atop Technologies

Industrial Ethernet Switches

Product Selection Guide

2023/2024

Substations & Smart Grid

page 4

System requirements:

- Compliance with IEC 61850-3, ensuring the best EMI shielding and communication without error
- Communication redundancy: ERPS and compatible Ring, STP/RSTP/MSTP/Master/Client
- Fiber optic uplinks for long-distance transmission, noise resistance, and huge bandwidth for upgrading
- Wide range of temperature support
- IEEE 1588 support for precision timing
- Highest network availability in compliance with HSR/PRP
- Security features based on IEC 62443

ATOP solutions:

- EH97xx
- EHG95xx
- EHG96xx
- RHG95xx
- RHG96xx
- RHG97xx
- RHG98xx

c UL us LISTED

IEC 61850

IEEE 1588

Industrial Automation & Process control

page 7

System requirements:

- RSTP/ERPS and other ring topologies for network redundancy
- Wide range of operation temperature support
- Profinet CC-B certified (EHG7504/08, EH75xx)
- Redundant power supply
- Level-3 EMC protection
- IP30 metal housing with DIN-Rail /wall mount (optional)
- Security features based on IEC 62443 (managed switch)

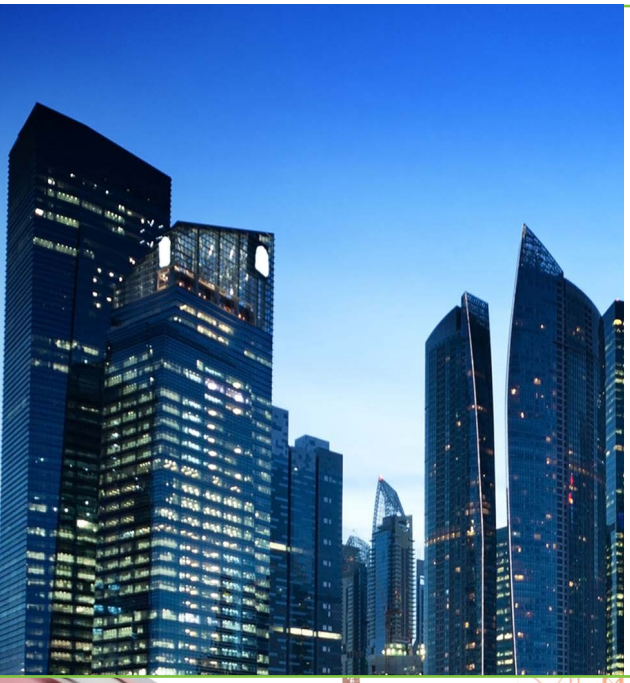
ATOP solutions:

- EH(G)20xx
- EH(G)3005
- EH(G)23xx
- EH(G)33xx
- EH3408
- EHG64xx
- EHG65xx
- EHG73xx
- EH(G)75xx
- EHG76xx
- EMG8305
- EMG8xxx
- RHG76xx
- NSG33xx

c UL us LISTED

PROFINET®

CE FC RoHS COMPLIANT IEC 62443-4-1



Smart City

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System requirements:

- PoE bt/at/af support
- RSTP/ERPS and other ring topologies for network redundancy
- Redundant power supply
- Level-3 EMC protection
- Security features based on IEC 62443

ATOP solutions:

- EHG2408
- EHG64xx
- EHG65xx
- EH(G)75xx
- RHG7xxx
- EHG76xx
- EHG77xx

c UL us LISTED FOR HAZ.LOC. C1D2

Railway & Transportation

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System requirements:

- PoE at/af support
- IP67 or IP30 enclosure
- EN50155 & IEC60571 for rollng stock certificated
- EN50121-4 for trackside certificated
- EN45545-2 for fire protection
- NEMA TS-2 & E-Mark certificated for traffic control applications
- Security features based on IEC 62443

ATOP solutions:

- EHG73xx
- EHG75xx
- EHG76xx
- RHG75xx
- RHG76xx
- EMG83xx
- EMG85xx
- EMG86xx

c UL us LISTED

EN50155 EN50121-4

E1

Oil & Gas

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System requirements:

- UL Class 1 Division 2 ATEX
- Wide range of operation temperature support

ATOP solution:

