuration mode is set to **[MANU]** or **[AUTO]** (Through **[Bypass PoC Reset]** b Y P 2).

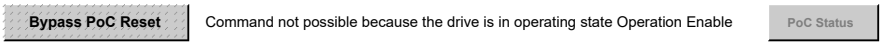
When PoC are not bypassed:

- Bypass PoC reset button is in grey level and no activation possible,
- "Command not possible, there is no power cell bypassed" is displayed.

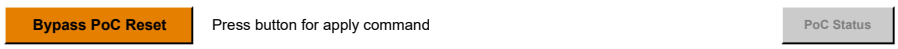


When PoC are bypassed, two uses cases are possible:

- if the drive is in operation enable state. (running...)
  - Bypass PoC reset button is in grey level and there is no activation possible,
  - "Command not possible because the drive is in operating state Operation Enable"" is displayed.



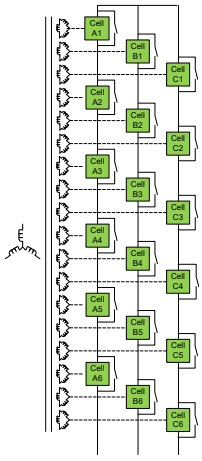
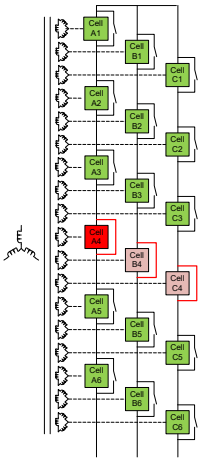
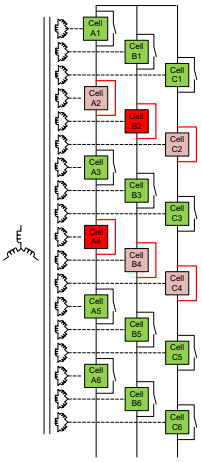
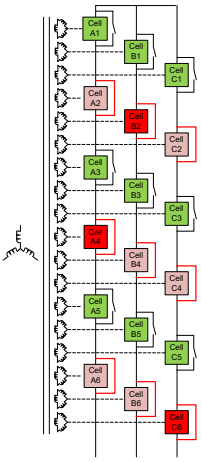
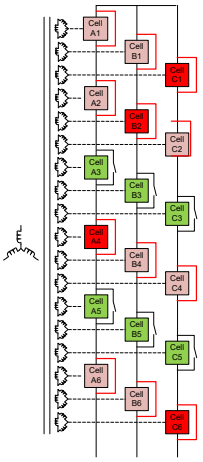
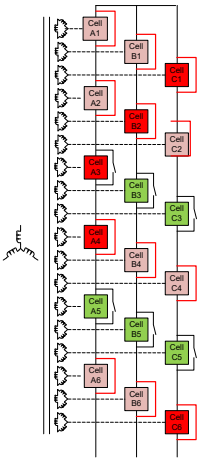
- if the drive is not in operation enable state
  - Bypass PoC reset button is in orange and activation is possible,
  - "Press button for apply command" is displayed.



Note: Un–bypass operation (by pressing Bypass PoC button) cannot be applied as long as the PoC error has not be removed. e.g during an overheating (OHF). Refer to the PoC status , page 162 and troubleshooting Diagnostics and Troubleshooting, page 421.

Example of PoC bypassed 4.16kV VSD

In this example, 6 PoC are used (4 PoC as standard with PoC N+2)

Command with PoC bypassed N+2	1 PoC level bypass	2 PoC level bypass	3 PoC level bypass	4 PoC level bypass	4 PoC level bypass New PoC in error
					
Bypass warning / error					
No warning	Bypass PoC warn 1	Bypass PoC warn 1	Bypass PoC warn 1 Bypass PoC Degraded Warning	Bypass PoC warn 1 Bypass PoC Degraded Warning	Bypass PoC warn 1 Bypass PoC Degraded Warning Bypass PoC error
Bypass status					
No PoC bypassed	Bypass 1 level	Bypass 2 level	Bypass 3 level	Bypass 4 level	PoC stage bypass error
Power stage over-load ratio (POCR)					
150 %	125 %	100 %	75 %	50 %	50 %

[Bypass PoC Status] bYPS

Bypass status register shows the actual Status of the POC Bypass Function.

Setting	Code / Value	Description
[PoC Stage Not Bypassed]	no	No PoC bypassed
[1 PoC Stage Bypassed]	bYP 1	1 PoC stage is bypassed
[2 PoC Stage Bypassed]	bYP2	2 PoC stage are bypassed
[3 PoC Stage Bypassed]	bYP3	3 PoC stage are bypassed
[4 PoC Stage Bypassed]	bYP4	4 PoC stage are bypassed
[PoC Stage Bypass Error]	FLt	PoC stage bypass error. More POC Bypassed than allowed in **[Bypass PoC Max Number]** bYP 1

[Bypass PoC Max Number] bYP 1

Defines the Number of POC that are allowed to be Bypassed.

Setting	Description
1...4	Setting range **Factory setting**:1 bypass

[PoC Load Ratio] PoCr

This parameter shows the actual allowed load of the drive depending on the actual level of POC Bypass.

Setting	Description
in %	Setting range **Factory setting**: _

[Bypass PoC Reset] bYP2

Defines the Un-Bypass sequence for POC Bypass.

Setting	Code / Value	Description
[Never]	nEVEr	PoC stays always bypassed until product power OFF (control and power) **Factory setting**
[Manu]	MAnu	Poc unbypassed done manually. PoC can be un-bypassed at drive stop if the PoC event generating the bypass is removed by Manual un-bypass DI sequence active on transition 0 to 1.
[Auto]	Auto	PoC can be Un-Bypassed at drive stop if the PoC event generating the bypass is removed.

[Bypass PoC Reset Assign] bYPM

Defines the Digital Input to manually Un-Bypass the POC. Refer to DTM for complete list of Digital inputs.

[Un-bypass Retry Number] bYP3

Allowed retries to Automatically Un-Bypass the POC during bYP4 (set during commissioning).

Setting	Description
1...65535	Setting range **Factory setting:** 3

[Un-bypass Automatic Counter] bYPC

Counter for Un-Bypass tries in the time of bYP4 (set during commissioning). This counter gets reseted if there are no new UN-Bypass tries in **[Un-bypass Retry Time]** bYP4.

Setting	Description
0...65535	Setting range **Factory setting**: _

[Analog Function] Menu

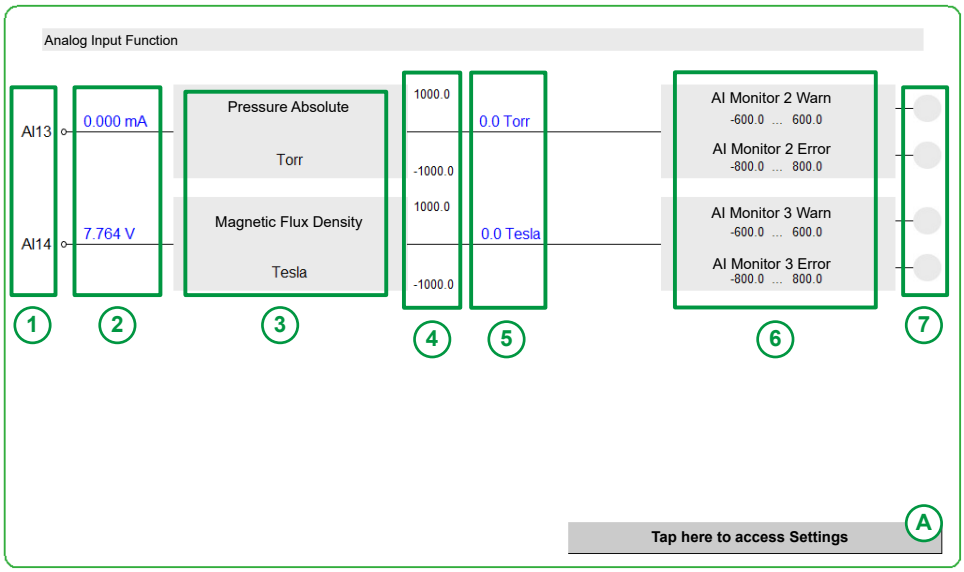
Access

[Display] ➡ [Data Dashboard] ➡ [Analog Function]

Overview

From HMI software version 1.6, users are able to configured there Analog Inputs.

Following picture shows 2 monitoring analog input configured (up to 4 analog input can be monitored), this configuration is managed through Settings Panel , page 226 and during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.



Item	Description
1	Analog input AIX Analog input show on this panel corresponds to the physical AI link to the parameters selection defined during commissioning and available on Settings Panel , page 226 . These analog input can be configured in mA or V.
2	Physical value of the Analog Input AIX in mA or V, and Warning loss x-20mA message if triggered.
3	Type of monitoring, which included function naming and unit. These two elements can be customized. Click on element, keyboard will pop-up, fill function naming and unit.
4	Range process which define Min/Max value. These two range value are defined during commissioning and available on Settings , page 226
5	Analog monitoring process and unit. Unit is displayed from the item 3 above.
6	Analog monitoring warning level and analog monitoring error level. An error or warning message is triggered when analog monitoring process (item 5) is out of range which is defined by High process level and Low process level . For more details refer to Diagnostic and troubleshooting , page 421 These range value are defined during commissioning and available on Settings , page 226

Item	Description
7	Warning and error reaction These 2 element allows to monitor if an error or warning is triggered regarding threshold . • **Grey**: no • **Orange** : a warning is triggered • **Red**: an error is triggered
A	Allows to access on Analog function settings panel , page 226.

Example when error and warning are displayed

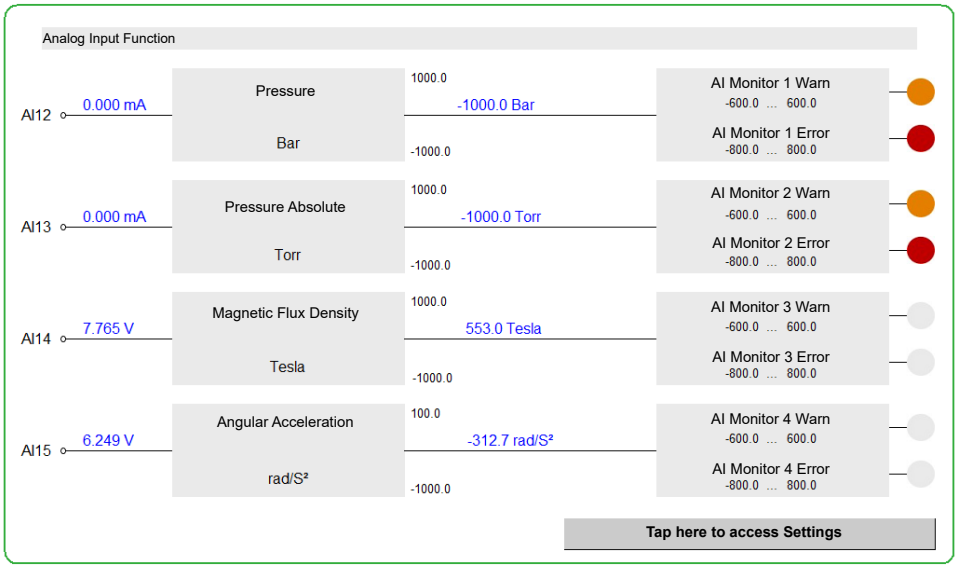
Following picture shows 4 monitoring analog input configured:

- 2 AI on mA and 2 AI on V,
- For this example first 2 AI are triggered an error and warning, threshold monitored is out of range defined by each analog monitoring warning level and analog monitoring error level.

AI12 will triggered **[AI Monitor 1 Error]** AMF1F error and **[AI Monitor 1 Warn]** AWO1 warning.

AI13 will triggered **[AI Monitor 1 Error]** AMF1F error and **[AI Monitor 1 Warn]** AWO1 warning.

Note: For more details refer to Diagnostic and troubleshooting , page 421.



[Inputs / Outputs Monitoring] Menu

Presentation

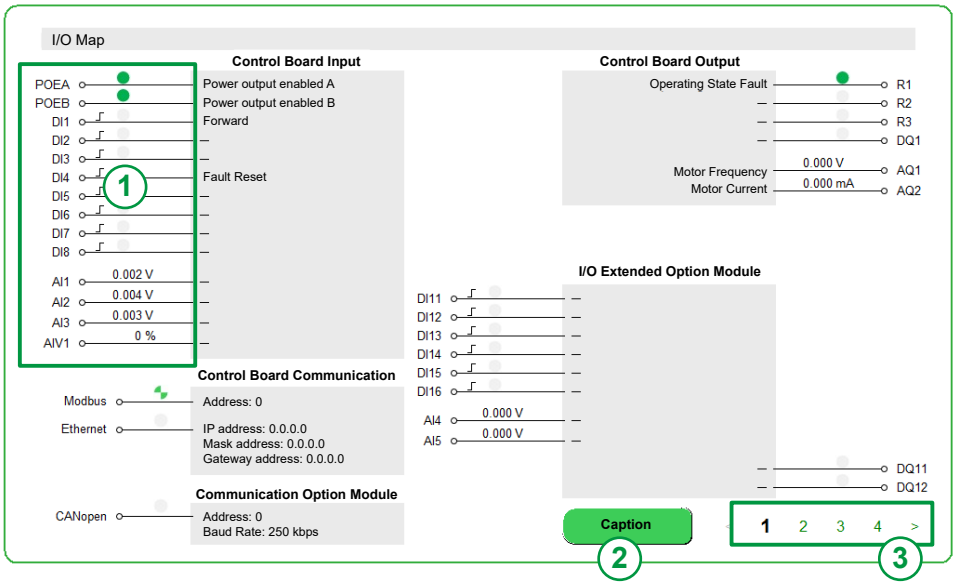
Access

[Display] ➡ [System Dashboard] ➡ [IO Status]

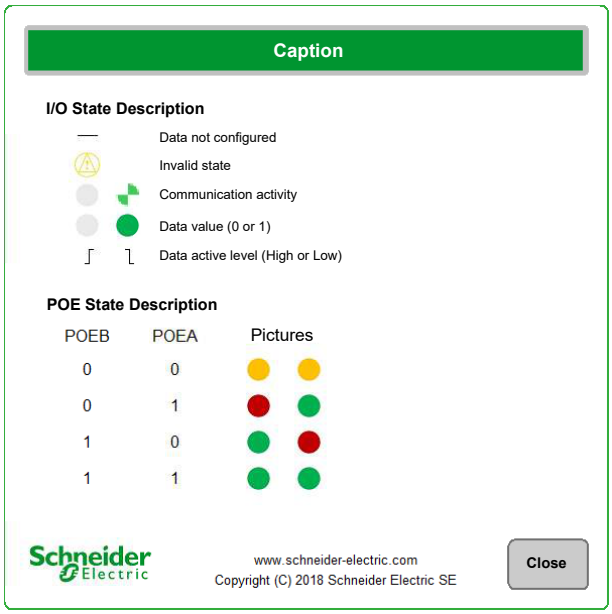
Overview

The following panels shows the **Inputs / Outputs Status** menu, depending on your personal function requirements these panels can be different.
Note: Read-only, cannot be configured.

Inputs and Outputs assignment and state. (Page 1)



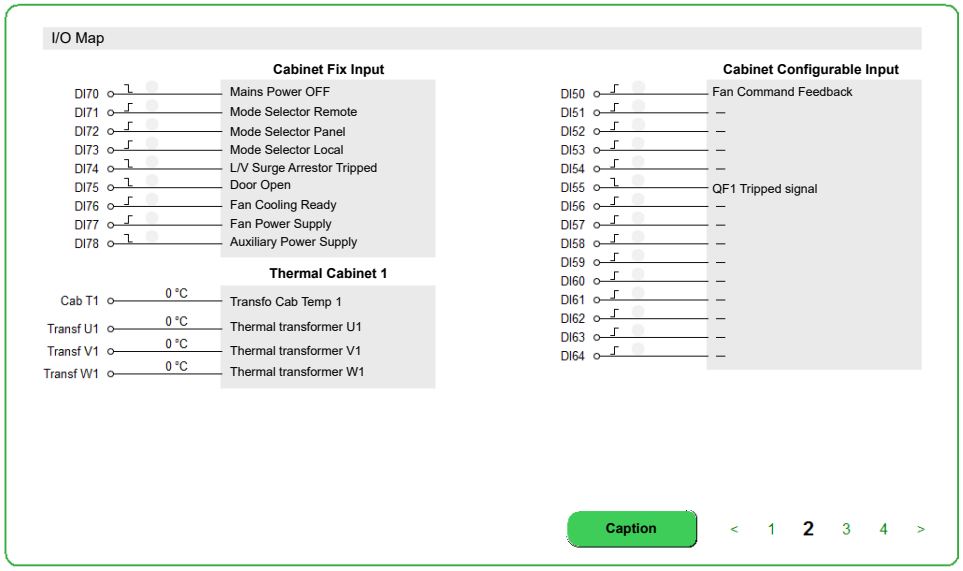
1. **Status**: Some data are monitored (e.g. values, status, communication activity.)
2. **Caption**: Click on this button allows to describe the state of I/O and POE.



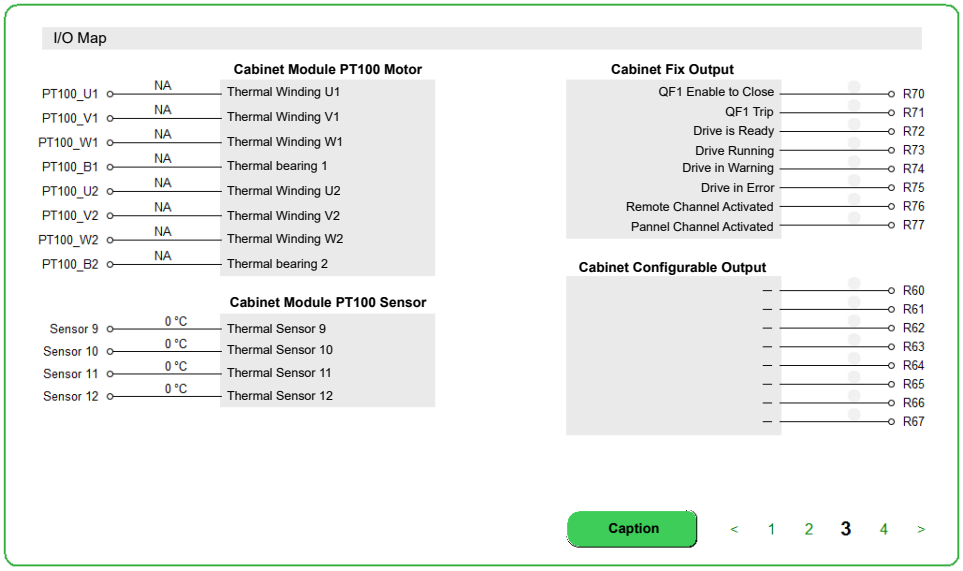
3. **Page selection**: Allows to navigate through several areas and pages, it presents all monitoring I/O parameters for:
   - Control board,
   - Module option,
   - M241,
   - PT100 for motor and cabinet.
   - Bypass drive
   - Cooling fan

When functions are Configured: Example

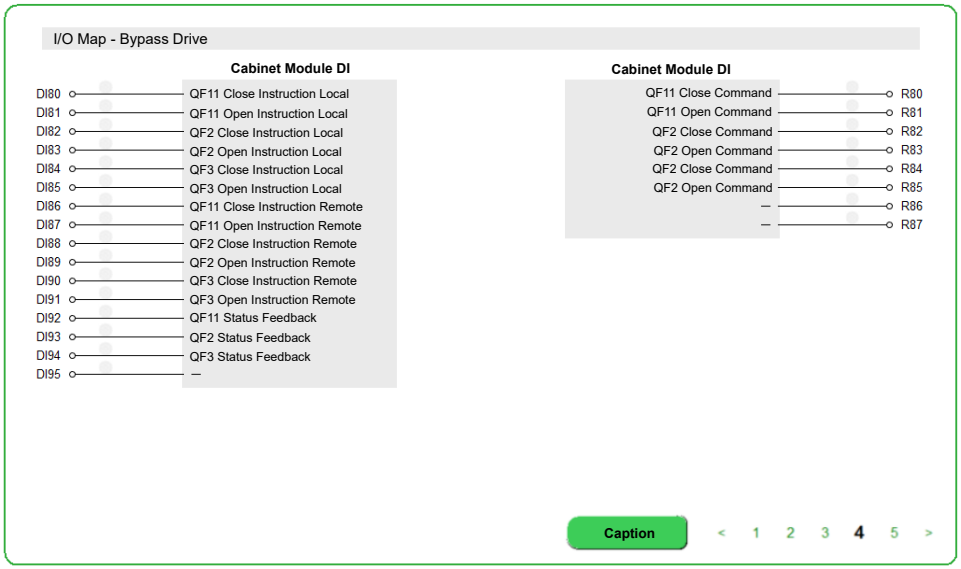
Digital inputs selection, and temperature of Cabinet. (Page 2)



State and temperature of Cabinet module with PT100 and relays. (Page 3)

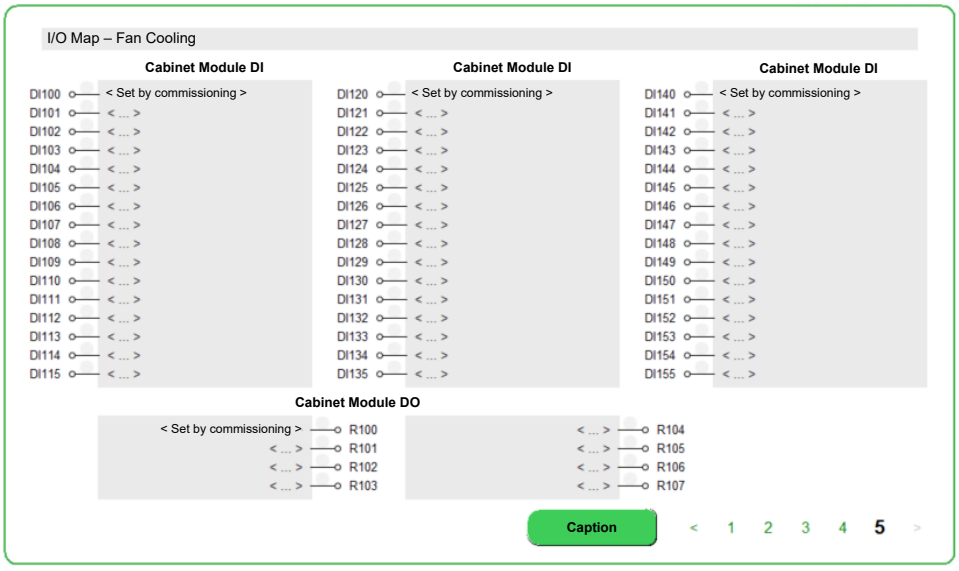


Cabinet Digital Inputs and Output selection used for Bypass Drive. (Page 4)



Cabinet Digital Inputs selection used for Fan Cooling function. Basic module (Page 4 bis)

Cabinet Digital Inputs and Output selection used for Fan Cooling function. Extended module (Page 5)



[Communication] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Communication map]

About This Menu

This menu is related to the fieldbus parameters, refer to the DTM part >> Communication menu which is the same and already described.
Read-only parameters cannot be configured.

- Page 1: Command and status, page 391
- Page 2: CANopen, page 400
- Page 3: Profibus DP, page 407
- Page 4: PROFINET, page 409
- Page 5: EtherCAT, page 412
- Page 6: DEVICENET, page 405
- Page 7: Modbus
- Page 8: Ethernet module, page 393

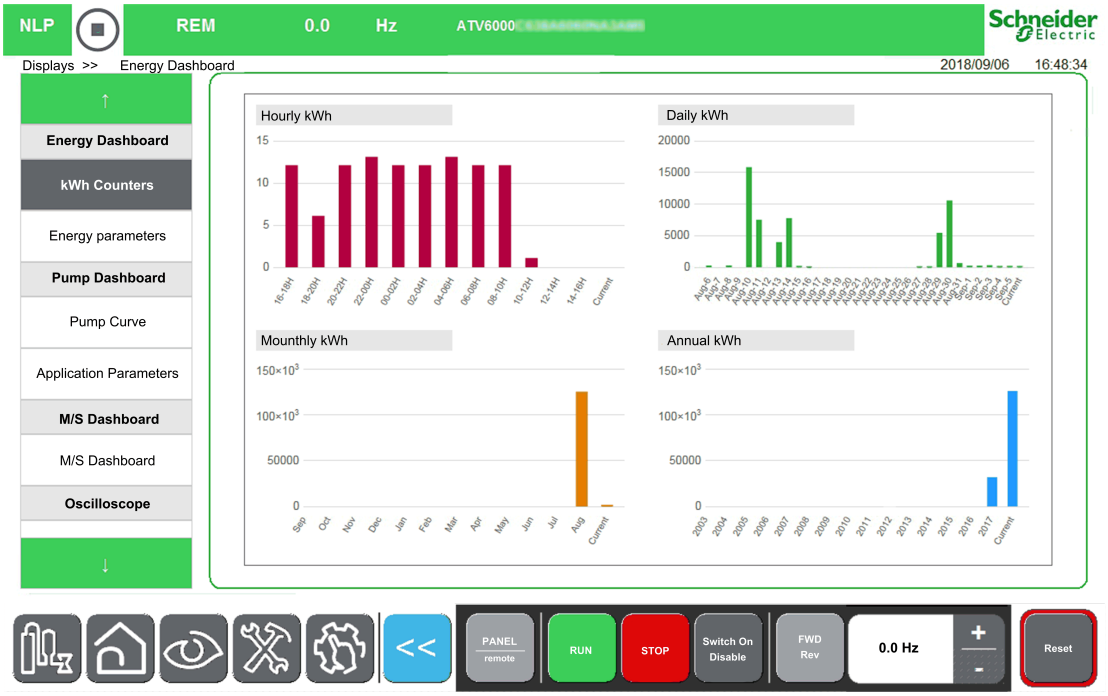
[Energy Dashboard] Menu

Access

[Display] ➡ [Energy Dashboard]

Overview

The **Energy Dashboard** menu allows you to see the real-time information of the connected devices.



The **Energy Dashboard** tab is divided into two main zones:

- A tree view on the left-side of the screen.
- A display area on the right-side of the screen.

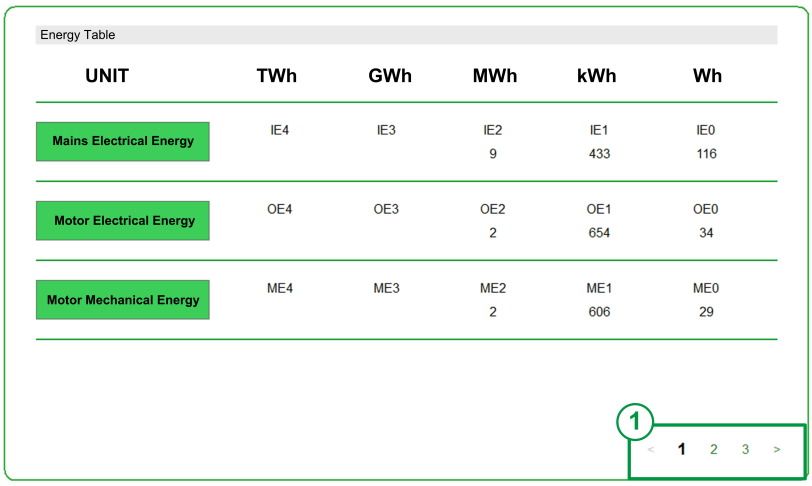
This menu displays the graphical representation of hourly, daily, monthly, and yearly power consumption of the device

NOTE: The parameter values are automatically refreshed at regular intervals.

Energy Parameters

This panel allows you to see all energy data through several pages.

Here is dashboard energy table for HMI Panel with mains electrical energy, motor electrical energy, and motor mechanical energy parameters.



1 Page selection

For other data as power data, electrical energy counter, and energy saving available , page 339.

[Pump Dashboard] Menu

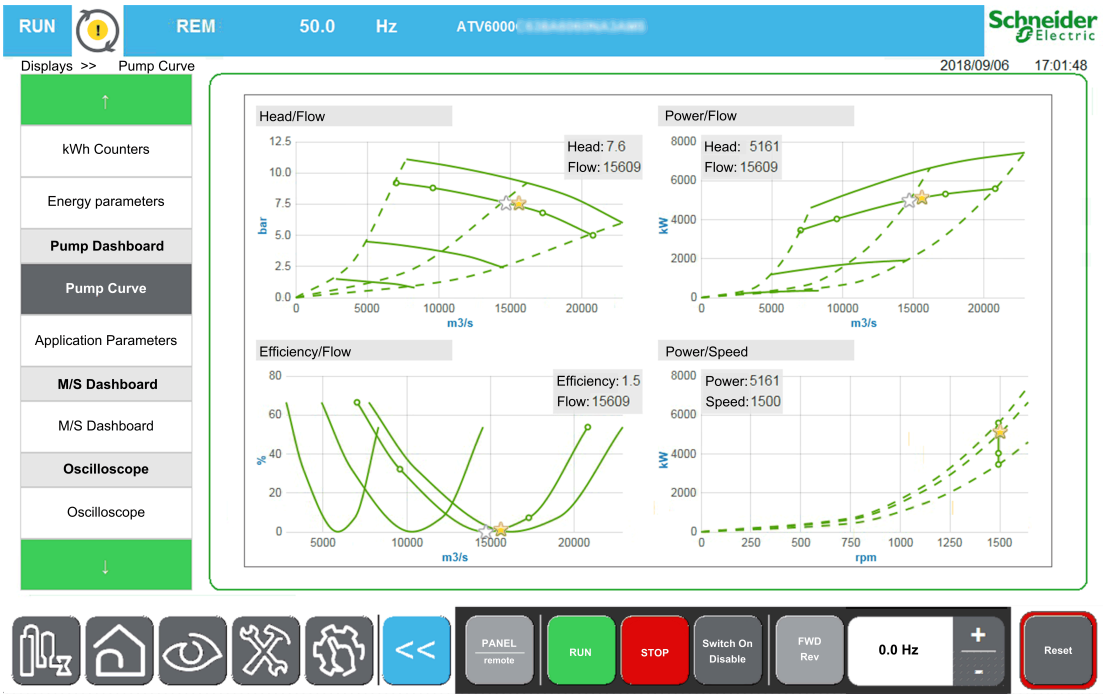
Access

[Display] ➡ [Pump Dashboard]

Overview

When the User has entered the pump curve characteristics and activated it, the following curve displays are available:

- Mechanical power vs flow display
- Head of pump vs flow display
- Efficiency vs flow display
- Mechanical power vs speed display



Pump Data - Application Parameters

See related pump data parameters , page 349

[M/S dashboard] Menu

Access

[Display] ➡ [M/S Dashboard]

About This Menu

This menu presents the master slave local display and system related parameters.
Read-only parameters cannot be configured.

[M/S Status] nSS

M/S function status.

Setting	Code / Value	Description
[None]	nonE	Not configured
[M/S Local Control]	nALt	M/S local control
[M/S Not Ready]	nrdy	M/S not ready
[M/S Ready]	rEAdy	M/S ready
[M/S Running]	run	M/S running
[M/S Warning]	ALArn	M/S warning

[M/S Master Speed Ref] nSnS

M/S Master speed reference.

Value range	Description
-300.0...300.0 Hz	**Factory setting**: _

[M/S Master Torque Ref] nSnt

M/S Master torque reference.

Value range	Description
-32,767...32,767 Nm	**Factory setting**: _

[M/S Local Speed Ref] nSSr

M/S Local speed reference.

Value range	Description
-300.0...300 Hz	**Factory setting**: _

[M/S Local Torque Ref] nSLr

M/S Local torque reference.

Value range	Description
-32,767...32,767 Nm	**Factory setting**: _

[Motor Frequency] rFr

Motor frequency.

This parameter displays the estimated rotor frequency without motor slip.

Value range	Description
-3,276.7...3,276.7 Hz	**Factory setting**: 0.0 Hz

[Motor Torque (Nm)] otqn

Motor torque.

Output torque value.

Note: The displayed value is always positive in motor and negative in generator mode whatever the direction.

Value range	Description
-32,767...32,767 Nm	Value: according to drive ratings **Factory setting**: _

[M/S Device Selection] nSdn

M/S device selection.

This parameter allows to select the device parameters to be displayed.

Setting	Code / Value	Description
[Master]	nSLEr	Master **Factory setting**
[Slave 1]	SLV 1	Slave 1
[Slave 2]	SLV 2	Slave 2
[Slave 3]	SLV 3	Slave 3
[Slave 4]	SLV 4	Slave 4
[Slave 5]	SLV 5	Slave 5
[Slave 6]	SLV 6	Slave 6
[Slave 7]	SLV 7	Slave 7
[Slave 8]	SLV 8	Slave 8
[Slave 9]	SLV 9	Slave 9
[Slave 10]	SLV 10	Slave 10

[M/S Device Status] nSdS

M/S device status.

Status of the device selected using **[M/S Device Selection]** nSdn.

Setting	Code / Value	Description
[None]	nonE	Not configured
[M/S Local Control]	nACt	Inactive
[M/S Not Ready]	nrdY	M/S not ready
[M/S Ready]	rEAdY	M/S ready
[M/S Running]	run	M/S running
[M/S Warning]	ALArn	M/S warning

[M/S Device Speed Ref] nSXS

M/S device speed reference.

Displays the local speed reference value of the device selected using **[M/S Device Selection]** nSdn.

Value range	Description
-300...300 Hz	**Factory setting**: _

[M/S Device Torque Ref] nSXt

M/S device torque reference.

Displays the local torque reference value of the device selected using **[M/S Device Selection]** nSdn.

Value range	Description
-32,767...32,767 Nm	**Factory setting**: _

[Oscilloscope] Menu

What's in This Chapter

Presentation

Access

[Display] ➡ [Oscilloscope]

Overview

The oscilloscope menu is used to display the real-time waveforms of the ATV6000's input and output variables and also keep traces of parameters on the connected device.

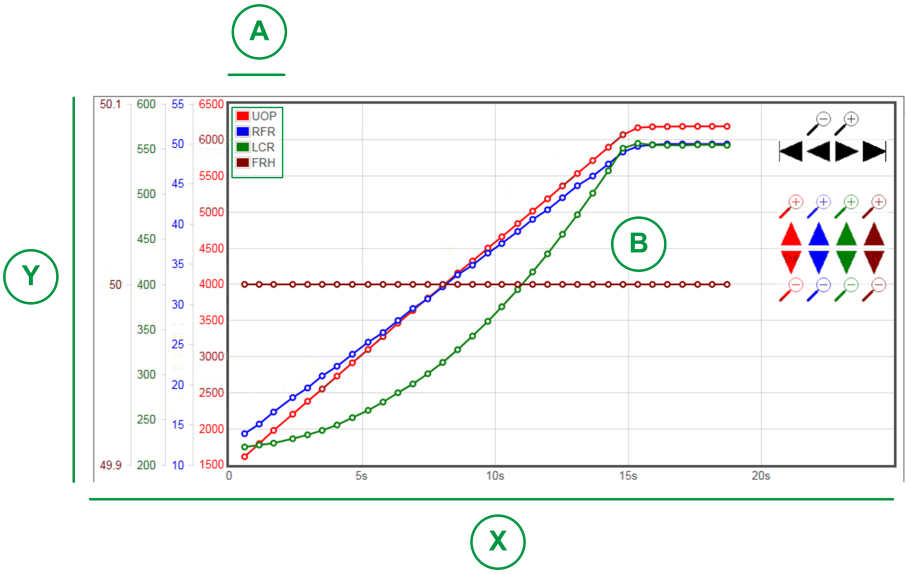
NOTE: Oscilloscope configuration change when the device is running will not be saved in Control configuration file

The Oscilloscope Panel is composed of several areas described below:

1. **Curves area** , page 125
   - When acquisition is started, then curves are displayed on the same moment.
2. **Status area** , page 125
3. **Toolbar area** , page 126

NOTE: Device must be in online mode.

Curve Area



X: Horizontal axis indicating the time value.

Y: Vertical axis, indicating the value of the associated channel signal. (Here 4 Channels are displayed.)

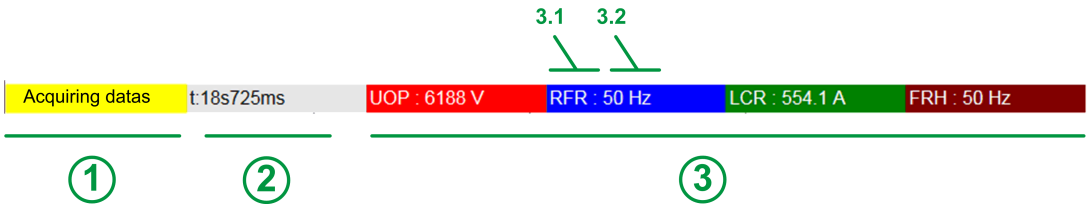
A: Legends

B: Curves

NOTE: Oscilloscope function can display one axis per curve, each axis, and curve has a different color

Status Area

Status area indicates the status of the actual acquisition and displays the value for each channel.



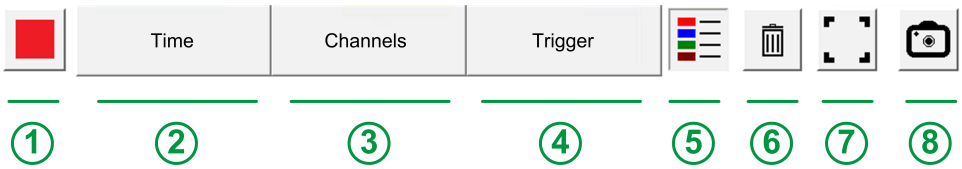
It is composed by:

1	Status of the acquisition.
2	Time value.
3	Acquisition value for each channel.
3.1	Associated parameters for each channel.
3.2	Associated curve color for each channel.

ToolBar

Overview

The Toolbar is composed of several buttons described below:



1. **Control**: Allows to Start or stop acquisition mode.
2. **Time**: Configuration mode; allows you to define the time recording selection. , page 130
3. **Channels**: Configuration mode; allows you to define the parameters to be recorded.

   4 Channels can be configured. , page 130
4. **Trigger**: Configuration mode; allows you to define trigger signals to start a recording when a specific event occurs. , page 130
5. **Legend**: Allows to display indication of the different curves.
6. **Trash can**: Allows to delete your current acquisition.
7. **Display option**: It allows you to have the curves area in full screen.
8. **Snapshot mode**: Allows you to take a snapshot of your acquisition. See Export files function , page 268.

Control

The table provides the details of the Control button available on toolbar area

Icon	Name	Description
	**Start**	Start acquisition
	**Stop**	Stop acquisition

Time Selection

This area allows you to define the settings for the recoding traces.

- **Sampling time**:

  It allows you to select the duration between 2 points.

  Range: 500 ms, 1 s, 2 s, 5 s, 10 s, 20 s, 30 s, 1 min, 5, min.

  Default value: 1 s

  Maximum record duration: 3 last remaining days.
- **Window time**:

  It allows you to select the acquisition area.
- **Offset time**: Offset will be applied to the display area in order to set the Y axis of the associated curve.

- **Configure the Pan**
  - Displays or hides a pan/panning toolbar to shift the image within a viewing area.
  - Use the **+** and **-** buttons to zoom IN or zoom Out.

    NOTE: The signal amplitude being between 1 s and 72 h (Seconds, minutes, and hour).

Channels Selection

This area allows you to define the settings for recording the traces.

- **Channel 1...4**:

  Selection of the parameter among a predefined list.

  NOTE: It is possible to add a new parameter with the modbus address.
- **Offset**:

  Offset will be applied to the display area in order to set the Y axis of the associated curve.
- **Amplitude** (axe y):

  This amplitude allows to set the maximum value of the Y axis of the associated curve.

Trigger Selection

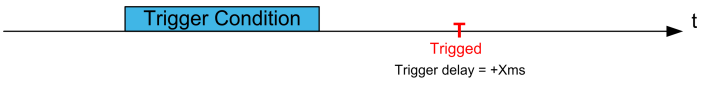
This area allows you to define the settings for recording the traces.

- **Trigger Parameter:**

  It displays all the parameters which are added to be traced.
- **Trigger threshold**:

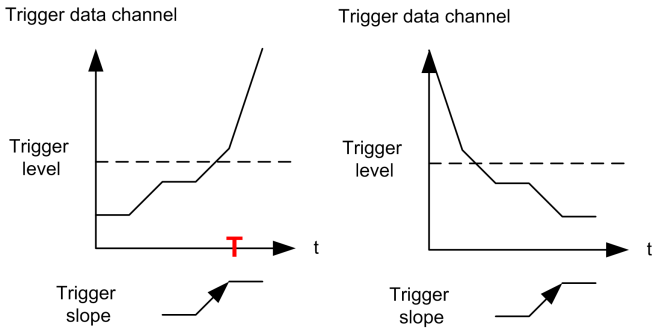
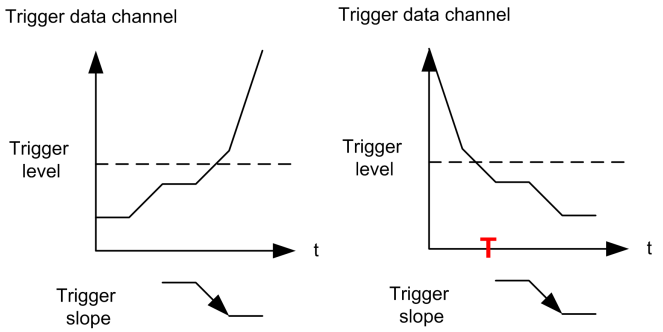
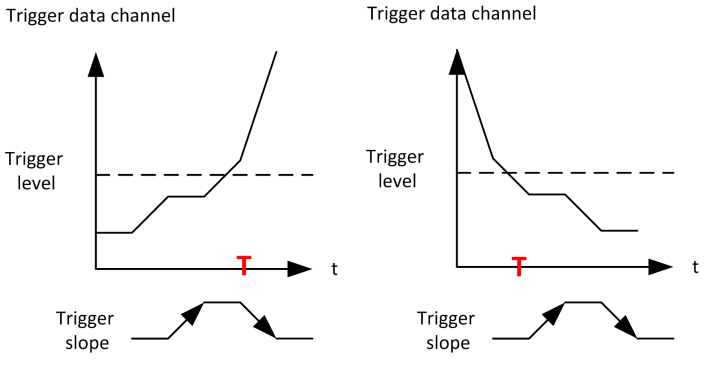
  It allows to define the scale value of the associated parameter.
- **Trigger Delay:**

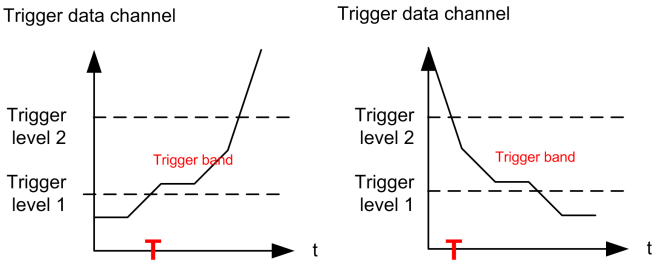
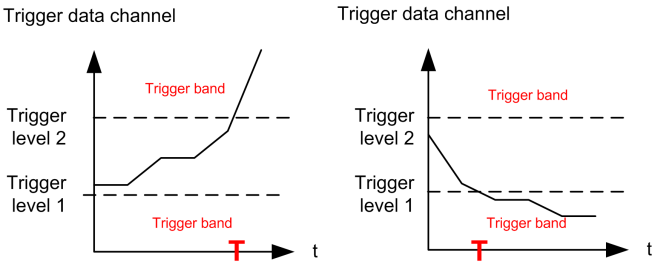
Defines the delay between the trigger event and the beginning of trace acquisition

Trigger delay	Description
0 ms:	This selection means that the data acquisition starts at the trigger event. 
+ X ms	This selection means that the data acquisition will start after the trigger event. 

- **Trigger Type**

It allows to define the type of acquisition.

Type	Description
None	Acquisition starts when **Start** is pressed.
Positive slope	 Acquisition starts when trigger parameter become greater than trigger selected value
Negative slope	Acquisition starts when trigger parameter become smaller than trigger selected value 
Positive & Negative	Acquisition starts when trigger parameter becomes smaller or greater than trigger selected value 

Type	Description
WindowsIn	Acquisition starts when trigger parameter is inside a minimum (Level 1) and maximum (Level 2) trigger value. 
Windows-Out	Acquisition starts when trigger parameter is outside a minimum (Level 1) and maximum (Level 2) trigger value. 

Snapshot Mode

Click on the button to take a snapshot of the acquisition, it can be exported on a USB key. See Export files function , page 268.

Oscilloscope Configuration

Defining Parameters

To define and set the parameters linked to the channel for a recording.

Step	Action
1	Click on Channel button. **Result**: The box is extended.
2	In the dialog box: Select the parameter you wish to record.
3	Input the sampling rate value.
4	Input the offset value.
5	Input the amplitude value.
6	Click on the Start button to start the acquisition.
For more details, refer to Channels Selection , page 127.	

NOTE: It is possible to add a new parameter with the modbus address.

Defining a Trigger Signals

To define the trigger signals for a recording:

Step	Action
1	Click on Trigger button **Result**: The box is extended
2	In the dialog box: Select the parameter you wish to record
3	Input the scale value of the associated parameter.
4	Input the delays between the trigger event and the beginning of the trace acquisition.
5	Click on the Start button to start the acquisition.
For more details, refer to Trigger Selection , page 127.	

Export File

When the acquisition is running, a snapshot is done; It is possible to export all snapshots of the "Oscilloscope Snapshot" into the default directory. See menu Export Files, page 268.

Parameters Selection

Selectable List of Parameters

This table provides the list of parameters that can be selected to the channel.

Menu	Code	Label	Units
[Mains Data], page 281	uLn	**[Mains Voltage]**	V
	uL1	**[Mains Voltage phase 1-2]**	V
	uL2	**[Mains Voltage phase 2-3]**	V
	uL3	**[Mains Voltage phase 3-1]**	V
	iLn	**[Mains Current]**	A
	iL1	**[Mains Current L1]**	A
	iL2	**[Mains Current L2]**	A
	iL3	**[Mains Current L3]**	A
	FAC	**[Mains Frequency]**	Hz
	iPrW	**[Active Input Power]**	kVar
	iqrW	**[Input Reactive Power]**	kVar
	iSrW	**[Apparent Input Power]**	kW
	PWF	**[Input Power Factor]**	%
	uNV	**[Mains Unbalance Ratio]**	%
	GiVd	**[Input Ground Value]**	%
[Power stage Data]	tt1N	**[Transfo Cab Temp 1]**	°C
	tP1u	**[Thermal transformer U1]**	°C
	tP1V	**[Thermal transformer V1]**	°C
	tP1W	**[Thermal transformer W1]**	°C
	tt2N	**[Transfo Cab Temp 2]**	°C
	tP2u	**[Thermal transformer U2]**	°C
	tP2V	**[Thermal transformer V2]**	°C
	tP2W	**[Thermal transformer W2]**	°C
[Motor data]	FrH	**[Pre-Ramp Ref Freq]]**	Hz
	Fro	**[Ramp output frequency (signed)]**	
	uoP	**[Motor Voltage]**	V
	LCr	**[Motor Current]**	A
	rFr	**[Motor Frequency]**	Hz
	SPd	**[Motor Speed]**	rpm
	otr	**[Motor Torque]**	%
	otrn	**[Motor Torque (Nm)]**	Nm
	EPr	**[Active Electrical output power estimation]**	%
	EPrW	**[Acv Elc out pwr estm]**	kW
	oPr	**[Motor Power]**	%
	oPrW	**[Power Estim Value]**	kW
	GoVd	**[Output Ground Value]**	%

Menu	Code	Label	Units
[Motor Thermal], page 307	tHM1	**[Thermal winding U1]**	°C
	tHM2	**[Thermal winding V1]**	°C
	tHM3	**[Thermal winding W1]**	°C
	tHM5	**[Thermal winding U2]**	°C
	tHM6	**[Thermal winding V2]**	°C
	tHM7	**[Thermal winding W2]**	°C
	tHM4	**[Thermal bearing 1]**	°C
	tHM8	**[Thermal bearing 2]**	°C
[Thermal Sensor], page 310	tH1V	**[AI1 Th Value]**	°C
	tH3V	**[AI3 Th Value]**	°C
	tH4V	**[AI4 Th Value]**	°C
	tH5V	**[AI5 Th Value]**	°C
	tHEV	**[Enc Th Value]**	°C
	tHM9	**[Thermal Sensor 9]**	°C
	tHMA	**[Thermal Sensor 10]**	°C
	tHMb	**[Thermal Sensor 11]**	°C
	tHMC	**[Thermal Sensor 12]**	°C
	tHMd	**[Thermal Sensor 13]**	°C
	tHME	**[Thermal Sensor 14]**	°C
[Drive Data], page 288	LFrA	**[Ref Frequency]**	Hz
	LFrd	**[DRIVECOM : Nominal speed value]**	-
	LtrA	**[Torque ref.]]**	%
	CnFS	**[Config. active]**	-
	rFCC	**[Ref Freq Channel]**	-
	CMdC	**[Command Channel]**	-
	CMdS	**[Cabinet Switch Status]**	-
	9F0S	**[QF1 Command State]**	-
	PLo1	**[On Lock Register]**	Bit
	tLS1	**[Overload State 1]**	%
	tLS2	**[Overload State 2]**	%
[Bypass Drive], page 360	bYS0	**[Drive Bypass Status]**	-
	bYS1	**[Bypass Circuit Breaker Status]**	-
	PLo2	**[Drive Bypass On Lock Register]**	-
	9F1S	**[QF1 Command State]**	-
	9F2S	**[QF2 Command State]**	-
	9F3S	**[QF3 Command State]**	-
[Bypass PoC], page 313	bYPS	**[Bypass PoC Status]**	-

Bypass Drive

What's in This Chapter

Overview

The purpose of the bypass is to switch the motor to mains or from mains to drive depending on the application and the settings of the drive. Bypass is possible unsynchronized or synchronized. The CB operation can be controlled by the drive or manually.

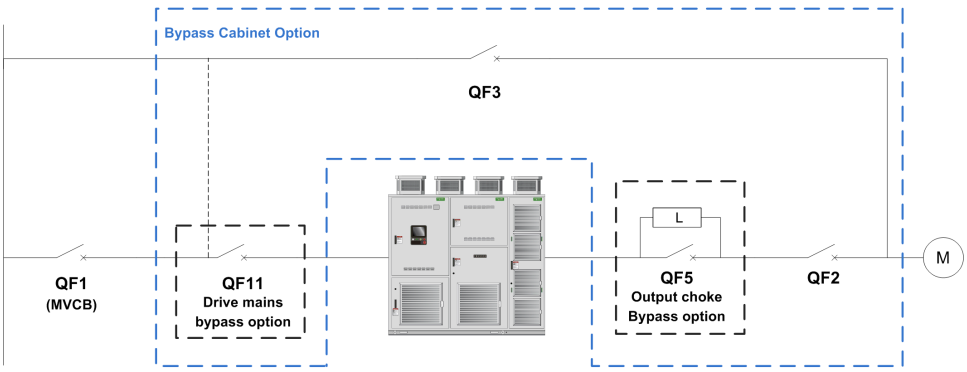
In the event of an error is detected the drive can switch automatically to mains.

There are 3 types of bypass drive function:

- **Bypass Drive Monitor**: The drive is only in monitoring mode, the Circuit breaker must be switched manually.
- **Bypass Drive Control Direct On Line** (DOL): The drive can switch the motor automatically to DOL in case of an error detected. The normal transfer to DOL can be monitored.
- **Bypass Drive Control Synchronized**: The drive can synchronize the motor to mains and also from mains back to the drive.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact your local Schneider representative.

The following figure shows the possible architecture available with your application.



QF1 Mains medium voltage Circuit Breaker

QF11 Bypass circuit breaker DRIVE (Optional)

QF2 Bypass circuit breaker MOTOR

QF3 Bypass circuit breaker DOL

QF5 Bypass circuit breaker Choke (Optional for Bypass Drive Control Synchronized)

NOTE:

- User must confirm that the function selection is compatible with his installation.
- Before applying any command to the Circuit breaker, check the initial status and feedback displayed on the HMI.

[Bypass Drive Monitoring] Menu

Access

[Display] ➞ [Bypass Drive] ➞ [Bypass Drive Monitoring]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.

With the Bypass Monitor function:

- all Circuit Breakers are handled manually by the user.
- all Circuit Breakers QF11/QF2/QF3 feedback are monitored.

[Drive Bypass Status] bYS0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass Drive not configured
[Undefined]	Und	Cabinet bypass control undefined
[Drive]	drV	Cabinet bypass control Drive
[DOL]	doL	Cabinet bypass control DOL
[DOL On Error]	doLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	tTM1	Transfer drive to mains in progress
[Transfer To Drive In Progress]	tTd1	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] bYS1

Bypass Circuit Breaker Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	bYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	bYS4	Bypass circuit breakers: QF2=1 - QF3=1

Setting	Code / Value	Description
[QF11=0 - QF2=0 - QF3= 0]	bYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3= 1]	bYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3= 0]	bYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3= 1]	bYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3= 0]	bYS9	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3= 1]	bYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3= 0]	bYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3= 1]	bYSd	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

Drive Bypass On Lock Register PLo2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] bWS4

Bypass circuit breaker status

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13...15	Reserved

[QF11 QF2 QF3 Stat] bWS1

QF11 QF2 QF3 Option Bypass breaker status

Bit	Description, Value
0	QF11 Close request instruction (state or pulse)
1	QF11 Open request instruction (state or pulse)
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
6	QF5 Open request instruction (state or pulse)
7	QF5 Close request instruction (state or pulse)
8	QF11 Close (1) command instruction
9	QF11 Open (1) command instruction
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction
13	QF3 Open (1) command instruction
14	QF5 Open (1) command instruction
15	QF5 Close (1) command instruction

[Drive Bypass Logic Input] ıLC3

Drive Bypass Logic Input state

Bit	Description, Value
0	"DI80" logic inputs physical image
1	"DI81" logic inputs physical image
2	"DI82" logic inputs physical image
3	"DI83" logic inputs physical image
4	"DI84" logic inputs physical image
5	"DI85" logic inputs physical image
6	"DI86" logic inputs physical image
7	"DI87" logic inputs physical image
8	"DI88" logic inputs physical image
9	"DI89" logic inputs physical image
10	"DI90" logic inputs physical image
11	"DI91" logic inputs physical image
12	"DI92" logic inputs physical image
13	"DI93" logic inputs physical image
14	"DI94" logic inputs physical image
15	"DI95" logic inputs physical image

[Cab Fix Logic Output] oLC2

Cabinet fixed logic output state

Bit	Description, Value
0	"R70" relay physical image
1	"R71" relay physical image
2	"R72" relay physical image
3	"R73" relay physical image
4	"R74" relay physical image
5	"R75" relay physical image
6	"R76" relay physical image
7	"R77" relay physical image
8	"R80" relay physical image
9	"R81" relay physical image
10	"R82" relay physical image
11	"R83" relay physical image
12	"R84" relay physical image
13	"R85" relay physical image
14	"R86" relay physical image
15	"R87" relay physical image

[Bypass Drive Control DOL] Menu

Access

[Display] ➡ [Bypass Drive] ➡ [Bypass Drive Control DOL]

About This Function

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider representative.

With the Bypass Drive Control DOL function, all Circuit breakers are:

- **Controlled manually** according to user switch command order. (Close and open)
  - Control motor in DRIVE state
  - Control motor in DOL state
- **Controlled automatically** from Drive to DOL according to the error state. (Bypass after error triggering)

Control channel modes for bypass switch:

- Mode Local / Remote for switch command order (closed and open state)

[Drive Bypass Status] bYS0

Read only parameter

Setting	Code / Value	Description
[Not Congigured]	nO	Bypass Drive not configured
[Undefined]	Und	Cabinet bypass control undefined
[Drive]	drV	Cabinet bypass control Drive
[DOL]	doL	Cabinet bypass control DOL
[DOL On Error]	doLF	Cabinet bypass control DOL after detected error

[Bypass Circuit Breaker Status] bYS 1

Read only parameter

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS 1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	bYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	bYS4	Bypass circuit breakers: QF2=1 - QF3=1

Setting	Code / Value	Description
[QF11=0 - QF2=0 - QF3= 0]	bYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3= 1]	bYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3= 0]	bYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3= 1]	bYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3= 0]	bYS9	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3= 1]	bYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3= 0]	bYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3= 1]	bYSd	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLo2

Bypass Cabinet Lock register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] bWS4

Bypass circuit breaker status

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
1	Set to 1: Drive connection
2	Set to 1: DOL connection
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
7	Reserved
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state
13...15	Reserved

[QF11 Command State] qF 15

Motor Circuit breaker QF11 Command State

Setting	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF2 Command State] qF 25

Motor Circuit breaker QF2 Command State

Setting	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state

Setting	Code / Value	Description
[Not Open]	CbnO	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF3 Command State] 9F3S

Motor Circuit breaker QF3 Command State

Setting	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	CbnO	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF11 QF2 QF3 Stat] bWS1

QF11 QF2 QF3 Option Bypass breaker status

Bit	Description, Value
0	QF11 Close request instruction (state or pulse)
1	QF11 Open request instruction (state or pulse)
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
6	QF5 Open request instruction (state or pulse)
7	QF5 Close request instruction (state or pulse)
8	QF11 Close (1) command instruction
9	QF11 Open (1) command instruction
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction
13	QF3 Open (1) command instruction
14	QF5 Open (1) command instruction
15	QF5 Close (1) command instruction

[Drive Bypass Logic Input] iLC3

Drive Bypass Logic Input state

Bit	Description, Value
0	"DI80" logic inputs physical image
1	"DI81" logic inputs physical image
2	"DI82" logic inputs physical image
3	"DI83" logic inputs physical image
4	"DI84" logic inputs physical image
5	"DI85" logic inputs physical image
6	"DI86" logic inputs physical image
7	"DI87" logic inputs physical image
8	"DI88" logic inputs physical image
9	"DI89" logic inputs physical image
10	"DI90" logic inputs physical image
11	"DI91" logic inputs physical image
12	"DI92" logic inputs physical image
13	"DI93" logic inputs physical image
14	"DI94" logic inputs physical image
15	"DI95" logic inputs physical image

[Cab Fix Logic Output] oLC2

Cabinet fixed logic output state

Bit	Description, Value
0	"R70" relay physical image
1	"R71" relay physical image
2	"R72" relay physical image
3	"R73" relay physical image
4	"R74" relay physical image
5	"R75" relay physical image
6	"R76" relay physical image
7	"R77" relay physical image
8	"R80" relay physical image
9	"R81" relay physical image
10	"R82" relay physical image
11	"R83" relay physical image
12	"R84" relay physical image
13	"R85" relay physical image
14	"R86" relay physical image
15	"R87" relay physical image

Identification

What's in This Chapter

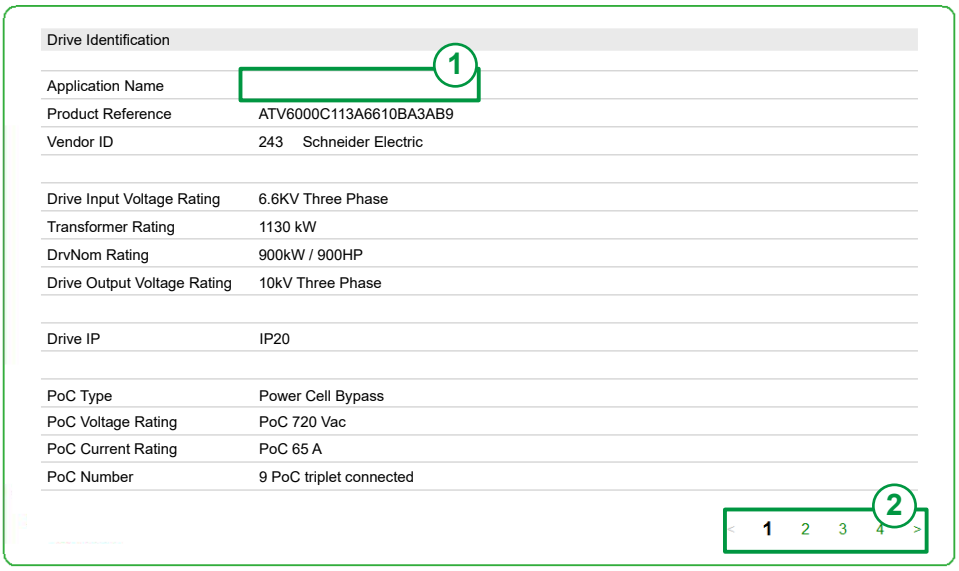
[Drive Identification] Menu

Access

[Display] ➡ **[Identification]**

Overview

This menu displays the global information about the device:



1. Application Name: Can be customized, refer to **Settings > My preferences > Localization Settings** , page 263.

2. Page selection: Allows to navigate through several pages, it presents all information for :

Device identification:	Production Reference Vendor ID Drive input voltage rating Transformer Rating Drive nominal Rating Drive output voltage	Drive IP PoC type PoC voltage rating PoC current rating PoC number
Board identification:	Serial number and version	
Option card and fieldbus module:	Commercial reference and naming Serial number Version	

HMI Panel identification:	Version compatibility Internal information related to HMI
PLC Identification:	Version compatibility Internal information related to PLC

Motor Control

What's in This Chapter

Overview

ATV6000 Motor Control Types

ATV6000 drive embeds 11 motor control types which covers all the use cases depending on the application.

