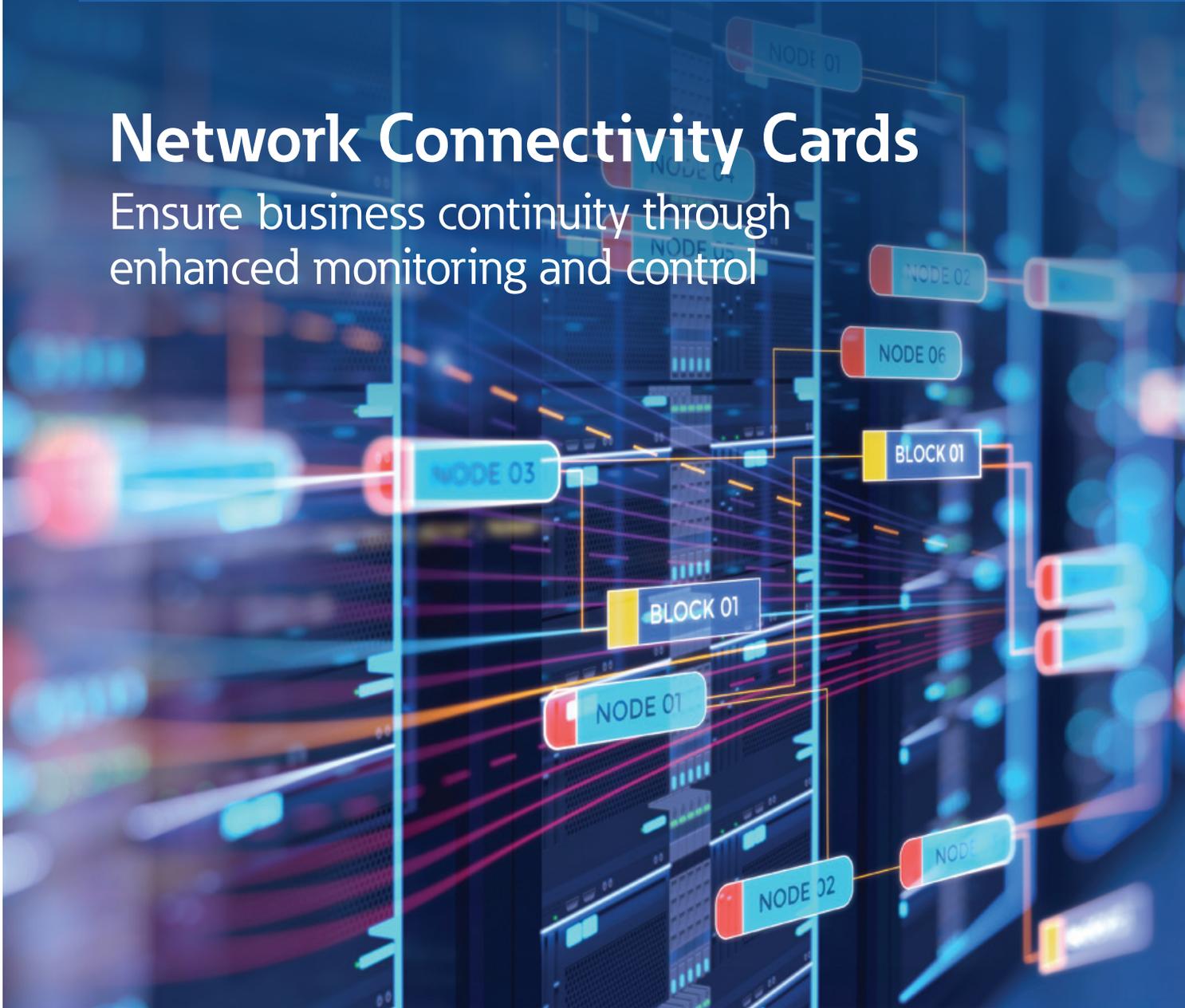# Network Connectivity Cards

Ensure business continuity through enhanced monitoring and control

Eaton's full range of network connectivity devices enables you to remotely monitor and manage your power quality equipment. From outlet-by-outlet energy consumption reports to temperature and humidity readings, connectivity devices give you full control of your IT environment from off-site locations. This high level of awareness and control helps boost both business continuity and profitability.

