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SMP™ SG-4260 gateway automation platform

Contents

Powering Business Worldwide

Description

Eaton has been at the forefront of utility automation systems evolution with its SMP Gateway line of products that leverages 25 years of experience working with utilities to provide solutions to their most challenging automation projects.

The SMP SG-4260 gateway is one of the most advanced automation platforms in the industry and provides all the functions required by the modern automation system in a single highly reliable and powerful package.

In addition to data concentration, protocol translation and logic processing, it provides a built-in HMI and secure remote maintenance access to substation and field devices, reducing operating costs and increasing productivity for a large variety of applications.

Typical applications of the SMP SG-4260 Gateway

- SCADA gateway – with its support for essentially all industry standard and proprietary protocols, using serial or network connectivity, the SMP SG-4260 as a SCADA gateway and substation data concentrator, tying together both modern and legacy IEDs.
- Substation HMI – with its support for single-line diagrams, comprehensive alarm processing, and Sequence of Event (SOE) logging, the SMP SG-4260's built-in HMI provides all the functionality expected from a substation HMI, without needing to add a PC. Simply connect a screen to the video port, or use a web browser locally or remotely, to access all substation data.
- Asset monitoring gateway – collect data from dissolved gas analyzers, breaker, bushing and transformer monitors for storage in data historians and Condition Based Maintenance (CBM) applications.
- Event collection gateway – retrieve oscillography and fault records from protective relays and DFRs, from a variety of vendors, to help locate outages and reduce service restoration time.
- Secure remote access gateway – save on maintenance costs by connecting to substation and distribution devices remotely, in a secure NERC CIP compliant manner with encrypted communications, user authentication, invalid password account lockout, and access logs.
- Phasor data concentrator – collect, concentrate and publish data from Phasor Measurement Units (PMU) to improve power system reliability.
- Microgrid controller – use the IEC 61131 Soft PLC and logic functions to implement a stand-alone power generating, distribution and storage system that can isolate itself from the primary utility grid and provide a reliable and efficient solution to unexpected power loss.

Benefits

With its robust and scalable design, the SMP SG-4260 provides a flexible solution that adapts to evolving automation requirements.

Flexibility

- One platform for all your automation projects.
- Best in the industry processing power to implement the most demanding projects.
- Designed to evolve through regular software and firmware updates, ensuring a future-proof automation system.

Reliability

- Robust substation-grade hardware platform meets IEEE 1613 and IEC 61850-3-ed2 standards. Compliance to the substation-grade standards means that the SMP SG-4260 has no moving parts, that it can withstand a very wide temperature range, that it is immune to electrical surges and vibration requirements to ensure continued operation in the most demanding environments.
- High availability through advanced hardware and software redundancy features, including software hot standby and redundant communications paths, hot-swappable dual power supply option, and redundant network connectivity with the Advanced Ethernet Module PRP/HSR (PTP is coming soon).

Interoperability

- Avoid getting trapped in a single vendor solution with a standards-based interoperable platform.
- Supports essentially all industry standard and legacy protocols.
- Protect your investments by integrating legacy equipment with the newest technologies, including IEC 61850-ed2.
- Connect the SMP SG-4260 gateway anywhere around the world to different voltage levels, on low and high voltage power sources, and to flexible input frequencies (50 and 60 Hz).
- Supports SFP-based Ethernet connectivity, allowing to use suitable types of SFP transceivers, as needed.

Cybersecurity

- Strengthen automation system cybersecurity by isolating critical devices within a secure perimeter protected by encrypted communications, user authentication, invalid password account lockout, and enforced through network segmentation; helping meet NERC CIP.
- Secure SCADA communications and certificate-based authentication.
- Signed firmware updates.
- Malware protection.
- Field-upgradable firmware to address technical and cybersecurity issues.

Productivity

- Simplify remote IED maintenance through NERC CIP compliant remote access.
- Integrated HMI alarm management, single-line diagrams, real-time data visualization, dashboards, access to logs and event records, and relay fault records.
- Reduced engineering efforts through a comprehensive set of field-proven tools that includes protocol analysis, detailed logs, and a unique commissioning tool to force individual points, perform local control operations, keep track of tested points in a spreadsheet, and print comprehensive test reports.
- Very fast configuration change and reboot cycle for improved commissioning productivity.
- Add intelligent control functions using the built-in automation functions and the IEC 61131-5 compliant Soft PLC engine.
- Retrieve and manage non-operational data such as power system events, fault records and Digital Fault Recorder (DFR) files.
- Reduce maintenance effort through the use of Eaton's IED Manager Suite (IMS) for configuration management, password management and firmware updates.
- Develop your own management applications through the SMP REST API.

General features

- Dual hot-swappable power supplies option
- Advanced Ethernet optional module with standard Ethernet and PRP/HSR protocols for network redundancy; PTP is coming soon
- Optional built-in SFP ports (2) for Ethernet connectivity (PTP: hardware ready, software functionality is coming soon)
- Up to 32 serial ports
- Up to 10 Ethernet ports, fiber or metallic, with VLAN tagging and multihoming
- Hardware and software redundancy
- Local and remote HMI with single-line and alarm management capabilities
- Built-in automation functions and the IEC 61131-5 compliant Soft PLC engine
- Secure remote access for IED maintenance
- Support external radio communications
- Integrated self-diagnostics and watchdog timer
- Power supply monitoring
- Extended input voltage range
- Optional field upgradeable SLC solid-state drive (SSD) for data logging applications
- Internal clock synchronization using protocols, IRIG-B, SNTP, and satellite-synchronized (GNSS) clock option using GPS and/or GLONASS constellations
- Device clock synchronization using IRIG-B (demodulated), SNTP, or via protocols
- Alarm contacts
- Retrieval and management of non-operational data such as power system events, fault records and Digital Fault Recorder (DFR) files.

Security features

- Integrated firewall
- Secure maintenance connection (SSL/TLS)
- Secure SCADA protocol (SSL/TLS)
- AES-128/256 encryption
- X.509 certificates
- Secure remote access for IED maintenance (Passthrough)
- Account management:
  - Strong passwords
  - User accounts and user groups
  - Detailed group permissions
- Access management
- Access attempts logs
- Account lock upon failed access attempts
- Retrievable access logs for auditing
- Syslog support for remote log storage
- All system components digitally signed
- Continuous file monitoring for system integrity
- Achilles certification
- Nessus compliance

Supported protocols

The SMP SG-4260 automation platform supports over 80 protocols, including the most popular protocols like DNP3, IEC 61850 ed2, IEC 61850 GOOSE, Modbus, ICCP.

Refer to the Ordering Information section for an exhaustive list of supported protocols.

Basic features, options and communication modules

Figure 1. SMP SG-4260 front panel

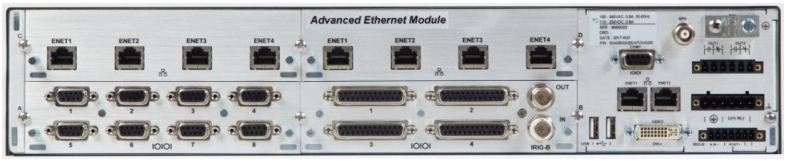

Figure 2. SMP SG-4260 rear panel

Base unit includes:

- Intel CPU module
- Standard Power supply
- Two (2) Ethernet ports (fixed or SFP-based)
- One (1) serial port (RS-232)
- Three (3) USB ports
- One (1) DVI-I video port
- IRIG-B input/output
- Two (2) output relays

Internal options

- Satellite-synchronized (GNSS) receiver module for clock synchronization with GPS and/or GLONASS
- Dual, hot-swappable power supplies

Communication module options

The SMP SG-4260 can be ordered with up to four (4) communication modules. The available modules are:

Table 1. Communication modules available for the SMP SG-4260

Module	Contains
Serial communication	Eight (8) asynchronous serial ports (RS-232, 2-wire RS-485, 4-wire RS-485)
Metallic Ethernet	Four (4) Ethernet ports (10/100/1000BASE-T)
Fiber-Optic Ethernet (ST)	Four (4) fiber-optic Ethernet ports with ST connectors (100BASE-FX), Multimode 1300 nm
Fiber-Optic Ethernet (LC)	Four (4) fiber-optic Ethernet ports with LC connectors (100BASE-FX), Multimode 1300 nm
Metallic Advanced Ethernet (Standard/PRP/HSR), PTP*	Four (4) Ethernet ports (100/1000BASE-T)
Fiber Optic Advanced Ethernet, ST (Standard/PRP/HSR), PTP*	Four (4) fiber-optic Ethernet ports with ST connectors (100BASE-FX), Multimode 1300 nm
Fiber Optic Advanced Ethernet, LC (Standard/PRP/HSR), PTP*	Four (4) fiber-optic Ethernet ports with LC connectors (100BASE-FX), Multimode 1300 nm
Universal communication	Four (4) universal ports with DB25 connectors (RS-232, 2-wire RS-485, 4-wire RS-485) and a BNC connector for modulated IRIG-B input

