



## FEATURE HIGHLIGHTS

- IEC61850-3 Certified, KEMA-KEUR
- Up to 6 or 8 10/100/1000 BASE-T(X) ports and 2 or 4 1000 BASE-X SFP ports
- IEEE1588v2 Precision Time Protocol support, with nanosecond-accurate Hardware-based E2E Transparent clock and Software Boundary Clock
- ERPS and Compatible Ring (recovery time < 20ms @ 40 switches), STP/RSTP/MSTP/MRP (Client) for network redundancy
- Remote management over Web browser, Telnet, Serial console, Utility
- PROFINET v2 Class B compatible
- Provides Generic Station Descr. file for integration with SIMATIC Step 7

## PRODUCT DESCRIPTION

The EHG9508/EHG9512 Series is a highly reliable Gigabit Managed Ethernet Switch. Its IEC61850-3 compliance allows it to be core part in the IEC 61850 network in power substations and control centers. The series is also certified by DNL.GL (former KEMA) to meet the IEC61850 applications and to support the transmission of GOOSE messages used for fast communication between IEDs.

The **IEEE1588 Precision Time Protocol capabilities allow the deployment of EHG9508/EHG9512 Series in networks with stringent time Synchronization requirements.** It can act as hw-assisted End-to-End transparent clock providing nanosecond-accurate correction-field packet-update and as a sw-assisted boundary clock.

The device equips up to 8 10/100/1000BASE-T(X) RJ-45 ports and up to 4 1000BASE-X SFP ports. **With its high performance, it provides network redundancy self-recovery mechanisms is less than 20ms on full load that enables the user to build a reliable network through a redundant ring topology.** ERPS/STP/MSTP/RSTP/MRP (Client) and many other compatible rings are supported. With a Multifunctional web dashboard, it offers intelligent features such as Quality of service (QoS), Virtual LAN (VLAN), IGMP, IGMP Snooping, Port mirroring and security.

The EHG9508/EHG9512 Series is designed to be used in core power utilities. It provides dual redundant power inputs with Reverse Polarity Protection and two sets of relay that allow the user build up a stand-alone fault alarm system. Its wide operating temperature of -40 to 85°C and DIN-Rail mounting capacities make it suitable to be used in remote substations where harsh environment and reliability is an issue.

## SPECIFICATIONS

Technical Specifications	
Model Name	EHG9508 EHG9512
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 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for Flow Control/ Back pressure 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 8021x for Authentication
Protocols	IPv4, IPv6, IGMPv1/v2/v3, IGMP Snooping, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 Hardware-Assisted End-to-End Transparent Clock and Software-assisted Boundary Clock, MRP (Client), 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Automation Profiles	Profinet CC-B compatible, Ethernet/IP ready, Modbus/TCP status registers
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, 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
Power	
Input Voltage	24-57 VDC 100~240 VAC for AC series 110~370 VDC for HV Series
Input Current (System)	0.63A @ 24 VDC 0.16A @ 100 VAC for AC series 0.12A @ 110 VDC for HV series
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Yes

### Interfaces

RJ45 Ports  
Fiber Optics Ports  
LED Indicators  
Console  
Relay Output  
DIP Switches  
Button

Up to 8 10/100/1000BASE-T(X) auto negotiation speed  
Up to 4 1000BASE-X SFP slot  
PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, RS232 (RJ45 connector)  
2 relay outputs with current carrying capacity of 1A @ 24 VDC  
Ring Control  
Reset Button

