



RoHS compliant

Industrial 5/6-Port Unmanaged Ethernet Switches

①① EH2005/EH2006

EH2005-Fm (Multi-mode)



EH2005-Fs (Single-mode)

- 4 x 10/100BaseT(X) (RJ45)
- 1 x fiber port with ST (-Fm model) or SC (-Fs model)
- Broadcast storm protection
- Support IEEE 802.3/ 802.3u/ 802.3x
- 10/100M, Full/Half-Duplex, MDI/MDI-X auto-detection
- Redundant dual DC power inputs
- Operating temperature ranges from 0~60°C
- Rugged high-strength plastic case
- DIN-Rail or wall mount support



EH2006

The EH Series include 5/6-port Ethernet switches that provide two solutions, one with 6 RJ-45 ports and the other with 4 RJ-45 ports and one optic ST/SC port for your industrial applications. These EH series have been designed for industrial environments, such as in hazardous locations that comply with FCC, TUV, UL, and CE standards.

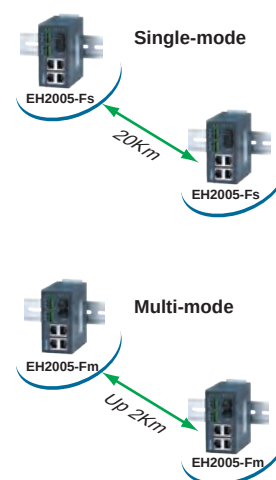
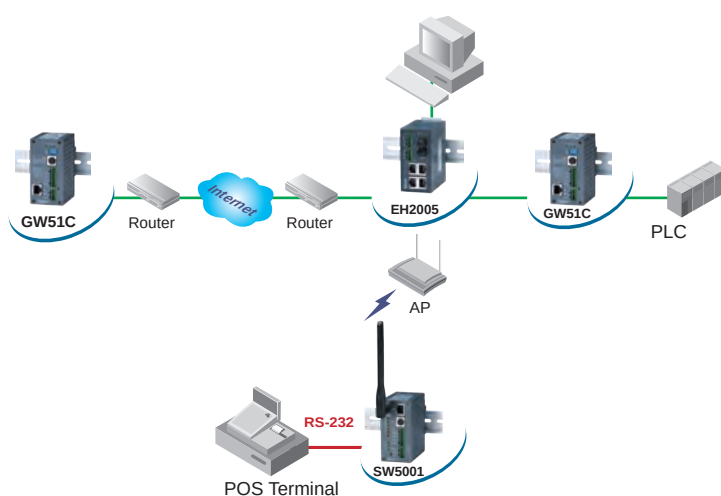
EH series protect itself from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, EH series will discard broadcast or multicast packets if the number of those packets exceeds a threshold in a preset period of time. When the preset period expires (about 800ms), it will then resume receiving broadcast or multicast packets until the threshold is reached again.

EH series provide 2 redundant power inputs that can be connected simultaneously to wide-range DC power sources. If one of the power inputs fails, the other live source acts as a backup to provide the EH series' power needs automatically.

Industrial 5/6-Port Unmanaged Ethernet Switches

➡ EH2005-Fm/Fs / EH2006

Specifications	
Ethernet	
Transmission Rate	10/100Mbps
Total Port	5 / 6
10/100Mbps	5 / 6
Connector	RJ-45 x 4+ Fm/Fs x 1 (EH2005-Fm/Fs) / RJ-45 x 6 (EH2006)
Auto MDI/MDI-X	Yes
Power	
Input	DC 9 ~ 30V
Connector	3-pin 5.08mm pitch terminal block x 2
Consumption	4.5 Watts Max.
Environment	
Operating	0°C ~ 60°C (32° ~ 140°F)
Storage	-20° ~ 70°C (-4°~ 185°F), 5 ~ 95%RH
Dimension	
W x H x D	45mm x 90mm x 80mm
MTBF(Hour)	
Preceding	107296(EH2005-Fm/Fs) / 112092(EH2006)
Ordering Information	
1P1EH2005FM001G	Industrial 5-port Unmanaged Ethernet Switch with
EH2005-Fm	4x 10/100TX & 1x 10/100FX, multi-mode
1P1EH2005FS001G	Industrial 5-port Unmanaged Ethernet Switch with
EH2005-Fs	4x 10/100TX & 1x 10/100FX Single-mode
1P1EH200600001G	Industrial 6-port Unmanaged Ethernet Switch with 6x 10/100TX
EH2006	
Optional Accessories	
Power Adapter	US315-12(US / EU): AC100~240V/DC12V 5.08mm pitch Terminal block



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Design and specification are subjected to change without notice.
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CA_EH2005/2006_E : v3-110119



EH2305-1Fm

Industrial 5-Port Unmanaged Fast Ethernet Switch with Optical Fiber

■ ■ EH2305-1Fm/1Fs
RoHS compliant



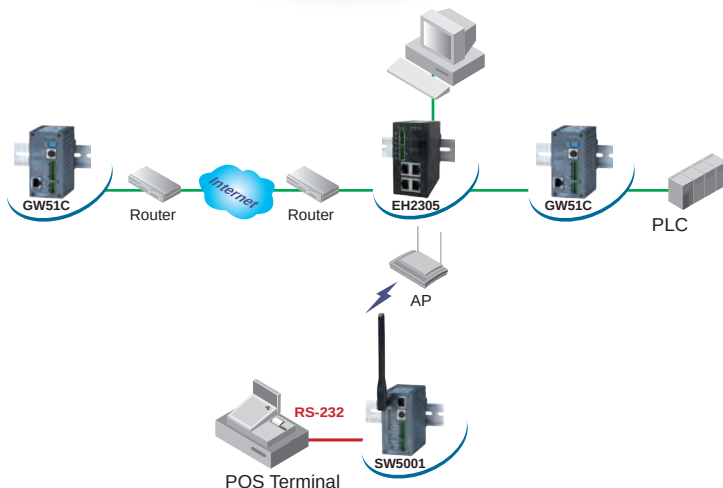
EH2305-1Fs

Technology

- 10/100BaseT(X) (RJ45), 100BaseFX (SC/ST connector)
- Broadcast storm protection
- Support IEEE 802.3/ 802.3u/ 802.3x
- 10/100M, Full/Half-Duplex, MDI/MDI-X auto-detection
- Local area transmit distance of 2 Km with Multi-mode Fiber connections
- Long-haul transmit distance of 15 Km with Single-mode Fiber connections

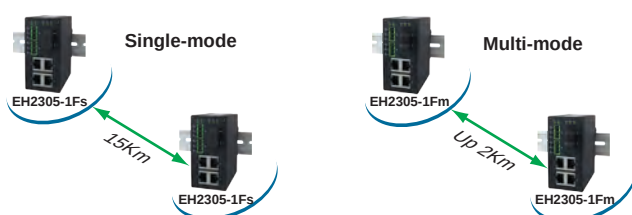
Reliability

- Redundant dual DC power inputs
- Operating temperature ranges from -10~70°C
- Rugged high-strength housing
- DIN-Rail or wall mounting ability



The EH2305-1Fm/1Fs has a metal housing with 4 RJ-45 ports and one optical ST/SC port, it's designed to work in the industrial environment, such as in hazardous locations that comply with CE, FCC, UL and RoHS standards.

The EH2305 series protects itself from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, it will discard broadcast or multicast packets if the number of those packets exceeds a threshold in a preset period of time. When the preset period expires (about 800ms), it will then resume receiving broadcast or multicast packets until the threshold is reached again.



The EH2305 series provides two redundant power inputs that can be connected simultaneously to wide-range DC power sources. If one of the power inputs failure, the other live source acts as a backup to provide EH2305 series the power it needs automatically.

Industrial 5-Port Unmanaged Fast Ethernet Switch with Optical Fiber

EH2305-1Fm/1Fs

Specifications

Ethernet

Transmission rate	10/100Mbps
Ports	5
10/100Mbps	5
Connector	RJ-45 x 4 + Fs/Fm x 1
Auto MDI/MDI-X	Yes

Power

Input	DC 9~30V
Connector	Dual 3 pin 5.08mm pitch Terminal block
Consumption	4.5 Watts Max

Environment

Operating	-10°C ~ 70°C (14°F ~ 158°F)
Storage	-40°C ~ 85°C (-40°F ~ 185°F),5%~95% RH
Notes:	For UL policy the maximum operating temperature is 50°C, and the human body can tolerate maximum temperature is 70°C.

Dimension

W x H x D	45.2mm x 90mm x 78mm
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Approval

UL(Safety): UL60950-1,CSA C22.2 No.60950-1-03
FCC(EMI): FCC 47 CFR Part15, Subpart B, Class A
ICES-003, Class A
ANSI C63.4-2003
CE(EMI): EN 55022:1988+A1:2000+A2:2003, Class A
EN 61000-3-2:2000, Class A
EN 61000-3-3: 1995+A1:2001
CE(EMS): EN 55024:1998+A1:2001+A2:2003
IEC 61000-4-2:2001
IEC 61000-4-3:2002+A1:2002
IEC 61000-4-4:2004
IEC 61000-4-5:2001
IEC 61000-4-6:2003+A1:2004
IEC 61000-4-8:2001
IEC 61000-4-11:2004
Shock: IEC 60068-2-27
Free Fall: IEC 60068-2-32
Vibration: IEC 60068-2-6
RoHS: Lead(Pb) Free
MTBF: 471160 hrs(25°C) / 53.79 years(25°C)
Warranty: 5 years

Optional Accessories

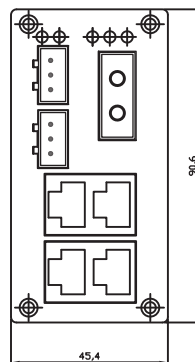
Power adapter	US315-12(US/EU): AC100~240V/DC12V 5.08mm pitch Terminal block
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Ordering information

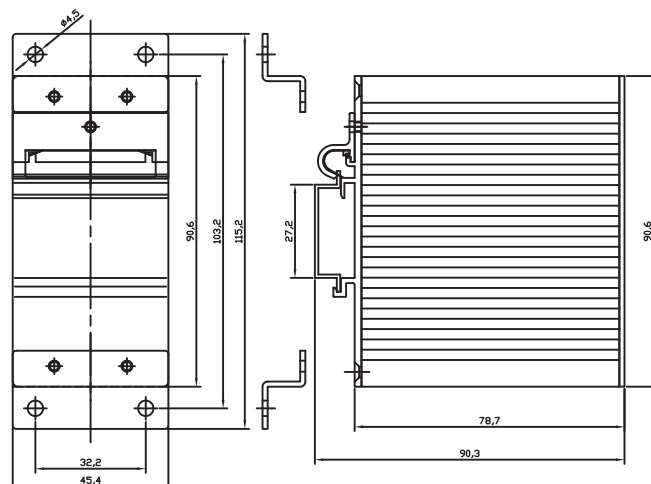
1P1EH23051FM01G	Industrial 5-port Unmanaged Fast Ethernet Switch
EH2305-1F	with 4x 10/100TX & 1x 10/100FX Multi-mode
1P1EH23051FS01G	Industrial 5-port Unmanaged Fast Ethernet Switch
EH2305-1Fs	with 4x 10/100TX & 1x 10/100FX Single-mode

Optical Fiber Specifications

Speed	Fast Ethernet 100BaseFX	
Mode	Multi-mode	Single-mode
Connectors	ST	SC
Typical Distance	2Km(Max)	15Km(Max)
Cable Size Core /Cladding	62.5/125 um	9/125 um
Wavelength	1270(Min)~1360(Max) nm	1263(Min)~1360(Max) nm
Max. TX Power	-14 dBm	-8 dBm
Min. TX Power	-19 dBm	-15 dBm
RX Sensitivity	-34 dBm(Typical) -32 dBm(Max)	-32 dBm(Max)
Link Budget	----	----
Saturation	----	----
I Overload	----	----
Typical Budget	----	----



Front-panel front view



Backboard rear view

(Mount kit)

Housing side view

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CA_EH2305-1Fm/1Fs_E : v1-091214



Industrial 6-Port Unmanaged Fast Ethernet Switch

■ ■ EH2306

RoHS compliant

Technology

- 10/100BaseT(X) (RJ45)
- Broadcast storm protection
- Support IEEE 802.3/ 802.3u/ 802.3x
- 10/100M, Full/Half-Duplex, MDI/MDI-X auto-detection

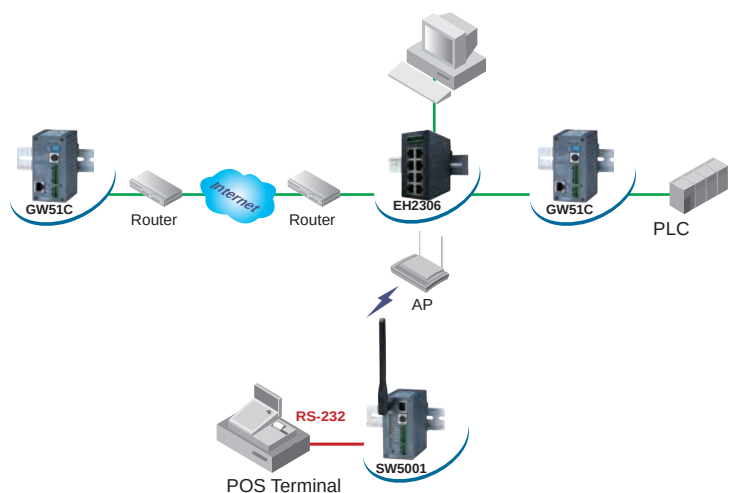
Reliability

- Redundant dual DC power inputs
- Operating temperature ranges from -10~70°C
- Rugged high-strength housing
- DIN-Rail or wall mounting ability

The EH2306 with 6 RJ-45 ports has a metal housing and is designed to work in the industrial environment, such as in hazardous locations that comply with CE, FCC, UL and RoHS standards.

The EH2306 protects itself from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, it will discard broadcast or multicast packets if the number of those packets exceeds a threshold in a preset period of time. When the preset period expires (about 800ms), it will then resume receiving broadcast or multicast packets until the threshold is reached again.

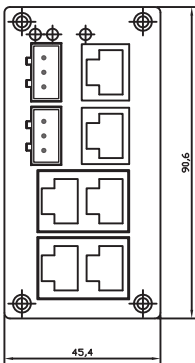
The EH2306 provides two redundant power inputs that can be connected simultaneously to wide-range DC power sources. If one of the power inputs failure, the other live source acts as a backup to provide the EH2306 the power it needs automatically.



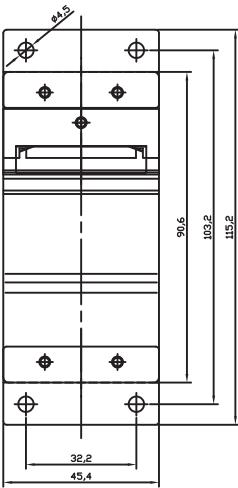
Industrial 6-Port Unmanaged Fast Ethernet Switch



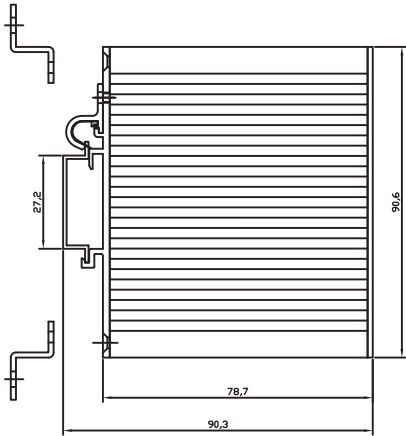
Specifications	
Ethernet	
Transmission rate	10/100Mbps
Ports	6
10/100Mbps	6
Connector	RJ-45 x 6
Auto MDI/MDI-X	Yes
Power	
Input	DC 9~30V
Connector	Dual 3-pin 5.08mm pitch Terminal block
Consumption	4.5 Watts Max
Environment	
Operating	-10°C ~ 70°C (14°F ~ 158°F)
Storage	-40°C ~ 85°C (-40°F ~ 185°F),5%~95% RH
Notes: For UL policy the maximum operating temperature is 50°C, and the human body can tolerate maximum temperature is 70°C.	
Dimension	
W x H x D	45.2mm x 90mm x 78mm
Approval	
UL(Safety): UL60950-1,CSA C22.2 No.60950-1-03	
FCC(EMI): FCC 47 CFR Part15, Subpart B, Class A	
ICES-003, Class A	
ANSI C63.4-2003	
CE(EMI): EN 55022:1988+A1:2000+A2:2003, Class A	
EN 61000-3-2:2000, Class A	
EN 61000-3-3: 1995+A1:2001	
CE(EMS): EN 55024:1998+A1:2001+A2:2003	
IEC 61000-4-2:2001	
IEC 61000-4-3:2002+A1:2002	
IEC 61000-4-4:2004	
IEC 61000-4-5:2001	
IEC 61000-4-6:2003+A1:2004	
IEC 61000-4-8:2001	
IEC 61000-4-11:2004	
Shock: IEC 60068-2-27	
Free Fall: IEC 60068-2-32	
Vibration: IEC 60068-2-6	
RoHS: Lead(Pb) Free	
MTBF: 455736 hrs(25°C) / 52.02 years(25°C)	
Warranty: 5 years	
Optional Accessories	
Power adapter	US315-12(US/EU): AC100~240V/DC12V 5.08mm pitch Terminal block
Ordering information	
1P1EH230600001G	Industrial 6-port Unmanaged Fast Ethernet Switch with
EH2306	6x 10/100TX



Front-panel front view



Backboard rear view



(Mount kit)

Housing side view



Industrial 8-Port Unmanaged Fast Ethernet Switch

■ ■ EH2308

RoHS compliant

Technology

- 10/100BaseT(X) (RJ45)
- Broadcast storm protection
- Support IEEE 802.3/ 802.3u/ 802.3x
- 10/100M, Full/Half-Duplex, MDI/MDI-X auto-detection

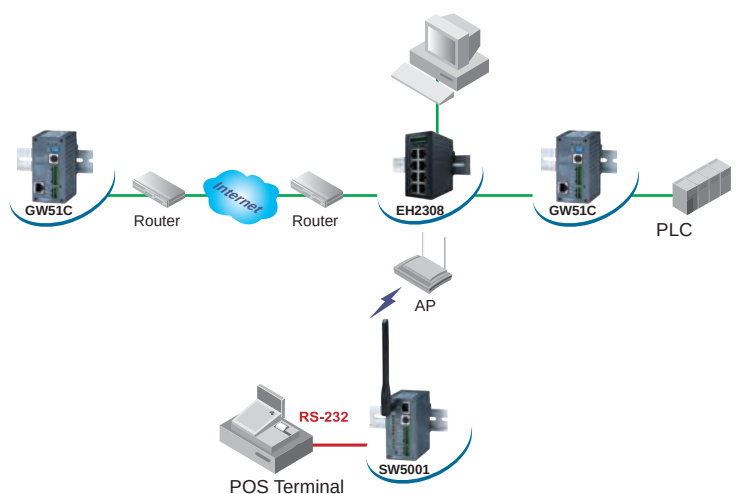
Reliability

- Redundant dual DC power inputs
- Operating temperature ranges from -10~70°C
- Rugged high-strength housing
- DIN-Rail or wall mounting ability

EH2308 with 8 RJ-45 ports for your industrial applications. It designs to work in the industrial environment, such as in hazardous locations that comply with CE, FCC, UL, and RoHS standards.

EH2308 protects itself from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, it will discard broadcast or multicast packets if the number of those packets exceeds a threshold in a preset period of time. When the preset period expires (about 800ms), it will then resume receiving broadcast or multicast packets until the threshold is reached again.

EH2308 provides two redundant power inputs that can be connected simultaneously to wide-range DC power sources. If one of the power inputs failure, the other live source acts as a backup to provide the EH2308 power needs automatically.