* PTP is coming soon

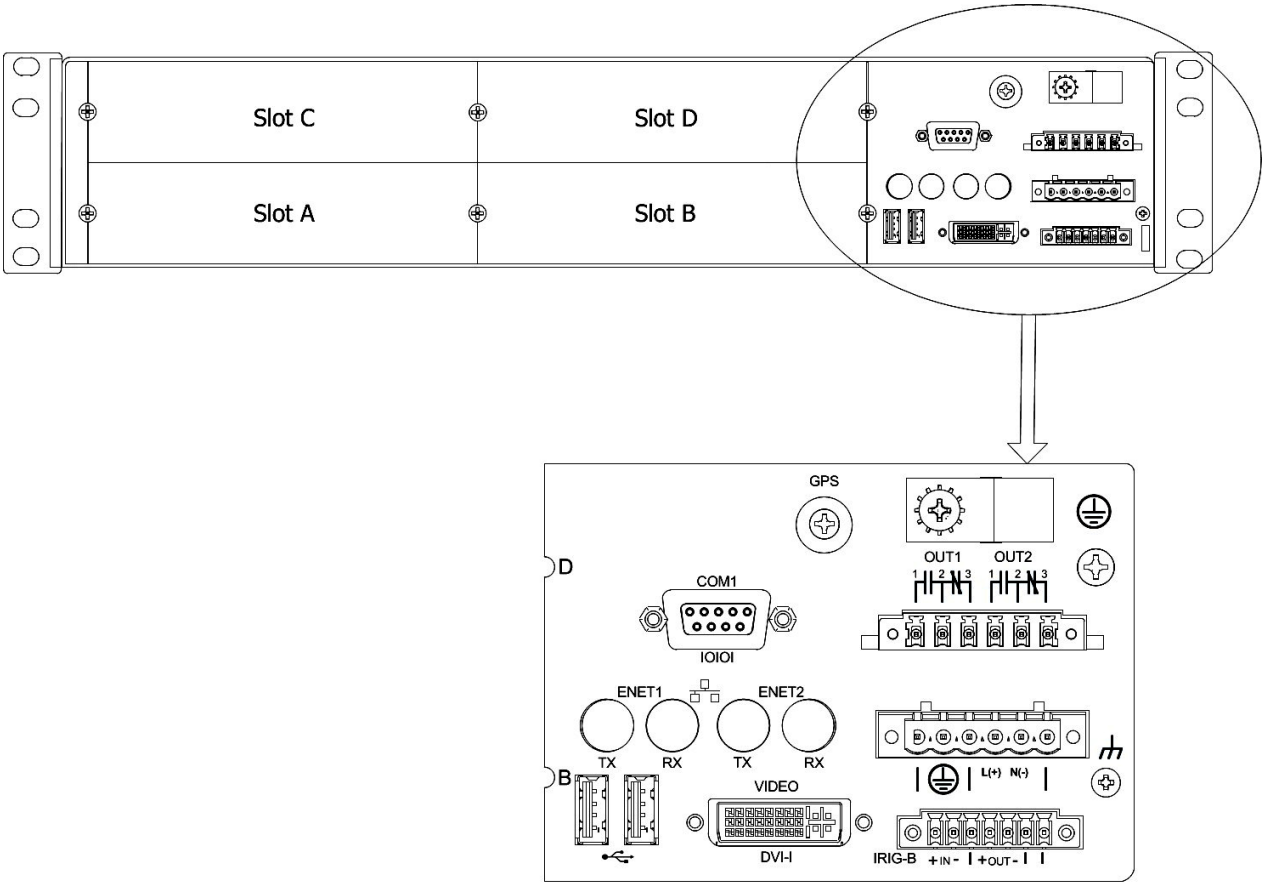

Figure 3. SMP SG-4260 base unit slot location and ports (Optical Ethernet connections are shown)

SMP SG-4260 modules configuration overview

This section presents the various communication module as well as the internal GNSS module which are available for the SMP SG-4260.

Table 2 shows module availability. Refer to Figure 3 for slot locations.

Table 2. Communication and GNSS modules for the SMP SG-4260

Module	Serial	Ethernet (CU, ST, or LC)	Advanced Ethernet (Standard/PRP/HSR), PTP* (CU, ST, or LC)	Universal Communication	GNSS
Slot A	Yes	No	No	Yes	No
Slot B	Yes	No	No	Yes	No
Slot C	Yes	Yes	Yes *	Yes	No
Slot D	Yes	Yes	Yes *	Yes	No
Internal	No	No	No	No	Yes

* PTP is coming soon

SMP SG-4260 specifications

Table 3. General specifications

Dimensions	Rack unit: 2U 3.3 in. H x 19 in. W x 12.875 in. L 84 mm H x 482 mm W x 327 mm L (15 lbs max)	
Degrees of protection provided by enclosure	IEC60529 : IP30	
Warranty	10-year limited	
Operating temperature	-40 °C to 85 °C (-40 °F to 185 °F)	cTUVus safety marking is based on temperature derating table
Storage temperature	-40 °C to 85 °C (-40 °F to 185 °F)	
Humidity	5% to 95%, non-condensing	
MTBF	> 100 years	The MTBF value is obtained from the ratio of the number of devices in operation over the actual number of failures observed on devices of the same SMP family.
Maximum altitude	2000 m	
Internal temperature sensor	High-temperature alarm	
Internal Battery	Lifetime: > 20 years	

Table 4. CPU

Processor Architecture	x86
Operating System	Windows Embedded Compact 7.0
Processor	Intel® Atom™ E3845 Quad-core 1.91 GHz

Table 5. Memory

RAM	2 GB (DDR3L 1333)	
Storage	1 GB Compact Flash	For OS, application and user data
Additional storage options	8 GB SLC Solid-State Drive	For user data
	32 GB SLC Solid-State Drive	
	64 GB SLC Solid-State Drive	
	128 GB SLC Solid-State Drive	

Table 6. Power Supply Options

Standard Power Supply		
Low Voltage		
DC nominal supply voltage	24, 48, 60 VDC	
Input voltage range	19 – 69 VDC	
Inrush current	48 A at 24 VDC (t=1.5 ms)	
	95 A at 48 VDC (t=1.5 ms)	
Power consumption	High end series: 35 W to 75 W	
High Voltage		
AC nominal supply voltage	100, 110, 115, 120, 230, 240 VAC	
DC nominal supply voltage	110, 125, 220, 250 VDC	
Input voltage range	88-264 VAC / 85-300 VDC	
Frequency range	50/60 Hz	
Inrush current	80 A at 120 VAC (t=1.5 ms)	
	160 A at 240 VAC (t=1.5 ms)	
	60 A at 125 VDC (t=1.5 ms)	
Power consumption	High-end series: 35 W to 75 W	
Dual hot-swappable power supplies		
High Voltage		Independent power supplies
AC nominal supply voltage	100, 110, 115, 120, 230, 240 VAC	(No load balancing)
DC nominal supply voltage	110, 125, 220, 250 VDC	Two redundancy operating modes:
Input voltage range	88-264 VAC / 85-300 VDC	• Main – Backup-default mode, (backup health verified every 24 hours, two minutes operation)
Frequency range	50/60 Hz	• Alternate (switchover every 10 days)
Inrush current	80 A at 120 VAC (t=1.5 ms)	
	160 A at 240 VAC (t=1.5 ms)	
	60 A at 125 VDC (t=1.5 ms)	
Power consumption	High end series: 35W to 75W	

Table 7. Base Unit communication ports

2 Ethernet Ports	Fixed (2 ports are identical): • 10/100/1000BASE-T • 100BASE-FX, Multimode 1300 OR SFP (flexible SFP transceiver configuration): • 2 x 1GbE SFP ports **Note**: PTP: hardware ready, software functionality available soon with this option	RJ-45 connectors ST or LC connectors available Class 1 laser product See Ordering Information section for our SFP transceiver offering.
1 Serial Port	For touchscreen connectivity or RS-232 communications up to 115200 bps common mode TVS protection	DB9 connector 91 A 8/20 µs
3 USB 2.0 Ports	1 client port for maintenance 2 host ports for touchscreen / mouse / keyboard	Type B connector (front panel) Type A connector (rear panel)

Table 8. Time Synchronization

Demodulated IRIG-B	Via terminal block (back panel)	Isolated
Input	2 V high-level detection, Vin max up to 12 VDC, Opto-isolated IEEE 1344 Accuracy: ± 1 µs Differential mode TVS protection	Current sink at 5 V IRIG-B; 5 mA Current sink at 10 V IRIG-B; 14 mA Input impedance = 850-1000 Ω
Distribution	5 or 10 V, software-configurable ("jumperless") Accuracy: ± 1 µs Common mode TVS protection	91 A 8/20 µs LoadMAX = 40 Ω for 10 V and 20 Ω for 5V 91 A 8/20 µs
Optional built-in GNSS receiver module for satellite clock synchronization	400 ns accuracy GPS and GLONASS constellations	

Table 9. Video

DVI / VGA port	DVI-I connector, single display	Maximum resolution DVI: 1920 x 1200 @ 60 Hz
	VGA requires DVI-I to VGA adapter	Maximum resolution VGA 2560 x 1600 @ 60 Hz

Table 10. Output Relays

2 Form C relays	Normally open and normally closed contacts 1st relay is available for system health monitoring 2nd relay is available for system applications and can be activated through a system data point	Resistive load : 12 VDC 6 A maximum 24 VDC 5 A maximum 48 VDC 1 A maximum* 60 VDC 0.8 A Maximum* 110 VDC 450 mA Maximum* 125 VDC 400 mA maximum* 250 VDC 300 mA maximum* 110/120/220/240 VAC 3 A maximum

Table 10. Output Relays (continued)

2 Form C relays (continued)		Inductive load (PF = 0.4) : 3 A 250 VAC inductive Operate time 10 msec maximum Release time 5 msec maximum Mechanical durability 20 M, no load operations 2500 Vrms Dielectric, Dry contacts protected by MOV 125 J

