

IS230 Series

Industrial Managed Layer 2 Switches

Our ruggedized IS230 Industrial managed switches provide enduring performance in harsh environments, such as those found in outdoor IoT, transportation and industrial applications.

Overview

The Allied Telesis IS230 Series is a multipurpose product line of managed Layer 2 switches ideal for industrial applications, including manufacturing, rail transportation (telecommunication and signaling), road transportation (traffic control), and Smart Cities.

With fanless operation and a wide operating temperature range of -40° to 75°C, the robust IS230 Series easily tolerates harsh and demanding environments, such as those found in industrial and outdoor deployments.

An integrated voltage regulator ensures the PoE output voltage always stays at the rated value, regardless of any fluctuations in the input voltage of powered devices. An extended input voltage range makes the IS230 Series ideal for deployment in traffic control cabinets.

Network resiliency

The IS230 Series supports highly stable and reliable ICT network switching, with recovery times down to 50ms. The IS230 can be customized with the most appropriate mechanism and protocol to prevent network connection failure. Choices include Allied Telesis Ethernet Protection Switched Ring (EPSRing™), and the standards-based ITU-T G.8032.

Securing the Network Edge

Ensuring data protection means controlling network access. Protocols such as IEEE 802.1X port-based authentication guarantee that only known users are connected to the network. Unknown users who physically connect can be segregated into a pre-determined part of the network. This offers network guests Internet access, while ensuring the integrity of private network data.

Quality of Service

Comprehensive wire-speed QoS provides flow-based traffic management with Port/Tag Base and Type of Service prioritization. Bandwidth control limits ingress/ egress traffic and broadcast/ multicast/flooded unicast packets.

Gigabit and Fast Ethernet support

The IS230 Series offers combo ports supporting both Gigabit and Fast Ethernet Small Form-Factor Pluggables (SFPs). Support for both SFP types allows organizations to stay within budget even as they migrate to faster technologies.

Configurable power budget

On PoE-sourcing IS230 switches, all LAN ports source POE+ up to 30W. You can configure both the overall power budget and the power feeding limit on a per-port basis, to establish a close relationship between the power sourcing feature and the real capabilities of the external Power Supply Unit (PSU)¹.

Dual power inputs

The IS230 Series provides redundant power inputs for higher system reliability; the power inputs are protected against reverse polarity and over-current.

ECO friendly

The IS230 Series are Energy Efficient Ethernet (EEE) devices. They facilitate power saving by switching off parts of the LAN that are not transmitting or recieving data. This sophisticated feature can significantly reduce operating costs, by reducing the power requirements of the switch and any associated cooling equipment.







Key Features

- ► Full Gigabit, wire speed ports
- ▶ Uplink combo ports
- ▶ 100/1000Mbps SFP support
- ► Flexible management interface (GUI, SNMP, CLI, TELNET and SSH)
- ► Ethernet Protection Switched Ring (EPSRingTM)
- ► Ethernet Ring Protection Switching (ITU-T G.8032)
- ► VLAN stacking (Q-in-Q)
- Multicast support (IGMP and MLD snooping)
- ▶ Loopback detection and storm control
- ▶ Port mirroring
- ► Port trunking/link aggregation (LACP)
- ► Link Layer Discovery (LLDP)
- ► IEEE 802.3at PoE+ sourcing (30W)
- ► -40 to +75°C wide-range operating temperature
- ▶ Dual power inputs with voltage boost converter
- ▶ Alarm output
- ► Fanless design

¹ PSU must be compliant with local/national safety and electrical code requirements. Select the supply with the most appropriate output power derating curve.

Key Features

ICT networks resiliency

- ► EPSRing™ and ITU-T G.8032 enable a protected ring capable of recovery within as little as 50ms; these features are perfect for high performance and high availability. For EPSRing™, the IS230 works as Transit node and will alert the Master about the link status (links go down or come up), then it waits for Master's consequent actions.
- Spanning Tree Protocol compatible, RSTP; MSTP; static Link Aggregation Group (LAG), and dynamic Link Aggregation Control Protocol (LACP) support.
- X-Ring protocol is a non-standard protocol preventing failure in ring network topology. X-Ring protocol recovers network faults within 20ms.

Quality of Service (QoS)

► Low-latency wire-speed QoS provides flow-based traffic management with full classification, prioritization and bandwidth control limit.

Link Layer Discovery Protocol (LLDP)

LLDP performs the network endpoint discovery. That is useful for the automation of network management and network troubleshooting.

Access Control Lists (ACLs)

ACLs filter network traffic at MAC and IP protocol level, to control whether routed packets are forwarded or blocked at the port interface. This provides a powerful network security mechanism to select the types of traffic to be analyzed, forwarded, or influenced in some way.

Dynamic Host Configuration Protocol (DHCP) Snooping

▶ DHCP servers allocate IP addresses to clients, and the switch keeps a record of addresses issued on each port. IP source guard checks against this DHCP snooping database to ensure only clients with specific IP and/or MAC address can access the network. DHCP Snooping can be combined with other features, like dynamic ARP inspection, to increase security in Layer 2 switched environments. It also provides a traceable history which meets the growing legal requirements placed on service providers.

Power over Ethernet Plus (PoE+)

- ▶ With PoE, a separate power connection to media endpoints such as IP phones and wireless access points is not necessary. PoE+ reduces costs and provides even greater flexibility, providing the capability to connect devices requiring more power (up to 30 Watts) such as pan, tilt and zoom security cameras.
- ➤ The IS230 series allows the configuration of the overall PoE power budget to match the real capabilities of the external Power Supply Unit (PSU). The PoE power budget is allocated to PDs statically, based on the requirement of each PD attached to the switch's ports.