Industrial 8-Port Unmanaged Fast Ethernet Switch



Specifications

Technology

Standards	IEEE802.3, 802.3u, 802.3x
Processing Type	Store and Forward
Flow Control	IEEE802.3x flow control, backpressure flow control

Interface

RJ-45 Ports	10/100BaseT(X) auto negotiation speed Full/Half-duplex mode, and auto MDI/MDI-X connection
LED Indicators	Power, 10/100M

Power

Input	9~48 VDC, Dual inputs
Consumption	4 Watts Max
Connector	Removable 5-pin Terminal Block for power input
Reverse Polarity Protection	Present

Environment

Operating	-10°C ~ 70°C (14°F ~ 158°F)
Storage	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5%~95% non-condensing

Physical

Housing	IP50 protection, metal housing
Dimension	45.2mm x 90mm x 78mm (W x H x D)
Weight	255g

Approval

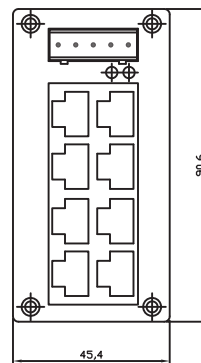
UL(Safety)	UL60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed.
FCC(EMI)	FCC 47 CFR Part15, Subpart B, Class A
CE(EMI)	European Standard EN 55022:2006/A1:2007 Class A EN 61000-3-2:2006 EN 61000-3-3: 1995/A1:2001/A2 :2005
CE(EMS)	EN 55024:1998/A1:2001/A2:2003(IEC 61000-4-2:1995/A2:2000) IEC 61000-4-3:2002 IEC 61000-4-4:2004 IEC 61000-4-5:1995/A1:2000 IEC 61000-4-6:1996/A1:2000 IEC 61000-4-8:1993/A1:2000 IEC 61000-4-11:1994/A1:2000
Shock	IEC 60068-2-27
Drop	ISTA Test Procedure 2A
Vibration	IEC 60068-2-64
RoHS	Lead(Pb) Free
MTBF	568862 hrs(25°C) / 64.94 years(25°C)
Warranty	5 years

Optional Accessories

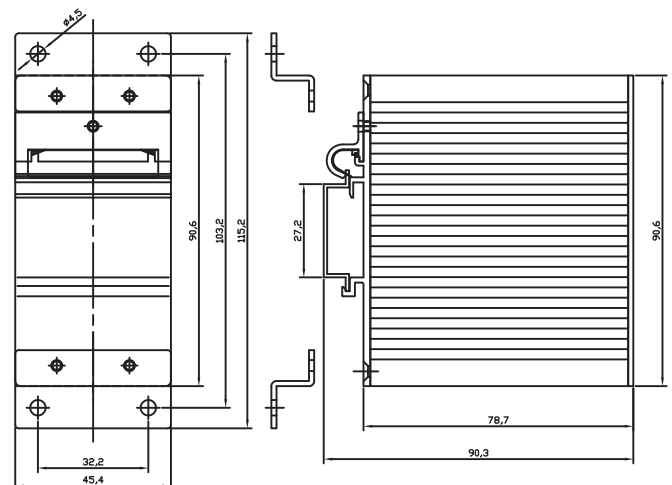
Power adapter	US315-12(US/EU): AC100~240V/DC12V 5.08mm pitch Terminal block
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Ordering information

1P1EH230800001G	Industrial 8-port Unmanaged Fast Ethernet Switch with
EH2308	8x 10/100TX



Front-panel front view



Backboard rear view

(Mount kit)

Housing side view

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Industrial 8-port Unmanaged Gigabit Ethernet Switch

■ ■ EHG2308

RoHS compliant

Technology

- 10/100/1000BaseT(X) (RJ45)
- Broadcast storm protection
- Support IEEE 802.3/ 802.3u/ 802.3x
- 10/100/1000M Full/Half-Duplex, MDI/MDI-X auto-detection

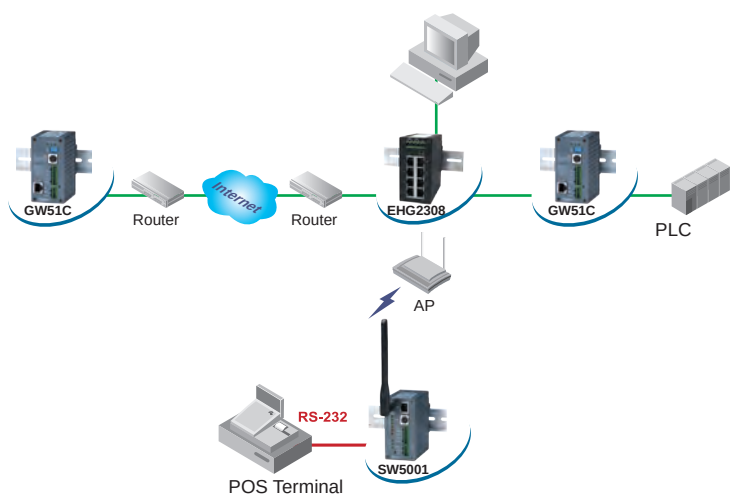
Reliability

- Redundant dual DC power inputs
- Operating temperature ranges from -10~70°C
- Rugged high-strength housing
- DIN-Rail or wall mounting ability

EHG2308 with 8 RJ-45 Gigabit ports for your industrial applications. It designs to work in the industrial environment, such as in hazardous locations that comply with CE, FCC, UL, IP50 and RoHS standards.

EHG2308 protects itself from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, it will discard broadcast or multicast packets if the number of those packets exceeds a threshold in a preset period of time. When the preset period expires (about 800ms), it will then resume receiving broadcast or multicast packets until the threshold is reached again.

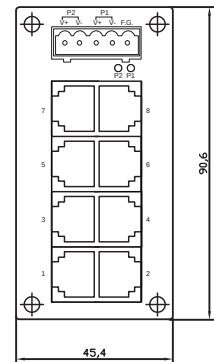
EHG2308 provides two redundant power inputs that can be connected simultaneously to wide-range DC power sources. If one of the power inputs failure, the other live source acts as a backup to provide the EHG2308 power needs automatically.



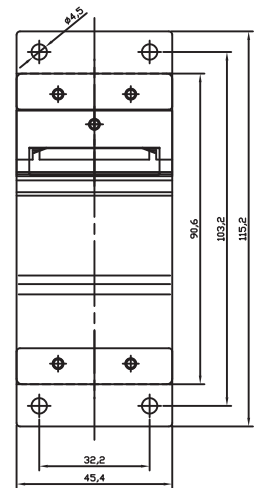
Industrial 8-port Unmanaged Gigabit Ethernet Switch



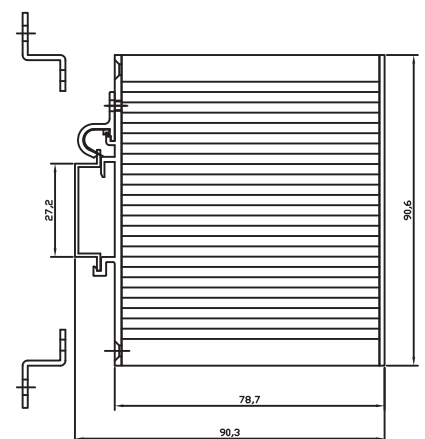
Specifications			
Technology			
Standards	IEEE802.3, 802.3u, 802.3ab, 802.3x		
Processing Type	Store and Forward		
Flow Control	IEEE802.3x full duplex, back pressure flow control		
Interface			
RJ45 Ports	10/100/1000BaseT(X) auto negotiation speed		
	Full/Half-duplex mode, and auto MDI/MDI-X connection		
LED Indicators	Power, LAN(10/100/1000M)		
Power Management			
Input Voltage	9-48 VDC(0.45A max), Dual inputs		
Consumption	4.05 Watts Max		
Connector	Removable 5-pin Terminal Block for power input		
Reverse Polarity Protection	Present		
Physical Characteristics			
Housing	IP50 protection, metal housing		
Dimension(W x H x D)	45.2mm x 90mm x 78mm		
Weight	255g		
Environmental Limits			
Operating Temperature	-10°C~70°C (14°F~158°F)		
Storage Temperature	-40°C~85°C (-40°F~185°F)		
Ambient Relative Humidity	5%~95% non-condensing		
Regulatory Approvals			
UL(Safety)	UL60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed.		
FCC(EMI)	FCC Part 15, Subpart B, Class A		
CE(EMI)	European Standard EN 55022:2006/A1:2007 Class A. EN61000-3-2:2006, EN 61000-3-3:1995/A1:2001/A2:2005		
CE(EMS)	EN55024:1998/A1:2001/A2:2003(IEC 61000-4-2:1995/A2:2000)		
	IEC61000-4-3:2002, IEC 61000-4-4:2004		
	IEC 61000-4-5:1995/A1:2000, IEC 61000-4-6:1996/A1:2000		
	IEC 61000-4-8 :1993/A1:2000, IEC 61000-4-11:1994/A :2000		
Shock	IEC 60068-2-27		
Drop	IEC 60068-2-32(ISTA Test Procedure 2A)		
Vibration	IEC 60068-2-64		
RoHS	Lead(Pb) Free		
MTBF	472359.98 hrs(25°C) / 53.92 years(25°C)		
IP Protection	IP50 IEC/EN60529		
Warranty	5 years		
Optional Accessories			
AD17-24C (US): AC100V~240V/DC24V for terminal block, US adapter			
AD17-24D (EU): AC100V~240V/DC24V for terminal block, EU adapter			
US315-12(US/EU) : AC100~240V/DC12V ; 5.08mm pitch terminal block			
DIN-Rail mount, Wall mount			
Ordering Information			
Model Name	Port Interface		
Extended Temperature (-10°C ~ 70°C)	10/100/1000BaseT(X)	100BaseFX	
		Multi Mode ST Connector	Single Mode SC Connector
EHG2308	8	----	----



Front-panel front view



Backboard rear view



(Mount kit)

Housing side view

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Industrial Managed Ethernet Switch

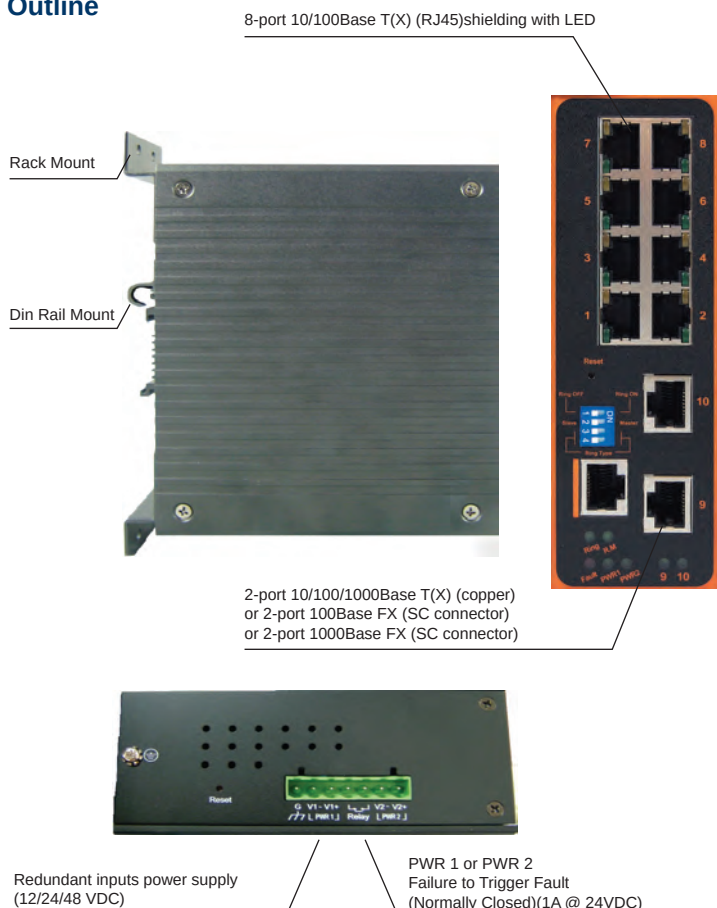
■ ■ EH7510

RoHS compliant

The Atop Harsh Environment Series EH7510 is a highly reliable and fault-tolerant Industrial 10-port managed Ethernet Switch. It equips 8-port 10/100Base T(X) RJ45 ports and 2-port 10/100/1000Base T(X)/FX Gigabit capacity that supports IEEE 802.3/802.3u/802.3x with 10/100M, IEEE 802.3ab/802.3z with 1000M, full/half duplex, and MDI/MDI-X auto-sensing. With its high performance switching device, EH7510 SERIES provides redundant self-recovery mechanism in less than 20ms on full load which allows you to scheme a reliable Ethernet network to build a redundant ring topology as your back-up solution. With a Multifunctional web dashboard, EH7510 SERIES offers intelligent features such as Quality of service (QoS), Virtual LAN (VLAN), IGMP, Port mirroring and security. The EH7510 SERIES is a plug-and-play solution for your Industrial Ethernet applications.

The EH7510 SERIES is designed for Industrial rugged applications. It equips a 7-pins terminal block to provide dual redundant power inputs with Reverse Polarity Protection and one set relay (NC) which allows field engineers to build up a stand-alone fault alarm system. Its IP-50 housing protection, wide operating temperature of -40 to 80°C and DIN-Rail mounting capacities are liable to do most industrial filed applications.

Outline



Industrial Managed Ethernet Switch

- Multiple reliable redundant Rings:
 - ERPS, iA-Ring, Compatible-Ring and U-Ring(for wireless)
 - All rapid recovery time from fault (<20ms)
 - ERPS support Simple Ring, Coupling Ring and Share Node Ring topologies
- IEEE 1588 v1/v2, SNTP support
- Storm filter support
- Port mirror, rate, status, statistics, configuration, security support
- Static trunk and LACP support
- QoS CoS/ToS/DiffServ Traffic Mapping
- GVRP, Port-based and 802.1Q VLAN support
- RSTP support
- MAC security and port based (802.1x) access control
- GMRP and IGMP snooping for multicast filtering
- Syslog, Alarm System(H/W Relay and E-mail notification) support
- ModBus TCP, DHCP, LLDP, Telnet/CLI, Web(SSL), SNMP v1/v2/v3, RMON, enterprise MIB and Topology Diagram support

- ★ The power input of EH7510 can be placed on either the top side or bottom side before shipment.

General Specifications	
Technology	
Standards	IEEE 802.3 10BaseT
	IEEE 802.3u 100BaseT(X) and 100Base FX
	IEEE 802.3ab 1000Base-T
	IEEE 802.3z 1000Base-SX/LX
	IEEE 802.1d MAC Bridges standard
	IEEE 802.1w for Rapid Spanning Tree Protocol(RSTP)
	IEEE 802.1p Class of Service
	IEEE 802.1P The GARP VLAN Registration Protocol(GVRP)
	IEEE 802.1Q VLAN Tagging
	IEEE 802.1D-1998 and IEEE 802.1Q-2005, GARP Multicast Registration Protocol(GMRP)
	IEEE 802.1X Port Based Network Access Control
	IEEE802.3x Flow Control and Back pressure
	IEEE 802.3ad Link Aggregation Control Protocol(LACP)
	IEEE 802.1AB Station and Media Access Control Connectivity Discovery(LLDP)
	IEEE 1588 Precision Clock Synchronization Protocol for Networked Measurement and Control Systems
	RFC768 UDP
	RFC783 TFTP
	RFC791 IP
	RFC792 ICMP
	RFC793 TCP
	RFC826 ARP
	RFC854 Telnet
	RFC894 IP over Ethernet
	RFC1112 IGMP v1
	RFC2236 IGMP v2
	RFC1541 DHCP Client
	RFC2030 SNTP
	RFC2068 HTTP
	RFC2284 EAP
	RFC2475 Differentiated Services
	RFC2865 RADIUS
	RFC3414 SNMPv3-USM
	RFC3415 SNMPv3-VACM
	ITU-T G.8032/Y.1344 Ethernet Ring Protection Switching (ERPS)
Switch Properties	Switching method: Store & Forward
	Switching Latency: 4.8 us
	Backplane switching capacity: 5.6G
	MAC addresses table: 8K with automatic learning and aging
	IGMP multicast groups: 256
	Per-Port Priority Queues: 4
	Packet Buffer Size: 256KB
	VLANs: 512 (include DEFAULT VLAN ID=1)
Flow Control	VLAN ID Setting Range: 2 to 4094
	Port rate limiting: 64K/128K/256K(up to 100 Mbps or 1000Mbps) resolution
	IEEE 802.3x Flow Control and Back-pressure
	Store-and-Forward
	Redundancy
	ITU-T G.8032/Y.1344, ERPS Ethernet Ring Protection Switching (ERPS) (Recovering Time <20ms).
	iA-Ring Protocol (Recovering Time<20ms)
	Compatible-Ring Protocol (Recovering Time<20ms)
Processing type	U-Ring Protocol(for wireless environment)
	IEEE 802.1w, Rapid Spanning Tree Protocol (RSTP)
	Management
	Support Port mirror, rate, status, statistics, configuration, security
	Command Line Interface (CLI) via Console or Telnet
	HTTP graphical web-based, SSL (128-bit encryption) management
	SNMP Standard MIBs and Atop Proprietary MIB
	Support Remote Monitoring RMON (groups 1,2,3 and 9)
Redundancy	Atop Utility (Switch View and Topology Diagram)
	ModBus TCP Management and Memory Map
	Configuration file backup/restore via TFTP server or Web server
	Firmware upgrade via Switch View or Web server
	Support SNTP and Time Zone, Daylight Saving Time and RTC
	Support IEEE 1588 v1/v2 with software time stamping on all ports
	PTP operation for high precision on switched networks (better than 81μs accuracy, typically 10μs). Supports master, slave and Peer To Peer transparent clock
	Support Local Event Log(saved in RAM or Flash Memory), 0~7 Log Level, Remote Syslog Server
Management	Support Static IP, DHCP Client, Gateway and DNS
	Diagnostics Ping Network
	Support Alarm condition: Port State, Power State and Syslog event
	Support H/W Relay and E-mail Alarm action

General Specifications	
Technology	
MIB	Atop Proprietary MIB
	Standard IETF RFC MIBs
	■ RFC 1493 Bridge MIB
	■ RFC 1213 MIB II
	■ RFC 2819 RMON MIB
	■ RFC 2011 SNMPv2 IP MIB
	■ RFC 3411 SNMP Framework MIB
	■ RFC 3412 SNMP-MPD MIB
	■ RFC 3413 SNMP Target MIB, SNMP Notification MIB
	■ RFC 3414 SNMP User-Based SM MIB
	■ RFC 3415 SNMP View Based ACM MIB
	■ RFC 2013 TCP MIB
	■ RFC 1215 Trap
	■ RFC 2012 UDP MIB
	■ RFC 2013 TCP MIB
	■ RFC 1757 RMON
	■ RFC 1157 SNMP
	■ RFC 2571 SNMPv2
	■ LLDP standard MIB
	- LLDP Config Group
	- LLDP Stats Group
	- LLDP Local System Group
	- LLDP Remote System Group
Interface	
RJ45 Ports	10/100BaseT(X), Auto MDI/MDI-X
	10/100/1000BaseT(X), Auto MDI/MDI-X (Uplink)
Fiber Ports	100BaseFX ports (SC connector) (Uplink)
	1000BaseFX ports (SC connector) (Uplink)
LED Indicators	LNK/ACT (Steady green-Link up/Blinking-data transmitting & receiving)
	PWR1(Green), PWR2(Green), Fault(Red), RM(Green), Ring(Green)
Console Port	RS-232(RJ45 connector)
DIP Switches	Ring, Master(Ring type: ERPS, iA-Ring, compatible-Ring)
Power Requirements	
Dual Inputs Voltage	12/24/48 VDC
Dual Inputs Current	0.6A @ 24VDC
Overload Current Protection	2.2A @ 12VDC
Connection	Removable dual 7-pin Terminal Block for power input
Reverse Polarity Protection	Present
Consumption	14.4W
Physical Characteristics	
Housing	IP50 protection (>2.5mm objects, IEC60529), metal case(AL6063T5).
Dimensions (W x H x D)	53.4mm x 145.7mm x 119.9mm (2.10 x 5.74 x 4.72 in)
Weight	Approx 1100 g
Installation	DIN-Rail mount kit, wall mount kit (optional)
Environmental Limits	
Operating Temperature	-40 ~ 80°C (-40 ~ 176°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Ambient Relative Humidity	5% to 95% (non-condensing)
Notes: For UL policy the maximum operating temperature is 60°C, and the human body can tolerate maximum temperature is 70°C.	
Regulatory Approvals	
Safety	UL60950-1, CSA C222, No.60950-1-07, CB
EMI	FCC part 15, CISPR (EN55022) class A
EMS	IEC61000-4-2 (ESD) level 3
	IEC61000-4-3 (RS) level 3
	IEC61000-4-4 (EFT) level 3
	IEC61000-4-5 (Surge) level 2/3
	IEC61000-4-6 (CS) level 3
Rail Traffic	EN50155
Application	EN50121-4
Shock	MIL-STD-810F
Free Fall	MIL-STD-810F
Vibration	MIL-STD-810F
MTBF	176,122 hrs (20.11 Years) (Data base: MIL-HDBK-217F, GB 25°C)
Warranty	5 years (please visit www.atop.com.tw for more details)

Optical Fiber Specifications						
Speed	Fast Ethernet 100BaseFX			Gigabit Ethernet 1000BaseFX		
Mode	Multimode	Single Mode	Single Mode	Multimode	Single Mode	Single Mode
Connectors	SC	SC	SC	SC	SC	SC
Typical Distance	2 km	15 km	30 km	550 m/300 m	10 km	70 km
Cable Size Core/Cladding	50/125 um 62.5/125 um	9/125 um	9/125 um	50/125 um	9/125 um	9/125 um
Wavelength	1,310 nm	1,310 nm	1,310 nm	850 nm	1310 nm	1550 nm
Max. TX Power	-14 dBm / -14 dBm	0 dBm	5 dBm	-4 dBm	-3 dBm	5 dBm
Min. TX Power	-23.5 dBm / -20 dBm	-20 dBm	0 dBm	-9.5 dBm	-9.5 dBm	-9.5 dBm
RX Sensitivity	-31 dBm	-32 dBm	-36 dBm	-18 dBm	-20 dBm	-24 dBm
Link Budget	7.5 dB / 11 dB	12 dB	36 dB	8.5 dB	10.5 dB	24 dB
Saturation / overload	0 dBm	0 dBm	0 dBm	0 dBm	-3 dBm	-3 dBm
Remark	EH7510-2Fm	EH7510-2Fs	customize	EH7510-G-2Fm	EH7510-G-2Fs	customize

Relay ON-OFF Status					
No.	PWR1	PWR2	Fault LED	Relay contact	External Buzzer
1	off	off	off	closed	buzzing
2	off	on	red	closed	buzzing
3	on	off	red	closed	buzzing
4	on	on	off	open	no buzz

4-Pin DIP Switch		
DIP 1 and 2 definition		
DIP Switch	Off	On
1	Ring is deactivate	Ring is activate
2	Slave	Master
DIP 3 and 4 definition		
DIP 3	DIP 4	Ring Type
Off	Off	Select ERPS
Off	On	Select iA-Ring
On	Off	Select Compatible-Ring (only slave mode is supported)

- The default ring ports are Port9 and Port10 when DIP 1 is set to "ON".
- DIP 1 must be set to "ON" position to enable DIP 2, 3, and 4. If DIP 1 is set to "OFF" position, then DIP 2, 3, and 4 will all be disabled.
- When the Compatible-Ring is selected, DIP 2 is unused (Only support Slave).
- U-Ring(for wireless) can be configured via web.