Table 11. Communication Modules

Metallic Ethernet	4 ports 10/100/1000BASE-T	RJ45 connectors
Fiber Optic Ethernet (ST)	4 ports 100BASE-FX Multimode 1300 nm	ST connectors Class 1 laser product
Fiber Optic Ethernet (LC)	4 ports 100BASE-FX Multimode 1300 nm	LC connectors Class 1 laser product
Metallic Advanced Ethernet (PRP/HSR), PTP is coming soon	4 ports 100/1000BASE-T IEEE Std 1588™-2008 standard	RJ45 connectors
Fiber Optic Advanced Ethernet, ST (PRP/HSR), PTP is coming soon	4 ports 100BASE-FX Multimode 1300 nm IEEE Std 1588™-2008 standard	ST connectors Class 1 laser product
Fiber Optic Advanced Ethernet, LC (PRP/HSR), PTP is coming soon	4 ports 100BASE-FX Multimode 1300 nm IEEE Std 1588™-2008 standard	LC connectors Class 1 laser product
Serial Communication (asynchronous)	8 ports RS-232, 2-wire RS-485, 4-wire RS-485 Software configurable Demodulated IRIG-B distribution 5 VDC Power supply Common mode TVS protection	DB9 connectors Data rate up to 115200 bps 5V or 10V 250 mA max. per port, 350 mA max. per module 91 A 8/20 µs
Universal Communication 4 universal ports	Software configurable RS-232, 2-wire RS-485, 4-wire RS-485 and synchronous communications Demodulated IRIG-B distribution Configurable 1-PPS output 5 VDC power supply Common mode TVS protection	DB25 connectors Data rate up to 115200 bps 5V or 10V 250 mA max. per port 1A max. per module 91A 8/20 µs
Modulated IRIG-B input	High state ≤ 16 Vpp Low state ≥ 0.8 Vpp Accuracy: ± 1ms Differential mode TVS protection	High-impedance BNC connector Input impedance = 9 kΩ 91A 8/20 µs

Table 12. Certification and Standard Compliancy

cTUVus Marking	CAN/CSA-C22.2 No 61010-1: 2012/U2: 2016-04 UL 61010-1:2012/R:2016-04	
RoHS	2002/95/EC	
REACH	Regulation (EC) No 1907/2006	
ISO : Equipment is designed and manufactured using ISO 9001 certified quality program		ISO 9001:2008 certificate of conformance was awarded by an independent certification authority. The corresponding certificate, quality manual and quality policy are available on demand.
Achilles Certification	Level 1	
CE Marking	2006/95/EC Low Voltage Directive 2004/108/CE EMC Directive 2006/1907(EC) (REACH) 2011/65/EU (ROHS)	
Substation Grade	IEC 61850-3 ed2.0(2013)	EMC : Class 2 (error free), Profil 2 with Ethernet optical LC connector Location : G, H, P Signal connections : I, f, p, h Mechanical: Class 2
	IEEE Std 1613TM-2009	Zone A & B
	IEEE Std 1613aTM-2011	Class 2 (error free), Profil 2 with Ethernet optical LC connector
	IEEE Std 1613.1 TM-2013	Zone A & B
	IEC 60255-1 (2009)	Performance criterions : A-C

Table 13. Substation-grade Compliance Notes

Compliancy element	Notes
IEC 61850-3 ed2.0 2013	The SMP SG-4260 is a communication device designed to achieve the highest immunity required in power stations to the local, field and high voltage signal port connections. It can be installed in low, medium and high voltage substations, in any weather-protected unconditioned environment. It meets or surpasses IEC 61850-3following classes: Climatic: Class C3 (3K7), Mechanical: Class Cm (3M6), Seismic: Class S3. Due to the importance of selecting good cable quality EMC test has been performed with EATON cables. The SMP SG-4260 compliance with the IEC 61850-3 standard was validated by an independent certified testing laboratory. The compliance test reports are available on demand.
IEEE Std 1613™2009 IEEE Std 1613a™-2011 IEEE Std 1613.1™-2013	The SMP SG-4260 meets or surpasses IEEE Std 1613 requirements as Class 2 networking device for Ethernet fiber-optic LC connector communications. SG4000 ensures error-free, uninterrupted communications required for Class 2 critical processes and protections. Due to the importance of selecting good cable quality, EMC test has been performed with EATON cables. The SMP SG-4260 compliance with the IEEE 1613 standard was validated by an independent certified testing laboratory. The compliance test reports are available on demand.
IEC 60255-1 2009	The SMP SG-4260 meets or surpasses the IEC 60255-1 requirements. The SMP SG-4260 can operate in both electrical environmental levels: Zone A & Zone B, per IEC 60255-26:2013. The compliance test reports are available on demand.
Achilles certification	The SMP SG-4260 meets the formal and comprehensive Achilles Level 1certification set of requirements and conformance, which verifies the network robustness of industrial control devices. The SMP SG-4260 Achilles compliance was validated by Wurltech laboratory. The certification reports are available on our web site.
cTUVus	The SMP SG-4260 cTUVus marked. Once certified, it ensures the end user that the SG-4260 is safe. The SMP SG-4260 cTUVus certification was validated by an independent certified testing laboratory. The marking reports are available on demand.

Type test details

This section presents all tests that were conducted on the SMP SG-4260.

Table 14. Type Tests

Communication profile	Profile 2 (IEC) Profile 3 (IEEE)	Heavy load on all communication ports with error free (Class 2).
IEC 61850-3 ed2.0 (2013)		
Electromagnetic Compatibility (EMC)		
Conducted Emissions	CISPR 32 (2015) FCC part 15 (2016) subpart B ICES-003 (2016	Class A 150 kHz - 30 MHz
Radiated Emissions	CISPR 32 (2015) FCC part 15 (2016) subpart B ICES-003 (2016	Class A 30 Mhz - 6 GHz
Harmonic Current Emission Limits	EN61000-3-2 (2014)	Class A
Voltage Fluctuations and Flicker Limitations	EN61000-3-3 (2013)	Observation period for Pst: 10 min Observation period for Plt: 120 min
Electrostatic Discharge Immunity	IEC 61000-4-2 (2008)	Contact : ±6 kV Air : ±8 kV
Radiated Electromagnetic Field Immunity	IEC 61000-4-3 (2006) A1 (2008) A2 (2010)	Frequency sweep 80 MHz-1 GHz : 20 V/m + 1kHz 80% AM 1 GHz-3.8 GHz : 10 V/m + 1kHz 80% AM
Electrical Fast Transient Immunity	IEC 61000-4-4 (2012)	Power: ±4 kV / 5 kHz I/O ports: ±4 kV / 5 kHz Communication ports: Level 4, ±4 kV / 5 kHz
Surge Immunity	IEC 61000-4-5 (2014)	Power: ±4 kV L-PE / ±2kV L-L I/O Ports: ±4 kV Communication Ports: ±4kV
Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields	IEC 61000-4-6 (2013)	Power : 10 Vrms I/O Ports : 10 Vrms Communication Ports : 10 Vrms
Power Frequency Magnetic Field Immunity	IEC 61000-4-8 (2009)	Continuous field : 100 A/m / 50 Hz & 60 Hz Short duration field : 1000 A/m / 50 Hz & 60 Hz
Damped Oscillatory Magnetic Field Immunity	IEC 61000-4-10 (1993)	Field strength : 100 A/m Oscillation Frequency: 100 kHz & 1MHz
Voltage Dips, Short Interruptions and Voltage Variation Immunity on AC Input	IEC 61000-4-11 (2004)	Voltage dips: 0%Un 0.5 to 25 cycles 0%Un / 5 cycle 40%Un / 10 cycles (at 50 Hz) 40%Un / 12 cycles (at 60 Hz) 70%Un / 1 cycles 70%Un / 25 cycles (at 50 Hz) 70%Un / 30 cycles (at 60 Hz) Short interruptions: 0%Un during 250 cycles (at 50 Hz) 0%Un during 300 cycles (at 60 Hz)
Conducted Common Mode Disturbances in the Frequency Range 0Hz-150kHz	IEC 61000-4-16 (2015) A1 (2002) A2 (2009)	Continuous: 30 V_{rms} / 50 Hz/ 60 Hz Short duration: 300 V_{rms} / 50 Hz/ 60 Hz Variation 15 Hz - 150 kHz: level 4
Ripple on DC Input Power Port Immunity	IEC 61000-4-17 (1999) A1 (2002) A2 (2009)	% of nominal DC voltage : 15 % Test duration : 10 min

Table 14. Type Tests (continued)

Damped Oscillatory Wave Immunity	IEC 61000-4-18 (2006) A1 (2010)	2.5 kV common mode 1 kV differential mode Oscillation Frequency = 1 MHz
Voltage Dips, Short Interruptions and Voltage Variation on DC Power Port Immunity	IEC 61000-4-29 (2000)	Voltage dips: 40% Un during 100 ms * 70% Un during 100 ms * Short interruptions: 0% during 50 ms * * Exception for 24-60 VDC Power Supply operating at 24 VDC
Climatic Environment Conditions		
Dry heat Operational & Storage	IEC 60068-2-2 (2007) Test Bd, Bb	Bd 85 °C, 16hr Operational Bb 85 °C, 16hr Storage 5 warm boots
Cold Operational & Storage	IEC 60068-2-1 (2007) Test Ad, Ab	Ad -40 °C, 16hr Operational Ab -40 °C, 16hr Storage 5 cold boots
Damp Heat, Steady State	IEC 60068-2-78 (2012) Test Cab	40°C, 93 %, 10 days
Damp Heat, Cyclic	IEC 60068-2-30 (2012 Test Db	40°C, 6 cycles (12hr + 12hr) Lower temp 25°C, 97% RH Upper temp 55°C, 93% RH
Change of temperature	IEC 60068-2-14 (2009) Test Nb	-40°C +85°C, 5 cycles, 1°C/min, t^1=3h
Mechanical Environmental Conditions		
Sinusoidal Vibration - Endurance & Response	IEC 60255-21-1 (1988)	20 cycles, 2g, 10-150 Hz, 3 axes
Shock–Bump	IEC 60255-21-2 (1988)	Semi-sinusoidal 300 m/s², 6 ms Shocks by direction: 3, 3 axes Unit ON
Sinusoidal Vibration - Seismic	IEC 60255-21-3 (1993)	Class 2, method A X = 7.5 mm (2g), Y = 3.5 mm (1g)
Safety		
Product Safety requirements	IEC 61850-3 (2013): IEC 60255-27 (2013) IEC 69529 (2013) IEC 61180-1 (1992) IEC 60664-1 (2007) IEC 60695-11-10 (2013)	The product SMP SG-4260 is certified cTUVus on IEC 61010-1 for the safety requirement
IEEE 1613 (2009) + AMD (2011) + IEEE 1613.1 (2013)		
Electromagnetic Compatibility (EMC)		
Electrostatic Discharge Immunity	C37.90.3 (2001)	Contact : ±8 kV Air : ±15 kV