Alarm Input/Output

Alarm Output support the ability to connect external devices such as audio sirens and alarm strobe lights to the switch, and control them upon a event.

Key Solution VISTA MANAGER" EX Camera monitoring RADIUS TACACS+ DHCP VCStack ™LD <u>4M</u>= **EPSRing** IE300 **EPSR**ing IS130 IF300 IS130 **EPSR**ing IS230 TQ4400e TQ4400e Edge Security area 1 Gigabit link 10/100 link

Specifications

PRODUCT	10/100/1000T (RJ45) COPPER PORTS			SWITCHING Fabric	FORWARDING RATE
IS230-10GP	8 + 2 (Combo)	2 (Combo)	8	20Gbps	14.88Mpps

ELECTRICAL/MECHANICAL APPROVALS					
Compliance Mark	CE, FCC, RCM, TUV, VCCI				
Safety	CAN/CSA C22.2 No.60950-1 CAN/CSA C22.2 No.61010-2-201 CAN/CSA C22.2 No.62368-1 EN/IEC/UL 60950-1 EN/IEC/UL 61010-2-201 EN/IEC/UL 62368-1				
EMC	AS/NZS CISPR 32, class A EN55024; EN55032, class A EN61000-6-2; EN61000-6-4, class A FCC part 15B, class A ICES-003, issue 6, class A VCCI, class A				
Electrostatic Discharge (ESD)	EN61000-4-2, level 3				
Radiated Susceptibility (RS)	EN61000-4-3, level 3				
Electrical Fast Transient (EFT)	EN61000-4-4, level 3				
Lighting/Surge immunity (Surge)	EN61000-4-5, level 3				
Conducted immunity (CS)	EN61000-4-6, level 3				
Magnetic field immunity	EN61000-4-8, level 4				
Railway	EN50121-4				
Traffic Control	NEMA-TS2				
Freefall	IEC60068-2-31 Class T2.3 (1m drop)				
Shock	IEC60068-2-27 MIL-STD-810G 516.6		15g 11ms, half sine 15g 11ms, half sine		
Vibration	IEC60068-2-6 MIL-STD-810G 516.6		1g @10~150Hz Procedure 1, Category 4, per Figure 514.6C-1		

Physical Specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	ENCLOSURE	MOUNTING	PROTECTION Rate
IS230-10GP	74 x 105 x 152 mm (2.91 x 4.13 x 5.98 in)	1.2 Kg (2.6 4 lb)	Metal shell	DIN rail, wall mount	IP30

Performance

- ▶ Up to 8K MAC addresses
- ► Packet buffer memory: 512KB (4Mb)
- ▶ 8 priority QoS queues
- ▶ 4094 configurable VLANs
- ▶ 256 simultaneous VLANs
- ▶ Supports 9KB jumbo frames
- ▶ Up to 255 Layer 2 multicast entries

Other Interfaces

► Type Serial console (UART)

Port no. 1

Connector RJ-45 female

► Type Alarm Output (1A @24Vdc)

Port no. 1

Connector 2-pin Terminal Block*

► Type Power Input

Port no. 2

Connector 2-pin Terminal Block*

Environmental Specifications

- ▶ Operating temperature range: -40°C to 75°C (-40°F to 167°F)
- ► Storage temperature range: -40°C to 85°C (-40°F to 185°F)
- Operating humidity range:10% to 95%RH non-condensing
- ➤ Storage humidity range: 10% to 95%RH non-condensing
- Operating altitude 3,000m maximum (9,843ft)

Mechanical

► EN 50022, EN 60715 Standardized mounting on rails

Environmental Compliance

- ▶ RoHS
- ► China RoHS
- ▶ WEEE

Power Characteristics

	INPUT VOLTAGE	COOLING	NO POE LOAD		FULL POE LOAD*			POE POWER	POE SOURCING PORTS		
PRODUCT			MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	BUDGET	P0E (15W)	P0E+ (30W)
IS230-10GP	24~48Vdc	Fanless	13.2W	45.1 BTU/h	-	153.9W	115.7 BTU/h	-	120W	8	4

^{*} The Max Power consumption at full PoE load includes PD's consumption and margin. The cooling requirements of the switch are smaller than the power draw, because most of the load is dissipated at the PoE powered device (PD) and along the cabling. Use these wattage and BTU ratings for facility capacity planning.

^{*} A single 6-pin screw Terminal Block includes both power input and alarm output