Ordering Information								
Model Name	Port Interface							
Extended Temperature (-40°C to 80°C)	Part Number	10/100BaseT(X)	100BaseFX		1000BaseFX		Gigabit Ethernet	
			Multi Mode, SC Connector	Single Mode, SC Connector	Multi Mode, SC Connector	Single Mode, SC Connector	10/100/1000 BaseT(X)	100/1000 Base SFP
EH7510-G	1P1EH7510G0001G	8	---	---	---	---	2	---
EH7510-G-2Fs	1P1EH7510G2FM1G	8	---	---	---	2	---	---
EH7510-G-2Fm	1P1EH7510G2FS1G	8	---	---	2	---	---	---
EH7510-2Fs	1P1EH75102FM01G	8	---	2	---	---	---	---
EH7510-2Fm	1P1EH75102FS01G	8	2	---	---	---	---	---

Optional Accessories			
US315-12(US-Y)	Y-Type (BT1-10V) power adaptor, 100-240VAC input, 1.25A @ 12VDC output, US plug	AD1120-24F	120W/5A DIN-Rail 24 VDC power supply with universal 100~240VAC/120~370VDC input
USE315-12(EU-Y)	Y-Type (BT1-10V) power adaptor, 100-240VAC input, 1.25A @ 12VDC output, EU plug	AD1120-48F	120W/2.5A DIN-Rail 48 VDC power supply with universal 100~240VAC/120~370VDC input
AD1024-24F	24W/1A DIN-Rail 24 VDC power supply with universal 100~240VAC/120~370VDC input	2ESDP-07P	7-pin 5.08mm Terminal Block with 180° Angle
AD1048-24FS	48W/2A DIN-Rail 24 VDC power supply with universal 100~240VAC/120~370VDC input	CDK-459-Silver	Conductive metal DIN-Rail Kit, Silver
AD1072-24F	72W/3A DIN-Rail 24 VDC power supply with universal 100~240VAC/120~370VDC input	WMK-459-Black	Metal Wall Mount Kit, Black
AD1100-24F	100W/4A DIN-Rail 24 VDC power supply with universal 100~240VAC/120~370VDC input	GDC-90	90mm copper woven grounding cable

Regulatory Approvals and Environmental Type Tests

EMI Immunity Type Tests

Test	Description		Test Levels	Severity Levels
FCC part 15	-	Subpart B	-	class A
EN55022	-	2006+A1:2007	-	class A

EMS Tests

Test	Description		Test Levels	Severity Levels
IEC61000-4-2	ESD	Contact discharge	6 KV, Criterion A	level 3
		Air discharge	8 KV, , Criterion A	level 3
IEC61000-4-3	RS	Enclosure ports	10 V/m (80 - 1000 MHz), Criterion A	level 3
IEC61000-4-4	EFT	Power Line	2 KV, Criterion B	level 3
IEC61000-4-5	Surge	Line to earth	1 KV, Criterion B	level 2
		Power Line	2 KV, Criterion B	level 3
IEC61000-4-6	CS	Line to earth	3 V (0.15 - 80 MHz), Criterion A	level 3
		Power Line	10 V (0.15 - 80 MHz), Criterion A	level 3

Safety Tests

Test	Description		Rating	Severity Levels
UL60950-1	-	2nd Edition, 2007-03-27	12~48V DC, 1.2A	-
CSA C22.2 No.60950-1-07	-	2nd Edition, 2007-03	12~48V DC, 1.2A	-
CB	-	IEC 60950-1:2005 second version	12~48V DC, 1.2A	-

Environmental Type Tests

Test	Description		Test Levels	Severity Levels
MIL-STD-810F	Shock	Impact acceleration & Pluse duration	40g @ 11ms	-
MIL-STD-810F	Freefall	8 corners, 12 edges, 6 faces	122 cm	-
MIL-STD-810F	Vibration	Packaged Random waveform	x: 2.4 Grms y: 1.28 Grms z: 3.85 Grms	-
		Operating Random waveform	x: 0.740 Grms y: 0.204 Grms z: 1.04 Grms	-

Rail Traffic Application

Test	Description		Application	Severity Levels
EN50155	EMC	EN50121-3-2	Railway Application	-
	Environment	EN60068-2-1 EN60068-2-2 EN61373	Railway Application	-
				-
EN50121-4	EMC	-	Railway Application	-

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CA_EH7510_E : v4-120730

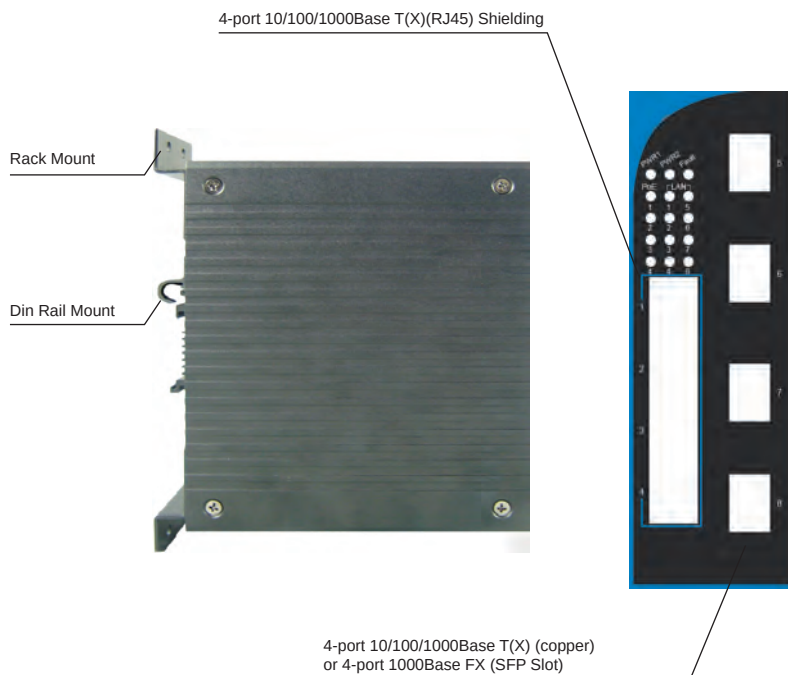


Industrial Unmanaged PoE Ethernet Switch

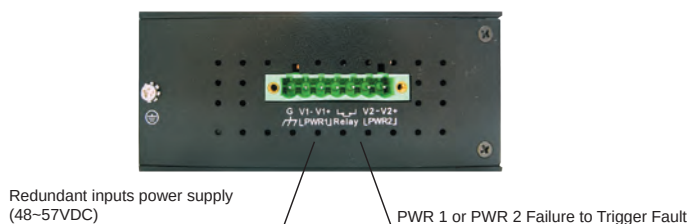
■ ■ EH6308 Series
RoHS compliant

EHG6308-4PoE series switches are Unmanaged PoE Gigabit Ethernet switches. The EHG6308-4PoE switches are 4*10/100/1000BaseT(X) port with Power-over-Ethernet (PoE) and 4*10/100/1000BaseT(X) or 4*1000baseSFP Fiber. Each PoE port provides 15.4W IEEE 802.3af and up to 30W IEEE 802.3at. Using external 48~57VDC power inputs through terminal block, data and power can be transmitted to a Powered Device (PD) over the same twisted-pair Ethernet cable through port 1 to port 4 on the unit. The EHG6308-4PoE also provides the relay warning function when power failures.

Outline

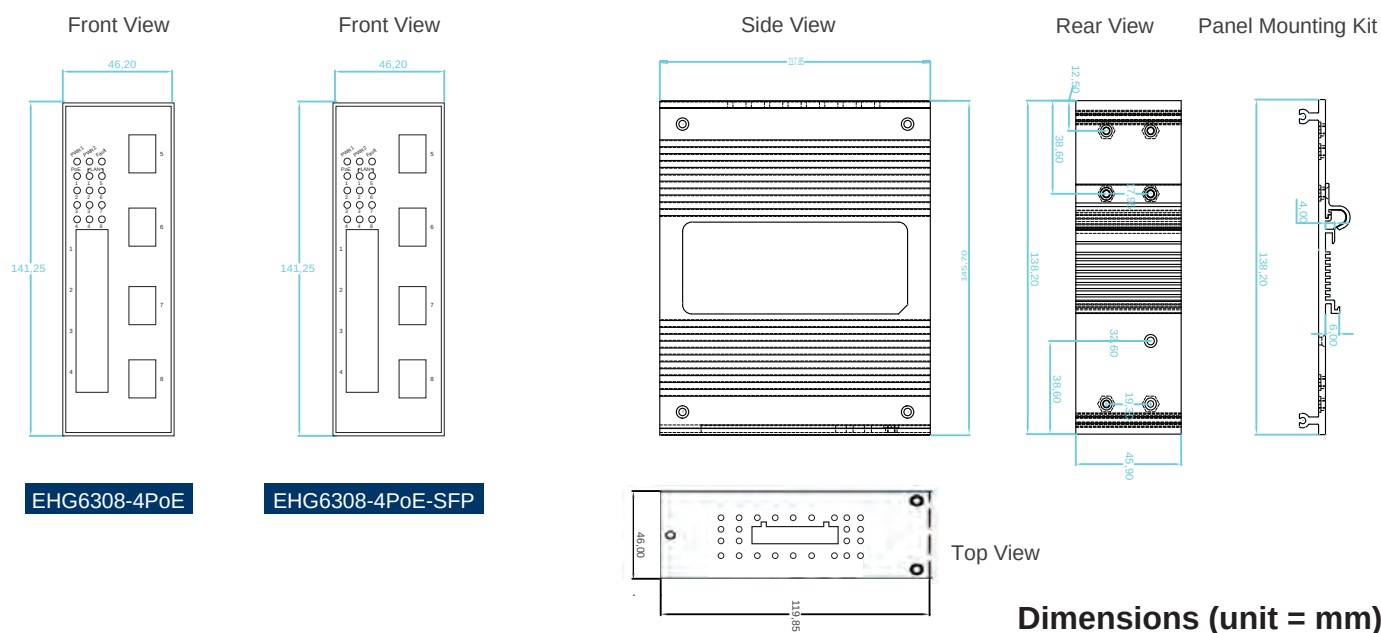


- 8-Port 10/100/1000Mbps Gigabit Ethernet ports
- Supports P.S.E. based on IEEE802.3af/IEEE 802.3at
- Supports PoE Power up to 30 Watts for each PoE port
- Supports auto-negotiation and auto-MDI/MDI-X
- Supports store and forward transmission
- Supports flow control
- IP-50 metal case
- DIN-Rail and wall mounting (Optional)



General Specifications	
Technology	
Standards	IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X), IEEE 802.3at/af for Power over Ethernet Technology IEEE 802.3x for Flow Control IEEE 802.3z for 1000BaseX
MAC Address Table	8K
Switching Latency	2.3us
Processing Type	Store and Forward
Flow Control	IEEE802.3x full duplex, back pressure flow control
Interface	
RJ45 Ports	10/100/1000baseT(X),Auto MDI/MDI-X(Support Mode A)
Fiber Ports	1000Base SFP slot
LED Indicators	LAN(Steady green-Link up/Blinking-data transmitting & receiving), PoE(Yellow), PWR1(Green), PWR2(Green), Fault(Red)
Power Requirements	
Dual Input	48 ~ 57 VDC (IEEE802.3af :48VDC input / IEEE802.3at :50~57VDC input)
Dual Inputs Current	Max. 3.1 A @ 55VDC (supports up to 4 ports at 30 W per PoE port)
Overload Current Protection	Present
Connection	Lockable 7-pin terminal blocks for power input
Reverse Polarity Protection	Present
Consumption	148.5W (with PoE full function)
Physical Characteristics	
Housing	IP50 protection (>2.5mm objects, IEC60529), metal case (AL6063T5)
Dimensions (W x H x D)	53.4mm x 145.7mm x 119.9mm (2.10 x 5.74 x 4.72 in)
Weight	Approx 1000g
Installation	DIN-Rail mount kit, wall mount kit (optional)
Environmental Limits	
Operating Temperature	0°C ~ 70°C (40°F ~ 158°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5% to 95% (non-condensing)
	Notes: For UL policy the maximum operating temperature is 60°C, and the human body can tolerate maximum temperature is 70°C.
Regulatory Approvals	
Safety	UL 60950-1
EMI	FCC Part 15 class A, CISPR(EN55022) class A
EMS	EN61000-4-2 (ESD), level 3
	EN61000-4-3 (RS), level 3
	EN61000-4-4 (EFT),level 3
	EN61000-4-5 (Surge), level 3
	EN61000-4-6 (CS), level 2
	EN61000-4-8 (PFMF)
	EN61000-4-11 (Dips)
Shock	MIL-STD-810F Method 516.5
Freefall	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2
MTBF	
Warranty	5 years (please visit www.atop.com.tw for more details)

Mechanical



Ordering Information

Model Name	Port Interface		
	10/100/1000BaseT(X)	10/100/1000BaseT(X),PoE	1000Base SFP
EHG6308-4PoE	4	4	-
EHG6308-4PoE-4SFP	-	4	4

Optional Accessories

SDR-240-48	240W/5A DIN-Rail 48 VDC(Adj. Range 48~55V) Power Supply with universal 88~264VAC/124~370VDC input
2ESDP-07P	7-pin 5.08mm Terminal Block with 180° Angle
CDK-459-Silver	Conductive metal DIN-Rail Kit, Silver
WMK-459-Black	Metal Wall Mount Kit, Black
GDC-90	90mm copper woven grounding cable
Optical Transceiver	SFP Gigabit Ethernet/1X Fiber channel (RoHS)

1000Base SFP Transceiver

P/N	LM28-C3S-TI -N	LM38-C3S-TI-N	LS38-C3S-TI -N	LS38-C3L-TI -N
Bit rate(Mbps)	1250	1250	1250	1250
Wavelength(nm)	850(VCSEL)	1310(FP LD)	1310(FP LD)	1310(DFB LD)
Media	MMF	MMF	SMF	SMF
Distance	550m	2km	10km	30km
Application	1000base-SX	SX+	1000base-LX	LHX
TX Power(dBm)	-4~-9.5	-1~-9	-3~-9.5	+1~-4
RX Sens.(dBm)	<-18	<-19	<-20	<-24
Temp.(°C)	-20~85	-40~85	-40~85	-40~85
Voltage(V)	3.3	3.3	3.3	3.3

Regulatory Approvals and Environmental Type Tests

EMI Immunity Type Tests

Test	Description		Test Levels	Severity Levels
FCC part 15	-	Subpart B	-	class A
EN55022	-	2006+A1:2007	-	class A

EMS Tests

Test	Description		Test Levels	Severity Levels
IEC61000-4-2	ESD	Contact discharge	6 KV, Criterion B	level 3
		Air discharge	8 KV, , Criterion B	level 3
IEC61000-4-3	RS	Enclosure ports	10 V/m (80 - 1000 MHz), Criterion A	level 3
IEC61000-4-4	EFT	Power Line	2 KV, Criterion B	level 3
IEC61000-4-5	Surge	Signal Port	2 KV, Criterion B	level 3
		Power Line	2 KV, Criterion B	level 3
IEC61000-4-6	CS	Signal Port	3 V (0.15 - 80 MHz), Criterion A	level 2
		Power Line	10 V (0.15 - 80 MHz), Criterion A	level 2

Safety Tests

Test	Description		Rating	Severity Levels
UL60950-1	-	2nd Edition, 2007-03-27	48-57 V DC, 3.1A max	-
CSA C22.2 No.60950-1-07	-	2nd Edition, 2007-03	48-57 V DC, 3.1A max	-
CB	-	IEC 60950-1:2005 second version	48-57 V DC, 3.1A max	-

Environmental Type Tests

Test	Description		Test Levels	Severity Levels
MIL-STD-810F	Shock	Impact acceleration & Pluse duration	40g @ 11ms	-
MIL-STD-810F	Freefall	8 corners, 12 edges, 6 faces	122 cm	-
MIL-STD-810F	Vibration	Packaged Random waveform	x: 2.4 Grms y: 1.28 Grms z: 3.85 Grms	-
		Operating Random waveform	x: 0.740 Grms y: 0.204 Grms z: 1.04 Grms	-

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CA_EHG6308_E : v1-120417

Modbus Gateways



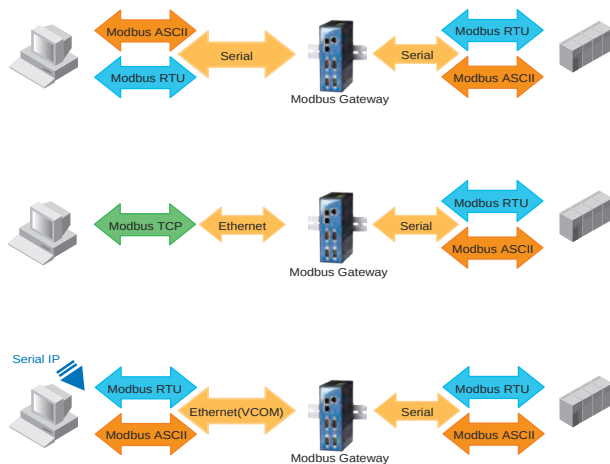
■ ■ **8/16-port Modbus Gateway**
MB5408A / MB5408A2 / MB5416A / MB5416A2



■ ■ **4-port Modbus Gateway**
MB5404D-X / MB5404D-Sis-X

Modbus is an industry adopted communication protocol based on RTU, ASCII, and TCP protocols for various applications; these three protocols are commonly used by various equipments in the industry, such as DCS, PLC, HMI, power meters, various sensor and measuring instruments.

The Modbus Gateway is capable of implementing the Modbus protocol conversion between different hardware interfaces, thereby streamlining the process of management and application.



Diverse Hardware Infrastructure

Modbus Gateway supports the four most commonly used communication standards, RS-232/485/422, and Ethernet. The ease-of-use configuration utility provided with Modbus Gateway can quickly select the hardware interface, and easily switch to the existing communication infrastructure.

Switching between Modbus Protocols

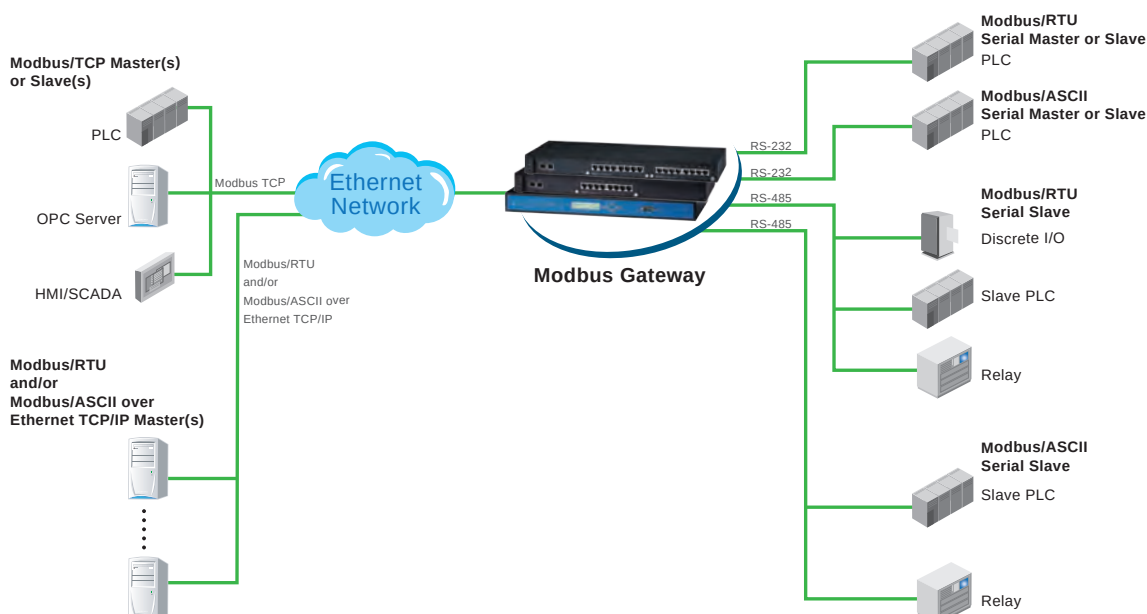
Modbus Gateway supports the standard Modbus protocol and is capable of converting any Modbus protocols between Modbus TCP, Modbus RTU, and Modbus ASCII for all supported hardware interfaces.

Modbus ID Routing

Modbus Gateway is not only capable of hardware and protocol conversions, and when a Modbus ID conflict occurs, the Modbus Gateway also supports ID routing to the existing Modbus hardware.

Simple Integration for Complex Configurations

Modbus Gateway supports various types of hardware communication interfaces, Modbus protocol conversion, and Modbus ID routing. Therefore the Modbus Gateway can integrate your existing and complex Modbus hardware configuration into a simple network that can be easily managed.



