atop Technologies

Industrial Ethernet Switches

Product Selection Guide

2019/2020

Substations & Smart Grid

page 4

System Requirements:

- Compliance with IEC61850-3, ensuring the best EMI shielding and communication without error
- Communication redundancy: ERPS and compatible Ring, STP/RSTP/MSTP/MRP Client
- Fiber optic uplinks for long-distance transmission, noise resistance, and huge bandwidth for upgrading
- Wide range of temperature support
- IEEE 1588 support
- Highest network availability in compliance with HSR/PRP.

Atop solution:

- EHG95xx
- RHG95xx

RAILWAY & TRANSPORTATION

page 8

System requirements:

- PoE at/af support
- IP67 or IP30 enclosure
- EN50155 & IEC60571 for Rolling stock certificated
- EN50121-4 for trackside certificated
- EN45545-2 for Fire protection
- NEMA TS-2 & E-Mark certificated for traffic control applications

Atop solution:

- EHG75xx
- EHG76xx

Industrial Automation & Process control

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System requirements:
- RSTP/ERPS... for network redundancy
- Wide range of operation temperature support
- Profinet CC-B certificated
- Redundancy power supply
- Level-3 EMC protection
- IP30 metal housing with DIN-Rail /Wall mount (optional)

Atop solution:
- EH20xx
- EH23xx
- EHG64xx
- EHG65xx
- EHG75xx

OIL & GAS

page 20

System Requirements:
- UL Class 1 Division 2 ATEX, and wide operating temperature capabilities
- Wide range of operation temperature support

Atop solution:
- EHG73xx

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Substations & Smart Grid

Industrial Networking Solutions for the Power Industry

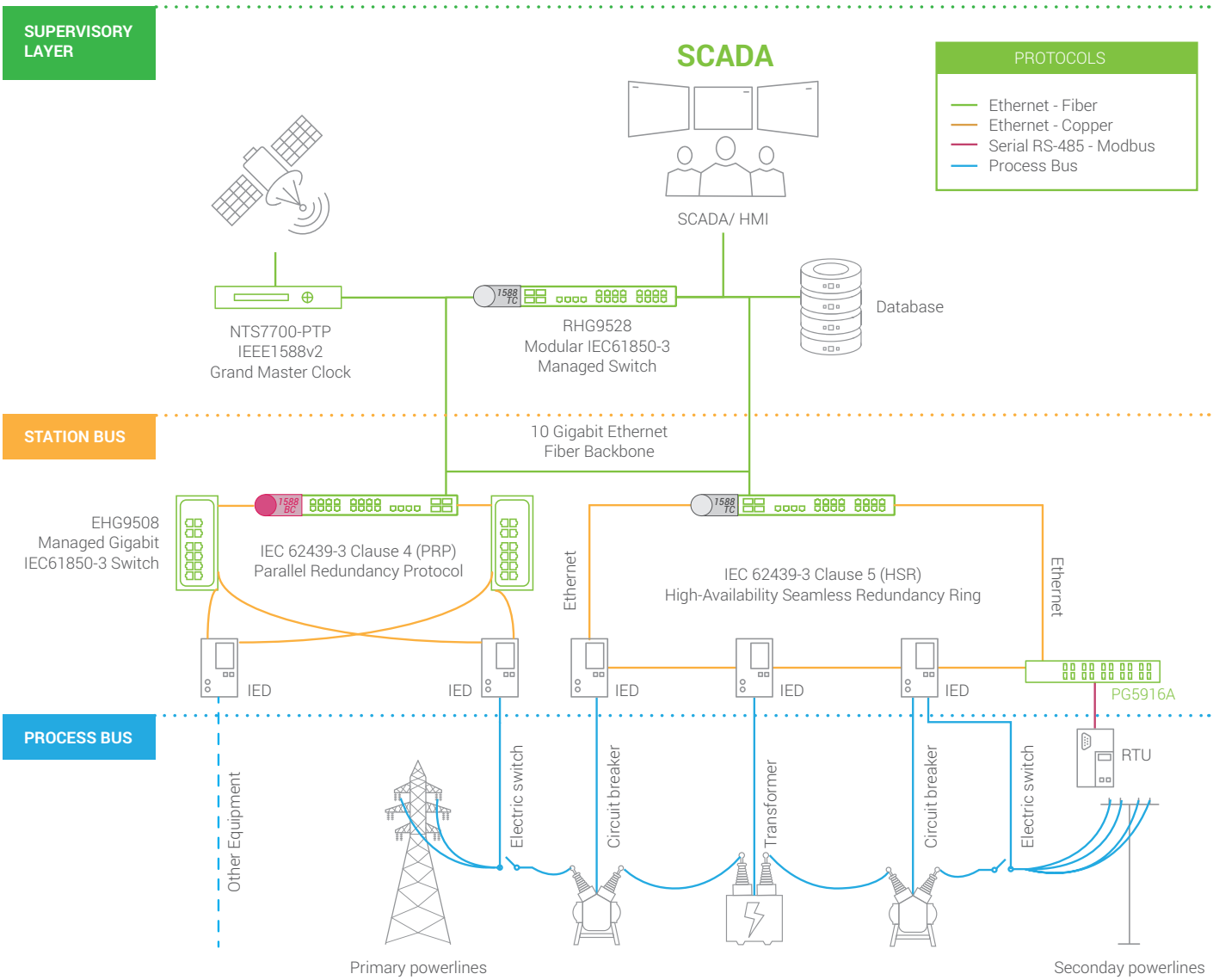
Over the decades, various utility communication protocols have been developed to manage power grid networks and their components such as control centers, RTUs, and IEDs. Due to which different standards are adopted and used abundantly around the world. Distributed Network Protocol (DNP 3), principally in North America has emerged to achieve open, standards based interconnectivity between substation computers, remote terminal units, intelligent electronic devices and master stations for the electric utility industry. On the other hand, Europe has relied mainly on IEC 60870-5 101/103/104 to send/receive values with time stamps, and use other commands, while much of the world used Modbus protocol, designed for data exchange of one-bit binary registers or 16-bit registers.

Thousands of manufacturers across the globe are using their own device of communications across wide spectrum of protocols. With many protocols, substations can't communicate with each other with regards to power transmission and distribution. With IEC 61850, developed to provide a standard defining communication protocol for electrical substations and power grid automation it enables integration of all protection, control, measurement and monitoring functions. By specializing its domain knowledge in electrical power grid systems, IEC 61850 works as an object-oriented protocol that uses a data modeling scheme to clearly describe each component of a power grid or substation as standard logical nodes — such as object processes, protection, control, and functionality.