- EHG73xx

Ex

c UL us LISTED FOR HAZ.LOC. C1D2

Substations & Smart Grid

Industrial Networking Solutions for the Power Industry

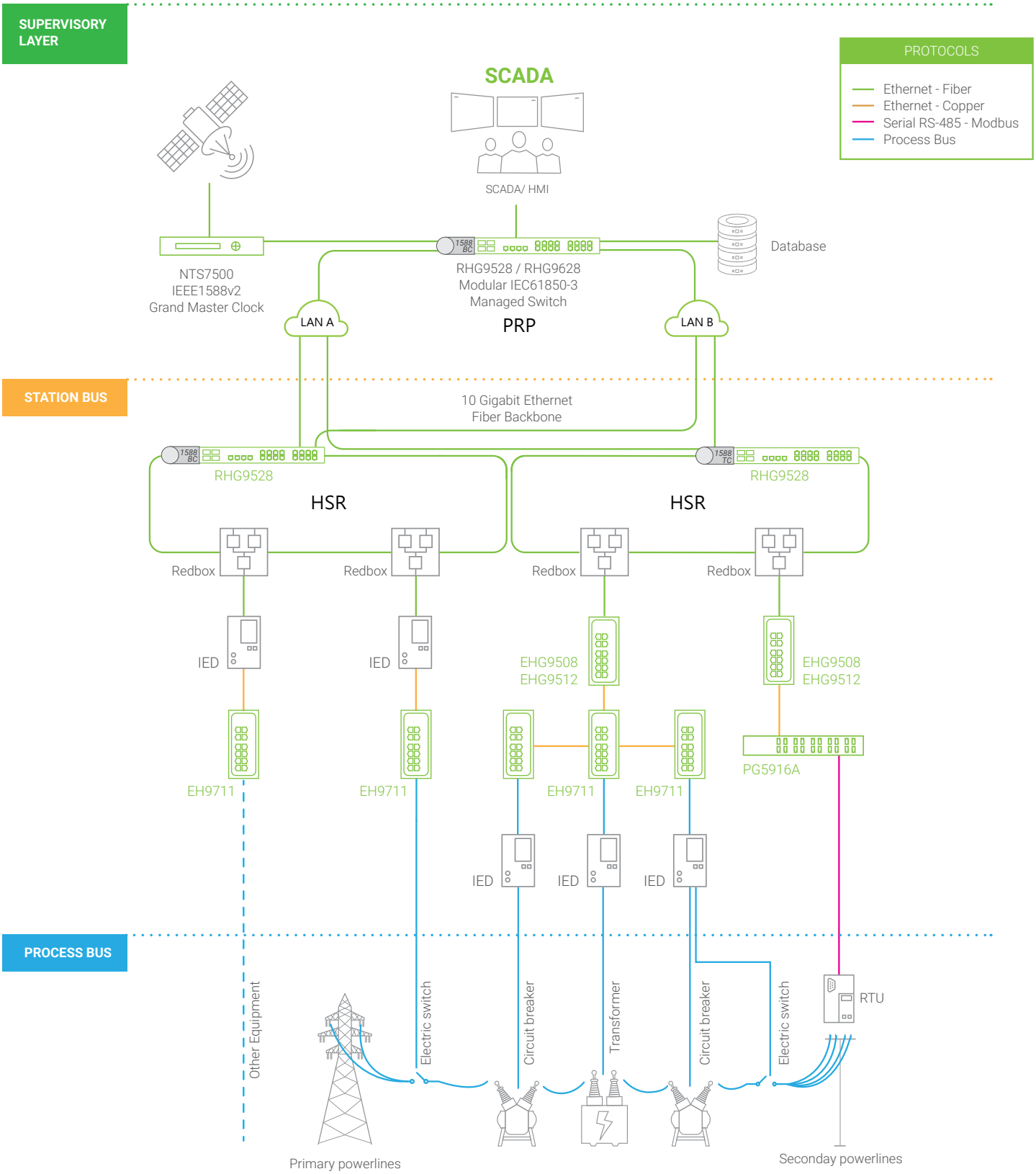
Over the years, different standards for the utility communication protocols used in power grid networks have been developed and adopted across the world. DNP 3 has become the preferred standard in North America, enabling open, standard-based interconnectivity. In Europe, IEC 60870-5 101/103/104 is widely used for sending and receiving values with time stamps and performing other commands. Meanwhile, the rest of the world has predominantly used Modbus protocol for data exchange of one-bit binary registers or 16-bit registers. To overcome the barriers caused by different protocols, the International Electrotechnical Commission (IEC) developed IEC 61850, which provides a standard communication protocol for electrical substations and power grid automation.

IEC 61850 uses a data modeling scheme to clearly describe each component of a power grid or substation as standard logical nodes. This object-oriented protocol enables integration of all protection, control, measurement, and monitoring functions, providing detailed data access to the power grid system. Additionally, IEC 61850 Part 3 specifies the hardware and network suitability requirements, such as electromagnetic immunity (EMI), surge protection, vibration and shock resistance, and temperature range in which devices must function.

Another important aspect of substation networks is cybersecurity—the consequences of a data breach for critical infrastructure are too high. ATOP IEC 61850 switches are IEC 62443 compliant, offering mind-relieving features like 802.1x access control, AAA, ACL, IP Source Guard, and network monitoring. They ensure reliability, availability and optimal performance in power grid networks.

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

a. Operate in a temperature range from -40°C to 75°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. Support IEEE1588 Precision Timing Protocol (PTP) requirements for power grid networks.
e. Guarantee a level of redundancy that minimizes packet loss. Ring topologies should be supported, and zero-packet-loss technologiessuch 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/RHG9628 switch can guarantee no loss of GOOSE packets.
f. Support MMS server for unified management.
g. Have a wide tolerance for vibrations and shocks. ATOP offers a range of devices with full MIL-STD-810F compliance.
h. Have tough electromagnetic immunity and comply with emission standards.
i. 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
STATION BUS
PROCESS BUS
PROTOCOLS
Ethernet - Fiber
Ethernet - Copper
Serial RS-485 - Modbus
Process Bus
SCADA
SCADA/ HMI
Database
NTS7500
IEEE1588v2
Grand Master Clock
RHG9528 / RHG9628
Modular IEC61850-3
Managed Switch
PRP
LAN A
LAN B
10 Gigabit Ethernet
Fiber Backbone
RHG9528
RHG9528
HSR
HSR
Redbox
Redbox
Redbox
Redbox
IED
IED
EHG9508
EHG9512
EHG9508
EHG9512
EH9711
EH9711
EH9711
EH9711
PG5916A
IED
IED
IED
Other Equipment
Electric switch
Circuit breaker
Transformer
Circuit breaker
Electric switch
RTU
Primary powerlines
Seconday powerlines