The following table shows the Motor Control types selection depending on the application needs:

Control	Motor Type	[Motor Control Type] Ctt selection	Description
Open-Loop	Asynchronous motor	**[U/F VC Standard]** Std	U/F vector control law
		[Energy Sav.] nLd	Energy saving control law
		[SVC V] VVC	Voltage vector control law with slip compensation
		[U/F VC 5pts] uFS	5 points U/F vector control law
		[U/F VC Quad.] uF9	U/F vector control law for variable torque applications (pumps and fans).
		[U/F VC Energy Sav.] ECo	U/F vector control optimized for energy saving.
	Synchronous motor	**[Sync. mot.]** SYn	Permanent magnet control law [2]
		[Sync Ext Excitation] SYnE	Permanent magnet control law with external excitation [2]
Closed-Loop [1]	Asynchronous motor	**[FVC]** FVC	Current vector control law
	Synchronous motor	**[Sync.CL]** FSY	Permanent magnet control law [2]
		[Sync CL Ext Excitation] FSYE	Permanent magnet control law with external excitation [2]

(1) For these applications, an encoder must be present and configured.

(2) PMSM motor technologies supported: S-PMSM motor: surface permanent magnet / I-PMSM motor: Interior permanent magnet.

Parameters List for Asynchronous Motors

The following table shows the minimum parameters list that needs to be configured for asynchronous motors depending of **[Motor Control Type]** Ctt selection:

NOTE: After setting these parameters, perform an **[Autotuning]** tun to optimize the performance.

Parameters	[SVC V] VVC	[FVC] FVC	[U/F VC 5pts] uFS	[Energy Sav.] nLd	[U/F VC Standard] Std	[U/F VC Energy Sav.] ECo	[U/F VC Quad.] uF9
[Motor Standard] bFr	✓	✓	✓	✓	✓	✓	✓
[Nominal Motor Power] nPr	✓	✓	✓	✓	✓	✓	✓
[Nom Motor Voltage] unS	✓	✓	✓	✓	✓	✓	✓
[Nom Motor Current] nCr	✓	✓	✓	✓	✓	✓	✓
[Nominal Motor Freq] FrS	✓	✓	✓	✓	✓	✓	✓
[Nominal Motor Speed] nSP	✓	✓	✓	✓	✓	✓	✓

Parameters	[SVC V] VVC	[FVC] FVC	[U/F VC 5pts] UFS	[Energy Sav.] nLd	[U/F VC Standard] Std	[U/F VC Energy Sav.] ECo	[U/F VC Quad.] UFq
[Encoder Type] UECP		✓ (1)					
[Encoder supply volt.] UECV		✓ (1)					
[Encoder usage] Enu		✓ (1)					
(1) Encoder settings depend on the encoder used in the application.							

Parameters List for Synchronous Motors

The following table shows the minimum parameters list that needs to be configured for synchronous motors depending of **[Motor Control Type]** Ctt selection:

NOTE: After setting these parameters, to perform an **[Autotuning]** tun to optimize the performance.

Parameters	[Sync. mot.] SYn	[Sync.CL] FSY	[Sync Ext Excitation] SYnE	[Sync CL Ext Excitation] FSYE
[Sync Nominal] nCrS	✓	✓	✓	✓
[Nom SyncMotor Speed] nSPS	✓	✓	✓	✓
[Nom Motor torque] tqS	✓	✓	✓	✓
[Pole pairs] PPnS	✓	✓	✓	✓
[Angle setting type] ASt	✓	✓	✓	✓
[Encoder Type] UECP		✓ (1)		✓ (1)
[Encoder supply volt.] UECV		✓ (1)		✓ (1)
[Encoder usage] Enu		✓ (1)		✓ (1)
(1) Encoder settings depend on the encoder used in the application.				

[Motor nameplate] Menu

Access

[Display] ➡ [Motor Control] ➡ [Motor nameplate]

About This Menu

This menu shows the motor nameplate parameters.
Read-only parameters cannot be configured.

[Nominal Motor Power] nPr

Nominal motor power.

Rated motor power given on the nameplate, in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50, in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60.

Value range	Description
According to drive rating	**Factory setting**: according to the drive rating

[Nom Motor Voltage] UnS

Nominal motor voltage.

Rated motor voltage given on the nameplate.

Value range	Description
100...20,000 Vac	**Factory setting**: according to drive rating and **[Motor Standard]** bFr.

[Nom Motor Current] nCr

Rated motor current given on the nameplate.

Value range	Description
0.25...1.5 In (1)	**Factory setting**: according to drive rating and **[Motor Standard]** bFr.
(1) Corresponding to the rated drive current indicated in the Handbook manual and on the drive nameplate.	

[Nominal Motor Freq] FrS

Nominal motor frequency.

The factory setting is 50 Hz, or preset to 60 Hz if **[Motor Standard]** bFr is set to 60 Hz.

Value range	Description
10.0...20,000 Hz	**Factory setting**: 50 Hz

[Nominal Motor Speed] nSP

Nominal motor speed.

Value range	Description
0...65,535 rpm	**Factory setting**: according to drive rating

[Motor 1 Cosinus Phi] CoS

Nominal motor cosinus Phi.

Value range	Description
0.50...1.00	**Factory setting**: according to the drive rating

[Motor Param Choice] MPC

Motor parameter choice.

Setting	Code / Value	Description
[Mot Power]	nPr	Motor power **Factory setting**
[Mot Cosinus]	CoS	Motor cosinus

[Poles pair number] PPn

Pole pairs number.

Value range	Description
1...100	**Factory setting**: according to the drive rating.

[Nom Motor Torque] tqn

Computed nominal motor torque in Nm (+/- 2% tolerance).

Value range	Description
0.01...65,535 Nm	Value range range according to drive rating. **Factory setting**: –

[Autotuning Status] tUS

Autotuning status.

This parameter is not saved at drive power-off. It shows the autotuning status since the last power-on.

Setting	Code / Value	Description
[Not done]	tAb	The autotuning is not done **Factory setting**
[Pending]	PEnd	The autotuning has been requested but not yet performed
[In Progress]	PrOG	The autotuning is in progress
[Error]	FAIL	The autotuning has detected an error
[Done]	donE	The motor parameters measured by the autotuning function are used to control the motor

[Autotuning flux status] tUrS

Tuning in rotation status.

Setting	Code / Value	Description
[Not Done]	tAb	Default value of the stator resistor is used to control the motor **Factory setting**
[Pending]	PEnd	The autotuning has been requested but not yet performed
[In Progress]	PrOG	The autotuning is in progress
[Error]	FAIL	Error detected during autotuning
[Autotuning Done]	donE	The drive management uses the stator resistor measured by the auto-tuning function

[AsyncMotor R Stator] rSA

Asynchronous motor stator resistance.

The factory setting is replaced by the result of the autotuning operation if it has been performed.

Value range	Description
0...65,535 mOhm	**Factory setting**: 0 mOhm

[Magnetizing Current] IdA

Magnetizing current.

Value range	Description
0...6,553.5 A	**Factory setting**: 0 A

[AsyncMotor L Induct] LFA

Asynchronous motor leakage inductance.

Value range	Description
0...655.35 mH	**Factory setting**: 0 mH

[Rotor Time Const] tr A

Rotor time constant.

Value range	Description
0...65,535 ms	**Factory setting**: 0 ms

[Rotor Nominal Flux] PH iA

Rotor nominal flux

Value range	Description
0.0...655.35 Wb	**Factory setting**: -

[Main Inductance] LA

Main Inductance

Value range	Description
0...65535	**Factory setting**: -

[Tangential Main Inductance] LOA

Tangential main inductance

Value range	Description
0...65535	**Factory setting**: 0

[Flux curve coeff A] ALFA

Flux saturation curve numerator coefficient A

Value range	Description
-327.67 %...327.67 %	**Factory setting**: 0

[Flux curve coeff B] bEtO

Flux saturation curve denominator coefficient B

Value range	Description
-327.67 %...327.67 %	**Factory setting**: 0

[Sync Nominal I] nCrS

Sync motor nominal current (given on the motor nameplate).

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune Selection]** tUn is reset to **[Default]** tAb. Autotuning will need to be performed again.

Setting	Description
0.25...1.5 In (1)	Setting range **Factory setting**: according to the drive rating.
(1): Corresponding to the rated drive current indicated in the Handbook manual and on the drive nameplate.	

[Nom SyncMotor Speed] nSP

Nominal synchronous motor speed (given on the motor nameplate).

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune Selection]** tUn is reset to **[Default]** tAb. Autotuning will need to be performed again.

Setting	Description
0...48,000 rpm (step: 1 rpm)	Setting range **Factory setting**: according to the drive rating.

[Nom Motor torque] tQS

Nominal motor torque (given on the motor nameplate).

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune Selection]** tUn is reset to **[Default]** tAb. Autotuning will need to be performed again.

Setting	Description
0.1...6,553.5 Nm	Setting range **Factory setting**: according to the drive rating.

[Pole pairs] PPnS★

Pole pairs (given on the motor nameplate).

This parameter is used to calculated **[Sync Nominal Freq]** FrSS.

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune Selection]** tUn is reset to **[Default]** tAb. Autotuning will need to be performed again.

Setting	Description
1...50 (step: 1)	Setting range **Factory setting**: according to the drive rating.

[Syn. EMF constant] PHS

Synchronous motor EMF constant

PHS adjustment allows you to reduce the current in operation without load (or with minimum of load). .

Setting	Description
0...6,553.5 mV/rpm (step: 0.1 mV/rpm)	Setting range **Factory setting**: 0 mV/rpm

[SyncMotor Stator R] r S A S

Calculated SyncMotor Stator R (cold state stator resistance per winding).

The factory setting is replaced by an estimation resulting from a standstill motor tune (autotuning) if it has been performed. Only enter manually a value if you are copying a drive configuration that has been tuned via autotuning.

Setting	Description
0...65,535 mOhm	Setting range **Factory setting**: 0 mOhm

[Autotune L d-axis] L d S

Sync motor d inductance (axis "d" stator inductance per phase).

The factory setting is replaced by an estimation resulting from a standstill motor tune (autotuning) if it has been performed. Only enter manually a value if you are copying a drive configuration that has been tuned via autotuning.

NOTE: On motors with smooth poles, **[Autotune L d-axis]** L d S = **[Autotune L q-axis]** L 9 S = Stator inductance L.

Setting	Description
0...655.35 mH	Setting range **Factory setting**: 0.00 mH

[Autotune L q-axis] L 9 S

Sync motor q inductance (axis "q" stator inductance per phase).

The factory setting is replaced by an estimation resulting from a standstill motor tune (autotuning) if it has been performed. Only enter manually a value if you are copying a drive configuration that has been tuned via autotuning.

NOTE: On motors with smooth poles, **[Autotune L d-axis]** L d S = **[Autotune L q-axis]** L 9 S = Stator inductance L.

Setting	Description
0...655.35 mH	Setting range **Factory setting**: 0.00 mH

[Sync Nominal Freq] F r S S

Synchronous motor nominal frequency.

NOTE: Modifying this parameter resets the motor tune parameters and, **[Tune Selection]** S E u n is reset to **[Default]** E A b. Autotuning will need to be performed again.

Setting	Description
10.0...500.0 Hz (step: 0.1 Hz)	Setting range **Factory setting**: nSPS x PPnS / 60 (the value is automatically updated and cannot be modified)

[Motor Control] Menu

Access

[Display] ➡ [Motor Control] ➡ [Motor Control]

About This Menu

This menu shows the motor control related parameters. This is a read-only menu that cannot be configured.

[Motor Control Type] CTT

Motor control type.

Setting	Code / Value	Description
[U/F VC Standard]	STD	Standard motor control type. For applications that require torque at low speed. **Factory setting**
[SVC V]	VVC	Voltage vector control: Open-loop voltage flux vector control with automatic slip compensation according to the load.
[FVC]	FVC	Current vector control closed loop: Closed-loop current flux vector control for motors with encoder sensor.
[U/F VC 5pts]	UF5	5–segment V/F profile: As **[U/F VC Standard]** STD profile but also supports the avoidance of resonance (saturation).
[U/F VC Quad.]	UF9	Motor control type dedicated to variable torque applications, typically used for pumps and fans.
[Sync. mot.]	SYN	Open-loop synchronous motors: Motor control type specific for permanent magnet synchronous motors.
[Energy Sav.]	NLD	Specific motor control type optimized for energy saving. **Note:** Compared to constant flux vector control laws, as flux level is adjusted according to the load level, it is normal for the output voltage to be very low under low load conditions
[Sync.CL]	FSY	Closed-loop synchronous motor: For permanent magnet synchronous motors, with encoder.
[U/F VC Energy Sav.]	ECO	Specific motor control type optimized for energy saving.

[Slip compensation] SLP

Slip compensation.

Value range	Description
0...300%	**Factory setting**: 100%

[Inertia Factor] SPGU

Inertia factor

Value range	Description
0...1,000%	**Factory setting**: 40%

[FreqLoop Stab] SLA

Frequency loop stability (Speed loop damping factor).

Value range	Description
0...100%	**Factory setting**: 20%

[FreqLoopGain] FLG

Frequency loop gain (Speed loop bandwidth).

Value range	Description
0...100%	**Factory setting**: 20%

[K speed loop filter] SFC

Speed filter coefficient (0(IP) to 1(PI)).

Value range	Description
0...100	**Factory setting**: 65

[Estim. app. inertia] JESt

Estimated application inertia.

Increment given by **[Inertia Mult. Coef.]** JMuL : - 0.1 gm², 1 gm², 10 gm², 100 gm² or 1000 gm².

Value range	Description
1...9,999 kg.m²	**Factory setting**: –

[Motor fluxing] FLu

Motor fluxing configure

Setting	Code / Value	Description
[Not continuous]	FnC	Non-continuous mode **Factory setting**
[Continuous]	FCt	Continuous mode This option is not possible if **[Auto DC Injection]** AdC is **[Yes]** YES or if **[Type of stop]** Stt is **[Freewheel]** nSt
[No]	Fno	Function inactive

[Dec.Ramp Adapt] b r A

Deceleration ramp adaptation.

Setting	Code / Value	Description
[No]	n o	Function inactive **Factory setting**
[Yes]	Y E S	Function active, for applications that do not require strong deceleration
[High Torque]	d Y n A	Addition of a constant current flow component. The **[High torq. A]** d Y n A selection appears depending on the rating of the drive and **[Motor control type]** C t t. It enables a stronger deceleration to be obtained than with **[Yes]** Y E S. Use comparative testing to determine your selection. When **[Dec.Ramp Adapt]** b r A is configured on **[High torq. A]** d Y n A, the dynamic performance for braking is improved by the addition of a current flow component. The aim is to increase the iron loss and magnetic energy stored in the motor.

[Rotation Tune Type] E F A P

Rotation Tune Type

Setting	Code / Value	Description
[Linear Flux 1]	L inF 1	Linear flux 1 **Factory setting**
[Linear Flux 2]	L inF 2	Linear flux 2
[Saturation Flux]	S A t F	Saturation flux

Diagnostics Functions for HMI Panel

What's in This Part

Overview

This information can be accessed using the **Diagnostics** Menu Panel available to the ATV6000 HMI Panel.

Status Synthesis

What's in This Chapter

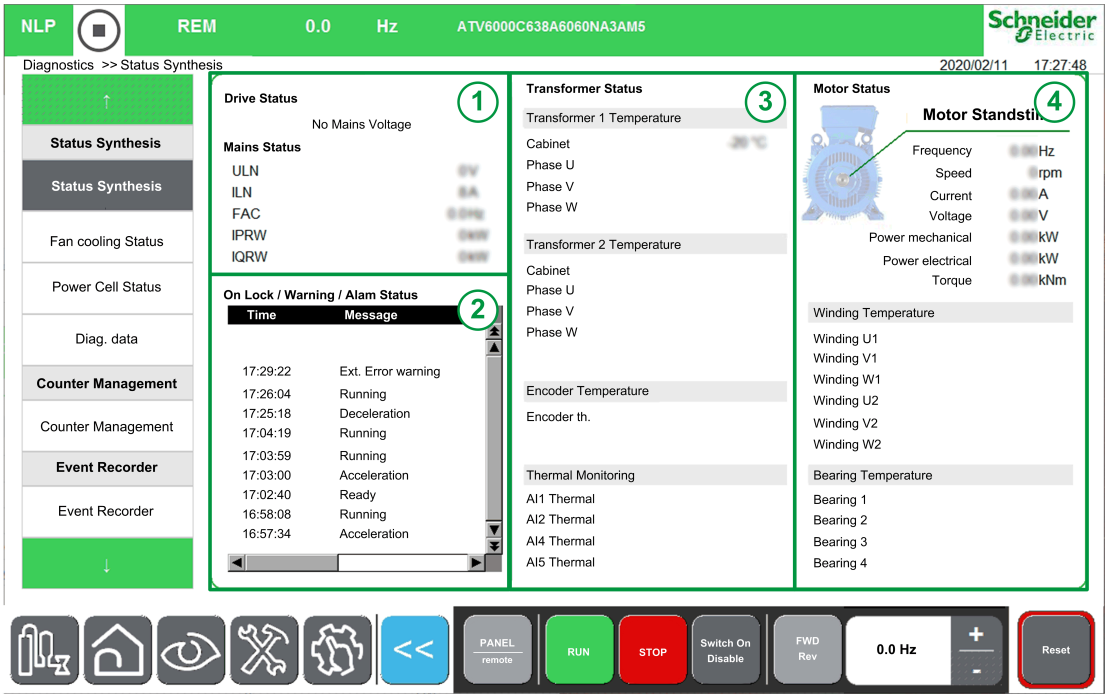
[Status Synthesis] Menu

Access

[Diagnostics] ➡ [Status Synthesis] ➡ [Status Synthesis]

Overview

This menu is used to display thermal state of the motor, transformers and encoder installed.



The Status Synthesis Menu is divided into 4 sections.

1. **Drive/Mains:** displays the drive and mains status.
2. **On lock / Warning / Alarm Status:** displays the Onlock information, warning messages and related error messages.

   NOTE: Click on this element opens a new window linked to the Error menu.
3. **Transformer Status:** displays the thermal information of the transformer.
4. **Motor Status:** displays the characteristic and thermal information of the motor.

[QFx Status] Menu

Access

[Diagnostics] ➡ [Status Synthesis] ➡ [QFx Status]

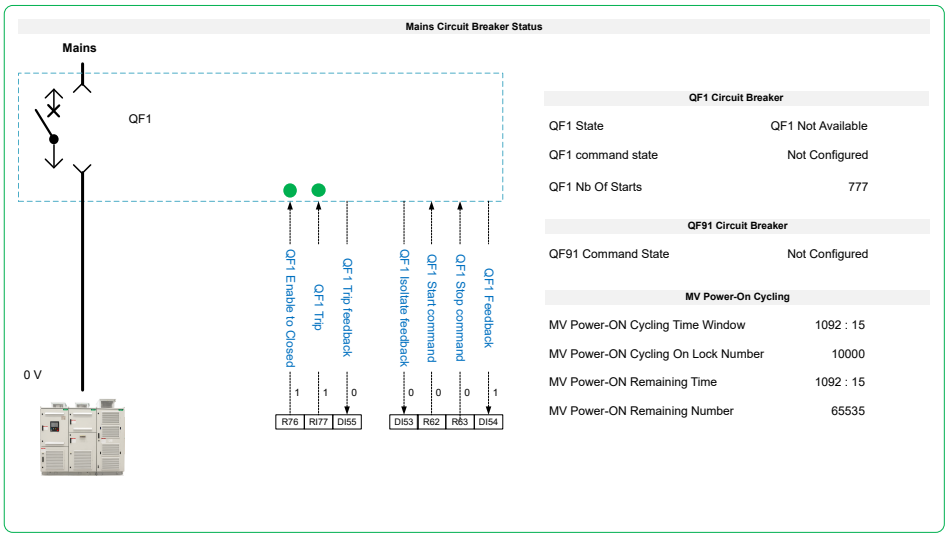
Overview

This menu is used to display QFx status of your system, QFx can be monitored though several representation and information depending your configuration.

- CB Open / Closed
- Isolated
- Grounded
- Enable to close
- Command feedback
- Status : Enable to close
- QFx: error detected

Circuit Breakers QFx can be used with or without command, and with or without *Power-on Cycling function*.

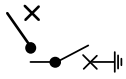
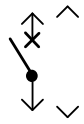
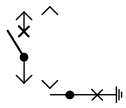
Note: The *Power-on cycling function* helps to prevent mains component, QF1, QF91 and inrush resistors, against too many charging in a dedicated period. It also helps to prevent huge stress to the Transformer when Circuit Breaker are not used. This function is managed during the commissioning of your system, refer to the commissioning assistant or contact you local Schneider representative.



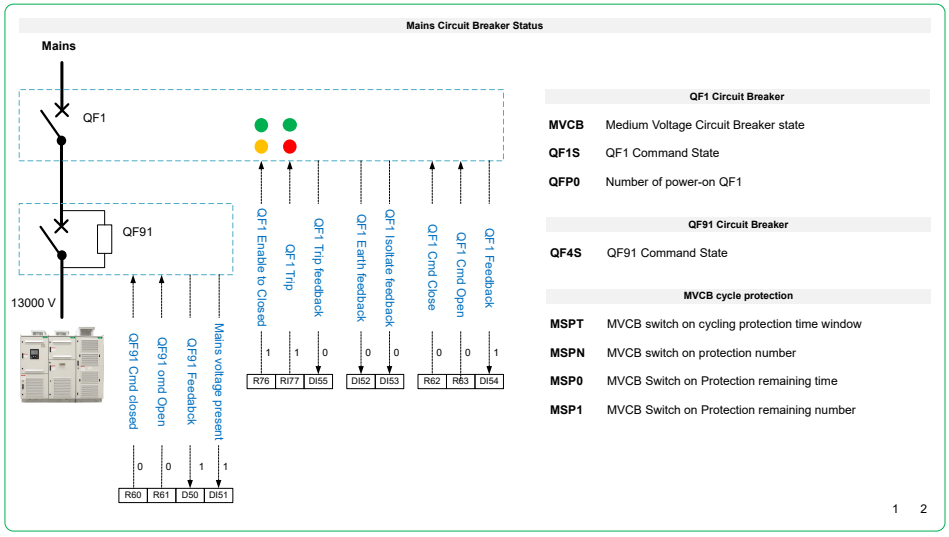
Here is a non-exhaustive list of pictogram displayed.

Pictogram	Designation
	Circuit breaker QFx open.
	Circuit breaker QF91 inrush current and resistor open.

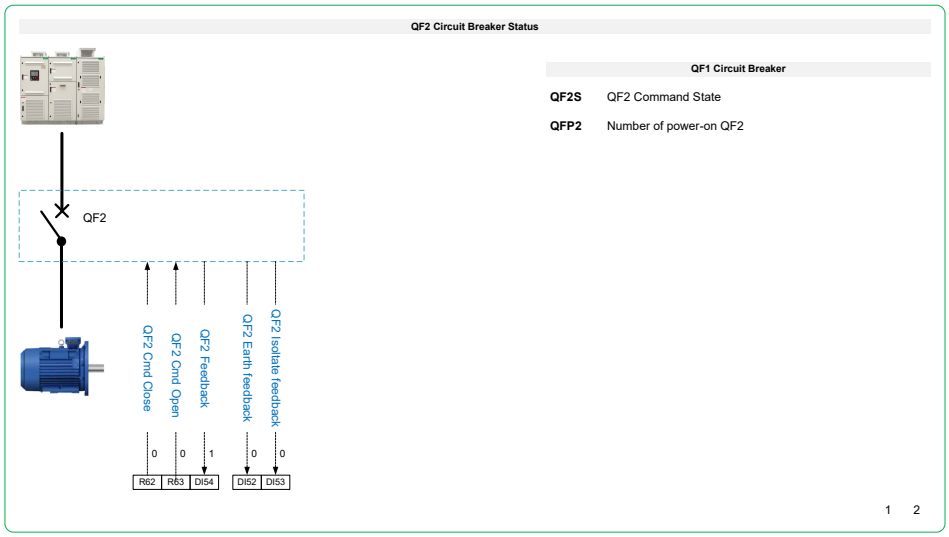
Here is a non-exhaustive list of pictogram displayed. (Continued)

Pictogram	Designation
	Circuit breaker QF1 open and not grounded.
	Circuit breaker QF1 open, and isolated.
	Circuit breake QF1 open, isolated , and grounded.
Note: Depending on your configuration, several use case can be combined.	

Example of screen with QF1 and QF91:



Example of screen with QF2:



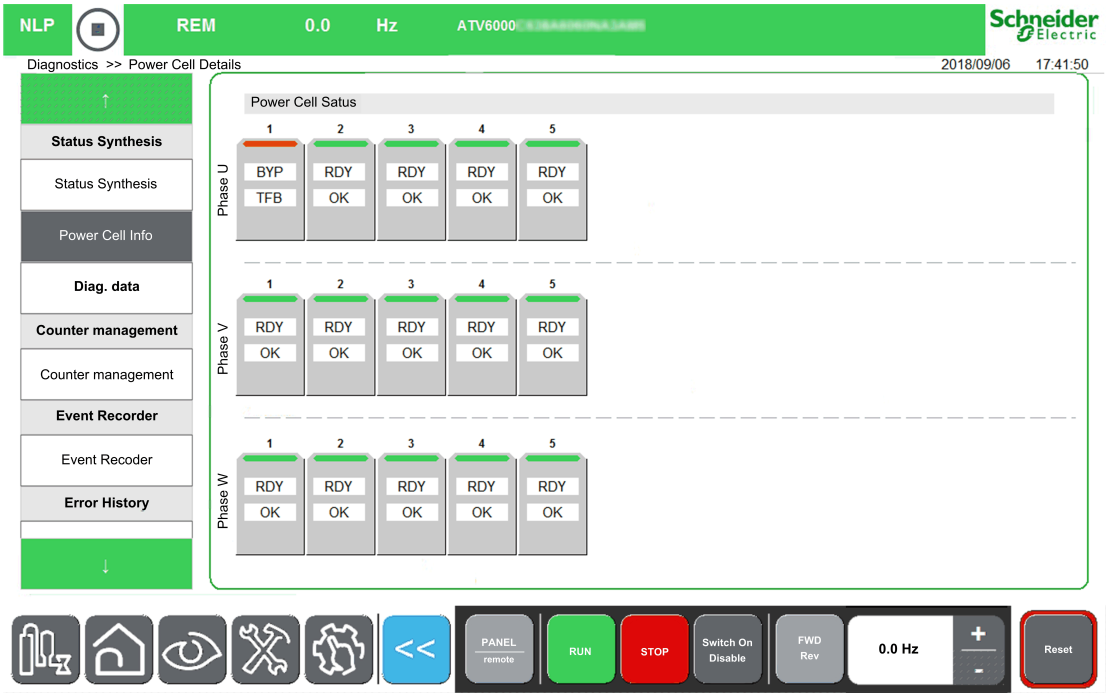
[Power cell Info] Menu

Access

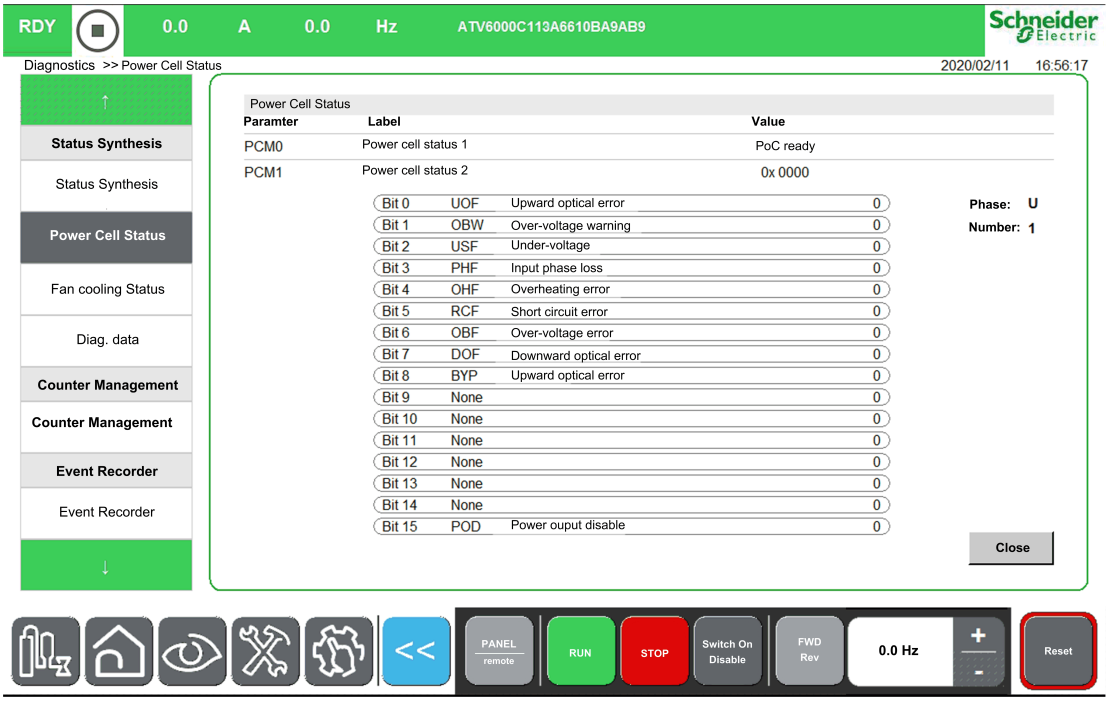
[Diagnostics] ➡ [Status Synthesis] ➡ [Power cell Info]

Description

This menu is used to display the status of each installed Power Cell.

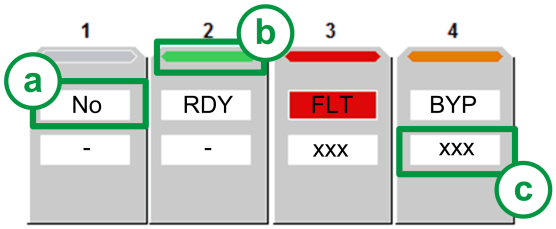


Clicking on the **Power Cell** allows you to detail status of related Power Cell.



Power Cell Status

3 status are monitored for each Power Cell. (i.e a,b,c)



- **Power cell Status:** Displays the power cell diagnostic related to general status.
  1. Status 1 - Displays the functional state of the power cell (NLP, RDY, RUN, FLT, BYP; POD, BYPF): through PCMO , page 163
  2. Color status bar: Displays a specific color linked to the functional state of the power cell: PCMO , page 163
  3. Status 2 - Displays its detailed , page 162, if the related power cell detect an error or warning: through PCM1 , page 164

     NOTE: PCM1 is only able to monitor an hexadecimal value.

Example with Status 1: PCM0:

Item	Color	Code	Description
1	Grey	no	Indicates that the Power Cell is not configured
2	Green	rdy	Indicates that the Power cell is ready
3	Red	FLt	Indicates that the Drive detected error on the Power cell
4	Orange	byP	Indicates that the Power cell is bypassed

Example with status 2: PCM1:

Item	Hexa value	Bit	Description
1	-	-	Not configured
2	-	Bit 0 set to 0: OK	No warning/no error
3	-	Bit 4 set to 1: OHF	Overheating error
4	-	Bit 4 set to 1: OHF	Overheating error

[Power cell status 1] PCn0

Power cell status list 1

Read-only parameters, cannot be configured.

Setting	Code / Value	Description
[PoC not configured]	no	Power cell not configured **Color status bar:** Grey
[PoC Invalid Config]	toPo	Power cell not configured but detected **Color status bar:** Red
[PoC not supplied]	nLP	Power cell is powered on but the DC bus is not loaded **Color status bar:** Green
[PoC ready]	rdy	Power cell ready **Color status bar:** Green
[PoC running]	run	Power cell run command present and zero reference

Setting	Code / Value	Description
		Color status bar: Green
[PoC fault]	FLt	Power cell error **Color status bar:** Red
[PoC By-passed]	byP	Power cell bypassed **Color status bar:** Orange
[Power Output Disabled]	Pod	Power output disable **Color status bar:** Orange
[Damaged PoC By-passed]	byPF	Damaged Power cell bypassed **Color status bar:** Red

[Power cell status 2] PCn1

Power cell status list 2

Read-only parameters, cannot be configured. Hexadecimal values are displayed to the HMI Panel , page 162.

Bit	Description, Value
0	Set to 1: UOF Upward optical fiber error (PoC => FPGA)
1	Set to 1: OBW Light overvoltage warning
2	Set to 1: USF DC bus under-voltage error
3	Set to 1: PHF Input phase loss error
4	Set to 1: OHF Overheating error
5	Set to 1: RCF Rectifier command error
6	Set to 1: OBF DC bus over-voltage error
7	Set to 1: DOF Downward optical fiber error (FPGA=>PoC)
8	Set to 1: Power cell bypassed
9	Set to 1: Reserved
10	Set to 1: BPA Bypass IGBT
11	Set to 1: Diagnostic in progress
15	Set to 1: Power output disabled

[Fan Cooling Status] Menu - Standard Mode

Access

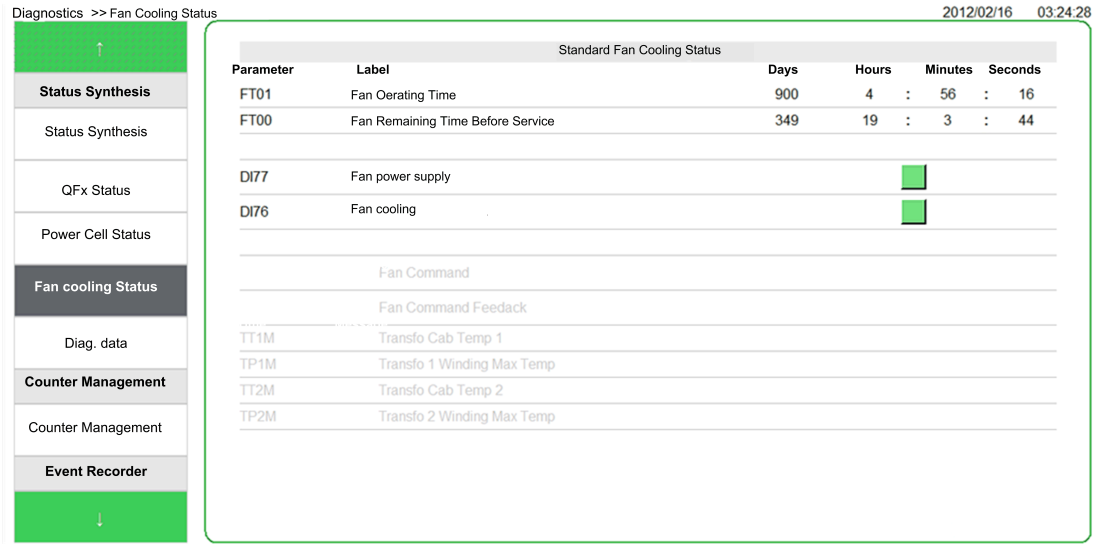
[Diagnostics] ➡ [Status Synthesis] ➡ [Fan cooling]

About This Menu

There are 2 types of command: Without or with fan command.

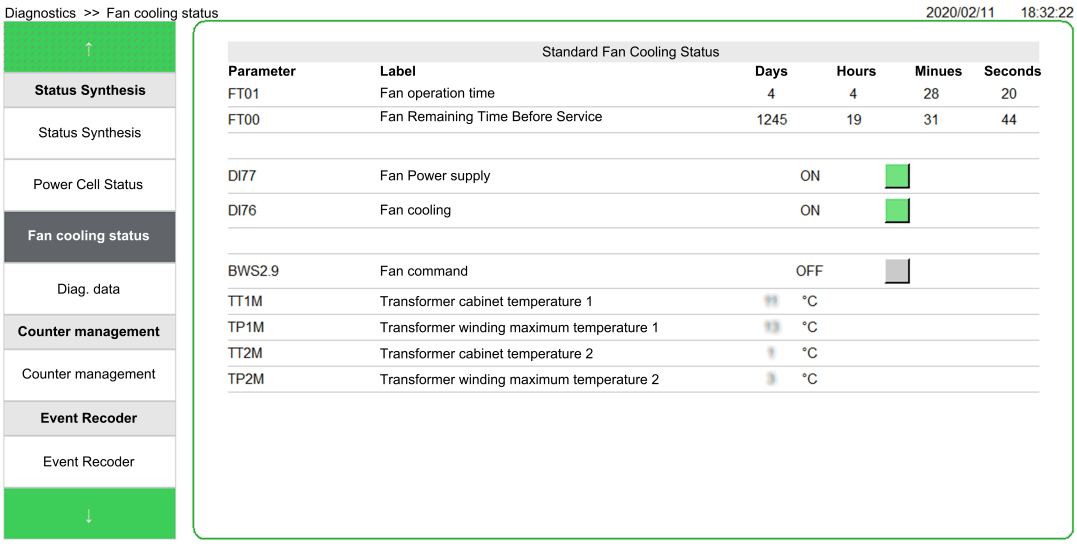
This panel is used to display fan cooling information **without command**:

- Fan operation time.
  - The time and counter can be set to 0 by using the **[Counter Reset]** *rPr* parameter to **[Reset Fan Counter]** *FtH* (for expert or service profiles).
- Fan remaining time before services action.
- Fan Power supply feedback.
- Fan Cooling feedback.



This panel is used to display fan cooling information **with command**, in additional:

- Fan Command order.
- Transformer winding maximum temperature 1 & 2.
- Transformer cabinet temperature 1 & 2.



This graphical element allows to display status of Fan command, fan supply and fan command:

Icon	Legend
	Activated
	Not activated

NOTE: All parameters monitored are also available to the DTM, description here , page 325.

NOTE: For Redundant Fan cooling application, refer to the dedicated menu , page 167.

[Fan Cooling Status] Menu - Redundant Mode

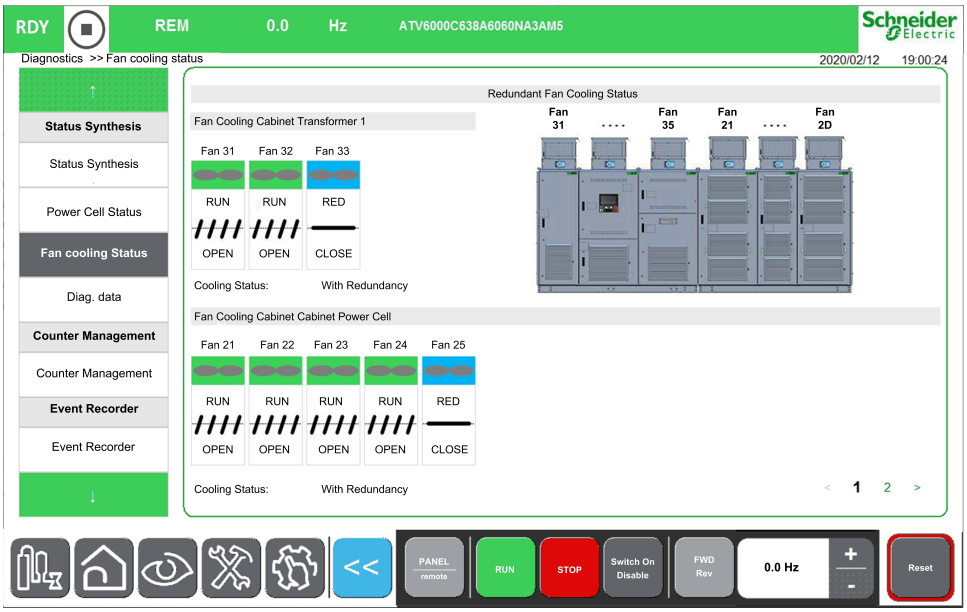
Access

[Diagnostics] ➡ [Status Synthesis] ➡ [Fan Cooling]

Overview

This menu is used to display the status of each installed fan and shutter to the transformer cabinet and power cell cabinet. (Page one to the HMI panel)

e.g. Cabinet Transformer 1 and Cabinet Power Cell



Fan data are structured as an object and identify according physical identification on product:

Cabinet	Fan identification N°:												
Cabinet Transformer 1	31	32	33	34	35								
Cabinet Power Cell	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D
Cabinet Transformer 2	41	42	43	44	45								

NOTE: This function is managed during the commissioning of your system. For any settings, refer to the commissioning assistant or contact your local Schneider representative.

NOTE: For Standard Fan cooling application, refer to the dedicated menu , page 167

Fan Status

Fan state:

Icon	Legend
	**RUN**: Run (Running) **RDY**: Ready (Stop)
	**RED**: Redundant (not running)
	**ONLK**: On-lock
	**ERROR**: Error detected

Shutter Status

To avoid the wrong air circulation, a device is added in order to not allow airflow from any defective fan. This device is named "Fan shutter" and consists on a trap to block the air.

Shutter state:

Icon	Legend
 **Status:** Open	Shutters are opened.
 Status: Close	Shutters are closed when: • fans are not used • an error is detected In this case, the cooling circulation of the drive remains unchanged and just the flow is modified.

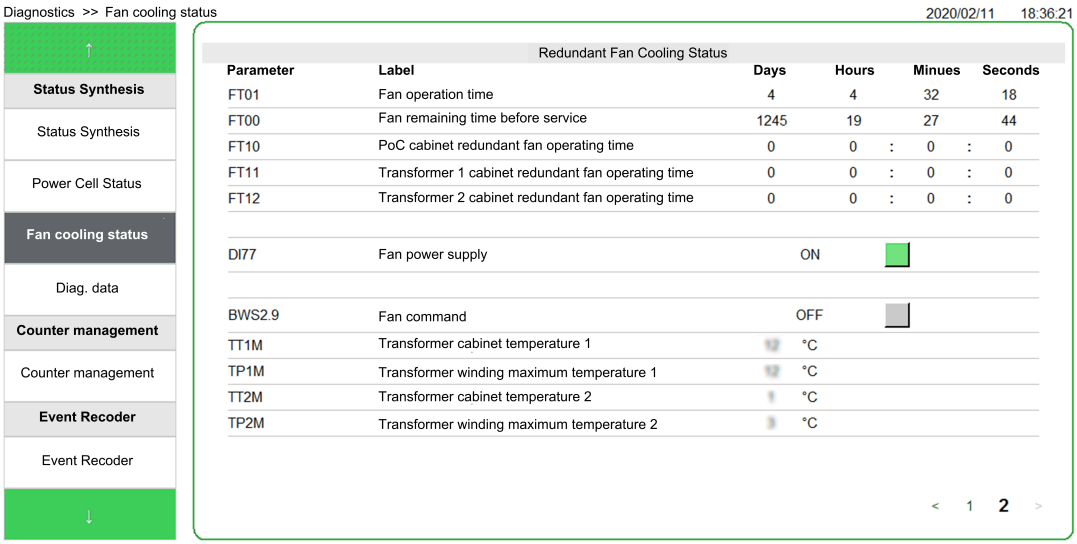
Incoherent Shutter status:

Icon	Legend
 **Status:** SW1	Open shutter feedback with close command
Status: SW2	Close shutter feedback with open command
[Fan Shutter State Warning] SCWD9 is monitored to the HMI.	

HMI Panel - Redundant Fan Cooling Status

This page 2 is used to display following information:

- Fan operation time.
  - All time and counter can be set to 0 by using the **[Counter Reset]** rPr parameter to **[Reset Fan Counter]** FtH. (for expert or service profiles).
- Fan remaining time before services action.
- PoC cabinet redundant fan operating time.
- Transformer 1&2 cabinet redundant fan operating time.
- Fan Power supply feedback.
- Fan Command order.
- Transformer winding maximum temperature 1 & 2.
- Transformer cabinet temperature 1 & 2.



This element allows to display status of Fan command, and fan supply:

Icon	Legend
	Activated
	Not activated

NOTE: All parameters monitored are also available to the DTM, see menu “Display”here: **Display > Dashboard System > Fan cooling** , page 320.

[Diag. data] Menu

Access

[Diagnostics] ➡ [Diag. data]

About This Menu

This menu presents the actual warning, detected error and lock register in addition to drive data.

Error register	Warning register	Lock register
[Error register 1] dF 1 ... **[Error register 14]** dF 14	**[Warning register 1]** ALr 1 ... **[Warning register 9]** ALr 9, **[Warning register 10]** ALr A ... **[Warning register 12]** ALr C	**[On Lock Register]** PLo 1, **[Bypass Cabinet Lock Register]** PLo2

[Last Warning] LALr

Last warning which occurred.

The list of warning codes is available in the chapter Diagnostics and Troubleshooting, page 426

[Last Error] LFt

Last error which occurred.

The list of error codes is available in the chapter Diagnostics and Troubleshooting, page 430

[Identification Error] inF6

Identification Error (inF6).

This parameter can be accessed if **[Last Error]** LFt is **[Identification Error]** inF6.

Setting	Description
0...12 (value in Hex.)	Value = 0x00 : No error detected Value = 0x01 : No response of the option module Value = 0x02 : Signature reception timeout Value = 0x03 : ACK reception timeout Value = 0x04 : Signature length Value = 0x05 : CheckSum Value = 0x06 : Unknown state Value = 0x07 : UART receive Value = 0x08 : Unknown protocol version Value = 0x09 : Unknown module type Value = 0x0A : More than 5 unsuccessful tries Value = 0x0B : Unknown module type Value = 0x0C : Option module not supported by the slot Value = 0x0D : Same option module in more than one slot Value = 0x0E : O1SV not received Value = 0x0F : O1SV option module software version not compatible Value = 0x10 : reserved Value = 0x11 : reserved Value = 0x12 : Control terminal module not present or not recognized **Factory setting**: –

[Internal Error 19] inFJ

Encoder module error code.

This parameter can be accessed if **[Last Error]** LFt is **[Internal Error 19]** inFJ.

Setting	Description
0...65,535	Setting Range **Factory setting**: –

[Encoder Fdbck Error] EnCE

Encoder feedback error code.

This parameter can be accessed if **[Last Error]** LFt is **[Encoder Feedback Loss]** SPF.

Setting	Description
0...65,535	Setting range Encoder error Id 1: Encoder power supply overcurrent 10: AB encoder: A-line disconnected 11: AB encoder: B-line disconnected 12: AB encoder: tracking error 13: AB encoder: spike error 20: Resolver: LOS error 21: Resolver: DOS error 22: Resolver: LOT error 30: SinCos: loss of signal 31: SinCos: loss of signal 32: SinCos: tracking error 33: SinCos: spike error 40: Hiperface: timeout while waiting for response and retry exceeded 41: Hiperface: encoder type is not known and can not be read from encoder EEPROM 42: Hiperface: Hiperface command GetAbsolutePosition error 43: Hiperface: checksum error detected and retry exceeded 50: Endat: communication error 51: Endat: encoder not connected 52...56: Endat: error reading EnDat21 parameter 57: Endat: encoder does not support EnDat22 58: Endat: runtime compensation procedure 59: Endat: runtime compensation procedure 60: Endat: error in cyclic communication **Factory setting**: –

[Nb Of Start] nSM

Number of motor starts (resettable).

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: 0

[Motor Run Time] rtH

Motor run time.

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Error register 1] dF1

Status parameters giving error states 1

Bit	Description, Value
0	1 = Serial flash format error (INFF)
1	1 = Unknown drive rating (INF1)
2	1 = Unknown or incompatible option board (INF6)
3	1 = CPLD communication interruption (INF7)
4	1 = Error of the internal memory of the control block (EEF1)
5	1 = Power Eeprom error (EEF2)
6	1 = Invalid configuration at power on (CFF)
7	1 = Incorrect parameter configuration (CFI)
8	1 = Modbus local serial communication interruption (SLF1)
9	1 = Internal communication interruption (ILF)
10	1 = Communication interruption on fieldbus module (CNF)
11	1 = External error from digital input or fieldbus (EPF1)
12	1 = External error from fieldbus module (EPF2)
13	1 = Motor short circuit error (hardware detection) (SCF1)
14	1 = Load relay error (CRF1)
15	1 = Ethernet embedded internal error (INFM)

[Error register 2] dF2

Status parameters giving error states 2

Bit	Description, Value
0	1 = Speed encoder feedback loss (SPF)
1	1 = Instability or driving load too high (SOF)
2	1 = Load slipping error (ANF)
3	1 = Over current error (OCF)
4...6	Reserved
7	1 = Drive over heating error (POC thermal monitoring) (OHF)
8	1 = Motor overload error (OLF)
9	Reserved
10	1 = POC over braking error (OBF)
11	1 = Mains over supply error (OSF)
12	1 = Motor 1-phase loss (OPF1)
13	1 = Main input 1-phase loss (PHF)

Bit	Description, Value
14	1 = POC bus under voltage error (USF)
15	1 = Power supply error (INF8)

[Error register 3] dF3

Status parameters giving error states 3

Bit	Description, Value
0	1 = Motor 3-phases loss (OPF2)
1	1 = Tune error (TNF)
2	1 = Brake's motor 3-phases loss (BLF)
3	1 = Brake feedback error (BRF)
4	1 = PC software communication interruption (SLF2)
5	1 = CANopen communication interruption (COF)
6	1 = Encoder coupling error (ECF)
7	1 = Torque limitation error (SSF)
8	1 = Torque regulation time-out error (SRF)
9	Reserved
10	1 = Direct ground short-circuit error (hardware detection) (SCF3)
11	1 = Invalid industrialization zone (INF4)
12	1 = Unknown or incompatible power board or defected keyboard (INF2)
13	1 = Internal serial link communication error (INF3)
14	1 = Graphic Display terminal communication error (SLF3)
15	1 = Current supply error input (INFC)

[Error register 4] dF4

Status parameters giving error states 4

Bit	Description, Value
0...1	Reserved
1	1 = Encoder error (ENF)
2...7	Reserved
8	1 = Current measurement circuit error (INF9)
9	1 = Line contactor error (LCF)
10	1 = Customer supply error (INFA)
11	1 = Thermal sensor error (OC or SC) (INFB)
12,13	Reserved
14	1 = IGBT short-circuit error (hardware detection) (SCF4)
15	1 = Load short-circuit error during Igon load sequence (hard detection) (SCF5)

[Error register 5] dF5

Status parameters giving error states 5

Bit	Description, Value
0	1 = CPU error (ram, flash, task ...) (INFE)
1	1 = AI3 4-20 mA loss (LFF3)
2	1 = AI4 4-20 mA loss (LFF4)
3	1 = Torque underload error (ULF)
4	1 = Torque overload error (OLC)
5...7	Reserved
8	1 = Channel switching error (switch to not valid channels) (CSF)
9	1 = Hardware configuration error (HCF)
10	Reserved
11	1 = Angle setting error (ASF)
12...15	Reserved

[Error register 6] dF6

Status parameters giving error states 6

Bit	Description, Value
2	1 = AI1 4-20 mA loss (LFF1)
3	1 = Invalid configuration after transferring a new one (CFI2)
4...6	Reserved
7	1 = IO-relay option error (INFG)
8	1 = IO-standard option error (INFH)
9	Reserved
10	1 = Differential current - Deviation error input (S7 and drive system) (INFD)
11	1 = Inter processor communication interruption (INF0)
12	1 = Motor stall error (STF)
13	1 = Real time clock error (INFL)
14	1 = AI5 4-20 mA loss (LFF5)
15	1 = Ethernet embedded communication interruption (ETHF)

[Error register 7] dF7

Status parameters giving error states 7

Bit	Description, Value
0...1	Reserved
2	1 = Thermal error level for AI3 (TH3F)
3	1 = Thermal sensor error for AI3 (T3CF)
4	1 = Pumpcycle monitoring function error (PCPF)
5...7	Reserved
8	1 = Thermal error level for AI1 (TH1F)

Bit	Description, Value
9	Reserved
10	1 = Thermal error level for AI4 (TH4F)
11	1 = Thermal sensor error for AI4 (T4CF)
12	1 = Thermal error level for AI5 (TH5F)
13	1 = Thermal sensor error for AI5 (T5CF)
14...15	Reserved

[Error register 8] dF8

Status parameters giving error states 8

Bit	Description, Value
0	1 = Dry run detected error (DRYF)
1	1 = PID feedback detected error (PFMF)
2	1 = Program loading error (PGLF)
3	1 = Program loading detected error (PGRF)
4	1 = Incompatibility between control board and software version (INFP)
5	1 = Option interface PCBA error (INFK)
6	1 = Cpld watchdogs (INFR)
7...9	Reserved
10	1 = Firmware update error (FWER)
11	1 = Configuration preset error (CFI3)
12, 13	Reserved
14	1 = Overload Time exceeded (TLOF)
15	1 = Encoder option board internal error (INFJ)

[Error register 9] dF9

Status parameters giving error states 9

Bit	Description, Value
0	1 = Monitoring circuit A error (IFA)
1	1 = Monitoring circuit A error (IFB)
2	1 = Monitoring circuit A error (IFC)
3	1 = Monitoring circuit A error (IFD)
4	1 = Cabinet circuit A error (CFA)
5	1 = Cabinet circuit A error (CFB)
6	1 = Cabinet circuit A error (CFC)
7	1 = Motor winding A error (TFA)
8	1 = Motor winding B error (TFB)
9	1 = Motor bearing A error (TFC)
10	1 = Motor bearing B error (TFD)
11,12	Reserved

Bit	Description, Value
13	1 = Multidrive Link : Communication interruption (MDLF)
14	1 = Backlash error (BSQF)
15	1 = Master/Slave device error (MSDF)

[Error register 10] dF 10

Status parameters giving error states 10

Bit	Description, Value
1	1 = Cabinet overheat error (CHF)
2	Reserved
3	1 = Power cell missing (not found at startup) (INFV)
4	1 = Power-Cells downward fiber communication interruption (PWF8)
5...11	Reserved
12	1 = Circuit breaker error (not in accordance to the start and stop pulse) (CBF)
13,14	Reserved
15	Encoder thermal sensor detected error (THEF)
0	Thermal sensor error on encoder (TECF)

[Error register 11] dF 11

Status parameters giving error states 11

Bit	Description, Value
0	1 = Thermal sensor error on AI1 (T1CF)
1	1 = Empty configuration (CFI4)
2	Synchronization to mains error (SMFT)
3	Synchronization to drive failure (SDFT)
4,5	Reserved
6	1 = Embedded Ethernet FDR error (FDR1)
7	1 = Ethernet fieldbus module FDR error (FDR2)
8...11	Reserved
12	1 = Bypass POC error (BYPF)
13...15	Reserved

[Error register 12] dF 12

Status parameters giving error states 12

Bit	Description, Value
0	1 = Device Option interface compatibility error (INFO)
1	1 = Option 3 communication interruption (CNF3)
2	1 = Option 3 internal link error (ILF3)
3	1 = External error from Option 3 (EPF3)

Bit	Description, Value
4	1 = Mains voltage dip 3 phase loss (3PF)
5	1 = Modbus 2 local serial communication interruption (SLF4)
6	1 = Mains over-current (PWF1)
7	1 = Mains ground voltage short-circuit error (PWF2)
8	1 = Motor ground voltage short-circuit error (PWF3)
9	1 = Power-Cells upward fiber communication interruption (PWF4)
10	1 = Power Cells input phases loss (PWF5)
11	1 = FPGA Internal error (PWF6)
12	1 = Power Cells gates driver error (PWF7)
13	1 = Power output enable function error (PODF)
14	1 = Transformer 1 Overheat (CF01)
15	1 = Transformer 2 Overheat (CF02)

[Error register 13] dF I3

Status parameters giving error states 13

Bit	Description, Value
0	1 = PLC internal error (CF03)
1	1 = Mains off button (CF04)
2	1 = Door interlock (CF05)
3	1 = Fan cooling not ready (CF06)
4	1 = Cabinet overheat (CF07)
5	1 = QF1 circuit breaker tripped (CF08)
6	1 = Power supply for cooling fans not ready (CF09)
7	1 = Auxiliary supply error (CF10)
8	1 = QF1 MV Mains circuit breaker grounded contact error (CF11)
9	1 = QF1 MV Mains circuit breaker isolated contact error (CF12)
10	1 = QF2 feedback error (CF13)
11	1 = QF3 feedback error (CF14)
12	1 = QF91 feedback error (CF15)
13	1 = QF11 feedback error (CF16)
14	1 = LV surge arrestor error (CF17)
15	1 = Bypass Drive fault Sequence (CF18)

[Error register 14] dF I4

Status parameters giving error states 14

Bit	Description, Value
0	1 = Motor winding 1 error (CF19)
1	1 = Motor winding 2 error (CF20)
2	1 = Motor bearing 1 error (CF21)