Table 14. Type Tests (continued)

Radiated Electromagnetic Field Immunity	C37.90.2 (2004)	Frequency sweep 80 MHz-1GHz: 20 V/m 1G Hz-3 GHz: 10 V/m Spot frequencies: 80 MHz, 160 MHz, 450 MHz, 900 MHz 20V/m (AM) Spot frequencies: 900 MHz 20 V/m (PM) Spot frequencies: 900 MHz, 1.6 GHz & 3.8 GHz 10 V/m (AM) Spot frequencies: 1.732 GHz, 1.8 GHz, 2.31 GHz, 2.45 GHz, 5.8 GHz 8.5 V/m (PM)
SWC : Fast Transient Waveform	C37.90.1 (2002)	Power: ±4 kV / 5 kHz I/O Ports: ±4 kV / 5 kHz Communication Ports: ±4 kV / 5 kHz
SWC : Oscillatory Waveform	C37.90.1 (2002)	2.5 kV CM /2.5 kV DM Oscillation frequency: 1 MHz
Surge Immunity	IEC 61000-4-5 (2014)	Power: ±4 kV L-PE / ±2 kV L-L I/O Ports: ±4 kV Communication Ports: ±4 kV
Conducted Immunity	IEC 61000-4-6 (2013)	Power: 10V I/O Ports: 10V Communication Ports: 10V
Power Frequency Magnetic Field Immunity	IEC 61000-4-8 (2009)	Continuous field : 100 A/m / 50 Hz & 60 Hz Short duration field : 1000 A/m / 50 Hz & 60 Hz
Damped Oscillatory Magnetic Field Immunity Test	IEC 61000-4-10 (1993) A1 (2000)	Field Strength: 100 A/m Oscillation Frequency: 100 kHz & 1 MHz
Conducted Common Mode Disturbances in the Frequency Range 0Hz-150kHz	IEC 61000-4-16 (2015)	Continuous: 30Vrms / 60 Hz / 50 Hz Short duration: 300Vrms / 60 Hz / 50 Hz Variation 15 Hz-150 kHz: level 4
Impulse Voltage Withstand Test	C37.90 (2007)	All ports: ±5 kV Ethernet: ±2.5 kV
Dielectric Test	C37.90 (2007)	24-60 VDC Supply @1000 VDC 100-240 VAC/110-250 VDC Supply @2000 Vrms Output relays @2500Vrms Demodulated IRIG-B IN@2000Vrms RJ45 Ethernet @1500 Vrms Modulated IRIG-B IN @2000 Vrms
Climatic Environment Conditions		
Dry heat Operational & Storage	IEC 60068-2-2 (2007) Test Bd, Bd	Bd 85°C, 16hr Operational Bd 85°C, 16hr Storage 5 warm boots
Cold Operational & Storage	IEC 60068-2-1 (2007) Test Ad, Ab	Ad -40°C, 16hr Operational Ab -40°C, 16hr Storage 5 cold boots
Damp Heat, Steady state	IEC 60068-2-78 (2012) Test Cab	40°C, 93 %, 10 days

Table 14. Type Tests (continued)

Damp Heat, Cyclic	IEC 60068-2-30 (2012) Test Db	40°C, 6 cycles (12hr + 12hr) Lower temp 25°C, 97% RH Upper temp 55°C, 93% RH
Change of temperature	IEC 60068-2-14 (2009) Test Nb	-40°C +85°C, 5 cycles, 1 °C/min, t^1 = 3hr
Mechanical Environmental Conditions		
Sinusoidal Vibration - Endurance & Response	IEC 60255-21-1 (1988)	20 cycles, 2g, 10-150 Hz, 3 axes
Shock–Bump	IEC 60255-21-2 (1988)	Semi-sinusoidal 300 m/s^2 , 6 ms, Shocks by direction: 3, 3 axes
Free fall	IEC 60068-2-31 (2008) ISO 4180:2009	1 m with packaging 25 cm without packaging
IEC-60255-1 ed1.0 (2009)		
Electromagnetic Compatibility (EMC) (IEC 60255-26 (2013))		
Conducted Emissions	CISPR32(2015) FCC part 15 (2016) subpart B ICES-003 (2016)	Class A 150 kHz-30 MHz
Radiated emission	CISPR32(2015) FCC part 15 (2016) subpart B ICES-003 (2016)	Class A 30 Mhz-6 GHz
Electrostatic Discharge Immunity	IEC 61000-4-2 (2008)	Contact: ±6 kV Air: ±8 kV
RF electromagnetic field immunity test	IEC 61000-4-3 (2010)	Frequency sweep 80 MHz - 1 GHz: 20 V/m 1 GHz - 3 GHz: 10 V/m Spot frequencies 80, 160, 380, 450, 900, 1850, 2150, 2150 MHz: 10 V/m
Electrical Fast Transient Immunity	IEC 61000-4-4 (2012)	Power: ±4 kV / 5 kHz I/O Ports: ±4 kV / 5 kHz Communication Ports: ±4 kV / 5 kHz
Surge Immunity	IEC 61000-4-5 (2014)	Power: ±4 kV L-PE / ±2 kV L-L I/O Ports: ±4 kV Communication Ports: ±4 kV
Conducted Immunity	IEC 61000-4-6 (2013)	Power : 10 Vrms I/O ports : 10 Vrms Communication ports : 10 Vrms
Power Frequency Magnetic Field Immunity	IEC 61000-4-8 (2009)	Continuous field: 100 A/m / 50 Hz & 60 Hz Short duration field : 1000 A/m / 50 Hz & 60 Hz
Voltage Dips, Short Interruptions and Voltage Variation Immunity	IEC 61000-4-11 (2004)	Dips: 0% 25 cycles 40% 10/12 cycles 70% 25/30 cycles Interruptions: 0% 250/300 cycles
Conducted Common Mode Disturbances in the Frequency Range 0Hz-150kHz	IEC 61000-4-16 (2015)	Continuous: 30 Vrms / 60 Hz / 50 Hz Short duration: 300 Vrms / 60 Hz / 50 Hz Variation 15 Hz-150 kHz: level 4
Ripple on DC Input Power Port Immunity	IEC 61000-4-17 (1999) A1 (2002) A2 (2009)	% of nominal DC voltage : 15 % Test duration : 10 min

Table 14. Type Tests (continued)

Damped Oscillatory Wave Immunity	IEC 61000-4-18 (2006) A1 (2010)	2.5 kV common mode 1 kV differential mode Oscillation Frequency: 1 MHz
Voltage Dips, Short Interruptions and Voltage Variation on DC Power Port Immunity	IEC 61000-4-29 (2000)	Voltage dips: 40%Un during 200 ms 70%Un during 500 ms Voltage interruptions : 0% during 10 ms to 1000 ms 0% during 5s
Gradual shut-down/start-up For DC power supply	IEC 60255-26 Section 6.2 / Table 4 / item 4.8	≥0.8 Un --> 0V --> ≥0.8 Un
Impulse Voltage Withstand Test	IEC 60255-5 (2000)	All ports: ±5 kV Ethernet: ±2.5 kV
Dielectric Test	IEC 60255-5 (2000)	24-60 VDC Supply @1000 VDC 100-240 VAC/110-250 VDC Supply @2000 Vrms Output relays @2500Vrms Demodulated IRIG-B IN@2000Vrms RJ45 Ethernet @1500 Vrms Modulated IRIG-B IN @2000 Vrms
Climatic Environment Conditions		
Dry heat Operational & Storage	IEC 60068-2-2 (2007) Test Be, Bd, Bb	Be 85°C, 16hr Operational Bd 55°C, 16hr Operational Bb 85°C, 16hr Storage 5 warm boots
Cold Operational & Storage	IEC 60068-2-1 (2007) Test Ad, Ab	Ad -40°C, 16hr Operational Ab -40°C, 16hr Storage 5 cold boots
Change of temperature	IEC 60068-2-14 (2009) Test Nb	-40°C + 85°C, 5 cycles, 1 °C/min, t1=3 hr
Damp heat, steady state	IEC 60068-2-78 (2012) Test Cab	40 °C, 93%, 10 days
Damp heat, cyclic	IEC 60068-2-30 (2012) Test Db	40°C, 6 cycles (12hr + 12hr) Lower temp 25°C, 97% RH Upper temp 55°C, 93% RH
Mechanical Environmental Conditions		
Sinusoidal Vibration - Endurance & Response	IEC 60255-21-1 (1988)	20 cycles, 2g, 10-150 Hz, 3 axes
Shock–Bump	IEC 60255-21-2 (1988)	30g, 11 ms, 3 impulsions, 3 axes 20g, 16 ms, 1000 impulsions, 3 axes
Sinusoidal Vibration - Seismic	IEC 60255-21-3 (1993)	Class 2, method A X = 7.5mm (2g) Y = 3.5mm (1g)
Product Safety		
Product safety requirements	IEC 60255-27 (2013)	The product SMP SG-4260 is certified cTUVus on IEC 61010-1 for the safety requirement

SMP Gateways are rugged, reliable, and tailored to our customer's requirements. They are easy to setup and use. Thousands of SMP Gateways have been installed worldwide. Eaton has decades of experience in automation platforms design for grid automation systems, making our SMP Gateways a product line that utilities can rely on.