Standards and Protocols

Mode Message Department Message Depart	Authent	ication	Manage	ement	Security	Features		
PROF. 195 South Plant Standard (SNA-1)	RFC 1321 MD5 Message-Digest algorithm		SNMPv1, v2	2c and v3	SSH remote	SSH remote login		
Encerption (management traffic only) Fig. 1819 Source that standard (RSA) Fig. 1811 Source that standard (RSA) Fig. 1811 Source that standard (RSA) Fig. 1811 Source that standard (RSA) Fig. 1812 Source that standard (RSA) Fig. 1812 Source that standard (RSA) Fig. 1813 Source that standard (RSA) Fig. 1814 Source that standard (RSA) Fig. 1815 Source that standard (RSA) Fig. 1815 Source that standard (RSA) Fig. 1812 Source that standard (RSA) Fig. 1813 Source that standard (RSA) Fig. 1814 Source that standard (RSA) Fig. 1815 Source that standard (RSA) Fig. 1815 Source that standard (RSA) Fig. 1816 Source that standard (RSA) Fig. 1817 Source that standard (RSA) Fig. 1817 Source that standard (RSA) Fig. 1817 Source that standard (RSA) Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818 Fig. 1818	RFC 1828	IP authentication using keyed MD5	IEEE 802.1ABLink Layer Discovery Protocol (LLDP)		SSLv2			
PIRS 186 Digital signature standard (SNA-1) FIRS 187 Simple National Management Protocol (SNA-1) FIRS 186 Digital signature standard (SNA-1) FIRS 187 SNA-10	, , , , , , , , , , , , , , , , , , ,		RFC 1155	Structure and identification of management	TACACS+ Accounting, Authentication, Authorization (AAA)			
FIRS 180 Dist injuried resident (SAA-1) FIRS 180 Dist injuried resident (SA) FIRS 30 Data Encryption Standard (DES and 30ES) FIRS 40 Dist Encryption Standard (DES and 30ES) FIRS 40E DIST 40ES And 40	Encrypt	ion (management traffic only)		information for TCP/IP-based Internets	IEEE 802.1X	authentication protocols (TLS, TTLS, PEAP		
Fig. 5 Digital signature standard (IRSA) Fig. 1212 Conclete Mills definitions Fig. 1231 Mills for nativork management of TCP/ Fig. 2318 Mills for nativork management of TCP/ Fig. 2319 Standard Mills Fig. 2319 Mills for nativork management of TCP/ Fig. 2319 Standard Mills Fig. 2319 Mills for nativork management of TCP/ Fig. 2319 Mills for management of TCP/ Fig. 2319 Mills for management of TCP/ Fig. 2319 Mills for management of Mills for management of Mills for the Tolking management of Mills for management of Mills for the Tolking management of Mills for the Tolking management for the Mills for the Tolking management for the Mills for the Mills for management for the Mills for the Mills for the Mills for the Mills for			RFC 1157	Simple Network Management Protocol				
FIRE 98.23 Data Encryption Standard (DES and 30ES) RFC 1212 Concess Milh disfinitions RFC 1213 RFC		, ,		(SNMP)	IEEE 802.1X	multi-supplicant authentication		
REF 802 Logical Link Control (LC) Ref 1239 Shardard MB Ref 2849 RFC 2849 R	FIPS 46-3		RFC 1212	Concise MIB definitions	IEEE 802.1X	port-based network access control		
RFC 232 Standard MIB		.,	RFC 1213	MIB for network management of TCP/	RFC 2818	HTTP over TLS ("HTTPS")		
IEEE 80.23 Control (I,LO RFC 1239 Standard MIB RFC 2866 RADIUS accounting REC 2874 Definitions of managed objects for bridges with staffic classes, multicast filtering and VLA extensions RFC 2876 RFC 2879 RMON MIB (groups 1, 2, 3 and 9) Process of Carbon VL7 VLA extensions RFC 2876 RFC 2878 RFC 2879 RFC 2879 RFC 2872 RFC 28	Etherne	t Standards		IP-based Internets: MIB-II	RFC 2865	RADIUS authentication		
EEE 802.3			RFC 1239	Standard MIB	RFC 2866	RADIUS accounting		
		, ,	RFC 2674	Definitions of managed objects for bridges	RFC 2986	PKCS #10: certification request syntax		
FIGE 502 3at Power over Ethement (PGE)				with traffic classes, multicast filtering and		specification v1.7		
Fig. 8 Box Samp Fig. 2 Bit				VLAN extensions	RFC 3579	RADIUS support for Extensible Authentication		
		· · ·	RFC 2819	RMON MIB (groups 1,2,3 and 9)		Protocol (EAP)		
IEEE 802 34 100BASEX IEEE 802 32 100BASEX IEEE 802 32 100BASEX IEEE 802 32 100BASEX IEEE 802 32 100BASEX IEEE 803 35 Definitions of managed objects for the Proceeding Process of Ethernet Residue of CPCP IEEE 802 32 100BASEX IEEE 803 32 10BASEX IEEE 803 48 INSTRUCTION OF IEEE 802 18 INSTR		. , ,	RFC 2863		RFC 3580	IEEE 802.1x RADIUS usage guidelines		
IPV4 Features			RFC 3164	The BSD Syslog protocol	RFC 3748	Extensible Authentication Protocol (EAP)		
	IEEE 802.3x	Flow control - full-duplex operation	RFC 3418	MIB for SNMP	RFC 4251	Secure Shell (SSHv2) protocol architecture		
February Fig. 2			RFC 3635	Definitions of managed objects for the	RFC 4252	Secure Shell (SSHv2) authentication protocol		
Services Security (TLS) v1.2 Security				Ethernet-like interface types	RFC 4253	Secure Shell (SSHv2) transport layer protocol		