This specialization enables data access to the power grid system to yield more details. To further improve reliability and performance, IEC 61850 Part 3 also specifies the hardware and network suitability requirements — such as electromagnetic immunity (EMI), surge protection, vibration and shock resistance, and the temperature range in which devices must be able to function. **ATOP's switches comply with these specifications.**

IEC 61850-3 Device Compliancy Specifications require the device to:

a. Operate in a temperature range from -40°C to 85°C.
b. Be capable of reliably handling long distance transmissions through Fiber optic connectivity.
c. Guarantee QoS (Quality of Service) management and real-time packet switching for GOOSE event messages.
d. Guarantees a level of redundancy that minimizes packet loss. Ring topologies should be supported, and zero-packet-loss technologies such as HSR (High availability Seamlessly Redundancy) or PRP (Parallel Redundancy Protocol) are strongly recommended to be supported. ATOP's devices support RSTP (Rapid Spanning-Tree Protocol) and ERPS rings. When equipped with HSR/PRP modules, our innovative RHG9528 switch can guarantee no loss of GOOSE packets.
e. Have a wide tolerance for vibrations and shocks. ATOP's MIL-STD-810F device fully complies.
f. Have tough electromagnetic immunity and comply with emission standards.
g. Have at least Level 3 EMC protection; have at least Level 4 ESD, EFT and Surge protection; and have at least Level 5 PFMF and Damped Oscillatory Magnetic Field immunity.


SUPERVISORY LAYER
SCADA
PROTOCOLS
Ethernet - Fiber
Ethernet - Copper
Serial RS-485 - Modbus
Process Bus
SCADA/ HMI
NTS7700-PTP
IEEE1588v2
Grand Master Clock
RHG9528
Modular IEC61850-3
Managed Switch
Database
STATION BUS
10 Gigabit Ethernet
Fiber Backbone
EHG9508
Managed Gigabit
IEC61850-3 Switch
IEC 62439-3 Clause 4 (PRP)
Parallel Redundancy Protocol
IEC 62439-3 Clause 5 (HSR)
High-Availability Seamless Redundancy Ring
Ethernet
Ethernet
IED
IED
IED
IED
IED
PG5916A
PROCESS BUS
Other Equipment
Electric switch
Circuit breaker
Transformer
Circuit breaker
Electric switch
RTU
Primary powerlines
Seconday powerlines

IEC61850-3 Certified Managed Switches

	DIN-Rail Mount		Rack-mount, Modular	
				
General Information			Coming soon	Coming soon
Model Number	EHG9508-2SFP	EHG9512-4SFP	RHG9528-CPU-X	RHG9528-CPU-X-BS-Y
Modular Design				
Gigabit Copper Module			•	•
Gigabit Fiber Module			•	•
Number of ports				
Total number of ports	8	12	Max 28	Max 28
10 Gigabit Ethernet SFP	-	-	4	4
Gigabit Ethernet	8	12	Max 28	Max 28
10/100/1000BaseT(X)	6	8	Max 24	Max 24
100/1000Base-X SFP	-	-	Max 24	Max 24
1000Base-X SFP	2	4	Max 28	Max 28
HSR/PRP RJ45 ports or SFPs	-	-	Max 4	Max 4
1PPS output BNC	-	-	-	1
Power Supply input				
Power input	24~57 VDC	24~57 VDC	24~120 VDC	24~120 VDC
Power input (High-Voltage option)	110~220 VAC or 100~370VDC	110~220 VAC or 100~370VDC	110~220 VAC or 120~370VDC	110~220 VAC or 120~370VDC
Power Redundancy	Optional	Optional	•	•
Relay Output	•	•	•	•
Mechanical				
Housing	Metal	Metal	Metal	Metal
Installation	DIN-rail	DIN-rail	Rack-mount	Rack-mount
Ingress Protection	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	77 x 147 x 113	77 x 147 x 113	440 x 44 x 355	440 x 44 x 355
Supported Temperatures				
Operations Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy				
STP/RSTP/MSTP	•	•	•	•
HSR/PRP			with Module	with Module
ITU-T G.8032 ERPS Ring	•	•	•	•
Precision Timing				
IEEE1588v2 Hardware-based E2E TC	•	•	•	•
IEEE1588v2 Hardware-based BC/full TC				•
Synchronous Ethernet (SyncE)				Optional
Protocols				
SNMPv1/v2c/v3	•	•	•	•
Modbus TCP	•	•	•	•
IEEE802.1ad LACP Port Trunking	•	•	•	•
IEEE802.1p QoS	•	•	•	•
IEEE802.1q VLAN	•	•	•	•
IEEE802.1x for Authentication	•	•	•	•
IGMPv1/v2/v3/ IGMP Snooping	•	•	•	•
DHCP Option 66/67/82	•	•	•	•
IPv4/IPv6	•	•	•	•
ACLs	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•
Layer-3 Switching (Static, RIP, OSPF)			Optional	Optional
Compliance				
UL/EN/IEC(CB) 60950-1 and/or 62368-1			•	•
EN60950-1 and/or EN62368-1			•	•
UL61010-2-201	•	•		
IEC61850-3 / IEEE1613	•	•	•	•
DNV.GL	•	•	•	•
EN50155/ EN50121-4				

...More information and datasheets available on www.atoponline.com

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Railway & Transportation

Industrial Networking for Railway, Public transportation and Marine

Railway and Trackside Made Easy

Industrial Networking for Railway transportation

Defining certain criteria that network devices must comply with when installed on trains include environmental, shock, power supply, vibration, power supply, humidity, electromagnetic interference, wide temperature range, EMC, power surge, electrostatic discharge (ESD) and transient factors.