Temperature derating

The SMP SG-4260 can support operating temperatures between -40 °C and +85 °C per the IEC 60068-2-2 ed5.0 and IEC 60068-2-1 ed6.0 standards.

Note: Note: The SMP SG-4260 meets the Dry Heat Bd test requirements of 16 hours at 85 °C when equipped with CompactFlash disk storage (no SSD).

To be compliant with the IEC 61010-1 certification, the SMP SG-4260 can be used within the temperature range that is function of the total power consumption of the unit, as described in the tables below. If the SMP SG-4260 is equipped with a standard Ethernet module with fiber-optic LC connectors, the maximum operating temperature is the smallest value between the one provided by table 16 and 60 °C. If the SMP SG-4260 is equipped with an Advanced Ethernet module, the maximum operating temperature is the smallest value between the one provided by table 16 and 55 °C.

Table 15. Power consumption according to installed options

System configuration		Power consumption (W)	Power Consumption Evaluation (W)
SMP SG-4260 Substation Gateway (Basic consumption)		23	23
Optional Features			
Memory Expansion	Solid State Drive (SSD) Expansion	2	
Built-in Ethernet	2x Ethernet 10/100/1000BASE-T ports	4	
	2x Ethernet 100BASE-FX, Fiber Optic ST ports	5	
	2x Ethernet 100BASE-FX, Fiber Optic LC ports*	5	
	2x GbE, SFP ports	4	
Optional Satellite-synchronized (GNSS) clock	Built-in GNSS (GPS & GLONASS) receiver	1	
Slot A	Module with 8x Serial RS-232/485 ports (DB9)	3	
	Module with 4x Universal Communication ports (DB25)	4.2	
Slot B	Module with 8x Serial RS-232/485 ports (DB9)	3	
	Module with 4x Universal Communication ports (DB25)	4.2	
Slot C	Module with 8x Serial RS-232/485 ports (DB9)	3	
	Module with 4x Universal Communication ports (DB25)	4.2	
	Module with 4x Ethernet 10/100/1000BASE-T ports	8	
	Module with 4x Ethernet 100BASE-FX, Optical ST ports	11.5	
	Module with 4x Ethernet 100BASE-FX, Optical LC ports*	11.5	
	Advanced Ethernet module Base-T (PHP/HSR), PTP**	13.5	
	Advanced Ethernet module Optical ST (PHP/HSR) PTP**	13.5	
	Advanced Ethernet module Optical LC (PHP/HSR) PTP**	13.5	
Slot D	Module with 8x Serial RS-232/485 ports (DB9)	3	
	Module with 4x Universal Communication ports (DB25)	4.2	
	Module with 4x Ethernet 10/100/1000BASE-T ports	8	
	Module with 4x Ethernet 100BASE-FX, Fiber Optic ST ports	11.5	
	Module with 4x Ethernet 100BASE-FX, Fiber Optic LC ports*	11.5	
	Advanced Ethernet module Base-T (PHP/HSR), PTP**	13.5	
	Advanced Ethernet module Optical ST (PHP/HSR), PTP**	13.5	
	Advanced Ethernet module Optical LC (PHP/HSR), PTP**	13.5	
	Total Power Consumption (W):		

* The maximum operating temperature with LC fiber optic Ethernet connector is 60 °C.

** The maximum operating temperature with an Advanced Ethernet module (PRP/HSR) is 55°C. The Advanced Ethernet module PTP feature is Coming soon

Table 16. Temperature derating per power consumption range

Total Power Consumption (W)	Normal Operating Temperature (C)
< 40	70°C
> 40 W to 50 W	65°C
> 50 W to 65 W	55°C