Note:
A total of up to 254 slave devices can be supported.



Specifications

Model Name	MB5404D-X / MB5404D-Sis-X	MB5408A / MB5408A2	MB5416A / MB5416A2
			
Ethernet (RJ-45 Connector)	Dual 10/100M Fast-Ethernet Auto-detection		
Network Protocol	ICMP, Modbus TCP/ASCII/RTU, HTTP, ARP		
Watch Dog Timer	60-second software auto-reset(Customization) ; 1 second real-time clock built-in		
Serial Port	4-Port 9-Pin D-Sub connectors(MB5404D-X) 5-Pin lockable Terminal Blocks(MB5404D-Sis-X)	8-Port RJ-45 connectors	16-Port RJ-45 connectors
Serial Interface	RS-232/422/485 software selectable	RS-232 or RS-422/485	
Date Rate	1200 bps ~ 921 Kbps, Support user define baud rate	50 ~ 921,600bps	
Data Bits	5, 6, 7, 8		
Parity Check	None, Even, Odd, Space, Mark		
Stop Bits	1, 2		
Flow Control	None, XON/XOFF, RTS/CTS		
Power Input	DC 9 ~ 48V, 7-pin TB	AC 100 ~ 240V, AC Model / 24 ~ 48 VDC (DC Model)	
Operation Temperature	-40℃ ~ 80℃	0℃ ~ 60℃	
Storage Temperature	-40℃ ~ 85℃		
Humidity	5%~95% non-condensing		
Mounting	DIN-Rail	Rack mount (1U)	
Dimension (W x H x D) mm	53.4 x 145.7 x 119.9	436 x 43.5 x 200	
Configuration	Web Browser, Windows-based Utility		
Weight	900g	3,000g	3,200g
MTBF	188251 hours / 21.5 years	TBD	TBD

Optional Accessories

Category	Model No.	Specification	MB5404D-X MB5404D-Sis-X	MB5408A MB5408A2	MB5416A MB5416A2
Power adapter	US315-12(US-Y) P/N:50500151120009G	Y-Type (5.08 mm) power adaptor, 100-240VAC input, 1.25A @ 12VDC output, US plug	✓		
	USE315-12(EU-Y) P/N:50500151120019G	Y-Type (5.08 mm) power adaptor, 100-240VAC input, 1.25A @ 12VDC output, EU plug	✓		
	UV315-12(US-LDC) P/N:50500151120108G	Lockable DC jack (5.5/1.35/9.5 mm) power adaptor, 100-240VAC input, 1.25 A @ 12 VDC output, US plug	✓		
	UVE315-12(EU-LDC) P/N:50500151120118G	Lockable DC jack (5.5/1.35/9.5 mm) power adaptor, 100-240VAC input, 1.25 A @ 12 VDC output, EU plug	✓		
Terminal Block	2ESDPM-07P P/N:50707871G	7-pin 5.08mm Screw Terminal Block with 180° Angle	✓		
	2ESDVM-07P P/N:50707741G	7-pin 5.08mm Screw Terminal Block with 90° Angle	✓		
Mounting Kit	WMK-B-459 P/N:202EH731000003G	Black metal Wall Mount Kit	✓		
	CDK-S-459 P/N:201EH731000005G	Conductive silver metal DIN-Rail Kit	✓		
	RMK-B-718 P/N:202SE641600005G	Rack Mount Kit		✓	✓
Console Cable	CBL-RJ45(8P)-DB9(M)-90 P/N:50891781G	8-pin RJ45-DB9 Male Cable, 90cm		✓	✓
	CBL-RJ45(8P)-DB9(F)-90-C P/N:50891971G	8-pin RJ45-DB9 Female Cross Over Cable, 90cm	✓ (MB5404D-X)		
Adaptor	ADP-DB9(F)-TB5 P/N:59906231G	DB9(Female) to TB5(3.81mm) Adaptor	✓		
Grounding Cable	GDC-120 P/N:59906861G	120mm copper woven grounding cable	✓		
DB9 to TB5 Converter	P/N:59906231G	Female DB9 to Female 3.81mm TB5 Converter	✓ (MB5404D-Sis-X)		

Ordering Information		
Model Name	P/N	Description
MB5416A Isolation	1P1MB5416A0001G	16-Port Industrial Modbus Gateway, RS-232, AC Inlet, US Plug, Rack Mount
MB5416A2	1P1MB5416A2001G	
MB5416A-DC Isolation	1P1MB5416A0002G	16-Port Industrial Modbus Gateway, RS-232, DC TB3, Rack Mount
MB5416A2-DC	1P1MB5416A2002G	
MB5416A-S5 Isolation	1P1MB5416A0003G	16-Port Industrial Modbus Gateway, RS-422/485, AC Inlet, US Plug, Rack Mount
MB5416A2-S5	1P1MB5416A2003G	
MB5416A-S5-DC Isolation	1P1MB5416A0004G	16-Port Industrial Modbus Gateway, RS-422/485, DC TB3, Rack Mount
MB5416A2-S5-DC	1P1MB5416A2004G	
MB5416A-EU Isolation	1P1MB5416A0011G	16-Port Industrial Modbus Gateway, RS-232, AC Inlet, EU Plug, Rack Mount
MB5416A2-EU	1P1MB5416A2011G	
MB5416A-S5-EU Isolation	1P1MB5416A0013G	16-Port Industrial Modbus Gateway, RS-422/485, AC Inlet, EU Plug, Rack Mount
MB5416A2-S5-EU	1P1MB5416A2013G	
MB5408A Isolation	1P1MB5408A0001G	8-Port Industrial Modbus Gateway, RS-232, AC Inlet, US Plug, Rack Mount
MB5408A2	1P1MB5408A2001G	
MB5408A-DC Isolation	1P1MB5408A0002G	8-Port Industrial Modbus Gateway, RS-232, DC TB3, Rack Mount
MB5408A2-DC	1P1MB5408A2002G	
MB5408A-S5 Isolation	1P1MB5408A0003G	8-Port Industrial Modbus Gateway, RS-422/485, AC Inlet, US Plug, Rack Mount
MB5408A2-S5	1P1MB5408A2003G	
MB5408A-S5-DC Isolation	1P1MB5408A0004G	8-Port Industrial Modbus Gateway, RS-422/485, DC TB3, Rack Mount
MB5408A2-S5-DC	1P1MB5408A2004G	
MB5408A-EU Isolation	1P1MB5408A0011G	8-Port Industrial Modbus Gateway, RS-232, AC Inlet, EU Plug, Rack Mount
MB5408A2-EU	1P1MB5408A2011G	
MB5408A-S5-EU Isolation	1P1MB5408A0013G	8-Port Industrial Modbus Gateway, RS-422/485, AC Inlet, EU Plug, Rack Mount
MB5408A2-S5-EU	1P1MB5408A2013G	
MB5404D-Sis-X Isolation	1P1MB5404DX001G	4-Port Serial-to-Ethernet Modbus Gateway, TB5
MB5404D-X	1P1MB5404DX002G	4-Port Serial-to-Ethernet Modbus Gateway, DB9(M)

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DA_Modbus_E : v5-130423



Modbus 1-port Gateway series

■ ■ MB5001C / MB5001C-Sis

RoHS compliant

Technology

- Rugged metal housing with DIN-Rail / Wall-Mount
- Ease-of-use in Modbus protocol conversion include RTU, ASCII and TCP
- 15 KV ESD protection for serial signals(MB5001C-Sis only)
- 10/100Mbps Fast Ethernet Full Duplex Auto Negotiation
- Monitor, Manage and Control Industrial Field Devices Remotely
- Configurable via Built-In Web Server Serial Console, or Telnet
- Upgradeable firmware from remote-PC via Ethernet
- Modbus compact design

Reliability

- Removable 3-pin Terminal Block(DC 9-30V) + DC Jack (DC 5V), two types of power input for MB5001C
- Removable 3-pin Terminal Block power input(DC 9-30V) for MB5001C-Sis
- Operating temperature ranges from 0°C~60°C
- Rugged high-strength housing
- DIN-Rail or wall mounting ability

Modbus is an industry adopted communication protocol that is based on RTU, ASCII, and TCP protocols for various of applications; these three protocols are commonly used by a lot of equipments in the industry, such as DCS, PLC, HMI, power meters, various sensors and measuring instruments. MB5001C series supports the standard Modbus protocol and is capable of converting the Modbus protocols between Modbus RTU/ASCII (Master) to Modbus TCP (Slave). It's a simple and cost effective Modbus Gateway.

Diverse Hardware Infrastructure

MB5001C series which supports the three most commonly used serial communication interfaces, RS-232, RS-422 and RS-485. It also provides a web-based configuration UI, so the users can select the serial interface easily.

MB5001C Series Setup



Modbus 1-port Gateway series



Specifications

Ethernet

Compliance	IEEE802.3
Port	1-port
Transmission Rate	10/100Mbps Auto-detection
Connector	RJ-45
Auto MDI/MDI-X	Yes

Link Mode

ModBus TCP	Yes
ModBus ASC	Yes
ModBus RTU	Yes

Serial

Interface	RS-232/RS-422/RS-485 Software selectable(MB5001C) RS-422/RS-485 Isolation Software selectable(MB5001C-Sis)
Ports	1-port
Baud Rate	1200bps~230Kbps
Parity	None, Odd, Even, Mark, Space
Data Bits	7, 8
Stop Bits	1, 2
Flow Control	None, Software: Xon/Xoff, Hardware: RTS/CTS
Connector	9-pin D-Sub(MB5001C) 5-pin 3.81mm Terminal block(MB5001C-Sis)
Protection	15KV ESD

Power

Input	DC 5V(DC-Jack) and 9~30V(TB3) (MB5001C) DC 9~30V(TB3) (MB5001C-Sis)
Consumption	Max. 2.7 W (MB5001C) / Max. 3.6 W (MB5001C-Sis)

Environment

Operating	0°C ~ 60°C (32° ~ 140°F)
Storage	-20° ~ 70°C (-4°~ 158°F), 5 ~ 95%RH

Dimension

W x H x D	65mm x 28mm x 78mm (MB5001C) 85mm x 28mm x 74mm (MB5001C)
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Software

Configuration	Web Page / Telnet / Serial console / Windows utility
Virtual Com/ DeviceView / Serial Manager	Atop Product Management tool(DeviceView)
Support Protocol	ModBus TCP/ASC/RTU,SNMP,HTTP,

Approvals

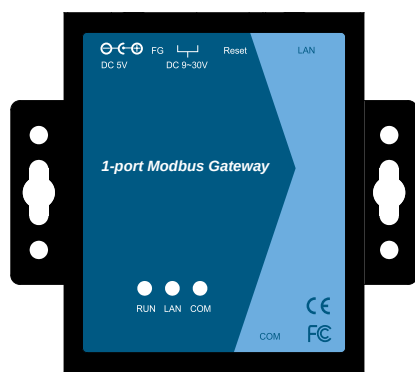
FCC	FCC Part 15, Subpart B, Class A CISPR 22:1997, Class A ICES-003:2004, Class A ANSI C63.4-2003
CE	EN 55022:1994+A1 :1995+A2 :1997, Class A EN 61000-3-2:2000, Class A EN 61000-3-3:1995+A1 :2001 EN 55024:1998+A1:2001+A2:2003 IEC 61000-4-2:2001 IEC 61000-4-3:2002+A1:2002 IEC 61000-4-4:2004 IEC 61000-4-5:2001 IEC 61000-4-6:2003+A1:2004 IEC 61000-4-8:2001 IEC 61000-4-11:2004
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
RoHS	Lead(Pb) Free
MTBF	454442 hrs(51.88 years) in 25°C (MB5001C) TBD for MB5001C-Sis
Warranty	5 years

Optional Accessories

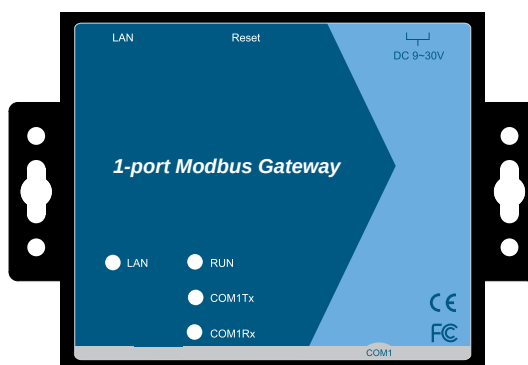
Power Adapter	US315-12(US/EU): AC100~240V/DC12V 5.08mm pitch Terminal block AD5V1A(US/EU) : DC5V1A DC Jack
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Ordering Information

1P1MB5001C0001G	1-LAN port software selectable
MB5001C	RS-232/422/485(DB9) ModBus Gateway
1P1MB5001C0002G	1-LAN port software selectable
MB5001C-Sis	RS-422/485(TB5-ISO) ModBus Gateway



65mm x 28mm x 78mm (MB5001C)



85mm x 28mm x 74mm (MB5001C-Sis)

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Industrial 10/100BaseT(X) to 100BaseFX Media Converters

■ ■ EF23 Series

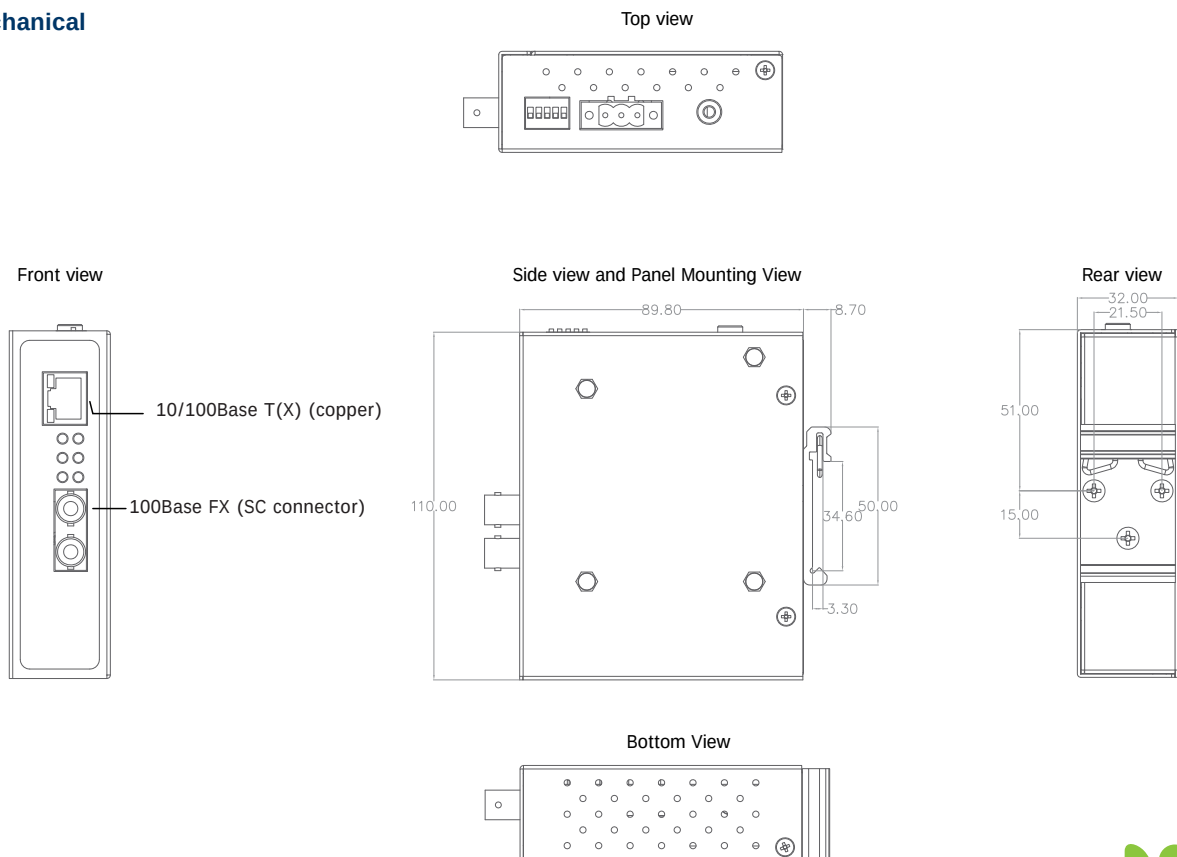
RoHS compliant

- Supports Auto MDI/MDI-X and Auto Negotiation
- Supports Multi-mode 2KM, Single-mode 30KM
- Supports Link Fault Pass-Through (LFP)
- Operating temperature -10~70°C

The EF23 Series Industrial Media Converters provide industrial media conversion between 10/100BaseT(X) and 100BaseFX(SC connector); connection options include multi-mode SC connector (2km), and single-mode SC connector (30km). The EF23 Series Media Converter is designed for harsh industrial environments, and complies with FCC/CE standards.

The EF23 Series Media Converter also provides auto MDI/MDI-X, Auto Negotiation, and Link Fault Pass-Through (LFP) function and one 5 pin DIP switch to configure the functions, such as the TX_Duplex mode, FX_Duplex mode, Speed mode, LFP, Auto Negotiation.

Mechanical



Specifications		
Technology		
Standards	IEEE 802.3 for 10BaseT	
	IEEE 802.3u for 100BaseT(X), 100BaseFX	
Interface		
RJ45 Ports	10/100BaseT(X)	
Fiber Ports	100BaseFX (SC connector)	
LED Indicators	PWR,SPD,TX_LINK/ACT,TX_FDX/COL,FX_LINK/ACT,FX_FDX/COL	
DIP Switch	TX Duplex mode, FX Duplex mode, Speed mode, LFP, Auto Negotiation	
Power Requirements		
Input Voltage	6~48 VDC	
Input Current	0.5A max, 6 VDC	
Connection	Removable 3-pin Screw Terminal Block	
Reverse Polarity Protection	Present	
Physical Characteristics		
Housing	Metal, IP50 protection	
Dimension	32 x 90 x 110 mm (1.26 x 3.54 x 4.33 in)	
Weight	510g	
Installation	DIN-Rail mounting, wall mounting(optional)	
Environmental Limits		
Operating Temperature	-10°C ~ 70°C (14°F ~ 158°F)	
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	
Ambient Relative Humidity	5 to 95%, 55°C (non-condensing)	
Regulatory Approvals		
EMI	FCC Part15, CISPR (EN55022) Class A	
EMS	EN61000-4-2 (ESD) Level 3, Criteria B / EN61000-4-3 (RS) Level 2, Criteria A	
	EN61000-4-4 (EFT) Level 3, Criteria A / EN61000-4-5 (Surge) Level 3, Criteria B/A	
	EN61000-4-6 (CS) Level 2, Criteria A	
Shock	MIL-STD-810F Method 516.5	
Drop	MIL-STD-810F Method 516.5	
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2	
RoHS	Yes	
MTBF	823877 hrs (94.04Years) (Data base: MIL-HDBK-217F, GB 25°C)	
Warranty Period	5 Year	
Optical Fiber Specifications		
P/N	100Base	
	Multi-mode	Single-mode
Distance	2Km	30Km
Bit rate(Mbps)	155	155
Wavelength(nm)	1310(LED)	1310(FP LD)
Application	Fast Ethernet/155M ATM	S1.1/IR1/Fast Ethernet
TX Power(dBm)	-14~-20	-8~-15
RX Sens.(dBm)	<-31	<-34
Remark	EF23-1-1Fm-SC-2	EF23-1-1Fs-SC-30
Ordering Information		
EF23-1-1Fm-SC-2	100BaseT(X) to 100BaseFX Media Converter, Multi-mode, SC connector	
EF23-1-1Fs-SC-30	100BaseT(X) to 100BaseFX Media Converter, Single mode, SC connector	
Optional Accessories		
US315-12(US-TB3)	3-pin Terminal block (5.08 mm) power adaptor,100-240VAC input, 1.25A @ 12 VDC output, US plug	
USE315-12(EU-TB3)	3-pin Terminal block (5.08 mm) power adaptor,100-240VAC input, 1.25A @ 12 VDC output, EU plug	
AD1024-24F	24W/1A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1048-24FS	48W/2A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1072-24F	72W/3A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1100-24F	100W/4A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1120-24F	120W/5A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1120-48F	120W/2.5A DIN-Rail 48 VDC power supply with universal 100~240 VAC/120~370 VDC input	
2ESDP-03P	3-pin 5.08mm Terminal Block with 180° Angle	

Regulatory Approvals and Environmental Type Tests				
EMI Immunity Type Tests				
Test	Description		Test Levels	Severity Levels
FCC part 15	—	Subpart B	—	Class A
EN55022	—	2006+A1:2007	—	Class A
EMS Tests				
Test	Description		Test Levels	Severity Levels
IEC61000-4-2	ESD	Contact discharge	6KV,Criterion A	Level 3
		Air discharge	8KV,Criterion B	Level 3
IEC61000-4-3	RS	Enclosure ports	3V/m(unmodulated, r.m.s) 80% AM 1KHz, Criterion A	Level 2
IEC61000-4-4	EFT	Power Port	±2KV,Cirterion A	Level 3
		Single port	±1KV,Cirterion A	Level 3
IEC61000-4-5	Surge	Power Port	±2KV,Cirterion A	Level 3
		Single Port	±2KV,Cirterion B	Level 3
IEC61000-4-6	CS	Power Port	3V/m(unmodulated, r.m.s) 80% AM 1KHz, Criterion A	Level 2
		Single Port		Level 2
Environmental Type Test				
Test	Description		Test Levels	Severity Levels
MIL-STD-810F	Shock	Impact acceleration& pulse duration	40g@11ms	—
MIL-STD-810F	Freefall	8 corners, 12 edges, 6 faces	122cm	—
MIL-STD-810F	Vibration	Packaged Random waveform	x:2.4 Grms y:1.28 Grms z:3.851.04Grms	—
		Operating Random waveform	x:0.740 Grms y:0.204 Grms z:1.04Grms	—