Bit	Description, Value
3	1 = Motor bearing 2 error (CF22)
4	1 = PT100 motor winding OC / SC error (CF23)
5	1 = PT100 motor bearing OC / SC error (CF24)
6	1 = CF25 error (CF25)
7	1 = CF26 error (CF26
8	1 = Application error 01 (AF01)
9	1 = Application error 02 (AF02)
10	1 = Application error 03 (AF03)
11	1 = Application error 04 (AF04)
12	1 = Application error 05 (AF05)
13	1 = Application error 06 (AF06)
14	1 = Application error 07 (AF07)
15	1 = Application error 08 (AF08)

[Alarm registers 1] AL r 1

Bit	Description, Value
0	1 = (FRF) : Reaction on event: Fallback frequency
1	1 = (RLS) : Reaction on event: Speed maintained
2	1 = (STT) : Reaction on event: Stop following **[Type of stop]** StE without triggering an error
3	1 = (SRA) : Frequency reference reached
4	1 = (LCA1) : Life cycle warning 1
5	1 = (LCA2) : Life cycle warning 2
6	1 = (DRYA) : Dry Running Warning
12	1 = (PCPA) : Pumpcycle monitoring warning

[Alarm registers 2] AL r 2

Bit	Description, Value
1	1 = (PEE) : PID error warning
2	1 = (PFA) : PID feedback warning
3	1 = (PFAH) : PID feedback high threshold reached
4	1 = (PFAL) : PID feedback low threshold reached
5	1 = (PISH) : PID feedback monitoring warning
10	1 = (TP3A) : AI3 Thermal warning
11	1 = (TP4A) : AI4 Thermal warning
12	1 = (TP5A) : AI5 Thermal warning
13	1 = (AP1) : 4-20 loss alarm on AI1
15	1 = (AP3) : 4-20 loss alarm on AI3

[Alarm registers 3] ALr3

Bit	Description, Value
0	1 = (AP4) : 4-20 loss alarm on AI4
1	1 = (AP5) : 4-20 loss alarm on AI5
2	1 = (THA) : Drive overhearting warning
3	1 = (FCTA) : Fan counter speed warning
4	1 = (FFDA) : Fan feedback warning
5	1 = (EFA) : External error warning
6	1 = (USA) : Undervoltage warning
7	1 = (UPA) : Controlled stop threshold is reached
8	1 = (ERN) : Emergency
9	1 = (FTA) : Motor frequency high threshold 1 reached
10	1 = (FTAL) : Motor frequency low threshold 1 reached
11	1 = (FQLA) : Pulse warning threshold reached
12	1 = (F2AL) : Motor frequency low threshold 2 reached
13	1 = (FLA) : High speed reached warning
14	1 = (AP4) : 4-20 loss alarm on AI4
15	1 = (AP5) : 4-20 loss alarm on AI5

[Alarm registers 4] ALr4

Bit	Description, Value
0	1 = (RTAH) : Reference frequency high threshold reached
1	1 = (RTAL) : Reference frequency low threshold reached
2	1 = (F2A) : Motor frequency high threshold 2 reached
3	1 = (CTA) : Motor current high threshold reached
4	1 = (CTAL) : Motor current low threshold reached
5	1 = (TTHA) : Motor torque high threshold reached
6	1 = (TTLA) : Motor torque low threshold reached
7	1 = (ULA) : Underload is detected
8	1 = (OLA) : Overload is detected
9	1 = (SSA) : Timeout on current or torque limitation is reached
10	1 = (RTA) : Torque regulation alarm
11	1 = (TAD) : Drive thermal threshold reached
12	1 = (TSA) : Motor thermal threshold reached)
13	1 = (TS2) : Motor 2 thermal threshold reached
14	1 = (TS3) : Motor 3 thermal threshold reached
15	1 = (TS4) : Motor 4 thermal threshold reached

[Alarm registers 5] ALr 5

Bit	Description, Value
0	1 = (PTHA) : Power high threshold reached
1	1 = (PTHL) : Power low threshold reached
2	1 = (CAS1) : Customer warning 1 active
3	1 = (CAS2) : Customer warning 2 active
4	1 = (CAS3) : Customer warning 3 active
5	1 = (CAS4) : Customer warning 4 active
6	1 = (CAS5) : Customer warning 5 active
8	1 = (POWD) : Power consumption warning

[Alarm registers 6] ALr 6

Bit	Description, Value
2	1 = (ANA) : Slipping warning
4	1 = (BSA) : Load movement warning
5	1 = (BCA) : Brake contact warning
6	1 = (TP1A) : AI1 Thermal warning

[Alarm registers 7] ALr 7

Bit	Description, Value
0	1 = (IWA) : Monitoring circuit A warning
1	1 = (IWB) : Monitoring circuit B warning
2	1 = (IWC) : Monitoring circuit C warning
3	1 = (IWD) : Monitoring circuit D warning
4	1 = (CWA) : Cabinet circuit A warning
5	1 = (CWB) : Cabinet circuit B warning
6	1 = (CWC) : Cabinet circuit C warning
7	1 = (TWA) : Motor winding A warning
8	1 = (TWB) : Motor winding B warning
9	1 = (TWC) : Motor winding C warning
10	1 = (TWD) : Motor winding D warning

[Alarm registers 8] ALr 8

Bit	Description, Value
6	1 = (CHA) : Cabinet overheat warning
11	1 = (MSDA) : Master/Slave device warning
12	1 = (BSQA) : Backlash Sequence : Alarm
13	1 = (TPEA) : Encoder module thermal warning

[Alarm registers 9] ALr 9

Bit	Description, Value
3	1 = (OBW) : Over-voltage warning
4	1 = (TS1A) : Temperature sensor AI1 warning (open circuit)
6	1 = (TS3A) : Temperature sensor AI3 warning (open circuit)
7	1 = (TS4A) : Temperature sensor AI4 warning (open circuit)
8	1 = (TS5A) : Temperature sensor AI5 warning (open circuit)
9	1 = (MOTW) : Motor scaling warning
10	1 = (IGW) : Mains ground warning
11	1 = (OGW) : Motor ground warning
12	1 = (CW01) : Controller embedded RTC battery warning
13	1 = (CW02) : Cooling fan warning
14	1 = (CW03) : Cabinet overheating
15	1 = (CW04) : MVCB Status not OK warning

[Alarm registers 10] ALrA

Bit	Description, Value
0	1 = (CW05) : Fan power supply warning
1	1 = (CW06) : Auxiliary power supply warning
2	1 = (CW07) : LV Surge arrestor warning
3	1 = (CW08) : PLC Cabinet Warning 8 (reserved)
4	1 = (CW09) : PLC Cabinet Warning 9 (reserved)
5	1 = (CW10) : PLC Cabinet Warning 10 (reserved)
6	1 = (CW11) : QF2 feedback warning
7	1 = (CW12) : QF3 feedback warning
8	1 = (CW13) : QF91 feedback warning
9	1 = (CW14) : QF11 feedback warning
10	1 = (CW15) : PLC Cabinet Warning 15
11	1 = (CW16) : Cabinet Warning 16
12	1 = (CW17) : Transformer 1 thermal warning
13	1 = (CW18) : Transformer 8 thermal warning
14	1 = (CW19) : Motor winding 1 warning
15	1 = (CW20) : Motor winding 2 warning

[Alarm registers 11] ALrb

Bit	Description, Value
0	1 = (CW21) : Motor bearing 1 warning
1	1 = (CW22) : Transformer 2 thermal warning
2	1 = (CW23) : Thermal Choke Warning

Bit	Description, Value
3	1 = (CW24) : MVCB switch on cycling warning
4	1 = (CW25) : Sensor 9 Thermal Warning
5	1 = (CW26) : Sensor 10 Thermal Warning
6	1 = (CW27) : Sensor 11 Thermal Warning
7	1 = (CW28) : Sensor 12 Thermal Warning
8	1 = (CW29) : PLC Cabinet Warning 29 (reserved)
9	1 = (CW30) : PLC Cabinet Warning 30 (reserved)
10	1 = (CW31) : PLC Cabinet Warning 31 (reserved)
11	1 = (CW32) : PLC Cabinet Warning 32 (reserved)
12	1 = (AW01) : PLC Application ETO Warning 1
13	1 = (AW02) : PLC Application ETO Warning 2
14	1 = (AW03) : PLC Application ETO Warning 3
15	1 = (AW04) : PLC Application ETO Warning 4

[Alarm registers 12] AL r C

Bit	Description, Value
0	1 = (AW05) : PLC Application ETO Warning 5
1	1 = (AW06) : PLC Application ETO Warning 6
2	1 = (AW07) : PLC Application ETO Warning 7
3	1 = (AW08) : PLC Application ETO Warning 8
4	1 = (AW09) : PLC Application ETO Warning 9
5	1 = (AW10) : PLC Application ETO Warning 10
6	1 = (AW11) : PLC Application ETO Warning 11
7	1 = (AW12) : PLC Application ETO Warning 12
8	1 = (AW13) : PLC Application ETO Warning 13
9	1 = (AW14) : PLC Application ETO Warning 14
10	1 = (AW15) : PLC Application ETO Warning 15
11	1 = (AW16) : PLC Application ETO Warning 16
12	1 = (BYW1) : Bypass Poc Warning 1
13	1 = (BYW2) : Bypass Poc Warning 2

[On Lock Register] PL o I

Device On lock status register

Bit	Description, Value
0	1 = Door Open
1	1 = Fan not Ready
2	1 = Mains OFF Button
3	1 = MV Circuit breaker Tripped
4	1 = MV Circuit breaker grounding contact

Bit	Description, Value
5	1 = MV Circuit breaker Isolated
6	Reserved
7	Reserved
8	Reserved
9	1 = QF1 Tripped
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Bypass Cabinet Lock register] PLo2

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Counter Management] Menu

Access

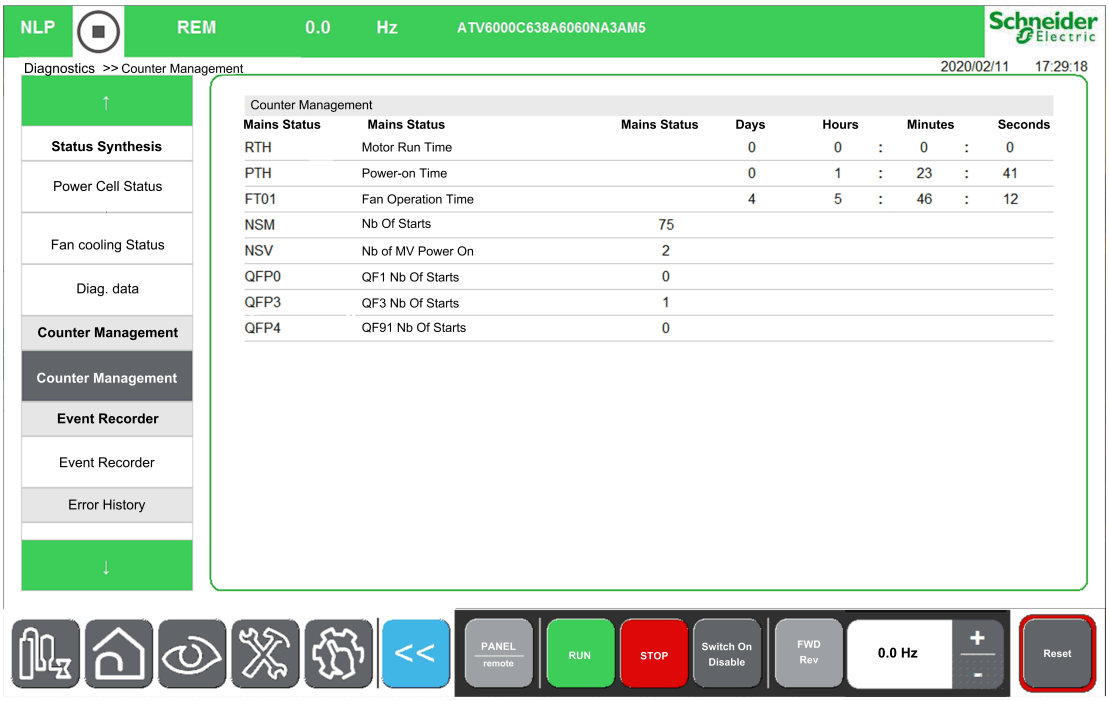
[Diagnostics] ➡ [Status Synthesis] ➡ [Counter Management]

Overview

This menu shows the drive, fan, and motor-related counters.

Note:

- Specific counters are available once logged in with Services access.
- All the following counter can be set to 0 by using the **[Time Counter Reset]** r P r parameter.



[Motor Run Time] r t H

Motor run time.

Run elapsed time display in seconds (length of time the motor has been switched on). Can be set to 0 by using the **[Time Counter Reset]** r P r parameter.

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Power-on Time] P t H

Power-on time, can be set to 0 by using the **[Time Counter Reset]** r P r parameter.

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Nb Of Start] nSM

Number of motor starts, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Nb of MV Power On] nSV

Number of MV Power on display, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Fan Operation Time] FtD1

Fan operation time.

As soon as **[Fan Operation Time]** FtD1 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning]** FCtA is triggered.

[Fan Operation Time] FtD1 counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting**: Read Only

[QF1 Nb Of Starts] qFPo

Number of power on mains circuit breaker, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF2 Nb Of Starts] qFP2

Number of power on bypass circuit breaker, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF3 Nb Of Starts] qFP3

Number of power on bypass circuit breaker, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF91 Nb Of Starts] qFP4

Number of power on inrush circuit breaker, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Time Counter Reset] rPr

Time counter reset.

This parameter can reset individually the timer and counter

Setting	Code / Value	Description
[No]	nO	No **Factory setting**
[Run Time Reset]	rtH	Run time reset
[Internal Run Time Reset]	rtHI	Internal Run Time Reset (Dedicated for services)
[Power ON Time Reset]	PtH	Power ON time reset
[In Power ON Time Reset]	PtHI	Internal power ON time Reset (Dedicated for services)
[Reset Fan Counter]	FtH	Reset fan counter
[Clear NSM]	nSM	Clear number of motor starts
[Clear NSMI]	nSMI	Clear number of starts (Dedicated for services)
[Clear LTHI]	LtHI	Clear running time in limitation (current & torque)
[Clear GTHI]	GtHI	Clear running time in generator mode
[Clear QF1]	qFP0	Clear number of Power On Mains Circuit Breaker
[Clear QFP3]	qFP3	Clear number of Power On Bypass Circuit Breaker
[Clear QFP4]	qFP4	Clear number of Power On Inrush Circuit Breaker
[Clear NSV]	nSV	Clear number of MV Power On.
[Clear NSVI]	nSVI	Clear number of MV Power On (Dedicated for services)
[Reset all]	ALL	Reset all

[Event Record] Menu

Access

[Diagnostics] ➡ [Event recorder]

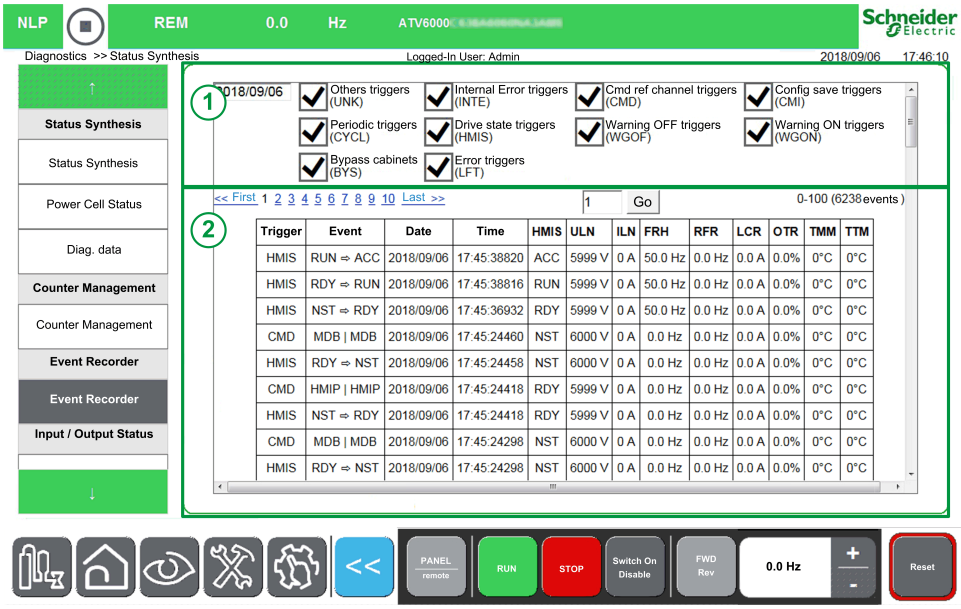
Overview

The Event record menu allows the user to consult and export the drive event log file. A configurable context is saved with each event trigger.

The configurable event cannot be configured using HMI Panel, it must be done using the DTM, and activated at the end of the commissioning by services.

NOTE:

- This function can be configured at any time, whatever the status of the drive.
- The HMI is able to store 9Gb of events, which represents 40 years of data stored on the HMI.



The Event Recorder panel is composed of 2 areas

1. Selection trigger area
2. Event display area.

Selection Trigger Area

The selection trigger area is composed of 2 parts

- **Date Selection**
  - It is used to select the required date.
  - When a date is selected, the "Event List display" area is automatically updated.
  - By default, when entering the menu, the selected date is "today".
- **Event Filter Selection**
  - It is used to select through “Checkboxes” the required event record types.
  - When an event type is selected, the “Event List display” area is automatically updated.
  - By default, when entering the menu, all the events are selected.

NOTE: All the data is saved in the CSV file and does not depend on the filter selection.

Event Display Area

Event display area is broken down into 2 parts

- **Pages Navigation**
  - There are 100 events per page.
- **Event List Display**

Export Files

The operation parameters are recorded automatically when the ATV6000 is running.

6 Types of event are recorded.

- Periodicity
- Channel for command and reference value
- Warning code
- Error code
- Drive state
- Configuration stored

They are stored in text file format into the Log folder of the HM hard disk everyday, see Export Files, page 268 menu.

List of the Triggers Available

Trigger	Naming	Trigger	Naming
UNK	Other triggers	CMD	Cmd Ref channel triggers
CYCL	Periodic triggers	WGOF/ WGON	Warning ON/OFF triggers
BYS	Bypass Cabinet triggers	ULN	Mains triggers
POCS	PoC state triggers	CMI	Configs save triggers
HMIS	Drive state triggers	QFx	Breaker state triggers
LFT	Errors trigger	ONLK	On-lock triggers

Error History

What's in This Chapter

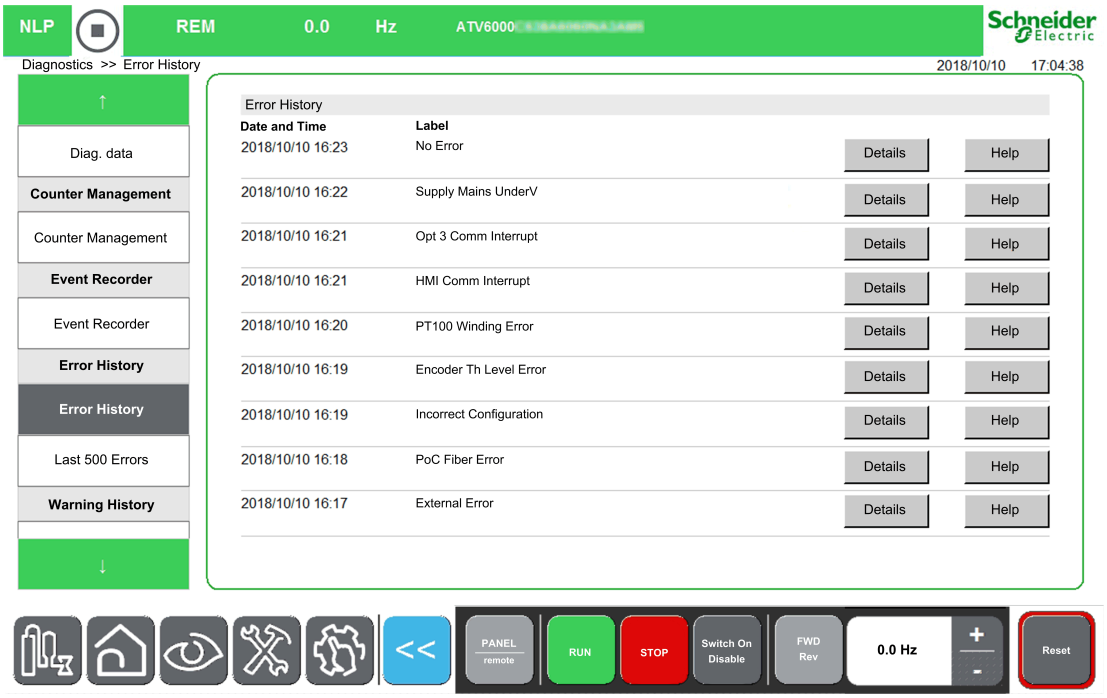
Error History

Access

[Diagnostics] ➡ [Error History]

Overview

This menu presents the list of errors detected by the drive. You can navigate and select the error that you want analyzed.



Error History Panel is composed of several pages described below:

- **Error History**
  - **Details**: Clicking on this button opens a new page **Error details** linked to the error selected.
  - **Help**: Clicking on this button opens a new page **Error Description** linked to the error selected.

New page: Error details

This page displays the status and main characteristics of the drive.

- **Help**: Clicking on this button opens a new page linked to the error selected.
- **Close**: Clicking on this button allows to go back to the **Error History** page.

New page: Error Description

This page displays the **Description**, and **Cause & Remedy** of the active error detected in the device.

NOTE: Click on **Cause** or **Remedy** section to have a full screen with more details.

A QR-code can be scanned from this HMI screen, It allows you to get an easy access to error description through your mobile device (as tablet or smartphone).

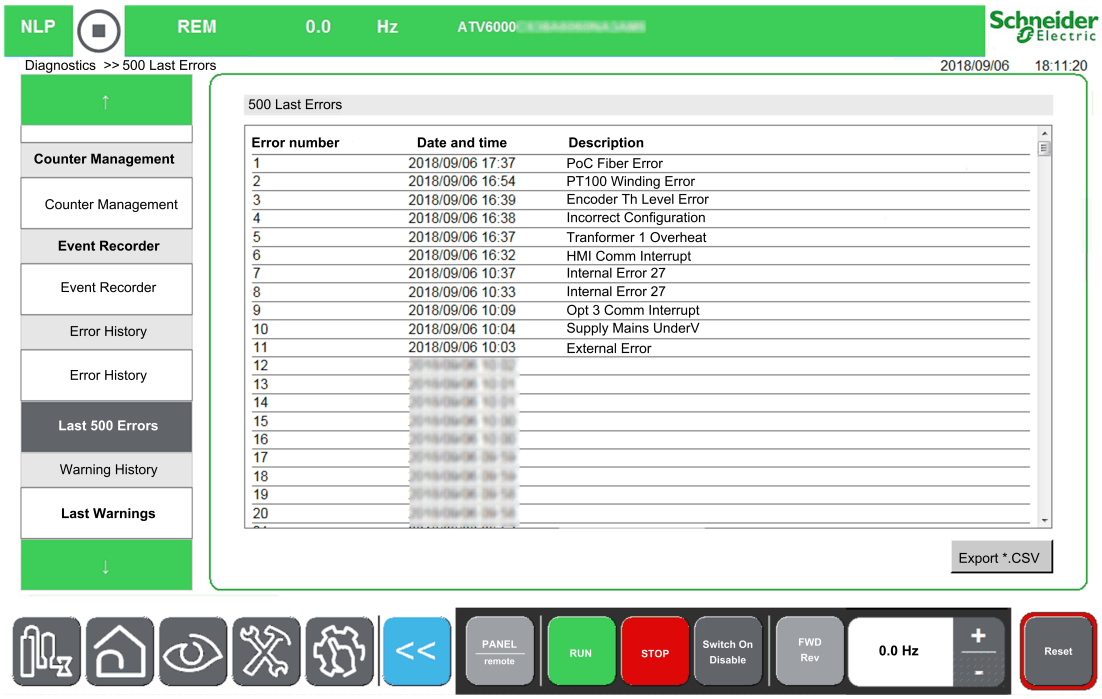
NOTE: For a complete list of error codes, refer to the partDiagnostics and Troubleshooting, page 421

500 Last Detected Errors

Access

[Diagnostics] ➡ [500 Last detected errors]

Overview



This menu presents the 500 last detected errors, it is possible to export this data, see Export files menu, page 268.

For a complete list of error codes, see the Diagnostics and Troubleshooting part, page 430.

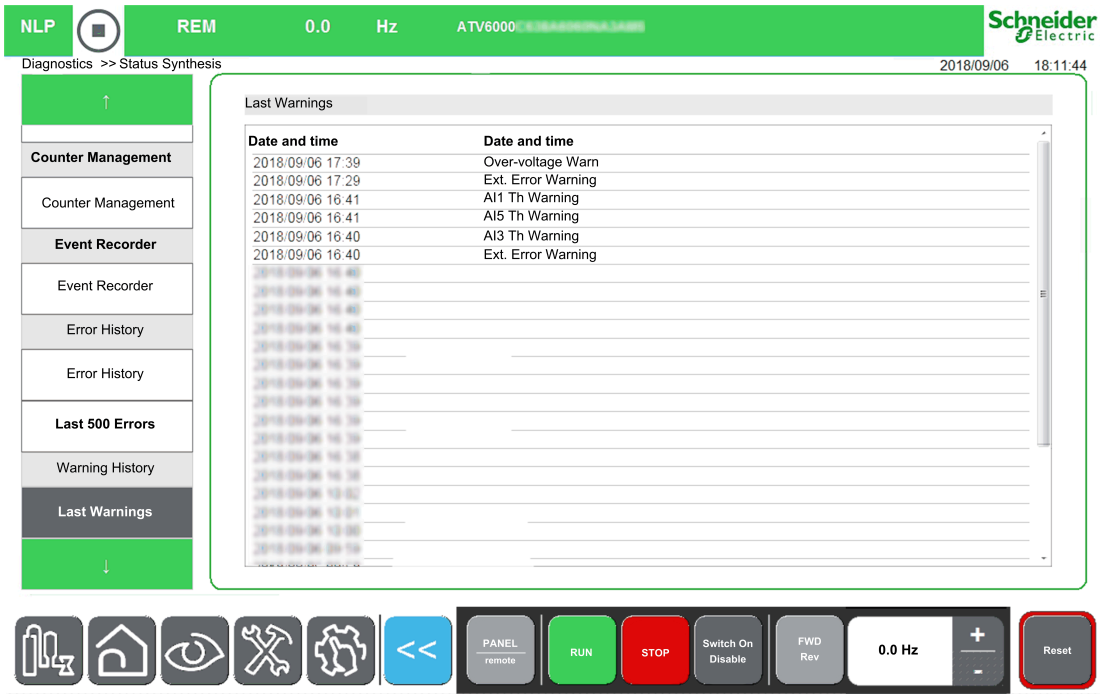
[Warning History] Menu

Access

[Diagnostics] ➡ [Warning History]

Overview

This menu presents the list of warnings that occurred in the device.



For a complete list of warnings, see the Diagnostics and Troubleshooting part, page 426.

Advanced Diagnostic

What's in This Chapter

[Counter Management Advanced] Menu

Access

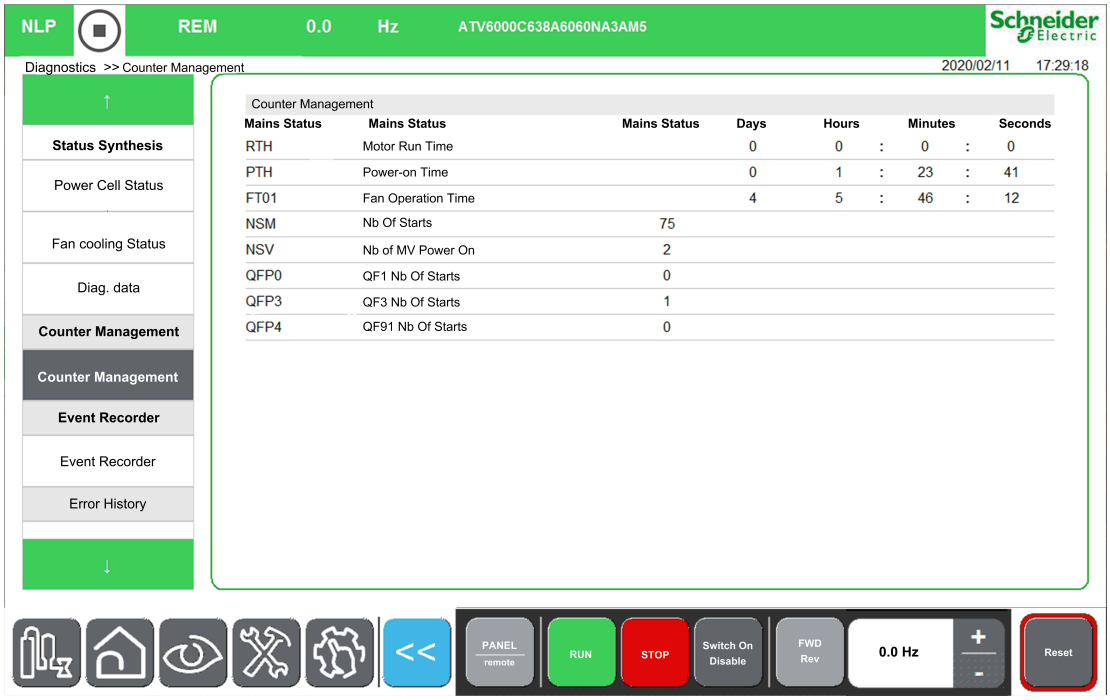
[Diagnostics] ➡ [Advanced Diagnoctic] ➡ [Counter Management Advanced]

Overview

This menu shows the drive, fan, and motor-related counters.

Note:

- Specific counters are available once logged in with Services access.
- All the following counter can be set to 0 by using the **[Time Counter Reset]** r P r parameter.



[Motor Run Time] r t H

Motor run time.

Run elapsed time display in seconds (length of time the motor has been switched on). Can be set to 0 by using the **[Time Counter Reset]** r P r parameter.

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Power-on Time] PtH

Power-on time, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Nb Of Start] nSM

Number of motor starts, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Nb of MV Power On] nSV

Number of MV Power on display, can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Fan Operation Time] FtO1

Fan operation time.

As soon as **[Fan Operation Time]** FtO1 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning]** FCtA is triggered.

[Fan Operation Time] FtO1 counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting**: Read Only

[Time Counter Reset] rPr

Time counter reset.

This parameter can reset individually the timer and counter

Setting	Code / Value	Description
[No]	nO	No **Factory setting**
[Run Time Reset]	rtH	Run time reset
[Internal Run Time Reset]	rtH1	Internal Run Time Reset (Dedicated for services)
[Power ON Time Reset]	PtH	Power ON time reset
[In Power ON Time Reset]	PtH1	Internal power ON time Reset (Dedicated for services)
[Reset Fan Counter]	FtH	Reset fan counter
[Clear NSM]	nSM	Clear number of motor starts
[Clear NSMI]	nSM1	Clear number of starts (Dedicated for services)
[Clear LTHI]	LtH1	Clear running time in limitation (current & torque)
[Clear GTHI]	GtH1	Clear running time in generator mode
[Clear QF1]	qFP0	Clear number of Power On Mains Circuit Breaker
[Clear QFP3]	qFP3	Clear number of Power On Bypass Circuit Breaker
[Clear QFP4]	qFP4	Clear number of Power On Inrush Circuit Breaker
[Clear NSV]	nSV	Clear number of MV Power On.
[Clear NSVI]	nSV1	Clear number of MV Power On (Dedicated for services)
[Reset all]	ALL	Reset all

Settings functions for HMI Panel

What's in This Part

Overview

This section can be accessed using the **Settings** Menu available only on the ATV6000 HMI Panel.

Drive Settings

What's in This Chapter

[Speed limits] Menu

Access

[Settings] ➡ **[Drive Settings]** ➡ **[Speed limits]**

About This Menu

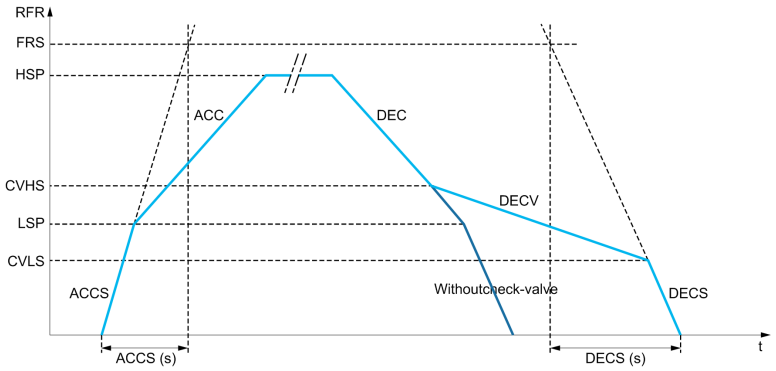
This function defines how the acceleration and deceleration are controlled during start and stop of the pump.

The pump working area is within the speed range **[Low Speed]** *LSP* - **[High Speed]** *HSP*.

The minimum speed is provided by the pump manufacturer according to the application.

Running below the minimum speed and/or starting the pump with a long acceleration ramp time has an impact on the lubrication of the seal, on the cooling of the impeller and the bearings.

A specific check-valve deceleration ramp is available to reduce any large variation of pressure that can generate an instability of the valve.



When the pump starts, the pump accelerates up to **[Low Speed]** *LSP* according to **[Start Accel Ramp]** *ACCS*.When the pump speed is above **[Low Speed]** *LSP*, the pump acceleration and deceleration are managed according to **[Acceleration]** *ACC* and **[Deceleration]** *dEC* if no other function is activated.

When the pump stops:

- The pump decelerates down to **[Check Valve Spd 2]** *CVHS* according to **[Deceleration]** *dEC*
- The pump decelerates from **[Check Valve Spd 2]** *CVHS* to **[Check Valve Spd 1]** *CVLS* according to **[Dec. Check Valve]** *dECV*

- The pump decelerates from **[Check Valve Spd 1]** CVLS to zero speed according to **[Deceleration on Stop]** dECS

If **[Start Accel Ramp]** ACCS = 0, the start ramp is ignored and **[Acceleration]** ACC is used to start the pump.

If **[Dec. Check Valve]** dECV = 0, the check-valve ramp is ignored and is used to decelerate down to **[Low Speed]** LSP, then **[Deceleration on Stop]** dECS is used (see below).

If **[Deceleration on Stop]** dECS = 0, the normal deceleration **[Deceleration]** dEC is used to stop the pump.

[Low Speed] LSP

Motor frequency at low speed.

Setting	Description
0.0...300.0 Hz	Setting range **Factory setting**: 0 Hz

[High Speed] HSP

Motor frequency at high speed.

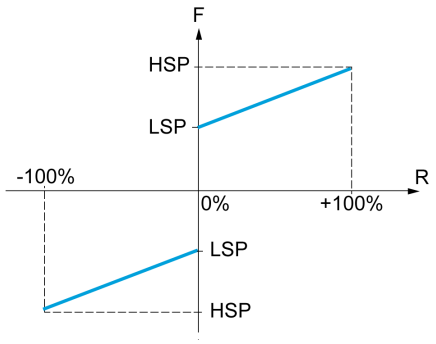
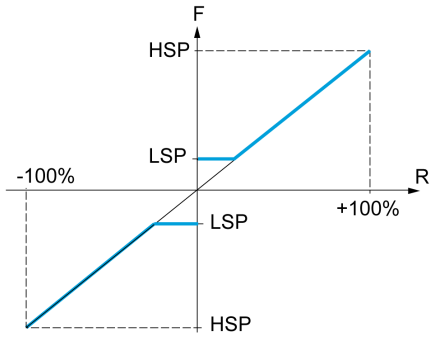
Setting	Description
0.0...300.0 Hz	Setting range **Factory setting**: 50.0 Hz

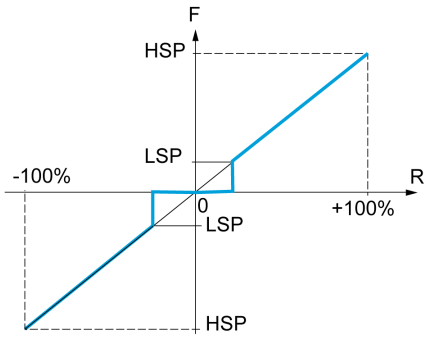
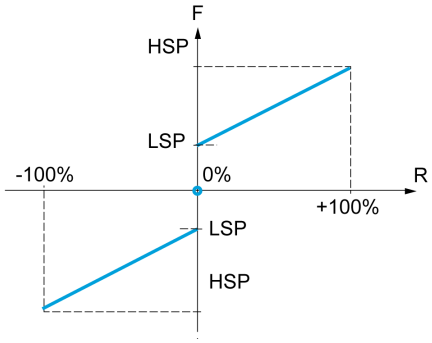
[Ref Freq Template] bSP

Low speed management (template).

This parameter defines how the speed reference is taken into account, for analog inputs and pulse input only. In the case of the PID controller, this is the PID output reference.

The limits are set by the **[Low speed]** LSP and **[High speed]** HSP parameters.

Setting	Code / Value	Description
[Standard]	bSd	 **F** Frequency **R** Reference At reference = 0, the frequency = **[Low speed]** LSP **Factory setting**
[Pedestal]	bLS	 **F** Frequency **R** Reference At reference = 0 to **[Low speed]** LSP, the frequency = **[Low speed]** LSP

Setting	Code / Value	Description
[Deadband]	bnS	 **F** Frequency **R** Reference At reference = 0 to LSP the frequency = 0
[Deadband at 0%]	bnS0	 **F** Frequency **R** Reference This operation is the same as **[Standard]** bSd, except that in the following cases at zero reference, the frequency = 0: The signal is less than **[Min value]**, which is greater than 0 (example: 1 Vdc on a 2–10 Vdc input). The signal is greater than **[Min value]**, which is greater than **[Max value]** (example: 11 Vdc on a 10–0 Vdc input). If the input range is configured as “bidirectional”, the operation remains identical to **[Standard]** bSd.

[Ramp] Menu

Access

[Settings] ➡ **[Drive Settings]** ➡ **[Ramp]**

[Ramp Type] rPt

Type of ramp.

Setting	Code / Value	Description
[Linear]	LIn	Linear ramp **Factory setting**
[S-Ramp]	S	S ramp
[U-Ramp]	U	U ramp
[Customized]	CUS	Customer ramp

[Ramp increment] Inr

This parameter is valid for **[Acceleration]** ACC, **[Deceleration]** dEC, **[Acceleration 2]** AC2 and **[Deceleration 2]** dE2.

Setting	Code / Value	Description
[0.01]	0.01	Ramp up to 99.99 seconds
[0.1]	0.1	Ramp up to 999.9 seconds **Factory setting**
[1]	1	Ramp up to 6,000 seconds

[Acceleration] ACC

Time to accelerate from 0 to the **[Nominal Motor Freq]** Frs.

To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

Setting	Description
0.00...6,000.00 s (1)	Setting range **Factory setting**: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1 to 6,000 according to **[Ramp increment]** Inr	

[Deceleration] dEC

Time to decelerate from the **[Nominal Motor Freq]** Frs to 0.

To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

Setting	Description
0.00...6,000.00 s (1)	Setting range **Factory setting**: 60.00 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1 to 6,000 according to **[Ramp increment]** inr	

[Begin Acc round] tA1

Rounding of start of acceleration ramp as a percentage of the **[Acceleration]** ACC or **[Acceleration 2]** AC2 ramp time.

Can be set from 0 to 100%.

This parameter can be accessed if the **[Ramp type]** rPt is set to **[Customized]** CUS.

Setting	Description
0...100%	Setting range **Factory setting**: 10%

[End Acc round] tA2

Rounding of end of acceleration ramp as a percentage of the **[Acceleration]** ACC or **[Acceleration 2]** AC2 ramp time.

Can be set between 0 and (100% - **[Begin Acc round]** tA1).

This parameter can be accessed if the **[Ramp type]** rPt is set to **[Customized]** CUS.

Setting	Description
0...100%	Setting range **Factory setting**: 10%

[Begin Dec round] tA3

Rounding of start of deceleration ramp as a percentage of the **[Deceleration]** dEC or **[Deceleration 2]** dE2 ramp time.

Can be set from 0 to 100%.

This parameter can be accessed if the **[Ramp type]** rPt is set to **[Customized]** CUS.

Setting	Description
0...100%	Setting range **Factory setting**: 10%

[End Dec round] tA4

Rounding of end of deceleration ramp as a percentage of the **[Deceleration]** dEC or **[Deceleration 2]** dE2 ramp time.

Can be set between 0 and (100% - **[Begin Dec round]** tA3).

This parameter can be accessed if the **[Ramp type]** rPt is **[Customized]** CuS.

Setting	Description
0...100%	Setting range **Factory setting**: 10%

[Ramp 2 Thd] Frt

Ramp 2 frequency threshold

The second ramp is switched if the value of **[Ramp 2 Thd]** Frt is not 0 (0 deactivates the function) and the output frequency is greater than **[Ramp 2 Thd]** Frt.

Setting	Description
0.0...300.0 Hz	Setting range **Factory setting**: 0.0 Hz

Use case 1: **[Ramp Switch Assign]** rPS is not configured and **[Ramp 2 Thd]** Frt > 0 Hz

DI or Bit	Frequency	Ramp
—	< Frt	ACC, dEC
—	> Frt	AC2, dE2

Use case 2: **[Ramp Switch Assign]** rPS is configured and **[Ramp 2 Thd]** Frt = 0 Hz

DI or Bit	Frequency	Ramp
0	—	ACC, dEC
1	—	AC2, dE2

Use case 3: **[Ramp Switch Assign]** rPS is configured and **[Ramp 2 Thd]** Frt > 0 Hz

DI or Bit	Frequency	Ramp
0	< Frt	ACC, dEC
0	> Frt	AC2, dE2
1	< Frt	AC2, dE2
1	> Frt	AC2, dE2

[Acceleration 2] AC2

Acceleration 2 ramp time.

Time to accelerate from 0 to the **[Nominal Motor Freq]** Frs. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if **[Ramp 2 Thd]** Frt is greater than 0 or if **[Ramp Switch Assign]** rPS is assigned.

Setting	Description
0.0...6,000 s (1)	Setting range **Factory setting**: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to **[Ramp increment]** inr.	

[Deceleration 2] dE2

Time to decelerate from the **[Nominal Motor Freq]** Fr S to 0. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if:

- **[Ramp 2 Thd]** Frt is greater than 0, or
- **[Ramp Switch Assign]** rPS is assigned.

Setting	Description
0.0...6,000 s (1)	Setting range **Factory setting**: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to **[Ramp increment]** inr.	

[Ramp 3 Thd] F t 3

Ramp 3 frequency threshold

The third ramp is switched if the value of **[Ramp 3 Thd]** F t 3 is not 0 (0 deactivates the function) and the output frequency is greater than **[Ramp 3 Thd]** F t 3.

Setting	Description
0.0...300 Hz	Setting range **Factory setting**: 0 Hz

Use case 1: **[Ramp Switch Assign]** r P S is not configured and **[Ramp 3 Thd]** F t 3 > 0 Hz

DI or Bit	Frequency	Ramp
—	< F r t	A C C, d E C
—	> F r t	A C 3, d E 3

Use case 2: **[Ramp Switch Assign]** r P S is configured and **[Ramp 3 Thd]** F t 3 = 0 Hz

DI or Bit	Frequency	Ramp
0	—	A C C, d E C
1	—	A C 2, d E 2

Use case 3: **[Ramp Switch Assign]** r P S is configured and **[Ramp 3 Thd]** F t 3 > 0 Hz

DI or Bit	Frequency	Ramp
0	< F r t	A C C, d E C
0	> F r t	A C 3, d E 3
1	< F r t	A C 3, d E 3
1	> F r t	A C 3, d E 3

[Acceleration 3] A C 3

Acceleration 3 ramp time.

Time to accelerate from 0 to the **[Nominal Motor Freq]** F r S. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if **[Ramp 3 Thd]** F t 3 is greater than 0 or if **[Ramp Switch Assign]** r P S is assigned.

Setting	Description
0.0...6,000 s (1)	Setting range **Factory setting**: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to **[Ramp increment]** I n r.	

[Deceleration 3] d E 3

Deceleration 3 ramp time.

Time to decelerate from the **[Nominal Motor Freq]** $F r S$ to 0. To have repeatability in ramps, the value of this parameter must be set according to the possibility of the application.

This parameter can be accessed if:

- **[Ramp 3 Thd]** $F t 3$ is greater than 0, or
- **[Ramp Switch Assign]** $r P S$ is assigned.

Setting	Description
0.0...6,000 s (1)	Setting range **Factory setting**: 60.0 s
(1) Range 0.01 to 99.99 s or 0.1 to 999.9 s or 1...6,000 s according to **[Ramp increment]** $i n r$.	

[Jump frequency] Menu

Access

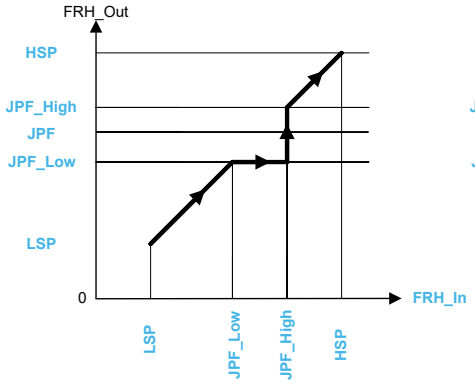
[Settings] ➡ [Drive Settings] ➡ [Jump frequency]

About This Menu

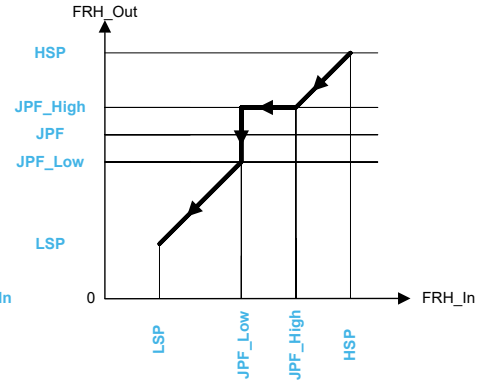
This function helps to prevent prolonged operation within an adjustable range around the regulated frequency.

This function can be used to help prevent reaching a frequency, which could cause resonance. Setting the parameter to 0 disables the function.

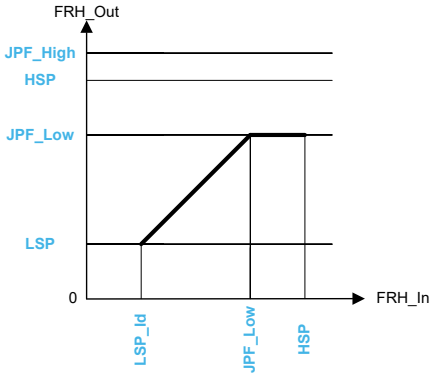
The following figures is an example of the jump frequency function:



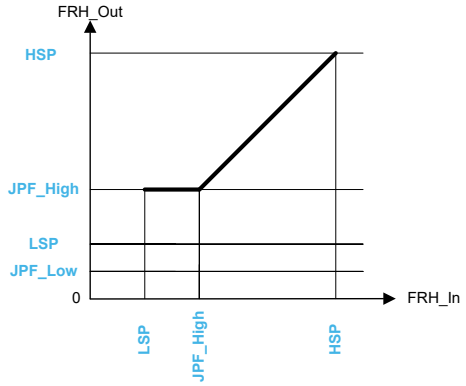
Jump frequency action when asked frequency is greater than motor speed



Jump frequency action when asked frequency is lower than motor speed



Particular case : HSP in forbidden frequency range



Particular case : LSP in forbidden frequency range

JPFx: x[th] Jump frequency value

WIDTH_FREQUENCY: Forbidden frequencies around JPFx

JPF_Low: JPFx – WIDTH_ FREQUENCY

JPF_High: JPFx + WIDTH_ FREQUENCY

FRH: Ramp input / Frequency reference

FRH_In: FRH value before jump frequency action

FRH_out: FRH value after jump frequency action

LSP: Low speed parameter

HSP: High speed parameter

[Skip Frequency] JPF

Jump frequency.

Setting	Description
0.0...300.0 Hz	Setting range **Factory setting**: 0.0 Hz

[Skip Frequency 2] JF2

Jump frequency 2.

Setting	Description
0.0...300.0 Hz	Setting range **Factory setting**: 0.0 Hz

[3rd Skip Frequency] JF3

Jump frequency 3.

Setting	Description
0.0...300.0 Hz	Setting range **Factory setting**: 0.0 Hz

[Skip.Freq.Hysteresis] JFH

Jump frequency bandwidth.

This parameter can be accessed if at least one skip frequency JPF, JF2, or JF3 is different from 0.

Skip frequency range: between JPF – JFH and JPF + JFH for example.

This adjustment is common to the 3 frequencies JPF, JF2, JF3.

Setting	Description
0.1...10.0 Hz	Setting range **Factory setting**: 1.0 Hz

[Input/Output] Menu

Access

[Settings] ➡ [Drive Settings] ➡ [Input / Output]

[AI1 Assignment] AI1A

Analog input AI1 functions assignment.

Read-only parameter, cannot be configured. It displays all the functions associated with input AI1 in order to verify, for example, for compatibility problems.

If no functions have been assigned, **[No]** nO is displayed.

Setting	Code / Value	Description
[No]	nO	Not assigned
[Ref Frequency 1]	Fr1	Reference frequency 1
[Ref Frequency 2]	Fr2	Reference frequency 2
[Ref Frequency 2 Summing]	SA2	Reference frequency 2 summing
[PID Feedback]	PIF	PI controller feedback
[Torque limitation]	tAA	Torque limitation: activation by an analog value
[Subtract Ref Freq 2]	dA2	Subtract reference frequency 2
[Manual PID Ref.]	PIM	Manual speed reference of the PID controller (auto-man)
[PID Ref Frequency]	FPI	PID reference frequency
[Ref Frequency 3 Summing]	SA3	Reference frequency 3 summing
[Ref Frequency 1B]	Fr1b	Reference frequency 1B
[Subtract Ref Freq 3]	dA3	Subtract reference frequency 3
[Forced local]	FLoC	Forced local reference source1
[Ref Frequency 2 multiplier]	MA2	Reference frequency 2 multiplier
[Ref Frequency 3 multiplier]	MA3	Reference frequency 3 multiplier
[Torque reference]	tr1	Torque regulation: torque set point 1
[AIV1 Channel Assignment]	AIC1	Visual AI1 channel selector function
[Torque Ref Offset]	tqo	Torque offset source
[Torque Ref Ratio]	tqr	Torque ratio source

Setting	Code / Value	Description
[Torque limitation 2]	tAA2	Torque limitation: activation by an analog value
[Torque reference 2]	tr2	Torque regulation: torque set point 2
[Frequency Meter]	FqF	Frequency meter function activation
[External Feed Forward]	tEFF	External feed-forward
[M/S Speed Ref In]	MSS,	M/S Master speed reference input
[M/S Trq Ref In]	MSt,	M/S Master torque reference input

[AI1 Type] A, It

Configuration of analog input AI1.

Setting	Code / Value	Description
[Voltage]	10u	0-10 Vdc **Factory setting**
[Current]	0A	0-20 mA
[PTC Management]	PtC	1 to 6 PTC (in serial)
[KTY]	Kty	1 KTY84
[PT100]	1Pt2	1 PT100 connected with 2 wires
[PT1000]	1Pt3	1 PT1000 connected with 2 wires

[AI1 min value] u, L I

AI1 minimum value.

AI1 voltage scaling parameter of 0%.

This parameter can be accessed if **[AI1 Type]** A, It is set to **[Voltage]** 10u.

Setting	Description
0.0...10.0 Vdc	Setting range **Factory setting**: 0.0 Vdc

[AI1 max value] u, H I

AI1 maximum value.

AI1 voltage scaling parameter of 100%.

This parameter can be accessed if **[AI1 Type]** A, It is set to **[Voltage]** 10u.

Setting	Description
0.0...10.0 Vdc	Setting range **Factory setting**: 10.0 Vdc

[AI1 min. value] CrL1

AI1 minimum value.

AI1 current scaling parameter of 0%.

This parameter can be accessed if **[AI1 Type]** A1tY is set to **[Current]** 0A.

Setting	Description
0.0...20.0 mA	Setting range **Factory setting**: 0.0 mA

[AI1 max. value] CrH1

AI1 maximum value.

AI1 current scaling parameter of 100%.

This parameter can be accessed if **[AI1 Type]** A1tY is set to **[Current]** 0A.

Setting	Description
0.0...20.0 mA	Setting range **Factory setting**: 20.0 mA

[AI1 filter] A1F

AI1 filter.

Interference filtering.

Setting	Description
0.00...10.00 s	Setting range **Factory setting**: 0.00 s

[AI2 Assignment] A12A to [AI5 Assignment] A15A

Configuration of AI2 to AI5 .

Identical to **[AI1 Assignment]** A1A.

[AI2 Type] A12t

Configuration of analog input AI1 to AI5.

Identical to **[AI1 Type]** A1tY.

Setting	Code / Value	Description
[Voltage]	10u	0-10 Vdc
Voltage +/-	n10u	-10/+10 Volts **Factory setting**

[AI3 Type] A I 3 E

Configuration of analog input AI3

Setting	Code / Value	Description
[Voltage]	I O U	0-10 Vdc **Factory setting**
[Current]	O A	0-20 mA
[PTC Management]	P E C	1 to 6 PTC (in serial)
[KTY]	K E Y	1 KTY84
[PT100]	I P E 2	1 PT100 connected with 2 wires
[PT1000]	I P E 3	1 PT1000 connected with 2 wires

[AI4 Type] A I 4 E

Configuration of analog input AI4

Setting	Code / Value	Description
[Voltage]	I O U	0-10 Vdc **Factory setting**
[Current]	O A	0-20 mA
[PTC Management]	P E C	1 to 6 PTC (in serial)
[KTY]	K E Y	1 KTY84
[PT100]	I P E 2	1 PT100 connected with 2 wires
[PT1000]	I P E 3	1 PT1000 connected with 2 wires
[3 PT100]	3 P E 2	3 PT100
[3 PT1000]	3 P E 3	3 PT1000
[PT100 in 3 wires]	I P E 2 3	1 PT100 connected with three wires is used
PT1000 in 3 wires[]	I P E 3 3	1 PT1000 connected with three wires is used
[3 PT100 in 3 wires]	3 P E 2 3	3 PT100 connected with three wires is used
[3 PT1000 in 3 wires]	3 P E 3 3	3 PT1000 connected with three wires is used

[AI5 Type] A I 5 E

Configuration of analog input AI5

Setting	Code / Value	Description
[Voltage]	I O U	0-10 Vdc **Factory setting**
[Current]	O A	0-20 mA
[PTC Management]	P E C	1 to 6 PTC (in serial)
[KTY]	K E Y	1 KTY84

Setting	Code / Value	Description
[PT100]	IPt2	1 PT100 connected with 2 wires
[PT1000]	IPt3	1 PT1000 connected with 2 wires
[3 PT100]	3Pt2	3 PT100
[3 PT1000]	3Pt3	3 PT1000
[PT100 in 3 wires]	IPt23	1 PT100 connected with 2 wires
PT1000 in 3 wires[]	IPt33	1 PT1000 connected with 2 wires
[3 PT100 in 3 wires]	3Pt23	3 PT100 connected with 2 wires
[3 PT1000 in 3 wires]	3Pt33	3 PT1000 connected with 2 wires

[AI2 min value] uiL2 to [AI5 min value] uiL5

AI2 minimum value to AI5 minimum value .

Voltage scaling parameter of 0%.

Identical to **[AI1 min value]** uiL1.

[AI2 max value] uiH2 to [AI5 max value] uiH5

AI2 maximum value to AI5 maximum value.

Voltage scaling parameter of 100%.

Identical to **[AI1 max value]** uiH1.

[AI2 filter] AI2F to [AI5 filter] AI5F

AI2 filter to AI5 filter.

Interference filtering.

Identical to **[AI1 filter]** AI1F.

[AI3 min. value] CrL3 to [AI5 min. value] CrL5

AI3 minimum value to AI5 minimum value.

Identical to **[AI1 min. value]** CrL1.

Setting	Description
0.0...20.0 mA	Setting range **Factory setting**: 0.0 mA

[AI3 max. value] CrH3 to [AI5 max. value] CrH5

AI3 maximum value to AI5 maximum value.

Identical to **[AI1 max. value]** CrH1.

Setting	Description
0.0...20.0 mA	Setting range **Factory setting**: 20.0 mA

[Enc Resistor Value] EHEr

Encoder thermal resistor value.

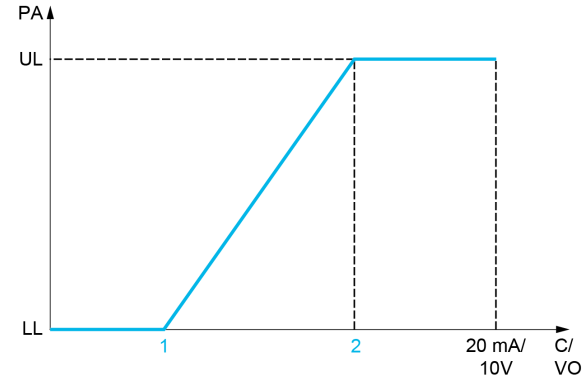
This parameter can be accessed if:

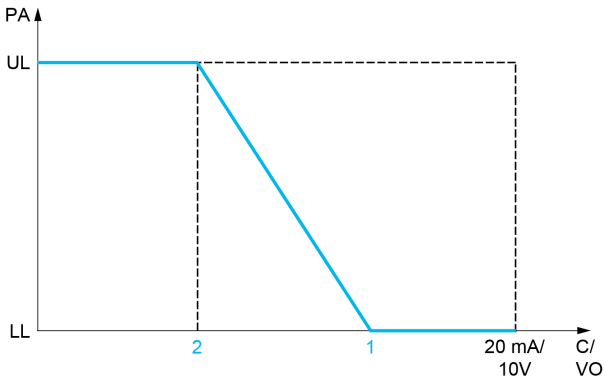
- An encoder option module has been inserted, and
- **[Enc Therm Sensor Type]** EHEt is not set to **[None]** nonE.

Setting	Description
-32,767...32,767	Setting range **Factory setting**: _

Minimum and Maximum Output Values

The minimum output value, in volts, corresponds to the lower limit of the assigned parameter and the maximum value corresponds to its upper limit. The minimum value may be greater than the maximum value.