Dimension drawings

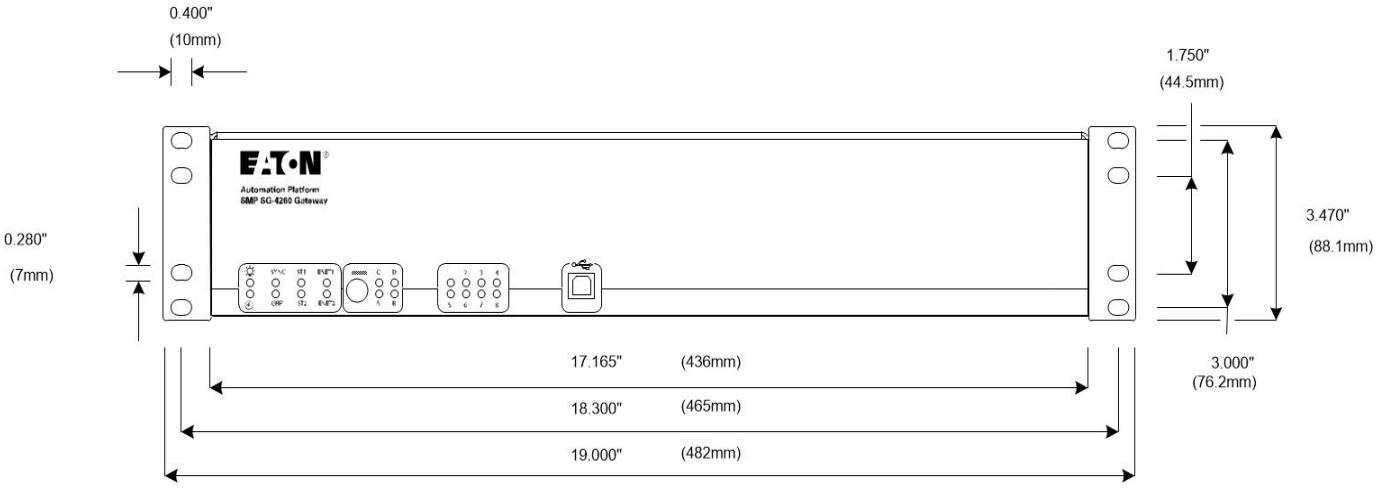

Figure 4. Front panel view, SMP SG-4260 with standard power supply

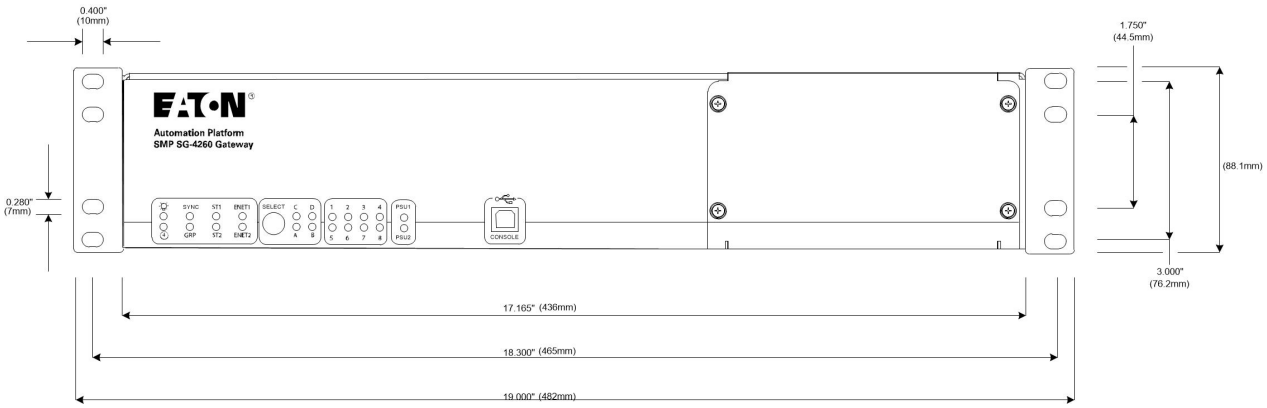

Figure 5. Front Panel view, SMP SG-4260 with the dual power supplies option

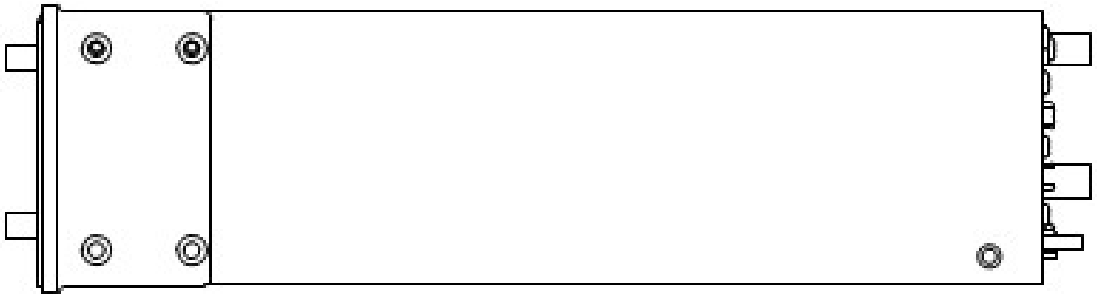

Figure 6. Side view

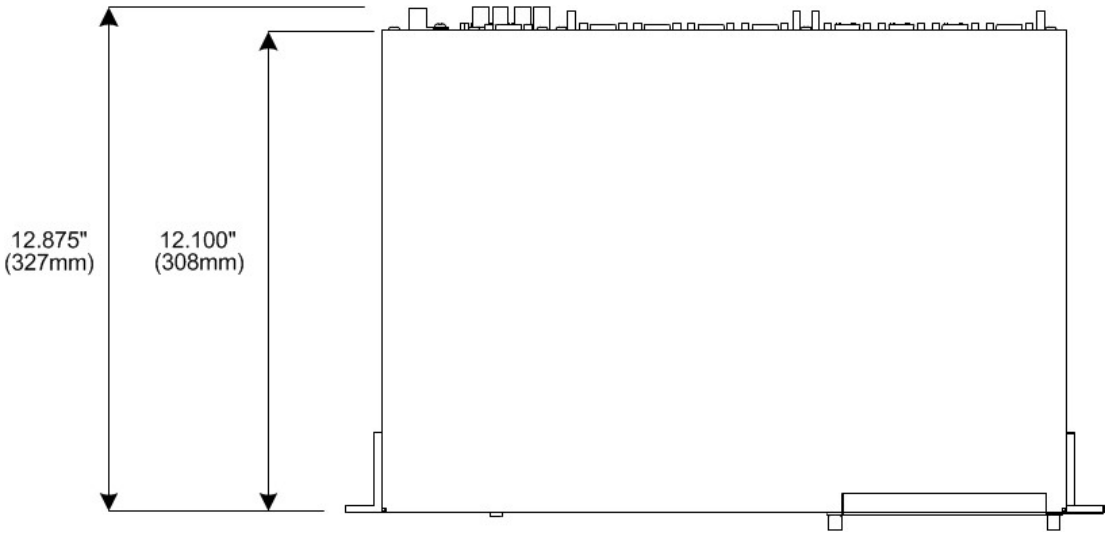

Figure 7. Top view

Ordering information

A complete SMP SG-4260 system is defined by its hardware components, its software features and finally the protocols components it includes. This section helps you define all these components and features. Additionally, several tables are listing the available accessories to complement the SMP SG-4260.
First the hardware components are defined using the system configuration chart which is presented in the following table.

Table 17. System Configuration Chart

Description	SMP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Family																	
SG4 Substation Gateway 4000		SG4															
Format																	
Rack mount 2U Base Unit			2														
Model																	
Intel® Atom™ E3845 Quad-core 1.91GHz				6													
Special/Customer Custom #1																	
NONE					0												
General Option/Customer Custom #2																	
NONE						0											
Basic Ethernet Option																	
2 Ethernet 10/100/1000 BASE-T							A										
2 Ethernet 100 Optical, ST Connectors							B										
2 Ethernet 100 Optical, LC Connectors							C										
2 Ethernet 1 GbE, SFP ports**							D										
Basic and Expansion Flash Memory																	
BASIC 1 GB, No Expansion Flash								A									
BASIC 1 GB, Expansion 8 GB SSD SLIM-SATA								B									
BASIC 1 GB, Expansion 32 GB SSD SLIM-SATA								D									
BASIC 1 GB, Expansion 64 GB SSD SLIM-SATA								E									
Basic 1 GB, Expansion 128 GB SSD SLIM-SATA								F									
Power Supplies (with MOV)																	
24-60 Vdc; Standard									B								
100-240 Vac, 110-250 Vdc: Standard									D								
100-240Vac, 110-250Vdc; Dual (HV1, NONE)									H								
100-240Vac, 110-250Vdc; Dual (HV1, HV2)									K								
Expansion Slot A																	
NONE										0							
8x Serial RS-232/485 (DB9)										A							
4x Universal Communication Port (DB25) with IRIG-B Modulated Input										B							
Expansion Slot B																	
NONE											0						
8x Serial RS-232/485 (DB9)											A						
4x Universal Communication Port (DB25) with IRIG-B Modulated Input											B						
Expansion Slot C																	
NONE												0					
8x Serial RS-232/485 (DB9)												A					
4x Universal Communication Port (DB25) with IRIG-B Modulated Input												B					
4x Ethernet 10/100/1000BASE-T												C					
4x Ethernet Optical 100 ST Connector												D					
4x Ethernet Optical 100 LC Connector												E					
4x Advanced Ethernet 100/1000BASE-T (Standard/PRP/HSR), PTP*												K					
4x Advanced Ethernet Optical 100 ST Connector (Standard/PRP/HSR), PTP*												L					
4x Advanced Ethernet Optical 100 LC Connector (Standard/PRP/HSR), PTP*												M					

*Coming soon

**For ordering SFP transceivers, refer to Ordering Information - individual components. Only SFP transceivers sold by Eaton are allowed,

Table 17. System Configuration Chart (continued)

Description	SMP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Expansion Slot D																	
NONE													0				
8x Serial RS-232/485 (DB9)													A				
4x Universal Communication Port (DB25) with IRIG-B Modulated Input													B				
4x Ethernet 10/100/1000BASE-TX													C				
4x Ethernet Optical 100 ST													D				
4x Ethernet Optical 100 LC Connector													E				
4x Advanced Ethernet 10/100/1000BASE-TX (Standard/PRP/HSR), PTP*													K				
4x Advanced Ethernet Optical 100 ST Connector (Standard/PRP/HSR), PTP*													L				
4x Advanced Ethernet Optical 100 LC Connector (Standard/PRP/HSR), PTP*													M				
Expansion Slot E / Internal Options																	
NONE														0			
Internal GPS (GNSS) clock														A			
Expansion Slot F																	
NONE															0		
Expansion Slot G																	
NONE																0	
Expansion Slot H																	
NONE																	0

*Coming soon

The SMP SG-4260 includes several software features which are standard (free of charge); additionally, some features are optional and are listed in the table below with their ordering part number.

Table 18. Ordering information related to software features

SMP SG-4260 software feature	Standard feature	Option (with part number)	Description
Automation Functions	Included		Comprehensive set of logic and group operations for the SMP SG-4260.
Secure Web server • Communication Dashboard • System Dashboard • REST API	Included		The SMP Gateway HMI can be accessed remotely using the integrated secure Web server of the SMP SG-4260 and your Internet Web browser. The integrated Web server also allows access to the SMP SG-4260 via the SMP REST API which is included in the software package.
Syslog support	Included		The Syslog feature is used for remote log storage
Operational HMI		P-SSMP-8001-00	Provides diagram capabilities and alarms management to the SMP SG-4260. Works remotely (web-based) and locally (requires external touch-screen or monitor and mouse). **Note** : Requires SMP Version 7.1 or later
Operational HMI lite		P-SSMP-8002-00	Provides web-based diagram capabilities and alarms management to the SMP SG-4260. **Note** : Requires SMP Version 7.1 or later
Secure remote access (Passthrough)		P-SSMP-0301-00	Used to establish a transparent connection between programs running on a PC and any device connected to the SMP Gateway.

Table 18. Ordering information related to software features (continued)

SMP SG-4260 software feature	Permanent feature	Option (with part number)	Description
Redundancy support		P-SSMP-0401-00	Provides the capability to group two SMP SG-4260 in a redundant configuration. The standby SMP Gateway automatically takes over if the main one fails. **How to order:** When the Redundancy support is ordered, two identical SMP Gateway must be available or ordered using the same hardware part number for the two devices. Additionally, the software features and protocols must also be identical on both SMP Gateways and a single license for these options and protocols must be ordered for both devices. Example of an order (assuming that the customer has no SMP Gateway available): • 2 x SMPSG42600ADKABKC0000 (two (2) identical SMP SG-4260) • 1 x P-SSMP-0401-00 (one (1) Redundancy support license option) • 1 x SSMP-8001-00 (one (1) Operational HMI license option) • 1 x P-SSMP-0301-00 (one (1) Secure remote access (Passthrough) license option • 1 x P-SMPR-0201-00 (one (1) DNP3 client protocol license option) • 1 x P-SSPR-0201-00 (one (1) DNP3 server protocol license option) **Note**: It is possible to group an SMP SG-4260 with an SMP SG-4250 if they have identical hardware configurations.
Soft PLC engine (CODESYS)		P-SSMP-0201-0A	Provides the SMP SG-4260 with the capability to run automation scripts developed with the CODESYS IEC 61131-3 workbench.
Soft PLC workbench, Windows-based (CODESYS IEC61131-3)		P-SPCU-0101-00	A powerful Windows-based workbench used to create automation scripts for the SMP Gateway, using any of the five IEC 61131-3 supported languages. This software application run on a PC and must be purchased only once, independently of the number of SMP SG-4260 running the script.
SOE Recorder		P-SSMP-1001-00	Adds Sequence of Event capabilities to the SMP SG-4260. Any binary points in the internal database can be used in the SOE. The events are stored in the SMP SG-4260 non-volatile memory.
SNMP Agent		P-SSMP-0501-00	Allows an SNMP manager to poll the SMP SG-4260 for statistics, link-up alarms, link-down alarms, SMP reset alarms. **Note**: Supports SMP reset and statistic reset.
10 000 additional data points (tags)		P-SSMP-5220-00	Adds to the SMP SG-4260 the capability to support 10000 additional data points
Additional connectivity, up to 200 IED		P-SSMP-5203-0A	Adds to the SMP SG-4260 the capability to connect to a maximum of 200 devices. **Note**: The standard software package allows connection to 128 IEDs. Additional connectivity options are also available, ask our Eaton sales representative.

The SMP SG-4260 communicates with control center(s) and IEDs using specific protocols; you must select which protocol you will use for the client component(s) and the server component(s). Each protocol license is valid for only one (1) SMP SG-4260 (except in a redundant setup). The supported protocols are listed in the following table in order of popularity; they can be ordered using the provided part number listed in the Client component (master) and Server component (slave) columns, if available.

Eaton offers protocol package licenses to make the protocol price more cost effective. Depending on your required protocols, your Eaton sales representative will offer the most cost effective solution.

Eaton is continuously developing its SMP SG-4260 software features, additional protocols may be available, ask your Eaton sales representative if there is a protocol required that is and not listed in this document.