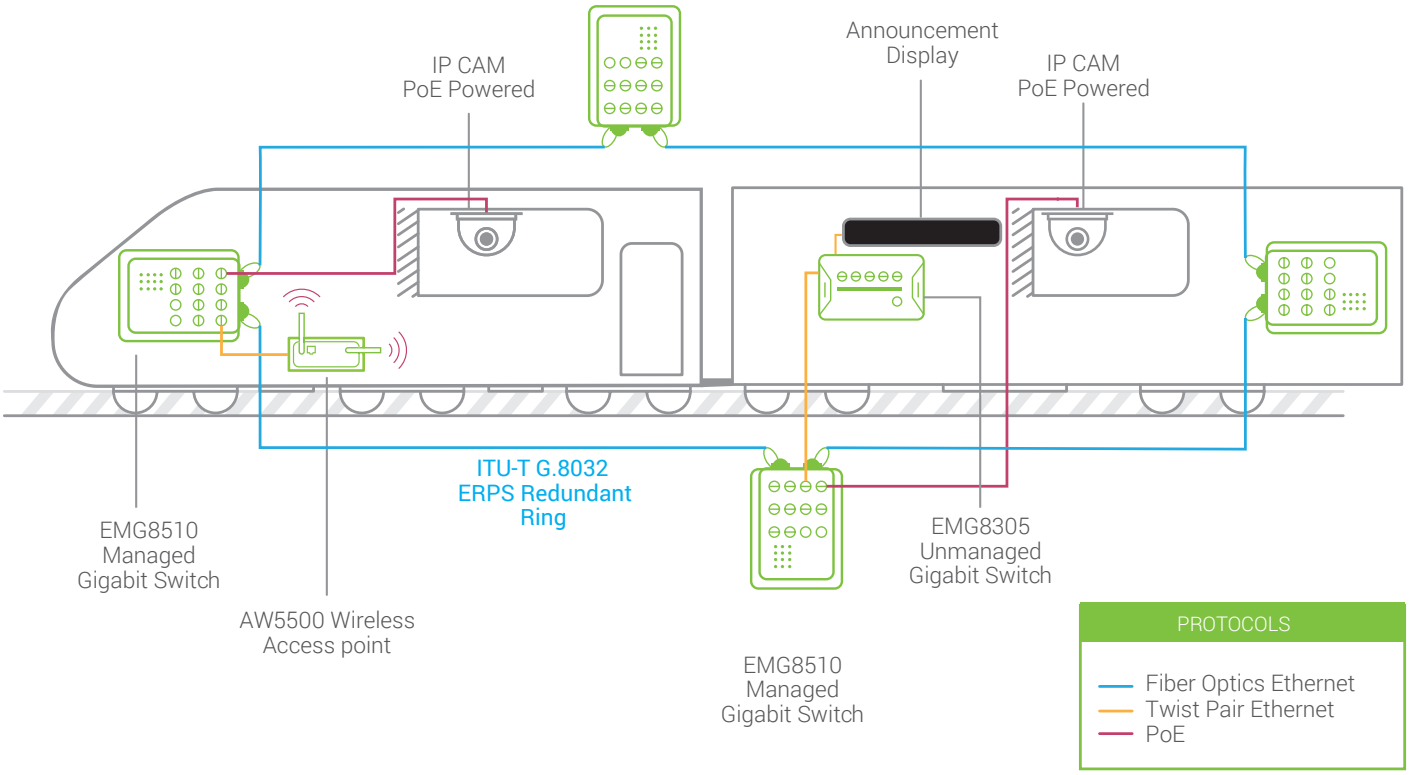
EN 50155 is recognized internationally as a standard for covering electronic equipment in railway applications.

Complying with EN50155 and with the essential sections of **EN50121-4** for ground equipment, ATOP's railway-certified switches are powerful industrial ethernet switches with advanced features that are encased in robust and reliable housing, making them highly suitable for use in signal control networks and on-board applications.

Temperature Requirements

Category	Internal cabinet temperature range	Ambient board temperature range	GAIA converter modules temperature range
T1	-25/55 °C	-25/70 °C	Industrial line: -40/71 °C ambient
T2	-40/55 °C	-40/70 °C	Industrial line: -40/71 °C ambient
T3	-25/70 °C	-25/85 °C	Hi-rel line: -40/85 °C ambient
T4	-40/70 °C	-40/85 °C	Hi-rel line: -40/85 °C ambient

Possible topologies



...Know more

Public transportation and Traffic Control

Industrial Networking for ITS

ATOP Fast-Ethernet and Gigabit Managed Switches obtained NEMA TS2 certification! NEMA TS2 is a standard for traffic control assemblies, such as traffic lights, emergency road condition signs and walk/don't walk signs. It is a fundamental standard for all devices that are to be used in smart cities in traffic management applications and in ITS (Intelligent Transportation System).

In our continuing endeavor to bring to our customers Industrial Networking products that have a wider range of Hardware platforms that are rich in features we are proud to announce an additional certification obtained by our Gigabit and Fast-Ethernet managed Switches.

NEMA TS2 is a standard for traffic control assemblies, such as traffic lights, emergency road condition signs and walk/don't walk signs. It is a fundamental standard for all devices that are to be used in smart cities in traffic management applications and in ITS (Intelligent Transportation System). The standard defines minimum requirements for resistance to high/low temperature, high humidity, vibration, and mechanical shock.

Marine

Networking solutions for the connected vessel

Det Norsek Veritas(DNV) and Germanischer Lloyd(GL) set standards for ships and offshore structure which comprise safety, reliability, and environmental requirements for the switch internationally.

Atop certified by DNV.GL for EHG9508/12 and EHG75 series Industrial Managed Gigabit Switch Series.