PA Parameter assigned

C / VO Current or voltage output

UL Upper limit

LL Low limit

1 [Min Output] AoLX or uoLX

2 [Max Output] AoHX or uoHX

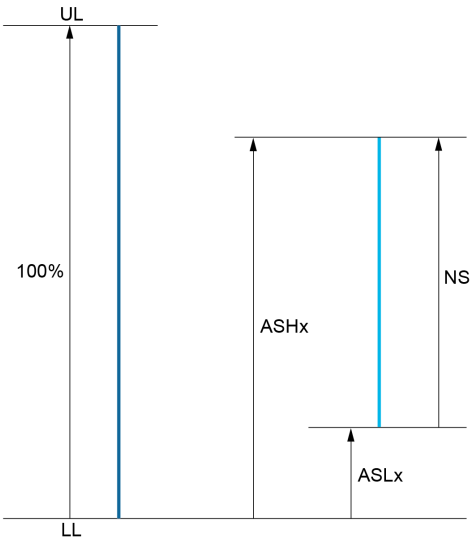
Scaling of the Assigned Parameter

The scale of the assigned parameter can be adapted in accordance with requirements by modifying the values of the lower and upper limits with two parameters for each analogic output.

These parameters are given in %. 100% corresponds to the total variation range of the configured parameter, so: 100% = upper limit - lower limit.

For example, **[Sign. torque]** SIGN which varies between –3 and +3 times the rated torque, 100% corresponds to 6 times the rated torque.

- The **[Scaling AQx min]** ASLx parameter modifies the lower limit: new value = lower limit + (range x ASLx). The value 0% (factory setting) does not modify the lower limit.
- The **[Scaling AQx max]** ASHx parameter modifies the upper limit: new value = lower limit + (range x ASLx). The value 100% (factory setting) does not modify the upper limit.
- **[Scaling AQx min]** ASLx must always be lower than **[Scaling AQx max]** ASHx.



UL Upper limit of the assigned parameter

LL Lower limit of the assigned parameter

NS New scale

ASHx Scaling max

ASLx Scaling min

Application Example

The value of the motor current at the AQ1 output is to be transferred with 0...20 mA, range 2 In motor, In motor being the equivalent of a 0.8 In drive.

- The **[Motor Current]** oCr parameter varies from 0 to 2 times the rated drive current.
- **[Scaling AQ1 min]** ASL1 must not modify the lower limit, which therefore remains at its factory setting of 0%.
- **[Scaling AQ1 max]** ASH1 must modify the upper limit by 0.5x the rated motor torque, or 100 - 100/5 = 80% (new value = lower limit + (range x ASH1).

[AQ1 assignment] AO1

AQ1 assignment.

Setting	Code / Value	Description
[Not Configured]	nO	Not assigned **Factory Setting**
[Motor Current]	OCr	Current in the motor, from 0 to 2 In (In = rated drive current indicated in the Installation manual and on the drive nameplate)
[Motor Frequency]	OFr	Output frequency, from 0 to **[Max Frequency]** tFr
[Ramp out.]	OrP	From 0 to **[Max Frequency]** tFr
[Motor torq.]	trq	Motor torque, from 0 to 3 times the rated motor torque
[Sign. torque]	Stq	Signed motor torque, between –3 and +3 times the rated motor torque. The + sign corresponds to the motor mode and the – sign to the generator mode (braking).
[sign ramp]	Ors	Signed ramp output, between –**[Max Frequency]** tFr and +**[Max Frequency]** tFr
[PID ref.]	OPS	PID controller reference between **[Min PID reference]** PIP1 and **[Max PID reference]** PIP2
[PID feedbk]	OPF	PID controller feedback between **[Min PID feedback]** PIF1 and **[Max PID feedback]** PIF2
[PID error]	OPE	PID controller detected error between –5% and +5% of **[Max PID feedback]** PIF2 – **[Min PID feedback]** PIF1
[PID output]	OPI	PID controller output between **[Low speed]** LSP and **[High speed]** HSP
[Motor Power]	OPr	Motor power, between 0 and 2.5 times **[Nominal Motor Power]** nPr
[Mot thermal]	tHr	Motor thermal state, from 0 to 200% of the rated thermal state
[Drive Thermal State]	tHd	Drive thermal state
[Torque 4Q]	trq4	Signed motor torque, between -3 and +3 times the rated motor torque. The + and - signs correspond to the physical direction of the torque, regardless of mode (motor or generator)
[Measured Motor Freq]	OFrr	Measured motor frequency
[Sig. o/p frq.]	OFS	Signed output frequency, between –**[Max Frequency]** tFr and +**[Max Frequency]** tFr
[Mot therm2]	tHr2	Motor thermal 2 state
[Mot therm3]	tHr3	Motor thermal 3 state
[Mot therm4]	tHr4	Motor thermal 4 state
[Unsigned Trq Ref]	utr	Unsigned torque reference
[Signed Trq Ref]	Str	Signed torque reference
[Torque lim.]	tqL	Torque limit
[Motor volt.]	uoP	Voltage applied to the motor, between 0 and **[Nom Motor Voltage]** unS
[Mains Voltage]	uLn	Mains voltage
[Mains Current]	iLn	Mains current
[Input Elec. Power]	iPr	Mains active power

Setting	Code / Value	Description
[Input Reactive Power]	iqr	Mains reactive power
[Input Power Factor]	PWF	Power factor
[M/S Out Speed Reference]	MSSo	Master / slave output speed reference
[M/S Out Torque Reference]	MSTo	Master / slave output torque reference

[AQ1 Type] AoIt

AQ1 type.

Setting	Code / Value	Description
[Voltage]	10u	0-10 Vdc
[Current]	0A	0-20 mA

[AQ1 Min Output] uoL1

AQ1 minimum output.

This parameter can be accessed if **[AQ1 Type]** AoIt is set to **[Voltage]** 10u.

Setting	Description
0.0...10.0 Vdc	Setting range **Factory setting**: 0.0 Vdc

[AQ1 max Output] uoH1

AQ1 maximum output.

This parameter can be accessed if **[AQ1 Type]** AoIt is set to **[Voltage]** 10u.

Setting	Description
0.0...10.0 Vdc	Setting range **Factory setting**: 10.0 Vdc

[AQ1 min output] AoL1

AQ1 minimum output.

This parameter can be accessed if **[AQ1 Type]** AoIt is set to **[Current]** 0A.

Setting	Description
0.0...20.0 mA	Setting range **Factory setting**: 0.0 mA

[AQ1 max output] AoH1

AQ1 maximum output.

This parameter can be accessed if **[AQ1 Type]** AoIt is set to **[Current]** 0A.

Setting	Description
0.0...20.0 mA	Setting range **Factory setting**: 20.0 mA

[Scaling AQ1 min] ASL1

Scaling of the lower limit of the assigned parameter, as a percentage of the maximum possible variation.

Setting	Description
0.0...100.0%	Setting range **Factory setting**: 0.0%

[Scaling AQ1 max] ASH1

Scaling of the upper limit of the assigned parameter, as a percentage of the maximum possible variation.

Setting	Description
0.0...100.0%	Setting range **Factory setting**: 100.0%

[AQ1 Filter] AoIF

Interference filtering.

Setting	Description
0.00...10.00 s	Setting range **Factory setting**: 0.00 s

[AQ2 Assignment] Ao2

AQ2 assignment.

Identical to **[AQ1 Assignment]** AoI with factory setting **[Motor Current]** oCr.

[AQ2 Type] Ao2t

AQ2 type.

Setting	Code / Value	Description
[Voltage]	IOu	0-10 Vdc
[Current]	0A	0-20 mA **Factory setting**

[AQ2 Min Output] uoL2

AQ2 minimum output.

This parameter can be accessed if **[AQ2 Type]** Ao2t is set to **[Voltage]** IOu.

Identical to **[AQ1 min Output]** uoL1.

[AQ2 Max Output] uoH2

AQ2 maximum output.

This parameter can be accessed if **[AQ2 Type]** Ao2t is set to **[Voltage]** IOu.

Identical to **[AQ1 max Output]** uoH1.

[AQ2 Min Output] AoL2

AQ2 minimum output.

This parameter can be accessed if **[AQ2 Type]** Ao2t is set to **[Current]** 0A.

Identical to **[AQ1 min Output]** AoL1.

[AQ2 Max Output] AoH2

AQ2 maximum output.

This parameter can be accessed if **[AQ2 Type]** Ao2t is set to **[Current]** 0A.

Identical to **[AQ1 max Output]** AoH1.

[Scaling AQ2 min] ASL2

Scaling of the lower limit of the assigned parameter, as a % of the maximum possible variation.

Identical to **[Scaling AQ2 min]** ASL1.

[Scaling AQ2 max] ASH2

Scaling of the upper limit of the assigned parameter, as a % of the maximum possible variation.

Identical to **[Scaling AQ1 max]** ASH1.

[AQ2 Filter] AO2F

Interference filtering.

Identical to **[AQ1 Filter]** AO1F.

[PTO Assign] PTO

Pulse train output assignment.

Setting	Code / Value	Description
[Not Configured]	nO	Not assigned **Factory Setting**
[Motor Current]	OCR	Current in the motor, from 0 to 2 In (In = rated drive current indicated in the Installation manual and on the drive nameplate)
[Motor Frequency]	OFR	Output frequency, from 0 to **[Max Frequency]** TFR
[Ramp out.]	ORP	From 0 to **[Max Frequency]** TFR
[Motor torq.]	TRQ	Motor torque, from 0 to 3 times the rated motor torque
[Sign. torque]	STQ	Signed motor torque, between –3 and +3 times the rated motor torque. The + sign corresponds to the motor mode and the – sign to the generator mode (braking).
[sign ramp]	ORS	Signed ramp output, between –**[Max Frequency]** TFR and +**[Max Frequency]** TFR
[PID ref.]	OPS	PID controller reference between **[Min PID reference]** P1P1 and **[Max PID reference]** P1P2
[PID feedbk]	OPF	PID controller feedback between **[Min PID feedback]** P1F1 and **[Max PID feedback]** P1F2
[PID error]	OPE	PID controller detected error between –5% and +5% of **[Max PID feedback]** P1F2 – **[Min PID feedback]** P1F1
[PID output]	OP1	PID controller output between **[Low speed]** LSP and **[High speed]** HSP
[Motor Power]	OPR	Motor power, between 0 and 2.5 times **[Nominal Motor Power]** nPR
[Mot thermal]	THR	Motor thermal state, from 0 to 200% of the rated thermal state
[Torque 4Q]	TRQ4	Signed motor torque, between -3 and +3 times the rated motor torque. The + and - signs correspond to the physical direction of the torque, regardless of mode (motor or generator)
[Measured Motor Freq]	OFRR	Measured motor frequency
[Sig. o/p frq.]	OFS	Signed output frequency, between –**[Max Frequency]** TFR and +**[Max Frequency]** TFR
[Mot therm2]	THR2	Motor thermal 2 state
[Mot therm3]	THR3	Motor thermal 3 state
[Mot therm4]	THR4	Motor thermal 4 state
[Unsigned Trq Ref]	UTR	Unsigned torque reference
[Signed Trq Ref]	STR	Signed torque reference
[Torque lim.]	TQL	Torque limit
[Motor volt.]	UOP	Voltage applied to the motor, between 0 and **[Nom Motor Voltage]** UNS

[PTO Max Output Freq] PtoH

Pulse train output maximum output frequency.

This parameter can be accessed if **[PTO Assign]** Pto is not set to **[Not configured]** no.

Setting	Description
1.00...30.00 kHz	Setting range **Factory setting**: 4.00 kHz

[PTO Min Output Freq] PtoL

Pulse train output minimum output frequency.

This parameter can be accessed if **[PTO Assign]** Pto is not set to **[Not configured]** no.

Setting	Description
1.00...30.00 kHz	Setting range **Factory setting**: 1.00 kHz

[DI7 Pulse Input Assign] PI7A

DI7 pulse input assignment.

It displays all the functions associated with the pulse input in order to verify, for example, for compatibility problems.

If no functions have been assigned, **[No]** no is displayed.

Setting	Code / Value	Description
[No]	no	Not assigned
[Ref Frequency 1]	Fr1	Reference frequency 1
[Ref Frequency 2]	Fr2	Reference frequency 2
[Ref Frequency 2 Summing]	SA2	Reference frequency 2 summing
[PID Feedback]	PIF	PI controller feedback
[Torque limitation]	tAA	Torque limitation: activation by an analog value
[Subtract Ref Freq 2]	dA2	Subtract reference frequency 2
[Manual PID Ref.]	PIM	Manual speed reference of the PID controller (auto-man)
[PID Ref Frequency]	FPI	PID reference frequency
[Ref Frequency 3 Summing]	SA3	Reference frequency 3 summing
[Ref Frequency 1B]	Fr1b	Reference frequency 1B

Setting	Code / Value	Description
[Subtract Ref Freq 3]	dA3	Subtract reference frequency 3
[Forced local]	FLoC	Forced local reference source1
[Ref Frequency 2 multiplier]	MA2	Reference frequency 2 multiplier
[Ref Frequency 3 multiplier]	MA3	Reference frequency 3 multiplier
[Torque reference]	tr1	Torque regulation: torque set point 1
[AIV1 Channel Assignment]	AiC1	Visual AI1 channel selector function
[Torque Ref Offset]	tqo	Torque offset source
[Torque Ref Ratio]	tqr	Torque ratio source
[Torque limitation 2]	tAA2	Torque limitation: activation by an analog value
[Torque reference 2]	tr2	Torque regulation: torque set point 2
[Frequency Meter]	FqF	Frequency meter function activation
[External Feed Forward]	tEFF	External feed-forward
[M/S Speed Ref In]	MSSi	M/S Master speed reference input
[M/S Trq Ref In]	MSti	M/S Master torque reference input

[DI7 PulseInput Low Freq] PiL7

Di7 pulse input low frequency.

Pulse input scaling parameter of 0% in Hz x 10 unit.

Setting	Description
0.00...30,000.00 Hz	Setting range **Factory setting**: 0 Hz

[DI7 PulseInput High Freq] PiH7

Di7 pulse input high frequency.

Pulse input scaling parameter of 100% in Hz x 10 unit.

Setting	Description
0.00...30.00 kHz	Setting range **Factory setting**: 30.00 kHz

[DI7 Frequency Filter] PF ,7

Interference filtering pulse input cut-off time of the low-filter.

Setting	Description
0...1,000 ms	Setting range **Factory setting**: 0 ms

[DI8 Pulse Input Assign] P ,8A

DI8 pulse input assignment.

Identical to **[DI7 Pulse Input Assign]** P ,7A.

[DI8 PulseInput Low Freq] P ,L8

DI8 pulse input low frequency.

Identical to **[DI7 PulseInput Low Freq]** P ,L 7.

[DI8 PulseInput High Freq] P ,H8

DI8 pulse input high frequency.

Identical to **[DI7 PulseInput High Freq]** P ,H 7.

[DI8 Frequency Filter] PF ,8

Interference filtering pulse input cut-off time of the low-filter.

Identical to **[DI7 Frequency Filter]** PF ,7.

[Analog Function] Menu

Access

[Settings] ➜ [Drive Settings] ➜ [Analog Function]

Overview

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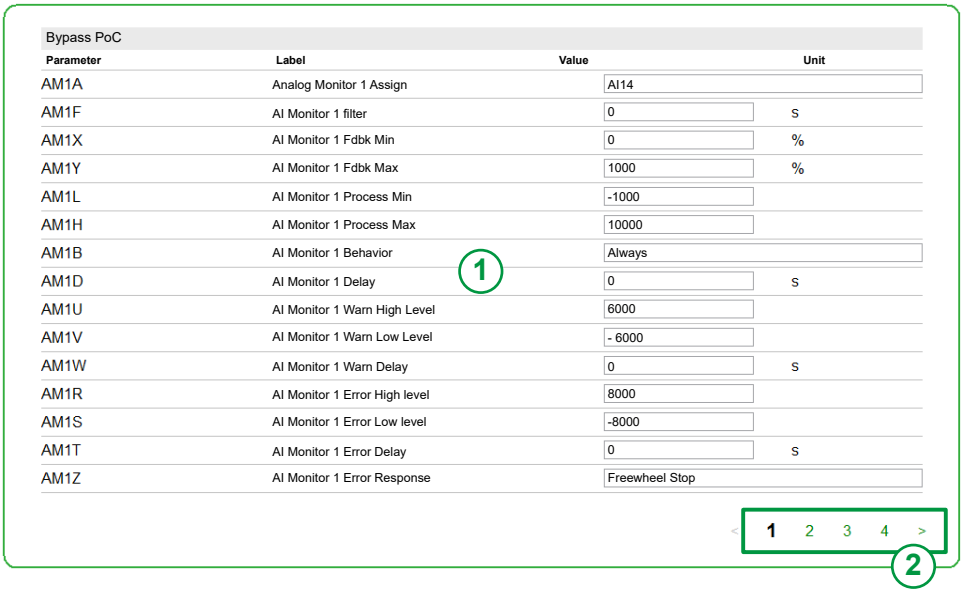
From HMI software version 1.6, users can configure their Analog Inputs. This menu allow to configure up to 4 Analog input which can be monitored on display panel , page 112.



1. Panel: It presents current analog parameters on page 1.

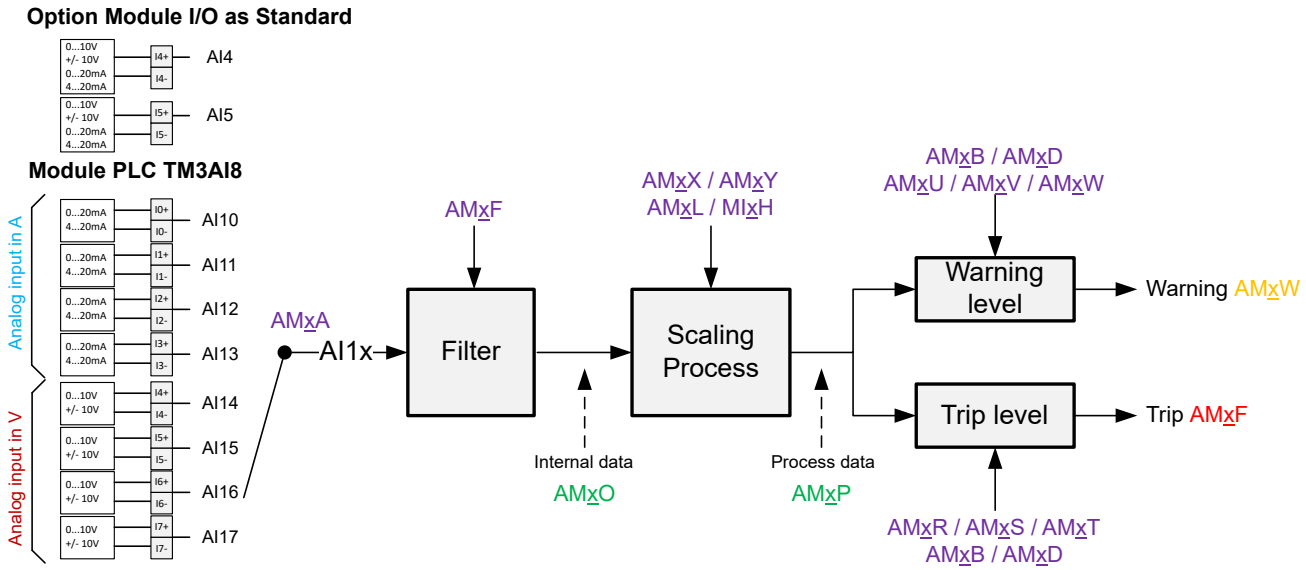
2. Page selection: Allows to navigate through several pages, it presents all other analog parameters

Module And Parameters definition

Depending your system, there are 2 kind of module;

- Option Module I/O on control bloc as standard solution defined by:
  - 2 analog inputs channel **AI4** and **AI5** configurable in mA or V.

- Module PLC TM3AI8 as extended solution defined by:
  - 4 analog inputs channel **AI10** to **AI13** in mA,
  - 4 analog inputs channel **AI14** to **AI17** in V.



X: Regarding function 1 to function 4.

Designation	Function 1	Function 2	Function 3	Function 4
Analog Monitor Assignment	AM1A	AM2A	AM3A	AM4A
Analog Monitor Increment	AM1I	AM2I	AM3I	AM4I
Analog input filter time	AM1F	AM2F	AM3F	AM4F
Analog input scaling	AM1X / AM1Y AM1L / AM1H	AM2X / AM2Y AM2L / AMH	AM3X / AM3Y AM3L / AM3H	AM4X / AM1Y AM4L / AM1H
Analog Monitor Behavior	AM1B	AM2B	AM3B	AM4B
Analog Monitor Delay time	AM1D	AM2D	AM3D	AM4D
Analog Monitor warning level	AM1U / AM1V AM1W	AM2U / AM2V AM2W	AM3U / AM3V AM3W	AM4U / AM1V AM4W
Analog Monitor Trip level	AM1R / AM1S AM1T	AM2R / AM2S AM2T	AM3R / AM3S AM3T	AM4R / AM4S AM4T
Analog Monitor Trip Behavior	AM1Z	AM2Z	AM3Z	AM4Z
Error register Error Analog Monitor	DF5.12 AM1F	DF5.13 AM2F	DF5.14 AM3F	DF5.15 AM3F
Warning register Warning Analog Monitor	ST24.0 AW01	ST24.1 AW02	ST24.2 AW03	ST24.3 AW04
Analog Monitor Internal	AM1O	AM2O	AM3O	AM4O
Analog Monitor Process	AM1P	AM2P	AM3P	AM4P
Warning loss x-20mA	ST24.4 / AW05 AM00			

Range process

Range process defines min/max value regarding type of monitoring and unit customized on HMI Display Panel, page 112

- Min. : **[AI Monitor 1 Process Min]** *AM1L* ... **[AI Monitor 4 Process Min]** *AM4L*
- Max. : **[AI Monitor 1 Process max]** *AM1H*... **[AI Monitor 4 Process Max]** *AM4H*

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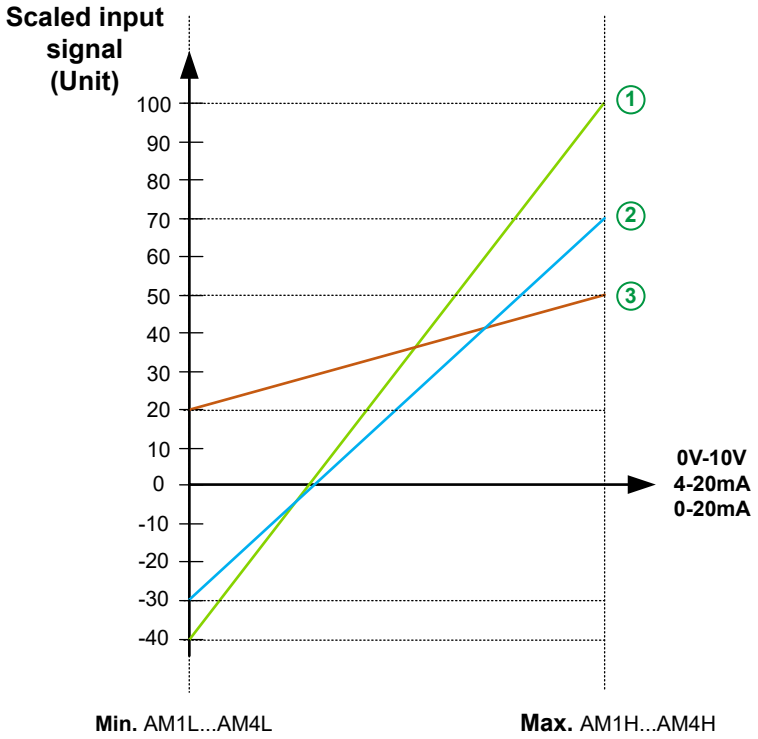


Example with 3 type of range process monitored:

Element	Description
①	Milliampere: • Min: –40ma • Max: 100ma
②	Temperature • Min: –30°C • Max: 70°C
③	Vibration • Min: 20 cm/s² • Max: 50 cm/s²

Warning process level and error process level

An error or warning message is triggered when analog monitoring process is out of range which is defined by High process level and Low process level.

- Warning range values for
  - High Level: **[AI Monitor 1 Warn High Level]** *AM1u* ... **[AI Monitor 4 Warn High Level]** *AM4u*
  - Low Level: **[AI Monitor 1 Warn Low Level]** *AM1V* ... **[AI Monitor 4 Warn Low Level]** *AM4V*

- Error range value for
  - High Level: **[AI Monitor 1 Error High Level]** AN 1r ... **[AI Monitor 4 Error High Level]** AN4r
  - Low Level: **[AI Monitor 1 Error Low Level]** AN 1S ... **[AI Monitor 4 Error Low Level]** AN4S

[Analog Monitor 1 Assign] AO 1A... [Analog Monitor 4 Assign] AO4A

Analog monitoring assignment 1 to 4

Setting	Code / Value	Description
[No]	nO	No affectation
[AI10 (mA)]	AI10	Module TM3 analog AI10 (mA)
[AI11 (mA)]	AI11	Module TM3 analog AI11 (mA)
[AI12 (mA)]	AI12	Module TM3 analog AI12 (mA)
[AI13 (mA)]	AI13	Module TM3 analog AI13 (mA)
[AI14 (V)]	AI14	Module TM3 analog AI14 (Volt)
[AI15 (V)]	AI15	Module TM3 analog AI15 (Volt)
[AI16 (V)]	AI16	Module TM3 analog AI16 (Volt)
[AI17 (V)]	AI17	Module TM3 analog AI17 (Volt)
[AI4 (AI4T)]	AI4	Control module option analog AI4 (AI4T)
[AI5 [(AI5T)]	AI5	Control module option analog AI5 (AI5T)

[AI Monitor 1 Behavior] AO 1b... [AI Monitor 4 Behavior] AO4b

Analog monitoring 1...4 behavior

Setting	Code / Value	Description
[Always]	ALL	Monitor always active
[Mains Supply ON]	PWr	Monitor when MV power supply ON Main present
[Run State]	run	Monitor in Run state Operation enable (ETA.b2=1)

[AI Monitor 1 Filter] AO 1F ...[AI Monitor 4 Filter] AO4F

Analog monitoring 1 filter

Setting	Description
0...60s	Setting range **Factory setting**: 0s

[Analog Monitor 1 Increment] AO 1 ,... [Analog Monitor 4 Increment] AO4 ,

Analog monitoring increment 1 to 4

Setting	Code / Value	Description
[x 0001]	0001	Increment 0,001
[x 001]	001	Increment 0,01

Setting	Code / Value	Description
[x 01]	0 1	Increment 0,1
[x 1]	1	Increment 1 **Factory setting**

[AI Monitor 1 Fdbk Min] AN 1X ...[AI Monitor 4Fdbk Min] AN4X

Analog monitoring 1...4 scaling feedback min

Setting	Description
0...100%	Setting range **Factory setting**: 0%

[AI Monitor 1 Fdbk Max] AN 1Y ...[AI Monitor 4Fdbk Max] AN4Y

Analog monitoring 1 to 4 scaling feedback max

Setting	Description
0...100%	Setting range **Factory setting**: 100%

[AI Monitor 1 Process Min] AN 1L ... [AI Monitor 4 Process Min] AN4L

Analog monitoring scaling process min 1 to 4

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Process max] AN 1H ... [AI Monitor 4 Process Max] AN4H

Analog monitoring scaling process max 1 to 4

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Delay] AN 1d ...[AI Monitor 4 Delay] AN4d

Analog monitoring delay 1 to 4

Setting	Description
0...60s	Setting range **Factory setting**: 0s

[AI Monitor 1 Warn High Level] AM1u ... [AI Monitor 4 Warn High Level] AM4u

Analog monitoring warning high level 1 to 4

A warning is triggered when analog monitoring process is outsitde the range which is defined by High process level and Low process level .

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Warn Low Level] AM1V ... [AI Monitor 4 Warn Low Level] AM4V

Analog monitoring warning low level 1 to 4

A warning is triggered when analog monitoring process is outsitde the range which is defined by High process level and Low process level .

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Warn Delay] AM1W ... [AI Monitor 4Warn Delay] AM4W

Analog monitoring warning delay 1 to 4

Setting	Description
0...60s	Setting range **Factory setting**: 0s

[AI Monitor 1 Error High Level] AM1r ... [AI Monitor 4 Error High Level] AM4r

Analog monitoring error high level 1 to 4

An error is triggered when analog monitoring process is outsitde the range which is defined by High process level and Low process level .

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Error Low Level] AN1S ... [AI Monitor 4 Error Low Level] AN4S

Analog monitoring error low level 1 to 4

An error is triggered when analog monitoring process is outsitde the range which is defined by High process level and Low process level .

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Error Response] AN1E ... [AI Monitor 4 Error Response] AN4E

Analog monitoring error delay 1 to 4

Setting	Description
0...60s	Setting range **Factory setting**: 0s

[AI Monitor 1 Error Response] AN1Z ...[AI Monitor 1 Error Response] AN4Z

Response to analog monitoring error 1 to 4

Setting	Code / Value	Description
[Ignore]	nO	Detected error ignored
[Freewheel Stop]	YES	Freewheel stop **Factory setting**
[Per STT]	STT	Stop according to **[Type of stop]** STT parameter but without an error triggered after stop (1)
[Fallback Speed]	LFF	Change to fallback speed, maintained as long as the detected error persists and the run command has not been removed (1)
[Spd maintained]	rLS	Speed maintained as long as the detected error persists and the run command has not been removed (1)
[Ramp stop]	rMP	Stop on ramp
1 Because, in this case, the detected error does not trigger a stop, it is recommended to assign a relay or logic output to its indication.		

[AI Monitor 1 Physical Value] AN1o ... [AI Monitor 4 Physical Value] AN4o

Analog monitoring input physical value 1 to 4

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor 1 Process Value] AM1P... [AI Monitor 4 Process Value] AM4P

Analog monitoring process value 1 to 4

Setting	Description
–32767...32767	Setting range **Factory setting**: _

[AI Monitor Link Loss] AM00

Analog monitoring link loss, warning message **AW05** is triggered.

Bit	Description, Value
0	Link Loss A10
1	Link Loss A11
2	Link loss A12
3	Link loss A13

[Temperatures settings] Menu

Access

[Settings] ➜ [Drive Settings] ➜ [Temperatures]

About This Menu

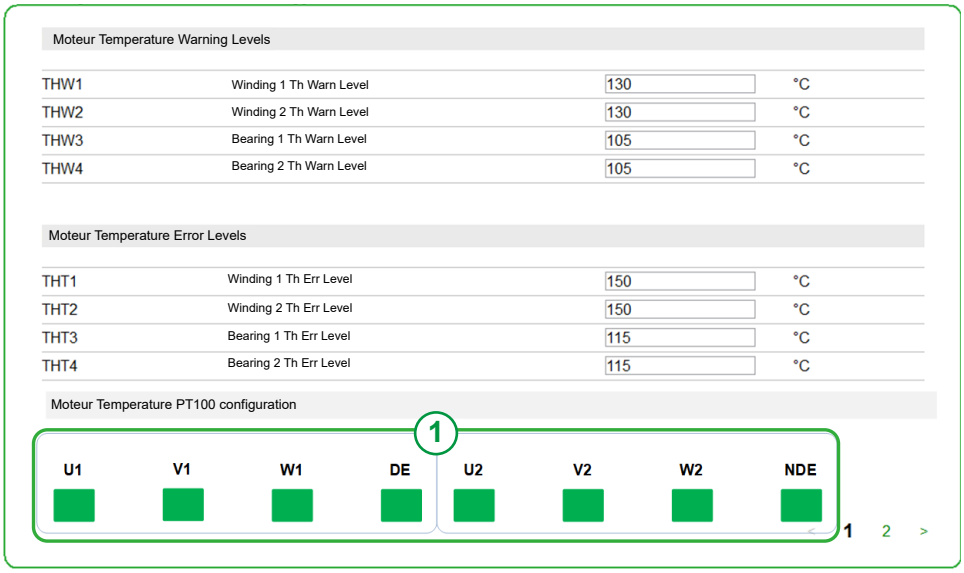
This menu allows to set numbers of PT100 monitored by HMI, it also give the possibility to manage 2 levels of monitoring:

1. A Temperature Warning Level: the drive triggers an event without stopping the application.
2. A Temperature Error Level: the drive triggers an event and stops the application.

Note: By default wiring is managed during manufacturing, depending your selection:

- up to 8 PT100 for motor thermal monitoring (as standard)
- 4 additional PT100 for thermal sensor monitoring (as option)

This panel show PT100 for motor thermal monitoring.

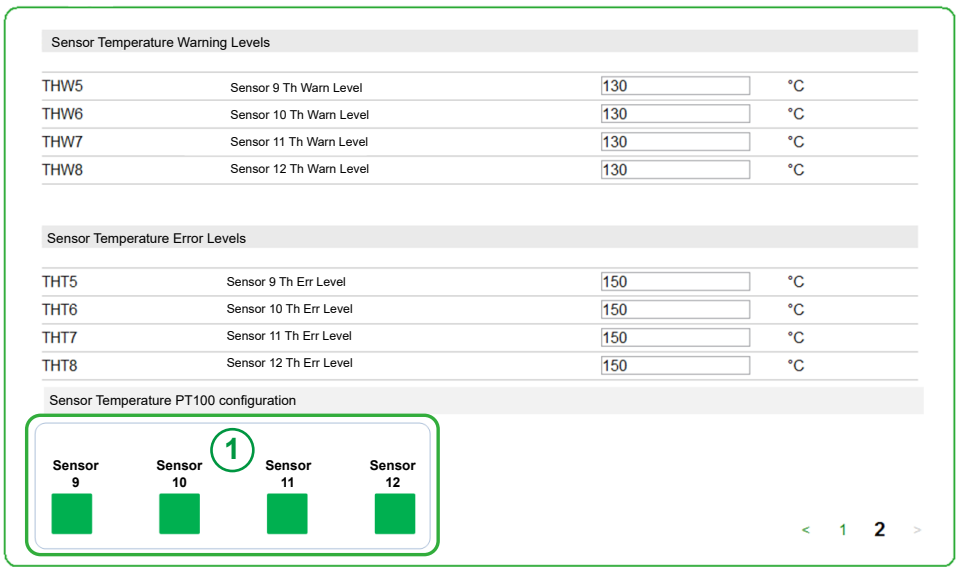


1) You can deactivate or activate sensor PT100 by clicking on this element:

- (grey when activated)
- (grey when deactivated)

Element on HMI	Parameters
U1 / V1 / W1	Thermal warning level for winding 1: THW1 Thermal error level for winding 1: THT1
DE (Drive End)	Thermal warning level for bearing 1: THW3 Thermal error level for bearing 1: THT3
U2 / V2 / W2	Thermal warning level for winding 2: THW2 Thermal error level for winding 2: THT2
NDE (Non Drive End)	Thermal warning level for bearing 2: THW4 Thermal error level for bearing 2: THT4

This panel shows PT100 for thermal sensor monitoring



1) You can deactivate or activate sensor PT100 by clicking on this element:

- (grey when activated)
- (grey when deactivated)

Element on HMI	Parameters
Sensor 9	Thermal warning level for sensor 9: THW5 Thermal error level for sensor 9: THT5
Sensor 10	Thermal warning level for sensor 10: THW6 Thermal error level for sensor 10: THT6
Sensor 11	Thermal warning level for winding 11: THW7 Thermal error level for winding 11: THT7
Sensor 12	Thermal warning level for bearing 12: THW8 Thermal error level for bearing 12: THT8

NOTICE

OVERHEATING

Verify that the parameters **[Winding 1 Th Warn Level]** *tHW1*...**[Sensor 12 Th Warn Level]** *tHW8* and **[Winding 1 Th Err Level]** *tHt1*...**[Sensor 12 Th Err Level]** *tHt8* are properly set according to the technical data of the motor.

Failure to follow these instructions can result in equipment damage.

[Winding 1 Th Warn Level] *tHW1*

Thermal warning level for winding 1 (U1,V1,W1)

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 130°C

[Winding 2 Th Warn Level] *tHW2*

Thermal warning level for winding 2 (U2,V2,W2)

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 130°C

[Winding 1 Th Err Level] tHE 1

Thermal error level for winding 1 (U1,V1,W1)

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 150°C

[Winding 2 Th Err Level] tHE 2

Thermal error level for winding 2 (U2,V2,W2)

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 150°C

[Bearing 1 Th Warn Level] tHW 3

Thermal warning level for bearing 1

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 105°C

[Bearing 2 Th Warn Level] tHW 4

Thermal warning level for bearing 2

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 105°C

[Bearing 1 Th Err Level] tHE 3

Thermal error level for bearing 1

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 115°C

[Bearing 2 Th Err Level] tHE4

Thermal error level for bearing 2

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 115°C

[Sensor 9 Th Warn Level] tHW5

Thermal warning level for sensor 9

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 130°C

[Sensor 9 Th Error Level] tHE5

Thermal error level for sensor 9

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 150°C

[Sensor 10 Th Error Level] tHE6

Thermal error level for sensor 10

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 150°C

[Sensor 10 Th Warn Level] tHW6

Thermal warning level for sensor 10

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 130°C

[Sensor 11 Th Error Level] tHE7

Thermal error level for sensor 11

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 150°C

[Sensor 11 Th Warn Level] ᴇ Hᴡ 7

Thermal warning level for sensor 11

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 130°C

[Sensor 12 Th Error Level] ᴇ H ᴇ 8

Thermal error level for sensor 12

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 150°C

[Sensor 12 Th Warn Level] ᴇ Hᴡ 8

Thermal warning level for sensor 12

Setting	Description
0 °C...250 °C	Setting range **Factory setting**: 130°C

[Recall configuration] Menu

Access

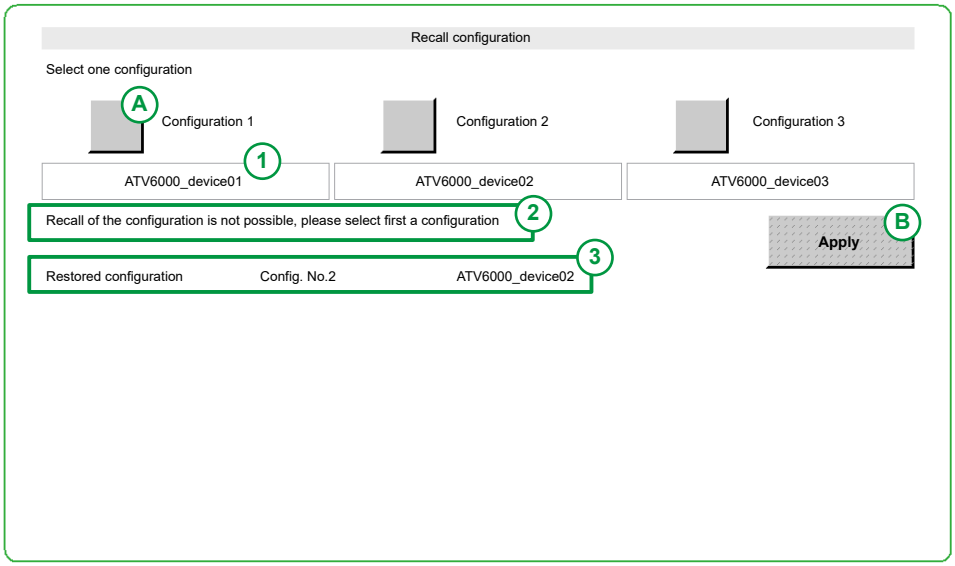
[Settings] ➡ [Recall configuration]

About This Menu

This menu allows to restore configuration that was set according customer application need.

The recall configuration can be realized through up to 3 configurations already saved during the commissioning. Only one of them can be restored per recall.

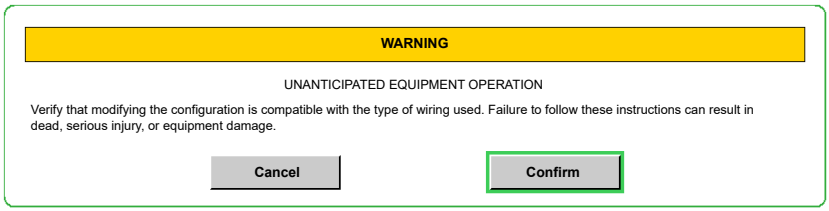
NOTE: This following panel is only displayed if configuration is already saved.



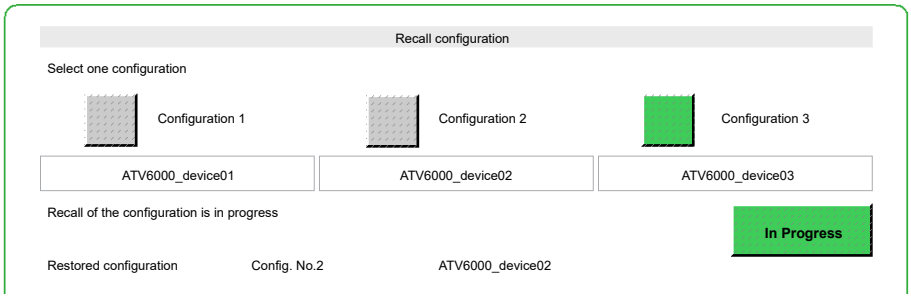
Item	Description	Item	Description
A	Configuration to restore. (For selection)	**3**	Information linked to the current configuration or configuration already restored.
1	Configuration naming which is customized during commissioning.	**B**	Allows to apply recall configuration when configuration is selected. Different status can be displayed after pressing on **Apply**: • **In progress**: recall in progress, • **Done**: recall done, • **Failed**: Invalid recall.
2	Information regarding current action.		

Example of Recall Configuration

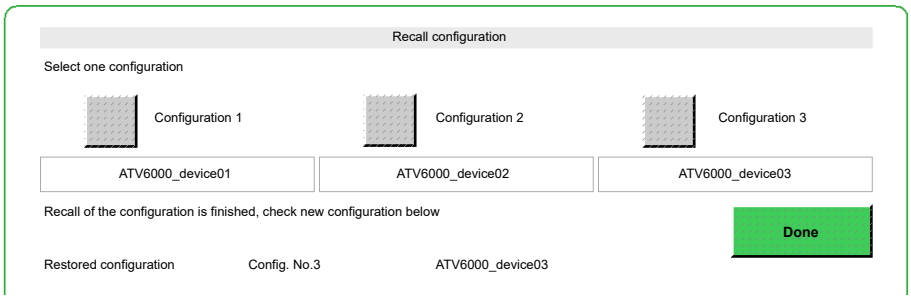
The following table gives the procedure to recall configuration 3:

Step	Action
1	Selects the configuration required by pressing the button (Item A). **Result**: the color of the button changes to green.
2	Press the **Apply** button (Item B). **Result**: Warning message is displayed.
3	Consider the following dialog box.  Press **Cancel** to get back to the step 1 Press **Confirm** to acknowledge the warning and perform this action. **Result:** item B state changes from **Confirm** to **Inprogress**.

- Message **Recall of the configuration is in progress** (see Item 2) is displayed



- After a while when recall is done, message **Recall of the configuration is finished, check new configuration below** (see Item 2) is displayed.



Step	Action
4	Check that configuration 3 is correctly restored (see item 3)

[Advanced Function] Menu

Access

[Settings] ➜ [Drive Settings] ➜ [Advanced Function]

About This Menu

This Menu helps to manage the Overvoltage detection OBF at MV power-on.

- Can be used from firmware V1.5IE01 without power cell bypass configuration.
- Can be used from firmware V1.6 with power cell bypass configuration.

[DC Bus Overvoltage] obF can be inhibited during the PoC charging sequence through **[DC Bus Overvoltage Response]** PoVb parameter.
[DC Bus Charge Time] dCt can be used to apply a delay during the PoC charging sequence to avoid **[DC Bus Overvoltage]** obF detected error.
When **[DC Bus Overvoltage Response]** PoVb is set to YES, the monitoring of the **[DC Bus Overvoltage]** obF error is only inactive during PoC charging sequence (1s + DCT) .

[DC Bus Overvoltage Time] PoVt

DC Bus overvoltage time during PoC charging sequence

Power cell overvoltage time in seconds (Unit 0.01s), PoVt value must be lower than dCt

Setting	Description
0...655.35 s	Range value **Factory setting**: _

[DC Bus Charge Time] dCt

DC Bus charge option time in seconds.

Delay time which is applied during the PoC charging sequence to avoid OBF error. dCt value must be set higher than PoVt .

Setting	Description
0...60 s	Setting range **Factory setting**: 0 s

[DC Bus Overvoltage Response] PoVb

Power cell overvoltage detection inhibition during the PoC charging sequence.

NOTICE

OVERVOLTAGE

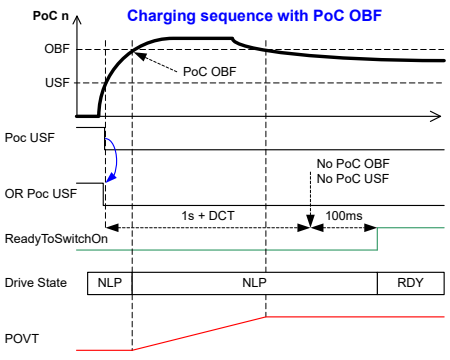
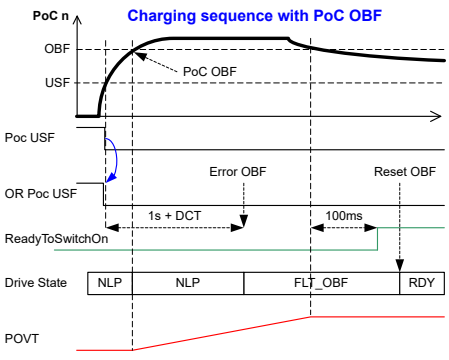
- Only set the parameter **[DC Bus Overvoltage Response]** *PoVb* to **[Yes]** *YES* if you have experienced some triggering of OBF at the Power ON.
- Verify correct settings of the DC Bus Overvoltage monitoring during the commissioning procedure.

Failure to follow these instructions can result in equipment damage.

This parameter manages the behavior of OBF error during PoC charging sequence.

Setting	Code / Value	Description
[No]	*no*	The monitoring of the Power Cell OBF error is always active during DC Bus charging sequence. **Factory setting**
[Yes]	*YES*	The monitoring of the OBF error is only inactive during Power Cell charging sequence (1s + DCT[1]) . For all other drive states, the monitoring of OBF error remains active. **1)** DCT = DC Bus charging option time in [s]

Charging Sequence with PoC OBF error (DCT + 1 s, POVB = [YES])

Sequence DCT correctly set	Sequence DCT NOT correctly set
	

- **POVT** is managed during PoC charging sequence event if OBF is masked
- At the end of PoC charging sequence (DCT + 1s), if
  - there is no OBF error, a delay of 100ms is added before set “ReadyToSwitchOn = 1”
  - OBF is present, the drive triggers **[DC Bus Overvoltage]** *obF* detected error.
    - The **[DC Bus Overvoltage]** *obF* needs to be reset (Auto or manually)
    - **[DC Bus Overvoltage]** *obF* must be not present during 100ms in order to set “ReadyToSwitchOn = 1”

Command and Reference Channels

Overview

About This Menu

This menu shows the:

- Overview of the Switch selection
  - Via digital Signals example a selector switch is used (on the front of the product): Maximum 3 inputs can be used.
  - A HMI switch: with maximum 2 positions. (on the HMI Toolbar, page 37)
- Switching Transition
- Setting parameters linked to the command channel selection , page 247

  NOTE: Refer also to the monitoring parameters linked to the command channel selection , page 296

⚠WARNING

UNANTICIPATED EQUIPMENT

Verify that the motor is at a standstill before modifying the position of the selector switch for the control mode at the drive.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

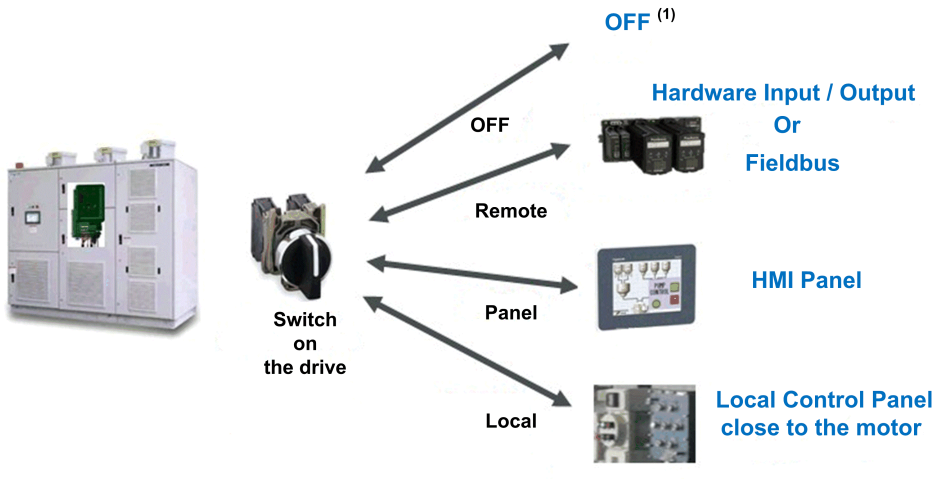
The stop commands (DI STOP in 3 wires control, NST) set for each of the channel command "remote/local/panel" will continue to be taken into account whatever the active channel command.

Cabinet Switch Option Selection

To select the different command/reference channels, this switch can have either 2, 3 or 4 positions in the enclosure door:

- **Switch Panel/Remote: as standard solution** Used to switch between Panel or Remote control of the drive.
- **Switch Off/Local/Panel/Remote: As optional solution** Used to switch between Motor Local, Remote and Panel control of the drive.

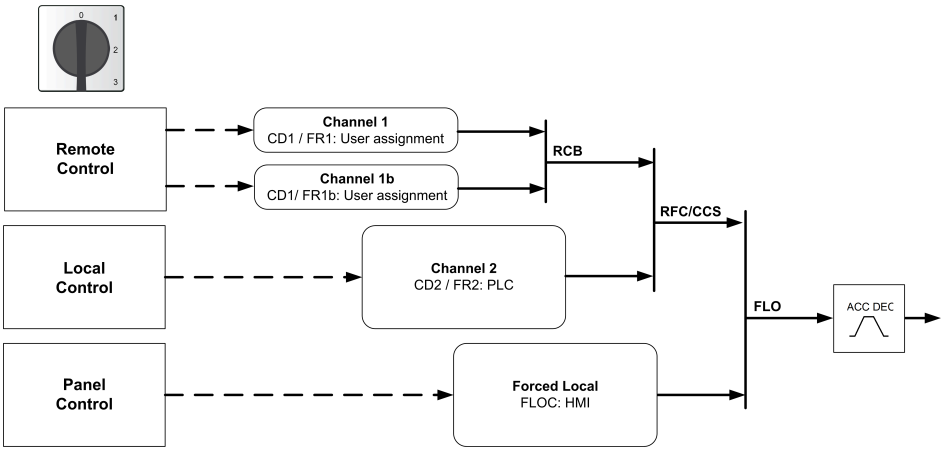
Note: This setting is defined during the commissioning.



(1) Drive is in NST state

Typical Architecture for Command and Reference Value

Can be with the option switch or via Digital inputs sent from customer.

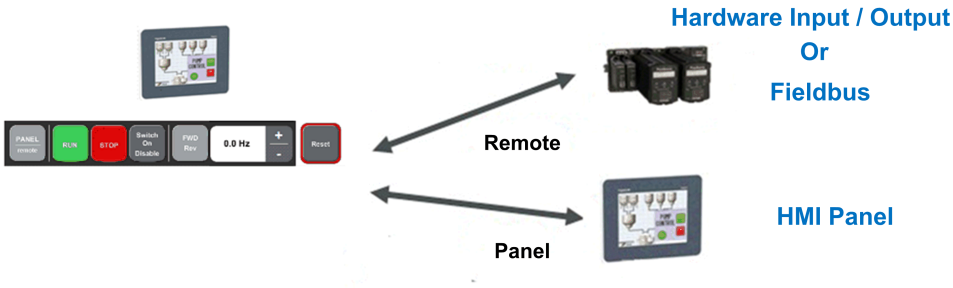


Type of Control	Channel	Description
Remote Control	FR1/CD1: User setting	Control system drive receives start/stop inputs via IO or fieldbus.
Motor Local Control	FR2/CD2: PLC Inside	Control system drive receives via start/stop IO or push button on your equipment.
Panel Control	FLOC: HMI Panel	Control system drive receives inputs via HMI Panel.

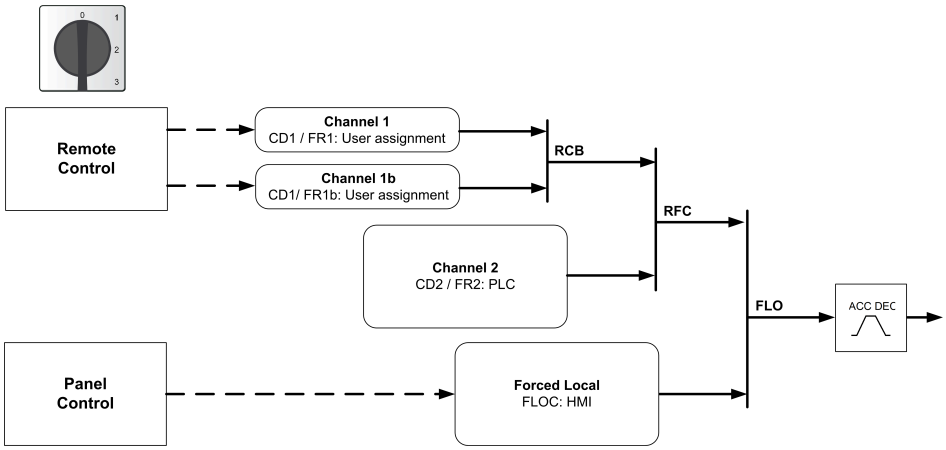
HMI Switch Selection

The HMI makes it possible to switch between remote and panel mode.

Remote/Panel button on HMI is available if related parameters are set during the commissioning.



Typical Architecture for Command and Reference Value.



Type of Control	Channel	Description
Remote Control	FR1/CD1: User setting	Control system drive receives start/stop inputs via IO or fieldbus.
Panel Control	FLOC: HMI Panel	Control system drive receives inputs via HMI Panel.

Command and Reference Channel Switching Transition

Switching between these modes is possible using the option Selector switch or 3 Digital input (DI) or using HMI panel.

The following table shows the different switching transitions.

Source	Destination	Description
Remote, **Motor Local**	Panel (HMI)	Command and reference switching defines by **[HMI cmd.]** *bMP*. • BMP = **[Stop]** *StoP*: Copy but motor stops. • BMP = **[Bumpless]** *bumP*: Copy if running, motor does not stop. • BMP = **[Disabled]** *dIS*: No copy
Remote	Motor Local	No copy: according to **[Copy Ch1-Ch2]** *CopY* = **[No]** *no*
Panel (HMI)	Motor Local	No copy
Panel (HMI)	Remote	
Motor Local	Remote	

Parameters

Access

[Settings] ➡ [Drive Settings] ➡ [Command / Reference Channels]

[Ref Freq 1 Config] Fr1

Configuration reference frequency 1.

Setting	Code / Value	Description
[Not Configured]	nO	Not assigned
[AI1]	AI1	Analog input AI1 **Factory Setting**
[AI2]...[AI3]	AI2... AI3	Analog input AI2...AI3
[AI4]...[AI5]	AI4... AI5	Analog input AI4...AI5 if VW3A3203 I/O extension module has been inserted
[HMI]	LCC	Reference Frequency via remote terminal
[Modbus]	Mdb	Reference frequency via Modbus
[Modbus 2]	Mdb2	Modbus 2 source
[CANopen]	CAn	Reference frequency via CANopen if a CANopen module has been inserted
[Com. Module]	nEt	Reference frequency via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Embedded Ethernet
[HMI Panel]	HMIP	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC1	PLC Inside source

[Cmd channel 1] Cd1

Command channel 1 assignment.

This parameter can be accessed if **[Control Mode]** CHCF is set to **[Separate]** SEP or **[I/O profile]** IO.

Setting	Code / Value	Description
[Ref.Freq-Rmt. Term]	tEr	Terminal block source **Factory Setting**
[Ref.Freq-Rmt. Term]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	Mdb	Command via Modbus
[Ref. Freq-CANopen]	CAn	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	nEt	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	Mdb2	Modbus 2 source

Setting	Code / Value	Description
[HMI Panel]	HMI,P	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC,	PLC Inside source

[Ref.1B channel] FrI b

Configuration reference frequency 1B.

Setting	Code / Value	Description
[Not Configured]	no	Not assigned
[AI1]	AI1	Analog input AI1 **Factory Setting**
[AI2]...**[AI3]**	AI2... AI3	Analog input AI2...AI3
[AI4]...**[AI5]**	AI4... AI5	Analog input AI4...AI5 if VW3A3203 I/O extension module has been inserted
[HMI]	LCC	Reference Frequency via remote terminal
[Modbus]	Mdb	Reference frequency via Modbus
[Modbus 2]	Mdb2	Modbus 2 source
[CANopen]	CAn	Reference frequency via CANopen if a CANopen module has been inserted
[Com. Module]	nEt	Reference frequency via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Embedded Ethernet
[HMI Panel]	HMI,P	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC,	PLC Inside source

[Ref 1B switching] rCb

⚠WARNING

UNANTICIPATED EQUIPMENT OPERATION

This parameter can cause unintended movements, for example an inversion of the direction of the rotation of the motor, a sudden acceleration or a stop.

- Verify that the setting of this parameter does not cause unintended movements.
- Verify that the setting of this parameter does not result in unsafe conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Select switching (1 to 1B).

- If the assigned input or bit is at 0, **[Ref Freq 1 Config]** Fr1 is active.
- If the assigned input or bit is at 1, **[Ref.1B channel]** Fr1b is active.

[Ref 1B switching] rCb is forced to **[Ref Freq Channel 1]** Fr1 if **[Control Mode]** CHCF is set to **[Not separ.]** SIM with **[Ref Freq 1 Config]** Fr1 assigned via the terminals (analog inputs, pulse input).

NOTE: Activating this function from an other active command channel will also activate the monitoring of this new channel.

Setting	Code / Value	Description
[Ref Freq Channel 1]	Fr1	Reference frequency channel 1
[ch1B active]	Fr1b	Reference frequency channel 1b
[DI1]...**[DI8]**	LI1...LI8	Digital input DI1...DI8
[DI11]...**[DI16]**	LI11...LI16	Digital input DI11...DI16 if VW3A3203 I/O extension module has been inserted
[CD00]...**[CD10]**	Cd00...Cd10	Virtual digital input CMD.0...CMD.10 in **[I/O profile]** IO configuration
[CD11]...**[CD15]**	Cd11...Cd15	Virtual digital input CMD.11...CMD.15 regardless of configuration
[C101]...**[C110]**	C101...C110	Virtual digital input CMD1.01...CMD1.10 with integrated Modbus Serial in **[I/O profile]** IO configuration
[C111]...**[C115]**	C111...C115	Virtual digital input CMD1.11...CMD1.15 with integrated Modbus Serial regardless of configuration
[C201]...**[C210]**	C201...C210	Virtual digital input CMD2.01...CMD2.10 with CANopen® fieldbus module in **[I/O profile]** IO configuration
[C211]...**[C215]**	C211...C215	Virtual digital input CMD2.11...CMD2.15 with CANopen® fieldbus module regardless of configuration
[C301]...**[C310]**	C301...C310	Virtual digital input CMD3.01...CMD3.10 with a fieldbus module in **[I/O profile]** IO configuration
[C311]...**[C315]**	C311...C315	Virtual digital input CMD3.11...CMD3.15 with a fieldbus module regardless of configuration
[C501]...**[C510]**	C501...C510	Virtual digital input CMD5.01...CMD5.10 with integrated Ethernet in **[I/O profile]** IO configuration
[C511]...**[C515]**	C511...C515	Virtual digital input CMD5.11...CMD5.15 with integrated Ethernet regardless of configuration
[C601]...**[C610]**	C601...C610	Virtual digital input CMD6.01...CMD6.10 reserved
[C611]...**[C615]**	C611...C615	Virtual digital input CMD6.11...CMD6.15 reserved

[Internal PID ref] rPI

Internal PID reference.

