MENCOM
CORPORATION

INDUSTRIAL NETWORKING SOLUTIONS

no problems, only solutions

Switches | **Secure Routers** | **Media Converters** | **Serial Device Servers** | **Modbus Gateways Protocol Gateways**

Cables **Receptacles** **Field Wireables** **Accessories**

WHY MENCOM?

Competitive Pricing | Custom Solutions
Industry Leading Technical Support

ABOUT MENCOM

Since 1987, Mencom Corporation has provided high quality, cost effective, industrial electrical connector solutions. Our commitment to quality and customer service has made Mencom a preferred supplier for many global companies. Mencom provides expert engineering support and technically savvy customer service that is unmatched in the industry. For your next connector application, give us a call and let us show you the power of Mencom.

no problems, only solutions

This isn't just our slogan. This is a proactive commitment to our valued customers.
Few things are worse than arriving on the jobsite with incorrect or insufficient materials. Our inside sales reps have the experience to help you select the most efficient and cost effective solutions available. They are trained to make sure you include all the correct components required to complete your project.

During regular business hours, you will always be greeted by a live person when contacting Mencom. We also staff our on-line chat function in order to assist you with any questions you might have while taking advantage of our inventory enabled website.
A team of Inside Sales Representatives and Account Specialists are on hand to help you meet your connector needs. Whether it is a quote on a special project, expediting an order, or helping to customize connectors for an application, Mencom is here to help you.

FLEXIBLE CUSTOM SOLUTIONS

Mencom is fortunate to have a capable team of engineers with decades of experience. Combined with a progressive manufacturing facility, we are able to assist in the design and manufacturing of most any connectivity project. Our engineering team is available to work with your design and manufacturing groups to help solve your challenging connection issues. From small changes in catalog items, to custom terminations and assemblies.

- Custom Lengths for cables and receptacle leads
- Custom over-molding onto customer cables and sensors
- Plug & Play customization – to meet your spec
- Adding ring terminals, spade terminals, ferrules
- And more

These are just a few examples of the value added features Mencom can provide. We welcome the opportunity to see what solutions we can provide for your next project.

Industrial Networking Solutions

For Reliability, Harsh Environment, EMI/EMS, Security and Perfomance

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Industrial Networking Solutions

For Reliability, Harsh Environment, EMI/EMS, Security and Perfomance

Switches | Secure Routers | Media Converters | Serial Device Servers | Modbus Gateways

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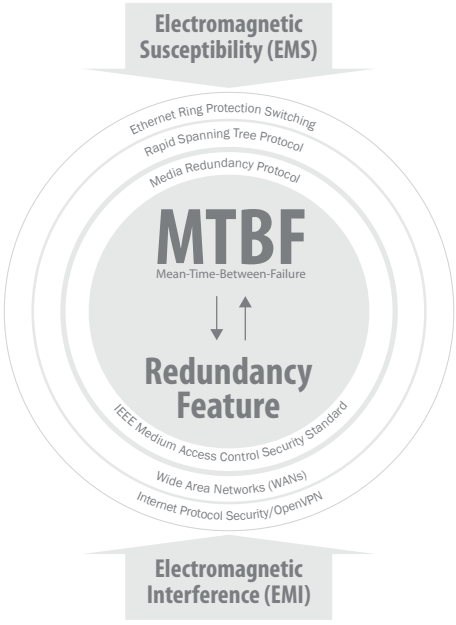
In the past two decades, Ethernet-based networks were adopted to become the backbone of industrial automation. The latest trend in industrial automation is the vision of “Industry 4.0” which is originated by the German government to create the “Smart Factory” based on the concept of computerized manufacturing. The smart factory requires the use of more than billion connected devices and this raises a lot of concern about the reliability and the security of network communications for all kinds of applications in the industry.

Reliable Solutions for Harsh Environments

Unreliable networks almost always lead to delays in production. This is no longer acceptable in the Industry 4.0 era where competition in business is very intense. In order to minimize such unexpected downtime, Mencom’s Ethernet devices provide prolonged Mean-Time-Between-Failure (MTBF). In an event of link or device failure, Smart-Redundancy features will detect the failure, relay cause of the failure back to the control center, and automatically recover from such failure to provide continuous operation.

Mencom’s industrial Ethernet devices are designed with embedded isolation to withstand the harshest industrial-grade electromagnetic interference and susceptibility without suffering a fatal damage or generating noise. In addition, Ethernet Ring Protection Switching (ERPS), Rapid Spanning Tree Protocol (RSTP), or Media Redundancy Protocol (MRP) ring settings can resume the operation and network connectivity immediately if a network switch fails or a communication link is broken.

For security and encryption, Mencom’s Ethernet devices provide seamless and cost-effective encrypted links for local area networks (LANs) through MACsec (IEEE Medium Access Control Security Standard, IEEE 802.1AE) and for wide area networks (WANs) or Internet through IPsec (Internet Protocol Security) or OpenVPN.



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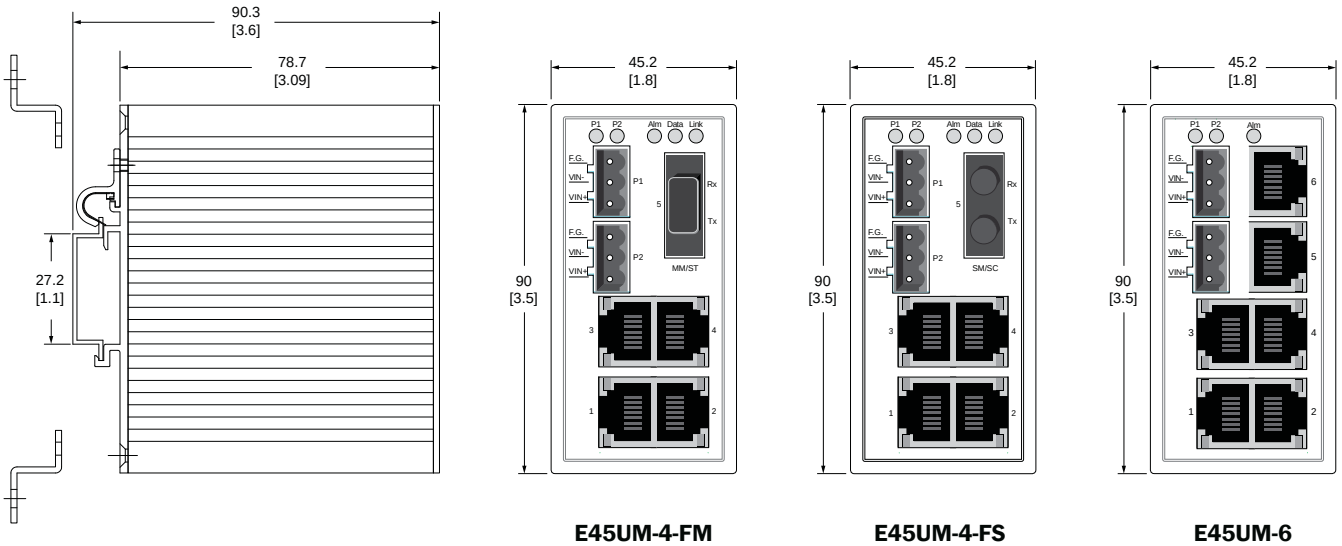
Unmanaged Fast Ethernet Switches			
Part Number [MFG #]	**10/100 RJ45 Ports**	**Fiber Ports**	**Features**
E45UM-4-FM [EH2005-FM]	4	1 Multi-Mode Max 2 Km	Redundant Power Input
E45UM-4-FS [EH2005-FS]	4	1 Single-Mode Max 20 Km	
E45UM-6 [EH2006]	6	N/A	



E45UM-4-FM **E45UM-4-FS** **E45UM-6**

Feature Highlights:

- 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

Ethernet	
Transmission Rate	10/100Mbps
Total Port	5 / 6
10/100Mbps	5 / 6
Connector	RJ-45 x 4+ Fm/Fs x 1 (E45UM-4-FM and E45UM-4-FS) / RJ-45 x 6 (E45UM-6)
Auto MDI/MDI-X	Yes
Power Management	
Input	DC 9 ~ 30V
Connector	3-pin 5.08mm pitch terminal block x 2
Consumption	5.4Watts Max
Environmental Limits	
Operating Temperature	0°C ~ 60°C (32º ~ 140ºF)
Storage Temperature	-20º ~ 70ºC (-4º~ 185ºF), 5 ~ 95%RH
Ambient Relative Humidity	5 ~ 95%RH (non-condensing)
Regulatory Approvals	
Safety	UL60950-1
EMC	FCC Class A, CE Class A
EMS	ESD Level 2, RS Level 2, EFT Level 2, Surge Level 2, CS Level 2, PFMF Level1, DIP.
MTBF	107296(EH2005-Fm/Fs) / 112092(EH2006)
Warranty	5 Years

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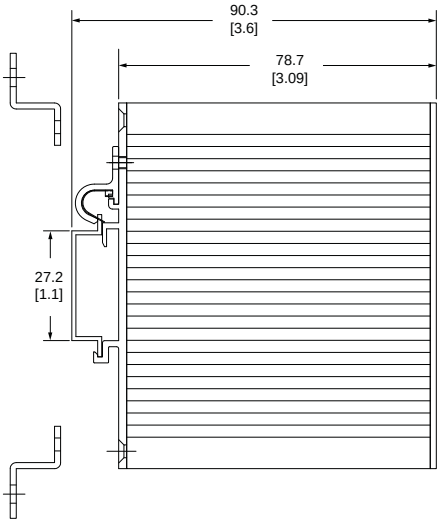
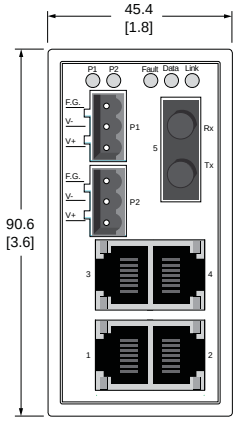
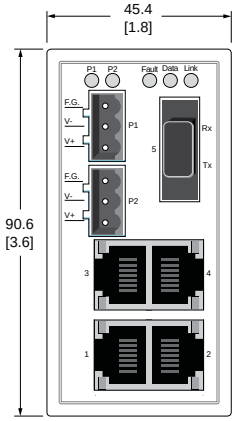
Unmanaged Fast Ethernet Switches			
Part Number [MFG #]	**10/100 RJ45 Ports**	**Fiber Ports**	**Features**
E45UM-4-FM-MT [EH2305-1FM]	4	1 Multi-Mode Max 2 Km	Redundant Power Input
E45UM-4-FS-MT [EH2305-1FS]	4	1 Single-Mode Max 20 Km	
E45UM-6-MT [EH2306]	6	N/A	

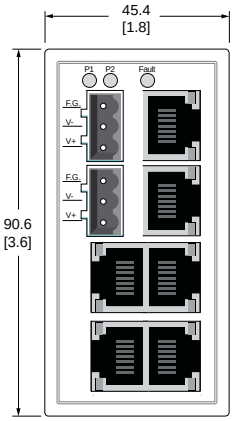




E45UM-4-FM-MT



E45UM-4-FS-MT



E45UM-6-MT

Feature Highlights:

- 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

Unmanaged Entry-Level Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

Ethernet		
Transmission Rate		10/100Mbps
Total Port		5 / 6
10/100Mbps		5 / 6
Connector	E45UM-4-FM-MT E45UM-4-FS-MT	RJ-45 x 4 + Fs/Fm x 1
	E45UM-6-MT	RJ-45 x 6
Auto MDI/MDI-X		Yes

Power Management	
Input	DC 9 ~ 30V
Connector	Dual 3 pin 5.08mm pitch Terminal block
Consumption	5.4Watts Max

Environmental Limits	
Operating Temperature	-10°C ~ 70°C (14ºF ~ 158ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºF ~ 185ºF)
Ambient Relative Humidity	5%~95% non-condensing

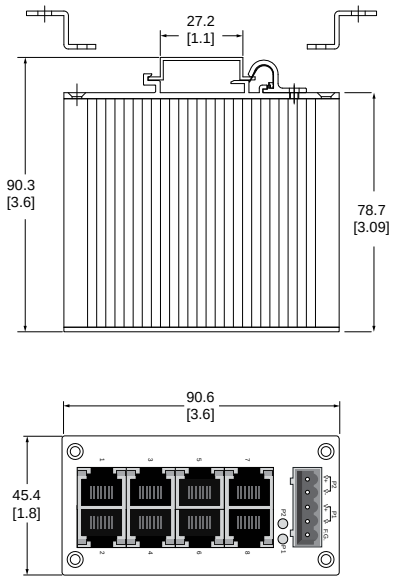
Regulatory Approvals		
Safety		UL60950-1,CSA C22.2 No.60950-1-03
FCC(EMI)		FCC 47 CFR Part15, Subpart B, Class A ICES-003, Class A ANSI C63.4-2003
CE(EMI)	E45UM-4-FM-MT E45UM-4-FS-MT	EN55032:2012+AC:2013, Class A EN 61000-3-2:2014, Class A EN 61000-3-3: 2013
	E45UM-6-MT	EN 55022:1988+A1:2000+A2:2003, Class A EN 61000-3-2:2000, Class A EN 61000-3-3: 1995+A1:2001
CE(EMS)	E45UM-4-FM-MT E45UM-4-FS-MT	EN 55024:2010 IEC 61000-4-2:2008 IEC 61000-4-3:2010 IEC 61000-4-4:2012 IEC 61000-4-5:2014 IEC 61000-4-6:2013 IEC 61000-4-8:2009 IEC 61000-4-11:2004
	E45UM-6-MT	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	E45UM-4-FM-MT E45UM-4-FS-MT	471160 hrs(25ºC) / 53.79 years(25ºC)
	E45UM-6-MT	455736 hrs(25°C) / 52.02 years(25°C)
Warranty		5 years

Industrial Networking Solutions

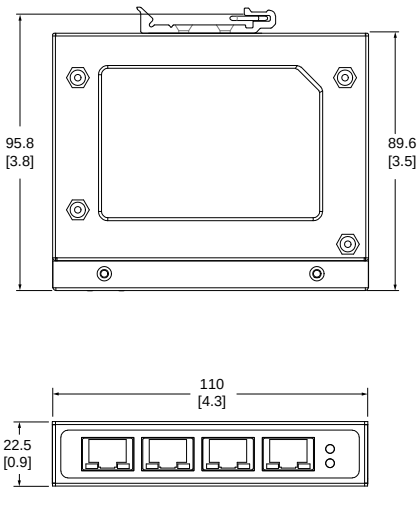
Entry Level Switches

Unmanaged Entry-Level Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

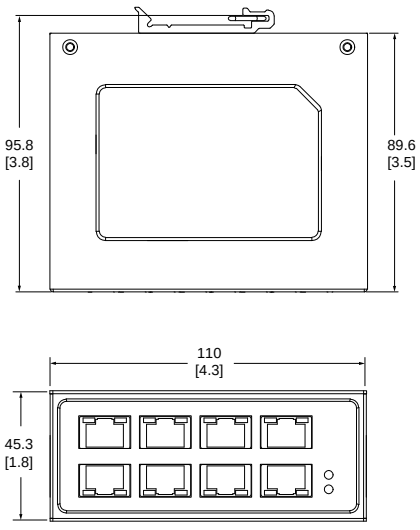
Unmanaged Fast Ethernet Switches		
Part Number [MFG #]	**10/100 RJ45 Ports**	**Features**
E45UM-8-MT [EH2308]	8	Redundant Power Input
E45PNUM-4 [EH2304-PR]	4	Redundant Power Input Profinet & Ethernet/IP Packet Prioritization Profinet Connectors
E45PNUM-8 [EH2308-PR]	8	Redundant Power Input Profinet & Ethernet/IP Packet Prioritization Profinet Connectors



E45UM-8-MT



E45PNUM-4



E45PNUM-8

Feature Highlights:

- 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

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 Management		
Input		9~48 VDC, Dual inputs
Consumption	E45UM-8-MT	4.0 Watts Max
	E45PNUM-4	4.0 Watts Max
	E45PNUM-8	6.4 Watts Max
Reverse Polarity Protection		Present

Environmental Limits	
Operating Temperature	-10°C ~ 70°C (14ºF ~ 158ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºF ~ 185ºF)
Ambient Relative Humidity	5%~95% non-condensing

Regulatory Approvals		
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)	E45UM-8-MT	European Standard EN 55022:2006/ A1:2007 Class A EN 61000-3-2:2006 EN 61000-3-3: 1995/A1:2001/A2 :2005
	E45PNUM-4 E45PNUM-8	European Standard EN 55022:2010
CE(EMS)	E45UM-8-MT	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
	E45PNUM-4 E45PNUM-8	EN 55024: 2010 IEC 61000-4-2: 2008 IEC 61000-4-3: 2010 IEC 61000-4-4: 2012 IEC 61000-4-5: 2005 IEC 61000-4-6: 2008 IEC 61000-4-8: 2009 IEC 61000-4-11: 2004
Shock		IEC 60068-2-27
Drop		ISTA Test Procedure 2A
Vibration		IEC 60068-2-64
RoHS		Lead(Pb) Free
MTBF	E45UM-8-MT	568862 hrs(25ºC) / 64.94 years(25ºC)
	E45PNUM-4	EH2304-PR 673300 hrs/ 76.86 years
	E45PNUM-8	EH2308-PR 515600 hrs/ 58.86 years
Warranty		5 years

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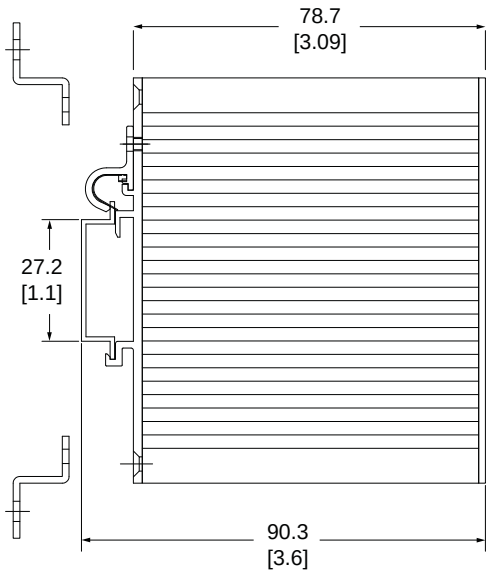
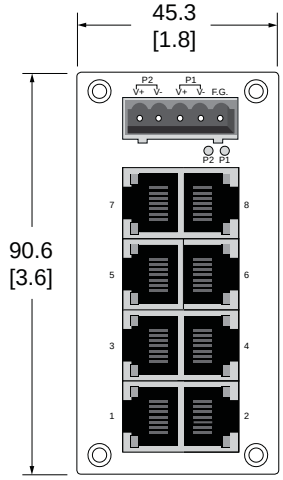
Unmanaged Gigabit Ethernet Switches		
Part Number [MFG #]	**10/100/1000 RJ45 Ports**	**Features**
E45UM-8M [EHG2308]	8	Redundant Power Input Profinet & Ethernet/IP Packet Prioritization Profinet Connectors