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Powering Business Worldwide

Why a network card?

Network cards allow secure monitoring and control of an individual UPS by integrating it into the network.

This connectivity is the conduit for your device's data and information, providing status, alerts and remote capabilities. Notification features keep you informed of problems as they occur, avoiding shutdown in the event of an extended power outage and keeping your business information safe.

Network card types:

IT-based

SNMP cards connect UPS systems to a network over Ethernet and can be controlled via web browser. SNMP cards provide a complete UPS monitoring, control and shutdown solution.

Industrial protocols

provide real-time management of UPS systems by connecting to any Building Management System (BMS) using Modbus TCP, RTU or BACNet.

Relay cards

provide the signal to your device through open or closed contacts.

Environmental monitoring probes

enable collection of temperature and humidity readings in rack enclosures and monitor environmental data remotely using Eaton's power monitoring solutions or a standard web browser.

Eaton Gigabit Network Card for IT

Eaton's Gigabit Network Card UPS connectivity device expertly blends comprehensive power management with market-leading cybersecurity.

The Gigabit Network Card was the first to market with cybersecurity certifications obtained from independent authorities (UL 2900-1 and IEC 62443-4-2), and the new M3 version builds on this innovation with a zero-trust architecture that makes it even more effective at protecting mission-critical systems in medium-sized and enterprise IT networks. The Gigabit Network Card is compatible with multiple Eaton power management software solutions, allowing extensive automation and remote management and control that shortens response times to power issues. The Gigabit Network Card gives IT managers actionable intelligence for proactively addressing power problems before they turn into downtime, and for maximizing the efficiency of their power operations.

Details

- **Zero trust architecture** minimizes cybersecurity vulnerabilities through hardware root of trust, enabling secure boot and complete chain of trust
- **Zero-touch provisioning** automatically configures network cards faster, saving time exponentially in large-scale deployments
- **Brightlayer Data Centers suite** monitors and manages fleets of Gigabit Network Cards, enabling automated actions during power events, including graceful shutdown and reallocation of virtual machines to protect data and preserve business continuity
- **User-configurable firewall** reduces an organization's attackable surface area and helps meet specific network/security conformance requirements
- **REST API** allows organizations to easily integrate the network card with native systems and automate machine-to-machine interactions

Eaton Gigabit Network Card

Function	Web/SNMP communications	
Hardware compatibility (global list)	**UPS:** 5P, 5PX, 5PX G2, 5SC Rack, 9PX, 9PXM, 9SX, 9130, FERRUPS FX, 9E, 93PS (fw 2.50->), 91PS, 91PS Monoblock, 93E 15-80 EMEA (fw 8.00.01->), 93E G2 EMEA (fw 4.0.20->)	**PDU:** EATS115, EATS120, EATS220
	IPv4/v6, TLSv1.2, HTTP(S)v1.1, NTP, SMTP(S), BOOTP/DHCP, SSH, SysLog(S), LDAP, AD, RADIUS	
Catalog number	Network-M3	
Protocol support	HTTPS1.1, MQTTS, TLS1.2, SNMPv1, SNMPv2c, SNMPv3, BOOTP/DHCP, CLI, SSH, ARP and Syslog	
UPS slot type	Mini-slot	
Common connectors	Ethernet 10/100/1000BaseT, USB for accessories (ex: environmental probe), USB configuration port	
Temperature and humidity monitoring	Yes. Requires Eaton Environmental Monitoring Gen 2	
Supported software	Brightlayer Data Centers software suite: Data Center Performance Management (DCPM), Distributed IT Performance Management (DITPM), Visual Power Manager (VPM), Intelligent Power Manager (IPM) and Visual Capacity Optimization Manager (VCOM); for monitoring service software: PredictPulse, (Americas) or Cyber Secured Monitoring (CSM, for EMEA)	
Supported MIB	MIB II – Standard IETF UPS MIB (RFC 1628) – Eaton xUPS MIB	
Supported browsers	Chrome, Edge	
Local language support	English, French, German, Italian, Spanish, Chinese Simplified, Chinese Traditional, Japanese	
Operating temperature	32 to 104° F (0 to 40° C)	
Operating humidity	90% RH max, without condensation	
Power input	5 V – 12 V	
Current consumption	500/1000mA max. depending on UPS	
Dimensions (H x W x D)	5.2 x 2.6 x 1.7 in. (132.08 x 66.04 x 43.18 mm)	
Weight	2.3 oz. (65 g)	
Regulatory	Same as UPS	

Eaton Industrial Gateway Cards

The New Industrial Gateway Cards feature the same cybersecurity protection as the Network Card and are designed for building management, industrial facilities and large data centers.