This parameter can be accessed if:

- **[PID Feedback]** PIF is not set to **[Not Configured]** nO, and
- **[Intern PID Ref]** PII is set to **[Yes]** YES.

Setting	Description
[Min PID reference] PIP1... **[Max PID reference]** PIP2	Setting range **Factory setting**: 150

[Ref PID Preset 2] rP2

Second PID preset reference.

This parameter can be accessed only if **[2 PID Preset Assign]** Pr2 is assigned.

Setting	Description
[Min PID reference] PIP1... **[Max PID reference]** PIP2	Setting range **Factory setting**: 300

[Ref PID Preset 3] rP3

Third PID preset reference.

This parameter can be accessed only if **[4 PID Preset Assign]** Pr4 is assigned.

Setting	Description
[Min PID reference] P1P1... **[Max PID reference]** P1P2	Setting range **Factory setting**: 600

[Ref PID Preset 4] rP4

Fourth PID preset reference.

This parameter can be accessed only if **[4 PID Preset Assign]** Pr4 and **[2 PID Preset Assign]** Pr2 are assigned.

Setting	Description
[Min PID reference] P1P1... **[Max PID reference]** P1P2	Setting range **Factory setting**: 900

[Local Preset Speed] PL23

Local preset speed reference

If **[Local Reference Assignment]** PL I2 is selected to "Preset speed" and **[Local Preset Speed]** PL23 is selected to a value between "0 -120"Hz the motor will turn according this preset value.

Setting	Description
0...120 Hz	Setting range **Factory setting**: 0

Communication

What's in This Chapter

[Modbus Config] Menu

Access

[Settings] ➡ **[Communication]** ➡ **[Modbus Config]**

About This Menu

This menu is related to the Modbus serial communication port on the bottom of the control block.

Refer to the Modbus serial manual.

[Modbus Address] Add

Drive Modbus address.

Setting	Description
[OFF] oFF ...247	Setting range **Factory setting**: **[OFF]** oFF

[Modbus add Com.C.] AMoC

Modbus adress of COM option board

Setting	Description
[OFF] oFF ...247	Setting range **Factory setting**: **[OFF]** oFF

[Bd.RateModbus] tbr

Baud rate Modbus.

Setting	Code / Value	Description
[4800 bps] 4KB	4KB	4,800 Bauds
[9600 bps] 9KB	9KB	9,600 Bauds

Setting	Code / Value	Description
[19200 bps]	19K2	19,200 Bauds **Factory setting**
[38.4 Kbps]	38K4	38,400 Bauds

[Term Word Order] tWo

Terminal Modbus: word order.

Setting	Code / Value	Description
[OFF]	oFF	Low word first
[ON]	on	High word first **Factory setting**

[Modbus Format] tFo

Modbus communication format.

Setting	Code / Value	Description
[8-O-1]	8o1	8 bits odd parity 1 stop bit
[8-E-1]	8E1	8 bits even parity 1 stop bit **Factory setting**
[8-N-1]	8n1	8 bits no parity 1 stop bit
[8-N-2]	8n2	8 bits no parity 2 stop bits

[Modbus Timeout] ttO

Modbus timeout.

Setting	Description
0.1 ...30.0 s	Setting range **Factory setting**: 10.s

[Mdb Com Stat] CoM

Modbus communication status.

Setting	Code / Value	Description
[r0t0]	r0t0	Modbus no reception, no transmission
[r0t1]	r0t1	Modbus no reception, transmission
[r1t0]	r1t0	Modbus reception, no transmission
[r1t1]	r1t1	Modbus reception and transmission

[Comm Port 1 Assign] nr J

Communication port 1 assignment - Bottom

Setting	Code / Value	Description
[Modbus 1]	Mdb	Modbus 1 channel
[Vscope tools]	VSCP	Vscope access
[SHELL tools]	SHELL	SHELL access
[Printf tools]	Pr inTF	Output printf access

[Ethernet Config] Menu

Access

[Communication] ➜ [Comm parameters] ➜ [Embd Eth Config]

About This Menu

Refer to the Ethernet embedded manual.

[IP Mode Ether. Embd] ,NOD

IP mode Ethernet embedded.

Setting	Code / Value	Description
[Fixed]	MAnu	Fixed address
[BOOTP]	boot P	BOOTP
[DHCP]	dHC P	DHCP **Factory setting**

[Enable FDR] FdVo

This parameter is used to enable or disable the FDR service.

This parameter can be accessed if **[IP mode Ether. Embd]** ,NOD is set to **[DHCP]** dHC P

Setting	Code / Value	Description
[No]	no / 0	No: FDR service disabled
[Yes]	YES / 1	Yes: FDR service enabled

[FDR Action] FdAo

This parameter is used to select the FDR action that needs to be performed.

This parameter can be accessed if **[IP mode Ether. Embd]** ,NOD is set to **[DHCP]** dHC P

Setting	Code / Value	Description
[NOT ACTIVE]	,dLE / 0	Not active: No FDR action
[SAVE]	SAVE / 1	Save: FDR save command
[REST]	rESt / 2	Restore: FDR restore command

[FDR Operating State] FdSo

This parameter is used to display the FDR operating state.

This parameter can be accessed if **[IP mode Ether. Embd]** ,NOD is set to **[DHCP]** dHC P

Setting	Code / Value	Description
[Initialization]	inIt / 0	INIT: Initialization
[Not Active]	idLE / 1	IDLE: Function not active
[Operational]	oPE / 2	OPE: Operational
[Ready]	rdY / 4	RDY: Ready
[IP Configuration]	IPC / 5	IPC: IP configuration
[Not Configured]	unCF / 7	UNCF: Function not configured
[Reading Configuration]	GEt / 8	GET: Download the current configuration
[Writing Configuration]	SEt / 9	SET: Save the current configuration
[Applying Configuration]	APP / 10	APP: Applying the configuration to the drive

[FDR Operating State] Fdro

This parameter is used to display the FDR error status.

This parameter can be accessed if **[IP mode Ether. Embd]** IMOD is set to **[DHCP]** dHCP

Setting	Code / Value	Description
[No Error]	no / 0	No error
[Service Timeout]	tout / 1	Server timeout
[Server No File]	SnF / 2	No file on server
[Server Corrupt File]	CrPt / 3	Invalid file on server
[Server Empty File]	EPtY / 4	Empty file on server
[Drive Invalid File]	HInV / 5	Invalid file on drive
[CRC Error]	CrC / 6	CRC error
[Version Incompatibility]	VrM / 7	Version incompatibility between drive and file
[Drive No File]	HnF / 9	No file on drive
[Server Reading Size]	SIZE / 10	File size reading error on server
[Drive Opening File]	oPEn / 11	Drive cannot open the file
[Drive Reading File]	rEAd / 12	Drive cannot read the file
[Incompatibility]	SCnt / 13	File incompatibility
[Drive Invalid Name]	nInV / 14	Drive name is invalid

Setting	Code / Value	Description
[Server Incorrect File Size]	FSiZ / 15	Incorrect file size on server
[Drive Writing File]	HWF / 16	Drive cannot write the file
[Server Writing File]	SWF / 17	Server cannot write the file

[CANopen Conf] Menu

Access

[Settings] ➜ [Communication] ➜ [CANopen Conf]

About This Menu

For more details refer to the CANopen fieldbus module manual.

[CANopen Address] AdCo

This parameter defines the address of the drive on the network. This parameter is taken into account after a power cycle.

This is a read/write parameter.

The parameter number is 6051 via Modbus access.

Settings	Code	Value	Description
[OFF]	oFF	0	CANopen address is not assigned.
[1 to 127]	1... 127	1...127	CANopen address is assigned. **Factory setting**: OFF

[CANopen Baudrate] bdCo

This parameter defines the baud rate at which data is transferred. This parameter is taken into account after a power cycle.

This is a read/write parameter.

The parameter number is 6053 via Modbus access.

Settings	Code	Value	Description
[50 kbps]	50	38	Baud rate is set to 50 Kbps.
[125 kbps]	125	52	Baud rate is set to 125 Kbps.
[250 kbps]	250	60	Baud rate is set to 250 Kbps.
[500 kbps]	500	68	Baud rate is set to 500 Kbps.
[1 Mbps]	1M	76	Baud rate is set to 1 Mbps. **Factory setting**: 250 Kbps

[CANopen Error] E r C o

This parameter indicates the last active CANopen detected error.

This is a read-only Parameter.

The parameter number is 6056 via Modbus access.

Settings	Code	Value	Description
[0]	0	0	No errors detected since the last start of CANopen communication.
[1]	1	1	Bus off or CAN overrun.
[2]	2	2	Node guarding error requiring a return to the NMT initialization state.
[3]	3	3	CAN overrun (possible alternative values: 32, 64 or 128).
[4]	4	4	Heartbeat error requiring a return to the NMT initialization state.
[5]	5	5	NMT states chart error.

NOTE: If the motor is running, a **[CANopen Error]** C o F is triggered in case of change of NMT state.

[DeviceNet Conf] Menu

Access

[Settings] ➡ [Communication] ➡ [DeviceNet Conf]

About This Menu

For more details refer to the DeviceNet fieldbus module manual.

[Address] AdrC

This parameter defines the address of the drive on the network.

This is a read/write parameter.

The parameter number is 6601

Settings	Code	Value	Description
[0] ... **[63]**	0 ... 63	–	**Factory settings**: 63

[Bit Rate] bdr

This parameter displays the baud rate and the transmission mode currently used by the fieldbus module.

This is read/write parameter.

The parameter number is 6603.

Settings	Code	Value	Description
[Auto]	AUtO	–	Baud rate is set automatically
[125 kbd]	125		Baud rate is set to 125 Kbauds
[250 kbd]	250		Baud rate is set to 250 kbauds
[500 kbd]	500		Baud rate is to 500 kbauds
			Factory settings: Auto

[Conf. Assembly] C ioA

This parameter shows the configured Input/Output assembly.

This is a read/write parameter.

The parameter number is 6667

Settings	Code	Value	Description
[20/70]	20	–	CIP basic speed control
[21/71]	21		CIP extended speed control
[100/101]	100		Native drive control
[Unconfig.]	unCG		Not configured
			Factory settings: 21

[Profibus Conf] Menu

Access

[Settings] ➡ [Communication] ➡ [Profibus Conf]

About This Menu

For more details refer to the PROFIBUS DP fieldbus module manual.

[Address] Adr C

This parameter defines the PROFIBUS DP slave address.

This is a read/write parameter.

The parameter number is 6601

Settings	Code	Value	Description
[2...126]	2 ... 126	2...126	PROFIBUS address **Factory setting**: 126

[ProfiNet Conf] Menu

Access

[Settings] ➡ [Communication] ➡ [ProfiNet Conf]

About This Menu

For more details refer to the ProfiNet fieldbus module manual.

[IP mode] iPM

This parameter is used to select the IP address assignment method.

This is a read/write parameter

The parameter number is 64250.

Settings	Code	Value	Description
[Fixed]	MAnU	0	Manually type the IP address.
[DHCP]	dHCP	2	Automatically gets the IP address from the DHCP server.
[DCP]	dCP	3	Automatically gets the IP address from the DCP server.

[iPar Activation] iPAU

This parameter is used to enable the iPar service.

This is a read/write parameter

The parameter number is 64274.

Settings	Code	Value	Description
[No]	no	0	Indicates that the iPar service is disabled.
[Yes]	YES	1	Indicates that the iPar service is enabled.

[iPar Autosave Act] iPAS

This parameter is used to enable the iPar autosave service.

This is a read/write parameter

The parameter number is 64275.

Settings	Code	Value	Description
[No]	no	0	Indicates that the iPar autosave service is disabled
[Yes]	YES	1	Indicates that the iPar autosave service is enabled **Factory setting**: 0

[iPar Autosave Timer] iPAt

This parameter is used to set the interval for periodic saving of the iPar service.

This is a read/write parameter

The parameter number is 64278.

Settings	Code	Value	Description
–	–	0	No autosave
		1...9999 min	iPar service is saved after specified interval of time. **Factory setting**: 10 min

[iPar Error Response] iPAF

This parameter is used to enable the iPar error handling.

This is a read/write parameter

The parameter number is 64277.

Settings	Code	Value	Description
[No]	nO	0	Indicates that the iPar error handling is disabled
[Yes]	YES	1	Indicates that the iPar error handling is enabled **Factory setting**: 1

[iPar Local Conf] iCFG

This parameter is used to select local or server configuration.

This is a read/write parameter

The parameter number is 64276.

Settings	Code	Value	Description
[No]	nO	0	Indicates that the drive configuration is downloaded from the iPar server at power-on of the drive.
[Yes]	YES	1	Indicates that the drive configuration is available locally in the drive. **Factory setting**: 0

[EtherCAT Conf] Menu

Access

[Settings] ➜ [Communication] ➜ [EtherCAT Conf]

About This Menu

For more details refer to the EtherCAT fieldbus module manual.

[EthCat slave status] E C S S

This parameter displays the ESM status of the drive on the network.

This is a read-only parameter.

The parameter number is 6690

Settings	Code	Value	Description
[Init]	i n i t	1	Device is in `Initialization` state
[PreOp]	P r o P	2	Device is in `Pre-Operational` state
[Boot]	b o o t	3	Device is in `Bootstrap` state
[SafeOp]	S F o P	4	Device is in `Safe Operational` state
[Op]	o P	8	Device is in `Operational` state

[EthCat 2nd addr] E C S A

This parameter is used to select the EtherCAT second address.

This is a read/write parameter.

The parameter number is 6691

Settings	Code	Value	Description
[0...65535]	0 ... 6 5 5 3 5	0...65535	EtherCAT second address **Factory setting**: 0

[EthCat addr] E C A A

This parameter displays the actual EtherCAT address.

This is a read-only parameter.

The parameter number is 6692

Settings	Code	Value	Description
[0...65535]	0 ... 6 5 5 3 5	0...65535	EtherCAT actual address **Factory setting**: 0

My Preferences

What's in This Chapter

[Localization Settings] Menu

Access

[Settings] ➡ **[My preferences]** ➡ **[Localization Settings]**

About This Menu

Localization screen is used to perform configuration settings related to the user interface.

- **Language Selection**

  Used to change HMI Internal System Language:

  - English
  - Français
  - Deutsch
  - Español
  - Italian
  - Русский язык
  - 中文
- **Set date/time:**

  Used to set the date and time in the following format yyyy/mm/dd / hh:mm:ss
- **Application Name**

  Used to display the application name, it allows to enter a new application name for your system.

[User Logging] Menu

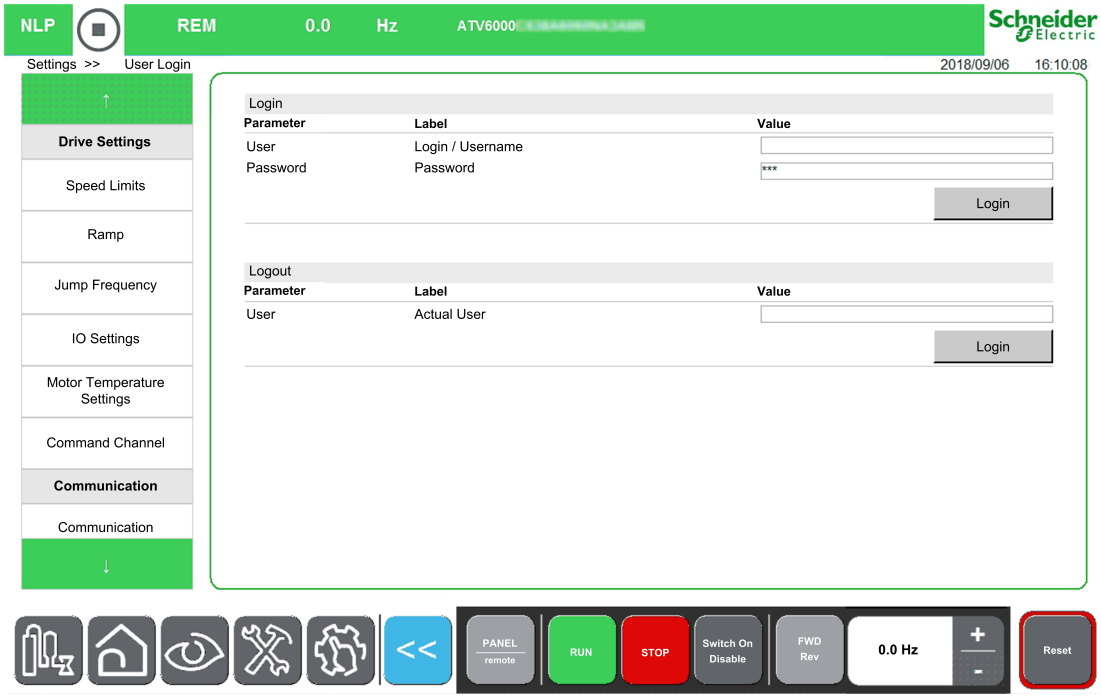
Access

[Settings] ➜ [My preferences] ➜ [User logging]

About This Menu

Each Menu and parameter has an access Level. These access levels are password protected and defined during the commissioning.

HMI Panel start at the first time with the **Basic** user profile.



NOTE:

- After 15 minutes of inactivity the user is automatically logged off .
- User passwords can only be modified by the admin or Schneider Services.
- If you attempt to login to the HMI using an incorrect password, your session will be locked for security reasons after 10 attempts. Contact your local Schneider Electric representative.

Access level and Profile

It is possible to use different user profiles linked to different access levels.

Basic users

- Users: Operator, advanced operator
- Access Rights:
  - Monitoring data only (Diagnostics, Settings, Configuration panels are not accessible).
  - Control and Command panel

Expert users

- Users: Maintenance engineer / technician, Support. (Users trained by Schneider.)

- Access Rights:
  - Settings and monitoring with limitation.
  - Device Name
  - Control and Command panel
  - No Firmware update.

Services Expert users

- Users: Maintenance engineer / Support engineer, Commissioning Engineer.
- Access Rights:
  - All access, monitoring and settings
  - Create account
  - Firmware update
  - Control and Command panel

Access Levels for the HMI panel

User profile	Custom Application (1)	Home	Display	Diagnostics	Even Recorder Export	Settings	Command Panel
Basic	✔	✔	✔	R	–	–	✔
Expert	✔	✔	✔	R	✔	R	✔
Services Expert	✔	✔	✔	✔	✔	✔	✔
(1) Only available if customized applications are programmed							

✔	Full access
R	Limited access
–	No access

Login

Procedure to login, whatever the user profile.

Step	Action
1	Input the desired user profile. Refer to the user profile naming defined during the commissioning.
2	Enter the password for the given level. The password can be entered directly via the soft keyboard.
3	Press OK

Logout

Logs out the actual logged in Basic user profile.

[Webserver] Menu

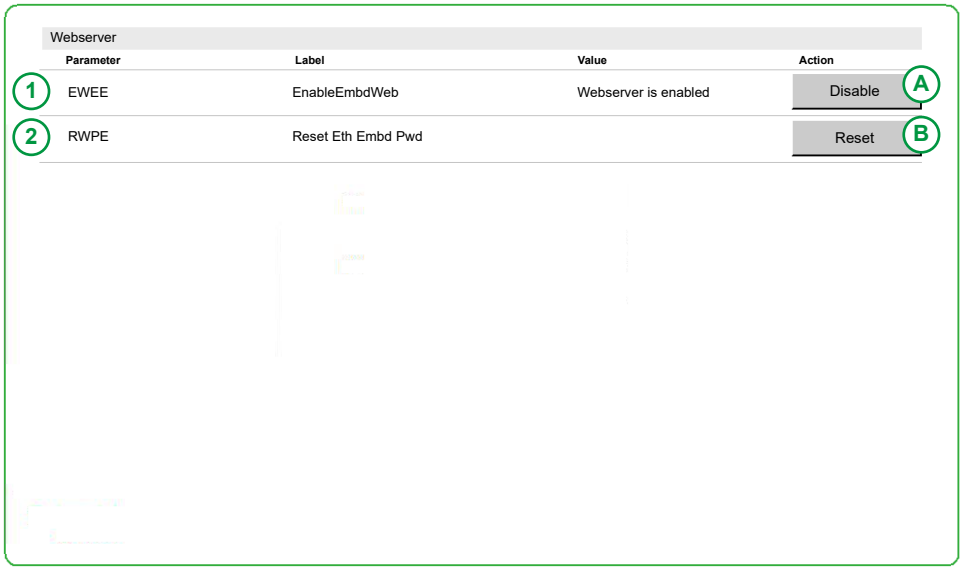
Access

[Settings] ➜ [My preferences] ➜ [Webserver]

About This Menu

This menu allows to manage Web services.

User and password are stored during commissioning, before reset password, contact your local Schneider Electric representative.
For more information refer also to the Embedded Ethernet manual.



1 . EWEE: Enable Embedded Webserver.
A. Disable/Enable: Allows you to enable or disable Web services for the embedded Ethernet adapter.
Note: This setting will be executed at next power-on.

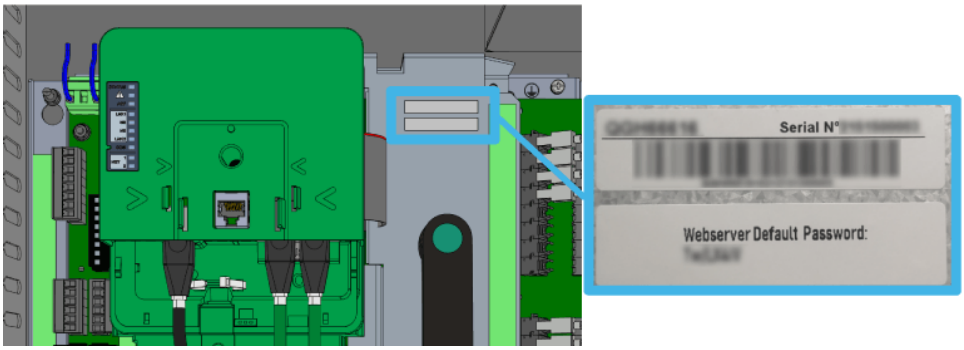
2. RWPE: Reset Ethernet embedded password.
B. Reset: Allows you to reset webserver password and user authentication password.
Note: When password is reseted, the old password saved during commissioning (and also available at your Local Schneider Electric Representative) will not work anymore.

Default Password

The default password consists of 8 characters. The sticker located on the Master Controller shows the Ethernet embedded default password used for both webserver connection (Administrator access) and PC software tool connection (such as SoMove FDT – DTM) in order to have access to the drive configuration.

Irrespective of the type of connection, the first connection requires to change this default password. The new defined password is applicable for both administrator webserver access and PC software tool access. This password is set during commissioning.

NOTE: The default password available on the Master Controller sticker can be used at fist connection or after a password reset via **RWPE**.



File Management

What's in This Chapter

[Export Files] Menu

Access

[Settings] ➡ [File Management] ➡ [Export Files]

Overview

The HMI panel has an SD card slot and two USB host ports for external storage.

Export files mode can be used with several functions, some of them are managed in their own menus

It is possible to select, using "checkbox" in this menu, the data to export among the following functions:

Functions	File Path	Customer file name	Description	Menu
Drive Configuration	***Ctrl - User:/Drive/ Conf/ConfPackage. cfg***	*ConfPackage.cfg*	Configuration upload	Export files
Error History	***Hmi- C:\temp \FaultHistory.csv***	*FaultHistory.csv*	Last 15 Error History	Export files
Warning History	***Hmi- C:\temp \500lastwarnings. html***	*Lastwarnings.html*	Last warning history	Export files
Last 500 Error	***Hmi- C:\temp\ 500lastfaults.html***	*500lastfaults.html*	Last 500 error history	Last 500 Error , page 193
Event recorder	***Hmi- D:\KALA_ persistent\Events \xxx***	*Events_record_ YYYY_MM_DD.csv. gz*	All Events history	Event recorder , page 189
Distribution Logging	***Ctrl - User:/Drive/ Log/Distribution.csv***	*Distribution.csv*	Distribution logging	Export files
KW Report	***Ctrl - User:/Drive/ Log/KWReport.csv***	*KWReport.csv*	KW Report logging	Export files
Oscilloscope Snapshot	***Hmi- C:\temp \scope_screenshots \xxx***	*scope_scn_YYYY_ MM_DD_TTTT.png*	Oscilloscope capture	Oscilloscope , page 124
NOTE: Due to technical reasons, do not open your .CSV file by double-clicking it; Open your spreadsheet software and use the "import" functionality to open the file.				

Procedure

Step	Action
1	Select which function(s) you want to export.
2	Plug the USB key into the USB slot **Result:** The USB key is detected, a new element appears on the HMI.
3	Click on the element. **Result:** During the export a message indicates that the export in progress. **Result:** This data is then transfered to the USB key.

NOTE: The files are exported onto the selected USB key in the folder "ATV6000_export".

- If the folder already exists, it will be overwritten.
- It is not possible to import from a USB key to HMI Panel

Display Parameters for DTM

What's in This Part

Overview

Display menu shows monitoring data related to the drive and the application.

It offers an application-oriented display in terms of energy, cost, cycle, efficiency, ...

This is available with customized units and graphics view.

This information can be accessed using the **Display** Menu available in ATV6000 DTM launched through the SoMove FDT.

System Dashboard

What's in This Chapter

Monitoring DashBoard

[Mains] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Monitoring Dashboard] ➡ [Mains]

About This Menu

This menu shows the mains-related parameters.

Read-only parameters cannot be configured.

[Mains Voltage] uLn

Mains voltage based on AC bus measurement, motor running or stopped.

Setting	Description
According to nominal input voltage of product.	Setting range: **[no meas.]** - - - - is displayed if no value is measured. **Factory setting**: –

[Mains Current] iLn

Actual mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Frequency] FAC

Actual mains frequency.

Setting	Description
-3476.7...3276.7 Hz	Setting range **Factory setting**: –

[Active Input Power] iPrW

Active electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Reactive Power] iqrW

Reactive electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Apparent Input Power] iSrW

Apparent Electrical input power estimation

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Power Factor] PWF

Mains input power factor.

Setting	Description
According to the drive rating	Setting range displayed as a percentage **Factory setting**: _

[Input Ground Value] GivD

Ground input monitoring display.

Monitoring behaviour

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.

Setting	Description
-	Read only, unit: 0.1% of input reference voltage **Factory setting**: _

[Power] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Monitoring Dashboard] ➡ [Power]

About This Menu

This menu shows the power-related parameters.

Read-only parameters cannot be configured.

[Transfo Cab Temp 1] tE 1n

Thermal Transformer Cabinet Monitoring 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer U1] tP 1u

Thermal transformer 1 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer V1] tP 1V

Thermal transformer 1 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer W1] tP 1W

Thermal primary transformer 1 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Transfo Cab Temp 2] tt2n

Thermal Transformer Cabinet Monitoring 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer U1] tP2u

Thermal primary transformer 2 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer V1] tP2V

Thermal primary transformer 2 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer W1] tP2W

Thermal primary transformer 2 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Motor] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Monitoring Dashboard] ➡ [Motor]

About This Menu

This menu shows the motor-related parameters.

Read-only parameters cannot be configured.

[Motor Frequency] rFr

Motor frequency.

This parameter displays the estimated rotor frequency without motor slip.

Value range	Description
-3,276.7...3,276.7 Hz	**Factory setting**: 0.0 Hz

[Motor Voltage] uoP

Motor voltage.

Value range	Description
0...65,535 V	**Factory setting**:–

[Motor Current] LCr

Motor current.

Value range	Description
0.00...65,535 A	According to drive ratings **Factory setting**: –

[Motor Torque (Nm)] otqn

Motor torque (Nm).

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Value range	Description
-32,767 Nm...32,767 Nm	According to drive ratings **Factory setting**: –

[Acv Elc out pwr estm] EPrW

Active electrical output power estimation.

Value range	Description
According to the drive rating	Value in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Power Estim Value] oPrW

Motor shaft power estimation.

Value range	Description
According to the drive rating	Value in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Output Ground Value] GoVd

Ground output monitoring display.

Monitoring behaviour from GoVd

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.
- Value only displayed when PoC PWM is enabling to avoid “capacitor parasite” value.
- When PoC PWM is not enabling GoVd = 0

Value range	Description
0...32767	Read only, unit: 0.1% output reference voltage **Factory setting**: _
Output reference voltage : example for “ATV6000••••A••66” = 6.6 kV	

[Thermal winding U1] tHM1

Motor Thermal Monitoring: Temperature of winding U1

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V1] tHM2

Motor Thermal Monitoring: Temperature of winding V1

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W1] tHM3

Motor Thermal Monitoring: Temperature of winding W1

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 1] tHM4

Motor Thermal Monitoring: Temperature of bearing 1

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding U2] tHM5

Motor Thermal Monitoring: Temperature of winding U2

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V2] tHM6

Motor Thermal Monitoring: Temperature of winding V2

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available

Value range	Code / Value	Description
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W2] tHM7

Motor Thermal Monitoring: Temperature of winding W2

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 2] tHMB

Motor Thermal Monitoring: Temperature of bearing 2

Value range	Code / Value	Description
-200 °C...850 °C		Normal measurement range
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

Mains data

[Mains Data] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Mains Data]

About This Menu

This menu shows the mains-related parameters.

Read-only parameters cannot be configured.

[Mains Voltage] uLn

Mains voltage based on AC bus measurement, motor running or stopped.

Setting	Description
According to nominal input voltage of product.	Setting range: **[no meas.]** - - - - is displayed if no value is measured. **Factory setting**: –

[Mains Voltage phase 1-2] uL1

Mains voltage phase 1-2 measurement.

Setting	Description
According to nominal input voltage of product.	Setting range **Factory setting**: –

[Mains Voltage phase 2-3] uL2

Mains voltage phase 2-3 measurement.

Setting	Description
According to nominal input voltage of product.	Setting range **Factory setting**: –

[Mains Voltage phase 3-1] uL3

Mains voltage phase 3-1 measurement

Setting	Description
According to nominal input voltage of product.	Setting range **Factory setting**: –

[Mains Current] iLn

Actual mains current (effective value of the fundamental mode).

Accuracy: 2% (related to drive nominal current).

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Current] iL1

Mains estimated current phase 1

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Current] iL2

Mains estimated current phase 2

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Current] iL3

Mains estimated current phase 3

Setting	Description
According to drive rating	Setting range **Factory setting**: –

[Mains Frequency] FAC

Actual mains frequency.

Setting	Description
-3476.7...3276.7 Hz	Setting range **Factory setting**: –

[Active Input Power] iPrW

Active electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Reactive Power] iqrW

Reactive electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Apparent Input Power] iSrW

Apparent Electrical input power estimation

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Power Factor] PWF

Mains input power factor.

Setting	Description
According to the drive rating	Setting range displayed as a percentage **Factory setting**: _

[Mains Unbalance Ratio] uMV

Mains unbalance ratio.

Setting	Description
-327.67...327.67%	Setting range **Factory setting**: –

[Input Ground Value] Givd

Ground input monitoring display.

Monitoring behaviour

- In case of warning detection, the value is continuously refresh.
- In case of error detection, the value is frozen in a way to monitor and log the level.
- After a fault reset, the value is continuously refresh.

Setting	Description
-	Read only, unit: 0.1% of input reference voltage **Factory setting**: _
Input reference voltage: example for “ATV6000••••A66••” = 6.6 kV	

Power stage data

These menus shows the Transformer and Power cell thermal monitoring parameters.
Read-only parameters cannot be configured.

Following parameters are available if **[Cab Transfo PT100]** oCt2 is configured.

Thermal monitoring for:								
Transformer 1			Transformer 2			Power Cell 1	Power Cell 2	Control box
TT1M			TT2M					
Winding U	Winding V	Winding W	Winding U	Winding V	Winding W			
TP1U	TP1V	TP1W	TP2U	TP2V	TP2W	TPC1	TPC2	TCCM
Humidity monitoring for:								
Transformer 1			Transformer 2			Power Cell 1	Power Cell 2	Control box
HT1M			HT2M			HP1M	HP2M	HCCM

[Thermal transformer] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Power Stage data]➜ [Thermal Transformer]

About This Menu

This menu shows the Transformer thermal monitoring parameters.
Read-only parameters cannot be configured.

[Transfo Cab Temp 1] tCt1

Thermal Transformer Cabinet Monitoring 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer U1] tPtu

Thermal transformer 1 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit

Value range	Code / Value	Description
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer V1] tP 1V

Thermal transformer 1 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer W1] tP 1W

Thermal primary transformer 1 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Transfo Cab Temp 2] tt2n

Thermal Transformer Cabinet Monitoring 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer U1] tP2u

Thermal primary transformer 2 winding U

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit

Value range	Code / Value	Description
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer V1] tP2V

Thermal primary transformer 2 winding V

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

[Thermal transformer W1] tP2W

Thermal primary transformer 2 winding W

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Serial communication link loss between PLC and Measurement BOX

Drive data

[Drive Reference] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Drive Data] ➡ [Drive Reference]

About This Menu

This menu shows the drive-related parameters.

[AIV1 Image input] AIV1

AIV1 Image input.

This parameter is read-only. It enables to display the speed reference applied to the motor, or the sensor value, via the fieldbus channel.

Setting	Description
-8,192...8,192	Setting range **Factory setting**: –

[Pre-Ramp Ref Freq] FrH

Frequency reference before ramp.

This parameter is read-only. It enables to display the speed reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: 0 Hz

[Ref Frequency] LFr

Reference frequency.

This parameter only appears if the function has been enabled. It is used to change the reference frequency from the remote control.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: –

[Torque ref.] LtrS

Line torque reference.

This parameter only appears if the function has been enabled. It is used to change the torque reference value from the remote control. OK does not have to be pressed to enable a change of reference value.

This parameter can be accessed if:

- **[Trq/spd switching]** tSS is not set to **[Not Assigned]** nO, and
- **[Torque ref. channel]** tr1 is set to **[Ref. Freq-Rmt.Term]** LCC.

Setting	Description
-300.0...300.0%	Setting range **Factory setting**: –

[Torque reference] trr ★

Torque reference.

This parameter can be accessed if:

- **[M/S Device Role]** MSdt is set to **[Slave]** SLAVE, and
- **[M/S Control Type]** MSCt is set to:
  - **[Torque Direct]** trqd, or
  - **[Torque Reverse]** trqr, or
  - **[Torque Custom]** trqC.

Setting	Description
-32,767...32,767	Setting range **Factory setting**: –

[Measured Freq] FqS ★

Pulse input measured frequency.

This parameter can be accessed if **[Frequency meter]** FqF is not set to **[Not Configured]** nO.

Setting	Description
0...30 KHz	Setting range **Factory setting**: –

[Drive Status] Menu

Access

[Display]➡ [System Dashboard] ➡ [Drive Data] ➡ [Drive Status]

About This Menu

This menu shows the status of the drive, cabinet Switch and on-lock status register.

[Drive State] HMIS

Drive state.

Value range	Code / Value	Description
[Autotuning]	tUn	Autotuning, the motor identification is running.
[Ready]	rdY	Drive ready, all conditions to start the drive are ok.
[Freewheel]	nSt	Freewheel stop control, One or more Freewheel stop command are active. Check parameter **[2/3-Wire Control]** tCC and **[Local 2/3-wire Control]** PLIO for 3 wire control and verify the status of the dedicated inputs.
[Running]	rUn	Motor in steady state or run command present and zero reference
[Accelerating]	ACC	Acceleration
[Decelerating]	dEC	Deceleration
[Current limitation]	CLI	In current limitation, the drive has reached the current limitation threshold according to parameter **[Current Limitation]** CLI.
[Mot. fluxing]	FLU	Fluxing function is activated
[No Mains Voltage]	nLP	Control is powered on but the DC bus is not loaded
[control.stop]	ctL	Control stopping
[Dec. adapt.]	obr	Adapted deceleration
[Undervoltage Warning]	USA	Undervoltage warning
[TC Mode Active]	tC	TC indus mode activated
[In autotest]	St	Self test in progress
[Autotest error]	FA	Self test not successful
[Autotest OK]	oK	Self test Ok
[EEprom test]	EP	Self test Eeprom error
[Operating State "Fault"]	FLt	Product has detected an error
[DCP Flashing Mode]	dCP	DCP flashing mode
[Firmware Update]	FWuP	Firmware update
[Angle test]	ASA	Angle Value range
[ON Lock active]	onLK	Input MV ON Lock, input MV On Lock active, one or more interlocks are active to inhibit the MV Circuit Breaker closing contact.

Value range	Code / Value	Description
[POE active]	PoA	Power output disable active, the digital input POEA or POEB is not supplied with 24V.
[Torque Limitation]	tLA	Torque limitation, the drive has reached the torque limitation threshold according to parameter **[Motor torque limit]** tLAM, **[Gen. torque limit]** tLAG.
[Power Limitation]	PLA	Power limitation
[Init]	InA	Drive is initializing
[Reset]	rSt	Drive is reset
[Synchro. To Mains]	SYtM	Synchronization to Mains
[Rdy Transfer To Mains]	rtM	Ready to transfer to mains
[Transfer In Progress]	tMA	Transfer in progress
[Synchro. To Drive]	SYtd	Synchronization to drive
[SD Transfer Ready]	rtd	Ready to transfer to drive
[Transfer to drive in progress]	tdA	Transfer to drive in progress
[Run Delay In Progress]	rdAP	Run delay in progress

[Cabinet Switch Status] CMdS

This parameter describes the actual control channel of the drive. This can be realized by digital cabinet inputs (from Remote) or the Mode selector switch on the front panel of the drive.

Setting	Code / Value	Description
[Not selected]	no	No command selected
[Remote]	rEM	Remote command selected
[Local]	LoC	Local command selected
[Panel]	PAn	Panel (HMI) command selected

[On Lock Register] PLo1

Device On lock status register

The drive will inhibit the medium voltage to be energized by a relay interlocked with the medium voltage circuit breaker or fused switch. (Check circuit diagram for contact "Enable to close")

Bit	Description, Value
0	1 = Door Open
1	1 = Fan not Ready
2	1 = Mains OFF Button
3	1 = MV Circuit breaker Tripped
4	1 = MV Circuit breaker grounding contact
5	1 = MV Circuit breaker Isolated

Bit	Description, Value
6	Reserved
7	Reserved
8	Reserved
9	1 = QF1 Tripped
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

Drive Bypass On Lock Register PLo2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[On Lock Source] PLoL

Current device on lock status.

Setting	Code / Value	Description
[No On Lock]	no	No onlock
[Door Interlock On Lock]	door	Door interlock on lock
[Cooling Fan On Lock]	FAn	Cooling fan on lock
[Mains Off Button On Lock]	MVoFF	Mains off button on lock
[QF1 Feedback On Lock]	9F It	QF1 feedback on lock

Setting	Code / Value	Description
[QF1 Grounded Contact On Lock]	nVEArtH	QF1 grounded contact on lock
[QF1 isolated Contact On Lock]	nV isO	QF1 isolated contact on lock
[QF2 Feedback On Lock]	qF2t	QF2 feedback on lock
[QF3 Feedback On Lock]	qF3t	QF3 feedback on lock
[QF91 Feedback On Lock]	qF9 1t	QF91 feedback on lock
[QF11 Feedback On Lock]	qF 11t	QF11 feedback on lock
[LV Surge Arrestor On Lock]	SurGE	LV surge arrestor on lock
[Fan Supply On Lock]	FAnPWr	Fan supply on lock
[QF2 Feedback On Lock]	qF2E	QF2 feedback on lock
[QF2 Feedback On Lock]	qF2 i	QF2 feedback on lock
[MV Power-ON Cycling On Lock]	CYCLE	MV power-on cycling on lock
[Master Slave]	nS	Master Slave
[Reserved]	PLo16	Reserved
[Bypass Breaker QF11=0 QF2=0 QF3=0 On Lock]	PLo17	Bypass breaker QF11=0 QF2=0 QF3=0 On Lock
[Bypass Breaker QF11=0 QF2=1 QF3=0 On Lock]	PLo18	Bypass breaker QF11=0 QF2=1 QF3=0 On Lock
[Bypass Breaker QF11=0 QF2=1 QF3=1 On Lock]	PLo19	Bypass breaker QF11=0 QF2=1 QF3=1 On Lock
[Bypass Breaker QF11=1 QF2=0 QF3=0 On Lock]	PLo20	Bypass breaker QF11=1 QF2=0 QF3=0 On Lock
[Bypass Breaker QF11=1 QF2=0 QF3=1 On Lock]	PLo21	Bypass breaker QF11=1 QF2=0 QF3=1 On Lock
[Bypass Breaker QF11=1 QF2=	PLo22	Bypass breaker QF11=1 QF2=1 QF3=1 On Lock

Setting	Code / Value	Description
1 QF3=1 On Lock]		
[Bypass Breaker QF2= 0 QF3=0 On Lock]	PLo25	Bypass breaker QF2=0 QF3=0 On Lock
[Bypass Breaker QF2= 0 QF3=1 On Lock]	PLo26	Bypass breaker QF2=0 QF3=1 On Lock
[Bypass Breaker QF2= 1 QF3=1 On Lock]	PLo27	Bypass breaker QF2=1 QF3=1 On Lock
[QF3 Feedback On Lock]	PLo31	QF3 feedback on lock
[QF3 Feedback On Lock]	PLo32	QF3 feedback on lock

[Freewheel Stop Source] nSES

Freewheel stop source displayed on HMI and DTM.

Setting	Code / Value	Description
[No Freewheel]	no	No freewheel stop
[Cmd resgister CMD.0 Freewheel]	CMd0	Command resgister CMD.0 freewheel stop
[Cmd resgister CMD.1 Freewhee]	CMd1	Command resgister CMD.1 freewheel stop
[Cmd resgister CMD.2 Freewheel]	CMd3	Command resgister CMD.2 freewheel stop
[Run Order Freewheel]	run	Run order present freewheel stop
[Gating Locked Freewheel]	GAt	Gating locked freewheel stop
[3-wire Remote Order Freewheel]	3Wt	3-wire remote order freewheel stop
[3-wire Local Order Freewheel]	3WC	3-wire local order freewheel stop
[Digital Input NST Freewheel]	LI	Digital input NST freewheel stop
[HMI Stop Key Freewheel]	StoP	HMI Stop key freewheel stop
[Synchronous transfer freewheel]	SYt	Synchronous transfer freewheel stop
[Voltage Dip Freewheel]	dIP	Voltage dip freewheel stop

Setting	Code / Value	Description
[Unknown Cmd Channel Freewheel]	uCMd	Unknown command channel freewheel stop
[Drive Profile Locked Freewheel]	VVdL	Drive profile locked freewheel stop
[DC injection on DI Freewheel]	dCL i	DC injection on digital input Freewheel stop

[Freewheel Stop Register] nSt1

Freewheel stop register displayed on HMI and DTM.

Bit	Description, Value
0	1 = CIA402 switch on command CMD.0
1	1 = CIA402 freewheel command CMD.1
2	1 = CIA402 quick stop command CMD.2
3	1 = Run order present
4	1 = Gating locked
5	1 = 3 wires command terminal
6	1 = 3 wires command cabinet
7	1 = NST logical input
8	1 = HMI stop key
9	1 = Synchronous transfer
10	1 = Voltage dip
11	1 = Unknown command channel
12	1 = VVD profile locked
13	1 = DC injection on logical input
14, 15	1 = Reserved ETO

[POE fct status] PoES

Power Output Enable function status

Setting	Code / Value	Description
[Not active]	idLE	POE not active
[Active]	Pod	POE active
[Error]	FLt	POE in error

[POEx Input State] PoEF

POEx Digital Input state

Power Output Enable Off Feedback A and B monitoring

Bit	Description, Value
0	Set to 1: POE_A feedback status
1	Set to 1: POE_B feedback status

[Command Status] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Drive Data] ➡ [Command Status]

About This Menu

Read only parameters cannot be configured.

This menu shows monitoring parameters linked to the command selection. For settings and configuration refer to the Command and Reference Menu , page 244.

[Command Channel] CMDC

Command channel.

Setting	Code / Value	Description
[Ref.Freq-Rmt. Term]	tEr	Terminal block source **Factory Setting**
[Ref.Freq-Rmt. Term]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	Mdb	Command via Modbus
[Ref. Freq-CANopen]	CAn	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	nEt	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	Mdb2	Modbus 2 source
[HMI Panel]	HMI	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC	PLC Inside source

[Cmd Register] CMd

Command register.

[Control Mode] CHCF is not set to **[I/O profile]** IO

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	Set to 1: "Switch on"/Contactor command
1	Set to 0: "Disable voltage"/Authorization to supply AC power
2	Set to 0: "Quick stop"
3	Set to 1: "Enable operation"/Run command
4 to 6	Reserved (= 0)
7	"Fault reset" acknowledgment active on 0 to 1 rising edge
8	Set to 1: Stop according to the **[Type Of Stop]** StT parameter without leaving the operation enabled state

Bit	Description, Value
9 and 10	Reserved (= 0)
11 to 15	Can be assigned to commands

Possible values in the I/O profile. On state command **[2-Wire Control]** 2 C :

Bit	Description, Value
0	Forward (on state) command: 0: No forward command 1: Forward command **NOTE:** The assignment of bit 0 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bit 0 C d 0 0 is only active if the channel of this control word is active.
1 to 15	Can be assigned to commands

Possible values in the I/O profile. On edge command **[3-Wire Control]** 3 C :

Bit	Description, Value
0	Stop (run authorization): 0: Stop 1: Run is authorized on a forward or reverse command
1	Forward (on 0 to 1 rising edge) command
2 to 15	Can be assigned to commands
NOTE: The assignment of bits 0 and 1 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bits 0 C d 0 0 and 1 C d 0 1 are only active if the channel of this control word is active.	

[Ref Freq Channel] r F C C

Channel of reference frequency.

Identical to **[Command Channel]** C N d C

[Pre-Ramp Ref Freq] F r H

Frequency reference before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[CIA402 State Reg] E t A

CIA402 State Register.

Possible values in CiA402 profile, separated, or not separated mode:

Bit	Description, Value
0	"Ready to switch on", awaiting power section line supply
1	"Switched on", ready
2	"Operation enabled", running
3	Operating detected error state: 0: Inactive 1: Active
4	"Voltage enabled", power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present **NOTE:** When the drive is powered by the power section only, this bit is always at 1.
5	Quick stop
6	"Switched on disabled", power section line supply locked
7	Warning: 0: No warning 1: Warning
8	Reserved (= 0)
9	Remote: command or reference via the network 0: Command or reference via the Display Terminal 1: Command or reference via the network
10	Targets reference reached: 0: The reference is not reached 1: The reference has been reached **NOTE:** When the drive is in speed mode, this is the speed reference.
11	"Internal limit active", reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits **NOTE:** When the drive is in speed mode, the limits are defined by the **[Low speed]** *L S P* and **[High speed]** *H S P* parameters.
12	Reserved
13	Reserved
14	"Stop key", STOP via stop key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal
15	"Direction", direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The combination of bits 0, 1, 2, 4, 5 and 6 defines the state in the DSP 402 state chart (see the communication manuals).	

Possible values in the I/O profile:

Bit	Description, Value
0	Reserved (= 0 or 1)
1	Ready: 0: Not ready

Bit	Description, Value
	1: Ready
2	Running: 0: The drive does not start if a reference other than zero is applied 1: Running, if a reference other than zero is applied, the drive can start
3	Operating detected error state: 0: Inactive 1: Active
4	Power section line supply present: 0: Power section line supply unavailable 1: Power section line supply present
5	Reserved (= 1)
6	Reserved (= 0 or 1)
7	Warning 0: No warning 1: Warning
8	Reserved (= 0)
9	Command via a network: 0: Command via the terminals or the Display Terminal 1: Command via a network
10	Reference reached: 0: The reference is not reached 1: The reference has been reached
11	Reference outside limits: 0: The reference is within the limits 1: The reference is not within the limits **NOTE:** When the drive is in speed mode, the limits are defined by LSP and HSP parameters.
12	Reserved (= 0)
13	Reserved (= 0)
14	Stop via STOP key: 0: STOP key not pressed 1: Stop triggered by the STOP key on the Display Terminal
15	Direction of rotation: 0: Forward rotation at output 1: Reverse rotation at output
NOTE: The value is identical in the CiA402 profile and the I/O profile. In the I/O profile, the description of the values is simplified and does not refer to the CiA402 (Drivecom) state chart.	

[PID Regulator] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Drive Data] ➡ [PID Regulator]

About This Menu

NOTE: This function cannot be used with some other functions.

Read-only parameters cannot be configured.

[Internal PID ref] r P i ★

Internal PID reference.

Setting	Description
0...32,767	Setting range **Factory setting**: 150

[PID Reference] r P C ★

PID setpoint value.

Setting	Description
0...65,535	Setting range **Factory setting**: 0

[PID feedback] r P F ★

PID feedback value.

Setting	Description
0...65,535	Setting range **Factory setting**: 0

[PID Error] r P E ★

PID error value.

Setting	Description
-32,767...32,767	Setting range **Factory setting: –**

[PID Output] r P o ★

PID output value.

Setting	Description
[PID Min Output] *PoL* ...**[PID Max Output]** *PoH*	Setting range **Factory setting**: _

[Thermal Monitoring] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Drive Data] ➡ [Thermal Monitoring]

About This Menu

This menu shows the present thermal value measured via analog inputs used.

NOTE: An encoder can also be used with the thermal monitoring function.

[AI1 Th Value] *tHI1V*, [AI3 Th Value] *tHI3V*, [AI4 Th Value] *tHI4V*, [AI5 Th Value] *tHI5V* ★

AI1 thermal value, AI3 thermal value, AI4 thermal value and AI5 thermal value.

NOTE: AI4 and AI5 can only be accessed if the I/O extension option module (VW3A3203) has been inserted.

Setting	Description
-15.0...200.0 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of **[Temperature unit]** *SUtP*). **Factory setting:** Read-only parameter.

[Enc Th Value] *tHEnV* ★

Encoder thermal sensor value.

Setting	Description
-15...200 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of **[Temperature unit]** *SUtP*). **Factory setting:** Read-only parameter.

Motor Data

[Motor Control Data] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Motor Data] ➡ [Motor Control Data]

About This Menu

This menu shows the motor-related parameters.

Read-only parameters cannot be configured.

[Pre-Ramp Ref Freq] FrH

Frequency reference before ramp.

This parameter is read-only. It enables the display of the frequency reference applied to the motor, regardless of which channel for reference value has been selected.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Ramp output frequency (signed)] Fro

Ramp output frequency

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Motor Frequency] rFr

Motor frequency.

This parameter displays the estimated rotor frequency without motor slip.

Setting	Description
-3,276.7...3,276.7 Hz	Setting range **Factory setting**: 0.0 Hz

[Motor Speed] SPd

Motor speed.

This parameter displays the estimated rotor speed without motor slip.

Setting	Description
0...65,535 rpm	Setting range **Factory setting**:–

[Measured output fr.] nMF

Measured output frequency.

This parameter can be accessed only if the encoder module has been inserted, and the available selections will depend on the type of encoder module used.

Setting	Description
-3,276.7...3,276.7	Setting range **Factory setting**: –

[Motor Mechanical speed] SPdM

Motor mechanical speed.

This parameter displays the estimated rotor speed with motor slip.

Setting	Description
[Undefined] und or -32,767...32,765 rpm	Setting range **Factory setting**:–

[Signed Mech Speed] SPd I

Signed motor mechanical speed.

Setting	Description
[Undefined] und...32,767 rpm	Setting range **Factory setting**:–

[Motor Current] LCr

Motor current.

Setting	Description
0.00...65,535 A	Setting range according to drive ratings **Factory setting**: –

[Motor Current Id] IdM

Measurement motor current Id

Setting	Description
-32,767 A...32,767	Setting range according to drive ratings **Factory setting**: –

[Motor Current Iq] ıqn

Measurement motor current Iq

Setting	Description
-32,767 A...32,767	Setting range according to drive ratings **Factory setting**: –

[Motor Voltage] uoP

Motor voltage.

Setting	Description
0...65,535 V	Setting range **Factory setting**:–

[Motor Torque] otr

Motor torque.

Output torque value (100% = **[Nom Motor Torque]** tqn).

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-300.0... 300.0%	Setting range **Factory setting**: –

[Motor Torque (Nm)] otqn

Motor torque (Nm).

Output torque value.

NOTE: The displayed value is always positive in motor mode and negative in generator mode whatever the direction.

Setting	Description
-32,767 Nm...32,767 Nm	Setting range: according to drive ratings **Factory setting**: –

[Motor Power] oPr

Motor power.

Output power in % (100% = nominal motor power).

Setting	Description
-300...300%	Setting range **Factory setting**: –

[Power Estim Value] oPrW

Motor shaft power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Active Output Power] EPr

Active Electrical output power estimation (100% = nominal motor electrical power).

Setting	Description
–300 ... 300%	Setting range in % **Factory setting**: _

[Acv Elc out pwr estm] EPrW

Active electrical output power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Nom Motor Torque] tqn

Computed nominal motor torque in Nm (+/- 2% tolerance).

Setting	Description
0.01...65,535 Nm	Setting range according to drive rating. **Factory setting**: –

[Overload State 1] tLS1

Over-load monitoring state 1. Linked to **[Drive overload monit]** obr - menu.

Setting	Description
0...100 %	Setting range **Factory setting**: -

[Overload State 2] tLS2

Over-load monitoring state 2. Linked to **[Drive overload monit]** obr - menu.

Setting	Description
0...100 %	Setting range **Factory setting**: -

[Rotor Frequency] rFq

Rotor frequency.

This parameter displays the estimated rotor frequency with motor slip.

Setting	Description
[No Freq Applied] nO...300.0 Hz	Setting range **Factory setting**: –

[Stator Frequency] SFq

Stator frequency.

Setting	Description
[No Freq Applied] nO...300.0 Hz	Setting range **Factory setting**: –

[Motor Thermal Data] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Motor Data] ➡ [Motor Thermal Data]

About This Menu

Read-only parameters cannot be configured.

Following parameters are available if **[Motor PT100 Usage]** oCt1 is configured.

For the thermal monitoring function up to 12 PT100 are available (4 PT100 for each TM3 module), up to 8 PT100 for **thermal motor** function, and 4 PT100 for **Thermal sensor** function.

Possible Configurations for Thermal Motor Monitoring

Description	PT100 Sensors							
	N° 1 U1	N° 2 V1	N° 3 W1	N° 4 B1	N° 5 U2	N° 6 V2	N° 7 W2	N° 8 B2
Module TM3	**Module 1**				**Module 2**			
Parameter for actual temperature	THM1	THM2	THM3	THM4	THM5	THM6	THM7	THM8
Assignment one motor (minimum)	Winding Motor 1			Bearing 1 Motor 1	-	-	-	-
Assignment one motor (maximum)	Winding Motor 1 (U1/V1/W1)			Bearing 1 Motor 1	Winding Motor 1 (U2/V2/W2)			Bearing 2 Motor 1
Assignment two motors (minimum)	Winding Motor 1			Bearing 1 Motor 1	Winding Motor 2			Bearing 1 Motor 2
Assignment two motors (maximum)	Winding Motor 1			Bearing 1 Motor 1	Winding Motor 2			Bearing 1 Motor 2
Assigned parameters for Warning / error level	THW1 THT1			THW3 THT3	THW2 THT2			THW4 THT4
Error Code / Warning code	CF19 CW17			CF21 CW19	CF20 CW18			CF22 CW19

[Thermal winding U1] tHd1

Motor Thermal Monitoring: Temperature of winding U1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V1] tHn2

Motor Thermal Monitoring: Temperature of winding V1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W1] tHn3

Motor Thermal Monitoring: Temperature of winding W1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 1] tHn4

Motor Thermal Monitoring: Temperature of bearing 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding U2] tHn5

Motor Thermal Monitoring: Temperature of winding U2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit

Value range	Code / Value	Description
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding V2] tHP6

Motor Thermal Monitoring: Temperature of winding V2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal winding W2] tHP7

Motor Thermal Monitoring: Temperature of winding W2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal bearing 2] tHPB

Motor Thermal Monitoring: Temperature of bearing 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Sensor Thermal Data] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Motor Data] ➜ [Sensor Thermal Data]

About This Menu

Read-only parameters cannot be configured.

Following parameters are available if **[Motor PT100 Usage]** oCt1 is configured.

For the thermal monitoring function up to 12 PT100 are available (4 PT100 for each TM3 module), up to 8 PT100 for **thermal motor** function, and 4 PT100 for **Thermal sensor** function.

Possible Configurations for Thermal System Monitoring

Description	PT100 Sensors			
	N° 9 S1	N° 10 S2	N° 11 S3	N° 12 S4
Module TM3	**Module 3**			
Parameter for actual temperature	THM9	THMA	THMB	THMC
Example naming	Thermal Device 1	Thermal Device 2	Thermal Device 3	Thermal Device 4
Assigned parameters for Warning / error level	THW5 THT5	THW5 THT5	THW7 THT7	THW8 THT8
Error Code / Warning code	CF31 CW25	CF32 CW26	CF33 CW27	CF34 CW28

[Thermal Sensor 9] tHM9

Thermal Monitoring: Temperature of sensor 9

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 10] tHMA

Thermal Monitoring: Temperature of sensor 10

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available

Value range	Code / Value	Description
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 11] tHA1

Thermal Monitoring: Temperature of sensor 11

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 12] tHA2

Thermal Monitoring: Temperature of sensor 12

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 13] tHA3

Thermal Monitoring: Temperature of sensor 13

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Thermal Sensor 14] tHA4

Thermal Monitoring: Temperature of sensor 14

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Encoder Thermal data] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Motor Data] ➡ [Encoder Thermal data]

About This Menu

Read-only parameters cannot be configured.

Following parameters are available if **[Motor PT100 Usage]** $oCtI$ is configured.

[Enc Th Value] $EhEV$ ★

Encoder thermal sensor value.

Setting	Description
-15...200 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of **[Temperature unit]** $SUtP$). **Factory setting:** Read-only parameter.

Bypass PoC Display

[Bypass PoC Display] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Bypass PoC Display]

About This Menu

This menu shows the Bypass PoC display related parameters, the following parameters are in read mode only.

NOTE: This Function is managed during the commissioning, refer to your local Schneider Electric representative.

It is recommended to have a power cell bypass option for critical process, in which case a reduction in capacity is preferable to a complete shutdown.

- When a power cell breaks down it will automatically bypass the power cells in order to keep the VSD system running according capacity. This helps prevent production downtime or unexpected interruption.
- Replacement of the inoperative power-cell shall be arranged at the next scheduled maintenance. It is a contactless system which is fully integrated into the power cell, and this makes the power cell entirely modular even with a bypass function.