Feature Highlights:

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

Unmanaged Gigabit Switch | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

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
Jumbo Frame Size	Up to 9216 byte
Interface	
RJ-45 Ports	10/100/1000BaseT(X) auto negotiation speed 10/100/1000M Full/Half-Duplex MDI/MDI-X auto-detection
LED Indicators	Power, LAN(10/100/1000M)
Power Management	
Input	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
Environmental Limits	
Operating Temperature	-10°C ~ 70°C (14ºF ~ 158ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºF ~ 185ºF)
Ambient Relative Humidity	5%~95% non-condensing

Regulatory Approvals	
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 EN55032:2012+AC:2013 Class A. EN61000-3-2:2014, EN 61000-3-3:2013
CE(EMS)	EN55024:2010(IEC 61000-4-2:2008) IEC61000-4-3:2006/A1:2007/A2:2010, IEC 61000-4-4:2012 IEC 61000-4-5:2014, IEC 61000-4-6:2013 IEC 61000-4-8 :2009, IEC 61000-4-11:2004
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)
Warranty	5 years

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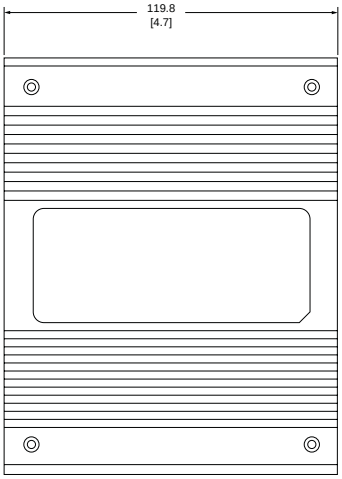
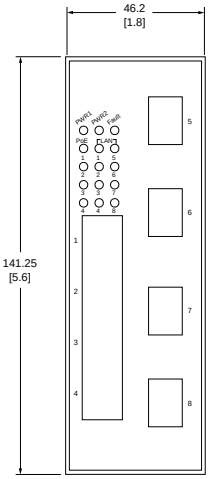
Unmanaged Gigabit Switches with PoE				
Part Number [MFG #]	**10/100/1000 RJ45 Ports**	**1000 SFP Slots**	**Max PoE Ports**	**Features**
E45UM-8M-4POE [EHG6308-4POE]	8	N/A	4	Redundant Power Input
E45UM-8M-4POE-4SFP [EHG6308-4POE-4SFP]	4	4	4	

Feature Highlights:

- 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-30 metal case
- DIN-Rail and wall mounting (Optional)





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	
RJ-45 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 Management	
Dual Input	48 ~ 57 VDC (IEEE802.3af :48VDC input / IEEE802.3at :50~57VDC input)
Dual Input Current	Max. 3.1 A @ 55VDC (supports up to 4 ports at 30 W per PoE port)
Overload Current Protection	Present
Consumption	148.5W (with PoE full function)
Connection	Lockable 7-pin terminal blocks for power input
Reverse Polarity Protection	Present
Environmental Limits	
Operating Temperature	-10°C ~ 70°C (14ºF ~ 158ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºF ~ 185ºF)
Ambient Relative Humidity	5%~95% (non-condensing)

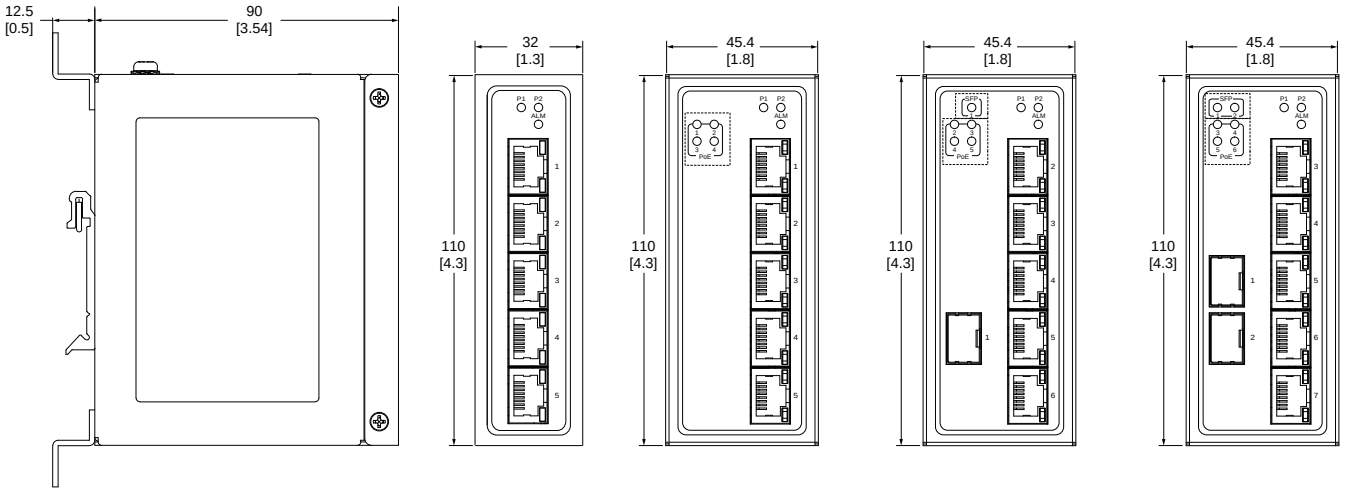
Regulatory Approvals	
Safety	UL 60950-1
FCC(EMI)	FCC Part 15 class A, CISPR(EN55032) class A
CE(EMS)	EN61000-4-2 (ESD), level 3 EN61000-4-3 (RS), level 3 EN61000-4-4 (EFT),level 3 EN61000-4-5 (Surge), level 3 EN61000-4-6 (CS), level 2 EN61000-4-8 (PFMF) EN61000-4-11 (Dips)
Shock	MIL-STD-810F Method 516.5
Drop	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2
RoHS	Lead(Pb) Free
Warranty	5 years

Industrial Networking Solutions

Harsh Environments Switches

Unmanaged Harsh Environments Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Part Number [MFG #]	10/100/1000 RJ45 Ports	1000 SFP Slots	Max PoE Ports	Housing Material	Features
Unmanaged Gigabit Switches					
E45UM-5M-EX [EHG7305]	5	N/A	N/A	SECC	Atex Zone 2 Certified Industrial EMC Protection MIL-STD Ruggedized Redundant Power Input Relay Output Railway Certified (EN50155)
E45UM-6M-1SFP-EX [EHG7306-1SFP]	5	1	N/A	Aluminum	
E45UM-7M-2SFP-EX [EHG7307-2SFP]	5	2	N/A		
Unmanaged Gigabit Switches with PoE					
E45UM-5M-4POE-EX [EHG7305-4POE]	5	N/A	4	Aluminum	Atex Zone 2 Certified Industrial EMC Protection MIL-STD Ruggedized Redundant Power Input Relay Output Railway Certified (EN50155)
E45UM-6M-4POE-1SFP-EX [EHG7306-4POE-1SFP]	5	1	4		
E45UM-7M-4POE-2SFP-EX [EHG7307-4POE-2SFP]	5	2	4		



E45UM-5M-EX | **E45UM-5M-4POE-EX** | **E45UM-6M-1SFP-EX** **E45UM-6M-4POE-1SFP-EX** | **E45UM-7M-2SFP-EX** **E45UM-7M-4POE-2SFP-EX**

Feature Highlights:

- Up to 5 10/100/1000 BASE-T(X) ports and 2 1000 BASE-X SFP ports
- Up to 4 802.3af or 802.3at complaint PoE ports
- Support 10K Jumbo frames
- Supports 802.3az Energy Efficient Ethernet for power savings
- Works from -40°C~70°C
- Failed power input alarm contact
- Certified by UL 61010-2-201 and UL C1D2/ATEX Zone 2

Switch Properties	
Processing Scheme	Store-and-Forward
MAC Address Table	8096
Jumbo Frame	10K Bytes
Packet Buffer	1 Mbits

Ethernet	
Compliance	IEEE802.3 for 10BASE-T IEEE802.3u for 100BASE-T(X) and 100BASE-FX IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.3x Flow Control IEEE 802.3af / 802.3at for Power-over-Ethernet IEEE 802.3az for Energy Efficient Ethernet
Flow Control	Back pressure and pause frame-based flow control schemes
LLDP	Forwarding
Transmission Rate	10/100/1000 Mbps (the second SFP port is 1000 Mbps only)
Auto MDI/MDI-X	Yes

Environmental Limits	
Operating Temperature	-40°C ~ 70°C (-40ºF ~ 158ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºF ~ 185ºF)
Ambient Relative Humidity	5%~95%, 55°C (non-condensing)

Regulatory Approvals				
Safety	UL 61010-2-201, UL C1D2/ATEX Zone 2			
EMC	EN 55032 EN 61000-6-4 EN 55024 EN 61000-6-2			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	80-1000MHz 1.4-2.0GHz 2.0-2.7GHz	10(V/m) 3 (V/m) 10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±2.0KV	3 3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3 3 3
IEC 61000-4-6	CS	Conducted	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	10 V/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
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			
Warranty	5 years			

Power Management						
Part Number	E45UM-5M-EX	E45UM-5M-4POE-EX	E45UM-6M-1SFP-EX	E45UM-6M-4POE-1SFP-EX	E45UM-7M-2SFP-EX	E45UM-7M-4POE-2SFP-EX
Input Voltage	12-52 VDC*					
Input Current (System)	0.5A @ 12 V		0.6A @ 12V			
Max. Power Consumption (System)	6 W		7.2 W			
Input Current (with PoE)	-	2.6A @ 51 V	-	2.6A @ 51 V	-	2.6A @ 51 V
Max. Power Consumption (with PoE)	-	130 W	-	130 W	-	130 W
Relay Output	24 V / 0.5A					
Connector	Terminal Block					

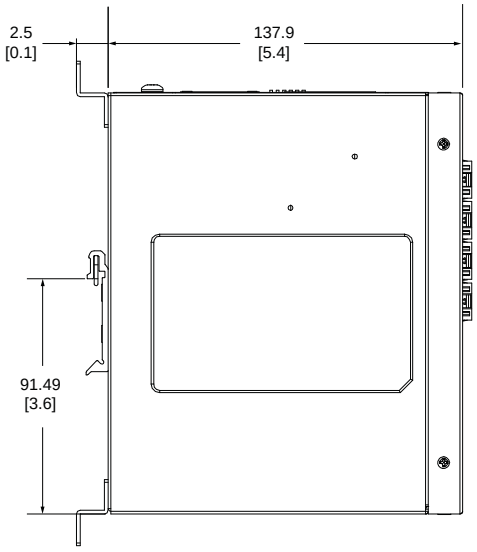
* 802.3af PoE output starts from 43 VDC input and 802.3at output starts from 51 VDC input.

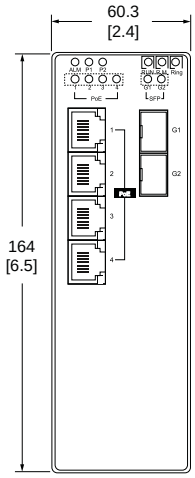
Industrial Networking Solutions

Harsh Environments Switches

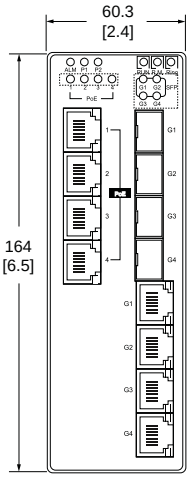
Layer-2 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Managed Fast-Ethernet Switches					
Part Number [MFG #]	**10/100 RJ45 Ports**	**10/100/1000 RJ45 Ports**	**10/100/1000 SFP Slots**	**Max PoE Ports**	**Features**
E45PNMS-6-2SFP [EH7506-2SFP]	4	N/A	2	N/A	Industrial EMC Protection Profinet & Ethernet/IP Ready Profinet CC-B v2.33 Certified IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output NEMA TS-2 Certified
E45PNMS-8-4M-4SFP [EH7508-4G-4SFP]	4	(4)	(4)	N/A	
E45PNMS-12-4M-4SFP [EH7512-4G-4SFP]	8	(4)	(4)	N/A	
Industrial Managed Fast-Ethernet Switches with PoE					
E45PNMS-6-4POE-2SFP [EH7506-4POE-2SFP]	4	N/A	2	4	Industrial EMC Protection Profinet & Ethernet/IP Ready Profinet CC-B v2.33 Certified IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output NEMA TS-2 Certified
E45PNMS-8-4POE-4M-4SFP [EH7508-4G-4POE-4SFP]	4	(4)	(4)	4	
E45PNMS-12-4POE-4M-4SFP [EH7512-4G-4POE-4SFP]	8	(4)	(4)	4	
E45PNMS-12-8POE-4M-4SFP [EH7512-4G-8POE-4SFP]	8	(4)	(4)	8	

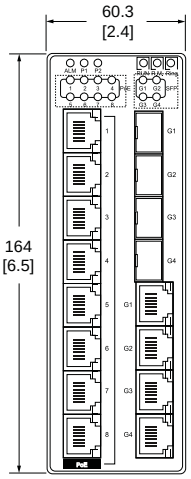




E45PNMS-6-**



E45PNMS-8-**



E45PNMS-12-**

Feature Highlights:

- Up to 8 10/100 BASE-T(X) ports and 4 10/100/1000 BASET(X) Combo ports
- Up to 8 802.3af or 802.3at complaint PoE ports
- ERPS Ring (recovery time < 20ms @ 40 switches), STP/RSTP for network redundancy
- Remote management over Web browser, Telnet console, serial console, and Windows Utility

Switch Properties	
Priority Queues	8
Max. Number of Available VLANs	256
VLAN ID Range	VID 1 to 4094
Static IGMP Groups	256
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	12 Mbit

Interface	
RJ45 Ports	10/100/1000BASE-T(X) or 10/100 BASE-T(X) auto negotiation speed
Fiber Ports	100BASE-FX / 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 2A @30VDC
DIP Switches	Ring Control
Button	Reset Button

Power Management	
Input Voltage	9-48 VDC or 18~30VAC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current	Max. 1.5A @ 18VAC Max. 2.0A @ 9VDC (without PD) Max. 3.2A @ 45VDC (Support up to 8 ports at 15.4W per PoE port) Max. 5.5A @ 51VDC (Support up to 8 ports at 30W per PoE port)
Connector	Removable 5-pin Terminal Block for power input
Reverse Polarity Protection	Present (DC only)

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% non-condensing

Technology	
Standards	IEEE802.3af / 802.3at for Power-over-Ethernet IEEE802.3 for 10BASE-T IEEE802.3u for 100BASE-T(X) and 100BASE-FX IEEE802.3ab for 1000BASE-T(X) IEEE802.3z for 1000BASE-X IEEE802.3x for Flow Control IEEE802.1D-2004 for Spanning Tree Protocol IEEE802.1w for Rapid STP IEEE802.1Q for VLAN Tagging IEEE802.1p for Class of Service IEEE8021X for Authentication IEEE802.3ad for Port Trunk with LACP
Protocols	IGMPv1/v2, GVRP, SNMPv1/v2c/v3, ICMP, ARP, Telnet, DHCP Client, TFTP, SNTP, SMTP, RMON, HTTP, Syslog, PROFINET, Modbus/TCP/ Ethernet/IP, LLDP,IEEE 1588 PTP V2, IPv4, NTP Client, EAP, RADIUS
MIB	802.1x MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9
Flow Control	IEEE802.3x for Flow Control, back pressure flow control

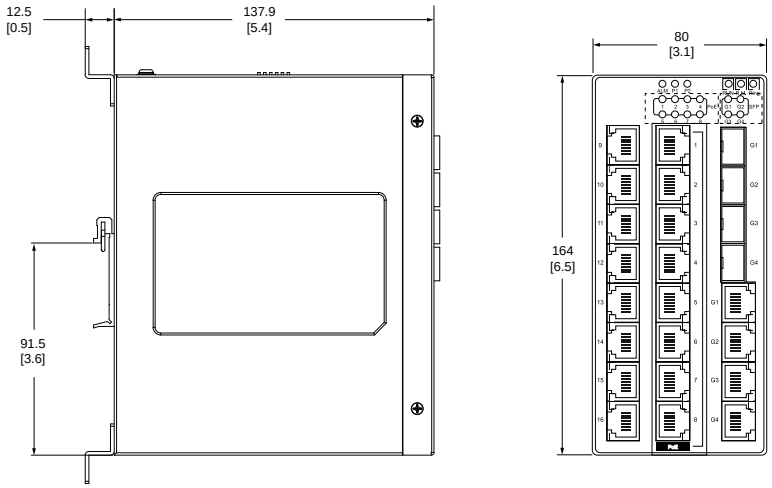
Regulatory Approvals				
Safety	UL60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A / EN 61000-6-4:2007+A1:2011 / EN 61000-6-2:2005			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Radiated (Enclosure)	10 (V/m)	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to-Line ±1.0KV Line-to-Earth ±2.0KV Line-to-Line ±1.0KV Line-to-Earth ±2.0KV Line-to-Earth ±1.0KV	3 3 3 3 3
IEC 61000-4-6	CS	Conducted (Enclosure)	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	30(A/m)	4
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
MTBF	11 Years			
Warranty	5 years			

Industrial Networking Solutions

Harsh Environments Switches

Layer-2 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Managed Fast-Ethernet Switches					
Part Number [MFG #]	**10/100 RJ45 Ports**	**10/100/1000 RJ45 Ports**	**10/100/1000 SFP Slots**	**Max PoE Ports**	**Features**
E45PNMS-20-4M-4SFP [EH7520-4G-4SFP]	16	(4)	(4)	N/A	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output Profinet CC-B v2.33 Certified
Industrial Managed Fast-Ethernet Switches with PoE					
E45PNMS-20-4POE-4M-4SFP [EH7520-4G-4POE-4SFP]	16	(4)	(4)	4	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output Profinet CC-B v2.33 Certified
E45PNMS-20-8POE-4M-4SFP [EH7520-4G-8POE-4SFP]	16	(4)	(4)	8	



