

## FEATURE HIGHLIGHTS



- Up to 16 10/100/1000 RJ45 ports or 100/1000 BASE-X SFP slots. Plus 4 dedicated 1/10G Uplink SFP slots
- Up to 8x 802.3af/ 802.3at PoE/PoE+ Power over Ethernet ports, with maximum 30W PoE power per port and up to 240W power budget
- Maximum 112 Gbps High-Performance non-blocking Switching Fabric
- Redundancy through ITU-T G.8032 ERPS Ring, RSTP, STP, MRP (Manager/Client)
- IEEE 1588v2 Precision Time Protocol HW-Based E2E Transparent clock
- Wide temperature operations, from -40°C to +70°C
- UL 62368-1:2014, CE/FCC, NEMA TS-2 certified for traffic control applications
- Security features based on IEC62443-4-2
- Compliant with KEMA/DNV.GL

## PRODUCT DESCRIPTION

Flexible and cost-effective, this is an ideal industrial solution where high-throughput and high-reliability are fundamental.

### Unprecedented throughput and power:

ATOP's EHG7512/16/20 Series offers 24 versions of **up to 20 Gigabit ports**, with different port configurations in copper, PoE or fiber, all of which include **4 x 1/10 Gigabit Ethernet SFP uplinks**.

Specifically designed for bringing power through Ethernet cables virtually anywhere, it supports a maximum of 8 PoE/PoE+ ports (802.3af/at) to produce **up to 240W** Power over Ethernet output.

### Rugged and reliable:

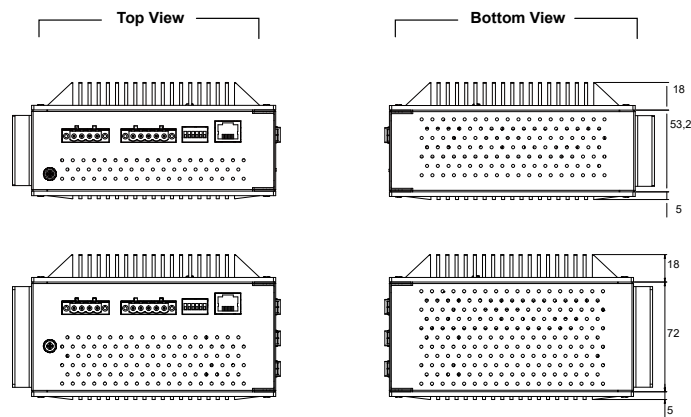
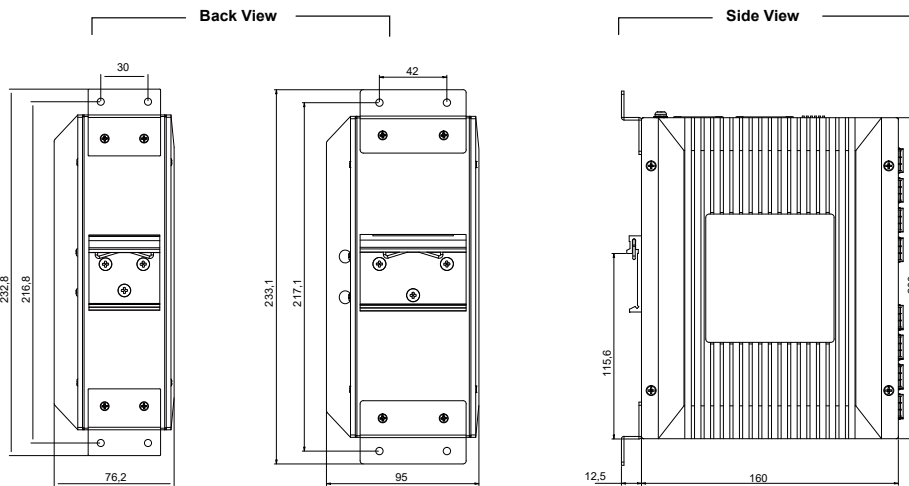
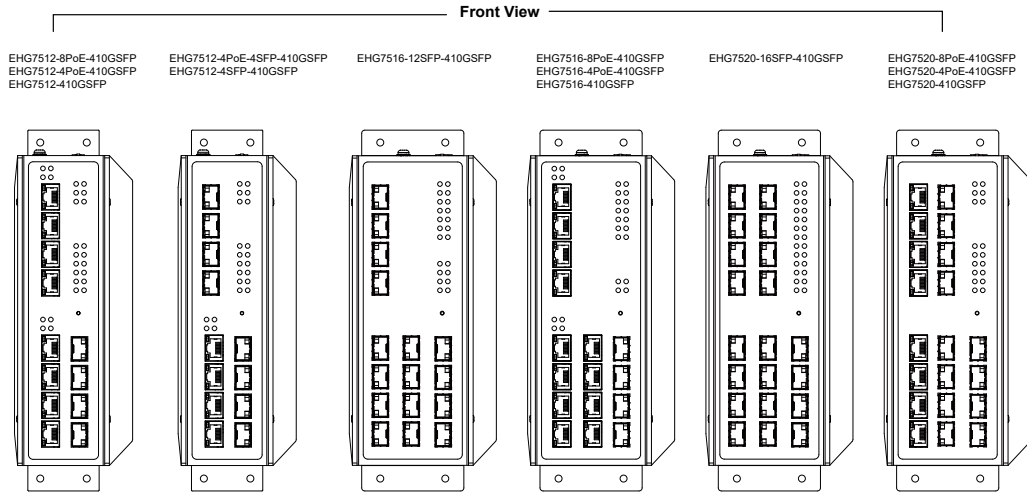
This switch series is EN61000-6-2, EN61000-6-4, IEC/EN/UL62368-1:2014 and FCC certified, able to withstand the harshest environments and the most demanding EMC environment for almost any application. NEMA TS-2 certification further ensures that it is the **perfect choice for smart cities and traffic control**. Its fanless design and EMC Level 3 protection guarantee reliable operations between -40 and +70°C, and zero packet loss even with all ports running full power.