FRC 788 User Datagram Protocol (UDP) RFC 4113 Mills for the User Datagram Protocol (UDP) RFC 5446 Transport Layer Security (TLS) v1.2 RFC 792 Internet Control Message Protocol (ICMP) RFC 4113 Mills for the User Datagram Protocol (UDP) RFC 6868 RFC 793 Transmission Control Protocol (RFC) Multicast Support 1676 826 Address Resolution of IP datagrams or Ethernet network 1678 shooping (IGMPVI, v2 and v3) Certificate Revocation List (CRL) Profile RFC 922 Subnetwork addressing scheme (IGMP/MLD multicast forwarding (IGMP/MLD proxy) RFC 922 Subnetwork addressing scheme (IGMP/MLD broxy) RFC 923 Underwork addressing scheme (IGMP/MLD broxy) RFC 924 Subnetwork addressing scheme (IGMP/MLD proxy) RFC 925 Underwork addressing scheme (IGMP/MLD proxy) RFC 925 Underwork addressing scheme (IGMP/MLD proxy) RFC 926 Internet standard subnetting procedure RFC 2276 Multicast Listener Discovery (MLD) for IPv6 RFC 1227 Internet standard subnetting procedure RFC 2276 Multicast Listener Discovery (IMLD) for IPv6 RFC 1227 Internet standard subnetting procedure RFC 2276 Multicast Listener Discovery (IMLD) for IPv6 RFC 837 Telnet echo option RFC 1027 Computing the Internet checksum RFC 3316 Multicast Listener Discovery v2 (MLDv2) for RFC 1031 Telnet protocol specification RFC 1032 New IEEE 802 networks RFC 2311 Multicast Listener Discovery v2 (MLDv2) for RFC 1031 Telnet protocol specification RFC 1031 New Internet host requirements RFC 9316 Multicast Listener Discovery v2 (MLDv2) for RFC 1031 Telnet protocol (SMTP) RFC 2311 Dynamic Hest Configuration Protocol (NTP) version 4 RFC 2311 Dynamic Hest Configuration Protocol (NTP) version 4 RFC 2311 Dynamic Hest Configuration Protocol (SMTP) RFC 2346 Diffser very precedence for eight queues/port retworks Path MTU discovery for IPv6 (RFC 246) Pv6 global unicast address selection for IPv6 (RFC 247) Diffser very preceden	IPv4 Fea	ntures	RFC 4022	MIB for the Transmission Control Protocol	RFC 4254	Secure Shell (SSHv2) connection protocol		
Internet Protocol (IP) RFC 4118 MB for the User Datagram Protocol (IUP) RFC 5656 Elliptic curve algorithm integration for SSH RFC 732 Internet Control Message Protocol (ICP) Address Resolution Protocol (ICP) Internet Protocol (ICP) Inte				(TCP)	RFC 5246	Transport Layer Security (TLS) v1.2		
RFC 792 Internet Control Message Protocol (ICMP) RFC 4188 Definitions of managed objects for bridges RFC 6818 Lipidates to the Internet X 509 Public Key RFC 826 Address Resolution Protocol (IRP) Multicast Support Infrastructure Certificate and Cardiess Resolution Protocol (IRP) Multicast Support Infrastructure Certificate and Cardiess Resolution Protocol (IRP) Multicast Support Infrastructure Certificate and Cardiess Resolution Protocol (IRP) Multicast Support Infrastructure Certificate and Cardiess Resolution Ist (IRL) Profile Cardiess Resolution Infrastructure Certificate and Cardiess Resolution Infrastructure Certificate and Cardiess Infrastructure Certificate			RFC 4113	MIB for the User Datagram Protocol (UDP)	RFC 5656	Elliptic curve algorithm integration for SSH		
RFC 932 Transmission Control Protocol (RPP) RFC 834 Address Resolution Protocol (RPP) RFC 835 Address Resolution Protocol (ARP) RFC 836 Standard for the transmission of IP datagrams over Ethernet datagrams in the protocol (RMP snooping (IGMPVI, v2 and v3) RFC 939 Broadcasting Internet datagrams in the processor of subnets subject of the standard submetting procedure RFC 932 Subnetwork addressing scheme RFC 932 Subnetwork addressing scheme RFC 932 Subnetwork addressing scheme RFC 932 Internet standard submetting procedure RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 1027 Proxy ARP RFC 1027 Computing the Internet checksum RFC 3310 Multicast Listener Discovery v2 (MLDV2) for IPv6 RFC 1031 Internet standard submetting procedure RFC 1031 RFC 1031 Proxy ARP RFC 1032 Internet host requirements RFC 1031 Internet that requirements RFC 1031 Internet that requirements RFC 1031 Proxy ARP RFC 1			RFC 4188	Definitions of managed objects for bridges	RFC 6668	SHA-2 data integrity verification for SSH		
Address Resolution Protocol (ARP) Standard for the transmission of IP datagrams of IRMP snooping (IGMP1, v2 and v3) FRC 932 FRC 932 FRC 932 FRC 932 Subnetwork addressing scheme FRC 932 Subnetwork addressing scheme FRC 933 FRC 932 Subnetwork addressing scheme FRC 940 FRC					RFC 6818	Updates to the Internet X.509 Public Key		
Standard for the transmission of IP datagrams over Ethernet network over Ethernet network (IGMP snooping (IGMPH), v2 and v3) RFC 919 RFC 920 RFC 920 RFC 920 RFC 930 RFC		, ,	Multica	st Support		Infrastructure Certificate and		
ver Ethernet network RFC 912 Broadcasting Internet datagrams RFC 913 Broadcasting Internet datagrams in the presence of subnets RFC 923 Subnetwork addressing scheme RFC 924 RFC 935 Subnetwork addressing scheme RFC 915 RFC 916 RFC 917 RFC 918 RFC 918 RFC 919 Internet standard subnetting procedure RFC 919 RFC			IGMP snoop	ing (IGMPv1, v2 and v3)		Certificate Revocation List (CRL) Profile		
RFC 919 Broadcasting Internet datagrams in the prosecute of Status Protocol - OCSP (MB/MLD rowry) (MLDV1 and v2) (MB/V2) (MB/		•	IGMP snoop	ing fast-leave	RFC 6960	X.509 Internet Public Key Infrastructure		
RFC 922 Broadcasting Internet datagrams in the presence of subnets presence of subnets and device of subnets and device of subnets and device of subnets and device subnets and device of subnets and device subnets and devi	RFC 919		IGMP/MLD	multicast forwarding (IGMP/MLD proxy)		Online Certificate Status Protocol - OCSP		
presence of subnets presence of subnets (IGMPV2) respect to subnetwork addressing scheme (IGMPV2) respective to the control of the transmission of IP datagrams over IEEE 802 networks and rother transmission of IP datagrams over			MLD snoopi	ng (MLDv1 and v2)				