TYPE APPROVED PRODUCT
DNV·GL
DNVGL.COM/AF

Transportation Switches

	Unmanaged Switches						Managed Layer-2 Gigabit Switches		
									
General Information	Just certified				NEW!				
Model Number	EH2308	EHG7305	EHG7306	EHG7307	EHG6408	EMG8305	EH7506	EH7508	EH7512
Number of ports									
Total number of ports	8	5	6	7	8	5	6	8	12
Fast Ethernet 10/100 BaseT(X)	8	-	-	-	-	-	4	4	8
Gigabit 10/100/1000 BaseT(X)	-	5	5	5	8	5 (M12)	-	(4) combo	(4) combo
Gigabit 1000Base-X SFP	-	-	-	-	-	-	-	-	-
Gigabit 100/1000Base-X SFP	-	-	1	2	-	-	2	(4) combo	(4) combo
1/10 Gigabit SFP	-	-	-	-	-	-	-	-	-
PoE/PoE+ ports	-	Max 4	Max 4	Max 4	Max 8	-	Max 4	Max 4	Max 8
Power Supply input									
Power input	9~48V	12~57V (PoE from 45V)	12~57V (PoE from 45V)	12~57V (PoE from 45V)	12~57V (PoE from 12V)	12~48V	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)
Power input (High-Voltage option)									
Power Redundancy	•	•	•	•	•	•	•	•	•
Relay Output		•	•	•	•		•	•	•
Mechanical									
Housing	Aluminum	Metal	Metal	Metal	Metal	Aluminum	Metal	Metal	Metal
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail	DIN-rail	Field-mount	DIN-rail	DIN-rail	DIN-rail
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP67	IP30	IP30	IP30
Dimensions (L x W x H) mm	45 x 90 x 78	32 x 90 x 110	45 x 90 x 110	45 x 90 x 110	54 x 113 x 145	106 x 196 x 48	60 x 138 x 164	60 x 138 x 164	60 x 138 x 164
Supported Temperatures									
Operations Temperature	-10~70° C	-40~70° C	-40~70° C	-40~70° C	-40~70° C	-40~75° C	-20~70° C	-20~70° C	-20~70° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy									
STP/RSTP/MSTP							•	•	•
ITU-T G.8032 ERPS Ring							•	•	•
MRP (Client)							•	•	•
Protocols									
SNMPv1/v2c/v3							•	•	•
Ethernet/IP							•	•	•
Modbus TCP							•	•	•
Profinet CC-B	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	•	•	•
IEEE802.1ad LACP Port Trunking							•	•	•
IEEE802.1p QoS							•	•	•
IEEE802.1q VLAN							•	•	•
IEEE802.1x for Authentication							•	•	•
IGMPv1/v2/v3/ IGMP Snooping							•	•	•
IEEE1588v2 Hardware-based E2E TC									
DHCP Option 66/67/82							•	•	•
IPv4/IPv6							•	•	•
ACLs							•	•	•
GARP, GVRP, GMRP							•	•	•
Layer-3 Switching (Static, RIP, OSPF)									
Compliance									
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•				•		•	•	•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•	•	•
UL61010-2-201		•	•	•		•			
Atex Zone 2 - UL C1D2		•	•	•					
E-Mark	•				Pending				
NEMA TS2							•	•	•
Marine (DNV.GL)						Pending			
EN50155/ EN50121-4		•	•	•		•			

Transportation Switches

	Managed Layer-2 Gigabit Switches							
								
General Information			NEW!	NEW!	NEW!			
Model Number	EHG7504	EHG7508	EHG7512	EHG7516	EHG7520	RHG7528	EMG8508	EMG8510
Number of ports								
Total number of ports	4	8	12	16	20	Max 28	8	10
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	Max 4	Max 8	Max 8	Max 12	Max 16	Max 24	8 (M12)	8 (M12)
Gigabit 1000Base-X SFP	Max 4	Max 4	-	-	-	4 or 4x10G	-	2
Gigabit 100/1000Base-X SFP	-	-	Max 8	Max 12	Max 16	Max 24	-	-
1/10 Gigabit SFP	-	-	4	4	4	-	-	-
PoE /PoE+ ports	Max 4	Max 8	Max 8	Max 8	Max 8	Max 24	Max 8	Max 8
Power Supply input								
Power input	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	48~57V	12~57V (PoE from 45V)	12~57V (PoE from 45V)
Power input (High-Voltage option)						110~220VAC	50~145VDC	50~145VDC
Power Redundancy	•	•	•	•	•	Optional	•	•
Relay Output	•	•	•	•	•	•	•	•
Mechanical								
Housing	Metal	Metal	Metal	Metal	Metal	Metal	Aluminum	Aluminum
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail	DIN-rail	Rack-mount	Field-mount	Field-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP67	IP67
Dimensions (L x W x H) mm	54 x 113 x 145	54 x 113 x 145	76 x 200 x 160	95 x 200 x 160	95 x 200 x 160	440 x 44 x 340	216 x 232 x 72	216 x 232 x 72
Supported Temperatures								
Operations Temperature	-20~70° C	-20~70° C	-40~70° C	-40~70° C	-40~70° C	-40~70° C	-40~75° C	-40~75° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Client)	•	•						
Protocols								
SNMPv1/v2c/v3	•	•	•	•	•	•	•	•
Ethernet/IP	•	•	•	•	•	•	•	•
Modbus TCP	•	•	•	•	•	•	•	•
Profinet CC-B	•	•						
IEEE802.1ad LACP Port Trunking	•	•	•	•	•	•	•	•
IEEE802.1p QoS	•	•	•	•	•	•	•	•
IEEE802.1q VLAN	•	•	•	•	•	•	•	•
IEEE802.1x for Authentication	•	•	•	•	•	•	•	•
IGMPv1/v2/v3/ IGMP Snooping	•	•	•	•	•	•	•	•
IEEE1588v2 Hardware-based E2E TC	•	•	•	•	•	•	•	•
DHCP Option 66/67/82	•	•	•	•	•	•	•	•
IPv4/IPv6	•	•	•	•	•	•	•	•
ACLs	•	•	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•	•	•
Layer-3 Switching (Static, RIP, OSPF)								
Compliance								
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•	•		
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•	•
UL61010-2-201							•	•
Atex Zone 2 - UL C1D2	Pending	Pending	Pending	Pending	Pending			
E-Mark								
NEMA TS2	•	•	•	•	•			
Marine (DNV.GL)	Pending	Pending	•	•				
EN50155/ EN50121-4	•	•				•	•	•