Industrial Gateway Cards are compatible with the MODBUS communications protocol.

The cards enhance the protection given by the UPS by providing real-time monitoring of the UPS system and environment through a Building Management System (BMS) or Industrial Automation System (IAS). The cards allow facility managers to monitor the state of the UPS, power conditions, temperature and humidity within the UPS network, enabling early warning of any threats to the system.

Details

- **Gigabit speed**: compatible with better performing, cost effective and widely deployed gigabit network switches
- **Compliance** with Gigabit-only data center networks
- **Cybersecurity** enhancements, including stronger encryption, configurable password policy and usage of CA and PKI signed certificates
- **Real-time clock** with battery backup and NTP
- **Increased memory** for improved operation and larger data storage
- **Modern user experience** with latest web technology
- **Secure SMTP** for email alerts
- **LDAP/ActiveDirectory and Radius** for centralized user authentication
- **Syslog integration**

**Eaton Industrial Gateway Cards
(Mini-Slot and X-Slot)**

Function	Web/SNMP/Modbus communications
Network	Fast Gigabit ETHERNET, 10/100/1000 Mbits, autonegotiation, Protocol Support HTTP, HTTPS 1.1, TLS 1.2, SNMP V1, SNMP V3, NTP, SMTP, SMTPS BOOTP/DHCP, CLI, SSH, ARP, Syslog, Radius, LDAP, ActiveDirectory
UPS supported	INDGW-M2: 5SC rack or RT, 5P, 5PX, 9SX, 9PX,9E, 93PM, 9PHD, 93PS, 91PS, 93PS Marine, 5PX G2, 93E and 93PM G2 INDGW-X2: BladeUPS, 9155, 9355, 9395, 9395P
Compatible with	SNMP v1/v3 and IP v4/v6
Catalog number	INDGW-M2: Mini-Slot INDGW-X2: X-Slot
Network support	Ethernet 10/100/1000BaseT
Field buses	Modbus 2/4 wire RTU and TCP, BACnet IP, BACnet BBMD.
Temperature and humidity monitoring	Yes, only with the Eaton Environmental Monitoring Probe Gen 2 (up to 3 sensors daisy-chained)
Software Support Network Management System (NMS)	Intelligent Power Manager 1.61 and higher, Intelligent Power Protector 1.61 and higher, any SNMP compliant
Supported MIB	MIB II – Standard IETF UPS MID (RFC 1628) – Eaton PowerMib (XUPS.MIB) O/S supported for shutdown Microsoft Windows, UNIX, and Linux (check powerquality.eaton.com for a detailed list of systems supported)
Local language support	English, French, German, Italian, Spanish, Chinese Simplified, Chinese Traditional, Japanese
Operating temperature	0°C to 40°C
Operating humidity	90% TH max, without condensation
Power input	5 V – 12 V
Current consumption	500/1000mA max. depending on UPS
Dimensions (H x W x D)	INDGW-M2: 132 x 66 x 42 mm INDGW-X2: 112 x 38 x 115 mm
Weight	INDGW-M2: 70 g INDGW-X2: 131 g
Regulatory	Same as UPS

Environmental Monitoring Probe Gen2

The New Environmental Monitoring Probe (EMP) Gen 2 (EMPDT1H1C2), is a second-generation environmental monitoring probe.

The new EMP maintains all the functionality of the previous generation of sensors (temperature, humidity and dry-contact monitoring) while adding the ability to be daisy-chained (up to 3 per host), allowing multiple sensor connection to a single host.