High-performance network redundancy functions provide **self-recovery in less than 20ms** on full load, enabling a reliable network through almost any redundant ring topology such as ITU-T G.8032 ERPS Ring, IEEE802.1D-2004 RSTP, STP, MSTP, MRP (Manager/Client), iA-Ring, and iA-Chain.

### Secure and smart:

To prevent network intrusions, it is necessary to have a good accessing control mechanism that can **identify, authenticate and authorize users**. EHG7512/16/20 supports user account, password policy, and authentication interface management functions that comply with IEC62443 standards. The multifunctional web dashboard also offers further **intelligent features** such as Quality of service (QoS) per port or per VLAN, VLAN, IGMP and port mirroring.

# DIMENSIONS & LAYOUT



## SPECIFICATIONS

Technical Specifications		
Model Name	EHG7512 (12 ports); EHG7516 (16 ports); EHG7520 (20 ports)	
Switch Properties		
Priority Queues	8	
VLAN Table	4096	
MAC-Based VLAN	512	
VLAN ID Range	VID 1 to 4094	
Trunk Group	4	
Static IGMP Groups	128	
Dynamic IGMP Groups	256	
MAC Table Size	16K	
Packet Buffer Size	1.5 MB	
Jumbo Frame	9216 Byte	
Ethernet		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3ae For 10 Gigabit Ethernet Fiber IEEE 802.3x for Flow Control, back pressure flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet	
Protocols	IPv4, IPv6, IGMPv1/v2/v3, IGMP Snooping, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Relay/Client, BootP, TFTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Manager/Client), LLDP, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP, Compatible Ring/Chain, U-Ring, NTP Server/Client, Serial Console, Modbus/TCP, IEEE 1588 PTP V1/V2, UDLD, Security, Trunk, LACP, MLD, 802.1Q VLAN, Port-Based VLAN, MAC-Based VLAN, IP-Subnet-Based VLAN, Protocol-Based VLAN, QinQ, 802.1x, ARP spoof Prevention, DHCP snooping, IP source Guard, Dynamic ARP Inspection, DHCP relay Agent, Voice VLAN, sFlow, PoE continue	
Redundancy	ITU-T G.8032 ERPS, STP, RSTP, MSTP, MRP(Manager/Client), Compatible Ring/Chain, U-Ring	
Time Synchronization	Network Synchronization	NTP Server/Client, SNTP
	Precision Network Synchronization	IEEE1588v1 OC/BC (Software) IEEE1588v2 E2E TC (Hardware) - ns acc. IEEE1588v2 OC/BC (Software)
Automation Profiles	Modbus/TCP device status registers provided	

SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674
<b>Power</b>	
Input Voltage	9-57 VDC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current (System)	Max. 2.2 A @ 12 VDC (without PoE) Max. 3.3 A @ 45 VDC (Support up to 8 ports at 15.4 W per PoE port) Max. 5.2 A @ 51 VDC (Support up to 8 ports at 30 W per PoE port)
Power Consumption (System)	Max. 26.4 W @ 12 VDC (without PoE) Max. 148.5 W @ 45 VDC (Support up to 8 ports at 15.4 W per PoE port) Max. 265.2 W @ 51 VDC (Support up to 8 ports at 30 W per PoE port)
Connector Reverse Polarity Protection	5-Pin 5.08mm Lockable Terminal Block Yes
<b>Interfaces</b>	
RJ45 Ports Fiber Optics Ports LED Indicators Console Relay Output DIP Switches Button	Up to 16 10/100/1000BASE-T(X) auto negotiation speed Up to 16 100/1000BASE-X SFP slot plus 4 1000BASE-X or 4 10G SFP slots PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE RS232 (RJ45 connector) 2 relay outputs with current carrying capacity of 1A @ 24 VDC Ring Control Reset Button
<b>Physical Characteristics</b>	
Housing Dimension (W x H x D) Weight Installation	IP30 SPCC Metal housing, ruggedized Heat-sink EHG7512: 76 x 200 x 160 mm; EHG7516-EHG7520: 95 x 200 x 160 mm 2,500 g DIN-Rail, Wall mount (optional kit)
<b>Environmental Limits</b>	
Operating Temperature Storage Temperature Ambient Relative Humidity	-40°C to +70°C (-40°F to +158°F) -40°C to +85°C (-40°F to +185°F) 5% to 95% (Non-condensing test @55°C)

## REGULATORY APPROVALS

Regulatory Approvals				
Safety	UL62368-1, 2nd Ed., CSAC22.2 N. 62368-1-14,NZS62368.1:2018,EN62368-1:2014+A11:2017			
Traffic Control	NEMA TS-2			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4,			
Test	Item	Value	Level	
IEC 61000-4-2	ESD	Contact Discharge	±6 kV	3
		Air Discharge	±8 kV	3
IEC 61000-4-3	RS	80-1000 MHz	10 (V/m)	3
		1.4-2.0 GHz	3 (V/m)	2
		2.0-2.7 GHz	10 (V/m)	3
IEC 61000-4-4	EFT	DC Power Port	±2.0 kV	3
		Signal Port	±1.0 kV	3
IEC 61000-4-5	Surge	DC Power Port	Line-to-Line ± 1.0 kV	3
		Signal Port	Line-to-Earth ± 2.0 kV	3
IEC 61000-4-6	CS	0.15-80 MHz	10V rms	3
IEC 61000-4-8	PFMF	Enclosure	30 V/m	4
IEC 61000-4-11	DIP	AC Power Port	-	A
Shock Drop Vibration	MIL-STD-810G Method 516.5 MIL-STD-810F Method 516.5 MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
MTBF	20 Years			