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Industrial 1000BaseT(X) to 1000BaseFX Media Converters

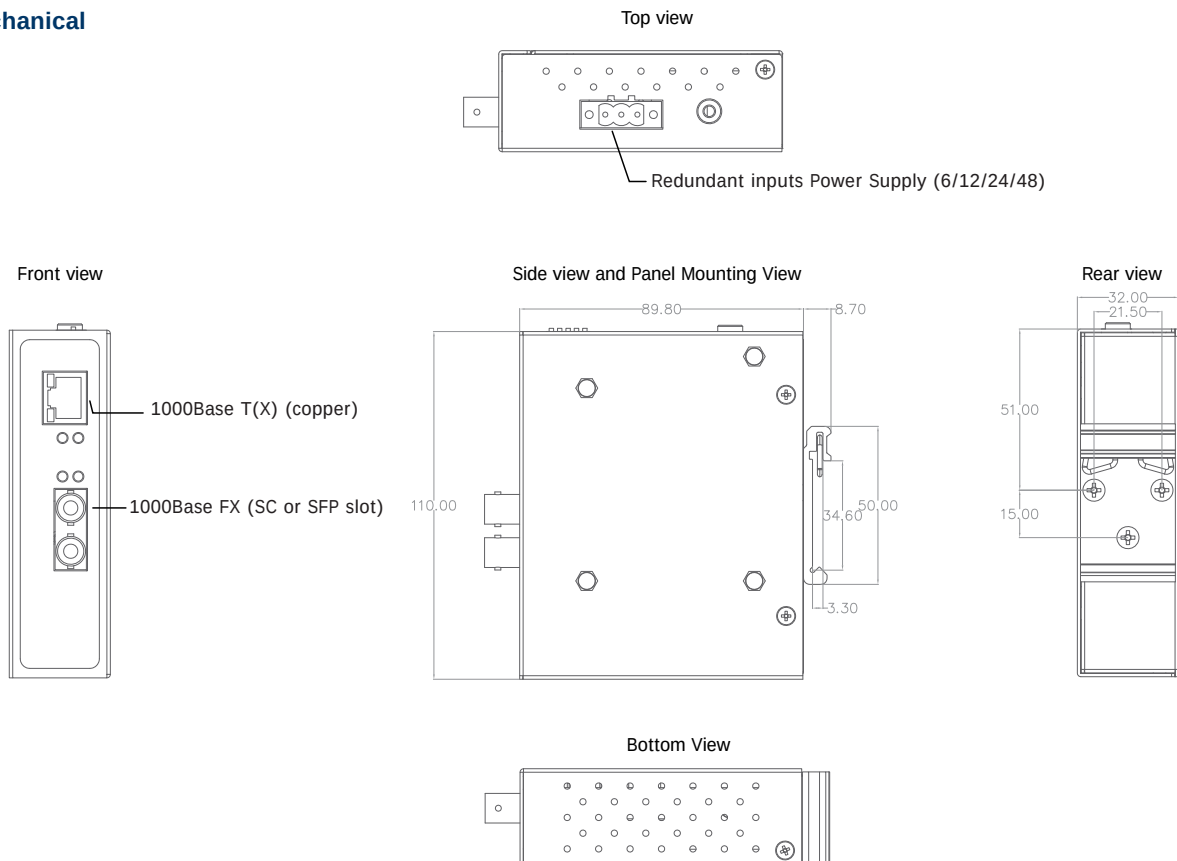
■ ■ EF23G Series

RoHS compliant

- Supports Auto MDI/MDI-X
- Supports Multi-mode 550m, Single-mode 10KM
- Operating temperature -10~70°C

The EF23G Series Industrial Media Converter provide industrial media conversion between 1000BaseT(X) and 1000BaseFX (SC connector or SFP Slot); connection options include multi-mode SC connector (500m), and single- mode SC connector (10km). The EF23G Series media converter is designed for harsh industrial environments, and complies with FCC/CE standards; it also has an operating temperature range from -10 to 70°C.

Mechanical



Industrial 1000BaseT(X) to 1000BaseFX Media Converters



Specifications		
Technology		
Standards	IEEE 802.3ab for 1000BaseT(X)	
	IEEE 802.3z for 1000BaseSX/LX/LHX/ZX	
Interface		
RJ45 Ports	1000BaseT(X)	
Fiber Ports	1000BaseFX (SC connector or SFP slot)	
LED Indicators	PWR,TX_LINK,TX_ACT,FX_LINK/ACT	
Power Requirements		
Input Voltage	6~48 VDC	
Input Current	0.5A max, 6 VDC	
Connection	Removable 3-pin Screw Terminal Block	
Reverse Polarity Protection	Present	
Physical Characteristics		
Housing	Metal, IP50 protection	
Dimension	32 x 90 x 110 mm (1.26 x 3.54 x 4.33 in)	
Weight	510g	
Installation	DIN-Rail mounting, wall mounting(optional)	
Environmental Limits		
Operating Temperature	-10°C ~ 70°C (14°F ~ 158°F)	
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	
Ambient Relative Humidity	5 to 95%, 55°C (non-condensing)	
Regulatory Approvals		
EMI	FCC Part15, CISPR (EN55022) Class A	
EMS	EN61000-4-2 (ESD) Level 3, Criteria B	
	EN61000-4-3 (RS) Level 2, Criteria A	
	EN61000-4-4 (EFT) Level 3, Criteria A	
	EN61000-4-5 (Surge) Level 3, Criteria B/A	
	EN61000-4-6 (CS) Level 2, Criteria A	
Shock	MIL-STD-810F Method 516.5	
Drop	MIL-STD-810F Method 516.5	
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2	
RoHS	Yes	
MTBF	554844 hrs (63.33Years) (Data base: MIL-HDBK-217F, GB 25°C)	
Warranty Period	5 Years	
Optical Fiber Specifications		
P/N	1000Base	
	Multi-mode	Single-mode
Distance	300/500m	10Km
Bit rate(Mbps)	1250	1250
Wavelength(nm)	1310(VCSEL))	1310(FP LD)
Application	1000Base-SX	1000Base-LX
TX Power(dBm)	-4~9.5	-3~9.5
RX Sens.(dBm)	<-18	<-20
Remark	EF23-1G-1Fm-SC-500M	EF23-1G-1Fs-SC-10
Ordering Information		
EF23-1G-1Fm-SC-500M	1000BaseT(X) to 1000BaseFX Media Converter, Multi-mode, SC connector	
EF23-1G-1Fs-SC-10	1000BaseT(X) to 1000BaseFX Media Converter, Single mode, SC connector	
EF23-1G-1Fs-SFP	1000BaseT(X) to 1000BaseSX/LX/LHX/ZX Media Converter, SFP Slot	
Optional Accessories		
US315-12(US-TB3)	3-pin Terminal block (5.08 mm) power adaptor, 100-240 VAC input, 1.25A @ 12 VDC output, US plug	
USE315-12(EU-TB3)	3-pin Terminal block (5.08 mm) power adaptor, 100-240 VAC input, 1.25A @ 12 VDC output, EU plug	
AD1024-24F	24W/1A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1048-24FS	48W/2A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1072-24F	72W/3A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1100-24F	100W/4A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1120-24F	120W/5A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input	
AD1120-48F	120W/2.5A DIN-Rail 48 VDC power supply with universal 100~240 VAC/120~370 VDC input	
2ESDP-03P	3-pin 5.08mm Terminal Block with 180° Angle	

SFP Transceiver

LM28-C3S-TI-N	1250Mbps, 850nmVCSEL, Multi-mode, 550m, 3.3V, -20~85C
LM38-C3S-TI-N	1250Mbps, 1310nmFP, Multi-mode, 2km, 3.3V, -40~85C
LS38-C3S-TI-N	1250Mbps, 1310nmFP, Single-mode, 10km, 3.3V, -40~85C
LS38-C3L-TI-N	1250Mbps, 1310nmDFB, Single-mode, 30km, 3.3V, -40~85C

Regulatory Approvals and Environmental Type Tests**EMI Immunity Type Tests**

Test		Description	Test Levels	Severity Levels
FCC part 15	—	Subpart B	—	Class A
EN55022	—	2006+A1:2007	—	Class A

EMS Tests

Test		Description	Test Levels	Severity Levels
IEC61000-4-2	ESD	Contact discharge	6KV,Criterion A	Level 3
		Air discharge	8KV,Criterion B	Level 3
IEC61000-4-3	RS	Enclosure ports	3V/m(un-modulated, r.m.s) 80% AM 1KHz, Criterion A	Level 2
IEC61000-4-4	EFT	Power Port	±2KV,Criterion A	Level 3
		Single port	±1KV,Criterion A	Level 3
IEC61000-4-5	Surge	Power Port	±2KV,Criterion A	Level 3
		Single Port	±2KV,Criterion B	Level 3
IEC61000-4-6	CS	Power Port	3V/m(un-modulated, r.m.s) 80% AM 1KHz, Criterion A	Level 2
		Single Port		Level 2

Environmental Type Test

Test		Description	Test Levels	Severity Levels
MIL-STD-810F	Shock	Impact acceleration& pulse duration	40g@11ms	—
MIL-STD-810F	Freefall	8 corners, 12 edges, 6 faces	122cm	—
MIL-STD-810F	Vibration	Packaged Random waveform	x:2.4 Grms y:1.28 Grms z:3.851.04Grms	—
		Operating Random waveform	x:0.740 Grms y:0.204 Grms z:1.04Grms	—

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Industrial Serial to Fiber Media Converters

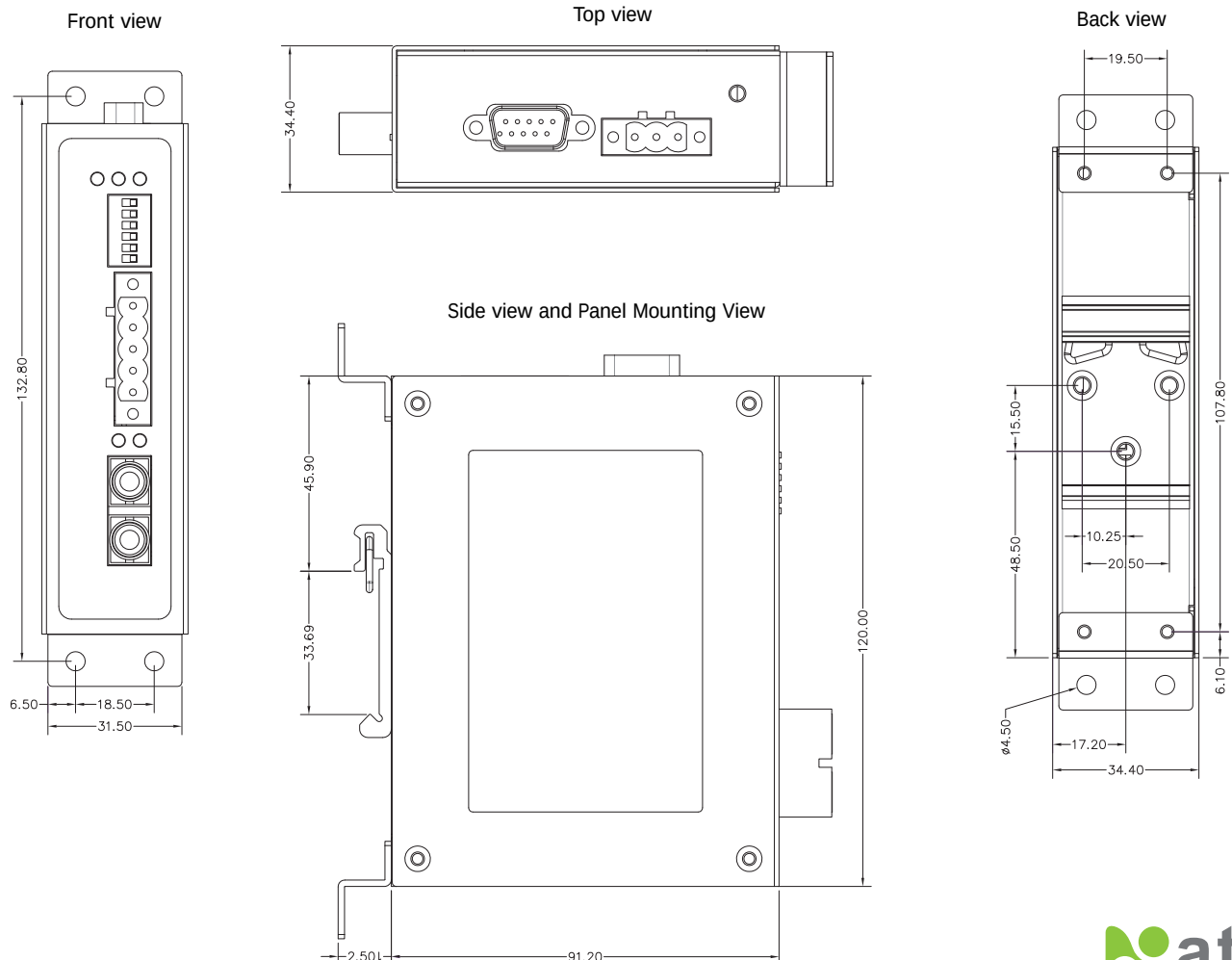
■ ■ SF63 Series

RoHS compliant

- Supports Multi-mode 2km, Single-mode 15km / 30km
- PTP and Ring mode for serial fiber ring communication
- Supports RS-485 120 ohm line terminator
- Supports RS-485 Data signals pull high/low resistor
- Supports input voltage 9 ~ 48VDC
- -40 ~ 70°C Wide range of operating temperature for hazardous environment applications

The SF63 Industrial Serial to Fiber Media Converter Series provide industrial conversion between 100BaseFX(SC or ST connector), RS-232, and RS-422/485; connection options include multi-mode SC/ST connector (2km), and single- mode SC/ST connector (15km/30km). The SF63 Serial to Fiber Media Converter is designed for harsh industrial environments, and complies with FCC/CE standards.

Mechanical



Specifications	
Optical Fiber	
Fiber Connector	SC/ST
Cable Requirements	Multi-mode: 50/125um, 62.5/125um / Single-mode: 9/125um
Transmission Distance	Multi-mode: 2km / Single-mode: SC 15km; ST 30km
Wavelength	SF63-TB-DB-1Fm-SC (multi-mode): 1310nm SF63-TB-DB-1Fs-SC (single-mode): 1310nm SF63-TB-DB-1Fm-ST (multi-mode): 1310nm SF63-TB-DB-1Fs-ST (single-mode): 1310nm
Tx Power	SF63-TB-DB-1Fm-SC (multi-mode): -14~-23.5 dBm @ 50/125μm / -14~-20 dBm @ 62.5/125μm SF63-TB-DB-1Fs-SC (single-mode): -20 ~ -0 dBm SF63-TB-DB-1Fm-ST (multi-mode): -14~-23.5 dBm @ 50/125μm / -14~-20 dBm @ 62.5/125μm SF63-TB-DB-1Fs-ST (single-mode): -8~-15 dBm
Rx Sensitivity	SF63-TB-DB-1Fm-SC (multi-mode): <-31 dBm SF63-TB-DB-1Fs-SC (single-mode): <-32 dBm SF63-TB-DB-1Fm-ST (multi-mode): <-32 dBm SF63-TB-DB-1Fs-ST (single-mode): <-34dBm
RS-232/422/485	
RS-232 Signals	TxD, RxD, GND (DCD, DTR, DSR internal short ; CTS, RTS internal short)
RS-422 Signals	TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w Signals	TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w Signals	Data+, Data-,GND
Baud rate	300bps ~ 921kbps
Power Requirements	
Input Voltage	9~48 VDC
Input Current	0.28A max, 9 VDC
Connection	Removable 3-pin Screw Terminal Block
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP50 protection
Dimension	34.4 x 91.2 x 120mm (1.35 x 3.59 x 4.72 in)
Weight	700g
Installation	DIN-Rail mounting, wall mounting (optional)
Environmental limits	
Operating Temperature	-40°C ~ 70°C (-40°F ~ 158°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 to 95%, 55°C (non-condensing)
Regulatory Approvals	
EMI	FCC Part15, CISPR (EN55022) Class A
EMS	EN61000-4-2 (ESD) Level 4, Criteria B
	EN61000-4-3 (RS) Level 3, Criteria A
	EN61000-4-4 (EFT) Level 3, Criteria A
	EN61000-4-5 (Surge) Level 3, Criteria B
	EN61000-4-6 (CS) Level 3, Criteria A
Safty	LVD (EN60950-1)
Shock	MIL-STD-810F Method 516.5
Drop	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2
RoHS compliant	
IP50 warranty	
MTBF	TBD
Warranty Period	5 Years

Ordering Information [Available Models]				
SF63-TB-DB-1Fm-SC	Industrial RS-232/422/485 to Multi-mode fiber converter, SC connector			
SF63-TB-DB-1Fs-SC	Industrial RS-232/422/485 to Single-mode fiber converter, SC connector			
SF63-TB-DB-1Fm-ST	Industrial RS-232/422/485 to Multi-mode fiber converter, ST connector			
SF63-TB-DB-1Fs-ST	Industrial RS-232/422/485 to Single-mode fiber converter, ST connector			
Optional Accessories				
US315-12(US-TB3)	3-pin Terminal block (5.08 mm) power adaptor, 100-240VAC input, 1.25A @ 12 VDC output, US plug			
USE315-12(EU-TB3)	3-pin Terminal block (5.08 mm) power adaptor, 100-240VAC input, 1.25A @ 12 VDC output, EU plug			
AD1024-24F	24W/1A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input			
AD1048-24FS	48W/2A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input			
AD1072-24F	72W/3A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input			
AD1100-24F	100W/4A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input			
AD1120-24F	120W/5A DIN-Rail 24 VDC power supply with universal 100~240 VAC/120~370 VDC input			
AD1120-48F	120W/2.5A DIN-Rail 48 VDC power supply with universal 100~240 VAC/120~370 VDC input			
2ESDP-03P	3-pin 5.08mm Terminal Block with 180° Angle			
Regulatory Approvals and Environmental Type Tests				
EMI Immunity Type Tests				
Test	Description		Test Levels	Severity Levels
FCC part 15	—	Subpart B	—	Class A
EN55022	—	2006+A1:2007	—	Class A
EMS Tests				
Test	Description		Test Levels	Severity Levels
IEC61000-4-2	ESD	Contact discharge	±8KV,Criterion B	Level 4
		Air discharge	±15KV,Criterion B	Level 4
IEC61000-4-3	RS	Enclosure ports	10V/m(un-modulated, r.m.s) 80% AM 1KHz, Criterion A	Level 3
IEC61000-4-4	EFT	Power Port	±2KV,Cirterion A	Level 3
		Single port	±2KV,Cirterion A	Level 3
IEC61000-4-5	Surge	Power Port	±2KV,Cirterion A	Level 3
		Single Port	±2KV,Cirterion B	Level 3
IEC61000-4-6	CS	Power Port	10 V (0.15 - 80 MHz), Criterion A	Level 3
		Single Port	10 V (0.15 - 80 MHz), Criterion A	Level 3
Environmental Type Test				
Test	Description		Test Levels	Severity Levels
MIL-STD-810F	Shock	Impact acceleration& pulse duration	40g@11ms	—
MIL-STD-810F	Freefall	8 corners, 12 edges, 6 faces	122cm	—
MIL-STD-810F	Vibration	Packaged Random waveform	x:2.4 Grms y:1.28 Grms z:3.851.04Grms	—
		Operating Random waveform	x:0.740 Grms y:0.204 Grms z:1.04Grms	—

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DM_SF63_E : v1-120416



Industrial Unmanaged Ethernet Switch

■ ■ EH7310

RoHS compliant

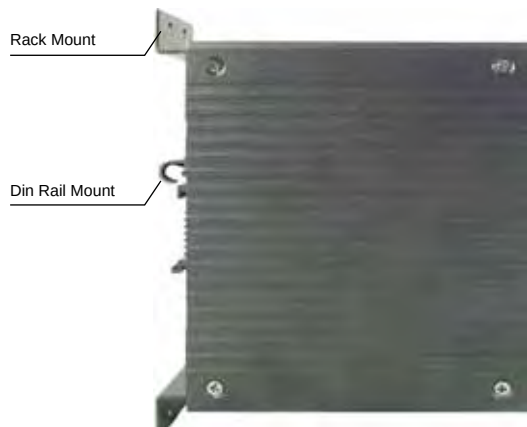
The EH7000 series has been designed for industrial environments, such as in hazardous locations that comply with FCC, UL, and CE standards.

The EH7000 series protects itself from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, EH7000 series will discard broadcast or multicast packets if the number of those packets exceeds a threshold in a preset period of time. When the preset period expires (about 800ms), it will then resume receiving broadcast or multicast packets until the threshold is reached again.

The EH7000 series provides two redundant power inputs that can be connected simultaneously to wide-range DC power sources. If one of the power inputs fails, the other live source acts as a backup to provide the EH7000 series power needs automatically.