RFC 932 Subnetwork addressing scheme (GMPV2) RFC 930 Internet standard subnetting procedure RFC 2715 Multicast Listener Discovery (MLD) for IPv6 RFC 855 Telnet echo option RFC 1027 February RFC 1042 Standard for the transmission of IP datagrams New Year			RFC 2236	Internet Group Management Protocol v2	Services	6		
RFC 950 Internet standard subnetting procedure RFC 9710 Multicast Listener Discovery (MLD) for IPv6 RFC 1027 Proxy ARP RFC 1027 Proxy ARP RFC 1042 Standard for the transmission of IP datagrams over IEEE 802 networks NeFC 3376 IGMPv3 RFC 1071 Computing the Internet checksum RFC 3376 IGMPv3 RFC 1071 Computing the Internet checksum RFC 3310 Multicast Listener Discovery v2 (MLDv2) for IPv6 RFC 1071 Path MTU discovery RFC 1192 Internet host requirements RFC 1192 Internet host requirements RFC 1193 IP addressing RFC 2581 TCP congestion control over Ethernet networks RFC 2581 TCP congestion control over Ethernet networks RFC 2211 Specification of the controlled-load network element service RFC 2460 IPv6 specification RFC 2460 IPv6 specification RFC 2460 IPv6 specification RFC 2475 Diffserv architecture RFC 2481 Transmission of IPv6 packets over Ethernet networks RFC 3346 Diffser Vasured Forwarding (AF) RFC 3346 Diffser Vasured Forwarding (AF) RFC 3484 Default address selection for IPv6 RFC 4481 Internet Control Message Protocol (ICMPv6) RFC 4482 Internet Control Message Protocol (ICMPv6) RFC 4483 Internet Control Message Protocol (ICMPv6) RFC 4481 Internet Control Message Protocol (ICMPv6) RFC 4482 IPv6 stateless Address Address selection RFC 4481 Internet Control Message Protocol (ICMPv6) RFC 4481 Internet Control Message Protocol (ICMPv6) RFC 4482 IPv6 stateless Address Address selection RFC 4481 IPv6 socket API for source address selection RFC 450.1 IPv6 socket API for source address selection RFC 450.1 IPv6 socket API for source address selection RFC 5014 IPv6 socket API for source address selection RFC 5014 IPv6 socket API for source address selection RFC 5014 IPv6 socket API for source address selection RFC 5014 IPv6 socket API for source address selection RFC 5015 IPv6 socket API for source address selecti	RFC 932	•		(IGMPv2)	RFC 854	Telnet protocol specification		
RFC 1027 Proxy ARP RFC 2715 Interoperability rules for multicast routing RFC 857 Telnet echo option	RFC 950		RFC 2710	Multicast Listener Discovery (MLD) for IPv6	RFC 855	Telnet option specifications		
over IEEE 802 networks RFC 3376 RFC 1071 Computing the Internet checksum RFC 3810 Multicast Listener Discovery v2 (MLDv2) for Internet nost requirements Internet host requirements RFC 1122 Internet host requirements RFC 4541 Internet host requirements RFC 4541 IGMP and MLD snooping switches RFC 2030 RFC 2030 Simple Network Time Protocol (SNTP) version 4 RFC 2811 RFC 3816 RFC 3817 RFC 3818 RFC	RFC 1027		RFC 2715	Interoperability rules for multicast routing	RFC 857	Telnet echo option		
RFC 1771 Computing the Internet checksum RFC 1872 Internet host requirements RFC 1191 Path MTU discovery RFC 1918 IP addressing RFC 1988 IP addressing RFC 2881 TCP congestion control over Ethernet networks RFC 2882 IPV6 Specification RFC 2984 IPV6 Specification RFC 2985 IPV6 Specification RFC 2986 IPV6 Specification RFC 2986 IPV6 Specification RFC 2987 IPV6 Specification RFC 2988 IPV6 Specification RFC 2988 IPV6 Specification RFC 2989 IPV6 Specification RFC 2980 IPV6 Specif	RFC 1042	Standard for the transmission of IP datagrams		•	RFC 858	Telnet suppress go ahead option		
RFC 1191 Internet host requirements RFC 4541 IGMP and MLD snooping switches RFC 2030 Simple Network Time Protocol (SNTP) version 4 RFC 1918 IP addressing Cuality of Service (QoS) RFC 2131 Dynamic Host Configuration Protocol (SNTP) version 4 RFC 2581 TCP congestion control over Ethernet networks IEEE 802.1p Priority tagging RFC 2616 Hypertext Transfer Protocol (SMTP) RFC 2211 Specification of the controlled-load network element service element service lement service (PoS) IFEC 2404 DiffServ precedence for eight queues/port Protocol (SMTP) RFC 2460 IPv6 specification of IPv6 packets over Ethernet networks RFC 2474 DiffServ Assured Forwarding (AF) RFC 2461 Transmission of IPv6 packets over Ethernet networks RFC 2462 DiffServ Assured Forwarding (EF) RFC 3884 Default address selection for IPv6 RFC 3887 IPv6 global unicast address format RFC 4193 Unique local IPv6 unicast addresses ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching RFC 4443 Internet Control Message Protocol (ICMPv6) IEEE 802.1ag CFM Continuity Check Protocol (CCP) RFC 4861 Neighbor discovery for IPv6 IEEE 802.1ag CFM Continuity Check Protocol (MSTP) RFC 4862 IPv6 Stateless Address Address Auto-Configuration IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)		over IEEE 802 networks			RFC 1091	Telnet terminal-type option		