IEC61850-3 Certified Managed SwitchesZ

	DIN-Rail Mount			Rack-Mount, Modular			
							
General Information	NEW!					Coming soon	Coming soon
Model Number	EH9711	EHG9508	EHG9512	RHG9528	RHG9628	RHG9728	RHG9828
Modular Design							
Gigabit Copper Module				•	•	•	•
Gigabit Fiber Module				•	•	•	•
Number of ports							
Total number of ports	11	8	12	Max 28	Max 28	Max 28	Max 28
10 Gigabit Ethernet SFP	-	-	-	4	4	4	4
Gigabit Ethernet	11	8	12	Max 28	Max 28	Max 28	Max 28
10/100 BaseT(X)	8	-	-	-	-	-	-
10/100/1000BaseT(X)	-	6	8	Max 24	Max 24	Max 24	Max 24
100/1000 Base-X SFP	3	-	-	Max 24	Max 24	Max 24	Max 24
1000Base-X SFP	-	2	4	Max 28	Max 28	Max 28	Max 28
HSR/PRP RJ45 ports or SFPs	-	-	-	Max 4	Max 4	-	-
1PPS output BNC	-	-	-	1 (SB version)	1 (SB version)	1	1
PoE 802.3 af/at/bt	-	-	-	-	-	Max 24	Max 24
Power Supply input							
Power input	24-48VDC	24-57 VDC	24-57 VDC	24-120 VDC	24-120 VDC	Modular: 12-120 VDC / 120-380 VDC / 100-240 VAC / 48-57 VDC for PoE PSE	
Power input (High-Voltage option)	110-240VAC 110-300VDC	100-220 VAC or 135-330VDC	100-220 VAC or 135-330VDC	100-240 VAC or 120-380 VDC	100-240 VAC or 120-380 VDC		
Power Redundancy	•	Optional	Optional	•	•	•	•
Relay Output	•	•	•	•	•	•	•
Mechanical							
Housing	Metal	Metal	Metal	Metal	Metal	Metal	Metal
Installation	DIN-rail	DIN-rail	DIN-rail	Rack-mount	Rack-mount	Rack-mount	Rack-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	77 x 163 x 138	77 x 147 x 113	77 x 147 x 113	440 x 44 x 355	440 x 44 x 355	440 x 44 x 355	440 x 44 x 355
Supported Temperatures							
Operations Temperature	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +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 P2P TC	•			•	•	•	•
IEEE1588v2 Hardware-based BC/full TC	•			SB version only	SB version only	•	•
Synchronous Ethernet (SyncE)	•			SB version only	SB version only	•	•
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	•	•	•	•	•	•	•
L3 routing (static/RIP/OSPF/PIM/BGP)					•		•
Compliance							
UL/EN/IEC(CB) 60950-1 and/or 62368-1				•	•	•	•
EN60950-1 and/or EN62368-1	•			•	•		
UL61010-2-201		•	•				
IEC61850-3 / IEEE1613	•	•	•	•	•	•	•

Industrial Automation & Process Control

Entry level

ATOP offers reliable, cost-effective unmanaged switches for simple network topologies in harsh environments. IP30-rated and certified for Industrial EMC (EN61000-6-4 and EN61000-6-2), they comply with FCC, TUV, UL, and CE standards. Housing comes in plastic, steel, or aluminum to suit different industrial environments, with plastic allowing operation temperatures from 0°C to 60°C and metal achieving -10°C to 70°C. All switches have redundant power supplies and offer 4 to 8 Fast Ethernet or Gigabit Ethernet ports. Fiber optic uplinks and PoE ports are also available on select models.

For networks that require just a bit more management and insight, lite-managed switches offer key functions like redundancy and diagnosis. With wider applications than unmanaged switches, they represent very good value for money.

Advanced features

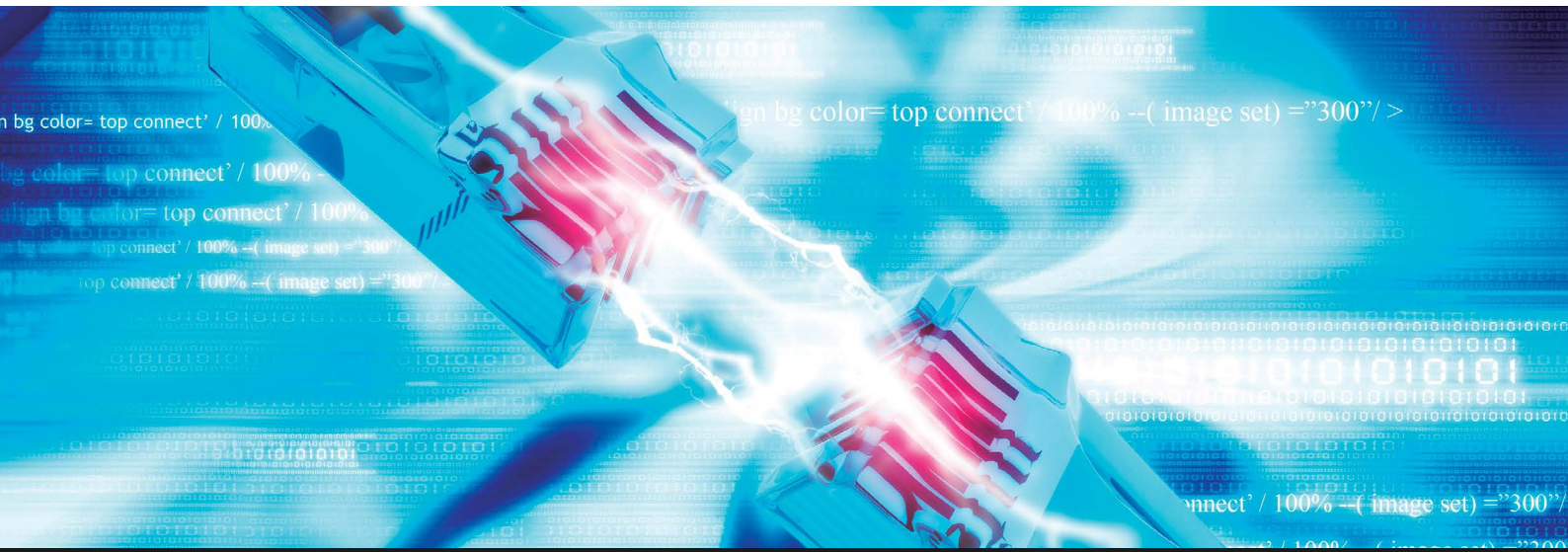
ATOP's managed switches are designed to support demanding networks and environments, featuring 4 to 28 Fast Ethernet, Gigabit or 10 Gigabit ports, wide operating temperature range, PoE/PoE+ ports, and more. Selected products have MIL-STD shock and vibration certification, operating ranges as wide as -40°C to 75°C, and Profinet CC-B v2.33 certification, making them IoT ready.