## ORDERING INFORMATION

Ordering information		
Model name	Part Number	Description
EHG7512-8PoE-410GSFP	1P1EHG75120001G	4P*1GTX RJ45/PoE; 4P*10GFX SFP
EHG7512-410GSFP	1P1EHG75120002G	8*1G RJ45; 4*10G SFP
EHG7512-4PoE-410GSFP	1P1EHG75120003G	4*1G RJ45; 4*1G PoE; 4*10G SFP
EHG7512-4SFP-410GSFP	1P1EHG75120004G	4*1G RJ45; 4*1G/4*10G SFP
EHG7512-4PoE-4SFP-410GSFP	1P1EHG75120005G	4*1G PoE; 4*1G/4*10G SFP
EHG7512-4PoE-4SFP-410GSFP (Marine)	1P1EHG75120006G	4*1G PoE; 4*1G/4*10G SFP
EHG7516-410GSFP	1P1EHG75160001G	12*1G RJ45; 4*10G SFP
EHG7516-4PoE-410GSFP	1P1EHG75160002G	8*1G RJ45; 4*1G PoE; 4*10G SFP
EHG7516-8PoE-410GSFP	1P1EHG75160003G	4*1G RJ45; 8*1G PoE; 4*10G SFP
EHG7516-4SFP-410GSFP	1P1EHG75160004G	8*1G RJ45; 4*1G/4*10G SFP
EHG7516-4PoE-4SFP-410GSFP	1P1EHG75160005G	4*1G RJ; 4*1G PoE; 4*1G/4*10G SFP
EHG7516-8PoE-4SFP-410GSFP	1P1EHG75160006G	8*1G PoE; 4*1G/4*10G SFP
EHG7516-8SFP-410GSFP	1P1EHG75160007G	8*1G RJ45; 4*1G/4*10G SFP
EHG7516-4PoE-8SFP-410GSFP	1P1EHG75160008G	4*1G PoE; 8*1G SFP; 4*10G SFP
EHG7516-12SFP-410GSFP	1P1EHG75160009G	12*1G SFP; 4*10G SFP
EHG7516-8PoE-410GSFP (Marine)	1P1EHG7516000AG	4*1G RJ45; 8*1G PoE; 4*10G SFP
EHG7520-410GSFP	1P1EHG75200001G	12*1G RJ45; 4*10G SFP
EHG7520-4PoE-410GSFP	1P1EHG75200002G	12*1G RJ45; 4*1G PoE; 4*10G SFP
EHG7520-8PoE-410GSFP	1P1EHG75200003G	8*1G RJ45; 8*1G PoE; 4*10G SFP
EHG7520-4SFP-410GSFP	1P1EHG75200004G	12*1G RJ45; 4*1G/4*10G SFP
EHG7520-4PoE-4SFP-410GSFP	1P1EHG75200005G	8*1G RJ; 4*1G PoE; 4*1G/4*10G SFP
EHG7520-8PoE-4SFP-410GSFP	1P1EHG75200006G	4*1G RJ; 8*1G PoE; 4*1G/4*10G SFP
EHG7520-8SFP-410GSFP	1P1EHG75200007G	8*1G RJ45; 8*1G SFP; 4*10G SFP
EHG7520-12SFP-410GSFP	1P1EHG75200008G	4*1G RJ45; 12*1G SFP; 4*10G SFP
EHG7520-4PoE-12SFP-410GSFP	1P1EHG75200009G	4*1G PoE; 12*1G SFP; 4*10G SFP
EHG7520-16SFP-410GSFP	1P1EHG7520000AG	16*1G SFP; 4*10G SFP

Optional Accessories		
Model name	Part Number	Description
WMK-450-Black	70100000000052G	Metal wall mount kit, screw spacing 25 mm (use with EHG7512)
Wall mount set	70100000000056G	Metal wall mount kit, screw spacing 38 mm (use with EHG7516/EHG7520)
CBL-RJ45(8P)-DB9(F)-90-C	50891971G	RJ45 to DB9 Female Cross Over Console Cable, 90cm
SDR-75-24	50500752240001G	75W/3.2A DIN-Rail 24VDC power supply 88-264VAC / 124-370VDC input
SDR-240-48	50502401480001G	240W/5A DIN-Rail 48-55VDC power supply 88-264VAC / 124-370VDC input
SDR-480-48	50504801480001G	480W/10A DINRail 48-55VDC power supply 88-264VAC /124-370VDC input
AXFD-1314-0523	522AXFD1314001G	SFP Transceiver, 155Mbps, 1310nm, Multi-mode, 2km, -40°C to +85°C, DDMI
AXFD-1314-0553	522AXFD1314011G	SFP Transceiver, 155Mbps, 1310nm, Single-mode, 30km, -40°C to +85°C, DDMI
AXGD-5854-0513	522AXGD5854001G	SFP Transceiver, 1250Mbps, 850nm, Multi-mode, 550m, 3.3V, -40°C to +85°C, DDMI
AXGD-1354-0523	522AXGD1354001G	SFP Transceiver, 1250Mbps, 1310nm, Multi-mode, 2km, 3.3V, -40°C to +85°C, DDMI
AXGD-1354-0533	522AXGD1354011G	SFP Transceiver, 1250Mbps, 1310nm, Single-mode, 10km, 3.3V, -40°C to +85°C, DDMI
AXGD-3354-0593	522AXGD3354001G	SFP Transceiver, 1250Mbps, 1310nm, Single-mode, 40km, 3.3V, -40°C to +85°C, DDMI
AXXE-5886-05B3	522AXXE5886001G	SFP Transceiver, 10Gbps, 850nm, Multi-mode, 300m, -40°C to +85°C