Transportation Switches

	Managed Layer-3 Gigabit Switches					
						
General Information			NEW!	NEW!	NEW!	
Model Number	EHG7604	EHG7608	EHG7612	EHG7616	EHG7620	RHG7628
Number of ports						
Total number of ports	4	8	12	16	20	Max 28
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	Max 4	Max 8	Max 8	Max 12	Max 16	Max 24
Gigabit 1000Base-X SFP	Max 4	Max 4	-	-	-	4 or 4x10G
Gigabit 100/1000Base-X SFP	-	-	Max 8	Max 12	Max 16	Max 24
1/10 Gigabit SFP	-	-	4	4	4	-
PoE/PoE+ ports	Max 4	Max 8	Max 8	Max 8	Max 8	Max 24
Power Supply input						
Power input	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	48~57V
Power input (High-Voltage option)						110~220VAC
Power Redundancy	•	•	•	•	•	Optional
Relay Output	•	•	•	•	•	•
Mechanical						
Housing	Metal	Metal	Metal	Metal	Metal	Metal
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail	DIN-rail	Rack-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	54 x 113 x 145	54 x 113 x 145	76 x 200 x 160	95 x 200 x 160	95 x 200 x 160	440 x 44 x 340
Supported Temperatures						
Operations Temperature	-20~70° C	-20~70° C	-40~70° C	-40~70° C	-40~70° C	-40~70° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy						
STP/RSTP/MSTP	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•
MRP (Client)						
Protocols						
SNMPv1/v2c/v3	•	•	•	•	•	•
Ethernet/IP	•	•	•	•	•	•
Modbus TCP	•	•	•	•	•	•
Profinet CC-B						
IEEE802.1ad LACP Port Trunking	•	•	•	•	•	•
IEEE802.1p QoS	•	•	•	•	•	•
IEEE802.1q VLAN	•	•	•	•	•	•
IEEE802.1x for Authentication	•	•	•	•	•	•
IGMPv1/v2/v3/ IGMP Snooping	•	•	•	•	•	•
IEEE1588v2 Hardware-based E2E TC	•	•	•	•	•	•
DHCP Option 66/67/82	•	•	•	•	•	•
IPv4/IPv6	•	•	•	•	•	•
ACLs	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•
Layer-3 Switching (Static, RIP, OSPF)	•	•	•	•	•	•
Compliance						
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•	•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•
UL61010-2-201						
Atex Zone 2 - UL C1D2	Pending	Pending	Pending	Pending	Pending	
E-Mark						
NEMA TS2	•	•	•	•	•	
Marine (DNV.GL)						
EN50155/ EN50121-4	•	•				•

Industrial Automation & Process control

Entry Level

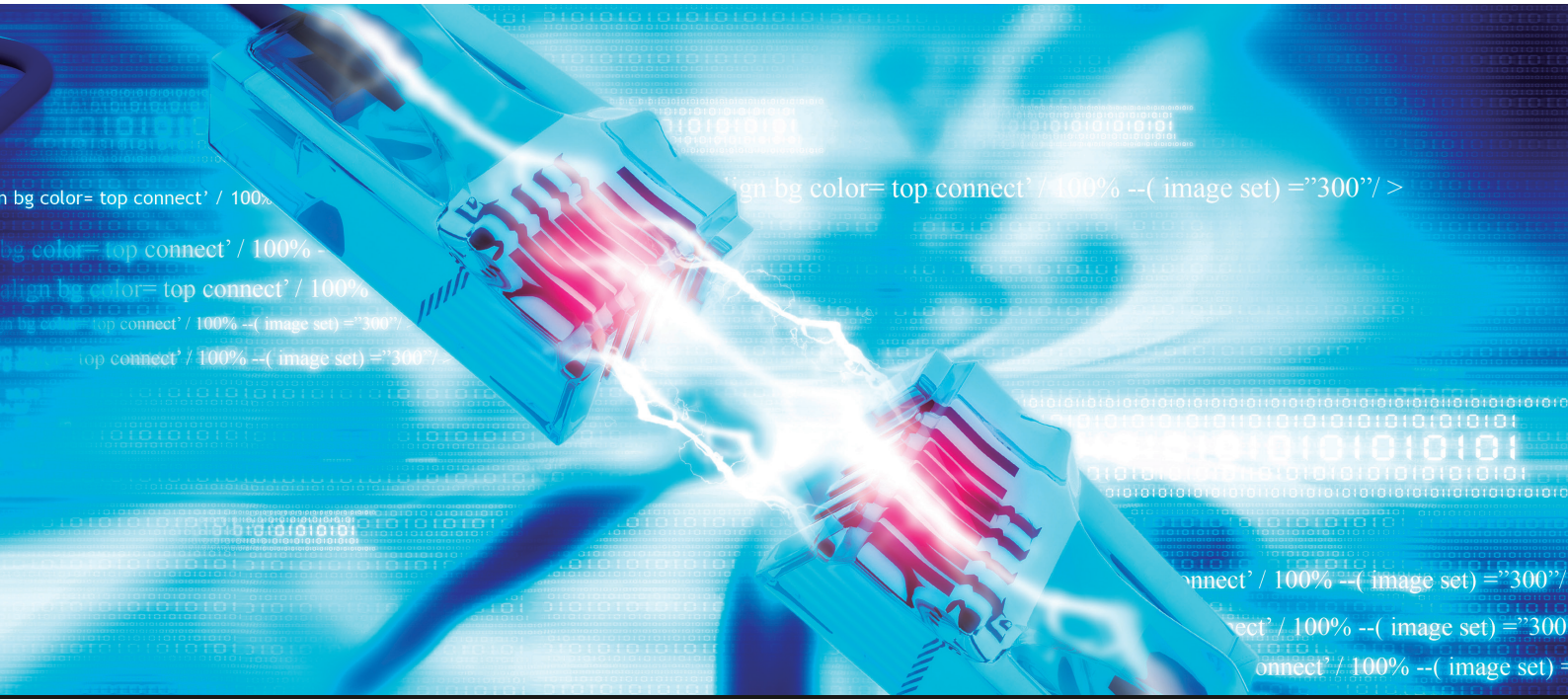
ATOP's entry level din-rail mount Unmanaged Switches offer a reliable, robust and cost-effective solution for simple network topologies offering features such as PoE connectivity and performance in harsh environments. IP30-rated, all of them are certified for Industrial EMC (**EN61000-6-4 and EN61000-6-2**). They are built with either industrial plastic, steel or aluminium housing to suit different application environments for industrial environments, such as in hazardous locations that comply with FCC, TUV, UL, and CE standards. They operate in temperatures ranging from -10°C to 70°C, with units with plastic housing supporting an operating range of 0°C to 60°C. For enhanced safety and backup, redundant power supplies are featured on every model. Our products feature 4 to 8 Fast Ethernet or Gigabit Ethernet ports. Selected versions have single-mode or multi-mode Fiber optic uplink, and selected versions feature Power over Ethernet (PoE) and Gigabit speeds.

Harsh Environments

By offering both **Layer 2** and **layer 3** options, ATOP's most advanced, fault tolerant product lines offer hundreds of different possible configurations. Our Harsh environment switches are the best choice to support highly demanding networks – in highly demanding environments. They feature 4 to 28 Fast Ethernet, Gigabit or 10 Gigabit ports, an operating temperature range from -20°C to 70°C or wider, **PoE/PoE+** ports, Relay Output, Redundant power input, Ethernet/IP, Profinet Packet Prioritization (for Unmanaged Switches), and Profinet CC-B v2.33 certification (Managed Switches). Selected products offer MIL-STD shock and vibration certification, in high humidity and operating temperatures of between **-40°C to 75°C**.
Being **Profinet CC-B v2.33 certified,** this switch Series is Automation and IoT ready.