[Bypass PoC Status] bYPS

Bypass PoC status

Setting	Code / Value	Description
[PoC Stage Not Bypassed]	no	No PoC bypassed
[1 PoC Stage Bypassed]	bYP 1	1 PoC stage is bypassed
[2 PoC Stage Bypassed]	bYP2	2 PoC stage are bypassed
[3 PoC Stage Bypassed]	bYP3	3 PoC stage are bypassed
[4 PoC Stage Bypassed]	bYP4	4 PoC stage are bypassed
[PoC Stage Bypass Error]	FLt	PoC stage bypass error

[Power cell load ratio] PoCr

Power cell load ratio

Setting	Description
in %	Setting range **Factory setting**: _

[Un-bypass Automatic Counter] ЬУРС

Counter for Un-Bypass tries in the time of ЬУРЧ (set during commissioning). This counter gets reseted if there are no new UN-Bypass tries in **[Un-bypass Retry Time]** ЬУРЧ.

Setting	Description
0...65535	Setting range **Factory setting**: _

Elapsed Time customer

Introduction

These information can be accessed using the **Diagnostics** Menu available in ATV6000 DTM launched through the SoMove FDT or ATV6000 HMI Panel.

[Elapsed Time customer] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Elapsed Time customer]

About This Menu

This menu shows the drive, fan, and motor-related counters.

[Motor Run Time] rEH

Motor run time.

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Power-on Time] PEH

Power-on time (resettable) or counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Nb Of Start] nSM

Number of motor starts (resettable) or counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Nb of MV Power On] nSV

Number of MV Power on display (resettable)

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Fan Operation Time] FtO1

Fan operation time.

As soon as **[Fan Operation Time]** FtO1 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning]** FCtA is triggered.

[Fan Operation Time] FtO1 counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting**: Read Only

[QF1 Nb Of Starts] qFPo

Number of power on mains circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF2 Nb Of Starts] qFP2

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF3 Nb Of Starts] qFP3

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF91 Nb Of Starts] qFP4

Number of power on inrush circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

Mains Voltage Circuit Breaker

[Mains Voltage Circuit Breaker] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Mains Voltage Circuit Breaker]

About This Menu

This menu shows the mains Circuit Breaker display related parameters

[QF1 state] MVCb

QF1 state

Setting	Code / Value	Description
[QF1 Locked]	LoCK	QF1 Locked
[QF1 Closed]	MVCS	QF1 Closed
[QF1 Not Available]	no	QF1 Not Available
[QF1 Enable To Close]	rdy	QF1 Enable To Close
[QF1 Tripped]	trIP	QF1 Tripped

[QF1 Command State] QFOS

QF1 Command State

Setting	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according to stop pulse
[Open]	CboS	Circuit Breaker in Opened State

Inrush Circuit Breaker

[Inrush Circuit Breaker] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Inrush Circuit Breaker]

About This Menu

This menu shows the Inrush Circuit Breaker display related parameters

[QF91 Command State] 9F45

QF91 Command State

Setting	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according to start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according to stop pulse
[Open]	Cbos	Circuit Breaker in Opened State

Fan Cooling

Overview

Fan Cooling Control Type

In the **Standard solution** (without fan cooling control), all fans are commanded according to fan supply type selected during commissioning.

With the **Fan Cooling Control** mode, additionally to the fan supply type, all fans are controlled in “running and stopping” mode through relay/contactor.

Regardless of your Fan cooling Control type, HMI Panel and DTM can monitor: , page 320

- Fan command order feedback
- Fan power supply feedback
- Fan cooling feedback
- Fan operating time

Redundant Fan Cooling

To increase the product reliability and fan service life, the drive is built with one additional fan in each transformer cabinet and power-cell cabinet.

If one fan of each cabinet is not working properly, the corresponding redundant fan is switch on by the drive controller. The fan that have been removed is identified, a warning or error is triggered, fan status and cooling cabinet status is monitored through the HMI , page 167 .

	Standard offers	Redundant fan offers
Cabinet transformer 1	Up to 4	N + 1
Cabinet transformer 2	Up to 4	N + 1
Cabinet power-cells	Up to 12	N + 1

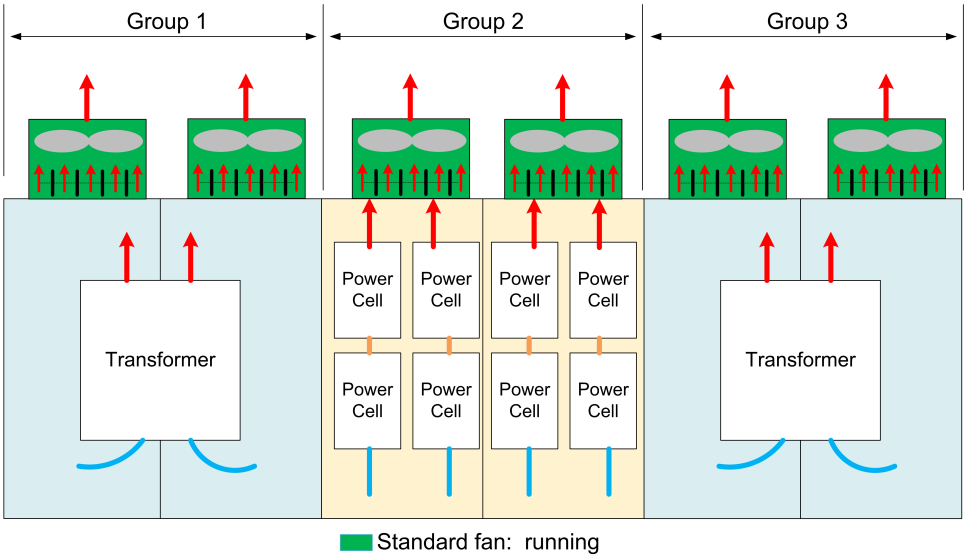
The degraded mode could be used in order to have less operational fan that standard solution. In this case, a service continuity can be reached.

Fan Group Cabinet.

Fan cooling system is split between two groups:

- Transformer Cabinet,
- Power cells Cabinet.

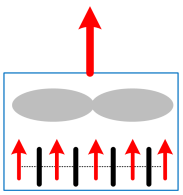
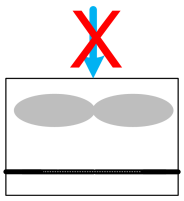
Each group have several Fan related to the power of the drive in order to help to managed correctly the temperature of transformer and Power Cell cabinets.



Fan Shutters

To avoid the incorrect air circulation, a device is added in order to stop airflow of any fans which are not in operation. This device is named "Fan shutter" and consists on a trap to block the air.

Shutters are commanded by HW

	Shutters are opened.
	Shutters are closed when an error is detected. In case of redundant mode, the cooling of the drive remains unchanged and just the airflow is modified. Otherwise the cooling of the drive is in degraded mode.

[Common Display] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Fan cooling]➡ [Common Display]

About This Menu

This menu shows the status register the fan cooling.

Read-only parameters cannot be configured.

[Cab status 1] bWS2

Cabinet Word status register

- The fan cooling feedback is linked to the register BWS2 bit 4, see following table.
- The fan power supply feedback is linked to the register BWS2 bit 6, see following table.

Bit	Description, Value
4	1: Fan cooling feedback
6	1: Fan Power Supply feedback

[Fan Cooling Control] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Fan cooling]➡ [Fan Cooling Control]

About This Menu

This menu shows the status, feedback and temperature of the fan cooling.

Read-only parameters cannot be configured.

[Cab status 1] bWS2

Cabinet Word status register

- The fan cooling feedback is linked to the register BWS2 bit 4, see following table.
- The fan power supply feedback is linked to the register BWS2 bit 6, see following table.
- The fan command order feedback is linked to the register BWS2 bit 9, see following table.

Bit	Description, Value
4	1: Fan cooling feedback
6	1: Fan Power Supply feedback
9	1: Fan command order

[Transfo Cab Temp 1] tt 1n

Transformer cabinet temperature 1

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Transfo Cab Temp 2] tt 2n

Transformer cabinet temperature 2

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Transfo 1 Winding Max Temp] tP1n

Transformer winding maximum temperature 1 (TP1U, TP1V, TP1W)

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Transfo 2 Winding Max Temp] tP2n

Transformer winding maximum temperature 2 (TP2U, TP2V, TP2W)

Value range	Code / Value	Description
-50 °C...250 °C		Actual temperature
-32000	nA	Sensor Not Available
-32001	SC	Sensor Short Circuit
-32002	oC	Sensor Open Circuit
-32003	SE	Sensor circuit error measurement

[Redundant Fan Control] Menu

[Cooling Status] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Fan Cooling] ➡ [Redundant Fan Control] ➡ [Cooling Status]

About This Menu

This menu shows the cooling status of the redundant fan cooling.

Read-only parameters cannot be configured.

[Fan Cooling Status] *F r П 4*

PoC cabinet fan cooling status

Setting	Code / Value	Description
[Not Configured]	*n o*	Cooling fan not configured
[Stopped]	*S t P*	Cooling fan stop
[With Redundancy]	*r E d*	Cooling fan with redundant capability
[Without Redundancy]	*S t d*	Cooling fan without redundant capability
[Degraded Mode]	*d E G*	Cooling fan in degraded mode
[Error]	*F L t*	Cooling fan with error detected

[Fan Cooling Status] *F r П 5*

Transformer 1 cabinet fan cooling status

Setting	Code / Value	Description
[Not Configured]	*n o*	Cooling fan not configured
[Stopped]	*S t P*	Cooling fan stop
[With Redundancy]	*r E d*	Cooling fan with redundant capability
[Without Redundancy]	*S t d*	Cooling fan without redundant capability
[Degraded Mode]	*d E G*	Cooling fan in degraded mode
[Error]	*F L t*	Cooling fan with error detected

[Fan Cooling Status] *F r П 6*

Transformer 2 cabinet fan cooling status

Setting	Code / Value	Description
[Not Configured]	*n o*	Cooling fan not configured
[Stopped]	*S t P*	Cooling fan stop

Setting	Code / Value	Description
[With Redundancy]	rEd	Cooling fan with redundant capability
[Without Redundancy]	Std	Cooling fan without redundant capability
[Degraded Mode]	dEG	Cooling fan in degraded mode
[Error]	FLt	Cooling fan with error detected

[Fan Feedback] Menu

Access

[Display] ➜ [Dashboard System] ➜ [Fan Cooling] ➜ [Redundant Fan Control] ➜ [Fan Feedback]

About This Menu

This menu shows the feedback of the redundant fan control.

Read-only parameters cannot be configured.

[PoC cabinet fan feedback] F r N 0

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet PoC fan cooling feedback Nb_21
1	1 : Cabinet PoC fan cooling feedback Nb_22
2	1 : Cabinet PoC fan cooling feedback Nb_23
3	1 : Cabinet PoC fan cooling feedback Nb_24
4	1 : Cabinet PoC fan cooling feedback Nb_25
5	1 : Cabinet PoC fan cooling feedback Nb_26
6	1 : Cabinet PoC fan cooling feedback Nb_27
7	1 : Cabinet PoC fan cooling feedback Nb_28
8	1 : Cabinet PoC fan cooling feedback Nb_29
9	1 : Cabinet PoC fan cooling feedback Nb_2A
10	1 : Cabinet PoC fan cooling feedback Nb_2B
11	1 : Cabinet PoC fan cooling feedback Nb_2C
12	1 : Cabinet PoC fan cooling feedback Nb_2D
13, 14	Reserved
15	1: Cabinet PoC redundant fan command feedback

[Transformer Cabinet Fan Feedback] F r N 1

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet transformer 1 fan cooling feedback Nb_31
1	1 : Cabinet transformer 1 fan cooling feedback Nb_32
2	1 : Cabinet transformer 1 fan cooling feedback Nb_33
3	1 : Cabinet transformer 1 fan cooling feedback Nb_34
4	1 : Cabinet transformer 1 fan cooling feedback Nb_35
5	Reserved
6	Reserved

Bit	Description, Value
7	1 : Cabinet transformer 1 redundant fan command feedback
8	1 : Cabinet transformer 2 fan cooling feedback Nb_41
9	1 : Cabinet transformer 2 fan cooling feedback Nb_42
10	1 : Cabinet transformer 2 fan cooling feedback Nb_43
11	1 : Cabinet transformer 2 fan cooling feedback Nb_44
12	1 : Cabinet transformer 2 fan cooling feedback Nb_45
13	Reserved
14	Reserved
15	1 : Cabinet transformer 2 redundant fan command feedback

[PoC Cabinet Shutter Feedback] FrN2

- Bit to 0 = Shutter is closed
- Bit to 1 = Shutter is open

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13	Reserved
14	Reserved
15	Reserved

[Transformer Cabinet Shutter Feedback] FrN3

Shutter feedback:

- 0: Shutter is close
- 1: Shutter is opened

Bit	Description, Value
0	1 : Cabinet transformer 1 fan shutter feedback Nb_31
1	1 : Cabinet transformer 1 fan shutter feedback Nb_32
2	1 : Cabinet transformer 1 fan shutter feedback Nb_33
3	1 : Cabinet transformer 1 fan shutter feedback Nb_34
4	1 : Cabinet transformer 1 fan shutter feedback Nb_35

Bit	Description, Value
5...7	Reserved
8	1 : Cabinet transformer 2 fan shutter feedback Nb_41
9	1 : Cabinet transformer 2 fan shutter feedback Nb_42
10	1 : Cabinet transformer 2 fan shutter feedback Nb_43
11	1 : Cabinet transformer 2 fan shutter feedback Nb_44
12	1 : Cabinet transformer 2 fan shutter feedback Nb_45
13...15	Reserved

[PoC Cabinet Shutter Warn] FrN7

Power cells cabinet shutter warning

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13...15	Reserved

[Transformer Cabinet Shutter Warn] FrNB

Transformer cabinet shutter warning.

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_31
1	1 : Cabinet PoC fan shutter feedback Nb_32
2	1 : Cabinet PoC fan shutter feedback Nb_33
3	1 : Cabinet PoC fan shutter feedback Nb_34
4	1 : Cabinet PoC fan shutter feedback Nb_35
5...7	Reserved
8	1 : Cabinet PoC fan shutter feedback Nb_41
9	1 : Cabinet PoC fan shutter feedback Nb_42
10	1 : Cabinet PoC fan shutter feedback Nb_43
11	1 : Cabinet PoC fan shutter feedback Nb_44
12	1 : Cabinet PoC fan shutter feedback Nb_45
13...15	Reserved

[Fan Redundant Command] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Fan Cooling] ➡ [Redundant Fan Control] ➡ [Fan Redundant Command]

About This Menu

This menu shows the status register of the redundant fan control command .

Read-only parameters cannot be configured.

[Bypass Drive CB status 2] bWS4

Bypass drive circuit breaker status 2 is linked to the register BSW4 bit10...12

Bit	Description, Value
10	set to 1: Fan redundant GR1 cabinet PoC run state
11	set to 1: Fan redundant GR1 cabinet Transformer 1 run state
12	set to 1: Fan redundant GR1 cabinet Transformer 2 run state

[Fan Operating Time] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Fan Cooling] ➡ [Redundant Fan Control] ➡ [Fan Operating Time]

About This Menu

This menu shows the fan operation time counter of the redundant fan control.

Read-only parameters cannot be configured.

[Fan Operation Time] FtO1

Fan operation time.

As soon as **[Fan Operation Time]** FtO1 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning]** FCtA is triggered.

[Fan Operation Time] FtO1 counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[Fan Remaining Time Before Service] FtD0

Fan remaining time before service.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[PoC Cabinet Redundant Fan Operating Time] FE10

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[Transformer 1 Cabinet Redundant Fan Operating Time] FE11

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[Transformer 2 Cabinet Redundant Fan Operating Time] FE12

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[Shutter Fan Monitoring] Menu

[Cooling Status] Menu

Access

[Display] ➡ [Dashboard System] ➡ [Fan Cooling] ➡ [Shutter Fan Monitoring]➡ [Cooling Status]

About This Menu

This menu shows the cooling status of the shutter fan monitoring.

Read-only parameters cannot be configured.

[Fan Cooling Status] FrM4

PoC cabinet fan cooling status

Setting	Code / Value	Description
[Not Configured]	no	Cooling fan not configured
[Stopped]	StP	Cooling fan stop
[With Redundancy]	rEd	Cooling fan with redundant capability
[Without Redundancy]	Std	Cooling fan without redundant capability
[Degraded Mode]	dEG	Cooling fan in degraded mode
[Error]	FLt	Cooling fan with error detected

[Fan Cooling Status] FrM5

Transformer 1 cabinet fan cooling status

Setting	Code / Value	Description
[Not Configured]	no	Cooling fan not configured
[Stopped]	StP	Cooling fan stop
[With Redundancy]	rEd	Cooling fan with redundant capability
[Without Redundancy]	Std	Cooling fan without redundant capability
[Degraded Mode]	dEG	Cooling fan in degraded mode
[Error]	FLt	Cooling fan with error detected

[Fan Cooling Status] FrM6

Transformer 2 cabinet fan cooling status

Setting	Code / Value	Description
[Not Configured]	no	Cooling fan not configured
[Stopped]	StP	Cooling fan stop
[With Redundancy]	rEd	Cooling fan with redundant capability
[Without Redundancy]	Std	Cooling fan without redundant capability
[Degraded Mode]	dEG	Cooling fan in degraded mode
[Error]	FLt	Cooling fan with error detected

[Fan Feedback Shutter] Menu

Access

[Display] ➞ [Dashboard System] ➞ [Fan Cooling] ➞ [Shutter Fan Monitoring] ➞ [Fan Feedback Shutter]

About This Menu

This menu shows the feedback of the shutter fan monitoring.

Read-only parameters cannot be configured.

[PoC cabinet fan feedback] F r N 0

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet PoC fan cooling feedback Nb_21
1	1 : Cabinet PoC fan cooling feedback Nb_22
2	1 : Cabinet PoC fan cooling feedback Nb_23
3	1 : Cabinet PoC fan cooling feedback Nb_24
4	1 : Cabinet PoC fan cooling feedback Nb_25
5	1 : Cabinet PoC fan cooling feedback Nb_26
6	1 : Cabinet PoC fan cooling feedback Nb_27
7	1 : Cabinet PoC fan cooling feedback Nb_28
8	1 : Cabinet PoC fan cooling feedback Nb_29
9	1 : Cabinet PoC fan cooling feedback Nb_2A
10	1 : Cabinet PoC fan cooling feedback Nb_2B
11	1 : Cabinet PoC fan cooling feedback Nb_2C
12	1 : Cabinet PoC fan cooling feedback Nb_2D
13, 14	Reserved
15	1: Cabinet PoC redundant fan command feedback

[Transformer Cabinet Fan Feedback] F r N 1

Fan cooling feedback:

- 0: Not cooling
- 1: Run cooling

Bit	Description, Value
0	1 : Cabinet transformer 1 fan cooling feedback Nb_31
1	1 : Cabinet transformer 1 fan cooling feedback Nb_32
2	1 : Cabinet transformer 1 fan cooling feedback Nb_33
3	1 : Cabinet transformer 1 fan cooling feedback Nb_34
4	1 : Cabinet transformer 1 fan cooling feedback Nb_35
5	Reserved
6	Reserved

Bit	Description, Value
7	1 : Cabinet transformer 1 redundant fan command feedback
8	1 : Cabinet transformer 2 fan cooling feedback Nb_41
9	1 : Cabinet transformer 2 fan cooling feedback Nb_42
10	1 : Cabinet transformer 2 fan cooling feedback Nb_43
11	1 : Cabinet transformer 2 fan cooling feedback Nb_44
12	1 : Cabinet transformer 2 fan cooling feedback Nb_45
13	Reserved
14	Reserved
15	1 : Cabinet transformer 2 redundant fan command feedback

[PoC Cabinet Shutter Feedback] FrM2

- Bit to 0 = Shutter is closed
- Bit to 1 = Shutter is open

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13	Reserved
14	Reserved
15	Reserved

[Transformer Cabinet Shutter Feedback] FrM3

Shutter feedback:

- 0: Shutter is close
- 1: Shutter is opened

Bit	Description, Value
0	1 : Cabinet transformer 1 fan shutter feedback Nb_31
1	1 : Cabinet transformer 1 fan shutter feedback Nb_32
2	1 : Cabinet transformer 1 fan shutter feedback Nb_33
3	1 : Cabinet transformer 1 fan shutter feedback Nb_34
4	1 : Cabinet transformer 1 fan shutter feedback Nb_35

Bit	Description, Value
5...7	Reserved
8	1 : Cabinet transformer 2 fan shutter feedback Nb_41
9	1 : Cabinet transformer 2 fan shutter feedback Nb_42
10	1 : Cabinet transformer 2 fan shutter feedback Nb_43
11	1 : Cabinet transformer 2 fan shutter feedback Nb_44
12	1 : Cabinet transformer 2 fan shutter feedback Nb_45
13...15	Reserved

[PoC Cabinet Shutter Warn] F r 0 7

Power cells cabinet shutter warning

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_21
1	1 : Cabinet PoC fan shutter feedback Nb_22
2	1 : Cabinet PoC fan shutter feedback Nb_23
3	1 : Cabinet PoC fan shutter feedback Nb_24
4	1 : Cabinet PoC fan shutter feedback Nb_25
5	1 : Cabinet PoC fan shutter feedback Nb_26
6	1 : Cabinet PoC fan shutter feedback Nb_27
7	1 : Cabinet PoC fan shutter feedback Nb_28
8	1 : Cabinet PoC fan shutter feedback Nb_29
9	1 : Cabinet PoC fan shutter feedback Nb_2A
10	1 : Cabinet PoC fan shutter feedback Nb_2B
11	1 : Cabinet PoC fan shutter feedback Nb_2C
12	1 : Cabinet PoC fan shutter feedback Nb_2D
13...15	Reserved

[Transformer Cabinet Shutter Warn] F r 0 8

Transformer cabinet shutter warning.

Bit	Description, Value
0	1 : Cabinet PoC fan shutter feedback Nb_31
1	1 : Cabinet PoC fan shutter feedback Nb_32
2	1 : Cabinet PoC fan shutter feedback Nb_33
3	1 : Cabinet PoC fan shutter feedback Nb_34
4	1 : Cabinet PoC fan shutter feedback Nb_35
5...7	Reserved
8	1 : Cabinet PoC fan shutter feedback Nb_41
9	1 : Cabinet PoC fan shutter feedback Nb_42
10	1 : Cabinet PoC fan shutter feedback Nb_43
11	1 : Cabinet PoC fan shutter feedback Nb_44
12	1 : Cabinet PoC fan shutter feedback Nb_45
13...15	Reserved

[Fan Operating Time] Menu

Access

[Display] ➞ [Dashboard System] ➞ [Fan Cooling] ➞ [Shutter Fan Monitoring] ➞ [Fan Operating Time]

About This Menu

This menu shows the fan operation time counter the shutter fan monitoring

Read-only parameters cannot be configured.

[Fan Operation Time] FtO1

Fan operation time.

As soon as **[Fan Operation Time]** FtO1 reach the predefined value of 45,000 hours / 162,000,000 seconds, a warning **[Fan Counter Warning]** FCtA is triggered.

[Fan Operation Time] FtO1 counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[Fan Remaining Time Before Service] FtD0

Fan remaining time before service.

Setting	Description
0...1,800,000,000 s	Setting range **Factory setting** : Read Only

[MVCB Switch-on Cycling] Menu

Access

[Display] ➡ [System Dashboard] ➡ [MVCB Switch-on Cycling]

About This menu

The MVCB switch-on cycling function helps to prevent too many switching operations of QF1, QF91 and inrush resistors in a dedicated timeframe. All setting are described on Services document and managed during commissioning.

When function is activated, the risks of massive inrush / huge stress to the transformer are minimized. (Activated during commissioning)

Mains Circuit breaker Status is monitored to the HMI Panel, Diagnostic >> Status Synthesis >> QFx Status, page 160.

Main Behaviour

MVCB switch-on cycling function is based on **internal counter**, which counts the number of each MVCB switch on.

- Each time the MVCB is switched-on, this **internal counter** is increased by one *switch time window*.
- This **Internal counter** is decreased by 1 according to *switch time window*.

$$\text{SwitchTimeWindow} = \frac{\text{TimeWindow}}{\text{NbAllowedSwitchs}}$$

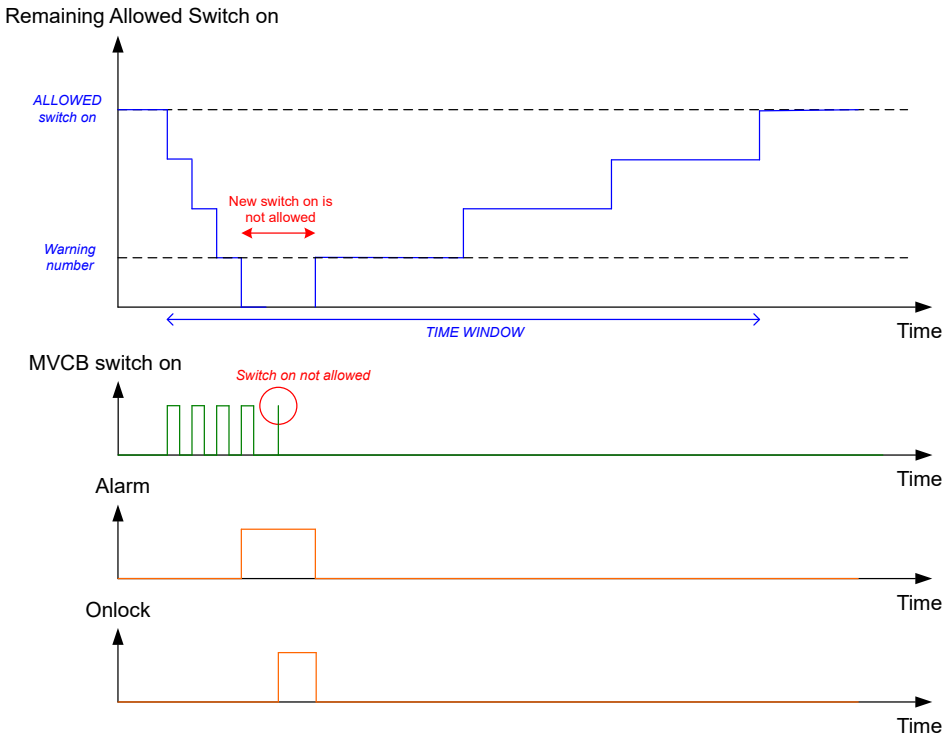
- TimeWindow = **[MV Power-ON Cycling Time Window]** nSPt
- NbAllowedSwitchs = **[MV Power-ON Cycling On Lock Number]** nSPn

Warning reaction:

- If this **internal counter** exceeds the **[Power-ON Cycling Warning Number]** nSPW then **[MV Power-ON Cycling Warning]** CW24 is raised.
  - **Internal counter** is reset as soon as the**internal counter** goes back under **[Power-ON Cycling Warning Number] MSPW**.

OnLock reaction:

- If **internal counter** exceeds the **[MV Power-ON Cycling On Lock Number]** nSPn then Onlock is raised. (PL01 = bit 14) HMIS = ONLK in order to avoid switch-on MVCB.
  - During “OnLock” states, each command to switch-on MVCB is not considered.
  - **Internal counter** is reset as soon as **internal counter** goes back under **[MV Power-ON Cycling On Lock Number]** nSPn.
  - When **ONLOCK** state is reset, if a command to close MVCB was present, this request is not considered, a new transition must be applying through close command.
  - Remaining time before next allowed switch-on, is monitored through **[MV Power-ON Remaining Time]** nSPO.
  - Number of switch-on allowed before on-lock, is monitored through **[MV Power-ON Remaining Number]** nSP 1.



Time counting:

- Remaining time before next allowed switch-on, is monitored through **[MV Power-ON Remaining Time]** nSP0.
- Number of switch-on allowed before on-lock, is monitored through **[MV Power-ON Remaining Number]** nSP1.
- At power-up or after product reset :
  - **internal counter** is reset,
  - **[MV Power-ON Remaining Time]** nSP0 is reset,
  - **[MV Power-ON Remaining Number]** nSP1 is reset.

[MV Power-ON Remaining Time] nSP0

Remaining time before next allowed switch-on

Setting	Description
1...65535 min	Setting range **Factory setting**: _

[MV Power-ON Remaining Number] nSP1

Number of switch-ons allowed before on-lock

Setting	Description
0...65535	Setting range **Factory setting**: _

Energy Dashboard

What's in This Chapter

[Energy Monitoring Data]

[Input Electrical energy] Menu

Access

[Display] ➡ [Dashboard Energy] ➡ [Energy Monitoring Data] ➡ [Input Electrical energy]

About This Menu

This menu presents the input electrical energy data.

Read-only parameters cannot be configured.

[Active Input Power] iPrW

Active electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Reactive Power] iqrW

Reactive electrical input power.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Apparent Input Power] iSrW

Apparent Electrical input power estimation

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Input Power Factor] PWF

Mains input power factor.

Setting	Description
According to the drive rating	Setting range displayed as a percentage **Factory setting**: _

[Real Input Energy(TWh)] iE4★

Input electrical power consumed (TWh).

This parameter can be accessed if **[Real Input Energy(TWh)]** iE4 is not set to 0.

Setting	Description
-999...999 TWh	Setting range **Factory setting**: _

[Real Input Energy(GWh)] iE3★

Input electrical power consumed (GWh).

Setting	Description
-999...999 GWh	Setting range **Factory setting**: _

[Real Input Energy(MWh)] iE2★

Input electrical power consumed (MWh).

Setting	Description
-999...999 MWh	Setting range **Factory setting**: _

[Real Input Energy(kWh)] iE1★

Input electrical power consumed (kWh).

Setting	Description
-999...999 kWh	Setting range **Factory setting**: _

[Real Input Energy(Wh)] iE0★

Input electrical power consumed (Wh).

Setting	Description
-999...999 Wh	Setting range **Factory setting**: _

[Output Mechanical Energy] Menu

Access

[Display] ➜ [Dashboard Energy] ➜ [Energy Monitoring Data] ➜ [Output Mechanical Energy]

About This Menu

This menu presents the output mechanical energy data.

[Power Estim Value] oPrW

Motor shaft power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Motor Consumption] nE4★

Energy consumption (TWh).

This parameter can be accessed if **[Motor Consumption]** nE4 is not set to 0.

Setting	Description
0...999 TWh	Setting range **Factory setting**: _

[Motor Consumption] nE3★

Energy consumption (GWh).

Setting	Description
0...999 GWh	Setting range **Factory setting**: _

[Motor Consumption] nE2★

Energy consumption (MWh).

Setting	Description
0...999 MWh	Setting range **Factory setting**: _

[Motor Consumption] nE 1★

Energy consumption (kWh).

Setting	Description
0...999 kWh	Setting range **Factory setting**: _

[Motor Consumption] nEO★

Energy consumption (Wh).

Setting	Description
0...999 Wh	Setting range **Factory setting**: _

[Output Electrical energy] Menu

Access

[Display] ➡ [Dashboard Energy] ➡ [Energy Monitoring Data] ➡ [Output Electrical energy]

About This Menu

This menu presents the output electrical energy data.

[Acv Elc out pwr estm] EPrW

Active electrical output power estimation.

Setting	Description
According to the drive rating	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60 **Factory setting**: _

[Real Consumption] oE4★

Electrical energy consumed (TWh).

This parameter can be accessed if **[Real Consumption]** oE4 is not set to 0.

Setting	Description
-999...999 TWh	Setting range **Factory setting**: _

[Real Consumption] oE3

Electrical energy consumed (GWh).

Setting	Description
-999...999 GWh	Setting range **Factory setting**: _

[Real Consumption] oE2

Electrical energy consumed (MWh).

Setting	Description
-999...999 MWh	Setting range **Factory setting**: _

[Real Consumption] oE1

Electrical energy consumed (kWh).

Setting	Description
-999...999 kWh	Setting range **Factory setting**: _

[Real Consumption] oE0

Electrical energy consumed (Wh).

Setting	Description
-999...999 Wh	Setting range **Factory setting**: _

[Elc Egy Today] oCt

Electrical energy consumed today by the motor (kWh).

Setting	Description
0...4,294,967,295 kWh	Setting range **Factory setting**: _

[Elc Egy Yesterday] oCY

Electrical energy consumed yesterday by the motor (kWh).

Setting	Description
0...4,294,967,295 kWh	Setting range **Factory setting**: _

[Energy saving] Menu

Access

[Display] ➡ [Dashboard Energy] ➡ [Energy Monitoring Data] ➡ [Energy saving]

About This Menu

This menu presents the comparison in term of cost, energy, CO_2 between solutions with and without drive.

[Over-Consumption Thd] PCAH

Power level for over-consumption.

Setting	Description
[Under-Consumption Thd] PCAL ...200.0%	Setting range **Factory setting**: 0.0%

[Under-Consumption Thd] PCAL

Power level for under-consumption.

Maximum value = PCAH if PCAH ≤ 100%.

Setting	Description
0.0...100.0% or **[Over-Consumption Thd]** PCAH if PCAH ≤ 100%	Setting range **Factory setting**: 0.0%

[Over/Under-Cons Delay] PCAt

Over/under-consumption detection time.

Setting	Description
0...60 min	Setting range **Factory setting**: 1 min

[Elc Egy Today] oCt

Electrical energy consumed today by the motor (kWh).

Setting	Description
0...4,294,967,295 kWh	Setting range **Factory setting**: _

[Elc Egy Yesterday] oCY

Electrical energy consumed yesterday by the motor (kWh).

Setting	Description
0...4,294,967,295 kWh	Setting range **Factory setting**: _

[Peak Output Power] nOEP

Peak output power.

Setting	Description
According to the drive rating	Setting range **Factory setting**: _

[Reference Power] PrEF

Reference Power without drive

Setting	Description
0.00...655.35 kW	Setting range in kW if **[Motor Standard]** bFr is set to **[50Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60. **Factory setting**: 0.00 kW

[kWh Cost] ECSt

Cost of the kWh.

Setting	Description
0.00...655.35 $	Setting range in € if **[Motor Standard]** bFr is set to **[50 Hz IEC]** 50 or in $ if **[Motor Standard]** bFr is set to **[60Hz NEMA]** 60. **Factory setting**: _

[CO2 Ratio] ECo2

Quantity of CO_2 by kWh.

Setting	Description
0.000...65.535 kg/kWh	Setting range **Factory setting**: 0.000 kg/kWh

[Energy Saved] ESAV

Energy saved with the drive solution.

Setting	Description
0...4,294,967,295 kWh	Setting range **Factory setting**: _

[Money Saved] CASH

Cost saved with the drive solution.

Setting	Description
0.00...42,949,672 $	Setting range in € if **[Motor Standard]** bFr is set to **[50 Hz IEC]** 50 or in $ if **[Motor Standard]** bFr is set to **[60 Hz NEMA]** 60. **Factory setting**: _

[Co2 Saved] Co2S

CO_2 saved with the drive solution.

Setting	Description
0.0...429,496,729.5 t	Setting range **Factory setting**: _

[Power Warning] Menu

Access

[Display] ➡ [Dashboard Energy] ➡ [Energy Monitoring Data] ➡ [Power warning]

About This Menu

This menu presents the power level energy data.

[Over-Consumption Thd] PCAH

Power level for over-consumption.

Setting	Description
[Under-Consumption Thd] PCAL ...200.0%	Setting range **Factory setting**: 0.0%

[Under-Consumption Thd] PCAL

Power level for under-consumption.

Maximum value = PCAH if PCAH ≤ 100%.

Setting	Description
0.0...100.0% or **[Over-Consumption Thd]** PCAH if PCAH ≤ 100%	Setting range **Factory setting**: 0.0%

[Over/Under-Cons Delay] PCAt

Over/under-consumption detection time.

Setting	Description
0...60 min	Setting range **Factory setting**: 1 min

Pump Dashboard

What's in This Chapter

[Application parameters] Menu

Access

[Display] ➡ [Dashboard Pump] ➡ [Application parameters]

About This Menu

This menu displays information related to the application.

[Application State] APPS

Application state.

This parameter indicates the drive application state.

Setting	Code / Value	Description
[Running]	run	No application function in progress; the drive is running
[Stop]	StoP	No application function in progress; the drive is not running
[Local Mode Active]	LoCAL	Forced local mode activated
[Channel 2 Active]	oVEr	Override speed control mode activated
[Manual Mode Active]	MAnu	Motor running; manual PID mode is active
[PID Active]	Auto	Motor running; auto PID mode is active
[Boost In progress]	booSt	The boost is in progress
[Sleep Active]	SLEEP	The sleep is active
[BL In Progress]	bLS	Backlash sequence is in progress

[Total Quantity] FSIC

Total quantity.

Setting	Description
0...2,147,483,647	Setting range according to **[Flow rate unit]** SuFr **Factory setting: –**

[Highest Flow] F S I K

Highest flow.

Setting	Description
-32,767...32,767	Setting range according to **[Flow rate unit]** S u F r **Factory setting: –**

[Lowest Flow] F S I J

Lowest flow.

Setting	Description
-32,767...32,767	Setting range according to **[Flow rate unit]** S u F r **Factory setting: –**

[Pump Parameters] Menu

Access

[Display] ➡ [Dashboard Pump] ➡ [Pump parameters]

About This Menu

This menu shows the pump-related parameters.

[Motor Run Time] rtH

Motor run time.

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Motor Mechanical speed] SPdM

Motor mechanical speed.

This parameter displays the estimated rotor speed with motor slip.

Setting	Description
0...65,535 rpm	Setting range **Factory setting**: _

[Nb Of Start] nSM

Number of motor starts (resettable).

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Acv Elc Out Pwr Estm] EPrW

Active electrical output power estimation.

Setting	Description
-327.67...327.67 kW	Setting range in kW if **[Motor Standard]** bFr is set to **[50 Hz IEC]** 50 or in HP if **[Motor Standard]** bFr is set to **[60 Hz NEMA]** 60 **Factory setting**: _

[Flow Estimated] SLFV ★

Estimated flow value.

This parameter can be accessed if **[Flow Estimation Mode]** FEM is set to **[No]** noA.

Setting	Description
-32,767...32,767	Setting range according to **[Flow rate unit]** SuFr **Factory setting: –**

[Est. Pump Head] SLHV ★

Estimated Pump head value

Setting	Description
-32,767...32,767	Setting range according to **[P sensor unit]** SuPr **Factory setting: –**

[Efficiency] EFY

The efficiency is based on mechanical power.

Setting	Description
0.0...100.0 %	Setting range **Factory setting**: _

[Energy Cons. Ind.] EC i

Energy consumption indication is based on the consumption of the electrical power

Setting	Description
0...32,767	Setting range **Factory setting: –**

[Energy Perf. Ind] EP i

Energy performance indicator is based on the electrical power

Setting	Description
0...32,767	Setting range **Factory setting: –**

[Highest Eff.] EFYK

Highest efficiency.

Setting	Description
0.0...100.0 %	Setting range **Factory setting**: _

[Lowest Eff.] E F Y J

Lowest efficiency.

Setting	Description
0.0...100.0 %	Setting range **Factory setting**: _

[Pump Thermal Monitoring] Menu

Access

[Display] ➡ [Dashboard Pump] ➡ [Dashboard Pump] ➡ [Pump Thermal Monitoring]

About This Menu

This menu shows the present thermal value measured via analog inputs used.

[AI1 Th Value] tH1V, [AI3 Th Value] tH3V, [AI4 Th Value] tH4V, [AI5 Th Value] tH5V

AI1 thermal value, AI3 thermal value, AI4 thermal value and AI5 thermal value.

NOTE: AI4 and AI5 can only be accessed if the I/O extension option module (VW3A3203) has been inserted.

Setting	Description
-15.0...200.0 °C (step: 0.1 °C) 5.0...392.0 °F (step: 0.1 °F)	Setting range (the unit depends on the setting of **[Temperature unit]** tUnP). **Factory setting:** Read-only parameter.

Dashboard M/S

What's in This Chapter

[M/S Local Display] Menu

Access

[Display] ➜ **[Dashboard M/S]** ➜ **[M/S Local Display]**

About This Menu

This menu presents the master slave local display related parameters.

Read-only parameters cannot be configured.

[M/S Status] nSS

M/S function status.

Setting	Code / Value	Description
[None]	nonE	Not configured
[M/S Local Control]	nACt	M/S local control
[M/S Not Ready]	nrdY	M/S not ready
[M/S Ready]	rEAdY	M/S ready
[M/S Running]	run	M/S running
[M/S Warning]	ALArn	M/S warning

[M/S Master Speed Ref] nSnS★

M/S Master speed reference.

This parameter can be accessed if **[M/S Comm Mode]** nSCn is not set to **[No]** no.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[M/S Master Torque Ref] nSnt★

M/S Master torque reference.

This parameter can be accessed if **[M/S Comm Mode]** nSCn is not set to **[No]** no.

Setting	Description
-32,767...32,767 Nm	Setting range **Factory setting**: _

[M/S Local Speed Ref] nSSr ★

M/S Local speed reference.

This parameter can be accessed if:

- **[M/S Comm Mode]** nSCn is not set to **[No]** no, and
- **[M/S Device Role]** nSdt is set to **[Slave]** SLAVE.

Setting	Description
-300.0...300 Hz	Setting range **Factory setting**: _

[M/S Local Torque Ref] nStr ★

M/S Local torque reference.

This parameter can be accessed if:

- **[M/S Comm Mode]** nSCn is not set to **[No]** no, and
- **[M/S Device Role]** nSdt is set to **[Slave]** SLAVE.

Setting	Description
-32,767...32,767 Nm	Setting range **Factory setting**: _

[Motor Frequency] rFr

Motor frequency.

This parameter displays the estimated rotor frequency without motor slip.

Setting	Description
-3,276.7...3,276.7 Hz	Setting range **Factory setting**: 0.0 Hz

[Motor Torque (Nm)] otqn

Motor torque.

Output torque value.

NOTE: The displayed value is always positive in motor and negative in generator mode whatever the direction.

Setting	Description
-32,767...32,767 Nm	Setting range: according to drive ratings **Factory setting**: _

[M/S System Display] Menu

Access

[Display] ➡ **[Dashboard M/S]** ➡ **[M/S System Display]**

About This Menu

This menu presents the master slave system related parameters.

This menu can be accessed if **[M/S Comm Mode]** nSCn is set to **[MultiDrive Link]** ndL.

Read-only parameters cannot be configured.

[M/S Local Speed Ref] nSSr ★

M/S output speed reference.

This parameter can be accessed if:

- **[M/S Comm Mode]** nSCn is not set to **[No]** no, and
- **[M/S Device ID]** nS id is set to **[Slave]** SLAVE.

Setting	Description
-300.0...300 Hz	Setting range **Factory setting**: _

[M/S Local Torque Ref] nStr ★

M/S output torque reference.

This parameter can be accessed if:

- **[M/S Comm Mode]** nSCn is not set to **[No]** no, and
- **[M/S Device ID]** nS id is set to **[Slave]** SLAVE.

Setting	Description
-32,767...32,767 Nm	Setting range **Factory setting**: _

[M/S Device Selection] nSdn

M/S device selection.

This parameter allows to select the device parameters to be displayed.

Setting	Code / Value	Description
[Master]	nSter	Master **Factory setting**
[Slave 1]	SLV1	Slave 1
[Slave 2]	SLV2	Slave 2

Setting	Code / Value	Description
[Slave 3]	SLV 3	Slave 3
[Slave 4]	SLV 4	Slave 4
[Slave 5]	SLV 5	Slave 5
[Slave 6]	SLV 6	Slave 6
[Slave 7]	SLV 7	Slave 7
[Slave 8]	SLV 8	Slave 8
[Slave 9]	SLV 9	Slave 9
[Slave 10]	SLV 10	Slave 10

[M/S Device Status] MSdS

M/S device status.

Status of the device selected using **[M/S Device Selection]** MSdn.

Setting	Code / Value	Description
[None]	nonE	Not configured
[M/S Local Control]	nACt	Inactive
[M/S Not Ready]	nrdY	M/S not ready
[M/S Ready]	rEAdY	M/S ready
[M/S Running]	run	M/S running
[M/S Warning]	ALArM	M/S warning

[M/S Device Speed Ref] MSXS

M/S device speed reference.

Displays the local speed reference value of the device selected using **[M/S Device Selection]** MSdn.

Setting	Description
-300...300 Hz	Setting range **Factory setting**: _

[M/S Device Torque Ref] MSXt

M/S device torque reference.

Displays the local torque reference value of the device selected using **[M/S Device Selection]** MSdn.

Setting	Description
-32,767...32,767 Nm	Setting range **Factory setting**: _

Bypass Drive

What's in This Chapter

[Bypass Drive Monitoring] Menu

Access

[Display] ➡ [Bypass drive] ➡ [Bypass Drive Monitoring]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.

With the Bypass Monitor function:

- all Circuit Breakers are handled manually by the user.
- all Circuit Breakers QF11/QF2/QF3 feedback are monitored.

[Drive Bypass Status] bYS0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass Drive not configured
[Undefined]	Und	Cabinet bypass control undefined
[Drive]	drV	Cabinet bypass control Drive
[DOL]	doL	Cabinet bypass control DOL
[DOL On Error]	doLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	tTM1	Transfer drive to mains in progress
[Transfer To Drive In Progress]	tTd1	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] bYS1

Bypass Circuit Breaker Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	bYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	bYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	bYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	bYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	bYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	bYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	bYS9	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	bYSb	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	bYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	bYSd	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

[Drive Bypass On Lock Register] PLo2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] bWS4

Bypass circuit breaker status

Bit	Description, Value
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened

[Bypass Drive Control DOL] Menu

Access

[Display] ➜ [Bypass drive] ➜ [Bypass Drive Control DOL]

About This Menu

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider representative.

With the Bypass Drive Control DOL function, all Circuit breakers are:

- **Controlled manually** according to user switch command order. (Close and open)
  - Control motor in DRIVE state
  - Control motor in DOL state
- **Controlled automatically** from Drive to DOL according to the error state. (Bypass after error triggering)

Control channel modes for bypass switch:

- Mode Local / Remote for switch command order (closed and open state)

[Drive Bypass Status] bYS0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass Drive not configured
[Undefined]	und	Cabinet bypass control undefined
[Drive]	drV	Cabinet bypass control Drive
[DOL]	doL	Cabinet bypass control DOL
[DOL On Error]	doLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	tTM	Transfer drive to mains in progress
[Transfer To Drive In Progress]	tTd	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] bYS 1

Bypass Circuit Breaker Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS 1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1

Setting	Code / Value	Description
[QF2=1 - QF3=0]	b Y S 3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	b Y S 4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	b Y S S	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	b Y S 6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	b Y S 7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	b Y S 8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	b Y S A	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	b Y S b	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	b Y S C	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	b Y S d	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

Drive Bypass On Lock Register P L o 2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Bypass Drive CB status 2] b W S 4

Bypass circuit breaker status

Bit	Description, Value
0	Set to 0: Cabinet Bypass switch to Local Set to 1: Cabinet Bypass switch to Remote
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened

[QF1 Command State] 9F 15

Circuit breaker QF1 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	Cbos	Circuit Breaker in Opened State

[QF2 Command State] 9F 25

Circuit breaker QF2 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	Cbos	Circuit Breaker in Opened State

[QF3 Command State] 9F 35

Circuit breaker QF3 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state

Value	Code / Value	Description
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF11 QF2 QF3 Stat] bWS1

QF11 QF2 QF3 Option Bypass breaker status

Bit	Description, Value
0	Set to 1 : QF11 Closed request instruction (state or pulse)
1	Set to 1 : QF11 Open request instruction (state or pulse)
2	Set to 1 : QF2 Close request instruction (state or pulse)
3	Set to 1 : QF2 Open request instruction (state or pulse)
4	Set to 1 : QF3 Close request instruction (state or pulse)
5	Set to 1 : QF3 Open request instruction (state or pulse)
8	Set to 1 : QF11 Closed command instruction
9	Set to 1 : QF11 Open command instruction
10	Set to 1 : QF2 Close (1) command instruction
11	Set to 1 : QF2 Open (1) command instruction
12	Set to 1 : QF3 Close (1) command instruction
13	Set to 1 : QF3 Open command instruction

[QF1 Command State] 9F1S

Circuit breaker QF1 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF2 Command State] qF2S

Circuit breaker QF2 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF3 Command State] qF3S

Circuit breaker QF3 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF5 Command State] qF5S

Circuit breaker QF5 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF11 QF2 QF3 Stat] bWS1

QF11 QF2 QF3 Option Bypass breaker status

Bit	Description, Value
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction

[Bypass Drive Control SYNC] Menu

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.

Bypass control SYNC include 3 major functions:

- Command circuit breaker QFx external **> Command by User manually**
- Synchronization to Mains (Transfer Drive to Mains) **> Drive Embedded function**
- Synchronization to Drive (Transfer Mains to Drive) **> Drive Embedded function**

[Bypass architecture with command QFx external] Menu

Access

[Display] ➞ [Bypass drive] ➞ [Bypass Drive Control SYNC]➞ [Bypass architecture with command QFx external]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.

[Drive Bypass Status] b Y S 0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	n o	Bypass Drive not configured
[Undefined]	u n d	Cabinet bypass control undefined
[Drive]	d r V	Cabinet bypass control Drive
[DOL]	d o L	Cabinet bypass control DOL
[DOL On Error]	d o L F	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	t t M i	Transfer drive to mains in progress
[Transfer To Drive In Progress]	t t d i	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] b Y S 1

Bypass Circuit Breaker Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS 1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	bYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	bYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	bYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	bYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1
[QF11=0 - QF2=1 - QF3=0]	bYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	bYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	bYS9	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	bYSb	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	bYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	bYSd	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

Drive Bypass On Lock Register PLo2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[SM Monitoring] SEnn

Synchronization to mains monitoring

Value	Code / Value	Description
[No Synchronization]	no	No synchronization
[Synchro Pending]	PEnd	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	StAb	Stabilization to mains frequency
[Synchronization]	SYnC	Synchronization
[Synchro Stabilization]	SYSt	Synchronization stabilization
[Ready To Transfer]	rtt	Ready to transfer
[Synchronization Error]	StF	Synchronization error
[Transfer In Progress]	tt i	Transfer is in progress
[Transfer completed]	CPLt	Transfer completed

[SD Monitoring] SEdn

Synchronization to drive monitoring

Value	Code / Value	Description
[No Synchronization]	no	No synchronization
[Synchro Pending]	PEnd	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	StAb	Stabilization to mains frequency
[Synchronization]	SYnC	Synchronization
[Synchro Stabilization]	SYSt	Synchronization stabilization
[Ready To Transfer]	rtt	Ready to transfer
[Synchronization Error]	StF	Synchronization error
[Transfer In Progress]	tt i	Transfer is in progress
[Transfer completed]	CPLt	Transfer completed

[Bypass Drive CB status 2] bWS4

Bypass circuit breaker status

Bit	Description, Value
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed Set to 1: QF5 feedback opened
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive

[QF1 Command State] 9F 15

Circuit breaker QF1 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF2 Command State] 9F 25

Circuit breaker QF2 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF3 Command State] 9F 35

Circuit breaker QF3 Command State

Value	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF5 Command State] 9F55

Circuit breaker QF5 Command State

Value	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF11 QF2 QF3 Stat] bWS1

QF11 QF2 QF3 Option Bypass breaker status

Bit	Description, Value
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction

[Bypass architecture with command QFx embedded] Menu

Access

[Display] ➡ [Bypass drive] ➡ [Bypass Drive Control SYNC]➡ [Bypass architecture with command QFx embedded]

About This Menu

This is a read-only menu that cannot be configured.

Bypass Drive function is managed during the commissioning of your system. Refer to the commissioning assistant or contact you local Schneider Electric representative.

[Drive Bypass Status] bYS0

Drive Bypass Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass Drive not configured
[Undefined]	und	Cabinet bypass control undefined
[Drive]	drV	Cabinet bypass control Drive
[DOL]	dOL	Cabinet bypass control DOL
[DOL On Error]	dOLF	Cabinet bypass control DOL detected error
[Transfer To Mains In Progress]	ttM1	Transfer drive to mains in progress
[Transfer To Drive In Progress]	ttd1	Transfer mains to drive in progress

[Bypass Circuit Breaker Status] bYS1

Bypass Circuit Breaker Status

Setting	Code / Value	Description
[Not Configured]	nO	Bypass circuit breaker: Not configured
[QF2=0 - QF3=0]	bYS1	Bypass circuit breakers: QF2=0 - QF3=0
[QF2=0 - QF3=1]	bYS2	Bypass circuit breakers: QF2=0 - QF3=1
[QF2=1 - QF3=0]	bYS3	Bypass circuit breakers: QF2=1 - QF3=0
[QF2=1 - QF3=1]	bYS4	Bypass circuit breakers: QF2=1 - QF3=1
[QF11=0 - QF2=0 - QF3=0]	bYS5	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=0
[QF11=0 - QF2=0 - QF3=1]	bYS6	Bypass circuit breakers: QF11=0 - QF2=0 - QF3=1

Setting	Code / Value	Description
[QF11=0 - QF2=1 - QF3=0]	bYS7	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=0
[QF11=0 - QF2=1 - QF3=1]	bYS8	Bypass circuit breakers: QF11=0 - QF2=1 - QF3=1
[QF11=1 - QF2=0 - QF3=0]	bYSA	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=0
[QF11=1 - QF2=0 - QF3=1]	bYSb	Bypass circuit breakers: QF11=1 - QF2=0 - QF3=1
[QF11=1 - QF2=1 - QF3=0]	bYSC	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=0
[QF11=1 - QF2=1 - QF3=1]	bYSd	Bypass circuit breakers: QF11=1 - QF2=1 - QF3=1

Drive Bypass On Lock Register PLo2

Drive Bypass On Lock Register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[SM Monitoring] SEnn

Synchronization to mains monitoring

Value	Code / Value	Description
[No Synchroniza-tion]	no	No synchronization
[Synchro Pending]	PEnd	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	StAb	Stabilization to mains frequency

Value	Code / Value	Description
[Synchroniza-tion]	SYnC	Synchronization
[Synchro Stabilization]	SYSt	Synchronization stabilization
[Ready To Transfer]	rEt	Ready to transfer
[Synchroniza-tion Error]	SEF	Synchronization error
[Transfer In Progress]	tt i	Transfer is in progress
[Transfer completed]	CPLt	Transfer completed

[SD Monitoring] SEdn

Synchronization to drive monitoring

Value	Code / Value	Description
[No Synchroniza-tion]	no	No synchronization
[Synchro Pending]	PEnd	Synchronization is pending
[Acc To Mains]	ACC	Acceleration to mains frequency
[Stabilization To Mains]	StAb	Stabilization to mains frequency
[Synchroniza-tion]	SYnC	Synchronization
[Synchro Stabilization]	SYSt	Synchronization stabilization
[Ready To Transfer]	rEt	Ready to transfer
[Synchroniza-tion Error]	SEF	Synchronization error
[Transfer In Progress]	tt i	Transfer is in progress
[Transfer completed]	CPLt	Transfer completed

[Bypass Drive CB status 2] bWS4

Bypass circuit breaker status

Bit	Description, Value
3	Set to 0: QF11 feedback closed Set to 1: QF11 feedback opened
4	Set to 0: QF2 feedback closed Set to 1: QF2 feedback opened
5	Set to 0: QF3 feedback closed Set to 1: QF3 feedback opened
6	Set to 0: QF5 feedback closed

Bit	Description, Value
	Set to 1: QF5 feedback opened
8	Set to 1: Ready to transfer to mains
9	Set to 1: Ready to transfer to drive

[Cab status 2] bWS3

Cabinet status 2

Bit	Description, Value
12	Set to 11 : Synchronous transfer to mains completed
13	Set to 1 : Synchronous transfer to drive completed

[QF1 Command State] 9F 1S

Circuit breaker QF1 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF2 Command State] 9F2S

Circuit breaker QF2 Command State

Value	Code / Value	Description
[Not Configured]	no	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF3 Command State] 9F3S

Circuit breaker QF3 Command State

Value	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF5 Command State] qF55

Circuit breaker QF5 Command State

Value	Code / Value	Description
[Not Configured]	nO	Circuit breaker not configured
[In Start Pulse]	CbSt	Circuit Breaker in Start pulse state
[Not Closed]	CbnC	Circuit Breaker Not Closed according start pulse
[Closed]	CbCS	Circuit breaker in Closed State
[In Stop Pulse]	CbSP	Circuit breaker in Stop pulse state
[Not Open]	Cbno	Circuit Breaker Not Opened according stop pulse
[Open]	CboS	Circuit Breaker in Opened State

[QF11 QF2 QF3 Stat] bWS1

QF11 QF2 QF3 Option Bypass breaker status

Bit	Description, Value
2	QF2 Close request instruction (state or pulse)
3	QF2 Open request instruction (state or pulse)
4	QF3 Close request instruction (state or pulse)
5	QF3 Open request instruction (state or pulse)
10	QF2 Close (1) command instruction
11	QF2 Open (1) command instruction
12	QF3 Close (1) command instruction

[Distribution Logging] Menu

Access

[Display] ➜ [Distributed logging] ➜ [Distributed logging]

About This Menu

This menu allows you to store and select up to 4 parameters for data logging. The peak value for each parameter is also stored.

The distributed logging function allows to log up to four parameter distributions at the same time. Each parameter storage is synchronized with the same sample time.

The result of this function gives the possibility to extract a bar graph with 10 bars (every 10% of the defined maximum value) to visualize the distribution for each of the four selected parameters.

NOTE: If a log data exceeds the user defined maximum values for log distribution data, this value will not be stored in the log distribution.

NOTE: Any modification of the data logging function configuration will clear the data previously stored.

This function aims at extracting samples of data to store them. When available, these samples can be uploaded by other tools (SoMove and/or Webserver). Data logging meets the need to record and store data over time.

The drive can store the following data:

Type of [Data logging]	Description	[Data logging] storage: Automatic/ Manual	Access
Drive identification	Drive identification data	Automatic, in **[Dashboard]** dSH- menu	SoMove Webserver
Even warning logging	Warning logging	Automatic, in **[Dashboard]** dSH- menu	SoMove Webserver
Even error logging	Error logging	Automatic, in **[Dashboard]** dSH- menu	SoMove Webserver
Distribution logging	4 Distribution data	Manual	Webserver
Energy logging	1 Energy logging data	Automatic, in **[Dashboard]** dSH- menu	SoMove Webserver

Activation

To activate the function:

- Select 1 to 4 data to store through **[Log Distrib. Data 1]** Ldd1 to **[Log Distrib. Data 4]** Ldd4
- Set **[Log Distrib State]** LdEn to **[Start]** StArt

The logging starts as soon as the motor is running.

To stop logging, set **[Log Distrib State]** LdEn to **[Stop]** StoP.

[Log Distrib State] LdEn

Logging distribution state.