Outline

2-port 10/100/1000Base T(X) (copper)
or 2-port 100Base FX (SC connector)
or 2-port 1000Base FX (SC connector)



Rack Mount

Din Rail Mount

8-port 10/100Base T(X) (RJ45)
shielding with LED



Redundant inputs power supply
(12/24/48 VDC)

PWR 1 or PWR 2
Failure to Trigger Fault
(Normally Closed)(1A @ 24VDC)

Advantages

Designed for Harsh Environments

- Extended Operating Temperature Range: -40 ~ 80°C(-40 ~ 176°F) !
 - No rotating fans or mechanical parts inside ensure the highest reliability.
- Wide Power Supply Options: Redundant Dual Inputs !
 - 12/24/48 VDC
- Failure to Trigger Fault Output Relay:
 - Relay output warning for power failure and break alarm. Normally Closed.

Advanced Networking Features

- Technologies:
 - Standards:
 - IEEE 802.3 for 10BaseT (10Mbps Ethernet)
 - IEEE 802.3u for 100BaseT(X) & 100BaseFX (Fast Ethernet 100Mbps)
 - IEEE 802.3x for Flow Control
 - Processing Type
 - Store and Forward
 - Flow Control
 - IEEE802.3x Full Duplex, back pressure flow control
- Properties:
 - Support up to 8K MAC addresses with automatic learning and aging.
 - Transmits 802.1Q VLAN and 802.1p priority tagged message transparently.
 - Smart broadcast storm protection.

Regulatory Approvals and Environmental Type Tests

EMI Immunity Type Tests

Test	Description		Test Levels	Severity Levels
FCC part 15	-	Subpart B	-	class A
EN55022	-	2006+A1:2007	-	class A

EMS Tests

Test	Description		Test Levels	Severity Levels
EN61000-4-2	ESD	Contact discharge	8 KV, Criterion A	level 4
		Air discharge	15 KV, , Criterion A	level 4
EN61000-4-3	RS	Enclosure ports	10 V/m (80 - 1000 MHz), Criterion A	level 3
EN61000-4-4	EFT	Power Line	2 KV, Criterion B	level 3
EN61000-4-5	Surge	Line to earth	1 KV, Criterion B	level 2
		Power Line	2 KV, Criterion B	level 3
EN61000-4-6	CS	Line to earth	3 V (0.15 - 80 MHz), Criterion A	level 3
		Power Line	10 V (0.15 - 80 MHz), Criterion B	level 3

Safety Tests

Test	Description		Rating	Severity Levels
UL60950-1	-	2nd Edition, 2007-03-27	12~48V DC, 1.2A	-
CSA C22.2 No.60950-1-07	-	2nd Edition, 2007-03	12~48V DC, 1.2A	-
CB	-	IEC 60950-1:2005 second version	12~48V DC, 1.2A	-

Environmental Type Tests

Test	Description		Test Levels	Severity Levels
MIL-STD-810F	Shock	Impact acceleration & Pluse duration	40g @ 11ms	-
MIL-STD-810F	Freefall	8 corners, 12 edges, 6 faces	122 cm	-
MIL-STD-810F	Vibration	Packaged Random waveform	x: 2.4 Grms y: 1.28 Grms z: 3.85 Grms	-
		Operating Random waveform	x: 0.740 Grms y: 0.204 Grms z: 1.04 Grms	-

Rail Traffic Application

Test	Description		Application	Severity Levels
EN50155	EMC	EN50121-3-2	Railway Application	-
	Environment	EN60068-2-1	Railway Application	-
		EN60068-2-2 EN61373		-
EN50121-4	EMC	-	Railway Application	-

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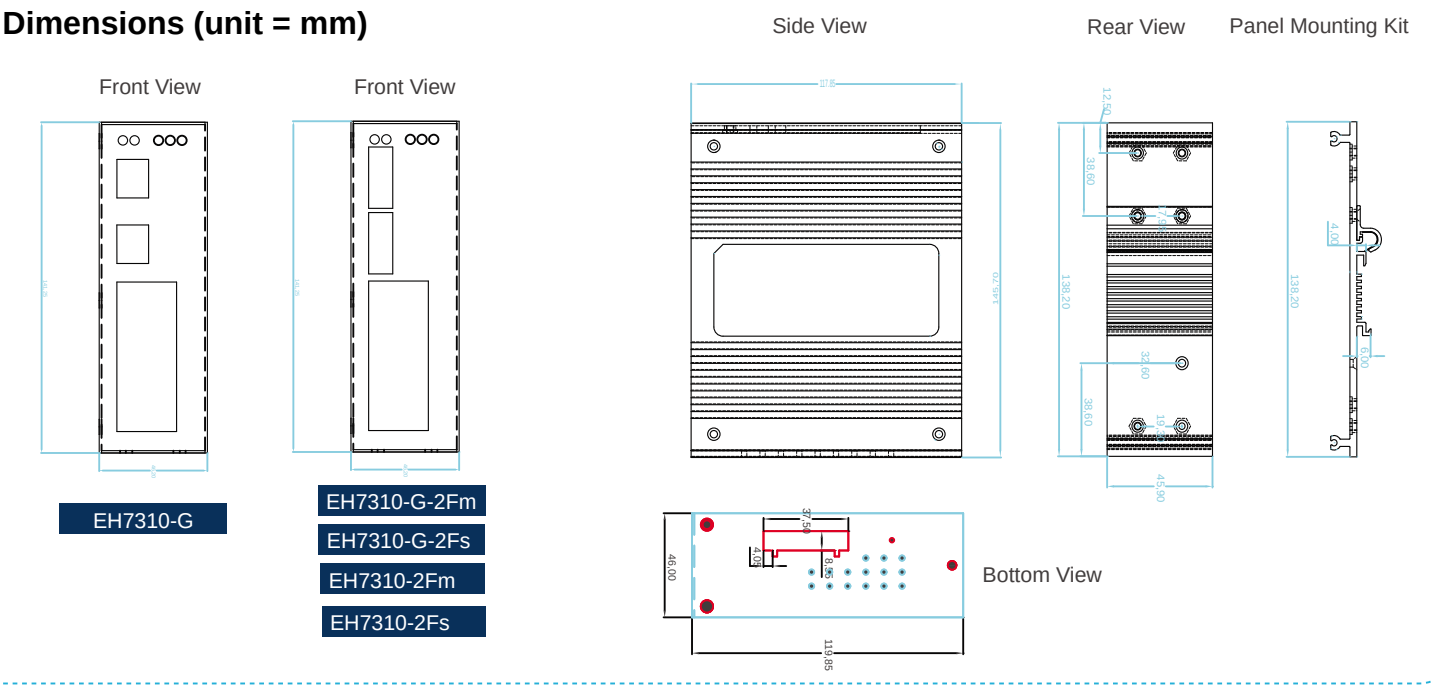
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Mechanical

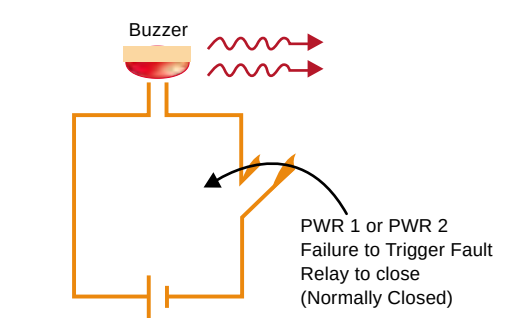
Dimensions (unit = mm)



Ordering Information

Model Name	Port Interface						
Extended Temperature (-40°C to 80°C)	10/100BaseT(X)	100BaseFX		1000BaseFX		Gigabit Ethernet	
		Multi Mode, SC Connector	Single Mode, SC Connector	Multi Mode, SC Connector	Single Mode, SC Connector	10/100/1000 BaseT(X)	100/1000 Base SFP
EH7310-G	8	---	---	---	---	2	---
EH7310-G-2Fs	8	---	---	---	2	---	---
EH7310-G-2Fm	8	---	---	2	---	---	---
EH7310-2Fs	8	---	2	---	---	---	---
EH7310-2Fm	8	2	---	---	---	---	---

General Specifications	
Technology	
Standards	IEEE 802.3 10-Base-T IEEE 802.3u 100Base-TX IEEE 802.3 100Base-FX IEEE 802.3 1000Base-SX, LX
Switching Latency	5 μ S
Flow Control	IEEE 802.3x Flow Control and Back-pressure
Processing type	Store-and-Forward
Interface	
RJ45 Ports	10/100BaseT(X), Auto MDI/MDI-X 10/100/1000BaseT(X), Auto MDI/MDI-X (Uplink)
Fiber Ports	100BaseFX ports (SC connector) (Uplink) 1000BaseFX ports (SC connector) (Uplink)
LED Indicators	LNK/ACT(Steady green-Link up/Blinking-data transmitting & receiving) PWR1(Green), PWR2(Green), Fault(Red)
Power Requirements	
Dual Inputs Voltage	12/24/48 VDC
Dual Inputs Current	0.49A @ 24VDC
Overload Current Protection	0.8A @ 12VDC
Connection	Removable dual 3-pin Terminal Block for power input
Reverse Polarity Protection	Present
Consumption	11.875 Watts
Physical Characteristics	
Housing	IP50 protection (>2.5mm objects, IEC60529), metal case(AL6063T5).
Dimensions (W x H x D)	53.4mm x 145.7mm x 119.9mm (2.10 x 5.74 x 4.72 in)
Weight	Approx 1000 g
Installation	DIN-Rail mount kit, wall mount kit (optional)
Environmental Limits	
Operating Temperature	-40 ~ 80°C (-40 ~ 176°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Ambient Relative Humidity	5% to 95% (non-condensing)
Notes: For UL policy the maximum operating temperature is 50°C, and the human body can tolerate maximum temperature is 70°C.	
Regulatory Approvals	
Safety	UL60950-1, CSA C222, No.60950-1-07, CB
EMI	FCC part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD) level 4, EN61000-4-3 (RS) level 3 EN61000-4-4 (EFT) level 3, EN61000-4-5 (Surge) level 2/3 EN61000-4-6 (CS) level 3
Shock	MIL-STD-810F
Free Fall	MIL-STD-810F
Vibration	MIL-STD-810F
MTBF	201,976 hrs (23.06 Years) (Data base: MIL-HDBK-217F, GB 25°C)
Warranty	5 years (please visit www.atop.com.tw for more details)



Relay ON-OFF Status					
No.	PWR1	PWR2	Fault LED	Relay contact	External Buzzer
1	off	off	off	closed	buzzing
2	off	on	red	closed	buzzing
3	on	off	red	closed	buzzing
4	on	on	off	open	no buzz

Optical Fiber Specifications							
Speed	Fast Ethernet 100BaseFX			Gigabit Ethernet 1000BaseFX			
Mode	Multimode	Single Mode	Single Mode	Multimode	Multimode	Single Mode	Single Mode
Connectors	SC	SC	SC	SC	SC	SC	SC
Typical Distance	2 km	2 km	30 km	550 m	300 m	10 km	70 km
Cable Size Core/Cladding	50/125 μ m	62.5/125 μ m	9/125 μ m	50/125 μ m	62.5/125 μ m	9/125 μ m	9/125 μ m
Wavelength	1,310 nm	1,310 nm	1,310 nm	850 nm	850 nm	1310 nm	1550 nm
Max. TX Power	-14 dBm / -14 dBm	-8 dBm	5 dBm	-4 dBm	-4 dBm	-3 dBm	5 dBm
Min. TX Power	-23.5 dBm / -20 dBm	-15 dBm	0 dBm	-9.5 dBm	-9.5 dBm	-9.5 dBm	-9.5 dBm
RX Sensitivity	-31 dBm	-34 dBm	-36 dBm	-18 dBm	-18 dBm	-20 dBm	-24 dBm
Link Budget	7.5 dB / 11 dB	19 dB	36 dB	8.5 dB	8.5 dB	10.5 dB	24 dB
Saturation / overload	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm	-3 dBm	-3 dBm
Typical Budget							



2-Port Industrial Serial Device Server

■ ■ SE5002D

RoHS-compliant

- Industrial EMC protection
- Rugged metal case with wall or DIN-Rail mount
- 10/100Mbps Fast Ethernet over fiber optics
- TCP Server/Client, UDP, Virtual COM and Tunneling modes supported
- Remotely monitor, manage, and control industrial field devices
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility
- Remote firmware upgrade

Make Serial Devices Ready to the Network

The Industrial Serial Server SE5002D is a cost effective gateway for Ethernet (TCP/IP) and serial signal communications; allowing almost any serial device to be connected to a new or existing Ethernet network.

By encapsulating serial data and transporting it over Ethernet, SE5002D offers full-duplex and bi-directional data seamlessly between the serial port and the Ethernet network.

Easy to Use

Flexible configuration options enable this unit to be setup over Ethernet by Telnet, Web Browser, Serial Console, or our Windows Utility. Packed in a rugged metal housing for wall or DIN-Rail mount with 9~48VDC wide range power input, SE5002D is ideal for almost any industrial and manufacturing automation process.

Atop Virtual COM software provides a virtual environment for applications when accessing SE5002D through TCP.

Specially Designed for Automation Fields

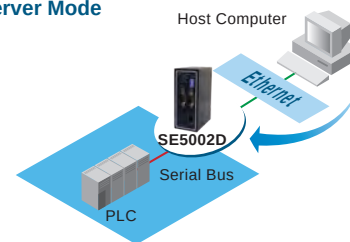
In industrial and manufacturing automation fields, SE5002D is used as a field device to connect the Ethernet through TCP/IP protocol directly. It is also specially designed for conjunction with PLCs, HMIs, Barcode Scanners, Data Terminals, Electronic Kanbans, Shop Floor Control Systems, and Pick-to-Light Systems.

2-Port Industrial Serial Device Server

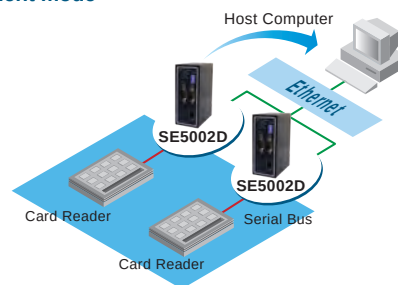


Specification				
Network Interface				
Fiber Optics	802.3 10BASE-F / 100BASE-FX with auto negotiation			
Connector	IEC 61754-4 Standard Connector (SC)			
Serial Interface				
Connector	D-Sub9 RS-232/422/485 software selectable 3.81mm TB5 RS-232/422/485 software selectable (TB models)			
Ports	2 Port			
Baud Rate	1200~230Kbps			
Data Bits	7,8			
Stop Bits	1,2			
Flow Control	None, Xon/Xoff, RTS/CTS			
Power Characteristics				
Input Voltage	9VDC-48VDC			
Input Current(9VDC)	0.35A			
Power Consumption	Approx. 3.15W (max)			
Reverse Polarity Protection	Yes			
Connector	5.08mm 3-pin Lockable Terminal Block			
Mechanicals				
Dimensions(W x H x D)	47 mm x 110 mm x 90mm			
Installation	DIN Rail, Wall Mount (optional)			
Reset Button	Yes			
Weight	400g			
Environmental Limits				
Operating Temperature	0°C ~ 60°C (32º ~ 140°F)			
Storage Temperature	-40º ~ 85°C (-40º~ 185°F)			
Ambient Relative Humidity	5~95% RH, (non-condensing)			
Software				
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMP, HTTP, Telnet, RFC2217			
Configuration	Serial Manager, Web UI, Telnet			
Virtual COM	Windows / Linux redirection software			
Link Modes				
TCP Server	4 connections, Virtual COM, or Reverse Telnet			
TCP Client	Single destination or Virtual COM			
UDP	Up to 4 ranges of IPs			
Warranty	5 years			
Regulatory Requirements				
EMC	EN 55022, EN 55024, FCC Part 15 Subpart B Class A			
Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge	±8KV	4
		Air Discharge	±15KV	4
	ESD (SFP Modules)	Contact Discharge	±6KV	3
		Air Discharge	±8KV	3
IEC 61000-4-3	RS	Radiated(Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port	±2.0 KV	3
		DC Power Port	±2.0 KV	3
		Signal Port	±1.0 KV	3
IEC 61000-4-5	Surge	AC Power Port	Line-to-Line±2.0 KV	3
		AC Power Port	Line-to-Earth±4.0 KV	3
		DC Power Port	Line-to-Line±0.5 KV	2
		DC Power Port	Line-to-Earth±1 KV	2
		Signal Port	Line-to-Earth±2.0 KV	3
IEC 61000-4-6	CS	Conducted(Enclosure)	10 V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	10(A/m)	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Freefall	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
Safety	IEC/EN 60950-1			
RoHS	Yes			
MTBF	(TBD)			

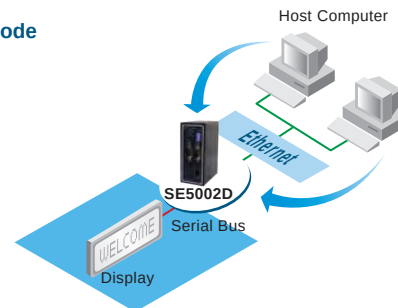
TCP Server Mode



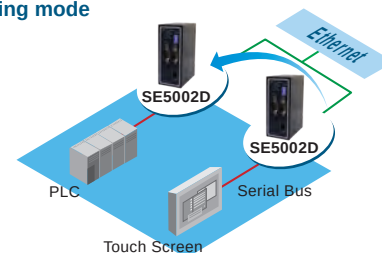
TCP Client mode



UDP mode



Tunneling mode



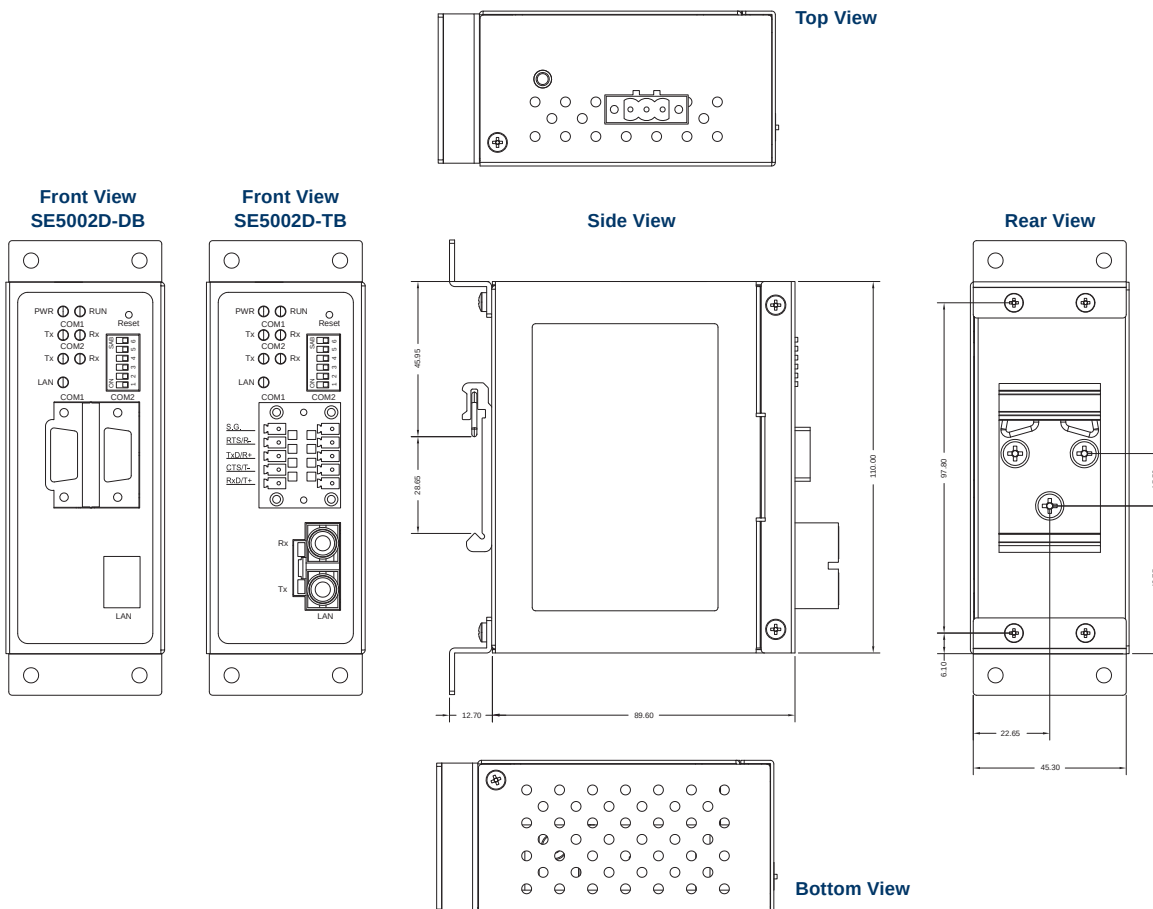
Ordering Information

SE5002D-Fm	P/N:1P1SE5002DFM01G
2-port Industrial Serial Device Server, DB9, Multimode fiber optics	
SE5002D-Fm-TB	P/N:1P1SE5002DFM02G
2-port Industrial Serial Device Server, TB59, Multimode fiber optics	
SE5002D-Fs	P/N:1P1SE5002DFS01G
2-port Industrial Serial Device Server, DB9, Single mode fiber optics	
SE5002D-Fs-TB	P/N:1P1SE5002DFS02G
2-port Industrial Serial Device Server, TB5, Single fiber optics	
SE5002D-SFP	P/N:1P1SE5002DSFP1G
2-port Industrial Serial Device Server, DB9, SFP	
SE5002D-SFP-TB	P/N:1P1SE5002DSFP2G
2-port Industrial Serial Device Server, DB9, SFP	

Optional Accessories

US315-12 (US-Y) Power Adapter	P/N:50500151120009G
Y-Type (5.08 mm) power adaptor,100-240VAC input, 1.25A @ 12VDC output, US plug	
USE315-12 (EU-Y) Power Adapter	P/N:50500151120019G
Y-Type (5.08 mm) power adaptor,100-240VAC input, 1.25A @ 12VDC output, EU plug	
ADP-DB9(F)-TB5	P/N:59906231G
Female DB9 to Female 3.81 TB5 Converter	
WMK-454-Black	P/N:70100000000043G
Black Aluminum Wall Mount Kit	
LM38-A3S-TI-N	P/N:50708051G
SFP Transceiver, 155Mbps, 1310nmLED, Multi-mode, 2km, 3.3V, -40°C ~ 85°C	
LS38-A3S-TI-N	P/N:50708041G
SFP Transceiver, 155Mbps, 1310nmFP, Single-mode, 30km, 3.3V, -40°C ~ 85°C	

Mechanical



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DM_SE5002D_E : v1-120425

Device Networking Access



8-Port and 16-Port Industrial Serial Device Server

■ SE5408A/SE5408A2
SE5416A/SE5416A2

RoHS compliant

- Standard 19-inch rack-mount high metal housing
- Industrial EMC protection
- TCP Server/Client, UDP, Virtual COM and Tunneling modes supported
- Dual 10/100Mbps Ethernet for networking redundancy
- Remotely monitor, manage, and control industrial field devices
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility
- Relay out indicator for Network link-status
- LCM display with 4-key touch pad for configuration
- Remote firmware upgrade
- Isolation (for SE5408A / SE5416A)
- Adjustable termination & pull high/low resistors

Make Serial Devices Ready to the Network

The Industrial Serial Device Server is a gateway between Ethernet (TCP/IP) and serial signal communications; allowing almost any serial device to be connected to a new or existing Ethernet network.