This enhances the richness of rack level environmental data for the top, middle and bottom of the rack. Temperature, humidity, and contact status can be viewed with a Web browser through the Network user interface. Hot-swap feature simplifies installation to enable you to install the probe without turning off the power to the device or to the loads that are connected to it. The EMP monitors the status of the two user-provided contact devices and can be located 50m from the network card using standard CAT5 network cable. The probe is delivered with a screw and screw anchor, nylon fasteners, tie wraps, and magnets.

Eaton Environmental Monitoring Probe Gen 2
Product snapshot

Catalog number	EMPDT1H1C2
Type	Environmental monitoring device
Compatibility	Gigabit Network Card (Network-M2) / Industrial Gateway Card (INDGW-M2) / Eaton G3/G3+ ePDU
Operating Temperature	0 ° C to 70 ° C with an accuracy of ± 2 ° C
Operating humidity	10 % to 90 % with an accuracy of ± 5%
Dimensions (L x W x H)	57 x 37 x 29 mm
Weight	34 g

Relay

Relay card MS (Relay-MS)

Provides communication through voltage free relays or RS-232.

- Installation in Eaton Mini-Slot Enhancement Bay
- 1 x 9-pin Dsub connector
- 1 x RS232 or 5 x Relay output / 1 x Input

Industrial relay card MS (INDRELAY-MS)

Provides communication through voltage free relays.

- Installation in Mini-Slot Enhancement Bay
- Terminal connectors, 250 VAC/5A rating
- 5 x Relay output / 1 x Input

X-Slot Relay Card (1018460)

Provides communication through voltage free contacts.

- Installation in Eaton X-Slot Enhancement Bay
- 1 x 15-pin Dsub Connector/ Terminal blocks
- 4 Switching Relays (both NO and NC) / 1 x Digital Input
- 12VDC unregulated voltage supply

Reduce your cybersecurity risk

Eaton's Gigabit Network Card and Industrial Gateway Card are the first in the industry to receive UL 2900-1 and IEC 62443-4-2 certifications, ensuring they have been independently reviewed and meet the benchmarks of this trusted brand.

Encryption

- Only secure protocols enabled by default
- Firmware is signed and encrypted, and will not boot if tampered with
- Secure SMTP for email alerts

Password management

- Requires change of password on setup
- Configurable requirements for password complexity
- Certificate-based authentication in machine-to-machine connections— no username/password information saved on the client machine, separate certificates for each protocol

What are UL 2900-1 and IEC 62443-4-2 ?

With more connected devices than ever, Underwriters Laboratories (UL) sees the increasing risk of cybercrime occurring through network connected devices. UL has developed a standardized process to assess the vulnerability of connected devices to known malware and protect businesses from these risks. The 2900-1 certification is UL's global standard for connected device cybersecurity.

IEC 62443 is an international series of standards on Industrial communication networks - IT security for networks and systems. IEC 62443-4-2 defines the technical security requirements for Industrial Automation and Control System components.

Products undergo extensive testing, including vulnerability assessments on network protocol. The Eaton Gigabit Network Card was assessed for SSH, SNMPv3, NTP, SMTPS, DHCP and MQTT via TLS 1.2.

UPS/network connectivity compatibility

Class		Reference	Part number	Environmental monitoring probe	Eaton UPS models																
					5P	5PX / 5PX G2	5SC Rack	9SX	9PX	9E	9PXM	FERRUPS FX	9130	91PS	93PS	93E	93PM / 93PM G2	BladeUPS	9390	9155 9355	9395 9395P
IT		**Gigabit Network Card**	NETWORK-M3 744-A4920	Eaton EMP Gen 2 EMPDT1H1C2 744-A4026	X	X	X	X	X	X	X	X	X	X	X	X					
Industrial		**Industrial Gateway Card**	INDGW-M2 744-07774		X	X		X	X	X	X	X	X	X	X	X	X				
		Gigabit Industrial Gateway X2 Card	INDGW-X2 744-07538															X	X	X	X
Relay		**Relay Card — MS**	RELAY-MS 744-98067-00P		X	X	X	X	X	X	X	X							X		
		Industrial Relay Card — MS	INDRELAY-MS P-116000059										X	X	X	X	X				
		X-Slot Industrial Relay Card	103003055															X	X	X	X

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