Engineered for reliable performance in harsh industrial environments, ATOP's Layer-2 Managed Switches enable advanced network management, with features to maximize network performance and minimize downtimes. Our Managed Switches support **ERPS, RSTP, STP and MSTP redundancy protocols,** enable Precision time Synchronization with IEEE1588 Precision Time Protocol. It provides you the ability to manage networks efficiently by SNMP, Web, Telnet or Console. QoS, VLAN and many more functionalities allow bandwidth optimization, increased security and more.

Layer-3 Switches provide an ideal solution for scaling up industrial networks or large surveillance applications. They support IPv4 Stat¬ic Routing, RIPv1 and RIPv2, OSPFv2, and multicast protocols such as PIM-DM, PIM-SM and DVMRP. With higher port density and faster switching capabilities ATOP Layer-3 switches route data packets without making extra network hops, thus making it faster than routers.



Industrial Unmanaged Switches

	Unmanaged Switches							
								
General Information								
Model Number	EH2005	EH2006	EH2008	EHG2008	EH2305	EH2306	EH2308	EH2304-PR
Number of ports								
Total number of ports	5	6	8	8	5	6	8	4
Fast Ethernet 10/100 BaseT(X)	4	6	8	-	4	6	8	4
Fast Ethernet Fiber ports (SFP, LC or ST)	1	-	-	-	1	-	-	-
Gigabit 10/100/1000 BaseT(X)	-	-	-	8	-	-	-	-
Gigabit 100/1000Base-X SFP	-	-	-	-	-	-	-	-
Gigabit 1000Base-X SFP	-	-	-	-	-	-	-	-
MACsec 802.1AE secure ports	-	-	-	-	-	-	-	-
PoE/PoE+ ports	-	-	-	-	-	-	-	-
Power Supply input								
Power input	9~30 V	9~30 V	9~48 V	9~48 V	9~30 V	9~30 V	9~48 V	9~48 V
Power input (High-Voltage option)								
Power Redundancy	•	•	•	•	•	•	•	•
Relay output								
Mechanical								
Housing	Plastic	Plastic	Plastic	Plastic	Aluminum	Aluminum	Aluminum	Metal
Installation	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	45 x 90 x 80	45 x 90 x 80	45 x 90 x 80	45 x 90 x 80	45 x 90 x 78	45 x 90 x 78	45 x 90 x 78	22.5 x 110 x 78
Supported Temperatures								
Operations Temperature	0~60° C	0~60° C	0~60° C	0~60 C	-10~70° C	-10~70° C	-10~70° C	-10~70° C
Storage Temperature	-40~60° C	-40~60° C	-40~60° C	-40~60° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy								
STP/RSTP/MSTP								
ITU-T G.8032 ERPS Ring								
MRP (Client)								
Protocols								
SNMPv1/v2c/v3								
Ethernet/IP								
Modbus TCP								
Profinet	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p
IEEE802.1ad LACP Port Trunking								
IEEE802.1p QoS								
IEEE802.1q VLAN								
IEEE802.1x for Authentication								
IEEE1588v2 Hardware-based E2E TC								
IGMPv1/v2/v3 IGMP Snooping								
DHCP Option 66/67/82								
IPv4/IPv6								
ACLs								
GARP, GVRP, GMRP								
Layer-3 Switching (Static, RIP, OSPF)								
Compliance								
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•	•	•	•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•	•
UL61010-2-201								
Atex Zone 2 - UL C1D2								
E-Mark							•	
NEMA TS2								
Marine (DNV.GL)								
EN50155/ EN50121-4								

Industrial Unmanaged and Lite-Managed Ethernet Switches

	Unmanaged Switches									
										
General Information			NEW!	Coming soon	Coming soon	NEW!	NEW!			
Model Number	EH2308-PR	EHG2308	EH2316-2G	EH3305	EHG3305	EHG6408	EHG6410	EHG7305	EHG7306	EHG7307
Number of ports										
Total number of ports	8	8	16	5	5	8	10	5	6	7
Fast Ethernet 10/100 BaseT(X)	8	-	14	-	-	-	-	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	5	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	-	8	2	-	5	8	8	5	5	5
Gigabit 100/1000Base-X SFP	-	-	-	-	-	-	2	-	1	2
Gigabit 1000Base-X SFP	-	-	-	-	-	-	-	-	-	-
MACsec 802.1AE secure ports	-	-	-	-	-	-	-	-	-	-
PoE/PoE+ ports	-	-	-	-	-	Max 8 (boost)	Max 8 (boost)	Max 4	Max 4	Max 4
Power Supply input										
Power input	9~48 V	9~48 V	9~48 V	12-48V	12-48V	12~57V (PoE from 12V)	12~57V (PoE from 12V)	12~57V (PoE from 12V)	12~57V (PoE from 12V)	12~57V (PoE from 12V)
Power input (High-Voltage option)										
Power Redundancy	•	•	•			•	•	•	•	•
Relay output						•	•	•	•	•
Mechanical										
Housing	Metal	Aluminum	Metal	Metal	Metal	Metal	Metal	Metal	Metal	Metal
Installation	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	45 x 110 x 90	45 x 90 x 78	54 x 113 x 145	23 x 93 x 70	23 x 93 x 70	54 x 113 x 145	54 x 113 x 145	32 x 90 x 110	45 x 90 x 110	45 x 90 x 110
Supported Temperatures										
Operations Temperature	-10~70° C	-10~70° C	-10~60° C	-40~70° C	-40~70° C	-40~75° C	-40~75° C	-40~70° C	-40~70° C	-40~70° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~70° C	-40~70° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy										
STP/RSTP/MSTP										
ITU-T G.8032 ERPS Ring										
MRP (Client)										
Protocols										
SNMPv1/v2c/v3										
Ethernet/IP										
Modbus TCP										
Profinet	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p
IEEE802.1ad LACP Port Trunking										
IEEE802.1p QoS										
IEEE802.1q VLAN										
IEEE802.1x for Authentication										
IEEE1588v2 Hardware-based E2E TC										
IGMPv1/v2/v3 IGMP Snooping										
DHCP Option 66/67/82										
IPv4/IPv6										
ACLs										
GARP, GVRP, GMRP										
Layer-3 Switching (Static, RIP, OSPF)										
Compliance										
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•	•	•			
EN60950-1 and/or EN62368-1	•	•	•			•	•	•	•	•
UL61010-2-201								•	•	•
Atex Zone 2 - UL C1D2								•	•	•
E-Mark						Pending				
NEMA TS2										
Marine (DNV.GL)										
EN50155/ EN50121-4						•	•	•	•	•