By encapsulating serial data and transporting it over Ethernet, the Serial Device Server offers full-duplex and bi-directional data seamlessly between the serial ports and the Ethernet network.

Easy to Use

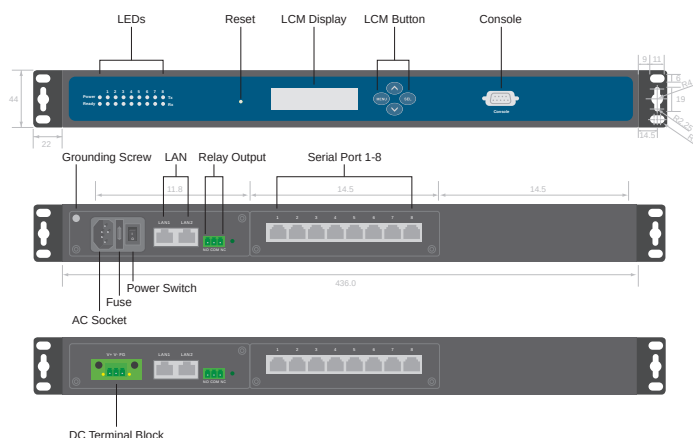
Flexible configuration options enable this unit to be setup over Ethernet by Telnet, Web browser, Serial Console, or our Windows utilities. Packed in a rugged metal housing with 19-inch rack mount and 100~240VAC or 24-48VDC power input range.

The LAN port 1 and LAN port 2 can be assigned to different subnets. This feature gives the user flexible network manageability. Alternatively, the LAN port 1 and LAN port 2 can be assigned to the same IP network. It will enable the network to recover rapidly from failure and fault, so that the failures and faults will be bypassed.

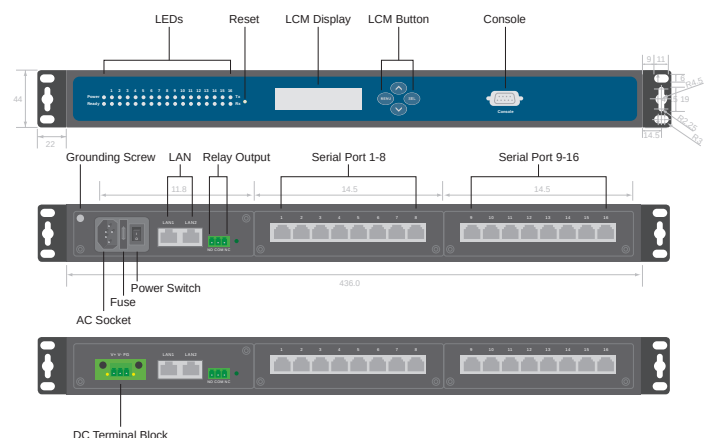
Specially Designed for Automation Fields

In industrial and manufacturing automation fields, The Serial Device Server is used as a field device to connect the Ethernet through TCP/IP protocol directly. It is also specially designed for conjunction with PLCs, HMIs, Barcode Scanners, Data Terminals, Electronic Kanbans, Shop Floor Control Systems, and Pick-to-Light Systems.

SE5408A/SE5408A2 Front Panel



SE5416A/SE5416A2 Front Panel



8-Port and 16-Port Industrial Serial Device Server



Specifications	
Network Interface	
Ethernet Port	2x RJ-45
LAN-port Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX
Serial Interface	
Connector	RJ-45
Ports	8 or 16 Ports
Mode	SE5408A/5416A : RS-232 or RS-422 / 485 (Isolation) SE5408A2/5416A2 : RS-232 / 422 / 485 software selectable (Non-Isolation)
Baud Rate	50~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data Bits	5,6,7,8
Stop Bits	1,2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
*Isolation	2.5 KV (for SE5408A / SE5416A)
Power Characteristics	
Connector	IEC 60320-1 C14 AC Power Inlet (AC models) / 5.08mm 3-pin Lockable Terminal Block (DC models)
Input Voltage	100-240 VAC (AC models) / 24-48 VDC (DC models)
Power Consumption (max.)	0.21A @100 VAC / 0.54A @24 VDC
Power Redundancy	No
Reverse Polarity Protection	Yes (DC Input only)
Mechanicals	
Dimensions(W x H x D)	436 mm x 43.5 mm x 200 mm
Installation	19" Rack Mount
Reset Button	Yes
Weight	3.2kg (16 ports) / 3.0 kg (8 ports)
Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)
Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMP, HTTP, Telnet, RFC2217, NTP, DNS, SMTP, Syslog
Configuration	Serial Manager, Web UI, Serial console, Telnet
Virtual COM	Windows / Linux redirection software
Link Modes	
TCP Server	4-connection mode supports Raw Data, Virtual COM or Reverse Telnet
TCP Client	Dual destinations support Raw Data or Virtual COM
UDP	Up to 8 ranges of IPs
Warranty	5 years

Ordering Information			
	Model Name	P/N	Description
Isolation	SE5416A	1P1SE5416A0001G	16-Port Industrial Serial Device Server, RS-232, AC Inlet, US Plug
	SE5416A-DC	1P1SE5416A0002G	16-Port Industrial Serial Device Server, RS-232, DC TB3
	SE5416A-S5	1P1SE5416A0003G	16-Port Industrial Serial Device Server, RS-422/485, AC Inlet, US Plug
	SE5416A-S5-DC	1P1SE5416A0004G	16-Port Industrial Serial Device Server, RS-422/485, DC TB3
	SE5416A-EU	1P1SE5416A0011G	16-Port Industrial Serial Device Server, RS-232, AC Inlet, EU Plug
	SE5416A-S5-EU	1P1SE5416A0013G	16-Port Industrial Serial Device Server, RS-422/485, AC Inlet, EU Plug
	SE5408A	1P1SE5408A0001G	8-Port Industrial Serial Device Server, RS-232, AC Inlet, US Plug
	SE5408A-DC	1P1SE5408A0002G	8-Port Industrial Serial Device Server, RS-232, DC TB3
	SE5408A-S5	1P1SE5408A0003G	8-Port Industrial Serial Device Server, RS-422/485, AC Inlet, US Plug
	SE5408A-S5-DC	1P1SE5408A0004G	8-Port Industrial Serial Device Server, RS-422/485, DC TB3
	SE5408A-EU	1P1SE5408A0011G	8-Port Industrial Serial Device Server, RS-232, AC Inlet, EU Plug
	SE5408A-EU-S5	1P1SE5408A0013G	8-Port Industrial Serial Device Server, RS-422/485, AC Inlet, EU Plug
Non-Isolation	SE5416A2-N-DC	1P1SE5416A200CG	16-Port Industrial Serial Device Server, RS-232/422/485 Software Selectable, DC TB3
	SE5416A2-N-US	1P1SE5416A200BG	16-Port Industrial Serial Device Server, RS-232/422/485 Software Selectable, AC Inlet, US Plug
	SE5416A2-N-EU	1P1SE5416A201BG	16-Port Industrial Serial Device Server, RS-232/422/485 Software Selectable, AC Inlet, EU Plug
	SE5408A2-N-DC	1P1SE5408A2006G	8-Port Industrial Serial Device Server, RS-232/422/485 Software Selectable, DC TB3
	SE5408A2-N-US	1P1SE5408A2005G	8-Port Industrial Serial Device Server, RS-232/422/485 Software Selectable, AC Inlet, US Plug
	SE5408A2-N-EU	1P1SE5408A2015G	8-Port Industrial Serial Device Server, RS-232/422/485 Software Selectable, AC Inlet, EU Plug
Optional Accessories			
Power Adapter-AD17-24C (US-Y)		50500151240002G	Y-Type power adaptor,100-240VAC input, 0.6A @ 24VDC output, US plug
Power Adapter-AD17-24D (EU-Y)		50500151240012G	Y-Type power adaptor,100-240VAC input, 0.6A @ 24VDC output, EU plug
ADP-DB9(F)-TB5		59906231G	Female DB9 to Female 3.81mm TB5 Converter
CBL-RJ45(8P)-DB9(M)-90		50891781G	RJ45 to DB9 Male Cable, 90cm
CBL-RJ45(8P)-DB9(M)-200		50891951G	RJ45 to DB9 Male Cable, 200cm
CBL-RJ45(8P)-DB9(F)-90		50891791G	RJ45 to DB9 Female Cable, 90cm
CBL-RJ45(8P)-DB9(F)-90-C		50891971G	RJ45 to DB9 Female Cross Over Cable, 90cm
CBL-RJ45(8P)-DB9(F)-200-C		50891961G	RJ45 to DB9 Female Cross Over Cable, 200cm
RMK-718-Black		70100000000040G	Rack Mount Mounting-Kit, Black
Power Cable (US)		50801041G	6 feet Power Cable, US
Power Cable (EU)		50801051G	6 feet Power Cable, EU
Fuse		59907561G	250V, 2A, 20mm (length) * 5mm (diameter)

Regulatory Approvals					
EMI	EN 55022: 2010, EN 55024: 2010, FCC Part 15B, Class A				
EMS					
Test	Item		Value	Level	Criteria
IEC 61000-4-2	ESD	Enclosure Contact	8 kV	4	B
		Enclosure Air	15 kV		B
IEC 61000-4-3	RS	Enclosure Ports	10 V/m	3	A
IEC 61000-4-4	EFT	Signal Ports	2 kV	4	B
		DC Power Ports	2 kV	3	B
		AC Power Ports	4 kV	4	B
IEC 61000-4-5	Surge	Signal Ports	2 kV line-to-earth	3	B
		Signal Ports	2 kV line-to-earth	3	B
		DC Power Ports	1 kV line-to-earth, 1 kV line-line	2	A
		AC Power Ports	4 kV line-to-earth, 2 kV line-line	4	A
IEC 61000-4-6	CS	Signal Ports	10 V	3	A
		DC Power Ports			
		AC Power Ports			
IEC 61000-4-8	PFMF	Enclosure Ports	10 A/m continuous	3	A
IEC 61000-4-11	Dip	AC Power Ports	Dips: >95% dip, 30% reduction	-	A
			Interruptions: >95%	-	B
Safety	EN 60950-1:2011				
Shock	IEC 60068-2-27				
Freefall	IEC 60068-2-32				
Vibration	IEC 60068-2-6				
MTBF	TBD				
RoHS II	Yes				

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DM_SE5408A/SE5408A2/SE5416A/SE5416A2_E : v4-131209

IP 68



RoHS-compliant

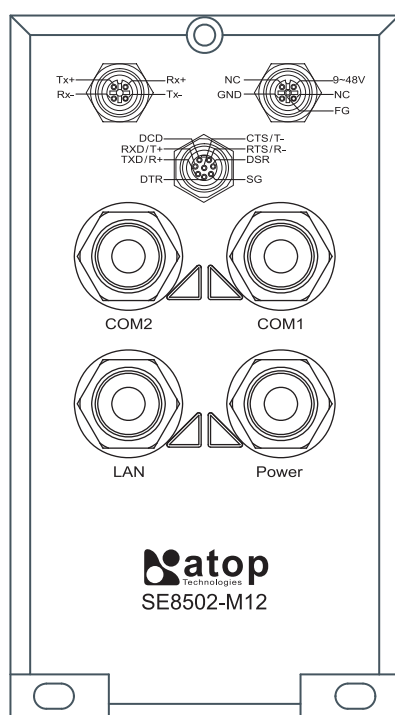
2-Port IP68 Serial Server

■ ■ SE8502-M12

- 15KV ESD protection for serial signals
- 10/100 Mbps Fast Ethernet full duplex auto negotiation
- Support multiple link mode with TCP server/client, UDP and Virtual COM mode
- Monitor, manage and control industrial field devices remotely
- Configuration: Built-in Web Server /Serial Console/ Telnet
- Windows-based utility for IP configuration
- Firmware upgrade remotely via Ethernet
- Rigid aluminum case design compliant with IP68 standard
- Wide operating temperature range : -40°C ~ 75°C

SE8502-M12

2-Port IP68 Serial Server Front Panel



SE8502-M12 is an Industrial 2-port IP68 Serial Server, offering waterproof, dustproof, and vibration-resistant.

There is a strong demand for reliable and rugged networking solutions, that can be used for the industrial workplace in harsh environmental conditions, such as high levels of moisture, dust, heat, electrical interference, and vibration. SE8502-M12 is a device that has IP68-rated housing and M12 metal connectors. It also provides a wide operating temperature range from -40°C ~ 75°C.

SE8502-M12 supports multiple link mode with TCP server/client, UDP and VirtualCOM, that can be configured by Windows-based utility. In addition, M12 connectors secure a firmly connecting, and prevent loose from vibrating condition, such as in moving vehicles.

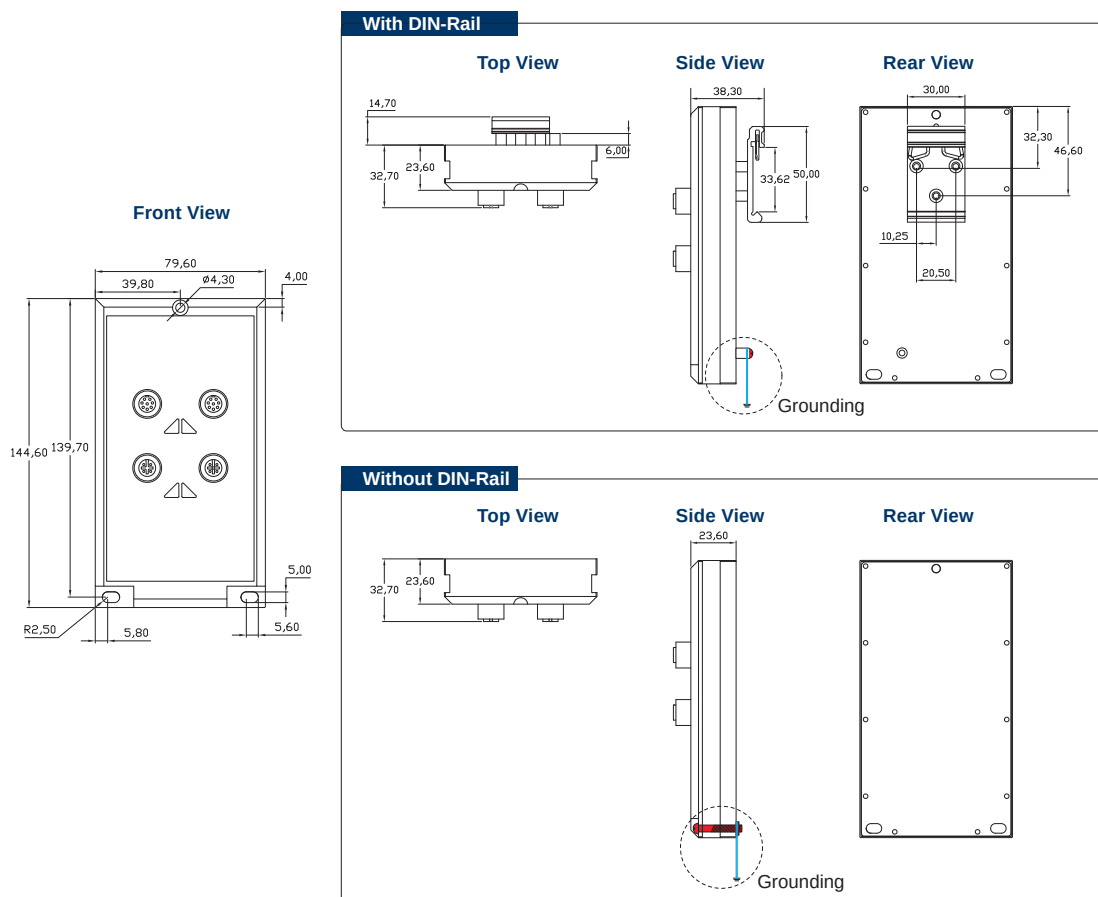
2-Port IP68 Serial Server



SE8502-M12

Specifications	
Ethernet	
Compliance	IEEE802.3
Network Interface	10/100 Mbps Fast Ethernet Tx+
Port	One port
Transmission Rate	10/100M Auto-detection
Connector	4-PIN M12 Female A-Coding
Auto MDI/MDI-X	Yes
Link Mode	
TCP Server	Up to 4 connections or Virtual COM mode
TCP Client	Up to 2 destination or Virtual COM mode
UDP	Up to 8 Ranges of IPs
Serial	
Mode	RS-232/422/485 Software selectable
Ports	2 Ports
Baud Rate	110bps~921,6kbps
Parity	None, Odd, Even, Mark, Space
Data bits	5, 6, 7, 8
Stop Bit	1,2
Flow Control	None, Software:Xon/Xoff,Hardware:RTS/CTS
Protection	15KV ESD
Connector	8-PIN M12 Female A-Coding
Power	
Input	9 - 48DCV, 0.4A max
Consumption	Max. 3.6W
Connector	4-PIN M12 Female A-Coding
LED	
Indicator	COM, LAN, RUN
Software	
Configuration	Web Page / Telnet / Serial console / Windows Utility
Virtual COM	Windows & Linux port redirection software
Support Protocol	ICMP, TCP/IP, UDP, DHCP Client, NTP, DNS, SNMP, HTTP, Telnet, SMTP
Approval	
FCC(EMI)	FCC Part 15:2007, Subpart B, Class A
CE(EMI)	EN 55022:2006 Class A
	EN 61000-3-2:2006
	EN 61000-3-3:1995+A1:2001+A2:2005
CE(EMS)	EN 55024:1998+A1:2001+A2:2003
	IEC 61000-4-2:2001
	IEC 61000-4-3:2006
	IEC 61000-4-4:2004
	IEC 61000-4-5:2005
	IEC 61000-4-6:2006
	IEC 61000-4-8:2001
	IEC 61000-4-11:2004
Rail Traffic	EN50155, EN50121-4
Protection	IP68 Rated IEC/EN60529
Vibration	IEC60068-2-64
Shock	IEC60068-2-27
Free-fall	IEC60068-2-32(ISTA Test Procedure 2A)
MTBF	TBD
RoHS	Yes

Environment	
Operating	-40°C~75°C(-40°F ~167°F)
Storage	-40°C~85°C(-40°F ~185°F)
Humidity	5%~95% Non-condensing
Dimension	
WxHxD	79mm x 35mm x 144mm
Physical	
Weight	700g
Installation	Field-style mounting DIN-Rail mounting
Warranty	5 years
Ordering Information	
SE8502-M12	IP68 Rated 2-Port Serial Device Server
SE8502-M12 (DIN-Rail)	IP68 Rated 2-Port Serial Device Server with DIN-Rail Mounting Kit
Mechanical	



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IP68 Rated
IEC/EN60529



CA_SE8502-M12_E : v1.2-120521



RoHS compliant

Industrial Wireless Access Point

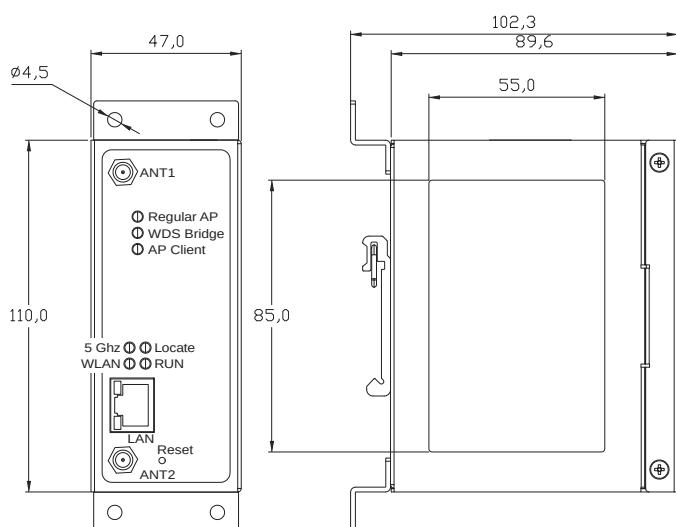
■ ■ AW5500

- Designed for 802.11a/b/g/n networks
- Operating temperature: -10°C ~ 60°C
- Web server/Utility configuration (Device View)
- Upgrade via Device View or Web server
- 5 GHz frequency support to reduce interference on 2.4 GHz with other wireless devices
- Client isolation
- Different operating modes and topology options (WDS Bridge and AP Client)
- FCC (United States), ETSI (Europe), and NCC (Taiwan) certified wireless equipment

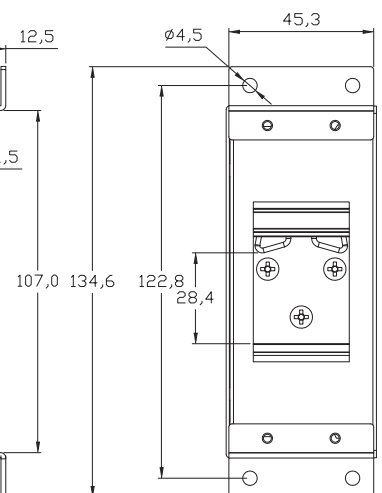
Suitable in a wide array of applications, the new AW5500 is able to withstand harsh conditions typically found in the industry.