ATOP layer 2 managed switches focus on reliable performance in harsh industrial environments, supporting advanced network management with features like redundancy protocols, precision time synchronization, and efficient network management through various interfaces. Layer 3 switches are ideal for scaling industrial networks or large surveillance applications, supporting IPv4 static routing, BGP, RIP/RIPv2, OSPFv2, and multicast protocols. The NAT switch provides a means to change the header of IP packets and simplifying topologies. Slim type switches are valuable in space-limited applications.

Security-conscious

In today's world of increasing cyber incidents, it is crucial to ensure that network devices comply with the technical requirements of the IEC 62443 standard. This involves implementing enhanced component-level protection and mechanisms to manage device security.

As of 2022, ATOP is proud to be certified in IEC 62443-4-1 and is currently in the process of receiving recognition for IEC 62443-4-2 as well. This certification demonstrates ATOP's dedication to meeting the highest standards of network security and providing reliable and secure products to their customers.



Industrial Unmanaged Switches

	Unmanaged Switches								
									
General Information					NEW!	NEW!			
Model Number	EH2005	EH2006	EH2008	EHG2008	EH3005	EHG3005	EH2305	EH2306	EH2304-PR
Number of ports									
Total number of ports	5	6	8	8	5	5	5	6	4
Fast Ethernet 10/100 BaseT(X)	4	6	8	-	5	-	4	6	4
Fast Ethernet Fiber ports (SFP, LC or ST)	1	-	-	-	-	-	1	-	-
Gigabit 10/100/1000 BaseT(X)	-	-	-	8	-	5	-	-	-
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	12-48 V	12-48 V	9-30 V	9-30 V	9-48 V
Power input (High-Voltage option)									
Power Redundancy	•	•	•	•	•	•	•	•	•
Relay output									
Mechanical									
Housing	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Aluminum	Aluminum	Metal
Installation	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
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	23 x 94 x 72	23 x 94 x 72	45 x 90 x 78	45 x 90 x 78	22.5 x 110 x 78
Supported Temperatures									
Operations Temperature	0 to +60°C	0 to +60°C	0 to +60°C	0 to +60°C	0 to +60°C	0 to +60°C	-10 to +70°C	-10 to +70°C	-10 to +70°C
Storage Temperature	-40 to +60°C	-40 to +60°C	-40 to +60°C	-40 to +60°C	-20 to +70°C	-20 to +70°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy									
STP/RSTP/MSTP									
ITU-T G.8032 ERPS Ring									
MRP (Master/Client)									
Protocols									
SNMPv1/v2c/v3									
Modbus TCP									
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									
L3 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 Switches

	Unmanaged Switches							
								
General Information								
Model Number	EH2308	EH2308-PR	EHG2308	EH2316-2G	EH3305	EHG3305	EHG6408	EHG6410
Number of ports								
Total number of ports	8	8	8	16	5	5	8	10
Fast Ethernet 10/100 BaseT(X)	8	8	-	14	5	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	-	-	8	2	-	5	8	8
Gigabit 100/1000Base-X SFP	-	-	-	-	-	-	-	2
Gigabit 1000Base-X SFP	-	-	-	-	-	-	-	-
MACsec 802.1AE secure ports	-	-	-	-	-	-	-	-
PoE/PoE+ ports	-	-	-	-	-	-	Max 8 (boost)	Max 8 (boost)
Power Supply input								
Power input	9-48 V	9-48 V	9-48 V	9-48 V	12-48 V	12-48 V	12-57V (PoE from 12V)	12-57V (PoE from 12V)
Power input (High-Voltage option)								
Power Redundancy	•	•	•	•			•	•
Relay output							•	•
Mechanical								
Housing	Aluminum	Metal	Aluminum	Metal	Metal	Metal	Metal	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 78	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
Supported Temperatures								
Operations Temperature	-10 to +70°C	-10 to +70°C	-10 to +70°C	-10 to +60°C	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy								
STP/RSTP/MSTP								
ITU-T G.8032 ERPS Ring								
MRP (Master/Client)								
Protocols								
SNMPv1/v2c/v3								
Modbus TCP								
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								
L3 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				Lite-Managed Switches			NAT Switches	
									