Feature Highlights:

- Up to 16 10/100 BASE-T(X) ports and 4 10/100/1000 BASE- T(X) Combo ports
- Up to 8 802.3af or 802.3at complaint PoE ports
- ERPS Ring (recovery time < 20ms @ 40 switches), STP/RSTP for network redundancy
- Remote management over Web browser, Telnet console, serial console, and Windows Utility
- PROFINET v2 Class B compatible & Ethernet/IP Ready
- Provide Generic Station Description file (GSD v2.1) for integration with SIMATIC Step 7
- Support for PROFINET I/O parameters, I/O cyclic data, DCP, DHCP and PROFINET Real-Time

Switch Properties	
Priority Queues	8
Max. Number of Available VLANs	256
VLAN ID Range	VID 1 to 4094
Static IGMP Groups	256
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	12 Mbit

Interface	
RJ45 Ports	10/100/1000BASE-T(X) or 10/100 BASE-T(X) auto negotiation speed
Fiber Ports	100BASE-FX / 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 2A @30VDC
DIP Switches	Ring Control
Button	Reset Button

Power Management	
Input Voltage	9-48 VDC or 18~30VAC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current	Max. 1.5A @ 18VAC Max. 2.0A @ 9VDC (without PD) Max. 3.2A @ 45VDC (Support up to 8 ports at 15.4W per PoE port) Max. 5.5A @ 51VDC (Support up to 8 ports at 30W per PoE port)
Connector	Removable 5-pin Terminal Block for power input
Reverse Polarity Protection	Present (DC only)

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% non-condensing

Technology	
Standards	IEEE802.3af / 802.3at for Power-over-Ethernet IEEE802.3 for 10BASE-T IEEE802.3u for 100BASE-T(X) and 100BASE-FX IEEE802.3ab for 1000BASE-T(X) IEEE802.3z for 1000BASE-X IEEE802.3x for Flow Control IEEE802.1D-2004 for Spanning Tree Protocol IEEE802.1w for Rapid STP IEEE802.1Q for VLAN Tagging IEEE802.1p for Class of Service IEEE8021X for Authentication IEEE802.3ad for Port Trunk with LACP
Protocols	IGMPv1/v2, GVRP, SNMPv1/v2c/v3, ICMP, ARP, Telnet, DHCP Client, TFTP, SNTP, SMTP, RMON, HTTP, Syslog, PROFINET, Modbus/TCP, LLDP,IEEE 1588 PTP V2, IPv4, NTP Client, EAP, RADIUS
MIB	802.1x MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9
Flow Control	IEEE802.3x for Flow Control, back pressure flow control

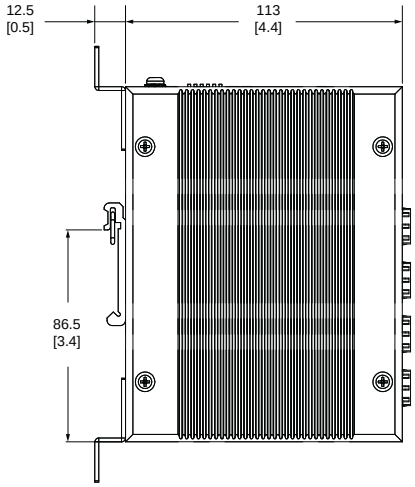
Regulatory Approvals				
Safety	UL60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A / EN 61000-6-4:2007+A1:2011 / EN 61000-6-2:2005			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Radiated (Enclosure)	10 (V/m)	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to-Line ±1.0KV Line-to-Earth ±2.0KV Line-to-Line ±1.0KV Line-to-Earth ±2.0KV Line-to-Earth ±1.0KV	3 3 3 3 3
IEC 61000-4-6	CS	Conducted (Enclosure)	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	30(A/m)	4
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
MTBF	11 Years			
Warranty	5 years			

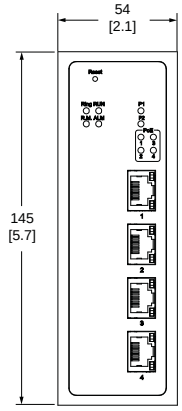
Industrial Networking Solutions

Harsh Environments Switches

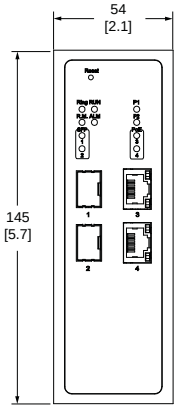
Layer-2 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

Part Number [MFG #]	10/100/1000 RJ45 Ports	1000 SFP Slots	Max PoE Ports	Features
Industrial Managed Gigabit Switches				
E45PNMS-4M [EHG7504]	4	N/A	N/A	Industrial EMC Protection Profinet & Ethernet/IP Ready Profinet CC-B v2.33 Certified IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-4M-2M-2SFP [EHG7504-2SFP]	2	2	N/A	
E45PNMS-4M-4SFP [EHG7504-4SFP]	N/A	4	N/A	
Industrial Managed Gigabit Switches with PoE				
E45PNMS-4M-4POE [EHG7504-4POE]	4	N/A	4	Industrial EMC Protection Profinet & Ethernet/IP Ready Profinet CC-B v2.33 Certified IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-4M-2POE-2SFP [EHG7504-2POE-2SFP]	2	2	2	

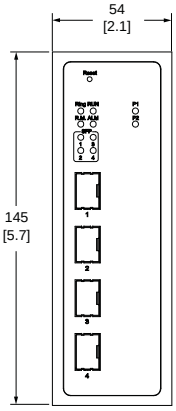




E45PNMS-4M
E45PNMS-4M-4P0E



E45PNMS-4M-2M-2SFP
E45PNMS-4M-2P0E-2SFP



E45PNMS-4M-4SFP

Feature Highlights:

- Up to 8 10/100/1000 BASE-T(X) RJ45 ports or 1000 BASE-X SFP slots.
- Up to 8 802.3af/ 802.3at Power over Ethernet ports, with maximum 30W
- PoE power per port and maximum 240 W device power budget
- Powerful Switching Platform, supporting Redundancy advanced
- Protocols, such as ERPS, RSTP, STP, MRP (Client) and compatible rings
- Profinet Conformance Class B compatible & Ethernet/IP Ready
- IEEE 1588v2 Precision Time Protocol Hw-Based Transparent clock
- Works from -20°C~70°C

Layer-2 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

Switch Properties	
Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Power Management	
Input Voltage	9-57 VDC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current (System)	Max. 1.4A @ 9VDC (without PoE) Max. 2.9A @ 45VDC (Support up to 8 ports at 15.4W per PoE port) Max. 5.0A @ 51VDC (Support up to 8 ports at 30W per PoE port)
Power Consumption (System)	Max 12.6 W @9 VDC (without PoE) Max 130.5 W @45VDC (802.3af, with 15.4W PoE per port for 8 ports) Max 255 W @51VDC (802.3at, with 30W PoE per port for 8 ports)
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Present (DC only)

Interfaces	
RJ45 Ports	Up to 8 10/100/1000BASE-T(X) auto negotiation speed
Fiber Optics Ports	Up to 4 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC
DIP Switches	Ring Control and Profinet Setting
Button	Reset Button

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%, 55°C (Non-condensing)

Ethernet	
Standards	IEEE 802.3af / 802.3at for Power-over-Ethernet IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for Flow Control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1q/p for VLAN Tagging and Class of Service IEEE 8021x for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GARP,GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 HardwareTransparent Clock, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415

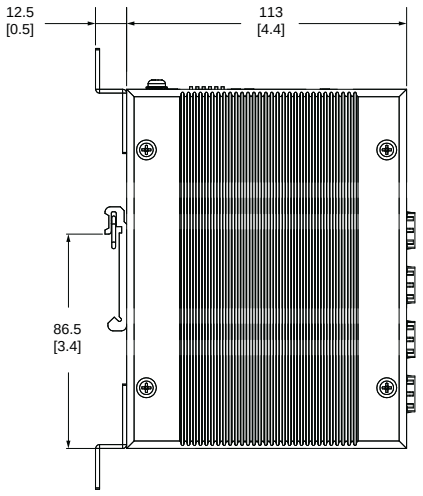
Regulatory Approvals				
Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	80-1000MHz 1.4-2.0GHz 2.0-2.7GHz	10(V/m) 3(V/m) 10(V/m)	3 3 3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0kV Line-to Earth±2.0kV Line-to Earth±2.0kV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	30 V/m	4
IEC 61000-4-11	DIP	AC Power Port	-	A
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
MTBF	20 Years			

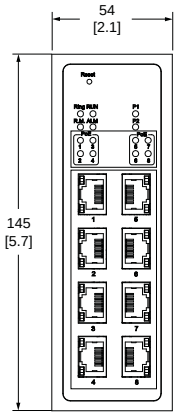
Industrial Networking Solutions

Harsh Environments Switches

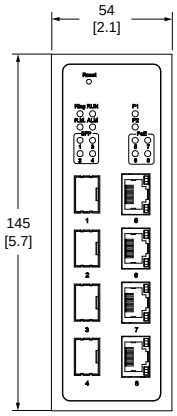
Layer-2 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

Part Number [MFG #]	10/100/1000 RJ45 Ports	1000 SFP Slots	Max PoE Ports	Features
Industrial Managed Gigabit Switches				
E45PNMS-8M [EHG7508]	8	N/A	N/A	Industrial EMC Protection Profinet & Ethernet/IP Ready Profinet CC-B v2.33 Certified IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-8M-4M-4SFP [EHG7508-4SFP]	4	4	N/A	
Industrial Managed Gigabit Switches with PoE				
E45PNMS-8M-4POE-4SFP [EHG7508-4POE-4SFP]	4	4	4	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-8M-8POE [EHG7508-8POE]	8	N/A	8	





E45PNMS-8M
E45PNMS-8M-8POE



E45PNMS-8M-4M-4SFP
E45PNMS-8M-4POE-4SFP

Feature Highlights:

- Up to 8 10/100/1000 BASE-T(X) RJ45 ports or 1000 BASE-X SFP slots
- Up to 8 802.3af/ 802.3at Power over Ethernet ports, with maximum 30W
- PoE power per port and maximum 240 W device power budget
- Powerful Switching Platform, supporting Redundancy advanced
- Protocols, such as ERPS, RSTP, STP, MRP (Client) and compatible rings
- Profinet Conformance Class B compatible & Ethernet/IP Ready
- IEEE 1588v2 Precision Time Protocol Hw-Based Transparent clock
- Works from -20°C~70°C

Layer-2 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

Switch Properties	
Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Power Management	
Input Voltage	9-57 VDC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current (System)	Max. 1.4A @ 9VDC (without PoE) Max. 2.9A @ 45VDC (Support up to 8 ports at 15.4W per PoE port) Max. 5.0A @ 51VDC (Support up to 8 ports at 30W per PoE port)
Power Consumption (System)	Max 12.6 W @9 VDC (without PoE) Max 130.5 W @45VDC (802.3af, with 15.4W PoE per port for 8 ports) Max 255 W @51VDC (802.3at, with 30W PoE per port for 8 ports)
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Present (DC only)

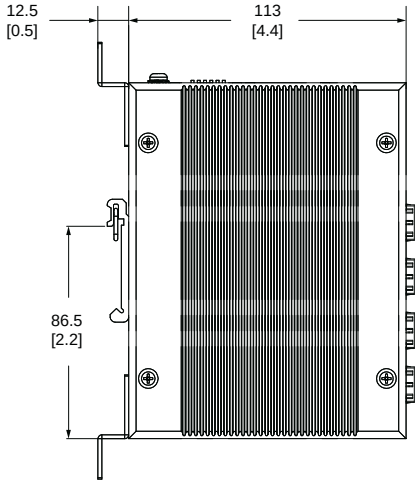
Interfaces	
RJ45 Ports	Up to 8 10/100/1000BASE-T(X) auto negotiation speed
Fiber Optics Ports	Up to 4 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC
DIP Switches	Ring Control and Profinet Setting
Button	Reset Button

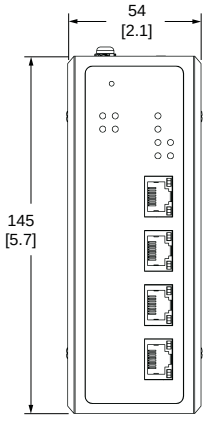
Environmental Limits	
Operating Temperature	-20°C~70°C (-4°F~158°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Ethernet	
Standards	IEEE 802.3af / 802.3at for Power-over-Ethernet IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for Flow Control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1q/p for VLAN Tagging and Class of Service IEEE 8021x for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GARP,GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 HardwareTransparent Clock, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415

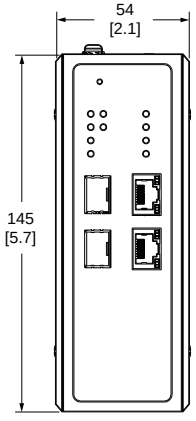
Regulatory Approvals				
Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	80-1000MHz 1.4-2.0GHz 2.0-2.7GHz	10(V/m) 3(V/m) 10(V/m)	3 3 3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0kV Line-to Earth±2.0kV Line-to Earth±2.0kV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	30 V/m	4
IEC 61000-4-11	DIP	AC Power Port	-	A
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
MTBF	20 Years			

Part Number [MFG #]	10/100/1000 RJ45 Ports	1000 SFP Slots	Max PoE Ports	Features
4-Port Industrial Layer-3 Managed Gigabit Switches				
E45PNMS-4M-L3 [EHG7604]	4	N/A	N/A	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Layer-3 Switching Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-4M-2M-2SFP-L3 [EHG7604-2SFP]	2	2	N/A	
E45PNMS-4M-4SFP-L3 [EHG7604-4SFP]	N/A	4	N/A	
4-Port Industrial Layer-3 Managed Gigabit Switches with PoE				
E45PNMS-4M-4POE-L3 [EHG7604-4POE]	4	N/A	4	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Layer-3 Switching Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-4M-2POE-2SFP-L3 [EHG7604-2POE-2SFP]	2	2	2	

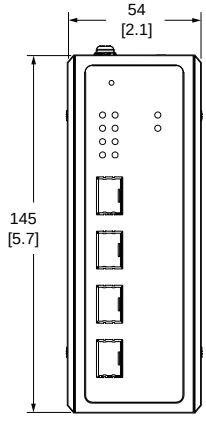




E45PNMS-4M-L3
E45PNMS-4M-4POE-L3



E45PNMS-4M-2M-2SFP-L3
E45PNMS-4M-2POE-2SFP-L3



E45PNMS-4M-4SFP-L3

Feature Highlights:

- Up to 8 10/100/1000 BASE-T(X) RJ45 ports or 1000 BASE-X SFP slots.
- Up to 8 802.3af/ 802.3at Power over Ethernet ports, with maximum 30W
- PoE power per port and maximum 240 W device power budget
- Powerful Industrial Layer-3 Switch Platform, supporting redundancy
- Protocols, such as ERPS, RSTP, STP, MRP (Client) and compatible rings
- Profinet Conformance Class B compatible & Ethernet/IP Ready
- IEEE 1588v2 Precision Time Protocol Hw-Based Transparent clock
- Works from -20°C~70°C

Layer-3 Managed DIN-Rail Switches | DIN-Rail/Wall Mount | Aluminum Housing | IP30 Rating

Switch Properties	
Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Power Management	
Input Voltage	9-57 VDC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current (System)	Max. 1.4A @ 9VDC (without PoE) Max. 2.9A @ 45VDC (Support up to 8 ports at 15.4W per PoE port) Max. 5.0A @ 51VDC (Support up to 8 ports at 30W per PoE port)
Power Consumption (System)	Max 12.6 W @9 VDC (without PoE) Max 130.5 W @45VDC (802.3af, with 15.4W PoE per port for 8 ports) Max 255 W @51VDC (802.3at, with 30W PoE per port for 8 ports)
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Yes

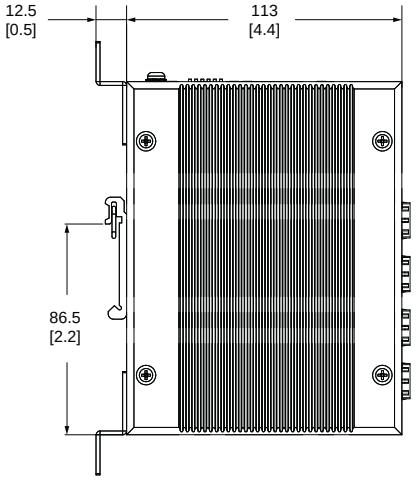
Interfaces	
RJ45 Ports	Up to 8 10/100/1000BASE-T(X) auto negotiation speed
Fiber Optics Ports	Up to 4 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC
DIP Switches	Ring Control and Profinet Setting
Button	Reset Button

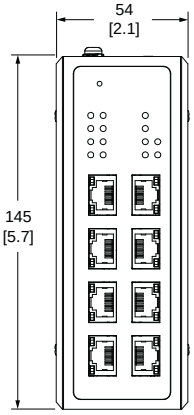
Environmental Limits	
Operating Temperature	-20°C~70°C (-4°F~158°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Ethernet	
Standards	IEEE 802.3af / 802.3at for Power-over-Ethernet IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for Flow Control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 8021x for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GARP,GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 Hardware Transparent Clock, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Layer-3 Protocols	IPv4 Unicast static routing, IPv6 Unicast static routing, IP MAC Binding, RIP v1/v2, OSPF, DVMRP, PIM-DM, PIM-SM, PIM-SSM, mutli-IP interface
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674

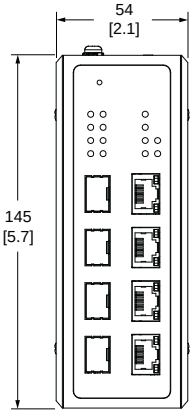
Regulatory Approvals				
Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	80-1000MHz 1.4-2.0GHz 2.0-2.7GHz	10(V/m) 3(V/m) 10(V/m)	3 3 3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0kV Line-to Earth±2.0kV Line-to Earth±2.0kV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	30 V/m	4
IEC 61000-4-11	DIP	AC Power Port	-	A
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
MTBF	20 Years			