RFC 1918 Path MTU discovery RFC 4541 IGMP and MLD snooping switches RFC 2030 Simple Network Time Protocol (SNTP) version 4 RFC 2581 TCP congestion control over Ethernet networks RFC 2811 Specification of the controlled-load network RFC 2813 Dynamic Host Configuration Protocol HTP/1.1 RFC 2818 Path MTU discovery for IPv6 RFC 2814 DiffServ precedence for eight queues/port RFC 3815 Dynamic Host Configuration option (DHCP appears) RFC 2460 Pv6 specification RFC 2474 DiffServ precedence for eight queues/port RFC 3815 Dynamic Host Configuration Protocol for IPv6 RFC 2464 Transmission of IPv6 packets over Ethernet RFC 2597 DiffServ Assured Forwarding (AF) RFC 3846 Default address selection for IPv6 RFC 3846 DiffServ Expedited Forwarding (EF) RFC 3896 Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv4) RFC 3484 Default address selection for IPv6 RFC 38023 / Y.1344 Ethernet Ring Protection Switching RFC 4911 Internet Control Message Protocol (ICMPv6) IEEE 802.1ag CFM Continuity Check Protocol (CCP) IEEE 802.1ag CFM Continuity Check Protocol (CCP) IEEE 802.1ag CFM Continuity Check Protocol (CCP) IEEE 802.1ag CFM Continuity Check Protocol (MSTP)	RFC 1071	Computing the Internet checksum	RFC 3810	- , , ,	RFC 1350	The TFTP protocol (revision 2)		
RFC 1918 Paddressing	RFC 1122	Internet host requirements			RFC 1985	SMTP service extension		
RFC 2581 PC congestion control over Ethernet networks IEEE 802.1p Priority tagging RFC 2616 Hypertext Transfer Protocol - HTTP/1.1	RFC 1191	Path MTU discovery	RFC 4541	IGMP and MLD snooping switches	RFC 2030	Simple Network Time Protocol (SNTP)		
IEEE 802.1p Priority tagging RFC 2211 Specification of the controlled-load network RFC 2821 Simple Mail Transfer Protocol (SMTP) IPv6 Fe>tures RFC 1981 Path MTU discovery for IPv6 RFC 2474 DiffServ precedence for eight queues/port RFC 2460 IPv6 specification RFC 2461 Transmission of IPv6 packets over Ethernet networks RFC 2475 DiffServ architecture RFC 3484 Default address selection for IPv6 RFC 3484 Default address selection for IPv6 RFC 3484 IPv6 global unicast address format RFC 4919 IPv6 addressing architecture RFC 4419 Internet Control Message Protocol (ICMPv6) RFC 4443 Internet Control Message Protocol (ICMPv6) RFC 4861 Neighbor discovery for IPv6 RFC 4861 Neighbor discovery for IPv6 RFC 4861 Neighbor discovery for IPv6 RFC 4862 IPv6 Stateless Address Auto-Configuration RFC 4862 IPv6 socket API for source address selection IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) IEEE 802.1av Rapid Spanning Tree Protocol (MSTP) IEEE 802.1av Rapid Spanning Tree Protocol (RSTP) RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1av Rapid Spanning Tree Protocol (RSTP) IEEE 802.1av Rapid Spanning Tree Protocol (RSTP) IEEE 802.3av VLAN tagging	RFC 1918	IP addressing						
Pv6 Fe>tures RFC 2211 Specification of the controlled-load network element service RFC 3046 DHCP relay agent information option (DHCP relay agent information (DHCP relay agent information option (DHCP relay agent information option (DHCP relay agent information Protocol (DHCP relay agent information in the protocol (DHCP relay agent information in the protocol (DHCP relay agent information protocol (DHCP relay agent information in the protocol (DHCP relay agent in the	RFC 2581		-	• •		,		
PV6 Features Element service RFC 3046 DHCP relay agent information option (DHCP RFC 1981 Path MTU discovery for IPv6 RFC 2474 DiffServ precedence for eight queues/port option 82) RFC 2460 IPv6 specification RFC 2475 DiffServ architecture RFC 3315 Dynamic Host Configuration Protocol for IPv6 (DHCPv6) RFC 2464 Transmission of IPv6 packets over Ethernet networks RFC 3246 DiffServ Assured Forwarding (AF) RFC 3396 Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv6) RFC 3484 Default address selection for IPv6 RFC 3246 DiffServ Expedited Forwarding (EF) RFC 3396 Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv4) RFC 3587 IPv6 global unicast address format Resiliency Features RFC 5905 Network Time Protocol (NTP) version 4 RFC 4193 Unique local IPv6 unicast addresses ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching (ERPS) VLAN Support RFC 4291 IPv6 addressing architecture EEE 802.1ag CFM Continuity Check Protocol (CCP) Generic VLAN Registration Protocol (GVRP) RFC 4443 Internet Control Message Protocol (ICMPv6) IEEE 802.1ag CFM Continuity Check Protocol (CCP) Generic VLAN Registration Protocol (GVRP) RFC 4861 Neighbor discovery for IPv6 IEEE 802.1ag CFM Continuity Check Protocol (MSTP) IEEE 802.1ag Provider bridges (VLAN stacking, Q-in-Q) RFC 4862 IPv6 Stateless Address Auto-Configuration IEEE 802.1bg Molt by Spanning Tree Protocol (MSTP) IEEE 802.3ac VLAN tagging IEEE 802.3ac VLAN t		networks						
RFC 1981 Path MTU discovery for IPv6 RFC 2474 DiffServ precedence for eight queues/port RFC 2460 IPv6 specification RFC 2475 DiffServ architecture RFC 2464 Transmission of IPv6 packets over Ethernet networks RFC 3246 DiffServ Expedited Forwarding (AF) (DHCPv6) RFC 3484 Default address selection for IPv6 RFC 3587 IPv6 global unicast address format Resiliency Features RFC 493 Unique local IPv6 addressing architecture (ERPS) RFC 4291 IPv6 addressing architecture (ERPS) RFC 4443 Internet Control Message Protocol (ICMPv6) RFC 4461 Neighbor discovery for IPv6 RFC 4861 Pv6 Stateless Address Auto-Configuration IEEE 802.13 Multiple Spanning Tree Protocol (MSTP) RFC 5014 IPv6 socket API for source address selection IPv6 RFC 5475 DiffServ precedence for eight queues/port ply6 option 82) RFC 4876 DiffServ Expedited Forwarding (AF) RFC 4876 DiffServ Expedited Forwarding (AF) RFC 3315 Dynamic Host Configuration Protocol (DHCPv6) (DHCPv6) (DHCPv6) (DHCPv6) RFC 3396 Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv4) RFC 493 Unique local IPv6 address address format Resiliency Features (ERPS) (ERPS) VLAN Support Generic VLAN Registration Protocol (GVRP) IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) IEEE 802.1b MAC bridges (SLAAC) IEEE 802.1b MAC bridges IEEE 802.1c Multiple Spanning Tree Protocol (MSTP) IEEE 802.3ac VLAN tagging			RFC 2211	·				