Setting	Code / Value	Description
[Stop]	StoP	Distribution logging disabled **Factory setting**
[Start]	StArt	Distribution logs only when the motor is started
[Always]	ALWAYS	Distribution logs all the time
[Reset]	rESEt	Distribution logging reset (configuration, data)
[Clear]	CLEAr	Clear distribution data
[Error]	Error	An error has been detected during distribution logging

[Log Distrib. Data 1] Ldd 1 to [Log Distrib. Data 4] Ldd4

Logging distribution data 1 to 4.

Setting	Code / Value	Description
[Distrib. Log. Disable]	no	Distribution logging disable **Factory setting**
[Motor Frequency]	rFr	Motor frequency
[Motor Current]	LCr	Motor current
[Motor Speed]	SPd	Motor speed
[Motor Voltage]	uoP	Motor voltage
[Motor Mech. Power]	oPrW	Motor mechanical power
[Input Elec. Power]	iPrW	Input electrical power
[Output Elec. Power]	EPrW	Output electrical power
[Motor Torque]	otr	Motor torque
[Mains Voltage]	uLn	Mains voltage
[DC BUS Voltage]	Vbus	DC BUS voltage
[PID Feedback]	rPF	PID feedback
[AI1 Th Value]	tH1V	Thermal sensor AI1
[AI3 Th Value]	tH3V	Thermal sensor AI3
[AI4 Th Value]	tH4V	Thermal sensor AI4
[AI5 Th Value]	tH5V	Thermal sensor AI5
[Motor Therm State]	tHr	Motor thermal state
[Energy Consum. Ind.]	ECi	Energy consumption indicator
[Pump Efficiency]	EFY	Pump efficiency
[Energy Perf. Ind.]	EPi	Energy performance indicator
[Mains Current]	iLn	Main estimated current

Setting	Code / Value	Description
[Input Reactive Power]	iqrW	Re-active Electrical input power estimation
[Input Power factor]	PWF	Main power factor
[DBR Thermal State]	tHb	Braking thermal state

[Log Distrib Slp Time] LdSt

Logging distribution sample time.

Setting	Code / Value	Description
[200 ms]	200MS	200 ms
[1 second]	1S	1 s **Factory setting**
[2 second]	2S	2 s
[5 second]	5S	5 s

[Dist Max Val 1] LdM1 to [Dist Max Val 4] LdM4

Maximum value of the log distribution data 1 to maximum value of the log distribution data 4.

The defined maximum value corresponds to 100 % of the stored data. Adjust the maximum value to adapt the full range of the logging distribution data.

Setting	Description
10...65,535	Setting range **Factory setting**: 65,535 (the setting can be adapted when modifying **[Log Distrib. Data 1]** Ldd1...**[Log Distrib. Data 4]** Ldd4.

IO Status

What's in This Chapter

[Control IO Status] Menu

Access

[Display] ➡ **[I/O Status]**➡ **[Control IO Status]**

About This Menu

The **Control IO Status** menu shows the related inputs and outputs parameters from terminals and option module.

Note: all these parameters are in read-only and cannot be configured.

[Logic Inputs Physical Image] ,L I ,

Logic inputs physical image (From terminals and option module).

Bit	Description, Value
0	1 = "LI1" logic inputs physical image
1	1 = "LI2" logic inputs physical image
2	1 = "LI3" logic inputs physical image
3	1 = "LI4" logic inputs physical image
4	1 = "LI5" logic inputs physical image
5	1 = "LI6" logic inputs physical image
6	1 = "LI7" logic inputs physical image
7	1 = "LI8" logic inputs physical image
8	Reserved
9	Reserved
10	1 = "LI11" logic inputs physical image
11	1 = "LI12" logic inputs physical image
12	1 = "LI13" logic inputs physical image
13	1 = "LI14" logic inputs physical image
14	1 = "LI15" logic inputs physical image
15	1 = "LI16" logic inputs physical image

[Logic inputs real image)] ,L Ir

Logic inputs real image (From terminals and option module).

Bit	Description, Value
0	1 = "LI1" logic inputs real image
1	1 = "LI2" logic inputs real image
2	1 = "LI3" logic inputs real image
3	1 = "LI4" logic inputs real image
4	1 = "LI5" logic inputs real image
5	1 = "LI6" logic inputs real image
6	1 = "LI7" logic inputs real image
7	1 = "LI8" logic inputs real image
8	Reserved
9	Reserved
10	1 = "LI11" logic inputs real image
11	1 = "LI12" logic inputs real image
12	1 = "LI13" logic inputs real image
13	1 = "LI14" logic inputs real image
14	1 = "LI15" logic inputs real image
15	1 = "LI16" logic inputs real image

[Logical Output Image] oL I 1

Logical Output Image.(relays and logic outputs).

Bit	Description, Value
0	1 = "R1" relay physical image
1	1 = "R2" relay physical image
2	1 = "R3" relay physical image
3	1 = "R4" relay physical image
4	1 = "R5" relay physical image
5	1 = "R6" relay physical image
6	Reserved
7	Reserved
8	1 = "DO1" logic outputs physical image
9	1 = "DO2" logic outputs physical image
10	Reserved
11	Reserved
12	1 = "DO11" logic outputs physical image
13	1 = "DO12" logic outputs physical image
14	Reserved
15	Reserved

[Logic outputs real image] oL Ir

Logical Output real Image.(relays and logic outputs).

Bit	Description, Value
0	1 = "R1" relay real image
1	1 = "R2" relay real image
2	1 = "R3" relay real image
3	1 = "R4" relay real image
4	1 = "R5" relay real image
5	1 = "R6" relay real image
6	Reserved
7	Reserved
8	1 = "DO1" logic outputs real image
9	1 = "DO2" logic outputs real image
10	Reserved
11	Reserved
12	1 = "DO11" logic outputs real image
13	1 = "DO12" logic outputs real image
14	Reserved
15	Reserved

[AI1] A I 1 C

Physical value AI1.

AI1 customer image: value of analog input 1.

Value range	Description
-32,767...32,767	**Factory setting: –**

[AI2] A I 2 C to [AI5] A I 5 C

Physical value AI2 to AI5.

AI2 customer image: value of analog input 2 to input 5

Identical to **[AI1]** A I 1 C above.

[AQ1] A o 1 C

AQ1 customer image: value of analogic output 1.

Value range	Description
-32,767...32,767	**Factory setting**: Read only

[AQ2] A o 2 C

AQ2 customer image: value of analog output 2.

Identical to **[AQ1]** A o 1 C above.

[PTO Frequency] PtoC

Pulse train output frequency value.

Value range	Description
0.00...655.35 kHz	**Factory setting**: Read only

[POEx Input State] PoEF

POEx Digital Input state

Power Output Enable Off Feedback A and B monitoring

Bit	Description, Value
0	Set to 1: POE_A feedback status
1	Set to 1: POE_B feedback status

[Cabinet IO Status] Menu

Access

[Display] ➡ [I/O Status]➡ [Cabinet IO Status]

About This Menu

The **Cabinet IO Status** menu shows the related inputs and outputs parameters from Cabinet IO.

Note: all these parameters are in read-only and cannot be configured.

[Cabinet Input physical state] ,LC,

Logic inputs physical image (DI50 ...DI64 from Cabinet).

Bit	Description, Value
0	1 = "DI50" logic inputs physical image
1	1 = "DI51" logic inputs physical image
2	1 = "DI52" logic inputs physical image
3	1 = "DI53" logic inputs physical image
4	1 = "DI54" logic inputs physical image
5	1 = "DI55" logic inputs physical image
6	1 = "DI56" logic inputs physical image
7	1 = "DI57" logic inputs physical image
8	1 = "DI58" logic inputs physical image
9	1 = "DI59" logic inputs physical image
10	1 = "DI60" logic inputs physical image
11	1 = "DI61" logic inputs physical image
12	1 = "DI62" logic inputs physical image
13	1 = "DI63" logic inputs physical image
14	1 = "DI64" logic inputs physical image
15	Reserved

[Cabinet Input real state] ,LCr

Cabinet IO : Logic inputs real image (DI50 ...DI64 from Cabinet).

Bit	Description, Value
0	1 = "DI50" logic inputs real image
1	1 = "DI51" logic inputs real image
2	1 = "DI52" logic inputs real image
3	1 = "DI53" logic inputs real image
4	1 = "DI54" logic inputs real image
5	1 = "DI55" logic inputs real image

Bit	Description, Value
6	1 = "DI56" logic inputs real image
7	1 = "DI57" logic inputs real image
8	1 = "DI58" logic inputs real image
9	1 = "DI59" logic inputs real image
10	1 = "DI60" logic inputs real image
11	1 = "DI61" logic inputs real image
12	1 = "DI62" logic inputs real image
13	1 = "DI63" logic inputs real image
14	1 = "DI64" logic inputs real image
15	Reserved

[Cab Fix Logic Input] ,LC2

Logic inputs state (DI70 ...DI78 from cabinet).

Bit	Description, Value
0	1 = "DI70" logic inputs physical image
1	1 = "DI71" logic inputs physical image
2	1 = "DI72" logic inputs physical image
3	1 = "DI73" logic inputs physical image
4	1 = "DI74" logic inputs physical image
5	1 = "DI75" logic inputs physical image
6	1 = "DI76" logic inputs physical image
7	1 = "DI77" logic inputs physical image
8	1 = "DI78" logic inputs physical image
9...15	Reserved

[Drive Bypass Logic Input] ,LC3

Cabinet IO : Logic inputs state (DI80...DI95 from cabinet).

Bit	Description, Value
0	1 = "DI80" logic inputs physical image
1	1 = "DI81" logic inputs physical image
2	1 = "DI82" logic inputs physical image
3	1 = "DI83" logic inputs physical image
4	1 = "DI84" logic inputs physical image
5	1 = "DI85" logic inputs physical image
6	1 = "DI86" logic inputs physical image
7	1 = "DI87" logic inputs physical image
8	1 = "DI88" logic inputs physical image
9	1 = "DI89" logic inputs physical image
10	1 = "DI90" logic inputs physical image

Bit	Description, Value
11	1 = "DI91" logic inputs physical image
12	1 = "DI92" logic inputs physical image
13	1 = "DI93" logic inputs physical image
14	1 = "DI94" logic inputs physical image
15	1 = "DI95" logic inputs physical image

[Cabinet Ouput physical state] oLC1

Cabinet IO : Logic outputs state.(Relays R60...R67 from cabinet).

Bit	Description, Value
0	1 = "R60" relay physical image
1	1 = "R61" relay physical image
2	1 = "R62" relay physical image
3	1 = "R63" relay physical image
4	1 = "R64" relay physical image
5	1 = "R65" relay physical image
6	1 = "R66" relay physical image
7	1 = "R67" relay physical image
8...15	Reserved

[Cabinet IO : Logic outputs real image] oLCr

Cabinet IO : Logic outputs state.(Relays R60...R67 from cabinet).

Bit	Description, Value
0	1 = "R60" relay real image
1	1 = "R61" relay real image
2	1 = "R62" relay real image
3	1 = "R63" relay real image
4	1 = "R64" relay real image
5	1 = "R65" relay real image
6	1 = "R66" relay real image
7	1 = "R67" relay real image
8...15	Reserved

[Cab Fix Logic Output] oLC2

Cabinet IO : Fixed logic outputs state.(Relays R70...R87 from cabinet).

Bit	Description, Value
0	1 = "R70" relay physical image
1	1 = "R71" relay physical image

Bit	Description, Value
2	1 = "R72" relay physical image
3	1 = "R73" relay physical image
4	1 = "R74" relay physical image
5	1 = "R75" relay physical image
6	1 = "R76" relay physical image
7	1 = "R77" relay physical image
8	1 = "R80" relay physical image
9	1 = "R81" relay physical image
10	1 = "R82" relay physical image
11	1 = "R83" relay physical image
12	1 = "R84” relay physical image
13	1 = "R85" relay physical image
14	1 = "R86" relay physical image
15	1 = "R87" relay physical image

[Communication data]

What's in This Chapter

[Command Status] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Communication Status] ➜ [Command Status]

About This Menu

Read-only parameters cannot be configured.

[Command Channel] CNdC

Command channel.

Setting	Code / Value	Description
[Ref.Freq-Rmt. Term]	tEr	Terminal block source **Factory Setting**
[Ref.Freq-Rmt. Term]	LCC	Command via Display Terminal
[Ref. Freq-Modbus]	Mdb	Command via Modbus
[Ref. Freq-CANopen]	CAn	Command via CANopen if a CANopen module has been inserted
[Ref. Freq-Com. Module]	nEt	Command via fieldbus module if a fieldbus module has been inserted
[Embedded Ethernet]	EtH	Command via Embedded Ethernet
[PC tool]	PWS	DTM based software
[Modbus 2]	Mdb2	Modbus 2 source
[HMI Panel]	HMI	HMI Panel by Modbus 2 source
[Ctrl Inside]	PLC	PLC Inside source

[Cmd Register] CMd

Command register.

[Control Mode] CHCF is not set to **[I/O profile]** IO

Possible values in CiA402 profile, separate, or not separate mode:

Bit	Description, Value
0	Set to 1: "Switch on"/Contactor command
1	Set to 0: "Disable voltage"/Authorization to supply AC power
2	Set to 0: "Quick stop"
3	Set to 1: "Enable operation"/Run command
4 to 6	Reserved (= 0)
7	"Fault reset" acknowledgment active on 0 to 1 rising edge
8	Set to 1: Halt stop according to the **[Type Of Stop]** StE parameter without leaving the operation enabled state

Bit	Description, Value
9 and 10	Reserved (= 0)
11 to 15	Can be assigned to commands

Possible values in the I/O profile. On state command **[2-Wire Control]** 2 C :

Bit	Description, Value
0	Forward (on state) command: 0: No forward command 1: Forward command **NOTE:** The assignment of bit 0 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bit 0 C d 0 0 is only active if the channel of this control word is active.
1 to 15	Can be assigned to commands

Possible values in the I/O profile. On edge command **[3-Wire Control]** 3 C :

Bit	Description, Value
0	Stop (run authorization): 0: Stop 1: Run is authorized on a forward or reverse command
1	Forward (on 0 to 1 rising edge) command
2 to 15	Can be assigned to commands
NOTE: The assignment of bits 0 and 1 cannot be modified. It corresponds to the assignment of the terminals. It can be switched. Bits 0 C d 0 0 and 1 C d 0 1 are only active if the channel of this control word is active.	

[Ref Freq Channel] r F C C

Channel of reference frequency.

Identical to **[Command Channel]** C N d C

[Pre-Ramp Ref Freq] F r H

Frequency reference before ramp.

Setting	Description
-300.0...300.0 Hz	Setting range **Factory setting**: _

[Modbus network diag] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Communication Status] ➡ [Modbus network diag]

About This Menu

Used for the Modbus serial communication port. Refer to the Modbus serial embedded communication manual for a complete description.

[Mdb Frame Nb] nICE

Modbus network frames counter: number of processed frames.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Mb NET CRC errors] nIEC

Modbus network CRC error countered: number of CRC errors

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Modbus Cmd] CMd1

Command word image built with Modbus port source.

Identical to **[CMD Register]** CMd , page 391.

[Modbus Ref Freq] LFr1

Frequency reference image built with Modbus port source (LFR_MDB).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

Access

[Display] ➡ [System Dashboard] ➡ [Communication Status] ➡ [Modbus network diag] ➡ [Com. scanner input map]

[Com Scan In1 val.] nM1

Com scanner input 1 value. Value of the first input word.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Com Scan In2 val.] nM2

Com scanner input 2 value. Value of the second input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Com Scan In3 val.] nM3

Com scanner input 3 value. Value of the third input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Com Scan In4 val.] nM4

Com scanner input 4 value. Value of the fourth input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Com Scan In5 val.] nM5

Com scanner input 5 value. Value of the fifth input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Com Scan In6 val.] nM6

Com scanner input 6 value. Value of the sixth input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Com Scan In7 val.] nM7

Com scanner input 7 value. Value of the seventh input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Com Scan In8 val.] nM8

Com scanner input 8 value. Value of the eighth input word.

Identical to **[Com Scan In1 val.] nM1** , page 394.

[Modbus HMI Panel] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Communication Status] ➜ [Modbus HMI Panel]

About This Menu

Used for the Modbus HMI Panel .

[Mdb NET frames] n 2 C E

Modbus network frames counter: number of processed frames.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Mdb NET CRC errors] n 2 E C

Modbus network CRC error countered: number of CRC errors

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Modbus 2 Cmd] C n d 6

Command word image built with Modbus 2 port source (CMD_MDB2 or CMD_ HMIP).

Identical to **[CMD Register]** C n d , page 391.

[Modbus 2 Ref Freq] L F r 6

Frequency reference image built with Modbus 2port source (LFR_MDB2 or LFR_ HMIP).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

[Ethernet embedded] Menu

Access

[Display] ➜ [System Dashboard] ➜[Communication Status] ➜ [Ethernet embedded]

About This Menu

Refer to the Modbus TCP Ethernet-IP communication manual for a complete description.

[ETH emb Rx frames] E r X E

Ethernet embedded Rx frames counter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: Read only

[ETH emb Tx frames] E t X E

Ethernet embedded Tx frames counter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: Read only

[ETH emb error frames] E E r E

Ethernet embedded error frames counter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: Read only

[Ethernet Rate Data] A r d E ★

Actual data rate.

Setting	Code / Value	Description
[Auto]	A u t o	Automatic
[10M. full]	1 0 F	10 Mega bytes full-duplex
[10M. half]	1 0 H	10 Mega bytes half-duplex

Setting	Code / Value	Description
[100M. full]	I00F	100 Mega bytes full-duplex
[100M. half]	I00H	100 Mega bytes half-duplex

[Ethernet Embd cmd.] CMdS

Command word image built with Ethernet embedded source.

Identical to **[CMD Register]** CMd , page 391.

[Ethernet Embd Ref Freq] LFrS

Embedded Ethernet reference frequency.

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

[Ethernet Module] Menu

Access

[Display] ➜ [Communication map] ➜ [Ethernet Module]

About This Menu

Following parameters are accessible if Ethernet-IP - Modbus TCP Module has been inserted.

[ETH opt Rx frames] Er X o

Ethernet embedded Rx frames counter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[ETH opt Tx frames] E t X o

Ethernet embedded Tx frames counter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[ETH opt error frames] E E r o

Ethernet embedded error frames counter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Controller Embd Cmd] C n d 1

Controller Embedded command register.

Identical to **[CMD Register]** C n d , page 391.

[Actual rate] A r d

Actual data rate.

Setting	Code / Value	Description
[Auto]	AUto	Automatic
[10M. full]	10F	10 Mega bytes full-duplex
[10M. half]	10H	10 Mega bytes half-duplex
[100M. full]	100F	100 Mega bytes full-duplex
[100M. half]	100H	100 Mega bytes half-duplex

[Ethernet Error Code] Err

Ethernet specific error code.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Controller Embd Ref] LFr 1

Controller embedded reference frequency

Frequency reference image built with PLC inside source (LFR_HMIP).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

[CANopen] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Communication Status] ➜ [CANopen]

About This Menu

CANopen® image. Refer to the CANopen® communication module manual.

[Canopen NMT state] nMtS

Drive NMT state of the CANopen® slave.

Settings	Code / Value	Description
[Boot]	boot	Bootup
[Stopped]	StoP	Stopped
[Operation]	oPE	Operational
[Pre-op]	PoPE	Pre-Operational

[Number of TX PDO] nbtP

Number of transmit PDO.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Number of RX PDO] nbrP

Number of receive PDO.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[CANopen Error] ErCo

Error registry CANopen®.

Setting	Description
0...5	Setting range **Factory setting**: Read only

[RX Error Counter] rEC1

Number of receive error counter (not saved at power off).

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[TX Error Counter] tEC1

Number of transmit errors countered (not saved at power off).

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[CANopen Cmd] CMd2

Command word image built with CANopen® port source.

Identical to **[CMD Register]** CMd , page 391.

[CAN Ref Freq] LFr2

Frequency reference image built with CANopen® port source (LFR_CAN).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

Access

[Display] ➡ [Communication Status] ➡ [CANopen map] ➡ [PDO1 image]

[Receive PDO1-1] rP11

First frame of the receive PDO1.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Receive PDO1-2] rP12

Second frame of the receive PDO1.

Identical settings as in **[Receive PDO1-1]** rP11.

[Receive PDO1-3] rP I3

Third frame of the receive PDO1.

Identical settings as in **[Receive PDO1-1]** rP I1.

[Receive PDO1-4] rP I4

Fourth frame of the receive PDO1.

Identical settings as in **[Receive PDO1-1]** rP I1.

[Transmit PDO1-1] tP I1

First frame of the transmit PDO1.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Transmit PDO1-2] tP I2

Second frame of the transmit PDO1.

Identical settings as in **[Transmit PDO1-1]** tP I1.

[Transmit PDO1-3] tP I3

Third frame of the transmit PDO1.

Identical settings as in **[Transmit PDO1-1]** tP I1.

Access

[Display] ➡ [Communication Status] ➡ [CANopen map] ➡ [PDO2 image]

[Receive PDO2-1] rP2 1

First frame of the receive PDO2.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Receive PDO2-2] rP22

Second frame of the receive PDO2.

Identical settings as in **[Receive PDO2-1]** rP2 1.

[Receive PDO2-3] r P 2 3

Third frame of the receive PDO2.

Identical settings as in **[Receive PDO2-1]** r P 2 1.

[Receive PDO2-4] r P 2 4

Fourth frame of the receive PDO2.

Identical settings as in **[Receive PDO2-1]** r P 2 1.

[Transmit PDO2-1] t P 2 1

First frame of the transmit PDO2.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Transmit PDO2-2] t P 2 2

Second frame of the transmit PDO2.

Identical settings as in **[Transmit PDO2-1]** t P 2 1.

[Transmit PDO2-3] t P 2 3

Third frame of the transmit PDO2.

Identical settings as in **[Transmit PDO2-1]** t P 2 1.

[Transmit PDO2-4] t P 2 4

Fourth frame of the transmit PDO2.

Identical settings as in **[Transmit PDO2-1]** t P 2 1.

Access

[Display] ➡ [Communication Status] ➡ [CANopen map] ➡ [PDO3 image]

[Receive PDO3-1] r P 3 1

First frame of the receive PDO3.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Receive PDO3-2] r P 3 2

Second frame of the receive PDO3.

Identical settings as in **[Receive PDO3-1]** r P 3 1.

[Receive PDO3-3] r P 3 3

Third frame of the receive PDO3.

Identical settings as in **[Receive PDO3-1]** r P 3 1.

[Receive PDO3-4] r P 3 4

Fourth frame of the receive PDO3.

Identical settings as in **[Receive PDO3-1]** r P 3 1.

[Transmit PDO3-1] t P 3 1

First frame of the transmit PDO3.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[Transmit PDO3-2] t P 3 2

Second frame of the transmit PDO3.

Identical settings as in **[Transmit PDO3-1]** t P 3 1.

[Transmit PDO3-3] t P 3 3

Third frame of the transmit PDO3.

Identical settings as in **[Transmit PDO3-1]** t P 3 1.

[Transmit PDO3-4] t P 3 4

Fourth frame of the transmit PDO3.

Identical settings as in **[Transmit PDO3-1]** t P 3 1.

[DeviceNet] Menu

Access

[Display] ➞ [System Dashboard] ➞ [Communication Status] ➞ [DeviceNet]

About This Menu

Following parameters can be accessed if DeviceNet module (VW3A3609) has been inserted.

[Data rate used] bdru

Data rate used by the fieldbus module.

Setting	Code / Value	Description
[Automatic]	AutO	Automatic detection **Factory setting**
[125 Kbps]	125K	125,000 Bauds
[250 Kbps]	250K	250,000 Bauds
[500 Kbps]	500K	500,000 Bauds

[Fieldbus Error] EPF2

External detected error from fieldbus module.

Setting	Description
0...1	0: No Error 1: Profile error, verify the settings on **[Command and Reference]** CrP- menu.

[Fieldbus Com Interrupt] CnF

Fieldbus module communication interruption. Refer to the related fieldbus manual.

Setting	Description
0...65,535	0: No error 1: Error triggered by network 2: Duplicated MAC ID 3: FIFO Rx error 4: FIFO Tx error 5: CAN overrun 6: Transmission error 7: Bus off 8: IO timeout 9: Acknowledge error 10: DeviceNet network reset 11: IO connection deleted 12: No network power 13: IOC error

[COM. Module Cmd.] CMd3

Command word image built with fieldbus module source.

Identical to **[CMD Register]** CMd , page 391.

[Com Module Ref Freq] LFr3

Frequency reference image built with fieldbus module source (LFR_COM).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

[Profibus] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Communication Status] ➜ [Profibus Diag]

About This Menu

Following parameters can be accessible if Profibus DP module (VW3A3607) has been inserted.

[Data rate used] bdru

Data rate used by the fieldbus module.

Setting	Code / Value	Description
[Automatic]	AutO	Automatic detection **Factory setting**
[9.6 Kbps]	9K6	9,600 Bauds
[19.2 Kbps]	19K2	19,200 Bauds
[93.75 Kbps]	93K7	93,750 Bauds
[187.5 Kbps]	187K	187,500 Bauds
[500 Kbps]	500K	500,000 Bauds
[1.5 Mbps]	1M5	1.5 MBauds
[3 Mbps]	3M	3 MBauds
[6 Mbps]	6M	6 MBauds
[12 Mbps]	12M	12 MBauds

[PPO profile used] PrFL

PPO profile in use.

Setting	Code / Value	Description
[Not configured]	unCG	Not configured
[1]	1	PROFIdrive
[100]	100	Device specific
[101]	101	Device specific
[102]	102	Device specific
[106]	106	Device specific
[107]	107	Device specific

[DP Master Active] dPMA

Active master: 1 or 2.

Setting	Code / Value	Description
[MCL1]	1	Master 1 **Factory setting**
[MCL2]	2	Master 2

[Fieldbus Error] EPF2

External detected error from fieldbus module.

[Fieldbus Com Interrupt] CnF

Fieldbus module communication interruption. Refer to the related fieldbus manual.

Setting	Description
0...65,535	0: No error 1: Network timeout for received requests 2: Identification error between the module and the master 3: Master in clear mode 4: Master class 2 timeout

[InternCom Error1] iLF1

Option module communication interruption. Refer to the related fieldbus manual.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[COM. Module Cmd.] CMd3

Command word image built with fieldbus module source.

Identical to **[CMD Register]** CMd , page 391.

[Com Module Ref Freq] LFr3

Frequency reference image built with fieldbus module source (LFR_COM).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

[PROFINET] Menu

Access

[Display] ➜ [System Dashboard] ➜ [Communication Status] ➜ [PROFINET]

About This Menu

Following parameters are accessible if PROFINET® module (VW3A3627) has been inserted.

[PPO profile used] PrFL

PPO profile in use.

Setting	Code / Value	Description
[Not configured]	unCG	Not configured
[1]	1	PROFIdrive
[100]	100	Device specific
[101]	101	Device specific
[102]	102	Device specific
[106]	106	Device specific
[107]	107	Device specific

[iPar Status] iPAE

PROFINET: IPAR service status.

Setting	Code / Value	Description
[Idle State]	idLE	Idle state
[Init]	in it	Initialization
[Configuration]	Conf	Configuration
[Ready]	rdy	Ready
[Operational]	oPE	Operational
[Not Configured]	uCFG	Not configured
[Unrecoverable Error]	urEC	Unrecoverable detected error

[iPar Error Code] iPAd

IPar detected error code.

Setting	Description
0...5	Setting range **Factory setting**: Read only

[DP Master Active] dPMA

Active master: 1 or 2.

Setting	Code / Value	Description
[MCL1]	1	Master 1 **Factory setting**
[MCL2]	2	Master 2

[Fieldbus Error] EPF2

External detected error from fieldbus module.

Setting	Description
0...13	0: No Error 9: Duplicate IP 10: No IP address 12: IPAR unconfigured 13: IPAR file unrecognized

[Fieldbus Com Interrupt] CnF

Fieldbus module communication interruption.

Setting	Description
0...65,535	0: No error 1: Network timeout 2: Network overload 3: Ethernet carrier loss 17: IOC scanner error

[InternCom Error1] iLF1

Fielbus module communication interruption.

Setting	Description
0...65,535	Setting range **Factory setting**: Read only

[COM. Module Cmd.] CMd3

Command word image built with fieldbus module source.

Identical to **[CMD Register]** CMd , page 391.

[Com Module Ref Freq] LFr3

Frequency reference image built with fieldbus module source (LFR_COM).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

[EtherCAT] Menu

Access

[Display] ➡ [System Dashboard] ➡ [Communication Status] ➡ [EtherCAT]

About This Menu

Following parameters can be accessed if EtherCAT module (VW3A3601) has been inserted.

[External Error] EPF2

External detected error from fieldbus module.

[Fieldbus Com Interrupt] CnF

Fieldbus module communication interruption.

Setting	Description
0...65,535	Setting range **Factory setting**: _

[InternCom Error1] iLF1

Internal communication interruption 1.

Setting	Description
0...65,535	Setting range **Factory setting**: _

[COM. Module Cmd.] CMd3

Command word image built with fieldbus module source.

Identical to **[CMD Register]** CMd , page 391.

[Com Module Ref Freq] LFr3

Frequency reference image built with fieldbus module source (LFR_COM).

Setting	Description
-32,767...32,767 Hz	Setting range **Factory setting**: 0.0 Hz

Diagnostics Parameters for DTM

What's in This Part

Introduction

Diagnostics menu presents drive and application data useful when diagnostics is required.

These information can be accessed using the **Diagnostics** Menu available in ATV6000 DTM launched through the SoMove FDT.

Warning Groups

What's in This Chapter

Introduction

This information can be accessed using the **Diagnostics** Menu available only in ATV6000 DTM launched through the SoMove FDT.

[Warn grp 1 definition] *A 1C -* to [Warn grp 5 definition] *A5C -* Menus

Access

[Complete settings] ➡ **[Error/Warning handling]** ➡ **[Warning groups config]** ➡ **[Warn grp 1 definition]** to **[Warn grp 5 definition]**

About This Menu

The following submenus group the warnings into 1 to 5 groups, each of which can be assigned to a relay or a digital output for remote signaling.

When one or a number of warnings selected in a group occur, this warning group is activated.

List of Warnings

The list of warning codes is available in the chapter "Diagnostics and Troubleshooting", page 426.

[Elapsed Time] Menu

Access

[Diagnostics] ➡ [Elapsed Time]

About This Menu

This menu shows the drive, fan, and motor-related counters.

[Motor Run Time] rtH

Motor run time.

Run elapsed time display (resettable) in seconds (length of time the motor has been switched on).

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Power-on Time] PtH

Power-on time (resettable) or counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295 s	Setting range **Factory setting**: _

[Fan Operation Time] FPbt

Fan operation time.

As soon as **[Fan Operation Time]** FPbt reach the predefined value of 45,000 hours, a warning **[Fan Counter Warning]** FCtA is triggered.

[Fan Operation Time] FPbt counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...500,000 h	Setting range **Factory setting**: Read Only

[Nb Of Start] nSM

Number of motor starts (resettable) or counter can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF1 Nb Of Starts] qFPo

Number of power on mains circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF3 Nb Of Starts] qFP3

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[QF4 Nb Of Starts] qFP4

Number of power on bypass circuit breaker (resettable) can be set to 0 by using the **[Time Counter Reset]** rPr parameter.

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Nb of MV Power On] nSV

Number of MV Power on display (resettable)

Setting	Description
0...4,294,967,295	Setting range **Factory setting**: _

[Time Counter Reset] rPr

Time counter reset.

This parameter can reset individually the timer and counter

Setting	Code / Value	Description
[No]	nO	No **Factory setting**
[Run Time Reset]	rtH	Run time reset
[Internal Run Time Reset]	rtH1	Internal Run Time Reset (Dedicated for services)
[Power ON Time Reset]	PtH	Power ON time reset
[In Power ON Time Reset]	PtH1	Internal power ON time Reset (Dedicated for services)
[Reset Fan Counter]	FtH	Reset fan counter
[Clear NSM]	nSM	Clear number of motor starts
[Clear NSMI]	nSM1	Clear number of starts (Dedicated for services)
[Clear LTHI]	LtH1	Clear running time in limitation (current & torque)
[Clear GTHI]	GtH1	Clear running time in generator mode
[Clear QF1]	qFP0	Clear number of Power On Mains Circuit Breaker
[Clear QFP3]	qFP3	Clear number of Power On Bypass Circuit Breaker
[Clear QFP4]	qFP4	Clear number of Power On Inrush Circuit Breaker
[Clear NSV]	nSV	Clear number of MV Power On.
[Clear NSVI]	nSV1	Clear number of MV Power On (Dedicated for services)
[Reset all]	ALL	Reset all

Maintenance

Limitation of Warranty

The warranty does not apply if the product has been opened, except by Schneider Electric services.

Servicing

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the instructions in **Safety Information** chapter before performing any procedure in this chapter.

Failure to follow these instructions will result in death or serious injury.

The temperature of the products described in this manual may exceed 80 °C (176 ° F) during operation.

⚠WARNING

HOT SURFACES

- Ensure that any contact with hot surfaces is avoided.
- Do not allow flammable or heat-sensitive parts in the immediate vicinity of hot surfaces.
- Verify that the product has sufficiently cooled down before handling it.
- Verify that the heat dissipation is sufficient by performing a test run under maximum load conditions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠WARNING

INSUFFICIENT MAINTENANCE

Verify that the maintenance activities described below are performed at the specified intervals.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Adherence to the environmental conditions must be ensured during operation of the drive. In addition, during maintenance, verify and, if appropriate, correct all factors that may have an impact on the environmental conditions.

	Part concerned	Activity	Interval (1)
Overall condition	All parts such as housing, HMI, control block, connections, etc.	Perform a visual inspection	At least every year
Corrosion	Terminals, connectors, screws, EMC plate	Inspect and clean if required	
Dust	Terminals, fans, enclosures air inlets and air outlets, air filters of cabinet	Inspect and clean if required	
	Floor standing drives filter mats	Inspect	At least every year
		Change	At least every 4 years
Cooling	Wall mounting drives fan	Verify the fan operation	At least every year

	Part concerned	Activity	Interval (1)
		Replace the fan, see catalog and the instructions sheets on www.schneider-electric.com.	After 3 to 5 years, depending on the operating conditions
	Floor standing drives fan for power part and eclosure door fan	Replace the fans, see catalog and the instructions sheets on www.schneider-electric.com.	Every 35000 operating hours or every 6 years
Fastening	All screws for electrical and mechanical connections	Verify tightening torques	At least every year
(1): Maximum maintenance intervals from the date of commissioning. Reduce the intervals between maintenance to adapt maintenance to the environmental conditions, the operating conditions of the drive, and to any other factor that may influence the operation and/ or maintenance requirements of the drive.			

Spares and Repairs

Serviceable product. Please contact your Customer Care Center on:

www.se.com/CCC.

Long Time Storage

If the drive was not connected to mains for an extended period of time, the capacitors must be restored to their full performance before the motor is started.

If the drive was not connected to mains for an extended period of time, the capacitors must be restored to their full performance before the motor is started.

NOTICE

REDUCED CAPACITOR PERFORMANCE

- Apply mains voltage to the drive for one hour before starting the motor if the drive has not been connected to mains for the specified periods of time.(1)
- Verify that no Run command can be applied before the period of one hour has elapsed.
- Verify the date of manufacture if the drive is commissioned for the first time and run the specified procedure if the date of manufacture is more than 12 months in the past.

Failure to follow these instructions can result in equipment damage.

(1) Period of time:

- 12 months at a maximum storage temperature of +50°C (+122°F)
- 24 months at a maximum storage temperature of +45°C (+113°F)
- 36 months at a maximum storage temperature of +40°C (+104°F)

If the specified procedure cannot be performed without a Run command because of internal mains contactor control, perform this procedure with the power stage enabled, but the motor being at a standstill so that there is no appreciable mains current in the capacitors.

Fan Replacement

It is possible to order a new fan for the drive maintenance, see the catalog numbers on www.se.com.

Customer Care Center

For additional support, you can contact our Customer Care Center on:

www.se.com/CCC.

Diagnostics and Troubleshooting

What's in This Part

Overview

This chapter describes the various types of diagnostics and provides troubleshooting assistance.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the instructions in **Safety Information** chapter before performing any procedure in this chapter.

Failure to follow these instructions will result in death or serious injury.

On Lock

The “On lock” function helps to prevent the drive to start if the system is not ready to switch-on by using the monitoring of drive-related components (such as external auxiliary contacts, control voltages, cubicle fans, door contacts).

PLC collects all Onlock information from each components and provides interlock information to the drive. The drive monitors his status and the detected On-locks errors.

Components	Related Error	Related Warning	On lock register (PLO1)	DI
Door open	**[Door interlock]** CF05	—	bit 0: Door interlock on lock	■
Fan feedback/ power supply	**[Cooling Fan error]** CF06	**[Cooling Fan Warn]** CW02	bit 1 : Cooling fan on lock	■
	[Fan Supply Error] CF09	**[Door interlock]** CW05	bit 11 : Fan supply on lock	■
Mains Voltage power OFF button	**[Mains Off Button]** CF04	—	bit 2 : Mains off button on lock	■
QF1	**[QF1 Tripped]** CF08	**[QF1 Trip feedback Warn]** CW04	bit 3 : QF1 on lock	□
	[QF1 Grounded Contact Error] CF11	—	bit 4 : QF1 grounded contact on lock	□
	[QF1 isolated Contact Error] CF12	—	bit 5 : QF1 isolated contact on lock	□
	—	**[MV Power-ON Cycling Warning]** CW24	bit 14 : MV power-on cycling on lock	□
LV surge arrestor	**[LV Surge Arrestor Error]** CF17	**[LV Surge Arrestor Warn]** CW07	bit 10 : LV surge arrestor on lock	■
QF2	**[QF2 Isolated Contact Error]** CF27	—	bit 12 : QF2 grounded contact on lock	□
	[QF2 Grounded Contact Error] CF28	/	bit 13 : QF2 isolated contact on lock	□

□: Configurable
■: Fixed

PL02 is only available if Synchronous Bypass is activated.

Components	Related Error	Related Warning	Drive Bypass On Lock Register (PLO2)	DI
Bypass QFx	**[Bypass Drive Error Sequence]** CF 18	—	bit 0 = 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0	□
		—	bit 1 = 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0	□
		—	bit 2 = 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1	□
		—	bit 3 = 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0	□
		—	bit 4 = 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1	□
		—	bit 5 = 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1	□
		—	bit 8 = 1: Bypass breakers ONLock state = QF2=0 QF3=0	□
		—	bit 9 = 1: Bypass breaker ONLock state = QF2=0 QF3=1	□
			bit 10 = 1: Bypass breaker state = QF2=1 QF3=1	□
	[QF3 Grounded Contact Error] CF29	—	bit 14 = 1 : QF3 grounded contact on lock	□
	[QF3 Isolated Contact Error] CF30	—	bit 15 = 1 : QF3 isolated contact on lock	□
□: Configurable ■: Fixed				

All components which are to be monitored, are connected to the digital inputs assigned to the "ON lock" system regarding which options are used.

- If the drive is not running, and an Onlock event occurs the drive state = **[ON Lock active]** onLK.
- If the drive is running and an Onlock event occurs the drive state = **[Operating State "Fault"]** FLt.

[Onlock register] PLo1 and/or **[Drive Bypass On Lock Register]** PLo2 is active until the locking event is resolved (i.e. until all monitored contacts connected to the dedicated digital input allows the drive to be ready).

- If the drive is running and an Onlock event is detected, drive state = **[Operating State "Fault"]** FLt and related error code are displayed to the HMI.

[On Lock Register] PLo1

Device On lock status register (Cabinet)

Bit	Description, Value
0	1 = Door Open
1	1 = Fan not Ready
2	1 = Mains OFF Button
3	1 = MV Circuit breaker Tripped
4	1 = MV Circuit breaker grounding contact
5	1 = MV Circuit breaker Isolated
6	Reserved
7	Reserved
8	Reserved
9	1 = QF1 Tripped

Bit	Description, Value
10	1 = LV Surge Arrestor on lock
11	1 = Fan power supply on lock
12	1 = QF2 Grounding contact on lock
13	1 = QF2 Isolated Contact on Lock
14	1 = MVCB switch on cycling on lock
15	Reserved

[Drive Bypass On Lock Register] PLo2

Bypass Cabinet Lock register

Bit	Description, Value
0	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=0 QF3=0
1	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=0
2	Set to 1: Bypass breakers ONLock state = QF11=0 QF2=1 QF3=1
3	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=0
4	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=0 QF3=1
5	Set to 1: Bypass breakers ONLock state = QF11=1 QF2=1 QF3=1
6, 7	Reserved
8	Set to 1: Bypass breaker ONLock state = QF2=0 QF3=0
9	Set to 1: Bypass breakers ONLock state = QF2=0 QF3=1
10	Set to 1: Bypass breaker ONLock state = QF2=1 QF3=1
11...13	Reserved
14	Set to 1: QF3 grounded contact on lock
15	Set to 1: QF3 isolated contact on lock

[Drive State] HMIS

Drive state.

Value range	Code / Value	Description
[Autotuning]	tUn	Autotuning, the motor identification is running.
[Ready]	rdY	Drive ready, all conditions to start the drive are ok.
[Freewheel]	nSt	Freewheel stop control, One or more Freewheel stop command are active. Check parameter **[2/3-Wire Control]** tCC and **[Local 2/3-wire Control]** PLI0 for 3 wire control and verify the status of the dedicated inputs.
[Running]	run	Motor in steady state or run command present and zero reference
[Accelerating]	ACC	Acceleration
[Decelerating]	dEC	Deceleration
[Current limitation]	CLI	In current limitation, the drive has reached the current limitation threshold according to parameter **[Current Limitation]** CLI.
[Mot. fluxing]	FLU	Fluxing function is activated
[No Mains Voltage]	nLP	Control is powered on but the DC bus is not loaded

Value range	Code / Value	Description
[control.stop]	cTL	Control stopping
[Dec. adapt.]	obr	Adapted deceleration
[Undervoltage Warning]	uSA	Undervoltage warning
[TC Mode Active]	tC	TC indus mode activated
[In autotest]	St	Self test in progress
[Autotest error]	FA	Self test not successful
[Autotest OK]	oK	Self test Ok
[EEprom test]	EP	Self test Eeprom error
[Operating State "Fault"]	FLt	Product has detected an error
[DCP Flashing Mode]	dCP	DCP flashing mode
[Firmware Update]	FWuP	Firmware update
[Angle test]	ASA	Angle Value range
[ON Lock active]	onLK	Input MV ON Lock, input MV On Lock active, one or more interlocks are active to inhibit the MV Circuit Breaker closing contact.
[POE active]	Pod	Power output disable active, the digital input POEA or POEB is not supplied with 24V.
[Torque Limitation]	tL,	Torque limitation, the drive has reached the torque limitation threshold according to parameter **[Motor torque limit]** tL,M, **[Gen. torque limit]** tL,G.
[Power Limitation]	PL,	Power limitation
[Init]	,n,	Drive is initializing
[Reset]	rSt	Drive is reset
[Synchro. To Mains]	SYtM	Synchronization to Mains
[Rdy Transfer To Mains]	rtM	Ready to transfer to mains
[Transfer In Progress]	ttM,	Transfer in progress
[Synchro. To Drive]	SYtd	Synchronization to drive
[SD Transfer Ready]	rttd	Ready to transfer to drive
[Transfer to drive in progress]	ttd,	Transfer to drive in progress
[Run Delay In Progress]	rd,P	Run delay in progress

Warning Codes

List of Available Warnings Messages

Setting	Code	Description
[Slipping warn]	AnA	Slipping warning
[AI1 4-20 Loss Warning]	AP 1	AI1 4-20 mA loss warning
[AI3 4-20 Loss Warning]	AP3	AI3 4-20 mA loss warning
[AI4 4-20 Loss Warning]	AP4	AI4 4-20 mA loss warning
[AI5 4-20 Loss Warning]	AP5	AI5 4-20 mA loss warning
[AI Monitor 1 Warn]	AW01	Analog monitoring 1 warning
[AI Monitor 2 Warn]	AW02	Analog monitoring 2 warning
[AI Monitor 3 Warn]	AW03	Analog monitoring 3 warning
[AI Monitor 4 Warn]	AW04	Analog monitoring 4 warning
[AI Monitor Link Loss Warn]	AW05	Analog monitoring link loss warning
Sensor 13 Thermal Warn	AW06	Sensor 13 thermal warning
Sensor 14 Thermal Warn	AW07	Sensor 14 thermal warning
Probe Winding Warn	AW08	Probe motor winding OC/SC warning
Probe Bearing Warn	AW09	Probe motor bearing OC/SC warning
Probe Sensor Warn	AW 10	Probe sensor OC/SC warning
[Bypass Poc Warning]	byW 1	Bypass Power Cell warning
[Bypass Poc Degraded Warning]	byW2	Bypass Power degraded warning
[Cust Warning 1]	CAS 1	Customer warning 1 active
[Cust Warning 2]	CAS2	Customer warning 2 active
[Cust Warning 3]	CAS3	Customer warning 3 active
[Cust Warning 4]	CAS4	Customer warning 4 active
[Cust Warning 5]	CAS5	Customer warning 5 active
[Circuit Breaker Warn]	CbW	Circuit breaker warning
[Cabinet Overheat Warn]	CHA	Cabinet overheat warning
[CMI Jumper Warn]	CM iJ	CMI jumper warning
[Current Thd Reached]	CtA	Motor current high treshold reached
[Low Current Reached]	CtAL	Motor current low threshold reached
[Controller Emb RTC Battery Warn]	CW01	Controller embedded RTC battery warning
[Cooling Fan Warn]	CW02	Cooling fan warning
[Cabinet Overheat]	CW03	Cabinet overheating
[QF1 Trip feedack Warn]	CW04	QF1 Trip feedback warning
[Fan Power Supply Warn]	CW05	Fan power supply warning
[Auxiliary Power Supply Warn]	CW06	Auxiliary power supply warning
[LV Surge Arrestor Warn]	CW07	LV surge arrestor warning
[Fan Degraded Warning]	CW08	Fan Degraded Warning
[Fan Shutter State Warning]	CW09	Fan shutter state warning
[Redundant Fan Used Warning]	CW 10	Redundant Fan Used Warning

Setting	Code	Description
		Note: This warning code can be displayed if the transformer cabinet or the Power Cell Cabinet cooling fan does not operate properly.
[QF2 Feedback Warn]	CWI1	QF2 feedback warning
[QF3 Feedback Warn]	CWI2	QF3 feedback warning
[QF91 Feedback Warn]	CWI3	QF91 feedback warning
[QF11 Feedback Warn]	CWI4	QF11 feedback warning
[Bypass Drive Warning]	CWI5	Bypass drive sequence warning
[MotorWinding 1 warn]	CWI7	MotorWinding 1 warning
[MotorWinding 2 Warn]	CWI8	MotorWinding 2 warning
[MotorBearing 1 Warn]	CWI9	Motor bearing 1 warning
[MotorBearing 2 Warn]	CW20	Motor bearing 2 warning
[Transformer 1 Th Warn]	CW21	Transformer 1 thermal warning **Note:** This warning code can be displayed if the transformer cabinet or the Power Cell Cabinet cooling fan does not operate properly.
[Transformer 2 Th Warn]	CW22	Transformer 2 thermal warning **Note:** This warning code can be displayed if the transformer cabinet or the Power Cell Cabinet cooling fan does not operate properly.
[Thermal Choke Warn]	CW23	Thermal choke warning
[MV Power-ON Cycling Warning]	CW24	MV Power-ON Cycling Warning
[Sensor 9 Thermal Warn]	CW25	Sensor 9 thermal warning
[Sensor 10 Thermal Warn]	CW26	Sensor 10 thermal warning
[Sensor 11 Thermal Warn]	CW27	Sensor 11 thermal warning
[Sensor 12 Thermal Warn]	CW28	Sensor 12 thermal warning
[CabinetCircuit A Warn]	CWA	Cabinet circuit A warning
[CabinetCircuit B Warn]	CWb	Cabinet circuit B warning
[CabinetCircuit C Warn]	CWC	Cabinet circuit C warning
[Dry Run Warning]	drAY	Dry Run Warning
[Ext. Error Warning]	EFA	External error warning
[2nd Freq Thd Reached]	F2A	Motor frequency high threshold 2 reached
[Mot Freq Low Thd 2]	F2AL	Motor frequency low threshold 2 reached
[Cabinet Fan Counter Warn]	FCCA	Cabinet fan counter warning
[Fan Counter Warning]	FCtA	Fan counter speed warning
[Cabinet Fan Fdbck Warn]	FFCA	Cabinet fan feedback warning
[Fan Feedback Warning]	FFdA	Fan feedback warning
[High Speed Reached]	FLA	High speed reached warning
[Fallback Frequency]	FrF	Reaction on event: Fallback frequency
[Mot Freq High Thd]	FtA	Motor frequency high threshold 1 reached
[Mot Freq Low Thd]	FtAL	Motor frequency low threshold 1 reached
[Mains Ground Warn]	iGW	Mains ground warning
[Internal Error 22]	inFn	Internal error 22 (Embedded Ethernet)
[Ethernet Internal Warning]	inWn	Ethernet Internal Warning
[MonitorCircuit A Warn]	iWA	Monitoring circuit A warning

Setting	Code	Description
[MonitorCircuit B Warn]	iWb	Monitoring circuit B warning
[MonitorCircuit C Warn]	iWC	Monitoring circuit C warning
[MonitorCircuit D Warn]	iWd	Monitoring circuit D warning
[Life Cycle Warn 1]	LCA1	Life cycle warning 1
[Life Cycle Warn 2]	LCA2	Life cycle warning 2
[LowPres Warning]	LPA	Low pressure warning
[Motor Scaling Warn]	MotW	Motor scaling warning
[No Warning stored]	noA	No warning stored
[Over-voltage Warn]	obW	Over-voltage warning
[Motor Ground Warn]	oGW	Motor ground warning
[Process Overload Warning]	oLA	Overload warning
[PumpCycle warning]	PCPA	Pumpcycle monitoring warning
[PID error Warning]	PEE	PID error warning
[PID Feedback Warn]	PFA	PID feedback warning
[PID High Fdbck Warn]	PFAH	PID feedback high threshold reached
[PID Low Fdbck Warn]	PFAL	PID feedback low threshold reached
[Regulation Warning]	PiSH	PID feedback monitoring warning
[Power Cons Warning]	PoWd	Power consumption warning
[Power High Threshold]	PtHA	Power high threshold reached
[Power Low Threshold]	PtHL	Power low threshold reached
[Speed Maintained]	rLS	Reaction on event: Speed maintained
[Ref Freq High Thd reached]	rtAH	Reference frequency high threshold reached
[Ref Freq Low Thd reached]	rtAL	Reference frequency low threshold reached
[Ref Frequency Warning]	SrA	Frequency reference reached
[Type of stop]	Stt	Reaction on event: Stop following **[Type of stop]** Stt without triggering an error
[Drv Therm Thd reached]	tAd	Drive thermal threshold reached
[Drive Thermal Warning]	tHA	Drive overhearting warning
[IGBT Thermal Warning]	tJA	IGBT thermal state warning
[AI3 Th Warning]	tP3A	AI3 Thermal warning
[AI4 Th Warning]	tP4A	AI4 Thermal warning
[AI5 Th Warning]	tP5A	AI5 Thermal warning
[Mot2 Therm Thd reached]	tS2	Motor 2 thermal threshold reached
[Mot3 Therm Thd reached]	tS3	Motor 3 thermal threshold reached
[Mot4 Therm Thd reached]	tS4	Motor 4 thermal threshold reached
[Motor Therm Thd reached]	tSA	Motor thermal threshold reached
[High Torque Warning]	ttHA	High torque threshold reached
[Low Torque Warning]	ttLA	Low torque threshold reached
[MotorWinding A Warn]	tWA	Motor winding A warning
[MotorWinding B Warn]	tWb	Motor winding B warning
[MotorBearing A Warn]	tWC	Motor bearing A warning
[MotorBearing B Warn]	tWd	Motor bearing B warning
[Process Undld Warn]	uLA	Process underload warning

Setting	Code	Description
[Preventive UnderV Active]	uPA	Controlled stop threshold is reached
[Undervoltage Warning]	uSA	Undervoltage warning

Error Codes

What's in This Chapter

Overview

Clearing the Detected Error

This table presents the steps to follow if intervention on the drive system is required:

Step	Action
1	Before disconnecting mains voltage, verify that the red LEDs of all power cells are ON by checking the LED state via the openings in the cabinet doors. If one or more of the red LEDs of the power cells are OFF, do not perform any further work, but contact your local Schneider Electric representative.
2	Disconnect all power, including external control power that may be present. Take into account that the circuit breaker or main switch does not de-energize all circuits.
3	Wait 20 minutes to allow the DC bus capacitors of the power cells to discharge. The DC bus LEDs located on each power cell are not an indicator of the absence of DC bus voltage.
4	If one or more of the red LEDs of the power cells remain ON for 20 minutes after the mains voltage has been disconnected, do not perform any further work, but contact your local Schneider Electric representative.
5	Lock all power switches in the open position.
6	Place a "Do Not Turn On" label on all power switches related to the drive system.
7	Follow the instructions given in the chapter "Verifying the Absence of Voltage" in the installation manual of the product.
8	Ground and short-circuit the mains input terminals and the motor output terminals.
9	Find and correct the cause of the detected error.
10	Restore power to the drive to confirm that the detected error has been rectified. Follow power up instruction done by the commissioning instruction.

After the cause has been removed, the detected error can be cleared by:

- Switching off the drive.
- Using the **[Product Restart]** rP parameter.
- Using the digital input or the control bit assigned to **[Prod Restart Assign]** rPA.
- Using the **[Auto Fault Reset]** AtrP function.
- A digital input or control bit set to the **[Fault reset]** rSt function.
  - For **[Fault Reset Assign]** rSF and **[Extended Fault Reset]** HrCF refer to **[Fault reset]** rSt Menu.
- Pressing the **RESET** button on the HMI panel.

How To Clear the Error Code?

The following table summarizes the possibilities to clear a detected error after the cause has been removed:

How to clear the error code after the cause has been removed	List of the cleared error
• Switch off the drive. • Use the **[Product Restart]** rP parameter. • Use the digital input or the control bit assigned to **[Prod Restart Assign]** rPA.	All detected error.
• As soon as its cause has been removed.	CFF, CFI, CFI2, CFI3, CFI4, CSF, FWER, HCF, PGLF, PHF, URF, USF

How to clear the error code after the cause has been removed	List of the cleared error
• Use the digital input or the control bit assigned to **[Fault Reset Assign]** rSF. • Pressing the **RESET** button on the HMI panel	ANF, ASF, BRF, BSQF, CF01, CF02, CF03, CF04, CF05, CF06, CF07, CF08, CF09, CF10, CF11, CF12, CF13, CF14, CF15, CF16, CF17, CF18, CF27, CF28, CF29, CF30, CF35, CNF3, ECF, ENF, SDFT, SLF4, SMFT, SOF, SPF, TNF
• Use the digital input or the control bit assigned to **[Fault Reset Assign]** rSF. • Pressing the **RESET** button on the HMI panel • Use the **[Auto Fault Reset]** AtrP function.	3PF, AF01...AF08, AM1F, AM2F, AM3F, CF19, CF20, CF21, CF22, CF23, CF24, CF32, CF33, CF34, BOF, CFA, CFB, CFC, CHF, CNF, COF, DLF, DRYF, EPF1, EPF2, EPF3, ETHF, FDR1, FDR2, IFA, IFB, IFC, IFD, INF9, INFB, INFV, LFF1, LFF3, LFF4, LFF5, MDLF, MSDF, OBF, OHF, OLC, OLF, OPF1, OPF2, OSF, PCPF, PFMF, SLF1, SLF2, SLF3, SRF, SSF, STF, T1CF, T3CF, T4CF, T5CF, TECF, TFA, TFB, TFC, TFD, TH1F, TH3F, TH4F, TH5F, THEF, TJF, TJF2, TLOF, ULF
If **[Fault Reset Assign]** HrFC is set to YES: • Use the digital input or the control bit assigned to **[Fault Reset Assign]** rSF , • Press the **RESET** button on the HMI panel.	, BYPF, CRF1, INFA, INFC, OCF, PODF, PWF1, PWF2, PWF3, PWF4, PWF5, PWF7, SCF1, SCF3

[Sensor 13 Thermal Error] AFD1

Probable Cause

The thermal sensor monitoring function has detected a high temperature on PT100 sensor 13 of adaptation board signal PT5 when setting THM0=SENS

- This error can occur when PT100 of adaptation board are used for sensor thermal monitoring function, with setting THM0=SENS
- Overheating of the monitored part.
- The parameter THT9 is set to a low value.
- Bad terminal wiring

Remedy

- Search for a possible cause of overheating.
- Verify the setting of the monitoring function.
- Verify the wiring between monitored device and adaptation board signal PT5

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Sensor 14 Thermal Error] AF02

Probable Cause

The thermal sensor monitoring function has detected a high temperature on PT100 sensor 14 of adaptation board signal PT6 when setting THM0=SENS

- This error can occur when PT100 of adaptation board are used for sensor thermal monitoring function, with setting THM0=SENS
- Overheating of the monitored part.
- The parameter THTA is set to a low value.
- Bad terminal wiring

Remedy

- Search for a possible cause of overheating.
- Verify the setting of the monitoring function.
- Verify the wiring between monitored device and adaptation board signal PT6

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Probe OC/SC Error] AF03

Probable Cause

The measurement circuit on the PLC has detected an open circuit or a short circuit on the dedicated temperature probe

- PT100 probe on thermal sensor is not wired or in short-circuit

Remedy

- Verify the wiring
- Replace the temperature probe

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[App Error 4] AF04

Probable Cause

The AF04 error is customized to specific ETO Application firmware.

Refer to firmware specification for diagnostics.

[App Error 5] AF05

Probable Cause

The AF05 error is customized to specific ETO Application firmware.

Refer to firmware specification for diagnostics.

[App Error 6] AF06

Probable Cause

The AF06 error is customized to specific ETO Application firmware.

Refer to firmware specification for diagnostics.

[App Error 7] AF07

Probable Cause

The AF07 error is customized to specific ETO Application firmware.

Refer to firmware specification for diagnostics.

[App Error 8] AF08

Probable Cause

The AF08 error is customized to specific ETO Application firmware.

Refer to firmware specification for diagnostics.

[AI Monitor 1 Error] AN 1F

Probable Cause

The analog monitoring process value are outside the range set by high process level and low process level

- The high process level parameter **[AI Monitor 1 Error High Level]** AN 1r is set to a too low value.
- The low process level parameter **[AI Monitor 1 Error Low level]** AN 1S is set to a too high value.
- The scaling parameters AN 1X, AN 1Y, AN 1L, AN 1H are not correct.
- Bad terminal wiring.

Remedy

- Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range.
- Verify the setting of the analog monitoring function.
- Verify the wiring between monitored device and TM3 option Module.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after the cause has been removed.

[AI Monitor 2 Error] AN2F

Probable Cause

The analog monitoring process value are outside the range set by high process level and low process level

- The high process level parameter **[AI Monitor 2 Error High Level]** AN2r is set to a too low value.
- The low process level parameter **[AI Monitor 2 Error Low level]** AN2S is set to a too high value.
- The scaling parameters AN2X, AN2Y, AN2L, AN2H are not correct.
- Bad terminal wiring.