8-Port Industrial Layer-3 Managed Gigabit Switches				
Part Number [MFG #]	**10/100/1000 RJ45 Ports**	**1000 SFP Slots**	**Max PoE Ports**	**Features**
E45PNMS-8M-L3 [EHG7608]	8	N/A	N/A	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Layer-3 Switching Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-8M-4M-4SFP-L3 [EHG7608-4SFP]	4	4	N/A	
8-Port Industrial Layer-3 Managed Gigabit Switches with PoE				
E45PNMS-8M-8POE-L3 [EHG7608-8POE]	8	N/A	8	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Layer-3 Switching Redundant Power Input Relay Output Railway Certified (EN50155) NEMA TS-2 Certified
E45PNMS-8M-4POE-4SFP-L3 [EHG7608-4POE-4SFP]	4	N/A	4	





E45PNMS-8M-L3
E45PNMS-4M-4P0E-L3



E45PNMS-8M-4M-4SFP-L3
E45PNMS-8M-4P0E-4SFP-L3

Feature Highlights:

- Up to 8 10/100/1000 BASE-T(X) RJ45 ports or 1000 BASE-X SFP slots.
- Up to 8 802.3af/ 802.3at Power over Ethernet ports, with maximum 30W
- PoE power per port and maximum 240 W device power budget
- Powerful Industrial Layer-3 Switch Platform, supporting redundancy
- Protocols, such as ERPS, RSTP, STP, MRP (Client) and compatible rings
- Profinet Conformance Class B compatible & Ethernet/IP Ready
- IEEE 1588v2 Precision Time Protocol Hw-Based Transparent clock
- Works from -20°C~70°C

Switch Properties	
Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Power Management	
Input Voltage	9-57 VDC for Non-PoE models 45-57 VDC for 802.3af mode 51-57 VDC for 802.3at mode
Input Current (System)	Max. 1.4A @ 9VDC (without PoE) Max. 2.9A @ 45VDC (Support up to 8 ports at 15.4W per PoE port) Max. 5.0A @ 51VDC (Support up to 8 ports at 30W per PoE port)
Power Consumption (System)	Max 12.6 W @9 VDC (without PoE) Max 130.5 W @45VDC (802.3af, with 15.4W PoE per port for 8 ports) Max 255 W @51VDC (802.3at, with 30W PoE per port for 8 ports)
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Yes

Interfaces	
RJ45 Ports	Up to 8 10/100/1000BASE-T(X) auto negotiation speed
Fiber Optics Ports	Up to 4 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, PoE
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC
DIP Switches	Ring Control and Profinet Setting
Button	Reset Button

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%, 55°C (Non-condensing)

Ethernet	
Standards	IEEE 802.3af / 802.3at for Power-over-Ethernet IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for Flow Control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 8021x for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GARP,GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 Hardware Transparent Clock, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Layer-3 Protocols	IPv4 Unicast static routing, IPv6 Unicast static routing, IP MAC Binding, RIP v1/v2, OSPF, DVMRP, PIM-DM, PIM-SM, PIM-SSM, mutli-IP interface
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674

Regulatory Approvals				
Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	80-1000MHz 1.4-2.0GHz 2.0-2.7GHz	10(V/m) 3(V/m) 10(V/m)	3 3 3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0kV Line-to Earth±2.0kV Line-to Earth±2.0kV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	30 V/m	4
IEC 61000-4-11	DIP	AC Power Port	-	A
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
MTBF	20 Years			

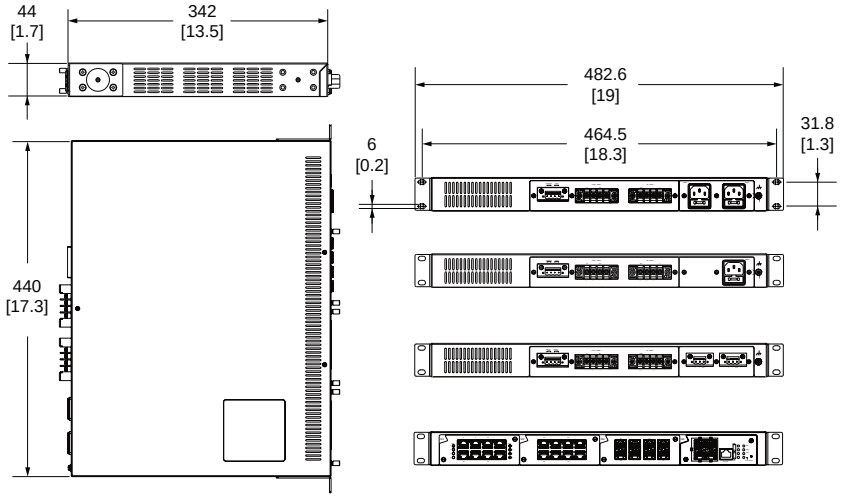
Industrial Networking Solutions

Harsh Environments Switches

Switch Core Platforms | Layer 2 | 1U Rack Mount | Metal Housing | IP30 Rating

Industrial Layer-2 Rack-Mount Managed Modular Gigabit Ethernet PoE Switches				
Part Number	**Module Slots**	**Uplink Ports**	**Power Supply**	**Features**
RHG7528-CPU-4GSFP	3	4 x 1 Gb SFP	Single 100~220 VAC + Dual 48~57 VDC for PoE	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Advanced Security MIL-STD Ruggedized Redundant Power Input Relay Output
RHG7528-CPU-4GSFP-R	3	4 x 1 Gb SFP	Dual 100~220 VAC + Dual 48~57 VDC for PoE	
RHG7528-CPU-4GSFP-MR	3	4 x 1 Gb SFP	Single 110~220 VAC + Single 48~57 VDC (CPU) and Dual 48~57 VDC for PoE	
RHG7528-CPU-4GSFP-DC	3	4 x 1 Gb SFP	Dual 24~48 VDC +Dual 48~57 VDC for PoE	
RHG7528-CPU-410GSFP	3	4 x 10 Gb SFP	Single 100~220 VAC + Dual 48~57 VDC for PoE	
RHG7528-CPU-410GSFP-R	3	4 x 10 Gb SFP	Dual 100~220 VAC + Dual 48~57 VDC for PoE	
RHG7528-CPU-410GSFP-MR	3	4 x 10 Gb SFP	Single 110~220 VAC + Single 48~57 VDC (CPU) and Dual 48~57 VDC for PoE	
RHG7528-CPU-410GSFP-DC	3	4 x 10 Gb SFP	Dual 24~48 VDC + Dual 48~57 VDC for PoE	

Layer 2 models do not support MACsec M4-M5 modules.



Feature Highlights:

- Maximum 128Gbps switching capacity, 95.24Mpps throughput
- Rugged industrial design for -40~75° C harsh environment operation
- Flexible modular configuration, 3 Module-dedicated slots
- Up to 24 PoE ports, with maximum 720W of PoE power budget
- 4 x 1 Gigabit or 4 x 10 Gigabit SFP Uplink slots
- Up to 20 possible configurations in 4 power input versions
- ITU-T G.8032 ERPS Ring, RSTP, or MRP (client) redundancy
- EN50155 / EN50121-4 Certified for Railway applications
- PROFINET v2.33 CC-B conformance, Provides GSD Description file
- Advanced management features

Switch Core Platforms | Layer 2 | 1U Rack Mount | Metal Housing | IP30 Rating

Ethernet

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3ae For 10 Gigabit Ethernet Fiber IEEE 802.3x for Flow Control, back pressure flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.1ae for MAC security (MACsec) – on RHGM4-RHGM5 only IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet		
Protocols	IPv4, IPv6, IGMPv1/v2/v3, IGMP snooping, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Relay/ Client/IP-port-mapping, DHCP Option 66/67/82, BootP, RARP, TFTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP(Client), LLDP, 802.1x,EAP, RADIUS,TACACS+,Mirror port,QoS,ACL		
Redundancy	ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP, Compatible Ring/Chain, U-Ring		
Time Synchronization	Network Synchronization	NTP Server/Client, SNTP	
	Precision Network Synchronization	IEEE1588v1 OC/BC (Software) IEEE1588v2 TC (Hardware) - ns accuracy IEEE1588v2 OC/BC (Software)	
Automation Profiles	Profinet v2.33 CC-B conformance, EtherNet/IP, Modbus/TCP status registers		
MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674		

Power Management

Input Voltage	Switch Core	DC	Redundant 48~57 VDC
		AC	Single 110~220 VAC
		Redundant AC	Dual 110~220 VAC
		Mixed AC/DC -Redundant	1x110~220VAC & 48~57VDC
	PoE	2 x 48-57 VDC (each power input max 360W)	
Input Current (Max)	CPU board AC/ redundant AC	110-220 VAC, 0.58 A Max, 64W Max	
	CPU board redundand DC	48-57 VDC , 0.68A Max, 32.7W Max	
	802.3af PoE full loading	45-57 VDC, 8.4A Max, 370W Max	
	802.3at PoE+ full loading	51-57 VDC, 14.4A Max, 720W Max	
Connectors	All Versions	2 x Lockable 5-pin terminal blocks for PoE power input	
	DC Versions	2 x Lockable 3-pin terminal blocks for DC power input	
	non-redundant(x1) / -MR version(x1) / -R(x2)	1-2 x AC power inlet	
	-MR versions	1 x Lockable 3-pin terminal blocks for DC power input	
Reverse Polarity Protection	Yes		

Environmental Limits

Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5 ~ 95% 55°C, (non-condensing)

Switch Properties

Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte
Switching Fabric Capacity	56 Gbps (1G uplinks) / 128 Gbps (10G uplinks)
Maximum throughput	41.67 Mpps (1G uplinks) / 95.24 Mpps (10G uplinks)

Regulatory Approvals

Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / CB
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3*
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±2.0 KV	3 3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3*
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-

Shock	MIL-STD-810G Method 516.5
Drop	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2
Rail Traffic	EN50155 / EN50121-4 Certified
RoHS II	Yes

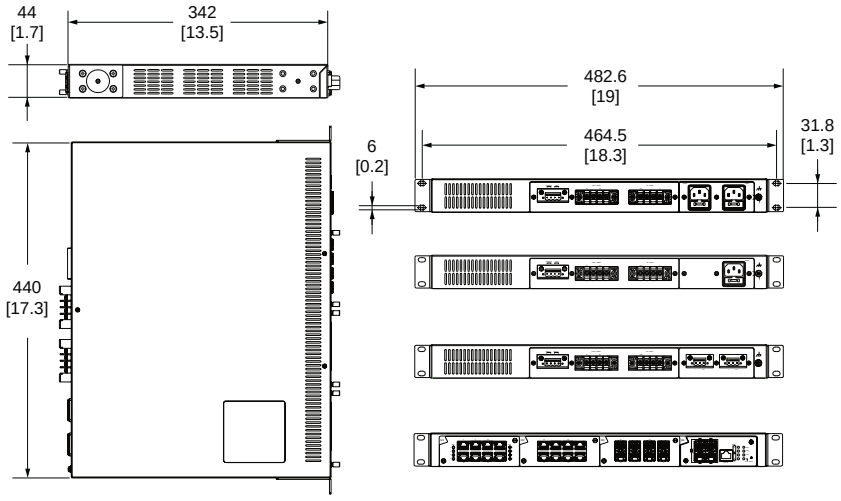
* EMC level 3 on CS/RS pass conditional to the use of Shielded Ethernet Cable.

Industrial Networking Solutions

Harsh Environments Switches

Switch Core Platforms | Layer 3 | 1U Rack Mount | Metal Housing | IP30 Rating

Industrial Layer-3 Rack-Mount Managed Modular Gigabit Ethernet PoE Switches				
Part Number	**Module Slots**	**Uplink Ports**	**Power Supply**	**Features**
RHG7628-CPU-4GSFP	3	4 x 1 Gb SFP	Single 100~220 VAC + Dual 48~57 VDC for PoE	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring Advanced Security MIL-STD Ruggedized Redundant Power Input Relay Output
RHG7628-CPU-4GSFP-R	3	4 x 1 Gb SFP	Dual 100~220 VAC + Dual 48~57 VDC for PoE	
RHG7628-CPU-4GSFP-MR	3	4 x 1 Gb SFP	Single 110~220 VAC + Single 48~57 VDC (CPU) and Dual 48~57 VDC for PoE	
RHG7628-CPU-4GSFP-DC	3	4 x 1 Gb SFP	Dual 24~48 VDC +Dual 48~57 VDC for PoE	
RHG7628-CPU-410GSFP	3	4 x 10 Gb SFP	Single 100~220 VAC + Dual 48~57 VDC for PoE	
RHG7628-CPU-410GSFP-R	3	4 x 10 Gb SFP	Dual 100~220 VAC + Dual 48~57 VDC for PoE	
RHG7628-CPU-410GSFP-MR	3	4 x 10 Gb SFP	Single 110~220 VAC + Single 48~57 VDC (CPU) and Dual 48~57 VDC for PoE	
RHG7628-CPU-410GSFP-DC	3	4 x 10 Gb SFP	Dual 24~48 VDC + Dual 48~57 VDC for PoE	



Feature Highlights:

- Maximum 128Gbps switching capacity, 95.24Mpps throughput
- Rugged industrial design for -40~75°C harsh environment operation
- Flexible modular configuration, 3 Module-dedicated slots
- Up to 24 PoE ports, with maximum 720W of PoE power budget
- 4 x 1 Gigabit or 4 x 10 Gigabit SFP Uplink slots
- Up to 54 possible configurations in 4 power input versions
- ITU-T G.8032 ERPS Ring, RSTP, or MRP (client) redundancy
- RIP, OSPF, Static Routing, PIM supported Layer-3 switching
- EN50155 / EN50121-4 Certified for Railway applications
- PROFINET CC-B v2.33 Conformance, Provides GSD Description file

Industrial Networking Solutions

Specifications & Approvals

Switch Core Platforms | Layer 3 | 1U Rack Mount | Metal Housing | IP30 Rating

Ethernet

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3ae For 10 Gigabit Ethernet Fiber IEEE 802.3x for Flow Control, back pressure flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.1ae for MAC security (MACsec) – on RHGM4-RHGM5 only IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet	
Protocols	IPv4, IPv6, IGMPv1/v2/v3, IGMP Snooping, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Relay/ Client/IP-port-mapping, DHCP Option 66/67/82, BootP, RARP, TFTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client),LLDP,802.1x,EAP,RADIUS,TACACS+,Mirror port, QoS, ACL	
Redundancy	ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP, Compatible Ring/Chain, U-Ring	
Time Synchronization	Network Synchronization	NTP Server/Client, SNTP
	Precision Network Synchronization	IEEE1588v1 OC/BC (Software) IEEE1588v2 TC (Hardware) - ns accuracy IEEE1588v2 OC/BC (Software)
Layer-3 Switching Protocols	Routing: IPv4 Unicast static routing, RIP v1/v2, OSPFv2, Multicast: IGMPv1/v2/v3, DVMRP, PIM-DM, PIM-SM, PIM-SSM Routing Redundancy: VRRP (Virtual Router Redundancy Protocol)	
Automation Profiles	Profinet v2.33 CC-B conformance, EtherNet/IP, Modbus/TCP status registers	
MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674	

Power Management

Input Voltage	Switch Core	DC	Redundant 48~57 VDC
		AC	Single 110~220 VAC
		Redundant AC	Dual 110~220 VAC
		Mixed AC/DC -Redundant	1x110~220VAC & 48~57VDC
	PoE	2 x 48-57 VDC (each power input max 360W)	
Input Current (Max)	CPU board AC/ redundant AC	110-220 VAC, 0.58 A Max, 64W Max	
	CPU board redundand DC	48-57 VDC , 0.68A Max, 32.7W Max	
	802.3af PoE full loading	45-57 VDC, 8.4A Max, 370W Max	
	802.3at PoE+ full loading	51-57 VDC, 14.4A Max, 720W Max	
Connectors	All Versions	2 x Lockable 5-pin terminal blocks for PoE power input	
	DC Versions	2 x Lockable 3-pin terminal blocks for DC power input	
	non-redundant(x1) / -MR version(x1) / -R(x2)	1-2 x AC power inlet	
	-MR versions	1 x Lockable 3-pin terminal blocks for DC power input	

Environmental Limits

Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5 ~ 95% 55°C, (non-condensing)

Switch Properties

Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte
Switching Fabric Capacity	56 Gbps (1G uplinks) / 128 Gbps (10G uplinks)
Maximum throughput	41.67 Mpps (1G uplinks) / 95.24 Mpps (10G uplinks)

Regulatory Approvals

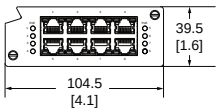
Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / CB			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3*
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±2.0 KV	3 3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3*
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
Rail Traffic	EN50155 / EN50121-4 Certified			
RoHS II	Yes			

* EMC level 3 on CS/RS pass conditional to the use of Shielded Ethernet Cable.

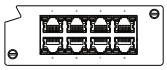
Part Number	RJ45 PoE ports	RJ45 Non-PoE ports	SFP ports	RJ45 MACsec*	SFP MACsec*
RHG7X28-M1	8	N/A	N/A	N/A	N/A
RHG7X28-M2	N/A	8	N/A	N/A	N/A
RHG7X28-M3	N/A	N/A	8	N/A	N/A
RHG7X28-M4	N/A	N/A	N/A	4	N/A
RHG7X28-M5	N/A	N/A	N/A	N/A	4

* Layer 2 models do not support MACsec M4-M5 modules.