RFC 2460 IPv6 specification RFC 2475 DiffServ architecture RFC 2461 Transmission of IPv6 packets over Ethernet networks RFC 3246 DiffServ Assured Forwarding (AF) (DHCPv6) RFC 3484 Default address selection for IPv6 RFC 3246 DiffServ Expedited Forwarding (EF) RFC 3396 Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv4) RFC 3587 IPv6 global unicast address format Resiliency Features ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching RFC 4291 IPv6 addressing architecture (ERPS) (ERPS) VLAN Support Generic VLAN Registration Protocol (GVRP) IEEE 802.1ag CFM Continuity Check Protocol (CCP) IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) IEEE 802.1b MAC bridges IEEE 802.1c Multiple Spanning Tree Protocol (MSTP) IEEE 802.3ac VLAN tagging IEEE 8	IPv6 Fea	ntures			RFC 3046	, , ,		
RFC 2464 Transmission of IPv6 packets over Ethernet networks RFC 3484 Default address selection for IPv6 RFC 3484 IPv6 global unicast address format RFC 4193 Unique local IPv6 unicast addresses RFC 4291 IPv6 addressing architecture RFC 4443 Internet Control Message Protocol (ICMPv6) RFC 4861 Neighbor discovery for IPv6 RFC 4862 IPv6 Stateless Address Auto-Configuration RFC 4862 IPv6 socket API for source address selection RFC 487 IPv6 socket API for source address selection RFC 488 IPv6 socket API for source address selection RFC 489 IPv6 socket API for source address selection RFC 480 IPv6 socket API for so	RFC 1981	Path MTU discovery for IPv6						
networks networks and personal networks network networks	RFC 2460	IPv6 specification			RFC 3315			
RFC 3484 Default address selection for IPv6 RFC 3587 IPv6 global unicast address format RFC 4193 Unique local IPv6 unicast addresses RFC 4291 IPv6 addressing architecture RFC 4291 Internet Control Message Protocol (ICMPv6) RFC 4443 Internet Control Message Protocol (ICMPv6) RFC 4861 Neighbor discovery for IPv6 RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) RFC 5014 IPv6 socket API for source address selection Configuration Protocol (ICMPv4) RFC 5905 Network Time Protocol (NTP) version 4 RFC 5905 Network Time Protocol (N	RFC 2464	Transmission of IPv6 packets over Ethernet		- , ,		()		
RFC 3587 IPv6 global unicast address format Resiliency Features ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching IPv6 addressing architecture (ERPS) VLAN Support		networks	RFC 3246	DiffServ Expedited Forwarding (EF)	RFC 3396			
RFC 4193 Unique local IPv6 unicast addresses ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching RFC 4291 IPv6 addressing architecture (ERPS) RFC 4443 Internet Control Message Protocol (ICMPv6) IEEE 802.1ag CFM Continuity Check Protocol (CCP) RFC 4861 Neighbor discovery for IPv6 IEEE 802.1AXLink aggregation (static and LACP) IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)	RFC 3484	Default address selection for IPv6			DE0 5005	, ,		
RFC 4291 IPv6 addressing architecture	RFC 3587	9		=	RFC 5905	Network Time Protocol (NTP) version 4		
RFC 4443 Internet Control Message Protocol (ICMPv6) IEEE 802.1ag CFM Continuity Check Protocol (CCP) Generic VLAN Registration Protocol (GVRP) RFC 4861 Neighbor discovery for IPv6 IEEE 802.1aXLink aggregation (static and LACP) IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC) IEEE 802.1b MAC bridges IEEE 802.1c Multiple Spanning Tree Protocol (MSTP) RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)		•	ITU-T G.802	ž ž				
RFC 4861 Neighbor discovery for IPv6 IEEE 802.1AXLink aggregation (static and LACP) IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q) RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC) IEEE 802.1b MAC bridges IEEE 802.1c Multiple Spanning Tree Protocol (MSTP) RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)		•		` '		• •		
RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC) IEEE 802.1D MAC bridges IEEE 802.1Q Virtual LAN (VLAN) bridges IEEE 802.3c VLAN tagging RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.3c VLAN tagging RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5015 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5016 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5017 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5018 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) RFC 5019 IPv6 socket API	RFC 4443	• ,		• • • • • • • • • • • • • • • • • • • •		. ,		
(SLAAC) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) IEEE 802.3ac VLAN tagging RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)				,		0 (
RFC 5014 IPv6 socket API for source address selection IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)	RFC 4862	•		•		, ,		
				,	IEEE 802.3a	c VLAN tagging		
IEEE 802.3ad Static and dynamic link aggregation	RFC 5014	IPv6 socket API for source address selection						
			IEEE 802.3	ad Static and dynamic link aggregation				