General Information					NEW!			NEW!	NEW!
Model Number	EHG7305	EHG7306	EHG7307	EMG8305	EH3408	EHG6508	EHG6510	NSG3308	NSG3309
Number of ports									
Total number of ports	5	6	7	5	8	8	10	8	9
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	5	5	5	5 (M12)	8	8	8	8 (6 for SFP models)	9 (7 for SFP models)
Gigabit 100/1000Base-X SFP	-	1	2	-	-	-	(2)*	-	-
Gigabit 1000Base-X SFP	-	-	-	-	-	-	(2)*	2 (SFP models)	2 (SFP models)
MACsec 802.1AE secure ports	-	-	-	-	-	-	-	-	-
PoE/PoE+ ports	Max 4	Max 4	Max 4	-	-	Max 8 (boost)	Max 4 (boost)	-	-
Power Supply input									
Power input	12-57 V (PoE from 12V)	12-57 V (PoE from 12V)	12-57 V (PoE from 12V)	9-48 V	12-48 V	12-57V (PoE from 12V)	12-57V (PoE from 12V)	12-48 V	12-48 V
Power input (High-Voltage option)									
Power Redundancy	•	•	•	•	•	•	•	•	•
Relay output	•	•	•		•	•	•	•	•
Mechanical									
Housing	Metal	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
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	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	106 x 196 x 48	25.4 x 140 x 112	54 x 113 x 145	54 x 113 x 145	45.3 x 110 x 89.6	60 x 110 x 89.6
Supported Temperatures									
Operations Temperature	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +75°C or -10 to +60°C	-40 to +75°C	-40 to +75°C	-40 to +70°C	-40 to +70°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +60°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy									
STP/RSTP/MSTP					RSTP only	RSTP only	RSTP only	•	•
ITU-T G.8032 ERPS Ring									
MRP (Master/Client)									
Protocols									
SNMPv1/v2c/v3					•	•	•	•	•
Modbus TCP					•	•	•		
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	IPv4	IPv4
ACLs								•	•
GARP, GVRP, GMRP									
L3 Switching (Static, RIP, OSPF)								IPv4 NAT	IPv4 NAT
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	•	•	•	•					

*Numbers in parenthesis are options

Industrial Full Managed Ethernet Switches

	Managed L2 Fast-Ethernet Switches				Managed L2 Gigabit Switches			
								
General Information								
Model Number	EH7506	EH7508	EH7512	EH7520	EHG7504	EHG7508	EMG8508	EMG8510
Number of ports								
Total number of ports	6	8	12	20	4	8	8	10
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)	-	(4) combo	(4) combo	(4) combo	Max 4	Max 8	8 (M12)	8 (M12)
Gigabit 100/1000Base-X SFP	-	(4) combo	(4) combo	(4) combo	-	-	-	-
Gigabit 1000Base-X SFP	-	-	-	-	Max 4	Max 8	-	2
MACsec 802.1AE secure ports	-	-	-	-	-	-	-	-
PoE/PoE+ ports	Max 4	Max 4	Max 8	Max 8	Max 4	Max 8	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)	9-57V (PoE from 45V)	12-57V (PoE from 45V)	12-57V (PoE from 45V)
Power input (High-Voltage option)							45-145 VDC	45-145 VDC
Power Redundancy	•	•	•	•	•	•	•	•
Relay output	•	•	•		•	•	•	•
Mechanical								
Housing	Metal	Metal	Metal	Metal	Metal	Metal	Aluminum	Aluminum
Installation	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	Field-Mount	Field-Mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP67	IP67
Dimensions (L x W x H) mm	60 x 138 x 164	60 x 138 x 164	60 x 138 x 164	78 x 138 x 164	54 x 113 x 145	54 x 113 x 145	216 x 232 x 72	216 x 232 x 72
Supported Temperatures								
Operations Temperature	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +70°C	-40 to +75°C	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Master/Client)	•	•	•	•	•	•	•	•
Protocols								
SNMPv1/v2c/v3	•	•	•	•	•	•	•	•
Modbus TCP	•	•	•	•	•	•	•	•
Profinet	CC-B	CC-B	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	•	•	•	•	•	•	•	•
ACLs	•	•	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•	•	•
L3 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					•	•	•	•

Smart Cities

Enabling Reliable Communications for Infrastructure, Surveillance, and Smart Buildings

As cities continue to grow and evolve, the demand for more efficient and sustainable services increases. Smart cities are a response to this demand, with the goal of using technology to enhance urban infrastructure, services, and quality of life.

Smart city networks play a crucial role in a city's communication and data exchange needs. ATOP smart city solutions are scalable and flexible to accommodate the changing needs of a smart city. Compliance with industry standards and regulations, such as the IEEE 802.1 standards, allows interoperability and compatibility with other devices. PoE ports are available for easy, cost-effective installation and maintenance. Especially with the development of high-performance surveillance cameras, 802.3bt support for higher PoE power supply are necessary for widespread use. Fast Ethernet, Gigabit Ethernet, and even 2.5G or 10G speeds provide reliable, rapid data transmission with low latency. Wide operating temperature ranges and rugged hardware alleviate the risk of failure in harsh environments, while ring support facilitates quick recovery in case of accidents.

Last but not least, a range of security features, including encryption, authentication, and access control, ensure the confidentiality, integrity, and availability of data.

Industrial Switches for Smart Cities

	Unmanaged Switches		Lite-Managed Switches				Managed L2 Fast Ethernet Switches			
										
General Information				NEW!						
Model Number	EHG6408	EHG6410	EHG2408	EH3408	EHG6508	EHG6510	EH7506	EH7508	EH7512	EH7520
Number of ports										
Total number of ports	8	10	8	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)	8	8	8	8	8	8	-	(4) combo	(4) combo	(4) combo
Gigabit 100/1000Base-X SFP	-	2	-	-	-	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 8 (boost)	Max 8 (boost)	Max 4	Max 4	Max 8	Max 8
Power Supply input										
Power input	12-57V (PoE from 12V)	12-57V (PoE from 12V)	9-48 V	12-48 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	Metal	Metal	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	54 x 113 x 145	54 x 113 x 145	110 x 89 x 45	25.4 x 140 x 112	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	-40 to +75°C	-40 to +75°C	0 to +60°C	-40 to +75°C or -10 to +60°C	-40 to +75°C	-40 to +75°C	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +70°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +60°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy										
STP/RSTP/MSTP			RSTP only	RSTP only	RSTP only	RSTP only	•	•	•	•
ITU-T G.8032 ERPS Ring							•	•	•	•
MRP (Master/Client)							•	•	•	•
Protocols										
SNMPv1/v2c/v3			•	•	•	•	•	•	•	•
Modbus TCP			•	•	•	•	•	•	•	•
PROFINET							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	IPv4	•	•	•	•
ACLs							•	•	•	•
GARP, GVRP, GMRP							•	•	•	•
L3 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 Managed Ethernet Switches for Smart Cities