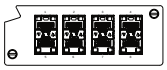
RJ45 PoE



RJ45

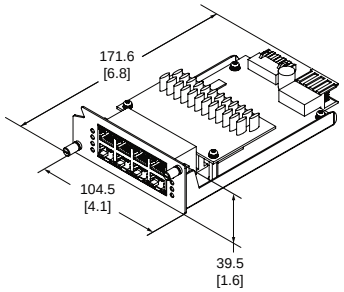


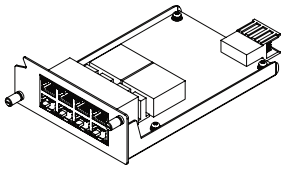
SFP

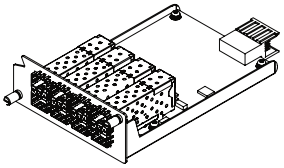


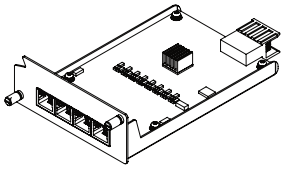
RJ45 Secure MACsec

SFP Secure Macsec









Non-Secure Models Technical Specifications			
Part Number	RHG7X28-M1	RHG7X28-M2	RHG7X28-M3
Description	8-Port RJ45 PoE module	8-Port RJ45 module	8-Port SFP module
PoE Power Per Port	15.4/30W (802.3af/at)	N/A	N/A
Total Max Power	240 W	N/A	N/A
Number of Ports	8	8	8
Port Speed	10/100/1000 BASE-T(X)	10/100/1000 BASE-T(X)	100/1000 BASE-F(X)
Interface	RJ45	RJ45	SFP Slot
Dimensions	104.5 x 171.6 x 39.5mm	104.5 x 171.6 x 39.5mm	104.5 x 171.6 x 39.5mm
Fixing	2 x screws (included)	2 x screws (included)	2 x screws (included)

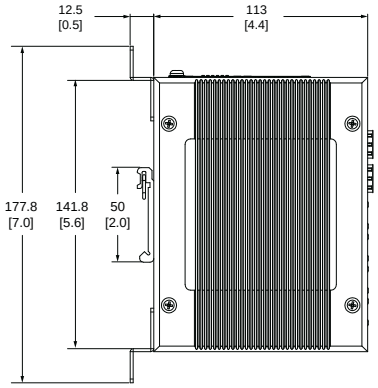
Secure Models Technical Specifications		
Part Number	RHG7X28-M4	RHG7X28-M5
Description	4-Port RJ45 secure MACsec Module	4-Port SFP secure MACsec Module
PoE Power Per Port	N/A	N/A
Total Max Power	N/A	N/A
Number of Ports	4	4
Port Speed	10/100/1000 BASE-T(X)	100/1000 BASE-F(X)
Interface	RJ45	SFP Slot
Dimensions	104.5 x 171.6 x 39.5mm	104.5 x 171.6 x 39.5mm
Fixing	2 x screws (included)	2 x screws (included)

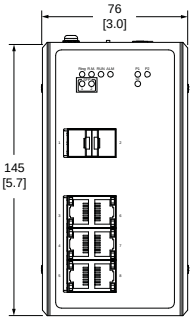
Industrial Networking Solutions

Industry Specific Ethernet Switches

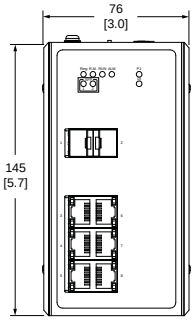
IEC 61850-3 DIN-Rail Managed Gigabit Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

IEC 61850-3 Certified Managed Gigabit Switches				
Part Number [MFG #]	**10/100/1000 RJ45 Ports**	**1000 SFP Slots**	**Power Input**	**Features**
E45MS-8M3-2SFP [EHG9508-2SFP]	6	2	Dual 24~57 VDC Input	Industrial EMC Protection Profinet & Ethernet/IP Ready IEEE1588 Precision Timing Redundant Ring IEC 61850-3 Certified MIL-STD Ruggedized Redundant Power Input Relay Output
E45MS-8M3-2SFP-HV [EHG9508-2SFP-HV]	6	2	Dual 110~370 VDC Input	
E45MS-8M3-2SFP-AC [EHG9508-2SFP-AC]	6	2	Dual 100~240 VAC Input	
E45MS-12M3-4SFP [EHG9512-4SFP]	8	4	Dual 24~57 VDC Input	
E45MS-12M3-4SFP-HV [EHG9512-4SFP-HV]	8	4	Dual 110~370 VDC Input	
E45MS-12M3-4SFP-AC [EHG9512-4SFP-AC]	8	4	Dual 100~240 VAC Input	

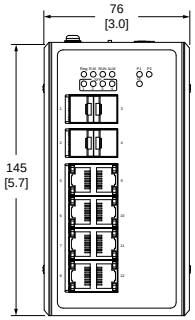




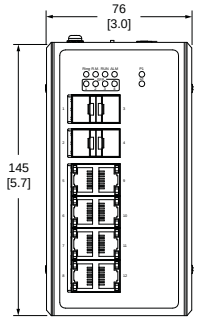
E45MS-8M3-2SFP



E45MS-8M3-2SFP-HV
E45MS-8M3-2SFP-AC



E45MS-12M3-4SFP



E45MS-12M3-4SFP-HV
E45MS-12M3-4SFP-AC

Feature Highlights:

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

IEC 61850-3 DIN-Rail Managed Gigabit Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Switch Properties

Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Power Management

Input Voltage	24-57 VDC 100~240 VAC for AC series 110~370 VDC for HV Series
Input Current (System)	0.63A @ 24 VDC 0.16A @ 100 VAC for AC series 0.12A @ 110 VDC for HV series
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Yes

Interfaces

RJ45 Ports	Up to 8 10/100/1000BASE-T(X) auto negotiation speed
Fiber Optics Ports	Up to 4 1000BASE-X SFP slot
LED Indicators	PWR1, PWR2, Alarm, Run, Ring, Ring Master, RJ-45 Link/Speed, SFP Link, RS232 (RJ45 connector)
Console	RS232 (RJ45 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC
DIP Switches	Ring Control and Profinet Setting
Button	Reset Button

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%~95%, 55°C (Non-condensing)

Ethernet

Standards	IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for Flow Control/ Back pressure control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 8021x for Authentication
Protocols	IPv4, IPv6, IGMPv1/v2, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 Hardware-Assisted Transparent Clock and Software-assisted Boundary Clock, MRP (Client), 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415

Regulatory Approvals

Safety	UL/CUL/IEC(CB) 61010-2-201
Industry Specific	IEC61850-3 (Including 6.10.3 Seismic test), IEEE 1613
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4

EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	80-1000MHz 1.0-3.0GHz	10(V/m) 80% AM	3 3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0kV @2.5kHz ±4.0kV @2.5kHz ±2.0kV @5.0kHz	4 4 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line ±2.0kV Line-to Earth ±4.0kV Line-to Line ±1.0kV Line-to Earth ±2.0kV Line-to Earth ±4.0kV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10V, 150kHz~80MHz, 80% AM 10V, 150kHz~80MHz, 80% AM 10V, 150kHz~80MHz, 80% AM	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100A/m continuous, 1000A/m for 3S	5 5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100A/m, 100KHz, 1MHz	5
IEC 61000-4-11	DIP	AC Power Port	Drop 70% 3 times/S (1 Period) Drop 40% 3 times/1mS (50 Period) Drop 100% 3 times/50mS (5&50 Period)	N/A

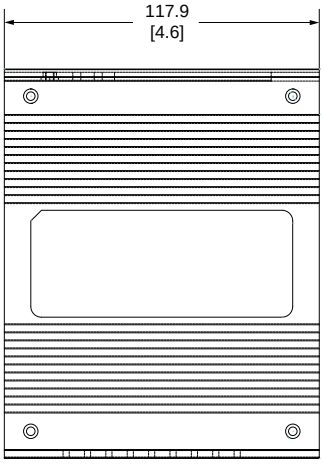
Shock	MIL-STD-810G Method 516.5
Drop	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2
RoHS II	Yes
MTBF	20 Years

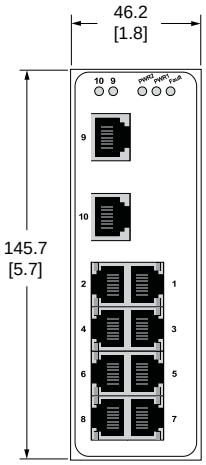
Industrial Networking Solutions

Industry Specific Ethernet Switches

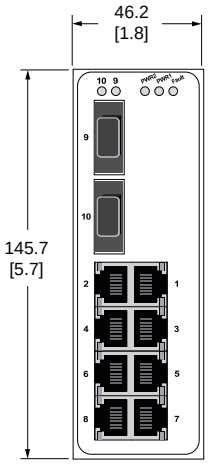
EN50155 Railway Unmanaged Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Unmanaged Fast-Ethernet Switches, Gigabit Uplink					
Part Number [MFG #]	**10/100 RJ45 Ports**	**10/100/1000 RJ45 Ports**	**100 Fiber Ports**	**1000 Fiber Ports**	**Features**
E45UM-10-2M [EH7310-G]	8	2	N/A	N/A	Industrial EMC Protection Railway Certified MIL-STD Ruggedized Redundant Power Input Relay Output
E45UM-10-2FMM [EH7310-G-2FM]	8	N/A	N/A	2 (m)	
E45UM-10-2FSM [EH7310-G-2FS]	8	N/A	N/A	2 (s)	
E45UM-10-2FM [EH7310-2FM]	8	N/A	2 (m)	N/A	
E45UM-10-2FS [EH7310-2FS]	8	N/A	2 (s)	N/A	





E45UM-10-2M



E45UM-10-2FMM
E45UM-10-2FSM
E45UM-10-2FM
E45UM-10-2FS

Feature Highlights:

- 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
- 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

EN50155 Railway Unmanaged Switches | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

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 µS
Flow Control	IEEE 802.3x Flow Control and Back-pressure
Processing type	Store-and-Forward

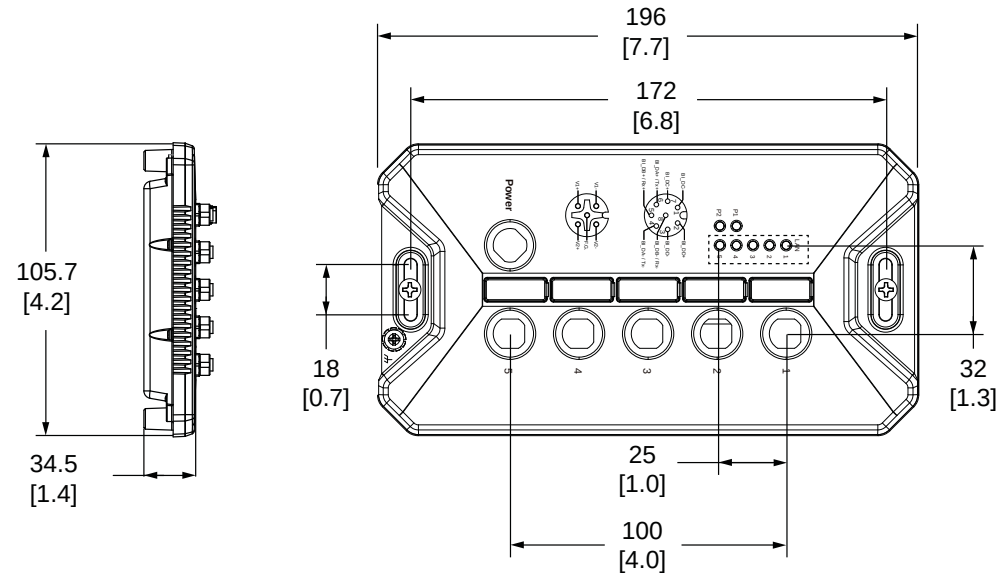
Interfaces	
RJ45 Ports	10/100BaseT(X), Auto MDI/MDI-X 10/100/1000BaseT(X), Auto MDI/MDI-X (Uplink)
Fiber Optics Ports	100BaseFX ports (SC connector) (Uplink) 1000BaseFX ports (SC connector) (Uplink)
LED Indicators	LNK/ACT(Steady green-Link up/ Blinking-data transmitting & receiving) PWR1(Green), PWR2(Green), Fault(Red)

Power Management	
Dual Input Voltage	12/24/48 VDC
Dual Input Current	0.49A @ 24VDC
Overload Current Protection	0.8A @ 12VDC
Connector	Removable dual 3-pin Terminal Block for power input
Reverse Polarity Protection	Present
Consumption	11.875 Watts

Environmental Limits	
Operating Temperature	-40°C~80°C (-40°F~176°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Regulatory Approvals				
Safety	UL60950-1, CSA C222, No.60950-1-07, CB			
EMI	FCC part 15, CISPR (EN55032) class A			
EMC	EN50121-3-2, EN60068-2-1, EN60068-2-2, EN61373			
EMS Test	**Item**		**Value**	**Level**
EN61000-4-2	ESD	Contact Discharge Air Discharge	8 KV, Criterion A 15 KV, Criterion A	4 4
EN61000-4-3	RS	Enclosure ports	10 V/m (80-1000 MHz), Criterion A	3
EN61000-4-4	EFT	Power Line	2 KV, Criterion B	3
EN61000-4-5	Surge	Line to earth Power Line	1 KV, Criterion B 2 KV, Criterion B	2 3
EN61000-4-6	CS	Line to earth Power Line	3 V (0.15 - 80 MHz), Criterion A 10 V (0.15 - 80 MHz),Criterion B	3 3
Shock	MIL-STD-810F			
Drop	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			

Unmanaged Waterproof Gigabit Switches			
Part Number [MFG #]	**10/100/1000 M12 Ports**	**M12 Type**	**Features**
MDE45UM-5M [EMG8305-M12-A]	5	A Coding	Industrial EMC Protection Railway Certified MIL-STD Ruggedized Redundant Power Input Relay Output
MDEX6UM-5M [EMG8305-M12-X]	5	X Coding	



Feature Highlights:

- 5 10/100/1000 BASE-T(X) ports, M12 connector (A or X coding)
- EN50155, EN50121-4 and UL 61010-2-201 certified
- Redundant power input 12~48 VDC
- Ruggedized IP67 aluminum case design
- Works from -40°C~75°C
- Prioritizes Profinet packets according to 802.1q

Switch Properties	
Processing Scheme	Store-and-Forward
MAC Address Table	8096
Packet Buffer Size	1Mbits
Jumbo Frame	10k Bytes
Ethernet	
Compliance	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT IEEE 802.3x for Flow Control, back pressure flow control
Flow Control	Back pressure and pause frame - based flow control schemes
Transmission Rate	10/100/1000 Mbps
Power Management	
Input Voltage	12-48 VDC
Input Current	0.42A @ 12 V
Max Power Consumption	5W
Connector	5-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Yes
LED	
LED Indicators	PWR1, PWR2, LAN1, LAN2, LAN3, LAN4, LAN5
Physical Characteristics	
Housing	IP67 protection according to EN 60529, Aluminum Housing
Environmental Limits	
Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Regulatory Approvals				
Safety Rail Traffic	EN 60950-1:2006, UL/IEC(CB) 61010-2-201 EN50155; EN50121-4			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	80-1000MHz 800-1000MHz 1.4-2.1GHz 2.1-2.5GHz	10(V/m) 20(V/m) 10(V/m) 5(V/m)	3 3 3 3
IEC 61000-4-4	EFT	AC Power Port DC Power Port	±4.0 KV ±2.0 KV	3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port Signal Port	Line-to Line±1.0kV Line-to Earth±2.0kV Line-to Line±1.0kV Line-to Earth±2.0kV	3 3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	DC 300A/m	3
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
MTBF	20 Years			
Warranty	5 Years			

Industrial Networking Solutions

Industry Specific Ethernet Switches

EN50155 Managed Switches | 8-Port | Surface Mount | Aluminum Housing | IP67 Rating

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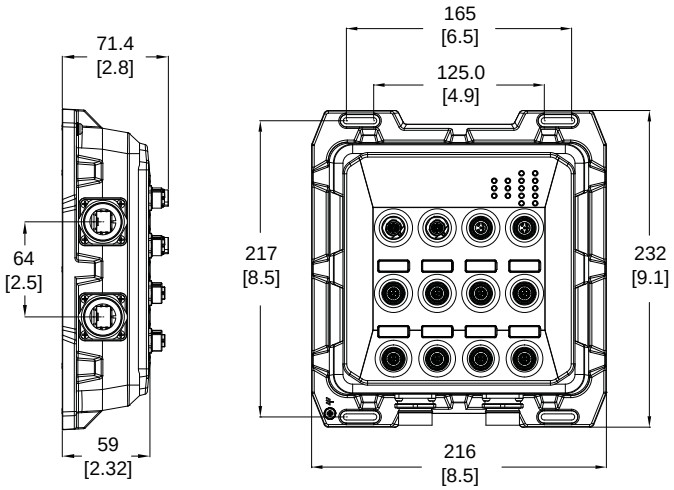
8-Port Managed Waterproof Gigabit Switches with Profinet				
Part Number [MFG #]	**Rating**	**10/100/1000 M12 Ports**	**Max PoE Ports**	**Features**
MDE45MS-8M [EMG8508]	9-48 VDC 1.19A Max	8	N/A	Profinet & Ethernet/IP Ready Precision Timing Redundant Ring Industrial EMC Protection Railway Certified MIL-STD Ruggedized Redundant Power Input Relay Output
MDE45MS-8M-HV [EMG8508-HV]	50-150 VDC 0.27A max	8	N/A	
Managed Waterproof Gigabit Switches with PoE and Profinet				
MDE45MS-8M-4POE [EMG8508-4POE]	45-57 VDC, 3.08A Max Full Loading 51-57 VDC, 5.03A Max	8	4	Profinet & Ethernet/IP Ready Precision Timing Redundant Ring Industrial EMC Protection Railway Certified MIL-STD Ruggedized Redundant Power Input Relay Output
MDE45MS-8M-8POE [EMG8508-8POE]	45-57 VDC, 3.08A Max Full Loading 51-57 VDC, 5.03A Max	8	8	

Feature Highlights:

- Up to 8 10/100/1000 BASE-T(X) ports, M12 connector
- Up to 4 or 8 802.3af or 802.3at complaint PoE ports
- EN50155, EN50121-4 and UL 61010-2-201 certified
- Redundant power input, DC or High Voltage DC
- Ruggedized IP67 aluminum enclosure
- Works from -40°C~75°C
- 2x Relay outputs, 5-pin M12 A-Coding
- Profinet Conformance Class B compatible
- Ethernet/IP Compatible



EN50155 Managed Switches | 8-Port | Surface Mount | Aluminum Housing | IP67 Rating

Switch Properties	
Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16k
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Ethernet	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3af / 802.3at for Power over Ethernet IEEE 802.3x for Flow Control, back pressure flow control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GARP,GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 Hardware Transparent Clock, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674

Interfaces	
LED Indicators	PWR1, PWR2, Alarm, Ethernet Act/Link, SFP Link, PoE, Ring
Ethernet Ports	8 10/100/1000BASE-T(X) auto negotiation speed –M12 connector
Console	RS232 (A-coding M12 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC (through A-coding M12 connector)
Fiber Optics Ports	No