AW5500 is also design thinking on your security, state of the art encryption as well as having the ability to create a virtual network among wireless clients; this level of communication between clients can be easily and intuitively controlled using this option, imposing restrictions on data and excluding malware at the same time. AW5500 embodies a strong wireless network manager that will surely deliver optimum performance in your network.

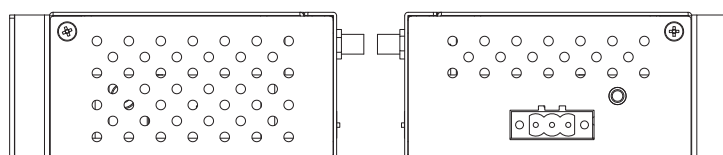
Front and Left Side View



Back and Right Side View



Top and Bottom View



Specifications				
Power Characteristics			Software Features	
Input Voltage	9VDC-48VDC		Operation Modes	AP, WDS Hybrid, AP Client
Input Current(9VDC)	0.65A		Wireless Security	WEP, WPA, WPA2, TKIP, AES, 802.1x
Power Consumption	Approx. 5.85W (max)		Network Security	Client Isolation, Firewall / Filtering, Turn off Radio
Reverse Polarity Protection	Yes		Alerts Events	E-mail / SNMP Trap
Connection	3-pin Lockable Terminal Block		Supported Protocol	ICMP, TCP, UDP, DHCP Server/Client, DNS, SNMP, NTP, SMTP, HTTP, IPv4, 802.1x, RADIUS, STP/RSTP
Mechanicals			Warranty	5 years
Dimensions	47*110*90 mm		Ordering Information	
Installation	DIN-Rail, wall mount (optional kit)		AW5500	P/N:1P1AW550000001G Industrial Wireless Access Point
Reset Button	Yes		Optional Accessories	
Environmental Limits			AD17-24C (US-Y) Power Adapter P/N: 50500151240002G Y-Type power adaptor,100-240VAC input, 0.6A @ 24VDC output, US plug	
Operating Temperature	-10°C ~ 60°C (14°F ~ 140°F)		AD17-24D (EU-Y) Power Adapter P/N: 50500151240012G Y-Type power adaptor,100-240VAC input, 0.6A @ 24VDC output, EU plug	
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)			
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)			
Hardware Characteristics				
Watchdog	Hardware built-in			
Ethernet Switch & PHY	IEEE802.3ab 1000 Base-T			
Wireless PCI-e Module	Atheros AR9382			
Tx / Rx	2T2R MIMO (2x2 with MCS 0-15)			
Wireless Standard	802.11a, 802.11b, 802.11g, and 802.11n			
Conformance				
Antenna	3/5 dBi Dual antenna design, SMA(R) Female connector			
Regulatory Requirements				
EMS	EN55022, EN55024			
EMC	EN 301489-1/17 (Class A), FCC 15 Subpart B (Class A), CNS 13438			
Radio	FCC 15 Subpart C, FCC 15 Subpart E, EN 301893, EN 300328, NCC LP00002			
Test	Item		Value	Level
EN61000-4-2	ESD	Contact Discharge	±8KV	4
		Air Discharge	±15KV	4
EN61000-4-3	RS	Radiated(Enclosure)	10(V/m)	3
EN61000-4-4	EFT	AC Powe Port	±2.0 KV	3
		LAN Port	±2.0 KV	4
EN61000-4-5	Surge	AC Powe Port	Line-to-Line±1.0 KV	3
		AC Powe Port	Line-to-Earth±2.0 KV	3
		LAN Port	Line-to-Earth±2.0 KV	3
EN61000-4-6	CS	Conducted(Enclosure)	10 V rms	3
EN61000-4-8	PFMF	(Enclosure)	10(A/m)	3
Safety		UL60950-1/CB, EN60950-1, CNS 14336		
Shock		IEC 60068-2-27		
Freefall		IEC 60068-2-32		
Vibration		IEC 60068-2-6		
MTBF		(TBD)		
RoHS		Yes		

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Industrial Wireless Serial Device Server

■ ■ SW550X Series

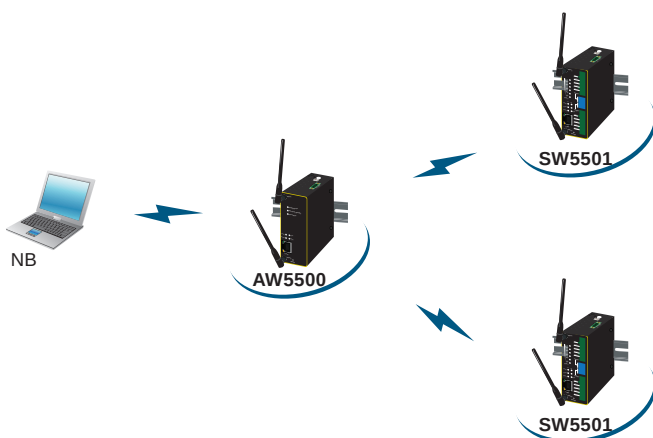
RoHS compliant

- Designed for 802.11a/b/g/n networks
- Embedded PCB coating protection
- Web server/Utility configuration (Serial Manager)
- Upgrade via Serial Manager or Web server
- 5 GHz frequency support to reduce interference on 2.4 GHz with other wireless devices
- FCC (United States), ETSI (Europe), and NCC (Taiwan) certified wireless equipment

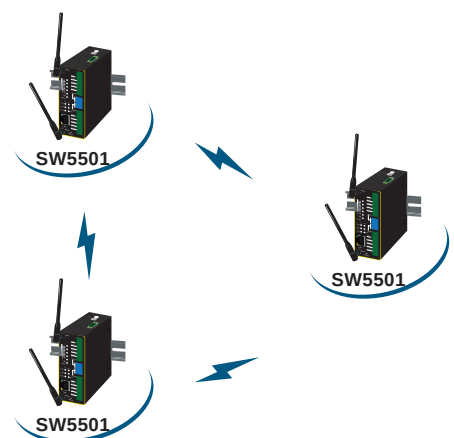
The SW550X Series is our latest addition to our Industrial Wireless products; its small size but powerful architecture makes it a perfect choice for industrial/manufacturing needs in which size is a decisive factor. It rewards our customers with superb connectivity withstanding all the harshness in your environment of choice. Among its many characteristics, we could mention:

- 5 GHz frequency support to reduce interference on 2.4 GHz with other wireless devices.
- Dual antenna design that offers better wireless coverage and reduces wireless blind spots.

Infrastructure Mode



Adhoc Mode



Specifications	
Network Interface	
Connector	RJ-45
Speed	IEEE802.3ab 10/100/1000Mbps
Serial Interface	
Connector	D-Sub9 RS-232/422/485 software selectable 5.08mm TB5 RS-232/422/485 software selectable (TB models) 5.08mm TB5 RS-422/485 software selectable (Sis models)
Ports	SW5501: 1 Port, SW5502: 2 Ports
Baud Rate	110~921600Kbps
Parity	None, Odd, Even, Space, Mark
Data Bits	5,6,7,8
Stop Bits	1,2
Flow Control	None, Xon/Xoff, RTS/CTS
Power Characteristics	
Input Voltage	9VDC-48VDC
Input Current(9VDC)	0.65A
Power Consumption	Approx. 5.85W (max)
Reverse Polarity Protection	Yes
Connection	5.08mm 3-pin Lockable Terminal Block
Mechanicals	
Dimensions(W X H x D)	47 mm x 110 mm x 90mm
Installation	DIN Rail, Wall Mount (optional)
Reset Button	Yes
Weight	500g
Environmental Limits	
Operating Temperature	-10°C ~ 60°C (14°F ~ 140°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)
Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMP, SMTP, HTTP, DNS, NTP, RADIUS, RFC2217, WPS
Wireless Security	WEP, WPA, WPA2, TKIP, AES, 802.1x
Configuration	Serial Manager, Web UI
Virtual COM	Windows / Linux redirection software
Link Modes	
TCP Server	4 connections, Virtual COM, or Reverse Telnet
TCP Client	Dual destinations or Virtual COM
UDP	Up to 4 ranges of IPs
Warranty	5 years

Regulatory Requirements				
EMC		EN 301489-1 V1.8.1, EN301489-17 V2.1.1 (Class A), FCC 15B (Class A), CNS 13438		
Radio		FCC 15C 15.247, FCC 15E 15.407, EN 301893 V1.5.1, EN 300328 V1.7.1, NCC LP00002		
EMF		EN 62311: 2008, EN 50385: 2002		
Test		Item	Value	Level
IEC 61000-4-2	ESD	Contact Discharge	±8KV	4
		Air Discharge	±15KV	4
IEC 61000-4-3	RS	Radiated(Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port	±2.0 KV	3
		LAN Port	±2.0 KV	4
		COM Port	±2.0 KV	4
IEC 61000-4-5	Surge	AC Power Port	Line-to-Line±1.0 KV	3
		AC Power Port	Line-to-Earth±2.0 KV	3
		LAN Port	Line-to-Earth±2.0 KV	3
		COM Port	Line-to-Earth±2.0 KV	3
IEC 61000-4-6	CS	Conducted(Enclosure)	10 V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	10(A/m)	3
IEC 61000-4-11	DIP	AC Power Port	-	-

*AC Ports are tested through an power adaptor available in the accessory.

Safety	UL60950-1/CB, EN60950-1, CNS 14336
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF	22 years (MIL-HDBK-217F)
RoHS	Yes

Wireless Characteristics	
Wireless PCI-e Module	Atheros AR9382
Tx / Rx	2T2R MIMO (2x2 with MCS 0-15)
Standard Conformance	802.11a, 802.11b, 802.11g, and 802.11n
Antenna	3/5 dBi Dual antenna design, SMA(R) Female connector

Operating Frequency		
	2.4Ghz	5Ghz
United States (FCC)	2412-2462(20Mhz)/2422-2452(40Mhz)	5180-5240, 5745-5825(20Mhz)/5190-5230, 5755-5795(40Mhz)
Europe (ETSI)	2412-2472(20Mhz)/2422-2462(40Mhz)	5180-5240(20Mhz)/5190-5230(40Mhz)
Taiwan (NCC)	2412-2462(20Mhz)/2422-2452(40Mhz)	5280-5320, 5745-5825(20Mhz)/5310, 5755-5795(40Mhz)

Data Rate	
802.11a	6, 9, 12, 18, 24, 36, 48,54Mbps
802.11b	1, 2, 5.5 and 11Mbps
802.11g	6, 9, 12, 18, 24, 36, 48, 54Mbps
802.11n	20MHz bandwidth: 1Nss: 65Mbps @ 800GI, 72.2Mbps @ 400GI (Max.) / 2Nss: 130Mbps @ 800GI, 144.4Mbps @ 400GI (Max.) 40MHz bandwidth: 1Nss: 135Mbps @ 800GI, 150Mbps @ 400GI (Max.) / 2Nss: 270Mbps @ 800GI, 300Mbps @ 400GI (Max.)

Output Power	
802.11a	+15dBm @ 6, 9, 12, 18, 24Mbps / +15dBm @ 36Mbps / +14dBm @ 48Mbps / +12dBm @ 54Mbps
802.11b	+14dBm
802.11g	+17dBm @ 6, 9, 12,18,24Mbps / +17dBm @ 36Mbps / +16dBm @ 48Mbps / +16dBm @ 54Mbps
802.11n 2.4GHz/HT20	+16dBm @ MCS 0/8 +16dBm @ MCS 4/12 +16dBm @ MCS 1/9 +16dBm @ MCS 5/13 +16dBm @ MCS 2/10 +16dBm @ MCS 6/14 +16dBm @ MCS 3/11 +15dBm @ MCS 7/15
802.11n 2.4GHz/HT40	+15dBm @ MCS 0/8 +15dBm @ MCS 4/12 +15dBm @ MCS 1/9 +15dBm @ MCS 5/13 +15dBm @ MCS 2/10 +15dBm @ MCS 6/14 +15dBm @ MCS 3/11 +14dBm @ MCS 7/15
802.11n 5GHz/HT20	+15dBm @ MCS 0/8 +15dBm @ MCS 4/12 +15dBm @ MCS 1/9 +11 - 14dBm @ MCS 5/13 +15dBm @ MCS 2/10 +9 - 12dBm @ MCS 6/14 +15dBm @ MCS 3/11 +7 - 10dBm @ MCS 7/15
802.11n 5GHz/HT40	+14dBm @ MCS 0/8 +14dBm @ MCS 1/9 +14dBm @ MCS 2/10 +14dBm @ MCS 3/11 +14dBm @ MCS 4/12 +10– 13dBm @ MCS 5/13 +8 – 11dBm @ MCS 6/14 +6 – 9dBm @ MCS 7/15

Receiver Sensitivity							
	Data Rate	IEEE Spec(1 Rx dBm)	Typical/Maximum(2Rx dBm)		Data Rate	IEEE Spec(1 Rx dBm)	Typical/Maximum(2Rx dBm)
802.11a	6M	-82	-95/-85	802.11a/n HT40	MCS0	-79	-92/-82
	9M	-81	-94/-84		MCS1	-76	-90/-79
	12M	-79	-93/+82		MCS2	-74	-87/-77
	18M	-77	-90/-80		MCS3	-71	-84/-74
	24M	-74	-88/-77		MCS4	-67	-80/-70
	36M	-70	-84/-73		MCS5	-63	-76/-66
	48M	-66	-82/-69		MCS6	-62	-74/-65
	54M	-65	-81/-68		MCS7	-61	-72/-64
802.11b	1M	not specified	-98/-85	802.11b/g/n HT20	MCS0	-82	-95/-85
	5.5M	not specified	-98/-85		MCS1	-79	-94/-82
	11M	not specified	-94/-85		MCS2	-77	-92/-80
802.11g	6M	-82	-96/-85		MCS3	-74	-89/-77
	9M	-81	-96/-84		MCS4	-70	-86/-73
	12M	-79	-95/-82		MCS5	-66	-82/-69
	18M	-77	-93/-80		MCS6	-65	-80/-68
	24M	-74	-90/-77		MCS7	-64	-78/-67
	36M	-70	-87/-73	802.11b/g/n HT40	MCS0	-79	-92/-82
	48M	-66	-83/-69		MCS1	-76	-92/-79
	54M	-65	-82/-68		MCS2	-74	-89/-77
802.11a/n HT20	MCS0	-82	-94/-85		MCS3	-71	-86/-74
	MCS1	-79	-92/-82		MCS4	-67	-83/-70
	MCS2	-77	-90/-80		MCS5	-63	-77/-66
	MCS3	-74	-87/-77		MCS6	-62	-76/-65
	MCS4	-70	-84/-73		MCS7	-61	-75/-64
	MCS5	-66	-79/-69				
	MCS6	-65	-78/-68				
	MCS7	-64	-76/-67				

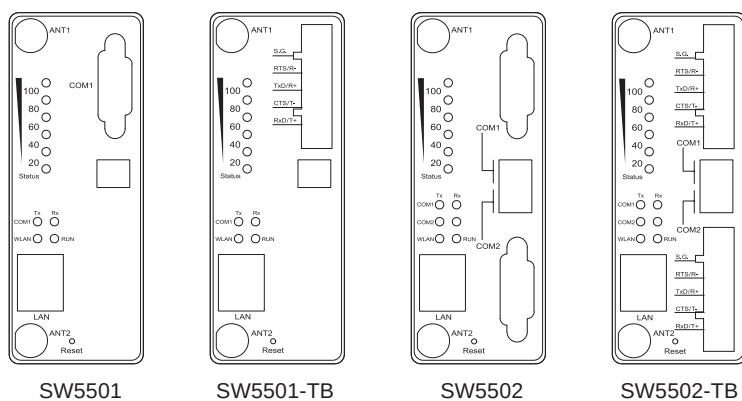
Ordering Information

SW5501	P/N:1P1SW550100001G 1-port Industrial Wireless Serial Device Server, DB9
SW5501-Sis	P/N:1P1SW5501SIS01G 1-port Industrial Wireless Serial Device Server, TB5 with serial isolation
SW5501-TB	P/N:1P1SW5501TB001G 1-port Industrial Wireless Serial Device Server, TB5
SW5502	P/N:1P1SW550200001G 2-port Industrial Wireless Serial Device Server, DB9
SW5502-Sis	P/N:1P1SW5502SIS01G 2-port Industrial Wireless Serial Device Server, TB5 with serial isolation
SW5502-TB	P/N:1P1SW5502TB001G 2-port Industrial Wireless Serial Device Server, TB5

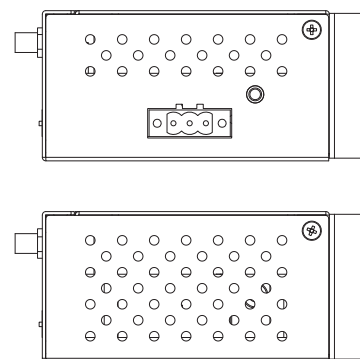
Optional Accessories

AD17-24C (US-Y)	P/N: 50500151240002G Power Adapter Y-Type power adaptor,100-240VAC input, 0.6A @ 24VDC output, US plug
AD17-24D (EU-Y)	P/N: 50500151240012G Power Adapter Y-Type power adaptor,100-240VAC input, 0.6A @ 24VDC output, EU plug
ADP-DB9(F)-TB5	P/N: 59906231G Female DB9 to Female 3.81 TB5 Converter
WMK-454-Black	P/N: 70100000000043G Black Aluminum Wall Mount Kit

Front View



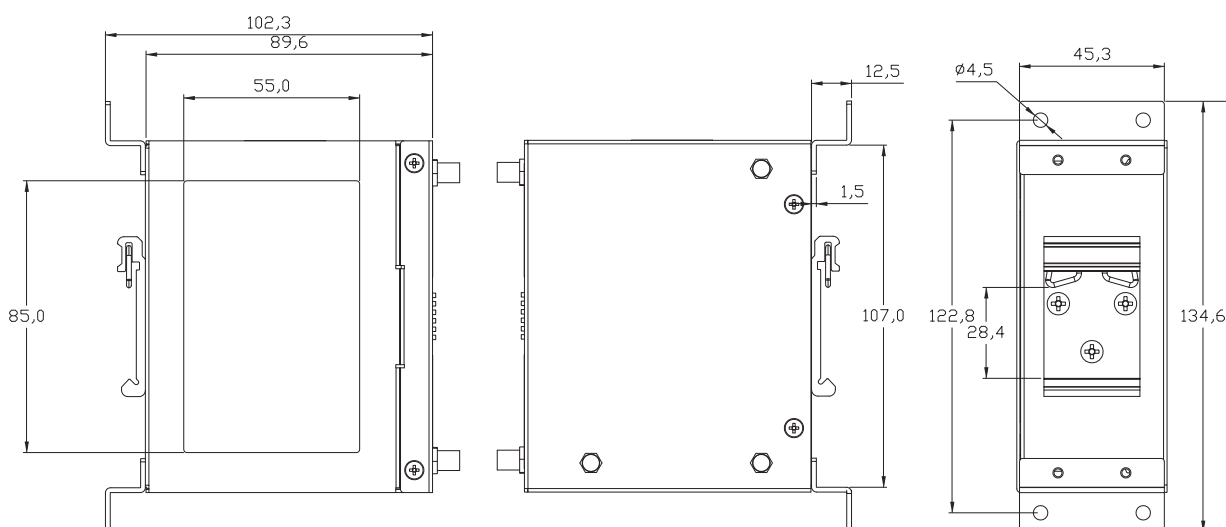
Top and Bottom View



Left Side View

Right Side View

Rear View



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Design and specification are subjected to change without notice.

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