Industrial Unmanaged and Lite-Managed Ethernet Switches

	Unmanaged	Smart Switches			Managed Layer-2 Fast-Ethernet Switches			
								
General Information			NEW!	NEW!				
Model Number	EMG8305	EHG2408	EHG6508	EHG6510	EH7506	EH7508	EH7512	EH7520
Number of ports								
Total number of ports	5	8	8	10	6	8	12	20
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	4	4	8	16
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	-	2 (SFP)	-	-	-
Gigabit 10/100/1000 BaseT(X)	5 (M12)	8	8	8	-	(4) combo	(4) combo	(4) combo
Gigabit 100/1000Base-X SFP	-	-	-	2	-	(4) combo	(4) combo	(4) combo
Gigabit 1000Base-X SFP	-	-	-	2	-	-	-	-
MACsec 802.1AE secure ports	-	2	-	-	-	-	-	-
PoE/PoE+ ports	-	-	Max 8 (boost)	Max 8 (boost)	Max 4	Max 4	Max 8	Max 8
Power Supply input								
Power input	9~48 V	9~48 V	12~57V (PoE from 12V)	12~57V (PoE from 12V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)
Power input (High-Voltage option)								
Power Redundancy	•	•	•	•	•	•	•	•
Relay output			•	•	•	•	•	•
Mechanical								
Housing	Aluminum	Metal	Metal	Metal	Metal	Metal	Metal	Metal
Installation	Field-Mount	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail
Ingress Protection	IP67	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	106 x 196 x 48	110 x 89 x 45	54 x 113 x 145	54 x 113 x 145	60 x 138 x 164	60 x 138 x 164	60 x 138 x 164	78 x 138 x 164
Supported Temperatures								
Operations Temperature	0~60° C	0~60° C	0~60° C	0~60 C	-10~70° C	-10~70° C	-10~70° C	-10~70° C
Storage Temperature	-40~60° C	-40~60° C	-40~60° C	-40~60° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy								
STP/RSTP/MSTP		RSTP only	RSTP only	RSTP only	•	•	•	•
ITU-T G.8032 ERPS Ring					•	•	•	•
MRP (Client)					•	•	•	•
Protocols								
SNMPv1/v2c/v3		•	•	•	•	•	•	•
Ethernet/IP					•	•	•	•
Modbus TCP		•	•	•	•	•	•	•
Profinet	802.1p	802.1p			CC-B	CC-B	CC-B	CC-B
IEEE802.1ad LACP Port Trunking			•	•	•	•	•	•
IEEE802.1p QoS			•	•	•	•	•	•
IEEE802.1q VLAN			•	•	•	•	•	•
IEEE802.1x for Authentication		•			•	•	•	•
IEEE1588v2 Hardware-based E2E TC								
IGMPv1/v2/v3 IGMP Snooping					•	•	•	•
DHCP Option 66/67/82					•	•	•	•
IPv4/IPv6		IPv4	IPv4	IPv4	•	•	•	•
ACLs					•	•	•	•
GARP, GVRP, GMRP					•	•	•	•
Layer-3 Switching (Static, RIP, OSPF)								
Compliance								
UL/EN/IEC(CB) 60950-1 and/or 62368-1		•	•	•	•	•	•	•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•	•
UL61010-2-201	•							
Atex Zone 2 - UL C1D2								
E-Mark								
NEMA TS2					•	•	•	
Marine (DNV.GL)	Pending							
EN50155/ EN50121-4	•							

Industrial Managed Ethernet Switches

	Managed Layer-2 Gigabit Switches							
								
General Information			NEW!	NEW!	NEW!			
Model Number	EHG7504	EHG7508	EHG7512	EHG7516	EHG7520	EMG8508	EMG8510	RHG7528
Number of ports								
Total number of ports	4	8	12	16	20	8	10	Max 28
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	Max 4	Max 8	Max 8	Max 12	Max 16	8 (M12)	8 (M12)	Max 28
Gigabit 100/1000Base-X SFP	-	-	Max 8	Max 12	Max 16	-	-	Max 24
Gigabit 1000Base-X SFP	Max 4	Max 8	-	-	-	-	2	-
MACsec 802.1AE secure ports	-	-	4	4	4	-	-	Max 4
PoE/PoE+ ports	Max 4	Max 8	Max 8	Max 8	Max 8	Max 8	Max 8	Max 24
Power Supply input								
Power input	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	12~57V (PoE from 45V)	12~57V (PoE from 45V)	48~57V (PoE from 48V)
Power input (High-Voltage option)						45~145 VDC	45~145 VDC	110~220VAC
Power Redundancy	•	•	•	•	•	•	•	Optional
Relay output	•	•	•	•	•	•	•	•
Mechanical								
Housing	Metal	Metal	Metal	Metal	Metal	Aluminum	Aluminum	Metal
Installation	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	Field-Mount	Field-Mount	Rack-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP67	IP67	IP30
Dimensions (L x W x H) mm	54 x 113 x 145	54 x 113 x 145	76 x 160 x 200	95 x 160 x 200	95 x 160 x 200	216 x 232 x 72	216 x 232 x 72	440 x 44 x 340
Supported Temperatures								
Operations Temperature	-20~70° C	-20~70° C	-40~70° C	-40~70° C	-40~70° C	-40~75° C	-40~75° C	-40~70° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Client)	•	•	•	•	•	•	•	•
Protocols								
SNMPv1/v2c/v3	•	•	•	•	•	•	•	•
Ethernet/IP	•	•	•	•	•	•	•	•
Modbus TCP	•	•	•	•	•	•	•	•
Profinet	CC-B	CC-B						
IEEE802.1ad LACP Port Trunking	•	•	•	•	•	•	•	•
IEEE802.1p QoS	•	•	•	•	•	•	•	•
IEEE802.1q VLAN	•	•	•	•	•	•	•	•
IEEE802.1x for Authentication	•	•	•	•	•	•	•	•
IEEE1588v2 Hardware-based E2E TC	•	•	•	•	•	•	•	•
IGMPv1/v2/v3 IGMP Snooping	•	•	•	•	•	•	•	•
DHCP Option 66/67/82	•	•	•	•	•	•	•	•
IPv4/IPv6	•	•	•	•	•	•	•	•
ACLs	•	•	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•	•	•
Layer-3 Switching (Static, RIP, OSPF)								
Compliance								
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•			•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•	•
UL61010-2-201						•	•	
Atex Zone 2 - UL C1D2	Pending	Pending	Pending	Pending	Pending	Compatible	Compatible	
E-Mark								
NEMA TS2	•	•	•	•	•			
Marine (DNV.GL)	Pending	Pending	•	•				
EN50155/ EN50121-4	•	•				•	•	•