Table 19. Protocol ordering information

Protocol	Client component (master) Part Number	Server component (slave) Part Number	Communication link/additional information
DNP3	P-SMPR-0201-00	P-SSPR-0201-00	Serial, TCP/IP, UDP
Secure Authentication v5 for DNP3	P-SMPR-0202-00	P-SSPR-0202-00	Requires the DNP3 protocol Client component (P-SMPR-0201-00)
IEC 61850-ed2	P-SMPR-2901-0A	P-SSPR-1001-0A	TCP/IP
IEC 61850 GOOSE	P-SSMP-2001-00		Messages transmit/receive (publish/subscribe) Requires the IEC 61850 (P-SMPR-2901) protocol also
Modicon - Modbus	P-SMPR-0401-00	P-SSPR-0401-00	Serial, TCP/IP, UDP

Table 19. Protocol ordering information (continued)

Protocol	Client component (Master) Part Number	Server component (slave) Part Number	Communication link/additional information
ICCP	P-SMPR-1401-0A	P-SSPR-0901-0A	TCP/IP
Schneider Electric - ION	P-SMPR-5401-00	n/a	Serial, TCP/IP
Areva Micom - Courier (K-BUS)	P-SMPR-4601-00	n/a	Serial, TCP/IP To use the K-BUS protocol to connect to a legacy Areva device, the SMP SG-4260 must be equipped with an universal communication module and a K-BUS support package is required (P-SSMP-7001-00). Otherwise, it is possible to use a KITZ adaptor (not supplied by Eaton)
ASCII	P-SMPR-1904-00	n/a	Serial, ASCII, TCP/IP
IEC 60870-5-101	P-SMPR-0101-00	P-SSPR-0101-00	Serial
IEC 60870-5-103	P-SMPR-0102-00	n/a	Serial
PG&E and Cooper Power Systems- Data 2179	P-SMPR-2801-00	n/a	Serial, TCP/IP For Form 4C, 5 and 6 recloser control and CL5, CL6 and CL7 voltage regulator control
IEC 60870-5-104	P-SMPR-0103-00	P-SSPR-0103-00	TCP/IP
Schweitzer SEL- Fast Meter	P-SMPR-0650-00	n/a	Serial, TCP/IP Support for all SEL relays
GE - EDG (Ethernet Global Data)	P-SSMP-7101-00		UDP
GE - Multilin UR Events file transfer	P-SMPR-3301-00	n/a	Serial, TCP/IP File transfer for all UR relays
Schweitzer SEL- Events	P-SMPR-2101-00	n/a	Serial, TCP/IP
Cooper Power Systems - Form 6	P-SMPR-5501-00	n/a	Serial, TCP/IP
FTP - File retrieval	P-SMPR-6001-00	n/a	TCP/IP Used for file retrieval from IEDs
GE - Multilin SR Events file transfer	P-SMPR-5701-00	n/a	Serial, TCP/IP Used for file transfer for GE SR 750 and 760 models
IEEE Std C37.118™-2005	P-SMPR-3501-00	P-SSPR-3501-00	Serial, TCP/IP, UDP
ABB - SPABus	P-SMPR-1301-00	n/a	Serial, TCP/IP
ABB - Standard Ten Bytes	P-SMPR-0901-00	n/a	Serial
Algodue - UPM3100	P-SMPR-3201-00	n/a	Serial, TCP/IP
Algodue - UPM307	P-SMPR-3202-00	n/a	Serial, TCP/IP
Algodue - UPM315	P-SMPR-3203-00	n/a	Serial, TCP/IP
Bender - FTC470XMB Gateway Master	P-SMPR-1201-00	n/a	Serial
Conitel - 2020 (bit oriented protocol)	P-SMPR-3801-00	P-SSPR-3801-00	Serial, TCP/IP Used for C30, C200, C300, C2010 and C2020. The SMP SG-4260 must be equipped with an universal communication module (the serial port is set to Conitel mode)
Datek	P-SMPR-1001-00	n/a	Serial, TCP/IP
Domosys - PowerBus	P-SMPR-2401-00	n/a	Serial, TCP/IP
GE - Syprotec Hydran	P-SMPR-2201-00	n/a	Serial, TCP/IP
Harris - 5000/6000	P-SMPR-3601-00	P-SSPR-1301-00	Serial, TCP/IP
IEC 62056 (formaly IEC 1107)	P-SMPR-3101-00	n/a	Serial, TCP/IP
Landis+Gyr - LG8979	P-SMPR-2301-00	P-SSPR-2301-00	Serial, TCP/IP
Mehta Tech - TRANSCAN DFR (RS-232	P-SMPR-1601-00	n/a	Serial
Morgan Schaffer - Calisto	P-SMPR-0801-00	n/a	Serial, TCP/IP Used with Calisto dissolved hydrogen and water monitor
Motorola - MDAC	P-SMPR-0301-00	n/a	Serial, TCP/IP Used with DATRAC10, DATRAC11 and MDO11
Opto 22 - Optomux	P-SMPR-1701-00	n/a	Serial, TCP/IP
Qualitrol - Hathaway - BCM-200	P-SMPR-1501-00	n/a	Serial, TCP/IP Used with the on-line breaker condition monitor BCM-200

Table 19. Protocol ordering information (continued)

Protocol	Client component (Master) Part Number	Server component (slave) Part Number	Communication link/additional information
Qualitrol - Hathaway - DFR-1200	P-SMPR-1801-00	n/a	Serial, TCP/IP Used with the fault recorder DFR-1200
Valmet - Tejas	P-SMPR-0701-00	P-SSPR-0301-00	Serial, TCP/IP Used with Micro 1, Micro 1C, Micro 1E, Micro 1L, LANDAC, CAMDAC
Beckwith - Beco 2200	P-SMPR-4301-00	n/a	Serial, TCP/IP Used for real time data and event retrieval
RUGGEDCOM (Siemens) - Ruggedcom (ROS)	P-SMPR-5001-00	n/a	Serial, TCP/IP
GE - D20 family	P-SMPR-5301-00	n/a	Serial, TCP/IP, UDP Used exclusively to retrieve configuration items from GE D20, D200 and D25 devices with Eaton's IED Manager Suite (IMS) Configuration Manager
Eaton - Interconnection	Included	Included	TCP/IP Client used to connect to an Eaton SMP Gateway Server used to connect to an SMP Gateway or to IED Manager Suite Software (IMS)
SMP Interconnection	n/a	P-SSPR-1201-00	TCP/IP Used to connect to OSIsoft PI server interface
SES-92	n/a	P-SSPR-4001-00	Serial, TCP/IP
BlueTree	P-SMPR-4401-00	n/a	TCP/IP
OPC UA (Unified Architecture)	Coming soon	Coming sooon	TCP/IP The OPC UA will allow an SMP SG-4260 to connect to an OPC Server.

Ordering information - individual components

The following tables list the accessories for the SMP SG-4260 that can be ordered separately for a field upgrade or a replacement.

Table 20. Individual communication modules

Part Number	Description
SMP-SG-4000-1001	8x Serial RS-232/485 Ports 2.0 (DB9)
SMP-SG-4000-1002	4x Universal Communication Ports (DB25) with IRIG-B Modulated Input
SMP-SG-4000-1003	4x Ethernet 10/100/1000BASE-TX
SMP-SG-4000-1004	4x Ethernet Fiber-Optic 100BASE-FX ST Connectors
SMP-SG-4000-1005	4x Ethernet Fiber-Optic 100BASE-FX LC Connectors
SMP-SG-4000-1007	Advanced Ethernet Module 4 x 100/1000BASE-TX (PRP/HSR), PTP*
SMP-SG-4000-1008	Advanced Ethernet Module Fiber-Optic 4 x 100BASE-FX ST Connectors (PRP/HSR), PTP*
SMP-SG-4000-1009	Advanced Ethernet Module Fiber-Optic 4 x 100BASE-FX LC Connectors (PRP/HSR), PTP*

*Coming soon

Table 21. Power supply replacement

Part Number	Description
SMP-SG-4000-2001*	100-240 VAC / 110-250 VDC Replacement Power Supply

*For the hot-swappable power supply option only. This power supply can be replaced byt the user itself. The power supply options for the standard power supply request an RMA in case of power supply issues.

Table 22. Individual drives

Part number	Description
SMP-SSD-1001-R	8 GB SSD SLC SLIM-SATA (Use for Expansion Flash Memory)
SMP-SSD-1002-R	32 GB SSD SLC SLIM-SATA (Use for Expansion Flash Memory)
SMP-SSD-1003-R	64 GB SSD SLC SLIM-SATA (Use for Expansion Flash Memory)
SMP-SSD-1004-R	128 GB SSD SLC SLIM-SATA (Use for Expansion Flash Memory)

Table 23. SFP Transceivers

Part number	Description
Optical	
SMP-SFP-FB-1001	1000BASE-LX (LC connector), 1310 nm, Single mode fiber, 10 Km range
SMP-SFP-FB-1002	1000BASE-LX (LC connector), 1310 nm, Single mode fiber, 40 km range
SMP-SFP-FB-1003	1000Base-SX (LC connector), 850nm, Multi mode fiber, 550m range
Copper	
SMP-SFP-CO-1001*	1000BASE-T (RJ45 connector)

Note: Only SFP transceivers sold by Eaton are supported on the SMP SG-4260, other SFP transceivers will not work. Contact Eaton for a specific SFP transceiver requirement.