	Managed L2 Gigabit Switches							
								
General Information							Coming soon	Coming soon
Model Number	EHG7504	EHG7508	EHG7512	EHG7516	EHG7520	RHG7528	EHG7704	EHG7706
Number of ports								
Total number of ports	4	8	12	16	20	Max 28	4	6
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	-	-	-	-	-	-	4	4
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	-	-	-	-	-	-
Gigabit 2.5Gbps or 10Gbps	-	-	4 x 10Gbps	4 x 10Gbps	4 x 10Gbps	-	-	2 x 2.5Gbps
MACsec 802.1AE secure ports	-	-	-	-	-	Max 4	-	-
PoE/PoE+ ports	Max 4	Max 8	Max 8	Max 8	Max 8	Max 24	Max 4	Max 4
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)	9-57V (PoE from 45V)	9-57V (PoE from 45V)
Power input (High-Voltage option)						110-220VAC		
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	DIN-rail	DIN-rail
Ingress Protection	IP30	IP30	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	25 x 163 x 138	25 x 163 x 138
Supported Temperatures								
Operations Temperature	-20-70°C	-20 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +75°C	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Master/Client)	•	•	•	•	•	•	•	•
Protocols								
SNMPv1/v2c/v3	•	•	•	•	•	•	•	•
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	•	•	•	•	•	•	•	•
L3 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	•	•	•	•	•		On demand	On demand
Marine (DNV.GL)			•	•				
EN50155/ EN50121-4	•	•				•	•	•

Industrial Managed Ethernet Switches for Smart Cities

	Managed L2 Gigabit Switches		Managed L3 Gigabit Switches					
	Slim type 							
General Information	Coming soon	Coming soon						
Model Number	EHG7708	EHG7711	EHG7604	EHG7608	EHG7612	EHG7616	EHG7620	RHG7628
Number of ports								
Total number of ports	8	11	4	8	12	16	20	Max 28
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-	-	-
Fast Ethernet Fiber ports (SFP, LC or ST)	4 or 8	8	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	-	-	Max 4	Max 8	Max 8	Max 12	Max 16	Max 28
Gigabit 100/1000Base-X SFP	Max 2	1	-	-	Max 8	Max 12	Max 16	Max 24
Gigabit 1000Base-X SFP	-	-	Max 4	Max 8	-	-	-	-
Gigabit 2.5Gbps or 10Gbps	Max 2 x 2.5Gbps	2 x 2.5Gbps	-	-	4 x 10Gbps	4 x 10Gbps	4 x 10Gbps	-
MACsec 802.1AE secure ports	-	-	-	-	-	-	-	Max 4
PoE/PoE+ ports	Max 8	Max 8	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)	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	Aluminum	Aluminum	Metal	Metal	Metal	Metal	Metal	Metal
Installation	DIN-rail	DIN-rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	DIN-Rail	Rack-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	25 x 163 x 138	60 x 163 x 138	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	-40 to +75°C (-20°C to +60°C for c model)	-40 to +75°C	-20 to +70°C	-20 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Master/Client)	•	•	•	•	•	•	•	•
Protocols								
SNMPv1/v2c/v3	•	•	•	•	•	•	•	•
Modbus TCP	•	•	•	•	•	•	•	•
PROFINET								
IEEE802.1ad LACP Port Trunking	•	•	•	•	•	•	•	•
IEEE802.1p QoS	•	•	•	•	•	•	•	•
IEEE802.1q VLAN	•	•	•	•	•	•	•	•
IEEE802.1x for Authentication	•	•	•	•	•	•	•	•
IEEE1588v2 Hardware-based E2E TC	• (except c model)	•	•	•	•	•	•	•
IGMPv1/v2/v3 IGMP Snooping	•	•	•	•	•	•	•	•
DHCP Option 66/67/82	•	•	•	•	•	•	•	•
IPv4/IPv6	•	•	•	•	•	•	•	•
ACLs	•	•	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•	•	•
L3 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	On demand	On demand	•	•	•	•	•	
Marine (DNV.GL)								
EN50155/ EN50121-4	•	•	•	•				•

Railway & Transportation

Industrial Networking for Railway and Public Transportation

Railway and Trackside Made Easy

Industrial Networking for Railway transportation

Network devices on trains must meet certain criteria such as for environmental, shock, power supply, vibration, humidity, electromagnetic interference, wide temperature range, EMC, power surge, electrostatic discharge (ESD), and transient factors.

EN 50155 is an internationally-recognized standard for electronic equipment used in railway applications. EN50121-4 defines standards for ground equipment. ATOP's railway-certified switches comply with both EN50155 and the essential sections of EN50121-4, while also offering advanced features like redundancy and precision timing. Enclosed in robust and reliable housing, they are highly suitable for use in signal control networks and on-board applications.