Remedy

- Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range .
- Verify the setting of the analog monitoring function.
- Verify the wiring between monitored device and TM3 option Module.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI Monitor 3 Error] AM3F

Probable Cause

The analog monitoring process value are outside the range set by high process level and low process level

- The high process level parameter **[AI Monitor 3 Error High Level]** AM3r is set to a too low value.
- The low process level parameter **[AI Monitor 3 Error Low level]** AM3S is set to a too high value.
- The scaling parameters AM3X, AM3Y, AM3L, AM3H are not correct.
- Bad terminal wiring.

Remedy

- Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range .
- Verify the setting of the analog monitoring function.
- Verify the wiring between monitored device and TM3 option Module.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI Monitor 4 Error] AIM4F

Probable Cause

The analog monitoring process value are outside the range set by high process level and low process level

- The high process level parameter **[AI Monitor 4 Error High Level]** AIM4r is set to a too low value.
- The low process level parameter **[AI Monitor 4 Error Low level]** AIM4S is set to a too high value.
- The scaling parameters AIM4X, AIM4Y, AIM4L, AIM4H are not correct.
- Bad terminal wiring.

Remedy

- Search for a possible cause of error. Probably the sensor (e.g. if flow is too high) is out of range .
- Verify the setting of the analog monitoring function.
- Verify the wiring between monitored device and TM3 option Module.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Load slipping] AnF

Probable Cause

Not following the ramp. The difference between the output frequency and the speed feedback is not correct.

The sign of the speed feedback is different from the sign of the reference.

The load slipping is greater than 10% of nominal speed (FRS).

Remedy

- Confirm the drive rating according to the application (motor, load, and so on.)
- Verify the motor, gain, and stability parameters.
- Add a braking resistor.
- Verify the mechanical coupling and wiring of the encoder.
- If the torque control function is used and if the encoder is assigned to speed feedback,
  - Set **[Load slip detection]** Sdd = **[No]** no.
  - Set both **[Positive deadband]** dbP and **[Negative deadband]** dbn to a value less than 10% of the nominal motor frequency.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Angle error] AnF

Probable Cause

This error is triggered during the phase-shift angle measurement if the motor phase is disconnected or if the motor inductance is too high.

Remedy

- Verify the motor phases and the maximum current allowed by the drive.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Brake Control] bLF

Probable Cause

- Brake release current not reached.
- Brake engages frequency threshold **[Brake engage freq]** bEn only regulated when brake logic control is assigned.

Remedy

- Verify the drive/motor connection.
- Verify the motor windings.
- Verify the **[Brk Release Current]** Ibr and **[Brake release I Rev]** Ird settings.

Clearing the Error Code

This detected error requires a power reset.

[Brake Feedback] brF

Probable Cause

- The status of the brake feedback contact or the status of the brake relay feedback is not correct compared to the brake logic control.
- The brake does not stop the motor quickly enough (detected by measuring the speed on the "Pulse input" input).

Remedy

- Verify the brake feedback circuit.
- Verify the brake logic control circuit.
- Verify the brake behavior.
- Verify that the setting of **[Brake Release Time]** brt and **[Brake Engage Time]** BET take into account the brake response time, **[Brake Fdbk Filter]** FbC1 and **[Brake Rly Fdbk Filter]** Fbr1.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Bypass PoC Error] bYPF

Probable Cause

For drive using power stage with bypass circuit, when an error is detected by one Power Cell then this Power Cell and the two others at the same level are bypassed.

Bypass sequence can be triggered by the following Power Cell errors : OBF Over-voltage, OHF Over-heat and RCF: Short-circuit.

The bypass Power Cell error can occur when the number of bypass Power Cell sequences is greater than the maximal bypass number BYP1 configured.

HMI diagnostic screen "Power Cell Status" can be used to identify bypassed Power cell(s) and the type of error.

The error can be linked to one or more Power Cell(s) :

- permanently damaged in short-circuit, in overheating or in overvoltage, or
- occasionally triggering an overheating error according to the thermal state evolution of the application or environment, or
- occasionally triggering an overvoltage error according to the load profile evolution.

Remedy

- Distinction between continuous and occasional power cell error.
- If the error still occurs after fault reset, unbypass sequence and new run command: the Power Cell is permanently damaged and must be replaced.
- For bypass error linked to occasional OHF or OBF, see dedicated troubleshooting.
- Contact your local Schneider Electric representative to check commissioning state of the function.

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[Transformer 1 Overheat] CFO1

Probable Cause

The winding temperature of transformer 1 has reached the threshold level.

- Cooling fans not working.
- Door filter mats blocked.
- High environmental temperature in the electrical room.
- Cooling fans rotates in the wrong direction.
- The transformer is overloaded.
- The threshold level set in the PLC is wrong.
- The PLC has detected a wrong measurement.
- Fiber box not working.

Remedy

- Verify that the transformer temperature threshold (EPI_/EPIV/EPIW) does not exceed the error threshold:
  Three threshold:
  - 1. Absolute temperature of transformer winding monitored by fibers exceeds 155°C;
  - 2. Temperature rise (Absolute temperature of transformer winding monitored by fibers - cabinet temperature monitored by PT100) exceeds 115°C;
  - 3. Cabinet temperature by PT100 is over than 60°C
- Verify all cooling fans are working properly and rotate in the right direction.
- Verify door filter mats are free of dust and the required airflow is insured.
- Verify that the external cooling circuit (AC) in the electrical room is working properly.
- Verify compliance to the environmental conditions in the electrical room according to the specification.
- Verify that the measurement circuit is working properly (PT100 sensor on the transformer cabinet door/ fiber sensors on transformer windings / PLC / Wiring connections / fiber box)
- Check the log file to verify if the ATV6000 was already in "Overload" condition before the CFO1 error triggering.
- Verify in the PLC program the temperature of the transformer and check directly the input on the PLC extension card.
- Verify actual measurement (EPI_/EPIV/EPIW/EEIN/ES I_/ESIV/ESIW) exceeds threshold (155°C).

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Transformer 2 Overheat] CF02

Probable Cause

The winding temperature of transformer 2 has reached the threshold level.

- Cooling fans not working.
- Door filter mats blocked.
- High environmental temperature in the electrical room.
- Cooling fans rotate in the wrong direction.
- The transformer is overloaded.
- The PLC has detected a wrong measurement.
- Fiber box not working.

Remedy

- Verify that the transformer temperature threshold (tP2u/tP2V/tP2W) does not exceed the error threshold:
  Three threshold:
  - 1. Absolute temperature of transformer winding monitored by fibers exceeds 155°C;
  - 2. Temperature rise (Absolute temperature of transformer winding monitored by fibers - cabinet temperature monitored by PT100) exceeds 115°C;
  - 3. Cabinet temperature by PT100 is over than 60°C.
- Verify all cooling fans are working properly and rotate in the right direction.
- Verify door filter mats are free of dust and the required airflow is insured.
- Verify that the external cooling circuit (AC) in the electrical room is working properly.
- Verify compliance to the environmental conditions in the electrical room according to the specification.
- Verify that the measurement circuit is working properly (PT100 sensor on the transformer cabinet door/ fiber sensors on transformer windings / PLC / Wiring connections / fiber box)
- Check the log file to verify if the ATV6000 was already in "Overload" condition before the CF02 error triggering.
- Verify actual measurement (tP2u/tP2V/tP2W/tt2n/ts2u/ts2V/ts2W) exceeds threshold (155°C).

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[PLC Internal Error] CF03

Probable Cause

The PLC has detected an internal error.

- Wrong PLC software loaded.
- PLC software incompatible with the control block firmware.
- Internal error on the PLC.

Remedy

- Verify the software version on the PLC and Control block. (Check compatibility).
- Upload the correct PLC software to the PLC and make sure the PLC is in RUN mode.
- Change the PLC.

Clearing the Error Code

This detected error requires a power reset.

[Mains Off Button] CF04

Probable Cause

The "Mains voltage off“ button on the control cabinet has been activated.

- The "Mains Voltage OFF" button in front of control Cabinet has been pressed.
- The wiring on the "Mains Voltage Off" button is not connected properly.

Remedy

- Release the "Mains Voltage Off" button on the control cabinet.
- Check the wiring on the "Mains voltage Off" button and the dedicated input on the PLC.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Door interlock] CF05

Probable Cause

The electrical "Door interlock" function has detected an opened cabinet door.

- At least one cabinet door is not closed.
- The cabinet door is not closed properly and therefore door limit switch is not activated.
- The door limit switch is not working properly.
- Wire disconnection of the door limit switch or on the dedicated PLC input.
- If the option "TOP entry" is available, the additional door limit switch is not wired (Need to be done on site).

Remedy

- Make sure all cabinet doors are closed properly and fixed with the dedicated screws.
- Verify each door limit switch is working properly.
- Check the overall wiring on the door limit switch and PLC.
- If the option “TOP entry” cabinet is available verify that the wiring of the additional door limit switch was done properly.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Cooling Fan error] CF06

Probable Cause

The circuit breakers of the cooling fans are switched off or the external supply is not present

- The circuit breaker of the cooling fan has tripped due to an overload
- The motor circuit breaker is switched off
- The external cooling fan supply is switched off

Remedy

- Switch on the dedicated circuit breakers for the cooling fans
- Make sure the external power supply for the fans is present (If supplied external)
- Verify the connection of the auxiliary contact of the motor circuit breaker

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Cabinet Overheat] CF07

Probable Cause

The cabinet temperature monitoring has detected an overheating

- The cooling fans are not working.
- The cooling fans rotates in the wrong direction.
- The filter mats are blocked and full of dust.
- The environmental temperature in the electrical room is too high.
- The air condition system in the electrical room is not working.
- The internal temperature measurement is not working.
- Measurement circuit detects wrong temperature (PT100 & Adaption board).

Remedy

- Check the environmental room temperature.
- Verify the cooling fans are working properly and rotates in the correct direction.
- Make sure filter mats are free of dust and replace them if necessary.
- Check the temperature limits and the measurement circuit is working properly.
- Verify the PT100 sensor works properly.
- Replace the adaption board or measurement circuit.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF1 Tripped] CF08

Probable Cause

- The MV Circuit breaker has been switched off during operation of the ATV6000.
- An external event such as overvoltage, overcurrent, internal MV Circuit breaker error has triggered the QF1.
- QF1 feedback signal loss during operation of the ATV6000 (If available).

Remedy

- Verify the root cause for the QF1 trip (External).
- Verify the QF1 feedback wire is properly connected to the PLC and the PLC input is working (If available).

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Fan Supply Error] CF09

Probable Cause

- The circuit breaker of the cooling fan has tripped due to an overload.
- The circuit breaker has been switched off.
- The external cooling fan supply is switched off.

Remedy

- Switch on the dedicated circuit breakers for the cooling fans.
- Make sure the external power supply for the fans is present (If supplied external).

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Auxiliary Supply Error] CF10

Probable Cause

The 230 V auxiliary power supply is interrupted.

- The external 230 V auxiliary power supply is switch off.
- The internal circuit breaker for the 230 V is opened.
- Wrong wiring on the dedicated relay K1A and the dedicated PLC input (DI23).

Remedy

- Verify that the external 230V is available (Measure with the multimeter).
- Verify the wiring on the dedicated relay K1A and the PLC input (DI23).
- Verify if the internal circuit breaker for the 230 V is switched on.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF1 Grounded Contact Error] CF11

Probable Cause

The circuit breaker/contactor QF1 is grounded.

- The circuit breaker/contactor is grounded.
- Feedback signal missing.

Remedy

- Verify if the circuit breaker/contactor is not grounded.
- Verify the wiring and connections on the dedicated terminals and digital inputs.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF1 isolated Contact Error] CF 12

Probable Cause

The circuit breaker/contactor QF1 sends the feedback isolated contact

- The circuit breaker/contactor is isolated.
- Feedback signal missing.

Remedy

- Verify if the circuit breaker/contactor is not isolated.
- Verify the wiring and connections on the dedicated terminals and digital inputs.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF2 Feedback Error] CF13

Probable Cause

The QF2 feedback signal command to dedicated digital input on the PLC is not conform to circuit breaker state (open or closed).

- Feedback signal missing.
- Feedback signal of QF2 not wired or loss contact.
- Feedback signal not active or stable within the PLC timeout.

Remedy

- Verify the wiring and connections on the dedicated terminals and digital inputs.
- Check the feedback signal in the PLC program.
- Verify the wiring on the QF2 circuit breaker "auxiliary contact"
- Verify that the correct PLC software was loaded.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF3 Feedback Error] CF14

Probable Cause

The QF3 feedback signal command to dedicated digital input on the PLC is not conform to circuit breaker state (open or closed)

- Feedback signal missing.
- Feedback signal of QF3 not wired or loss contact.
- Feedback signal not active or stable within the PLC timeout.

Remedy

- Verify the wiring and connections on the dedicated terminals and digital inputs.
- Check the feedback signal in the PLC program.
- Verify the wiring on the QF3 circuit breaker "auxiliary contact".
- Verify that the correct PLC software was loaded.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF91 Feedback Error] CF15

Probable Cause

The feedback signal "QF91 is closed" has not been detected on the dedicated digital input on the PLC

- Feedback signal missing.
- Feedback signal of QF91 not wired or loss contact.
- Feedback signal not active or stable within the PLC timeout.

Remedy

- Verify the wiring and connections on the dedicated terminals and digital inputs.
- Check the feedback signal in the PLC program.
- Verify the wiring on the QF91 circuit breaker "auxiliary contact".
- Verify that the correct PLC software was loaded.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF11 Feedback Error] CF16

Probable Cause

The QF11 feedback signal command to dedicated digital input on the PLC is not conform to circuit breaker state (open or closed).

- Feedback signal missing.
- Feedback signal of QF11 not wired or loss contact.
- Feedback signal not active or stable within the PLC timeout.

Remedy

- Verify the wiring and connections on the dedicated terminals and digital inputs.
- Check the feedback signal in the PLC program.
- Verify the wiring on the QF11 circuit breaker "auxiliary contact".
- Verify that the correct PLC software was loaded.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[LV Surge Arrestor Error] CF17

Probable Cause

The LV surge arrestor has been triggered, the digital input 19 on the PLC is activated

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Bypass Drive Error Sequence] CF 18

Probable Cause

The feedback of circuit breaker QF11 QF2 QF3 used in the function bypass drive control DOL is wrong.

The error occurs when the mains is present and with following bypass circuit breaker state BYS1:

- QF11=Open / QF2=Closed / QF3=Closed
- QF11=Closed / QF2=Open / QF3=Closed
- QF11=Closed / QF2=Closed / QF3=Closed
- Wrong physical state of circuit breaker QF11, QF2, and QF3.
- Circuit breaker feedback QF11, QF2, QF3 signal missing or not wired or lost contact or NO / NC feedback switched.

Remedy

- Verify the consistency between circuit breaker feedback and bypass circuit breaker status (BYS1) on the HMI.
- Verify the physical state of circuit breakers QF11, QF2, and QF3.
- Verify the wiring and connections on the dedicated terminals and digital inputs.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorWinding 1 Error] tF 19

Probable Cause

The winding temperature of motor 1 has reached the threshold level tHt 1.

- Motor cooling fans not working or motor liquid cooling switched off.
- Motor is overloaded.
- Environmental temperature too high.
- External motor cooling fan not working or rotating the wrong direction.
- The parameter setting of the temperature threshold level tHt 1 is wrong.
- The measurement is wrong.
- The motor is self cooled and operates on low speed.
- Motor surface full of dust.

Remedy

- Verify that the cooling fans of the motor is working properly and rotate in the correct direction.
- Verify that the external cooling circuit is working.
- Verify compliance to the environmental conditions according to the motor specification
- Verify that the measurement circuit is working properly (PT100 sensors/ Wiring connections on the PLC).
- Check that the motor was in "Overload" condition before triggering the error.
- Make sure the motor surface is free of dust.
- Verify that the threshold level is set properly according to the motor specification.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorWinding 2 Error] tF20

Probable Cause

The winding temperature of motor 2 has reached the threshold level tHt2.

- Motor cooling fans not working or motor liquid cooling switched off.
- Motor is overloaded.
- Environmental temperature too high.
- External motor cooling fan not working or rotating the wrong direction.
- The parameter setting of the temperature threshold level tHt2 is wrong.
- The measurement is wrong.
- The motor is self cooled and operates on low speed.
- Motor surface full of dust.

Remedy

- Verify that the cooling fans of the motor is working properly and rotate in the correct direction.
- Verify that the external cooling circuit is working.
- Verify compliance to the environmental conditions according to the motor specification
- Verify that the measurement circuit is working properly (PT100 sensors/ Wiring connections on the PLC)
- Check that the motor was in "Overload" condition before triggering the error.
- Make sure the motor surface is free of dust
- Verify that the threshold level is set properly according to the motor specification.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorBearing 1 Error] CF21

Probable Cause

The bearing temperature of motor 1 has reached the threshold level tHt3.

- Motor cooling fans not working or motor liquid cooling switched off.
- Motor is overloaded.
- Environmental temperature too high.
- External motor cooling fan not working or rotating the wrong direction.
- The parameter setting of the temperature threshold level tHt3 is wrong.
- The measurement is wrong.
- The motor is self cooled and operates on low speed.
- Motor surface full of dust.

Remedy

- Verify that the cooling fans of the motor is working properly and rotate in the correct direction.
- Verify that the external cooling circuit is working.
- Verify compliance to the environmental conditions according to the motor specification.
- Verify that the measurement circuit is working properly (PT100 sensors/ Wiring connections on the PLC).
- Check that the motor was in "Overload" condition before triggering the error.
- Make sure the motor surface is free of dust.
- Verify that the threshold level is set properly according to the motor specification.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorBearing 2 Error] CF22

Probable Cause

The bearing temperature of motor 2 has reached the threshold level tHt4.

- Motor cooling fans not working or motor liquid cooling switched off.
- Motor is overloaded.
- Environmental temperature too high.
- External motor cooling fan not working or rotating the wrong direction.
- The parameter setting of the temperature threshold level tHt4 is wrong.
- The measurement is wrong.
- The motor is self cooled and operates on low speed.
- Motor surface full of dust.

Remedy

- Verify that the cooling fans of the motor is working properly and rotate in the correct direction.
- Verify that the external cooling circuit is working.
- Verify compliance to the environmental conditions according to the motor specification.
- Verify that the measurement circuit is working properly (PT100 sensors/ Wiring connections on the PLC).
- Check that the motor was in "Overload" condition before triggering the error.
- Make sure the motor surface is free of dust.
- Verify that the threshold level is set properly according to the motor specification.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[PT100 Winding OC/SC Error] CF23

Probable Cause

The measurement circuit on the PLC has detected an open circuit or a short circuit on the dedicated temperature sensor

- Temperature probe on motor winding is not wired or in short-circuit

Remedy

- Verify the wiring
- Replace the temperature probe

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrE or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[PT100 Bearing OC/SC Error] CF24

Probable Cause

The measurement circuit on the PLC has detected an open circuit or a short circuit on the dedicated temperature sensor

- Temperature probe on motor bearing is not wired or in short-circuit

Remedy

- Verify the wiring
- Replace the temperature probe

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrE or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Thermal Choke Error] CF25

Probable Cause

The digital cabinet I/O DI50 and DI64 are configured for cabinet choke temperature monitoring. If the cabinet choke thermo-switch is at high level, in case of over temperature, the CF25 error occurs.

- Temperature in the cabinet choke is too high.
- Wrong setting of the thermo switch.
- The fan on the choke cabinet is not supplied.
- The fan is spinning in the wrong direction.
- The air inlet filters are clogged.

Remedy

- Verify the setting of the internal thermo switch.
- Verify the wiring from the thermo switch to the cabinet I/O - DI50 and DI64 on the power board.
- Verify the cooling of cabinet choke.
- Verify if the fan is spinning in the right direction.
- Clean the air inlet filters.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrE or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF2 Isolated Contact Error] CF27

Probable Cause

The circuit breaker/contactor QF2 detects an isolated contact.

- The circuit breaker/contactor is isolated.
- Feedback signal missing.

Remedy

- Verify if the circuit breaker/contactor is not isolated.
- Verify the wiring and connections on the dedicated terminals and digital inputs.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF2 Grounded Contact Error] CF28

Probable Cause

The circuit breaker/contactor QF2 is grounded.

- The circuit breaker/contactor is grounded.
- Feedback signal missing.

Remedy

- Verify if the circuit breaker/contactor is not grounded.
- Verify the wiring and connections on the dedicated terminals and digital inputs

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF3 Grounded Contact Error] CF29

Probable Cause

The circuit breaker/contactor QF3 is grounded.

- The circuit breaker/contactor is grounded.
- Feedback signal missing.

Remedy

- Verify if the circuit breaker/contactor is not grounded.
- Verify the wiring and connections on the dedicated terminals and digital inputs.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[QF3 Isolated Contact Error] CF30

Probable Cause

The circuit breaker/contactor QF3 detects an isolated contact.

- The circuit breaker is isolated.
- Feedback signal missing.

Remedy

- Verify if the circuit breaker/contactor is not isolated.
- Verify the wiring and connections on the dedicated terminals and digital inputs

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Sensor 9 Thermal Error] CF31

Probable Cause

The thermal sensor monitoring function has detected a high temperature on PT100 sensor 9 of option PLC module TM3 or adaptation board signal PT1 when setting THM0=SENS.

- Overheating of the monitored part.
- The parameter THT5 is set to a low value.
- Bad terminal connection.

Remedy

- Search for a possible cause of overheating.
- Verify the setting of the monitoring function.
- Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT1.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Sensor 10 Thermal Error] CF32

Probable Cause

The thermal sensor monitoring function has detected a high temperature on PT100 sensor 10 of option PLC module TM3 or adaptation board signal PT2 when setting THM0=SENS

- Overheating of the monitored part.
- The parameter THT6 is set to a low value.
- Bad terminal connection.

Remedy

- Search for a possible cause of overheating.
- Verify the setting of the monitoring function.
- Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT2.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Sensor 11 Thermal Error] CF33

Probable Cause

The thermal sensor monitoring function has detected a high temperature on PT100 sensor 11 of option PLC module TM3 or adaptation board signal PT3 when setting THM0=SENS

- Overheating of the monitored part.
- The parameter THT7 is set to a low value.
- Bad terminal connection

Remedy

- Search for a possible cause of overheating.
- Verify the setting of the monitoring function.
- Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT3

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Sensor 12 Thermal Error] CF34

Probable Cause

The thermal sensor monitoring function has detected a high temperature on PT100 sensor 12 of option PLC module TM3 or adaptation board signal PT4 when setting THM0=SENS

- Overheating of the monitored part.
- The parameter THT8 is set to a low value.
- Bad terminal connection

Remedy

- Search for a possible cause of overheating.
- Verify the setting of the monitoring function.
- Verify the wiring between monitored device and TM3 option Module or adaptation board signal PT4

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Fan Command Feedback Error] CF35

Probable Cause

The fan feedback signal and fan contactor state (open or closed) are inconsistent

- Fan feedback signal or command signal missing on the dedicated terminal.
- Fan feedback signal or command signal not wired or lost contact on fan contactor.
- Fan feedback signal not active or not stable within the PLC timeout (1 second)
- Option not included in the drive.

Remedy

- Verify the wiring and connections on the dedicated terminals and digital inputs (feedback) and digital outputs (command).
- Verify the wiring of the fan contactor.
- Verify that the correct PLC software was loaded.
- Verify that the option is installed in the drive

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[CabinetCircuit A Error] CFA

Probable Cause

The monitoring function has detected an error. The digital input assigned to **[CabinetCircuit A Assign]** CFAA is active when the detected error duration is longer than **[CabinetCircuit A Delay]** FdA.

Remedy

- Identify the cause of detection.
- Verify the connected device (door switch, thermal switch,…) and its wiring.
- Verify the **[CabinetCircuit A Assign]** CFAA parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[CabinetCircuit B Error] CFb

Probable Cause

The monitoring function has detected an error. The digital input assigned to **[CabinetCircuit B Assign]** CFAb is active when the detected error duration is longer than **[CabinetCircuit B Delay]** Fdb.

Remedy

- Identify the cause of detection.
- Verify the connected device (door switch, thermal switch,…) and its wiring.
- Verify the **[CabinetCircuit B Assign]** CFAb parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[CabinetCircuit C Error] CFC

Probable Cause

The monitoring function has detected an error. The digital input assigned to **[CabinetCircuit C Assign]** CFAC is active when the detected error duration is longer than **[CabinetCircuit C Delay]** FdC.

Remedy

- Identify the cause of detection.
- Verify the connected device (door switch, thermal switch,…) and its wiring.
- Verify the **[CabinetCircuit C Assign]** CFAC parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Incorrect Configuration] CFF

Probable Cause

- Option module changed or removed .
- Control board replaced by a control board configured on a drive with a different rating.
- The current configuration is inconsistent.

Remedy

- Verify that there is no detected error on the option module.
- In the event of the control block being changed deliberately, see the remarks below.
- Return to factory settings or retrieve the backup configuration if it is valid.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Invalid Configuration] CF1

Probable Cause

Invalid configuration.

The configuration loaded in the drive via the commissioning tool or fieldbus is inconsistent.

Remedy

- Verify the loaded configuration.
- Load a valid configuration.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Conf Transfer Error] CF 12

Probable Cause

- The configuration transfer to the drive was not successful or interrupted.
- The configuration loaded is not compatible with the drive.

Remedy

- Verify the loaded configuration.
- Load a valid configuration.
- Perform a factory setting

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Pre-settings Transfer Error] CF13

Probable Cause

The configuration transfer to the drive was not successful or interrupted.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Empty Configuration] CF 14

Probable Cause

The selected configuration for the **[Multimotors config]** MMC - function has not been created previously.

Remedy

- Verify the configurations saved.
- Switch to a compatible configuration.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Cabinet Overheat Error] CHF

Probable Cause

The cabinet thermal switch is at active state, the cabinet fan(s) has been switched on but there is no fan feedback.

The digital inputs DI50 and DI51 of drives equipped with Cabinet IO are configured as cabinet temperature monitoring. If the enclose thermo switch opens in case of over temperature, the **[Cabinet Overheat Error]** CHF is triggered.

This error can be triggered only in RUN state. On other state, the **[Cabinet Overheat Warn]** CHA is active.

Remedy

- Verify cabinet fan(s) and its wiring.
- Verify the temperature in the enclosure is not too high.
- Verify the setting of the thermoswitch (must be 60°C (140°F))

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Fieldbus Com Interrupt] CnF

Probable Cause

Communication interruption on fieldbus module.

This error is triggered when the communication between the fieldbus module and the master (PLC) is interrupted.

Remedy

- Verify the environment (electromagnetic compatibility).
- Verify the wiring.
- Verify the timeout.
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Opt 3 Comm Interrupt] CnF3

Probable Cause

The 3rd option card has detected a communication error.

- Ethernet cable between control block and PLC not connected properly.
- IP adress not configured on the control block or on the PLC.
- PLC not in "RUN" mode.

Remedy

- Check Ethernet connection on the control block and PLC.
- Configure the correct IP address in the control block and PLC.
- Make sure the PLC is in RUN mode.
- Update the Ethernet option card or change the Ethernet option card.
- Change Control Block or PLC.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[CANopen Com Interrupt] CoF

Probable Cause

Communication interruption on the CANopen® fieldbus.

Remedy

- Verify the communication fieldbus.
- Verify the timeout.
- Refer to the CANopen® manual (PHA30470).

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Channel Switch Error] C 5 F

Probable Cause

Switch to an invalid channel.

Remedy

Verify the function parameters.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Precharge Capacitor] CrF1

Probable Cause

After switching on the mains, the DC Bus is charged by the power cells. If all DC bus voltage of power cells are not stabilized within 1s, the error CrF1 is triggered.

- Unstable mains voltage.
- DC bus capacitors service life exceeded.
- Power cells DC bus capacitors service life exceeded.

Remedy

- Turn off the drive and then turn on again.
- Check and analyze the mains input voltage.
- Check DC bus voltage on power cells

Clearing the Error Code

This detected error requires a power reset.

[Dry Run Error] dr YF

Probable Cause

The dry run monitoring function has detected an error.

NOTE: After the error has been triggered, even if the detected error has been cleared, it is not possible to restart the pump before the end of the **[DryRun Restart Delay]** dr Yr.

Remedy

- Verify that the pump is well primed.
- Verify that there is no air leak in the suction line.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** r 5F parameter after its cause has been removed.

[Encoder Coupling] ECF

Probable Cause

The mechanical coupling of the encoder is broken.

The detection is active when **[Encoder Coupling Monit]** ECC parameter is set to **[Yes]** YES.

It triggers the error when the speed feedback is 0 and the drive is in torque or current limitation.

The limits for speed feedback are:

- 5 Hz for minimum
- 10% of **[Nominal Motor Freq]** FrS for maximum
- Verify the setting of **[Encoder Coupling Monit]** ECC parameter.
- Verify the setting of **[Encoder check time]** ECt parameter.

The monitoring is not compatible with torque or current limitation functions.

Remedy

Verify the mechanical coupling of the encoder.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[EEPROM Control] E E F 1

Probable Cause

An error of the internal memory of the control block has been detected.

Remedy

- Verify the environment (electromagnetic compatibility).
- Switch off the product.
- Return to factory settings.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[EEPROM Power] EEF2

Probable Cause

An error of the internal memory of the power board has been detected.

Remedy

- Verify the environment (electromagnetic compatibility).
- Switch off the product.
- Return to factory settings.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Encoder] E n F

Probable Cause

Encoder feedback error.

The difference between the measured and estimated speed is greater than 4% of **[Nominal Motor Freq]** F r S or **[Sync Nominal Freq]** F r S S.

-
- •The encoder feedback (measured speed) in case of AABB or AB hardware signals must be the same as the calculated speed. •
- The motor frequency must be 10% of **[Nominal Motor Freq]** F r S and stable during 3 s.
- Setting of the encoder type and supply voltage not correct

Remedy

- Verify the configuration parameters for the encoder used.
- Verify the mechanical and electrical operation of the encoder.
- Verify the consistency between the encoder signals and the direction of rotation of the motor.
- If necessary, reverse the direction of rotation of the motor (**[Output Ph rotation]** P H r parameter)
- Verify the parameter **[Encoder supply volt.]** u E C V.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** r S F parameter after its cause has been removed.

[External Error] EPF 1

Probable Cause

- Event triggered by an external device, depending on user.
- An external error has been triggered via Embedded Ethernet.
- The error is caused by an external circuit.
- Ethernet configuration file is corrupted.

Remedy

- Remove the cause of the external error.
- Perform a factory setting of the Ethernet configuration.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Fieldbus Error] EPF2

Probable Cause

Event triggered by an external device, depending on user.

Remedy

Remove the cause of the external error.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Opt 3 External Error] EPF3

Probable Cause

- A communication interruption on the 3rd option card has been detected
- Ethernet configuration file is corrupted.

Remedy

- Check the configuration of the IP address on the PLC and on the control block.
- Make sure the PLC software has been uploaded successfully and is compatible with the control block firmware.
- Perform a factory setting of the Ethernet configuration or modify the **IP Mode**

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Embd Eth Com Interrupt] EtHF

Probable Cause

Communication interruption on the Ethernet IP ModbusTCP bus.

Remedy

- Verify the communication bus.
- Refer to the Ethernet manual (PHA30472).

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[FDR 1 Error] F d r 1

Probable Cause

- Embedded Ethernet FDR error
- Communication interruption between the drive and the PLC
- Configuration file incompatible, empty or invalid
- Drive rating not consistent with the configuration file

Remedy

- Verify the drive and PLC connection
- Verify the communication workload
- Restart the transfer of configuration file from drive to PLC

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after its cause has been removed.

[FDR 2 Error] F d r 2

Probable Cause

- Ethernet fieldbus module FDR error
- Communication interruption between the drive and the PLC
- Configuration file incompatible, empty or corrupted
- Drive rating not consistent with the configuration file

Remedy

- Verify the drive and PLC connection
- Verify the communication workload
- Restart the transfer of configuration file from drive to PLC

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after its cause has been removed.

[Firmware Update Error] FWEr

Probable Cause

Firmware update function has detected an error.

Remedy

- Verify the compatibility of the firmware.
- Verify the flat ribbon cable between the control block and the power board.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Boards Compatibility] HCF

Probable Cause

Hardware configuration error.

The **[Pairing password]** PP1 parameter has been enabled and an option module has been changed.

Remedy

- Refit the original option module.
- Confirm the configuration by entering the **[Pairing password]** PP1 if the module was changed deliberately.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[MonitorCircuit A Error] ,FA

Probable Cause

The digital input assigned to **[MonitorCircuit A Assign]** ,FAA is active for longer than **[MonitorCircuit A Delay]** ,FdA.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit A Assign]** ,FAA parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrF or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MonitorCircuit B Error] ,Fb

Probable Cause

The digital input assigned to **[MonitorCircuit B Assign]** ,FAb is active for longer than **[MonitorCircuit B Delay]** ,Fdb.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit B Assign]** ,FAb parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MonitorCircuit C Error] ıFC

Probable Cause

The digital input assigned to **[MonitorCircuit C Assign]** ıFAC is active for longer than **[MonitorCircuit C Delay]** ıFdC.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit C Assign]** ıFAC parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MonitorCircuit D Error] ,Fd

Probable Cause

The digital input assigned to **[MonitorCircuit D Assign]** ,FRd is active for longer than **[MonitorCircuit D Delay]** ,Fdd.

Remedy

- Verify the connected device and its wiring.
- Verify the **[MonitorCircuit D Assign]** ,FRd parameter assignment.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Internal Link Error] ,LF

Probable Cause

Communication interruption between option module and the drive.

Remedy

- Verify the environment (electromagnetic compatibility).
- Verify the connections.
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Opt 3 Intern Link Error] ,LF3

Probable Cause

The 3rd option card has detected an internal error on the Ethernet option module.

- Wrong connection between Ethernet option module slot C and control board.

Remedy

- Contact your local Schneider Electric representative.
- Replace the Ethernet option module in the 3rd option slot.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 0] inF0

Probable Cause

- Communication interruption between microprocessors of the control board.
- The power board rating is not valid.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 1] inF1

Probable Cause

The power board rating is not valid.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 2] inF2

Probable Cause

The power board is incompatible with the control block software.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 3] inF3

Probable Cause

Internal communication detected error.

Remedy

- Verify the wiring on drive control terminals (internal 10V supply for analog inputs overloaded).
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 4] inF4

Probable Cause

Internal data inconsistent.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 6] inF6

Probable Cause

- The option module installed in the drive is not recognized.
- The removable control terminal modules (if existing) are not present or not recognized.
- The embedded Ethernet adapter is not recognized.

Remedy

- Verify the catalog number and compatibility of the option module.
- Plug the removable control terminal modules after the drive has been switched off.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 7] inF 7

Probable Cause

Communication interruption with CPLD component of Control board.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 8] inF8

Probable Cause

The internal power switching supply is not correct.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 9] inF9

Probable Cause

An error on the current circuit measurement has been detected.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Internal Error 10] inFA

Probable Cause

The input stage is not operating correctly.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 11] inFb

Probable Cause

The internal drive thermal sensor is not operating correctly.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Internal Error 12] inFC

Probable Cause

Internal current supply error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 14] inFE

Probable Cause

Internal microprocessor detected error.

Remedy

- Verify that the error code can be cleared.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 15] inFF

Probable Cause

Serial memory flash format error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 16] InFG

Probable Cause

Communication interruption or internal error of output relays option module

Remedy

- Verify that the option module is correctly connected to the slot
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 17] InFH

Probable Cause

Communication interruption with the Extension module of digital & analog I/O or internal error of the Extension module of digital & analog I/O.

Remedy

- Verify that the option module is correctly connected to the slot
- Replace the option module.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 19] inF1

Probable Cause

An error on the encoder module has been detected.

Remedy

- Verify if the encoder option module is connected correctly to the slot.
- Verify the compatibility of the encoder.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 20] inFK

Probable Cause

Option module interface board error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 21] InFL

Probable Cause

Internal Real Time Clock error. It could be a communication error between the keypad and the drive or a clock oscillator start error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 22] InFO

Probable Cause

An error on the embedded Ethernet adapter has been detected.

Remedy

Verify the connection to the Ethernet port.

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Compatibility Error] InFo

Probable Cause

During initialization, compatibilities between Control and PLC or Control and HMI are checked.

Internal incompatibility detected between Control and PLC or Control and HMI.

Remedy

- Monitor INFO parameter to identify compatibility error between device.
- Verify INFO parameter to identify compatibility error between device.
- Restart the drive (switch the drive OFF / ON).
- Verify compatibility between control Option Ethernet and PLC and HMI (Check with the compatibility table).
- Verify compatibility between control block and Ethernet option module.
- Change the control block, update HMI FW and PLC FW.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 25] InFP

Probable Cause

Incompatibility between Control Board hardware version and firmware version.

Remedy

- Update the firmware package.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 27] inFr

Probable Cause

Diagnostics in CPLD have detected an error.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Internal Error 31] inFV

Probable Cause

Invalid identification of power-cell according to the configuration (Parameter: POCN).

Remedy

- Replace the dedicated power cell
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrS or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Input Contactor] LCF

Probable Cause

The line contactor/breaker is closed and Mains supply is not detected before **[Mains V. time out]** LCt timeout.

Remedy

- Verify the supply wiring between Mains, contactor/breaker and drive.
- Verify that the Mains supply is present upstream of the contactor/breaker.
- Verify the input contactor or breaker wiring.
- Verify the **[Mains V. time out]** LCt timeout setting.
- Verify the input contactor/breaker configuration

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI1 4-20mA loss] LFFI

Probable Cause

Loss of the 4-20 mA on analog input AI1.

This error is triggered when the measured current is below 2 mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI1 4-20mA loss]** LFLI parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrF or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI3 4-20mA loss] LFF3

Probable Cause

Loss of the 4-20 mA on analog input AI3.

This error is triggered when the measured current is below 2 mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI3 4-20mA loss]** LFL3 parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI4 4-20mA loss] LFF4

Probable Cause

Loss of the 4-20 mA on analog input AI4.

This error is triggered when the measured current is below 2mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI4 4-20mA loss]** LFL4 parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI5 4-20mA loss] LFF5

Probable Cause

Loss of the 4-20 mA on analog input AI5.

This error is triggered when the measured current is below 2 mA.

Remedy

- Verify the connection on the analog inputs.
- Verify the setting of **[AI5 4-20mA loss]** LFL5 parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MultiDrive Link Error] ndLF

Probable Cause

- The communication has been interrupted while running.
- The function has detected an inconsistency in the system configuration.

Remedy

- Check the communication network.
- Check the configuration of the multi-drive link function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[M/S Device Error] nSdF

Probable Cause

- For a master, one or more slaves are not present or not ready.
- For a slave, the master is not present.

Remedy

- Verify the drive status.
- Verify the settings of the master/slave architecture.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[DC Bus Overvoltage] obF

Probable Cause

- Deceleration time too short or driving load too high.
- Supply mains voltage too high.

Remedy

- Increase the deceleration time.
- Configure the **[Dec ramp adapt.]** brA function if it is compatible with the application.
- Verify the supply mains voltage.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Overcurrent] oCF

Probable Cause

- Incorrect motor parameters.
- Inertia or load too high.
- Mechanical locking.

Remedy

- Verify the motor parameters.
- Verify the size of the motor/drive/load.
- Verify the state of the mechanism.
- Decrease **[Current limitation]** CLI.

Clearing the Error Code

This detected error requires a power reset.

[Drive Overheating] oHF

Probable Cause

Drive temperature too high.

Remedy

Verify the motor load, the drive ventilation, and the ambient temperature. Wait for the drive to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Process Overload] oLC

Probable Cause

Process overload.

Remedy

- Verify and remove the cause of the overload.
- Verify the parameters of the **[Process overload]** oLd - function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Motor Overload] oLF

Probable Cause

Triggered by excessive motor current.

Remedy

- Verify the setting of the motor thermal monitoring
- Verify the motor load. Wait for the motor to cool down before restarting
- Verify the setting of the following parameters:
  - **[Motor Th Current]** ItH
  - **[Motor Thermal Mode]** tHt
  - **[Motor Therm Thd]** ttd
  - **[MotorTemp ErrorResp]** oLL

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Single Output Phase Loss] oPF1

Probable Cause

Loss of one phase at drive output.

Remedy

Verify the wiring from the drive to the motor.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Output Phase Loss] oPF2

Probable Cause

- Motor not connected or motor power too low.
- Output contactor opened.
- Instantaneous instability in the motor current.

Remedy

- Verify the wiring from the drive to the motor.
- If an output contactor is being used, set **[OutPhaseLoss Assign]** OPL to **[No Error Triggered]** OAC.
- If the drive is connected to a low-power motor or not connected to a motor: In factory settings mode, motor phase loss detection is active **[Output Phase Loss]** oPL = **[OPF Error Triggered]** YES. Deactivate motor phase loss detection **[Output Phase Loss]** oPL = **[Function Inactive]** nO.
- Verify and optimize the following parameters: **[IR compensation]** UFr, **[Nom Motor Voltage]** UnS and **[Rated mot. current]** nCr and perform **[Autotuning]** tUn.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Supply Mains Overvoltage] oSF

Probable Cause

- Supply mains voltage too high.
- Disturbed supply mains.

Remedy

Verify the supply mains voltage.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[PumpCycle Start Error] PCPF

Probable Cause

The Pumpcycle monitoring function has exceeded the maximum number of start sequences allowed in the time window.

Remedy

- Search for a possible cause of repetitive start of system.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrY or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[PID Feedback Error] PFnF

Probable Cause

The PID feedback error was out of the allowed range around the set point during the time window.

Remedy

- Check for mechanical breakdown of pipes.
- Check for water leakage.
- Check for open discharge valve.
- Check for fire hydrant opened.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Program Loading Error] PGLF

Probable Cause

Verify that the error code can be cleared.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Program Running Error] PGrF

Probable Cause

Verify that the error code can be cleared.

Remedy

Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[Input phase loss] PHF

Probable Cause

- Drive incorrectly supplied or a tripped fused.
- One phase is unavailable.
- 3-phase Drive used on a single-phase supply mains.
- Unbalanced load.

Remedy

- Verify the power connection and the fuses.
- Use a 3-phase supply mains.
- Disable the detected error by **[Input phase loss]** iPL = **[No]** no if single phase supply mains or DC bus supply is used.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[POE Error] PodF

Probable Cause

Power output enable function allows to disable command to the motor.

The trip message takes place as soon as an internal electronics error (Internal circuit monitoring) occurs.

- Debounce time exceeded: POEA and POEB have a different status (High / Low) for more than 1 second
- Internal hardware error

Remedy

- Verify the wiring of the digital inputs POE_A and POE_B.
- Contact your local Schneider Electric representative.
- Replace adaptation board

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[Mains Overcurrent] PWF I

Probable Cause

The input current sensors has detected an overcurrent at the transformer input. (Threshold: Imax depending on hardware) not detected during charging phase.

- Short circuit on the transformer primary side
- Mains cable damaged
- Internal mains cable from the terminal to the transformer damaged
- Current sensor not working or not connected properly
- Adaption board or Control Block not working properly

Remedy

- Visual check of the transformer and verify that there are no obvious damages
- Insulation test of the transformer and all input cables
- Verify the connection of the input current sensors
- Verify the connection on the adaption board
- Make sure all power supplies are switched on and the adaption board is proper supplied
- Replace input current sensors
- Replace adaption board
- Replace Control Block
- Verify the transformer winding resistance with a micro-ohmmeter

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[Mains Ground Error] PWF2

Probable Cause

The monitoring is based on absolute voltage value of the sum of the three Voltages to ground which exceeded a definite trip threshold. Parameter: **[In Grnd Flt Lev]** GnVL / **[In Grnd Flt Timeout]** GnVt / **[In Grnd Flt Resp]** GnVb

- Ground short circuit on the input of the drive

Remedy

- Verify all mains cable connections and perform an insulation test on the input cables
- Measure the mains voltage with a properly rated, electrically insulated tools. (SEPAM Digital Relay / Appropriate probes and Oscilloscope).
- Verify the input voltage measurement connection on the adaptation board on terminal X11.

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[Motor Ground Error] PWF3

Probable Cause

The protection is based on absolute voltage value of the sum of the three Voltages to ground which exceeded a definite trip threshold. Parameter: **[Output Grnd Flt Lev]** GoVL / **[Output Grnd Flt Timeout]** GoVt / **[Output Grnd Flt Resp]** GoVb

- Ground short circuit on the output of the drive

Remedy

- Verify all motor cable connections and perform an insulation test on the motor cables and motor
- Verify the output voltage measurement connection on the adaptation board on terminal X12

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[PoC Fiber Error] PWF4

Probable Cause

The adaption board has detected a fiber optic communication UOF error between the adaption board and power cell.

Wrong communication detected by adaption board monitoring Rx fiber signal sent by PoC Tx

- Fiber optic cable on the adaption board or power cell not connected.
- Fiber optic cables are not connected properly
- Fiber optic cable bended or damaged.
- Adaption board / Control Block not working properly.
- Power cell not working properly (Control Board on power cell not working properly).

Remedy

- Verify the connection of all fiber optic cables.
- Clean the fiber connections
- Replace the adaption board or the fiber board.
- Replace the dedicated power cell.
- Replace the fiber optic cables.

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[PoC Supply Error] PWF5

Probable Cause

The purpose of this protection is to detect an abnormal mains supply of the power-cell.

- Power-cell fuse open.
- Power cell rectifier not working properly.

Remedy

Replace dedicated power cell

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[FPGA Internal Error] PWF6

Probable Cause

The adaptation board has detected an internal error on the FPGA.

Adaption board not working properly.

Remedy

- Reflash the FPGA with an external programmer (If available).
- Replace the adaption board.
- Contact your local Schneider Electric representative.

Clearing the Error Code

This detected error requires a power reset.

[PoC Gate Driver Error] PWF7

Probable Cause

- Power cell damaged - IGBT broken
- Power cell damaged - Gate Drive board damage
- Power cell damaged - Control board power supply is not working properly.
- High current

Remedy

- Measure the current on the output and verify that it is normal
- Replace the dedicated power cell if the detected error is permanent on the same power cell

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[PoC Fiber DOF Error] PWFB

Probable Cause

The adaptation board has detected a fiber optic communication DOF error between the adaptation board and power cell.

Wrong communication detected by power cell control board Rx fiber signal which is sent by Tx on Adaptation board.

- Fiber optic cable on the adaptation board or power cell is not connected properly.
- Fiber optic cable bended or damaged.
- Adaptation board / Control Block defective
- Inoperative Power cell defective.

Remedy

- Verify that all fiber optic cables are in good condition and the connections are done properly.
- Clean the fiber connections.
- Replace the adaptation board or the fiber optic extension card.
- Replace the dedicated power cell.
- Replace the fiber optic cable.

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[Motor short circuit] SCF I

Probable Cause

- Short-circuit or grounding at the drive output.
- Short circuit or grounding of the motor or of the motor cables.

Remedy

Check the cables connecting the drive to the motor, and the motor insulation.

Clearing the Error Code

This detected error can be cleared manually with the **[Extended Fault Reset]** HrFC parameter after the cause has been removed.

[Ground Short Circuit] SCF3

Probable Cause

Significant ground leakage current at the drive output if several motors are connected in parallel.

Remedy

- Verify the cables connecting the drive to the motor, and the motor insulation.
- Adjust the switching frequency.
- Connect chokes in series with the motor.
- If you have long cables, verify the setting of **[Ground Fault Activation]** GrFL.

Clearing the Error Code

This detected error requires a power reset.

[SD Error] SdFt

Probable Cause

The drive could not synchronize its output voltage to the Mains in the allowed time.

- High perturbation level on Mains voltage.
- Setting error on Mains to Drive bypass function.

Remedy

- Verify mains stability voltage and frequency.
- Contact your local Schneider Electric representative to check commissioning state of the function.

If the mains is unstable adjust the following parameters

SDAD	SDST
SDMV	SDMT
SDAB	SDFT
SDAP	SDMO
SDAT	SDMD
SDMB	

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Modbus Com Interruption] SLFI

Probable Cause

Communication interruption on the Modbus port.

Remedy

- Verify the communication bus.
- Verify the timeout.
- Refer to the Modbus user manual.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[PC Com Interruption] SLF2

Probable Cause

Communication interruption with the commissioning software.

Remedy

- Verify the commissioning software connecting cable.
- Verify the timeout.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrE or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[HMI Com Interruption] SLF3

Probable Cause

Communication interruption with the Graphic display terminal.

This error is triggered when the command or reference value are given using the Graphic Display Terminal and if the communication is interrupted during more than 2 seconds.

Remedy

- Verify the Graphic display terminal connection.
- Verify the timeout.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[HMI Comm Interrupt] SLF4

Probable Cause

Communication error between HMI & Control block. The communication has not been established before timeout occurred timeout. (**[Modbus 2 Timeout]** Et o2: 10 s)

- Modbus cable between HMI and Control Block not connected.
- **[Modbus 2 Timeout]** Et o2 parameter setting too short.
- Modbus port on Control Block or HMI not working properly.
- Control block not working properly.
- HMI not working properly (Program not loaded before timeout occurred).

Remedy

- Verify the Modbus connection on the Control Block and HMI
- Make sure all Modbus parameter settings are correct
- Replace the Control Block / HMI
- Reload the HMI program
- Reload the Control Block firmware

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[SM Error] SMFt

Probable Cause

The drive could not synchronize its output voltage to the Mains in the allowed time.

- High perturbation level on Mains voltage.
- Setting error on Drive to Mains bypass function.

Remedy

- Verify mains stability voltage and frequency.
- Contact your local Schneider Electric representative to check commissioning state of the function.

If the mains is unstable adjust the following parameters

SMAD	SMMT
SMAS	SMMO
SMMD	SMFT
SMAB	SMST
SMAP	SMMV
SMMB	SMAT

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Motor Overspeed] SoF

Probable Cause

- Instability or driving load too high.
- If a downstream contactor is used, the contacts between the motor and the drive have not been closed before applying a Run command.
- The overspeed threshold (corresponding to 110 % of **[Max frequency]** tFr) has been reached.

Remedy

- Verify the motor parameter settings.
- Verify the size of the motor/drive/load.
- Verify and close the contacts between the motor and the drive before applying a Run command.
- Verify the consistency between **[Max frequency]** tFr and **[High Speed]** HSP. It is recommended to have at least **[Max frequency]** tFr ≥ 110% * **[High Speed]** HSP.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Encoder Feedback Loss] SPF

Probable Cause

This error is triggered if:

- The measured speed is lower than 2 % of **[Nominal Motor Freq]** FrS.
- The difference between the stator speed and the measured speed is greater than 20 % of **[Nominal Motor Freq]** FrS.
- EMC perturbations on the network:
  - Ground cabling.
  - Ground Shielding.
  - Cable routing (control & power mixed).
- No input signal or top Z signal after two rotation has been done.
- Encoder feedback signal missing.
- Supply voltage of the encoder missing or not strong enough.
- Missing of at least one wire at the encoder connection.
- No signal on the pulse input if the input is used for speed measurement.

Remedy

- Verify the error code value **[Encoder Fdbck Error]** EnCE.
- Verify the wiring between the encoder and the drive.
- Verify the encoder.
- Verify the encoder settings.
- Verify the wiring of the pulse input and the sensor used.
- Use a shielded cable and ground both ends.
- Verify the encoder power supply. Reduce **[Encoder Supply Voltage]** uECV value.
- Check the supply voltage of the encoder, more details in the ATV6000 Installation manual.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Security Files Corrupt] SPFC

Probable Cause

Security files corrupted or missing.

Remedy

Switch off the product. At next switch-on, the security file will be created again, and the information related to cybersecurity (such as channel policy and password) are set back to the default value.

Clearing the Error Code

This detected error requires a power reset.

[Torque timeout] SrF

Probable Cause

The torque control function is not able to regulate the torque within the configured dead band. The drive has switched to speed control for longer than **[Torque ctrl time out]** rto.

Remedy

- Verify the settings of the **[Torque control]** tor - function.
- Verify that there are no mechanical constraints.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Torque Limitation Error] SSF

Probable Cause

The drive was in torque limitation or current limitation state during **[Trq/I Limit Timeout]** Sto.

Remedy

- Verify the settings of the **[Torque limitation]** tOL - function.
- Verify that there are no mechanical constraints.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Motor Stall Error] SEF

Probable Cause

The stall monitoring function has detected an error.

The **[Motor Stall Error]** SEF is triggered on the following conditions:

- The output frequency is smaller than the stalling frequency **[Stall Frequency]** SEP3
- The output current is higher than the stalling current **[Stall Current]** SEP2
- For a duration longer than the stalling time S**[tall Max Time]** SEP1.

Remedy

- Search for a mechanical blocking of the motor.
- Search for a possible cause of motor overload.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI1 Thermal Sensor Error] E I C F

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI1:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r S F parameter after its cause has been removed.

[AI3 Thermal Sensor Error] $E\ 3\ C\ F$

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI3:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.
- Verify the setting of**[AI3 Type]** $A\ 1\ 3\ E$ parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** $A\ t\ r$ or manually with the **[Fault Reset Assign]** $r\ S\ F$ parameter after its cause has been removed.

[AI4 Thermal Sensor Error] E 4 C F

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI4:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.
- Verify the setting of **[AI4 Type]** A I 4 E parameter

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A E r or manually with the **[Fault Reset Assign]** r S F parameter after its cause has been removed.

[AI5 Thermal Sensor Error] E 5 C F

Probable Cause

The thermal monitoring function has detected an error of the thermal sensor connected to the analog input AI5:

- Open circuit, or
- Short circuit

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.
- Verify the setting of **[AI5 Type]** A I 5 t parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** A t r or manually with the **[Fault Reset Assign]** r 5 F parameter after its cause has been removed.

[Encoder Th Sensor Error] ΕΕΠF

Probable Cause

The thermal sensor monitoring function has detected a thermal sensor on the encoder module analog input:

- Open circuit, or
- Short circuit.

Remedy

- Verify the sensor and its wiring.
- Replace the sensor.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** ΑΕr or manually with the **[Fault Reset Assign]** r5F parameter after its cause has been removed.

[MotorWinding A Error] EFA

Probable Cause

The digital input assigned to **[MotorWinding A Assign]** EFAA is active for longer than **[MotorWinding A Delay]** EFdA.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorWinding B Error] EFb

Probable Cause

The digital input assigned to **[MotorWinding B Assign]** EFAb is active for longer than **[MotorWinding B Delay]** EFdb.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorBearing A Error] EFC

Probable Cause

The digital input assigned to **[MotorBearing A Assign]** EFAC is active for longer than **[MotorBearing A Delay]** EFdC.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[MotorBearing B Error] EFd

Probable Cause

The digital input assigned to **[MotorBearing B Assign]** EFAd is active for longer than **[MotorBearing B Delay]** EFdd.

Remedy

- Verify the connected device (motor winding thermal switch) and its wiring.
- Verify the motor load and the ambient temperature. Wait for the motor to cool down before restarting.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI1 Th Level Error] ELHIF

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI1.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrF or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI3 Th Level Error] ELH3F

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI3.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtrP or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[AI4 Th Level Error] ΕΗ4F

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI4.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** r5F parameter after its cause has been removed.

[AI5 Th Level Error] ΕΗ5F

Probable Cause

The thermal sensor monitoring function has detected a high temperature on analog input AI5.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AEr or manually with the **[Fault Reset Assign]** r5F parameter after its cause has been removed.

[Encoder Th Detected Error] ΕΗΕF

Probable Cause

The thermal sensor monitoring function has detected a high temperature on encoder module analog input.

Remedy

- Search for a possible cause of overheating.
- Verify the settings of the monitoring function.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** ΑΕr or manually with the **[Fault Reset Assign]** r5F parameter after its cause has been removed.

[Drive Overload] ΕLoF

Probable Cause

The **[Drive overload monit]** obr - function has detected an error.

Remedy

- Verify the size of the load/motor/drive according to environment conditions.
- Verify the settings of the **[Drive Overload Monit]** ΕLoL parameter.

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** ΑΕr or manually with the **[Fault Reset Assign]** r5F parameter after its cause has been removed.

[Autotuning Error] tnF

Probable Cause

- Special motor or motor whose power is not suitable for the drive.
- Motor not connected to the drive.
- Motor not stopped.

Remedy

- Verify that the motor/drive are compatible.
- Verify that the motor is connected to the drive during autotuning.
- If an output contactor is being used, verify that it is closed during autotuning.
- Verify that the motor is present and stopped during autotuning.
- In case of reluctance motor, reduce **[PSI Align Curr Max]** MCr.

Clearing the Error Code

This detected error can be cleared manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Process Underload] ULF

Probable Cause

Process underload.

Remedy

- Verify and remove the cause of the underload.
- Verify the parameters of the **[Process underload]** ULd - function

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** Atr or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

[Supply Mains UnderV] ␣ 5 F

Probable Cause

- Supply mains too low.
- Transient voltage dips.

Remedy

Verify the voltage and the parameters of **[Undervoltage handling]** ␣ 5 b.

Clearing the Error Code

This detected error is cleared as soon as its cause has been removed.

[Mains Voltage Dip Error] 3PF

Probable Cause

Detection based on mains voltage measurement, takes place when 3 input phases are lost.

This error is used with mains voltage dip function.

Remedy

Contact your local Schneider Electric representative.

Update setting **[Mains Dip Recovery Time]** MVd2

Clearing the Error Code

This detected error can be cleared with the **[Auto Fault Reset]** AtR or manually with the **[Fault Reset Assign]** rSF parameter after its cause has been removed.

Glossary

C

CPLD :

Complex Programmable Logic Device.

E

Error :

Discrepancy between a detected (computed, measured, or signaled) value or condition and the specified or theoretically correct value or condition.

F

Factory setting:

Factory settings when the product is shipped.

Fault Reset:

A function used to restore the drive to an operational state after a detected error is cleared by removing the cause of the error so that the error is no longer active.

Fault:

Fault is an operating state. If the monitoring functions detect an error, a transition to this operating state is triggered, depending on the error class. A "Fault reset" is required to exit this operating state after the cause of the detected error has been removed. Further information can be found in the pertinent standards such as IEC 61800-7, ODVA Common Industrial Protocol (CIP).

FPGA:

Field-Programmable Gate Away.

M

Monitoring function:

Monitoring functions acquire a value continuously or cyclically (for example, by measuring) in order to check whether it is within permissible limits. Monitoring functions are used for error detection.

MV:

Medium Voltage

P

Parameter:

Device data and values that can be read and set (to a certain extent) by the user.

PELV:

Protective Extra Low Voltage, low voltage with isolation. For more information: IEC 60364-4-41.

PLC:

Programmable logic controller.

PoC:

Power Cell.

POE:

Power Output Enable.

Power stage:

The power stage controls the motor. The power stage generates current for controlling the motor.

PWM:

Pulse Width Modulation.

W

Warning:

If the term is used outside the context of safety instructions, a warning alerts to a potential error that was detected by a monitoring function. A warning does not cause a transition of the operating state.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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