IS230 Series | Industrial Managed Layer 2 Switches

Ordering Information

Switches

The DIN rail and wall mount kits are included.

AT-IS230-10GP-80

8x 10/100/1000T, 2x 100/1000X SFP combo, Industrial Layer 2 Switch, POE+ support (120W)

Supported SFP Modules

Refer to the installation guide for the recommended Max. Operating Temperature according to the selected SFP module.

1000Mbps SFP Modules

AT-SPBD10-13

10 km, 1G BiDi SFP, LC, SMF (1310Tx/1490Rx)

AT-SPBD10-14

10 km, 1G BiDi SFP, LC, SMF (1490Tx/1310Rx)

AT-SPBD20-13/I

20 km, 1G BiDi SFP, SC, SMF, I-Temp (1310Tx/1490Rx)

AT-SPBD20-14/I

20 km, 1G BiDi SFP, SC, SMF, I-Temp (1490Tx/1310Rx)

AT-SPBD40-13/I

40 km, 1G BiDi SFP, LC, SMF, I-Temp (1310Tx/1490Rx)

AT-SPBD40-14/I

40 km, 1G BiDi SFP, LC, SMF, I-Temp (1490Tx/1310Rx)

AT-SPEX

2 km, 1000EX SFP, LC, MMF, 1310 nm

AT-SPLX10

10 km, 1000LX SFP, LC, SMF, 1310 nm

AT-SPLX10/I

10 km, 1000LX SFP, LC, SMF, 1310 nm, I-Temp

AT-SPLX40

40 km, 1000LX SFP, LC, SMF, 1310 nm

AT-SPSX

550 m, 1000SX SFP, LC, MMF, 850 nm

AT-SPSX/I

550 m, 1000SX SFP, LC, MMF, 850 nm, I-Temp

AT-SPZX80

80 km, 1000ZX SFP, LC, SMF, 1550 nm

100Mbps SFP Modules

AT-SPFX/2

2 km, 100FX SFP, LC, MMF, 1310 nm

AT-SPFX/15

15 km, 100FX SFP, LC, SMF, 1310 nm

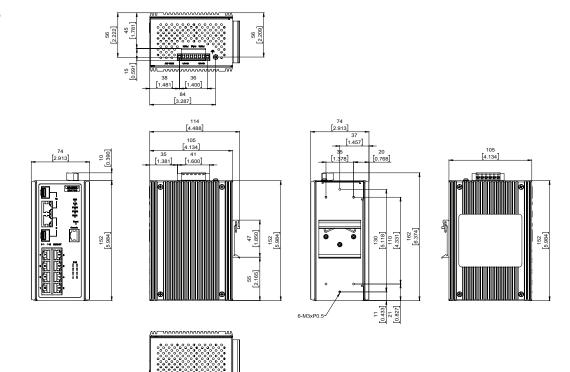
AT-SPFXBD-LC-13

15 km, 100FX BiDi SFP, LC, SMF (1310 Tx/1550 Rx)

AT-SPFXBD-LC-15

15 km, 100FX BiDi SFP, LC, SMF (1550 Rx/1310 Tx)

Dimensions (mm)





NETWORK SMARTER

Panel Cut-out Dimensions: 105 x 152 x 74 mm (4.14 x 5.98 x 2.91 in)

North America Headquarters | 19800 North Creek Parkway | Suite 100 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895 Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830 EMEA & CSA Operations | Incheonweg 7 | 1437 EK Rozenburg | The Netherlands | T: +31 20 7950020 | F: +31 20 7950021