Environmental Limits	
Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Power Management		
Input Voltage	High Voltage Product	50~145 VDC
	Non-PoE models	12~57 VDC
	802.3af mode/ 802.3at mode	45~57 VDC/ 51~57 VDC
Input Current	High voltage product	50~145 VDC, 0.27A max, 13.5W
	Non-PoE models	12 – 57 VDC, 1.19A max, 14.28W
	802.3af mode (8-Ports)	45 – 57 VDC, 3.08A max, 138.6W
	802.3at mode (8-Ports)	51 – 57 VDC, 5.03A max, 256.53W
Power input	2 x S-Coding M12 connectors (4 Pin)	
Reverse Polarity Protection	Yes	

Physical Characteristics	
Housing	IP67 protection according to EN 60529

Regulatory Approvals	
Safety	EN 60950-1:2006, UL/IEC(CB) 61010-2-201
EMC	FCC Part 15, Subpart B, Class A, EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±2.0KV	3 3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-

Shock	MIL-STD-810G Method 516.5
Drop	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2
RoHS II	Yes
Warranty	5 Years

Industrial Networking Solutions

Industry Specific Ethernet Switches

EN50155 Managed Switches | 10-Port | Surface Mount | Aluminum Housing | IP67 Rating

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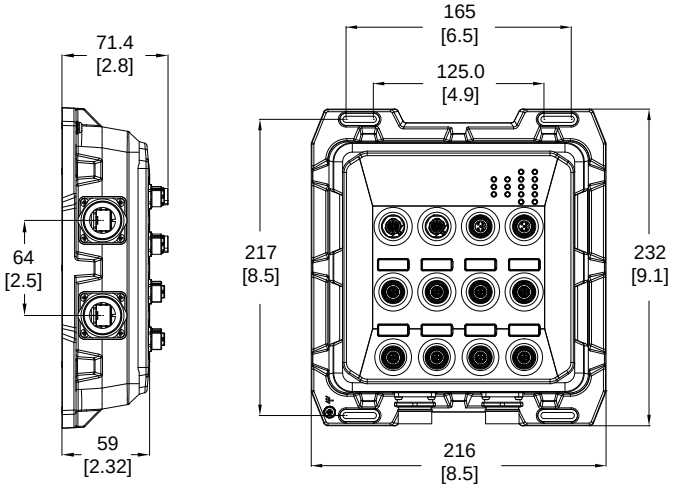
10-Port Managed Waterproof Gigabit Switches with Profinet					
Part Number [MFG #]	**Rating**	**10/100/1000 M12 Ports**	**1000 SFP Slots**	**Max PoE Ports**	**Features**
MDE45MS-10M-2SFP [EMG8510-2SFP]	9-48 VDC 1.19A Max	8	2	N/A	Profinet & Ethernet/IP Ready Precision Timing Redundant Ring Industrial EMC Protection Railway Certified MIL-STD Ruggedized Redundant Power Input Relay Output
MDE45MS-10M-2SFP-HV [EMG8510-2SFP-HV]	50-150 VDC 0.27A max	8	2	N/A	
Managed Waterproof Gigabit Switches with PoE and Profinet					
MDE45MS-10M-4POE-2SFP [EMG8510-4POE- 2SFP]	45-57 VDC, 3.08A Max Full Loading 51-57 VDC, 5.03A Max	8	2	4	Profinet & Ethernet/IP Ready Precision Timing Redundant Ring Industrial EMC Protection Railway Certified MIL-STD Ruggedized Redundant Power Input Relay Output
MDE45MS-10M-8POE-2SFP [EMG8510-8POE- 2SFP]	45-57 VDC, 3.08A Max Full Loading 51-57 VDC, 5.03A Max	8	2	8	

Feature Highlights:

- 8 10/100/1000 BASE-T(X) ports, M12 connector
- 2 1000 Base-X SFP slots
- Up to 4 or 8 802.3af or 802.3at complaint PoE ports
- EN50155, EN50121-4 and UL 61010-2-201 certified
- Redundant power input, DC or High Voltage DC
- Ruggedized IP67 aluminum enclosure
- Works from -40°C~75°C
- 2x Relay outputs, 5-pin M12 A-Coding
- Profinet Conformance Class B compatible
- Ethernet/IP Compatible



EN50155 Unmanaged Switches | 10-Port | Surface Mount | Aluminum Housing | IP67 Rating

Switch Properties	
Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16k
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte

Ethernet	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000Base-X IEEE 802.3af / 802.3at for Power over Ethernet IEEE 802.3x for Flow Control, back pressure flow control IEEE 802.1d-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.3az for Energy Efficient Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GARP,GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, NTP Server/Client, SNTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP (Client), LLDP, IEEE 1588 PTP V1/V2, IEEE 1588 HardwareTransparent Clock, 802.1x, EAP, RADIUS, TACACS+, Mirror port, QoS, ACL, Serial Console, U-Ring, STP, RSTP, MSTP, Redundancy Compatible Ring
Automation Profiles	Profinet, Ethernet/IP, Modbus/TCP
SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674

Interfaces	
LED Indicators	PWR1, PWR2, Alarm, Ethernet Act/Link, SFP Link, PoE, Ring
Ethernet Ports	8 10/100/1000BASE-T(X) auto negotiation speed –M12 connector
Console	RS232 (A-coding M12 connector)
Relay Output	2 relay outputs with current carrying capacity of 1A @ 24 VDC (through A-coding M12 connector)
Fiber Optics Ports	Two 1000BASE-X SFP slots

Environmental Limits	
Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Power Management		
Input Voltage	High Voltage Product	50~145 VDC
	Non-PoE models	12~57 VDC
	802.3af mode/ 802.3at mode	45~57 VDC/ 51~57 VDC
Input Current	High voltage product	50~145 VDC, 0.27A max, 13.5W
	Non-PoE models	12 – 57 VDC, 1.19A max, 14.28W
	802.3af mode (8-Ports)	45 – 57 VDC, 3.08A max, 138.6W
	802.3at mode (8-Ports)	51 – 57 VDC, 5.03A max, 256.53W
Power input	2 x S-Coding M12 connectors (4 Pin)	
Reverse Polarity Protection	Yes	

Physical Characteristics	
Housing	IP67 protection according to EN 60529

Regulatory Approvals				
Safety	EN 60950-1:2006, UL/IEC(CB) 61010-2-201			
EMC	FCC Part 15, Subpart B, Class A, EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±2.0KV	3 3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	MIL-STD-810G Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
RoHS II	Yes			
Warranty	5 Years			

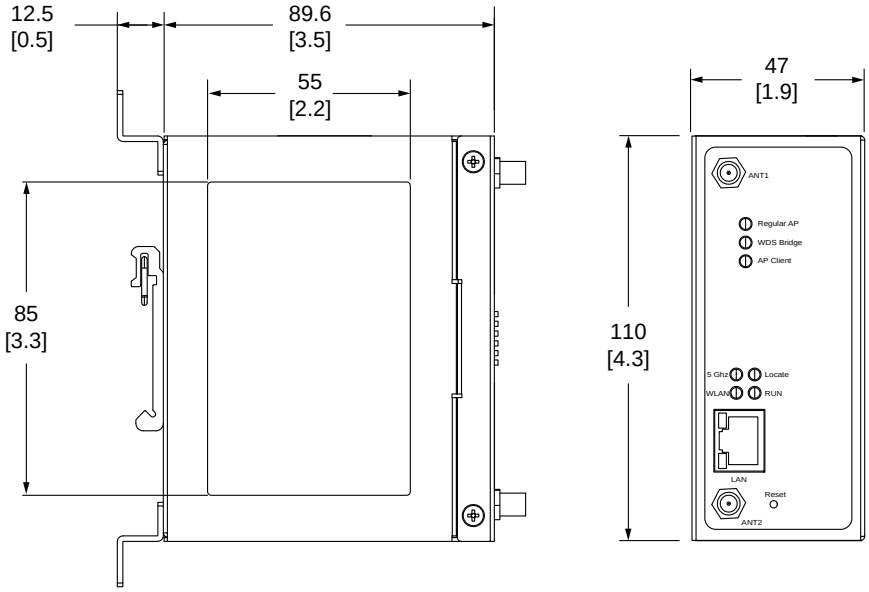
*802.3af PoE output starts from 43 VDC input and 802.3at output starts from 51 VDC input.

Industrial Networking Solutions

Secure Routers

Industrial Wireless | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Wireless Access Point, IEEE 802.11 a/b/g/n			
Part Number [MFG #]	**Description**	**10/100/1000 RJ45 Ports**	**Features**
E45WAP [AW5500]	IEEE 802.11 a/b/g/n Acess Point/ Bridge/ Client	1	Industrial EMC Protection Wireless Distribution System (WDS)



Feature Highlights:

- 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

Power Management	
Input Voltage	9VDC-48VDC
Input Current (9VDC)	0.65A
Power Consumption	Approx. 5.85W (max)
Connector	3-pin Lockable Terminal Block
Reverse Polarity Protection	Yes
LED	
LED Indicators	PWR1, PWR2, LAN1, LAN2, LAN3, LAN4, LAN5
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)
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 Conformance	802.11a, 802.11b, 802.11g, and 802.11n
Antenna	3/5 dBi Dual antenna design, SMA(R) Female connector
Software Characteristics	
Operation Modes	AP, WDS Hybrid, AP Client
Wireless Security	WEP, WPA, WPA2, TKIP, AES, 802.1x
Network Security	Client Isolation, Firewall / Filtering, Turn off Radio
Alerts Events	E-mail / SNMP Trap
Supported Protocol	ICMP, TCP, UDP, DHCP Server/Client, DNS, SNMP, NTP, SMTP, HTTP, IPv4, 802.1x, RADIUS, STP/ RSTP

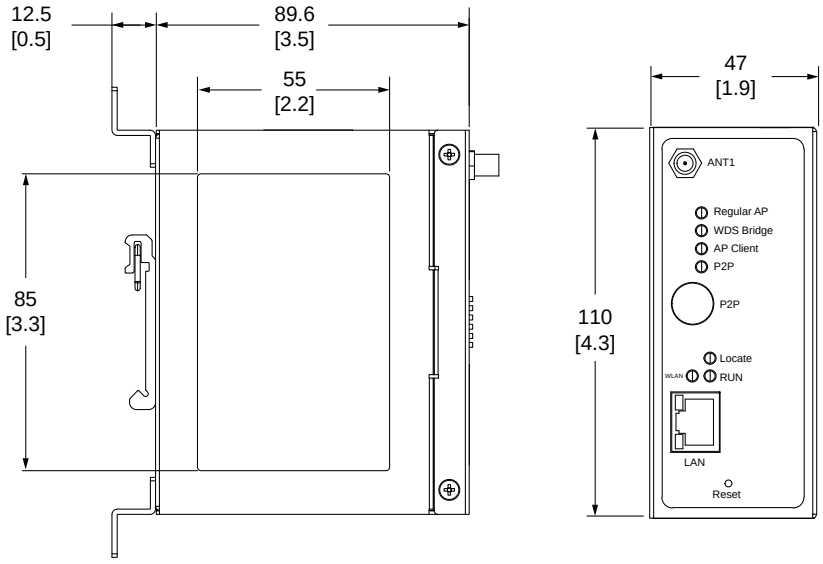
Regulatory Approvals				
Safety	UL60950-1/CB, EN60950-1, CNS 14336			
EMS	EN55032, EN55024			
EMC	EN 301489-1/17 (Class A), FCC 15 Subpart B (Class A), CNS 13438			
Radio	FCC 15 Subpart C, FCC 15 Subpart E, EN 301893, EN 300328, NCC LP00002			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Radiated (Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port	±2.0 KV ±2.0 KV	3 4
IEC 61000-4-5	Surge	AC Powe Port AC Powe Port LAN Port	Line-to Line±1.0kV Line-to Earth±2.0kV Line-to Earth±2.0kV	3 3 3
IEC 61000-4-6	CS	Conducted (Enclosure)	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	10(A/m)	3
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
RoHS II	Yes			
MTBF	22 years (MIL-HDBK-217F)			
Warranty	5 Years			

Industrial Networking Solutions

Secure Routers

Industrial Wireless | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Wireless Access Point, IEEE 802.11 b/g/n			
Part Number [MFG #]	**Description**	**10/100/1000 RJ45 Ports**	**Features**
E45WAP-P2P [AW5500C]	IEEE 802.11 b/g/n Acess Point/ Bridge/ Client Supporting WiFi Direct	1	On-Click Wifi Paring Wireless Distribution System (WDS)



Feature Highlights:

- Designed for 802.11 b/g/n networks
- Web server/Utility configuration (Device View)
- Upgrade via Device View or Web server
- Client isolation
- Different operating modes and topology options(WDS Bridge and AP Client)
- FCC (United States), ETSI (Europe) certified wireless equipment
- Support WPS(Wi-Fi protected setup)
- Support Wi-Fi Direct (Peer-to-Peer)

Network Interface	
Connector	RJ-45
Speed	IEEE802.3u, 100 Base-T(X)

Power Management	
Input Voltage	9VDC-48VDC
Input Current (9VDC)	0.65A
Power Consumption	Approx. 5.85W (max)
Connector	5.08mm 3-pin Lockable Terminal Block
Reverse Polarity Protection	Yes

Mechanicals	
Reset Button	Yes
WPS / Wi-Fi Direct Button	Yes

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)

Wireless Characteristics	
Wireless PCI-e Module	Atheros AR9382
Tx / Rx	1T1R MIMO (1 x 1 with MCS 0-7)
Wireless Standard Conformance	802.11b, 802.11g, and 802.11n
Antenna	3/5 dBi antenna design, SMA(R) Female connector

Operating Frequency (2.4 Ghz)	
United States (FCC)	2412-2462(20Mhz)/2422-2452(40Mhz)
Europe (ETSI)	2412-2472(20Mhz)/2422-2462(40Mhz)

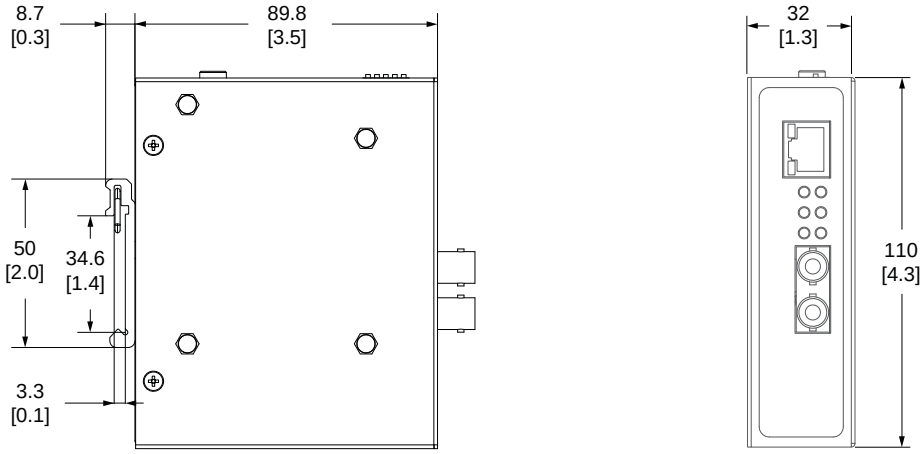
Data Rate		
802.11b		1, 2, 5.5 and 11Mbps
802.11g		6, 9, 12, 18, 24, 36, 48, 54Mbps
802.11n	20 MHz bandwidth	1Nss: 65Mbps @ 800GI, 72.2Mbps @ 400GI (Max.)
	40 MHz bandwidth	1Nss: 135Mbps @ 800GI, 150 Mbps @ 400GI (Max.)

Software Characteristics	
Operation Modes	AP, WDS Hybrid, AP Client
Wireless Security	WEP, WPA, WPA2, TKIP, AES, 802.1x
Network Security	Client Isolation, Firewall / Filtering, Turn off Radio
Alerts Events	E-mail / SNMP Trap
Supported Protocol	ICMP, TCP, UDP, DHCP Server/Client, DNS, SNMP, NTP, SMTP, HTTP, IPv4, 802.1x, RADIUS, STP, WPS, Syslog

Regulatory Approvals				
Safety	UL60950-1/CB, EN60950-1			
EMC	EN 301489-1 V1.9.2, EN301489-17 V2.2.2 (Class A), FCC 15B (Class A)			
Radio	FCC 15C 15.247, EN 300328 V1.8.1,EN 301893 V1.7.1			
EMF	EN 62311: 2008, EN 50385: 2002			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±4KV ±8KV	2 3
IEC 61000-4-3	RS	Radiated (Enclosure)	3(V/m)	2
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal	±2.0 KV ±0.5 KV / ±1.0 KV ±0.5 KV	3 1/2 3
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±1.0kV/ Line-to Earth±2.0kV	3
		DC Power Port	Line-to-Earth±0.5KV /±1.0 KV	1/2
		Signal	Line-to Line±1.0kV /Line-to Earth±1.0kV	2
IEC 61000-4-6	CS	Conducted (Enclosure)	3 Vrms	2
IEC 61000-4-8	PFMF	Enclosure	3(A/m)	2
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
MTBF	15 years (MIL-HDBK-217F)			
Warranty	5 Years			

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

Industrial Smart Fast Ethernet to Fiber Media Converters				
Part Number [MFG #]	**10/100 RJ45 Ports**	**Fiber Ports**	**Rated Distance**	**Features**
E45CT-1-FM-2KM [EF23-1-1FM-SC-2]	1	1 (Multi-Mode)	2 Km	Redudant Power Input
E45CT-1-FS-30KM [EF23-1-1FS-SC-30]	1	1 (Single-Mode)	30 km	



Feature Highlights:

- 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

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 Management	
Input Voltage	6-48 VDC
Input Current	0.5A max, 6 VDC
Connector	Removable 3-pin Screw Terminal Block
Reverse Polarity Protection	Present
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)

Optical Fiber Specifications		
P/N	**100Base**	
	Multi-mode	**Single-mode**
Distance	2Km	30Km
Bit rate(Mbps)	155	155
Wavelength(nm)	1310(LED)	1310(FP)
Application	Fast Ethernet / OC3	S1.1 / Fast Ethernet
TX Power(dBm)	-14~-20	-8~-15
RX Sens.(dBm)	<-31	<-34
Remark	E45CT-1-FM-2KM	E45CT-1-FS-30KM