Temperature Requirements

Class	Ambient Temperature Outside Vehicle	Internal Cubicle Temperature	Internal Cubicle Over-Temperature Within 10 Min.	Air Temperature Surrounding the Printed Board Assembly
T1	-25°C to +40°C (-13°F to +104°F)	-25°C to +55°C (-13°F to +131°F)	+15°C (+59°F)	-25°C to +70°C (-13°F to +158°F)
T2	-40°C to +35°C (-40°F to +95°F)	-40°C to +55°C (-40°F to +131°F)	+15°C (+59°F)	-40°C to +70°C (-40°F to +158°F)
T3	-25°C to +45°C (-13°F to +113°F)	-25°C to +70°C (-13°F to +158°F)	+15°C (+59°F)	-25°C to +85°C (-13°F to +185°F)
T4	-40°C to +50°C (-40°F to +122°F)	-40°C to +70°C (-40°F to +158°F)	+15°C (+59°F)	-40°C to +85°C (-40°F to +185°F)

Public Transportation and Traffic Control

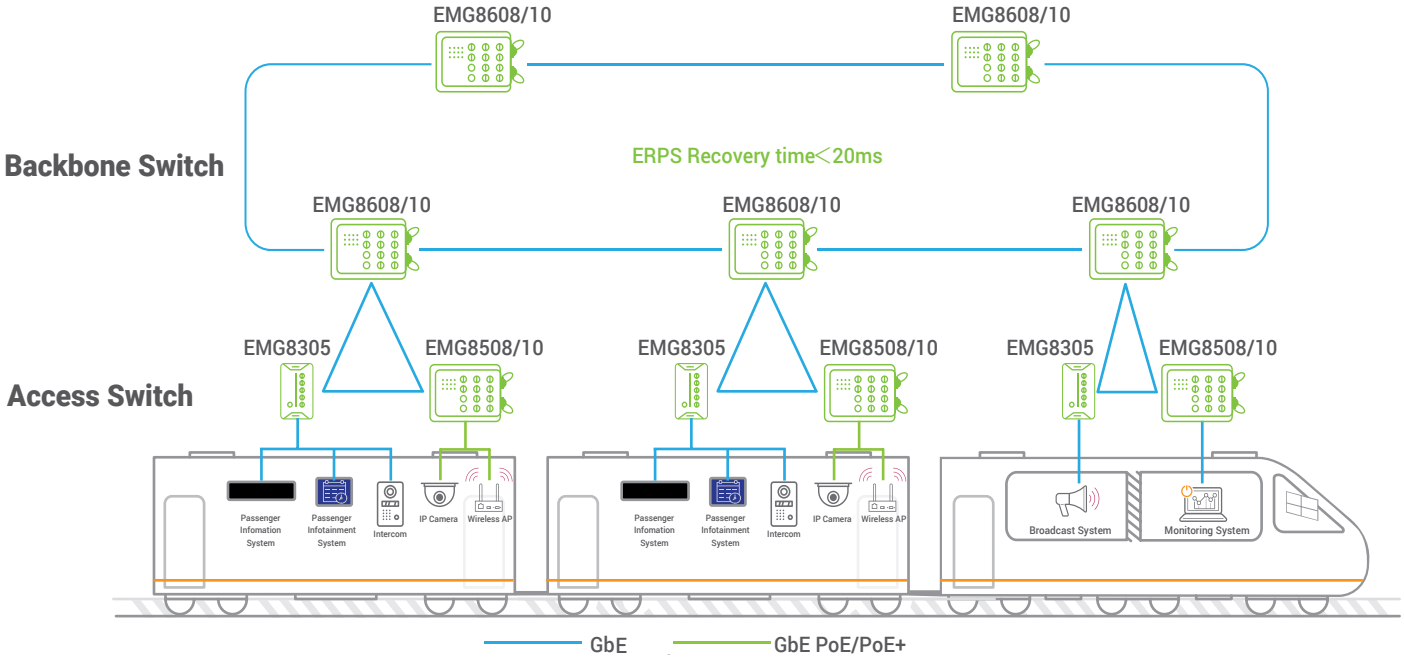
Industrial Networking for ITS

Intelligent Transportation Systems (ITS) are advanced systems that use modern technologies to improve the efficiency and safety of transportation systems, and building a strong networking system for ITS is crucial in ensuring the effectiveness of these systems.

ITS networks must be scalable and interoperable to support seamless communication between different devices and more as the system grows. They need reliability and low latency to ensure real-time performance, even in adverse conditions. Finally, redundancy and cybersecurity keep the system running through cyberattacks or partial failure.

ATOP's NEMA TS2 range is certified for the high/low temperature, high humidity, vibration, and mechanical shock requirements of ITS and traffic control. Certain devices also comply with DNV.GL for marine applications as well.

Possible topologies



Transportation Switches

	Unmanaged Switchess					
						IP67 
General Information						
Model Number	EH2308	EHG7305	EHG7306	EHG7307	EHG6408	EMG8305
Number of ports						
Total number of ports	8	5	6	7	8	5
Fast Ethernet 10/100 BaseT(X)	8	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	-	5	5	5	8	5 (M12)
Gigabit 1000Base-X SFP	-	-	-	-	-	-
Gigabit 100/1000Base-X SFP	-	-	1	2	-	-
1/10 Gigabit SFP	-	-	-	-	-	-
PoE/PoE+ ports	-	Max 4	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
Power input (High-Voltage option)						
Power Redundancy	•	•	•	•	•	•
Relay Output		•	•	•	•	
Mechanical						
Housing	Aluminum	Metal	Metal	Metal	Metal	Aluminum
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail	DIN-rail	Field-mount
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP67
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
Supported Temperatures						
Operations Temperature	-10 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +75°C	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy						
STP/RSTP/MSTP						
ITU-T G.8032 ERPS Ring						
MRP (Master/Client)						
Protocols						
SNMPv1/v2c/v3						
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						
L3 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		•	•	•		•