Industrial Managed Ethernet Switches

	Managed Layer-3 Gigabit Switches					
						
General Information			NEW!	NEW!	NEW!	
Model Number	EHG7604	EHG7608	EHG7612	EHG7616	EHG7620	RHG7628
Number of ports						
Total number of ports	4	8	12	16	20	Max 28
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	Max 4	Max 8	Max 8	Max 12	Max 16	Max 28
Gigabit 100/1000Base-X SFP	-	-	Max 8	Max 12	Max 16	Max 24
Gigabit 1000Base-X SFP	Max 4	Max 8	-	-	-	-
MACsec 802.1AE secure ports	-	-	4	4	4	Max 4
PoE/PoE+ ports	Max 4	Max 8	Max 8	Max 8	Max 8	Max 24
Power Supply input						
Power input	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	9~57V (PoE from 45V)	48~57V (PoE from 48V)
Power input (High-Voltage option)						110~220VAC
Power Redundancy	•	•	•	•	•	Optional
Relay output	•	•	•	•	•	•
Mechanical						
Housing	Metal	Metal	Metal	Metal	Metal	Metal
Installation	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	Rack-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	54 x 113 x 145	54 x 113 x 145	76 x 160 x 200	95 x 160 x 200	95 x 160 x 200	440 x 44 x 340
Supported Temperatures						
Operations Temperature	-20~70° C	-20~70° C	-40~70° C	-40~70° C	-40~70° C	-40~70° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C	-40~85° C
Network Redundancy						
STP/RSTP/MSTP	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•
MRP (Client)	•	•	•	•	•	•
Protocols						
SNMPv1/v2c/v3	•	•	•	•	•	•
Ethernet/IP	•	•	•	•	•	•
Modbus TCP	•	•	•	•	•	•
Profinet						
IEEE802.1ad LACP Port Trunking	•	•	•	•	•	•
IEEE802.1p QoS	•	•	•	•	•	•
IEEE802.1q VLAN	•	•	•	•	•	•
IEEE802.1x for Authentication	•	•	•	•	•	•
IEEE1588v2 Hardware-based E2E TC	•	•	•	•	•	•
IGMPv1/v2/v3 IGMP Snooping	•	•	•	•	•	•
DHCP Option 66/67/82	•	•	•	•	•	•
IPv4/IPv6	•	•	•	•	•	•
ACLs	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•
Layer-3 Switching (Static, RIP, OSPF)	•	•	•	•	•	•
Compliance						
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•	•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•
UL61010-2-201						
Atex Zone 2 - UL C1D2	Pending	Pending	Pending	Pending	Pending	
E-Mark						
NEMA TS2	•	•	•	•	•	
Marine (DNV.GL)						
EN50155/ EN50121-4	•	•				•

Oil & Gas

In hazardous environments, guaranteeing safety

The important assets of oil and gas need the highest level of performance, reliability, and safety from components operating in demanding conditions. Utilizing non-sparking components in dangerous environments is the best policy to guarantee safety. In order to achieve the standard of UL Class I Division II and ATEX, Atop designs the hazardous series with Industrial solution in gas, oil, and mine related environments. These places are full with flammable gases, liquids, vapors, and combustible dusts. In addition, we classified apparatus that has no normally arcing parts or these areas in hazardous environments because disasters may be caused with only one small spark. To guarantee the safety thermal effects capable of ignition and the safety of property and people. Atop releases EHG73xx series switches to fulfill this kind of applications. These series can be deployed in components which are hermetically sealed hazardous or explosive condition without increasing the risk of explosion or accelerating the damage if an accident occurs.

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Industrial Unmanaged Switches

	Unmanaged Switches		
			
General Information			
Model Number	EHG7305	EHG7306	EHG7307
Number of ports			
Total number of ports	5	6	7
Fast Ethernet 10/100 BaseT(X)	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-
Gigabit 10/100/1000 BaseT(X)	5	5	5
Gigabit 100/1000Base-X SFP	-	1	2
Gigabit 1000Base-X SFP	-	-	-
MACsec 802.1AE secure ports	-	-	-
PoE/PoE+ ports	Max 4	Max 4	Max 4
Power Supply input			
Power input	12~57V (PoE from 12V)	12~57V (PoE from 12V)	12~57V (PoE from 12V)
Power input (High-Voltage option)			
Power Redundancy	•	•	•
Relay output	•	•	•
Mechanical			
Housing	Metal	Metal	Metal
Installation	DIN-Rail	DIN-Rail	DIN-Rail
Ingress Protection	IP30	IP30	IP30
Dimensions (L x W x H) mm	32 x 90 x 110	45 x 90 x 110	45 x 90 x 110
Supported Temperatures			
Operations Temperature	-40~70° C	-40~70° C	-40~70° C
Storage Temperature	-40~85° C	-40~85° C	-40~85° C
Network Redundancy			
STP/RSTP/MSTP			
ITU-T G.8032 ERPS Ring			
MRP (Client)			
Protocols			
SNMPv1/v2c/v3			
Ethernet/IP			
Modbus TCP			
Profinet	802.1p	802.1p	802.1p
IEEE802.1ad LACP Port Trunking			
IEEE802.1p QoS			
IEEE802.1q VLAN			
IEEE802.1x for Authentication			
IEEE1588v2 Hardware-based E2E TC			
IGMPv1/v2/v3 IGMP Snooping			
DHCP Option 66/67/82			
IPv4/IPv6			
ACLs			
GARP, GVRP, GMRP			
Layer-3 Switching (Static, RIP, OSPF)			
Compliance			
UL/EN/IEC(CB) 60950-1 and/or 62368-1			
EN60950-1 and/or EN62368-1	•	•	•
UL61010-2-201	•	•	•
Atex Zone 2 - UL C1D2	•	•	•
E-Mark			
NEMA TS2			
Marine (DNV.GL)			
EN50155/ EN50121-4	•	•	•

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