*This SFP transceiver is designed to meet substation product standards

Table 24. Accessories

Part number	Description
210VA0004R	DVI to VGA converter
POPT-1613	GNSS Surge suppressor (Required to be compliant to IEC 61850-3 & IEEE 1613)
POPT-1615	20 dB in-line amplifier
POPT-1616	GNSS active antenna
POPT-1617-xx	GNSS Cable RG-59 TNC-TNC xm
POPT-1618	Ratcheting crimp tool for RG-8 cable
POPT-1619	Mounting Bracket for GNSS antenna
POPT-1618	Ratcheting crimp tool for RG-8 cable
POPT-1620	TNC connector

Table 25. Cables

Part number	Description
Shielded Power Cable	
P-CABC-0303-00	AC Power Cable Shielded Nema 5-15-Wire Note: Must be used for Demo or laboratory only
P-CABC-0306-00	Power Cable Shielded Wire-Wire 1.8 m
P-CABC-0318-10	Power Cable Shielded Wire-Wire 10 m
P-CABC-0318-03	Power Cable Shielded Wire-Wire 3 m
P-CABC-0318-01	Power Cable Shielded Wire-Wire 1 m
P-CABC-0318-xx*	Power Cable Shielded Wire-Wire x m
USB cable	
600AB0008R	Replacement USB Cable, Shielded Note: For USB Console Port
Ethernet Multimode Fiber	
-St-ST	
P-CABC-0317-0050	Multimode Fiber OM1 62.5/125 µm ST-ST 50 m
P-CABC-0317-0025	Multimode Fiber OM1 62.5/125 µm ST-ST 25 m
P-CABC-0317-0010	Multimode Fiber OM1 62.5/125 um ST-ST 10 m
P-CABC-0317-0003	Multimode Fiber OM1 62.5/125 µm ST-ST 3 m
P-CABC-0317-0001	Multimode Fiber OM1 62.5/125 um ST-ST 1 m
P-CABC-0317-xxxx*	Multimode Fiber OM1 62.5/125 um ST-ST xm

Table 25. Cables (continued)

LC-LC	
P-CABC-0315-0050	Multimode Fiber OM1 62.5/125um LC-LC 50m
P-CABC-0315-0025	Multimode Fiber OM1 62.5/125um LC-LC 25m
P-CABC-0315-0010	Multimode Fiber OM1 62.5/125um LC-LC 10m
P-CABC-0315-0003	Multimode Fiber OM1 62.5/125um LC-LC 3m
P-CABC-0315-0001	Multimode Fiber OM1 62.5/125um LC-LC 1m
P-CABC-0315-xxxx*	Multimode Fiber OM1 62.5/125um LC-LC xm
ST-LC	
P-CABC-0316-0050	Multimode Fiber OM1 62.5/125um ST-LC 50m
P-CABC-0316-0025	Multimode Fiber OM1 62.5/125um ST-LC 25m
P-CABC-0316-0010	Multimode Fiber OM1 62.5/125um ST-LC 10m
P-CABC-0316-0003	Multimode Fiber OM1 62.5/125um ST-LC 3m
P-CABC-0316-0001	Multimode Fiber OM1 62.5/125um ST-LC 1m
P-CABC-0316-xxxx*	Multimode Fiber OM1 62.5/125um ST-LC xm
Ethernet RJ45 Shielded Cable	
P-CABC-0310-025	Copper Ethernet Cable RJ45 CAT6 25m
P-CABC-0310-010	Copper Ethernet Cable RJ45 CAT6 10m
P-CABC-0310-003	Copper Ethernet Cable RJ45 CAT6 3m
P-CABC-0310-001	Copper Ethernet Cable RJ45 CAT6 1m
P-CABC-0310-xxx*	Copper Ethernet Cable RJ45 CAT6 xm
DB9 Serial Shielded Cable	
RS-232 Null Modem cable DB9M-DB9M	
P-CABC-0311-10	RS232 Null Modem Cable DB9M-DB9M 10m
P-CABC-0311-03	RS232 Null Modem Cable DB9M-DB9M 3m
P-CABC-0311-01	RS232 Null Modem Cable DB9M-DB9M 1m
P-CABC-0311-xx*	RS232 Null Modem Cable DB9M-DB9M xm
RS-232 Straight shielded cable DB9M-DB9M	
P-CABC-0312-10	RS232 Straight Cable DB9M-DB9M 10m
P-CABC-0312-03	RS232 Straight Cable DB9M-DB9M 3m
P-CABC-0312-01	RS232 Straight Cable DB9M-DB9M 1m
P-CABC-0312-xx*	RS232 Straight Cable DB9M-DB9M xm
P-CABC-0313-10	RS232 Straight Cable DB9M-DB9F 10m
P-CABC-0313-03	RS232 Straight Cable DB9M-DB9F 3m
P-CABC-0313-01	RS232 Straight Cable DB9M-DB9F 1m
P-CABC-0313-xx*	RS232 Straight Cable DB9M-DB9F xm
RS-485 4-wires + IRIG-B shielded cable DB9-Wires	
P-CABC-0308-0010	RS485-4wires Serial Cable DB9M-Wire 10m
P-CABC-0308-0003	RS485-4wires Serial Cable DB9M-Wire 3m
P-CABC-0308-0001	RS485-4wires Serial Cable DB9M-Wire 1m
P-CABC-0308-xxxx*	RS485-4wires Serial Cable DB9M-Wire xm
RS-485 2-wires + IRIG-B shielded cable DB9-Wires	
P-CABC-0308-0010	RS485-2wires Serial Cable DB9M-Wire 10m
P-CABC-0308-0003	RS485-2wires Serial Cable DB9M-Wire 3m
P-CABC-0308-0001	RS485-2wires Serial Cable DB9M-Wire 1m
P-CABC-0308-xxxx*	RS485-2wires Serial Cable DB9M-Wire xm
SEL Relay shielded cable DB9M-DB9M	
P-CABC-0321-10	SG-4250/SEL relay cable DB9M-DB9M 10m
P-CABC-0321-03	SG-4250/SEL relay cable DB9M-DB9M 3m
P-CABC-0321-01	SG-4250/SEL relay cable DB9M-DB9M 1m
P-CABC-0321-xx*	SG-4250/SEL relay cable DB9M-DB9M xm
Y-Cable RS232 null modem shielded DB9M-DB9M	
P-CABC-0324-01-10	RS232 Y-Cable Dual DB9M-DB9M null 1&10m
P-CABC-0324-01-03	RS232 Y-Cable Dual DB9M-DB9M null 1&3m
P-CABC-0324-01-01	RS232 Y-Cable Dual DB9M-DB9M null 1&1m
P-CABC-0324-xx-yy*	RS232 Y-Cable Dual DB9M-DB9M null x&ym

Table 25. Cables (continued)

Y-Cable RS232 straight shielded DB9M-DB9F	
P-CABC-0307-01-10	RS232 Y-Cable Dual DB9M-DB9F 1&10m
P-CABC-0307-01-03	RS232 Y-Cable Dual DB9M-DB9F 1&3m
P-CABC-0307-01-01	RS232 Y-Cable Dual DB9M-DB9F 1&1m
P-CABC-0307-xx-yy*	RS232 Y-Cable Dual DB9M-DB9F x&ym
DB25 Universal Card Shielded Cable	
RS-232 Null Modem shielded cable DB25M-DB25M	
P-CABC-0319-10	RS232 Null Modem Cable DB25M-DB25M 10m
P-CABC-0319-03	RS232 Null Modem Cable DB25M-DB25M 3m
P-CABC-0319-01	RS232 Null Modem Cable DB25M-DB25M 1m
P-CABC-0319-xx*	RS232 Null Modem Cable DB25M-DB25M xm
RS-485 4-wires/2-wires + IRIG-B shielded cable DB25M-Wire	
P-CABC-0322-0010	RS485 4-wires/2-Wires DB25M-Wire 10m
P-CABC-0322-0003	RS485 4-wires/2-Wires DB25M-Wire 3m
P-CABC-0322-0001	RS485 4-wires/2-Wires DB25M-Wire 1m
P-CABC-0322-xxxx*	RS485 4-wires/2-Wires DB25M-Wire xm
GE D20-IO shielded cable	
P-CABC-0256-03	SG-4250/GE D20-IO Cable DB25M-DB9M 3m
P-CABC-0256-01	SG-4250/GE D20-IO Cable DB25M-DB9M 1m
P-CABC-0256-xx*	SG-4250/GE D20-IO Cable DB25M-DB9M xm
Time Synchronization Shielded Cable	
Irig-B BNC cable	
P-CABC-0245-25	IRIG-B modulated Cable RG58 BNC-BNC 25m
P-CABC-0245-10	IRIG-B modulated Cable RG58 BNC-BNC 10m
P-CABC-0245-03	IRIG-B modulated Cable RG58 BNC-BNC 3m
P-CABC-0245-01	IRIG-B modulated Cable RG58 BNC-BNC 1m
P-CABC-0245-xx*	IRIG-B modulated Cable RG58 BNC-BNC xm
4 Twisted Pairs Shielded cable : IRIG-B ; RS-485 4-Wires/2-Wires Wire-Wire	
P-CABC-0320-25	4 Twisted Pairs Cable Wire-Wire 25m
P-CABC-0320-10	4 Twisted Pairs Cable Wire-Wire 10m
P-CABC-0320-03	4 Twisted Pairs Cable Wire-Wire 3m
P-CABC-0320-01	4 Twisted Pairs Cable Wire-Wire 1m
P-CABC-0320-xx*	4 Twisted Pairs Cable Wire-Wire xm
GNSS (GPS and GLONASS) cable	
P-CABC-0327-XX (P/N reserved) (See also POPT-1617 cable without connector. TNC)	GNSS (GPS and GNSS) Cable RG-59 TNC-TNC xm

* Some cables can have special length according to customer request. For a special length, you must choose the length that you need and create your cable code.
Contact your Eaton representative to validate the maximum length possible for your application.
Example: a cable P-CABC-0310-xxx with 2 meters length will be P-CABC-0310-002 (always use length in meters)
Contact your Eaton representative for other cable requirements.

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