### Physical Characteristics

Housing  
Dimension (W x H x D)  
Weight  
Installation

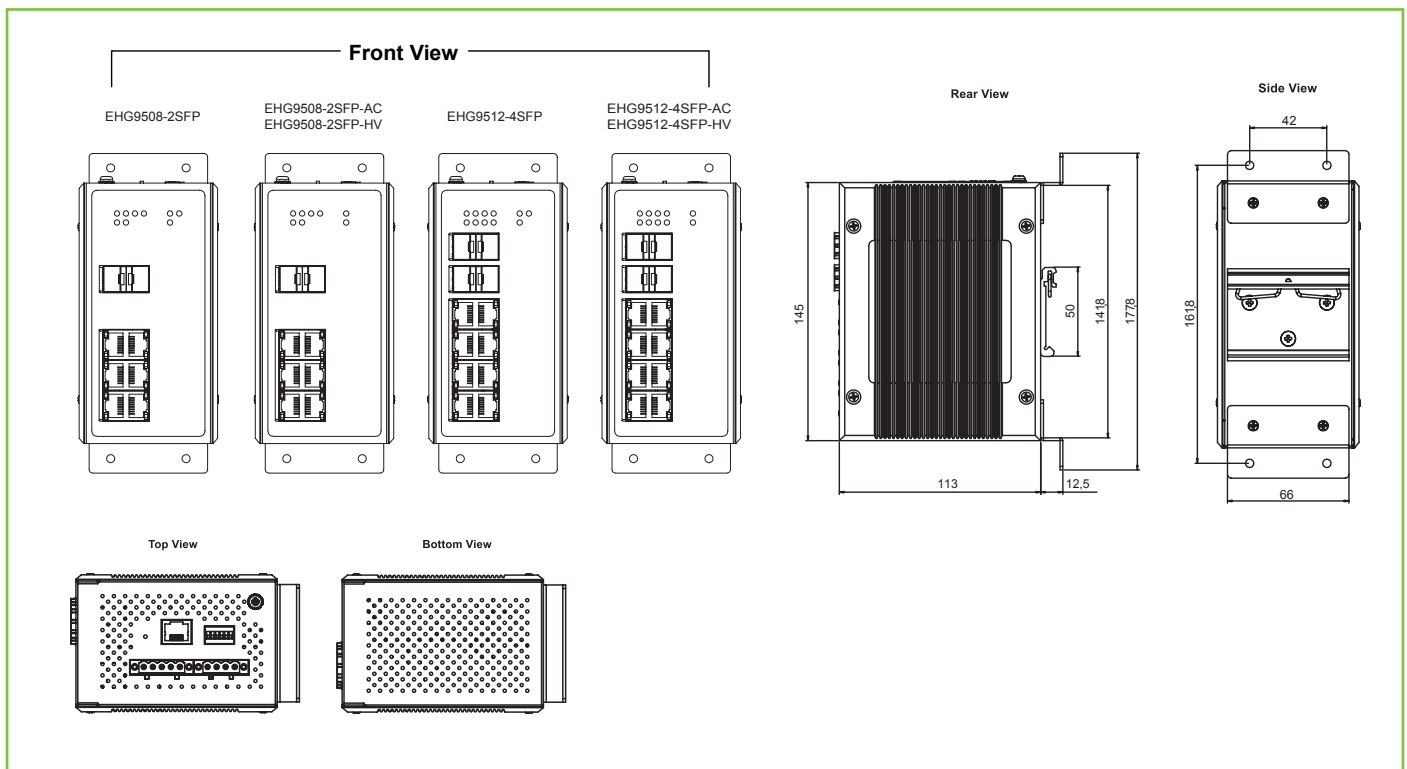
IP30 SPCC, Black housing  
77 x 145 x 113 mm  
1,000g (AC/HV versions) / 1,200g (other)  
DIN-Rail , Wall mount (optional kit)

### Environmental Limits

Operating Temperature  
Storage Temperature  
Ambient Relative Humidity

-40°C~85°C (-40°F~185°F)  
-40°C~85°C (-40°F~185°F)  
5%~95% RH, 55°C (Non-condensing)

## DIMENSIONS & LAYOUT



## REGULATORY APPROVALS

Regulatory Approvals				
Safety	UL/CUL/IEC(CB) 61010-2-201, KEMA-KEUR			
Industry Specific	IEC61850-3 (Including 6.10.3 Seismic test), IEEE 1613			
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	±8KV	4
		Air Discharge	±15KV	4
IEC 61000-4-3	RS	80-1000MHz	10(V/m)	3
		1.0-3.0GHz	80% AM	3
IEC 61000-4-4	EFT	AC Power Port	±4.0kV @2.5kHz	4
		DC Power Port	±4.0kV @2.5kHz	4
		Signal Port	±2.0kV @5.0kHz	4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line ±2.0kV	4
		AC Power Port	Line-to Earth ±4.0kV	4
		DC Power Port	Line-to Line ±1.0kV	3
		DC Power Port	Line-to Earth ±2.0kV	3
		Signal Port	Line-to Earth ±4.0kV	4
IEC 61000-4-6	CS	AC Power Port	10V, 150kHz~80MHz, 80% AM	3
		DC Power Port	10V, 150kHz~80MHz, 80% AM	3
		Signal Port	10V, 150kHz~80MHz, 80% AM	3
IEC 61000-4-8	PFMF	Enclosure	100A/m continuous, 1000A/m for 3S	5 5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100A/m, 100KHz, 1MHz	5
IEC 61000-4-11	DIP	AC Power Port	Drop 70% 3 times/S (1 Period) Drop 40% 3 times/1mS (50 Period) Drop 100% 3 times/50mS (5&50 Period)	N/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			

Notes: All series is UL61010-2-201 certified, except \*HV series

## ORDERING INFORMATION

### Ordering information

Model name	Part Number	10/100/1000 RJ45	1000Base(X) SFP
EHG9508-2SFP	1P1EHG95080001G	6	2
EHG9508-2SFP-HV	1P1EHG95080002G	6	2
EHG9508-2SFP-AC	1P1EHG95080003G	6	2
EHG9512-4SFP	1P1EHG95120001G	8	4
EHG9512-4SFP-HV	1P1EHG95120002G	8	4
EHG9512-4SFP-AC	1P1EHG95120003G	8	4

### Optional Accessories

Model name	Part Number	Description
Wall Mount Set	70100000000056G	45.4 x 22.8 x 1.5 mm Aluminum wall mount Kit with screw
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
LM28-C3S-TI-N	50708031G	SFP Transceiver, 1250Mbps, 850nmVCSEL, Multi-mode, 550m, 3.3V, -20~85°C
LM38-C3S-TI-N	50709411G	SFP Transceiver, 1250Mbps, 1310nmFP, Multi-mode, 2km, 3.3V, -40~85°C
LS38-C3S-TI-N	50709391G	SFP Transceiver, 1250Mbps, 1310nmFP, Single-mode, 10km, 3.3V, -40~85°C
LS38-C3L-TI-N	50709441G	SFP Transceiver, 1250Mbps, 1310nmDFB, Single-mode, 30km, 3.3V, -40~85°C