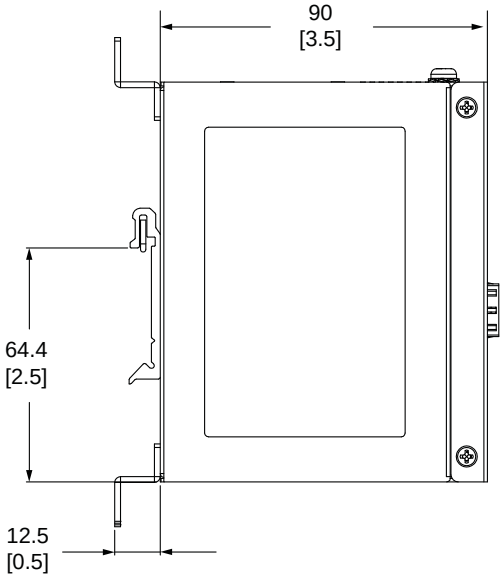
Regulatory Approvals				
EMI	FCC Part15, CISPR (EN55032) Class A			
EMC	EN61000-4-2 (ESD) Level 3, Criteria B / EN61000-4-3 (RS) Level 2, Criteria A EN61000-4-4 (EFT) Level 3, Criteria A / EN61000-4-5 (Surge) Level 3, Criteria B/A EN61000-4-6 (CS) Level 2, Criteria A			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	6KV,Criterion A 8KV,Criterion B	3 3
IEC 61000-4-3	RS	Enclosure ports	3V/m(unmodulated, r.m.s) 80% AM 1KHz, Criterion A	2
IEC 61000-4-4	EFT	Power Port Single Port	±2KV,Cirterion A ±1KV,Cirterion A	3 3
IEC 61000-4-5	Surge	Power Port Single Port	±2KV,Cirterion A ±2KV,Cirterion B	3
IEC 61000-4-6	CS	Power Port Single Port	3V/m(unmodulated, r.m.s) 80% AM 1KHz, Criterion A	2 2
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 II	Yes			
MTBF	823877 hrs (94.04Years) (Data base: MIL-HDBK-217F, GB 25°C)			
Warranty	5 Years			

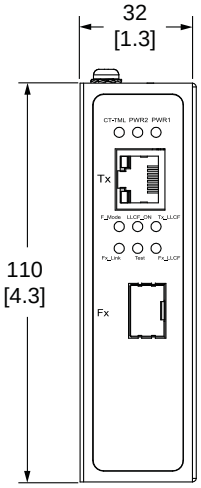
Industrial Networking Solutions

Media Converters

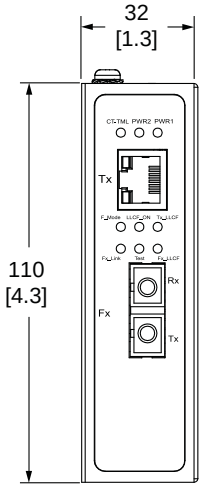
Media Converters | 1 Fiber Port | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Smart Gigabit Ethernet to Fiber Media Converters, 1-Fiber Port					
Part Number [MFG #]	**10/100/1000 RJ45 Ports**	**Auto Navigation SFP Slots**	**Fiber Ports**	**Rated Distance**	**Features**
E45CT-1M-FM-550M [EF24-1G-1FM-SC-550M]	1	N/A	1 (Multi-Mode)	550 M	Redundant Power Input
E45CT-1M-FS-10KM [EF24-1G-1FS-SC-10]	1	N/A	1 (Single-Mode)	10 KM	
E45CT-1M-SFP [EF24-1G-1SFP]	1	1	1 (SFP Slot)	N/A	





E45CT-1M-SFP



E45CT-1M-FM-550M
E45CT-1M-FS-10KM

Feature Highlights:

- Cut-Through Forwarding Mode
- Available in both SC and SFP Fiber Connectors
- Redundant Power Input
- Jumbo packets up to 9K bytes
- Link Fault Pass-Through (LFP) and Link Loss Carry Forward
- Operating Temperature : -10°C ~ 70°C

Technology	
Standards	IEEE 802.3 for 10BASE T IEEE 802.3u for 100BASE-T(X) and 100BASE-FX IEEE 802.3ab for 1000BASE-T(X) IEEE 802.3z for 1000BASE-X
Interface	
RJ45 Ports	10/100/1000Base-T(X) auto negotiation speed
Fiber Ports	100/1000BASE-(F)X or SFP Slot
LED Indicators	PWR1, PWR2, CT-TML, F_Mode, Fx_Link, LLCF_ON, Test, Tx_LLCF, Fx_LLCF
DIP Switch	Media Converter mode, Speed mode, Link Transparency, TS-1000 Terminal / Center mode, Power Save, Fiber Auto Negotiation, Jumbo Frame, Cut-through
Power Management	
Input Voltage	9-48 VDC
Input Current	Max. 0.3A @ 9VDC
Connector	Removable 5-pin Terminal Block
Reverse Polarity Protection	Present
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)

Optical Fiber Specifications		
P/N	**100Base**	
	Multi-mode	**Single-mode**
Distance	550M	10Km
Bit rate(Mbps)	1250Mbps	1250Mbps
Wavelength(nm)	850	1310
Application	1000Base-SX	1000Base-LX
TX Power(dBm)	-9.5~-4	-9.5~-3
RX Sens.(dBm)	<-18	<-20
Remark	E45CT-1M-FM-550M	E45CT-1M-FS-10KM

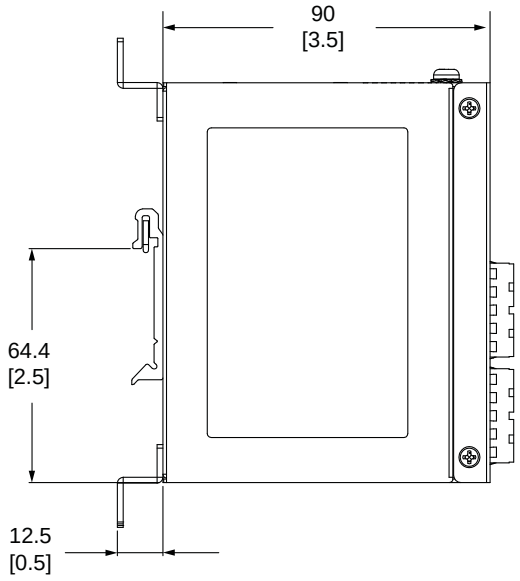
Regulatory Approvals				
Safety	CB			
EMC	FCC Part 15, Subpart B, Class A EN55032 EN 61000-3-2 EN 61000-3-3 EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	80-1000MHz	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±1.0KV	3 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±1.0KV	3 3 3 3
IEC 61000-4-6	CS	Conducted (Enclosure)	3 Vrms	2
IEC 61000-4-8	PFMF	(Enclosure)	AC 50/60 Hz 10 A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
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	415,681.88 hrs / 47.45 years (25°C)			
Warranty	5 Years			

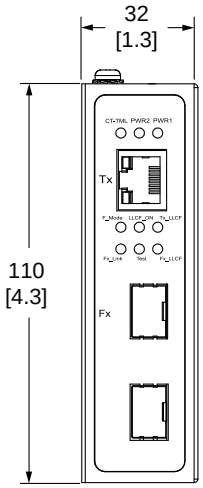
Industrial Networking Solutions

Media Converters

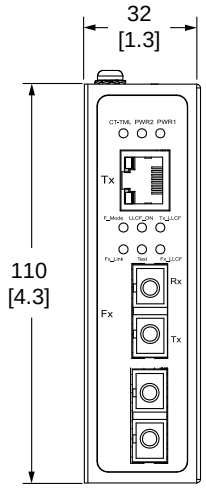
Media Converters | 2 Fiber Ports | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Smart Gigabit Ethernet to Fiber Media Converters, 2-Fiber Port					
Part Number [MFG #]	**10/100/1000 RJ45 Ports**	**Auto Navigation SFP Slots**	**Fiber Ports**	**Rated Distance**	**Features**
E45CTR-1M-2FM-550M [EF24-1G-2FM-SC-550M]	1	N/A	2 (Multi-Mode)	550 M	Redundant Power Input
E45CTR-1M-2FS-10KM [EF24-1G-2FS-SC-10]	1	N/A	2 (Single-Mode)	10 KM	
E45CT-1M-2SFP [EF24-1G-2SFP]	1	2	2 (SFP Slot)	N/A	





E45CT-1M-2SFP



E45CTR-1M-2FM-550M
E45CTR-1M-2FS-10KM

Feature Highlights:

- Cut-Through Forwarding Mode
- Available in both SC and SFP Fiber Connectors
- Redundant Power Input
- Jumbo packets up to 9K bytes
- Link Fault Pass-Through (LFP) and Link Loss Carry Forward
- Operating Temperature : -10°C ~ 70°C
- Works in Media Converter Mode or Fiber Repeater Mode

Technology	
Standards	IEEE 802.3 for 10BASE T IEEE 802.3u for 100BASE-T(X) and 100BASE-FX IEEE 802.3ab for 1000BASE-T(X) IEEE 802.3z for 1000BASE-X
Interface	
RJ45 Ports	10/100/1000Base-T(X) auto negotiation speed
Fiber Ports	100/1000BASE-(F)X or SFP Slot
LED Indicators	PWR1, PWR2, CT-TML, Fx1_Link, Fx2_Link,Fx1_OAM, FP/MC, Fx_LLCF, Tx_LLCF
DIP Switch	Media Converter / Repeater mode, Fiber Speed mode, Link Transparency, TS-1000 Terminal / Center mode, Power Save, Fiber Auto Negotiation, Jumbo Frame, Cut-through
Power Management	
Input Voltage	9-48 VDC
Input Current	Max. 0.3A @ 9VDC
Connector	Removable 5-pin Terminal Block
Reverse Polarity Protection	Present
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)

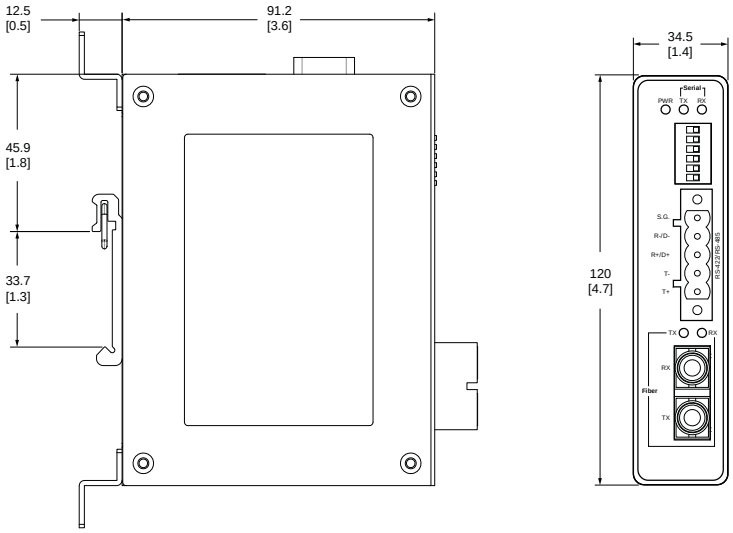
Optical Fiber Specifications		
P/N	**100Base**	
	Multi-mode	**Single-mode**
Distance	550M	10Km
Bit rate(Mbps)	1250Mbps	1250Mbps
Wavelength(nm)	850	1310
Application	1000Base-SX	1000Base-LX
TX Power(dBm)	-9.5~-4	-9.5~-3
RX Sens.(dBm)	<-18	<-20
Remark	E45CTR-1M-2FM-550M	E45CTR-1M-2FS-10KM

Regulatory Approvals				
Safety	CB			
EMC	FCC Part 15, Subpart B, Class A EN55032 EN 61000-3-2 EN 61000-3-3 EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	80-1000MHz	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±1.0KV	3 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±1.0KV Line-to Earth±1.0KV	3 3 3 3
IEC 61000-4-6	CS	Conducted (Enclosure)	3 Vrms	2
IEC 61000-4-8	PFMF	(Enclosure)	AC 50/60 Hz 10 A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
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	372,537.84 hrs / 42.52 years (25°C)			
Warranty	5 Years			

Industrial Networking Solutions

Media Converters

Industrial Serial to Fiber Media Converters				
Part Number [MFG #]	**Fiber Connectors**	**RS-232 RS-422 RS-485 TB5**	**Fiber Ports**	**Rated Distance**
E45CT-DB9-TB5-FMSC-2KM [SF63-TB-DB-1FM-SC-2]	SC	1	1 (Multi-Mode)	2 Km
E45CT-DB9-TB5-FSSC-30KM [SF63-TB-DB-1FS-SC-30]		1	1 (Single-Mode)	30 km
E45CT-DB9-TB5-FMST-2KM [SF63-TB-DB-1FM-ST-2]	ST	1	1 (Multi-Mode)	2 Km
E45CT-DB9-TB5-FSST-30KM [SF63-TB-DB-1FS-ST-30]		1	1 (Single-Mode)	30 km



Feature Highlights:

- Supports Multi-mode 2KM, Single-mode 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 resister
- Supports input voltage 9 ~ 48VDC
- -40 ~ 70°C Wide range of operating temperature for hazardous environment applications

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	30km
Wavelength	SC	Multi-Mode	850nm
		Single-Mode	1310nm
	ST	Multi-Mode	1310nm
		Single-Mode	1310nm
Tx Power	SC	Multi-Mode	-4~-9.5 dBm
		Single-Mode	+3~-4 dBm
	ST	Multi-Mode	-14~-20 dBm
		Single-Mode	-8~-15 dBm
Rx Sensitivity	SC	Multi-Mode	<-24
		Single-Mode	<-34
	ST	Multi-Mode	<-32
		Single-Mode	<-34

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 to 921.6Kbps(RS-422/485) 300bps to 115.2Kbps(RS-232)

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)

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

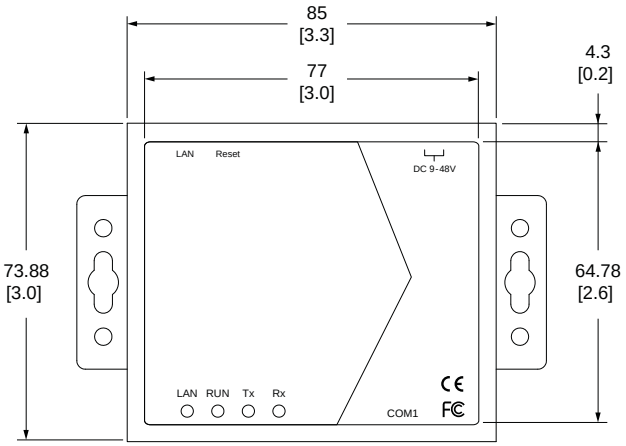
Regulatory Approvals				
EMI	FCC Part15, CISPR (EN55032) Class A			
EMC	IEC61000-4-2 (ESD) Level 3, Criteria B IEC61000-4-3 (RS) Level 3, Criteria A IEC61000-4-4 (EFT) Level 3, Criteria A IEC61000-4-5 (Surge) Level 3, Criteria B IEC61000-4-6 (CS) Level 3, Criteria A IEC61000-4-8 (PFMF) Level 3, Criteria A IEC61000-4-11 (DIP)			
Safty	LVD (EN60950-1)			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	6KV,Criterion B 8KV,Criterion B	3 3
IEC 61000-4-3	RS	Enclosure ports	10V/m(un-modulated, r.m.s) 80% AM 1KHz, Criterion A	3
IEC 61000-4-4	EFT	Power Port Single port	±2KV,Cirterion A ±1KV,Cirterion A	3 3
IEC 61000-4-5	Surge	Power Port Single port	±2KV,Cirterion A ±2KV,Cirterion B	3 3
IEC 61000-4-6	CS	Power Port	10 V (0.15 - 80 MHz), Criterion A	3
		Single Port	10 V (0.15 - 80 MHz), Criterion A	3
IEC 61000-4-8	PFMF	Enclosure	10 V/m, Criteria A	3
IEC 61000-4-11	DIP	AC Power Port	-	-
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	75 Years			
Warranty	5 Years			

Industrial Networking Solutions

Serial Device Servers

Entry-Level Serial Device Servers | Wall/DIN-Rail Mount | Metal Housing | IP30 Rating

Entry-Level Serial Device Servers				
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**Magnetic Isolation**
E45SS-2-DB9 [SE5002]	N/A	2	1	N/A
E45SS-2-TB5-IS [SE5002-S55IS]	2	N/A	1	2 KV



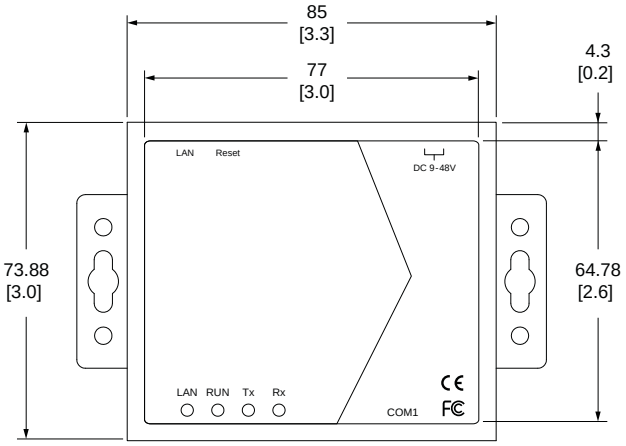
Feature Highlights:

- Rugged metal case with DIN-Rail/wall-mount
- 15KV ESD protection for serial signals
- 10/100Mbps Fast Ethernet full duplex auto negotiation
- Support multipl 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 Base utility for IP configuration
- Upgrade firmware from remote-PC via Ethernets

Ethernet		
Compliance	IEEE802.3	
Port	1-port	
Transmission Rate	10/100Mbps Auto-detection	
Connector	RJ-45	
Auto MDI/MDI-X	Yes	
Link Mode		
TCP Server	Single connection or Virtual Com mode	
TCP Client	Single destination	
UDP	Up to 4 Ranges of IPs	
Serial		
Interface	E45SS-2-DB9	RS-232/422/485 software selectable
	E45SS-2-TB5-IS	RS-422/485 software selectable
Ports	2-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	E45SS-2-DB9	9-pin D-Sub
	E45SS-2-TB5-IS	5-pin 3.81mm Terminal block
Protection	15KV ESD	

Power Requirements	
Input	9~30V
Consumption	Max. 1.5W(SE5002) / Max. 3 W
Environmental Limits	
Operating Temperature	0°C ~ 60°C (32º ~ 140ºF)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 to 95%, RH (non-condensing)
Software	
Configuration	Web Page / Telnet / Serial console / Windows utility
Virtual Com	Windows port redirection software
Support Protocol	ICMP, TCP(UDP) / IP, DHCP client, SNMP, SMTP, HTTP, Telnet
Regulatory Approvals	
Safety	EN 60950-1
EMC	FCC Class A, CE Class A
EMS	Meet Minimal Regulatory Requirement
MTBF	8 Years
Warranty	5 Years

Industrial EMC Serial Servers				
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**Features**
E45SS-DB9-EMC [SE5001A]	N/A	1	1	Industrial EMC Protection
E45SS-TB5-EMC [SE5001A-TB]	1	N/A	1	



Feature Highlights:

- Industrial EMC protection
- Rugged metal case with wall or DIN-Rail mount
- 10/100Mbps Fast Ethernet full duplex auto negotiation
- 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

Network Interface	
Ethernet	1x RJ-45 IEEE802.3 10/100Mbps, Auto MDI/MDI-X
Serial Interface	
Connector	10/100Mbps Auto-detection 3.81mm TB5 RS-232/422/485 software selectable (TB models)
Ports	1-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)	0.30A
Power Consumption	Approx. 2.70W (max)
Reverse Polarity Protection	Yes
Connector	5.08mm 3-pin Lockable Terminal Block
Environmental Limits	
Operating Temperature	0°C ~ 60°C (32º ~ 140ºF)
Storage Temperature	-40º ~ 85ºC (-40º~ 185ºF)
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

Regulatory Approvals				
EMI	EN 60950-1: 2011 / IEC 60950-1:2009			
EMC	EN 55022: 2007, EN 55024: 2010, FCC Part 15 Subpart B Class A			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Radiated (Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port	±2.0 KV ±2.0 KV	3 3
IEC 61000-4-5	Surge	Signal Port AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	±2.0 KV Line-to-Line±2.0 KV Line-to-Earth±4.0 KV Line-to-Line±0.5 KV Line-to-Earth±1 KV Line-to-Earth±2.0 KV	4 4 4 2 2 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			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
RoHS	Yes			
Warranty	5 Years			

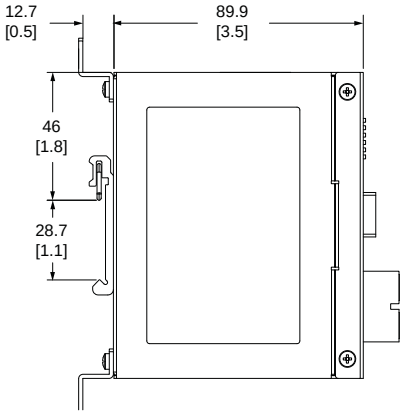
* AC Power Port means tested through the adapter in the accessories.