Transportation Switches

	Managed L2 Fast Ethernet			Managed L2 Gigabit Switches				
								
General Information								
Model Number	EH7506	EH7508	EH7512	EHG7504	EHG7508	EHG7512	EHG7516	EHG7520
Number of ports								
Total number of ports	6	8	12	4	8	12	16	20
Fast Ethernet 10/100 BaseT(X)	4	4	8	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	-	(4) combo	(4) combo	Max 4	Max 8	Max 8	Max 12	Max 16
Gigabit 1000Base-X SFP	-	-	-	Max 4	Max 4	-	-	-
Gigabit 100/1000Base-X SFP	2	(4) combo	(4) combo	-	-	Max 8	Max 12	Max 16
1/10 Gigabit SFP	-	-	-	-	-	4	4	4
PoE /PoE+ ports	Max 4	Max 4	Max 8	Max 4	Max 8	Max 8	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)	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	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
Ingress Protection	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	60 x 138 x 164	60 x 138 x 164	60 x 138 x 164	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
Supported Temperatures								
Operations Temperature	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Master/Client)	•	•	•	•	•	•	•	•
Protocols								
SNMPv1/v2c/v3	•	•	•	•	•	•	•	•
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	•	•	•	•	•	•	•	•
L3 routing (static/RIP/OSPF/PIM/BGP)								
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				•	•			

Transportation Switches

	Managed L2 Gigabit Switches						
				Slim type 	Slim type 	Slim type 	
General Information				Coming soon	Coming soon	Coming soon	Coming soon
Model Number	RHG7528	EMG8508	EMG8510	EHG7704	EHG7706	EHG7708	EHG7711
Number of ports							
Total number of ports	Max 28	8	10	4	6	8	11
Fast Ethernet 10/100 BaseT(X)	-	-	-	-	-	-	-
Gigabit 10/100/1000 BaseT(X)	Max 24	8 (M12)	8 (M12)	4	4	4 or 8	8
Gigabit 1000Base-X SFP	4 or 4x10G	-	2	-	-	-	-
Gigabit 100/1000Base-X SFP	Max 24	-	-	-	-	Max 2	1
Gigabit 2.5Gbps or 10Gbps	-	-	-	-	2	Max 2 x 2.5Gbps	2 x 2.5Gbps
PoE /PoE+ ports	Max 24	Max 8	Max 8	Max 4	Max 4	Max 8	Max 8
Power Supply input							
Power input	48-57V	12-57V (PoE from 45V)	12-57V (PoE from 45V)	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)	110-220VAC	50-145VDC	50-145VDC				
Power Redundancy	Optional	•	•	•	•	•	•
Relay Output	•	•	•	•	•	•	•
Mechanical							
Housing	Metal	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Installation	Rack-mount	Field-mount	Field-mount	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Ingress Protection	IP30	IP67	IP67	IP30	IP30	IP30	IP30
Dimensions (L x W x H) mm	440 x 44 x 340	216 x 232 x 72	216 x 232 x 72	25 x 163 x 138	25 x 163 x 138	25 x 163 x 138	60 x 163 x 138
Supported Temperatures							
Operations Temperature	-40 to +70°C	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C	-40 to +75°C (-20°C to +60°C for c model)	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy							
STP/RSTP/MSTP	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•
MRP (Master/Client)	•	•	•	•	•	•	•
Protocols							
SNMPv1/v2c/v3	•	•	•	•	•	•	•
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	•	•	•	•	•	•	•
L3 routing (static/RIP/OSPF/PIM/BGP)							
Compliance							
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•			•	•	•	•
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•
UL61010-2-201		•	•				
NEMA TS2				On demand	On demand	On demand	On demand
Marine (DNV.GL)							
E-Mark							
EN50155/ EN50121-4	•	•	•	•	•	•	•

Transportation Switches

	Managed L3 Gigabit Switches							
								
General Information								
Model Number	EHG7604	EHG7608	EHG7612	EHG7616	EHG7620	RHG7628	EMG8608	EMG8610
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 to +70°C	-20 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +70°C	-40 to +75°C	-40 to +75°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Network Redundancy								
STP/RSTP/MSTP	•	•	•	•	•	•	•	•
ITU-T G.8032 ERPS Ring	•	•	•	•	•	•	•	•
MRP (Master/Client)	•	•	•	•	•	•	•	•
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	•	•	•	•	•	•	•	•
IEEE1588v2 Hardware-based E2E TC	•	•	•	•	•	•	•	•
DHCP Option 66/67/82	•	•	•	•	•	•	•	•
IPv4/IPv6	•	•	•	•	•	•	•	•
ACLs	•	•	•	•	•	•	•	•
GARP, GVRP, GMRP	•	•	•	•	•	•	•	•
L3 routing (static/RIP/OSPF/PIM/BGP)	•	•	•	•	•	•	•	•
Compliance								
UL/EN/IEC(CB) 60950-1 and/or 62368-1	•	•	•	•	•	•		
EN60950-1 and/or EN62368-1	•	•	•	•	•	•	•	•
UL61010-2-201		•	•				•	•
E-Mark								
NEMA TS2	•	•	•	•	•			
Marine (DNV.GL)								
EN50155/ EN50121-4	•	•				•	•	•

Oil & Gas

Guaranteeing safety in hazardous environments

The oil and gas industry requires components that can withstand harsh and dangerous environments. These environments are often full of flammable gases, liquids, vapors, and combustible dusts, which makes safety a top priority. Even a small spark can cause a catastrophic event, so any device deployed in these environments must be highly reliable, safe, and perform well. Utilizing non-sparking components is the best way to ensure safety.

ATOP's hazardous series solutions are UL Class I Division II and ATEX certified, with no normally arcing parts that may pose danger in hazardous environments. They can be deployed in hermetically sealed hazardous or explosive conditions without increasing the risk of an explosion, and in case of an accident, will not accelerate the damage.

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Atex certification

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 to +70°C	-40 to +70°C	-40 to +70°C
Storage Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C
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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ATOP Technologies | by BlackBear TechHive

2F, No. 146, Sec. 1, Dongxing Rd., Zhubei City, Hsinchu County, Taiwan

+886-3-550-8137 +886-3-550-8131 info@atop.com.tw