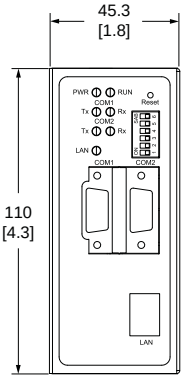
Industrial Networking Solutions

Serial Device Servers

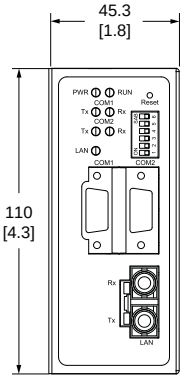
Entry-Level Serial Device Servers | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial EMC Serial Servers						
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**10/100 Fiber Ports**	**100 SFP Slots**	**Features**
E45SS-2-DB9-RJ45 [SE5002D]	N/A	2	1	N/A	N/A	Industrial EMC Protection
E45SS-2-TB5-RJ45 [SE5002D-TB]	2	N/A	1	N/A	N/A	
E45SS-2-DB9-FM [SE5002D-FM]	N/A	2	N/A	1 (Multi)	N/A	
E45SS-2-DB9-FS [SE5002D-FS]	N/A	2	N/A	1 (Single)	N/A	
E45SS-2-TB5-FM [SE5002D-FM-TB]	2	N/A	N/A	1 (Multi)	N/A	
E45SS-2-TB5-FS [SE5002D-FS-TB]	2	N/A	N/A	1 (Single)	N/A	
E45SS-2-DB9-SFP [SE5002D-SFP]	N/A	2	N/A	N/A	1	
E45SS-2-TB5-SFP [SE5002D-SFP-TB]	2	N/A	N/A	N/A	1	

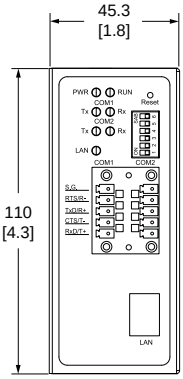




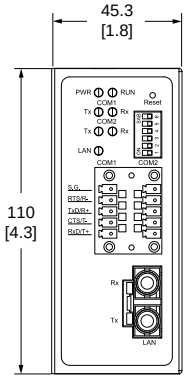
E45SS-2-DB9-RJ45
E45SS-2-DB9-SFP



E45SS-2-DB9-FM
E45SS-2-DB9-FS



E45SS-2-TB5-RJ45
E45SS-2-TB5-SFP



E45SS-2-TB5-FM
E45SS-2-TB5-FS

Feature Highlights:

- 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

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)	0.45A
Power Consumption	4.05Watts Max
Reverse Polarity Protection	Yes
Connector	5.08mm 3-pin Lockable Terminal Block
Environmental Limits	
Operating Temperature	0°C ~ 60°C (32º ~ 140ºF)
Storage Temperature	-40º ~ 85ºC (-40º~ 185ºF)
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

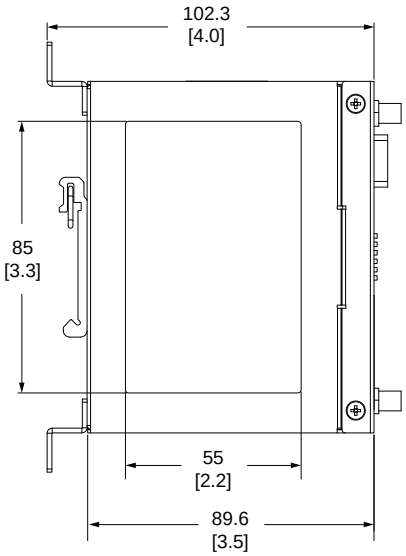
Regulatory Approvals				
Safety	IEC/EN 60950-1			
EMC	EN 55022: 2007, EN 55024: 2010, FCC Part 15 Subpart B Class A			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
	ESD (SFP Modules)	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Radiated (Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±2.0 KV ±1.0 KV	3 3 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port Conducted(Encl	Line-to-Line±2.0 KV Line-to-Earth±4.0 KV Line-to-Line±0.5 KV Line-to-Earth±1 KV Line-to-Earth±2.0 KV	3 3 2 2 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			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
RoHS	Yes			
Warranty	5 Years			

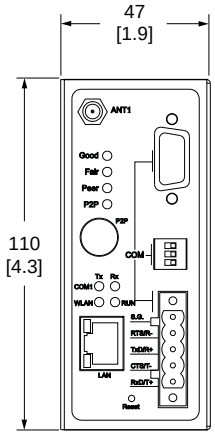
Industrial Networking Solutions

Serial Device Servers

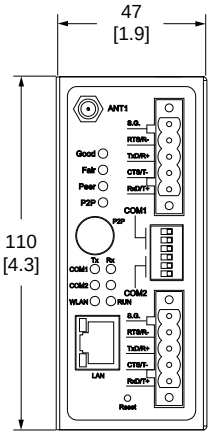
Wireless/Cellular Serial Device Servers | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Wireless IEEE 802.11 b/g/n Serial Device Servers				
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**Features**
E45WSS-DB9-TB5-P2P [SW5501C]	(1)	(1)	1	Wireless Distribution System (WDS)
E45WSS-2TB5-P2P [SW5502C-TB]	2	N/A	1	
E45WSS-2DB9-P2P [SW5502C]	N/A	2	1	

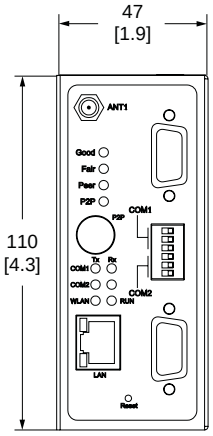




E45WSS-DB9-TB5-P2P



E45WSS-2TB5-P2P



E45WSS-2DB9-P2P

Feature Highlights:

- Designed for 802.11 b/g/n networks
- Web server/Utility configuration (Serial Manager)
- Upgrade via Serial Manager or Web server
- FCC (United States), ETSI (Europe) certified wirelessequipment
- RS232/422/485 software selectable
- D-sub9 or TB5 combo serial port (SW5501C)
- Support Wi-Fi Direct (Peer-to-Peer)

Network Interface	
Connector	RJ-45
Speed	IEEE802.3u, 100Base-T(X)

Power Management	
Input Voltage	9VDC - 48VDC
Input Current(9VDC)	0.65A
Power Consumption	Approx. 5.85Walts
Reverse Polarity Protection	Yes
Connector	5.08mm 3-pin Lockable Terminal Block

Mechanicals	
Reset Button	Yes
Wi-Fi Direct(P2P) Button	Yes

Environmental Limits	
Operating Temperature	-10°C ~ 60°C (14°F ~ 140°F)
Storage Temperature	-40º ~ 85ºC (-40º~ 185ºF)
Ambient Relative Humidity	5~95% RH, (non-condensing)

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMP, SMTP, HTTP, DNS, NTP, RADIUS, RFC2217, WPS, Syslog
Configuration	Serial Manager, Web UI
Virtual COM	Windows / Linux redirection software

Serial Interface		
Connector	E45WSS-DB9-TB5-P2P	D-Sub9 or TB5 combo RS-232/422/485 software selectable
	E45WSS-2TB5-P2P	D-Sub9 RS-232/422/485 software selectable
	E45WSS-2DB9-P2P	5.08mm TB5 RS-232/422/485 software selectable
Ports	E45WSS-DB9-TB5-P2P	1 Port
	E45WSS-2DB9-P2P	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

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

Wireless Characteristics	
Wireless PCI-e Module	Atheros AR9382
Tx / Rx	1T1R MIMO (1 x 1 with MCS 0-7)
Standard Conformance	802.11b, 802.11g, and 802.11n
Antenna	3/5 dBi antenna design, SMA(R) Female connector

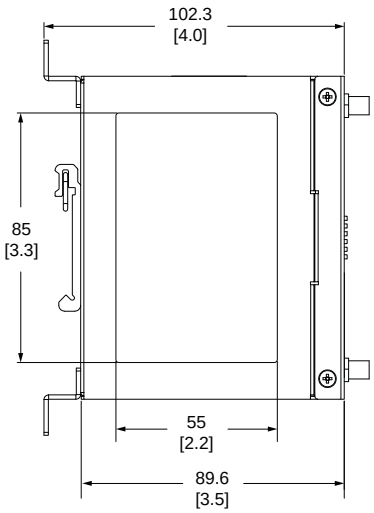
Regulatory Approvals				
Safety	UL60950-1/CB, EN60950-1			
EMC	EN 301489-1 V1.9.2, EN301489-17 V2.2.2 (Class A), FCC 15B (Class A)			
Radio	FCC 15C 15.247, FCC 15E 15.407, EN 301893 V1.7.1, EN 300328 V1.8.1			
EMF	EN 62311: 2008, EN 50385: 2002			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±4KV ±8KV	2 3
IEC 61000-4-3	RS	Radiated (Enclosure)	3(V/m)	2
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±0.5 KV / ±1.0 KV ±0.5 KV	3 1/2 2
IEC 61000-4-5	Surge	AC Power Port	Line-to-Line±1.0 KV / Line-to-Earth±2.0 KV	3
		DC Power Port	Line-to-Earth±0.5KV / ±1.0 KV	1/2
		Signal Port	Line-to-Line±1.0 KV / Line-to-Earth±1.0 KV	2
IEC 61000-4-6	CS	Conducted (Enclosure)	3 V rms	2
IEC 61000-4-8	PFMF	Enclosure	3(A/m)	2
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
MTBF	22 years (MIL-HDBK-217F)			
RoHS	Yes			
Warranty	5 Years			

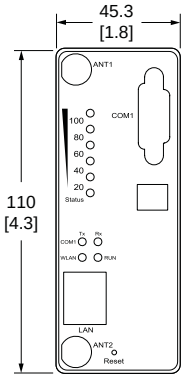
Industrial Networking Solutions

Serial Device Servers

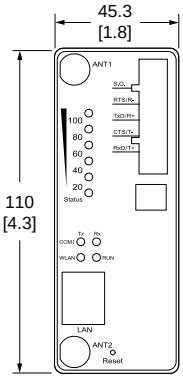
Wireless/Cellular Serial Device Servers | DIN-Rail Mount | Metal Housing | IP30 Rating

Industrial Wireless IEEE 802.11 a/b/g/n Serial Device Servers					
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Isolation**	**Features**
E45WSS-DB9 [SW5501]	N/A	1	1	N/A	Industrial EMC Protection Wireless Distribution System (WDS) 2 X 2 Multiple-Input-Multiple-Output (MIMO) Wireless
E45WSS-TB5 [SW5501-TB]	1	N/A	1	N/A	
E45WSS-TB5-IS [SW5501-SIS]	1	N/A	1	2 KV	
E45WSS-2DB9 [SW5502]	N/A	2	1	N/A	
E45WSS-2TB5 [SW5502-TB]	2	N/A	1	N/A	
E45WSS-2TB5-IS [SW5502-SIS]	2	N/A	1	2 KV	

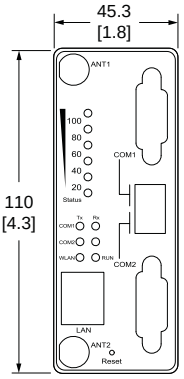




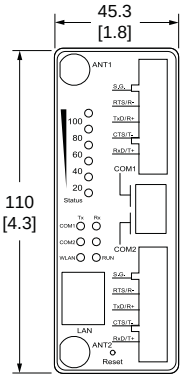
E45WSS-DB9



E45WSS-TB5
E45WSS-TB5-IS



E45WSS-2DB9



E45WSS-2TB5
E45WSS-2TB5-IS

Feature Highlights:

- 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

Network Interface	
Connector	RJ-45
Speed	IEEE802.3ab 10/100/1000Mbps

Power Management	
Input Voltage	9VDC - 48VDC
Input Current(9VDC)	0.65A
Power Consumption	Approx. 5.85Walts (max)
Reverse Polarity Protection	Yes
Connector	5.08mm 3-pin Lockable Terminal Block

Environmental Limits	
Operating Temperature	-10°C ~ 60°C (14°F ~ 140°F)
Storage Temperature	-40º ~ 85ºC (-40º~ 185ºF)
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

Wireless Characteristics		
Wireless PCI-e Module	Atheros AR9382	
Tx / Rx	2T2R MIMO (2 x 2 with MCS 0-15)	
Standard Conformance	802.11a, 802.11b, 802.11g, and 802.11n	
Antenna	3/5 dBi 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)

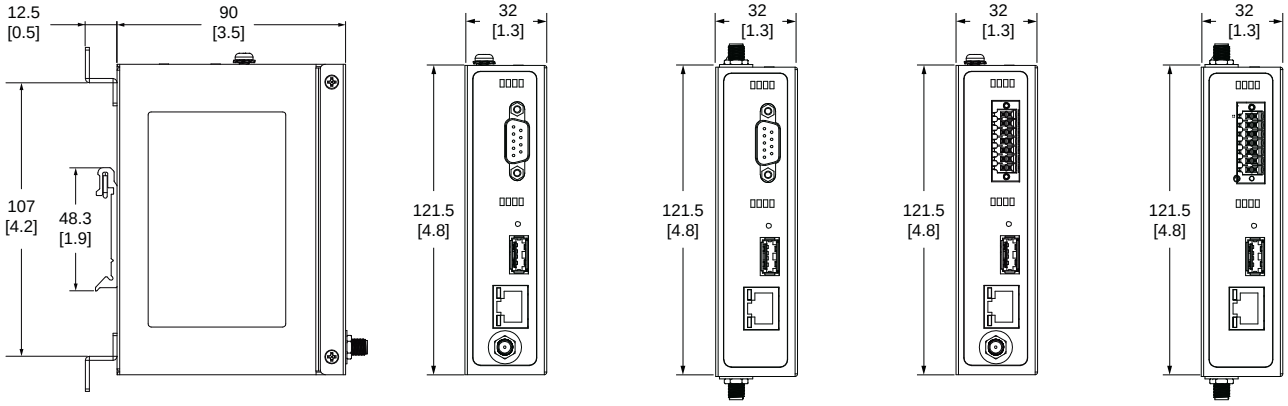
Serial Interface		
Connector	DB9 Models	D-Sub9 RS-232/422/485 software selectable
	TB Models	5.08mm TB5 RS-232/422/485 software selectable
	Sis Models	5.08mm TB5 RS-422/485 software selectable
Ports	E45WSS-DB9 E45WSS-TB5 E45WSS-TB5-IS	1 Port
	E45WSS-2DB9 E45WSS-2TB5 E45WSS-2TB5-IS	2 Ports
Baud Rate		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

Regulatory Approvals				
Safety	UL60950-1/CB, EN60950-1, CNS 14336			
EMC	EN 301489-1 VV1.9.2, EN301489-17 V2.2.2 (Class A), FCC 15B (Class A), CNS 13438			
Radio	FCC 15C 15.247, FCC 15E 15.407, EN 301893 V1.7.1, EN 300328 VV1.8.1, NCC LP00002			
EMF	EN 62311: 2008, EN 50385: 2002			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Radiated (Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	AC Power Port LAN Port COM Port	±2.0 KV ±2.0 KV ±2.0 KV	3 4 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port LAN Port COM Port	Line-to-Line±1.0 KV Line-to-Earth±2.0 KV Line-to-Earth±2.0 KV Line-to-Earth±2.0 KV	3 3 3 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			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
MTBF	22 years (MIL-HDBK-217F)			
RoHS	Yes			
Warranty	5 Years			

Industrial Cellular 3G/4G Serial Device Servers, US						
Part Number	**Band**	**RS-232 RS-485 TB14**	**RS-232 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Digital Input/ Output**	**GPS/ Battery Function**
SE5901B-D3G-US	3G	N/A	1	1	N/A	N/A
SE5901B-IO-D3G-US	3G	1+1*	N/A	1	2/2	N/A
SE5901B-IO-D3G-GPS-US	3G	1+1*	N/A	1	2/2	GPS
SE5901B-4G-US	4G	N/A	1	1	N/A	N/A
SE5901B-IO-4G-US	4G	1+1*	N/A	1	2/2	N/A
SE5901B-IO-4G-GPS-US	4G	1+1*	N/A	1	2/2	GPS
SE5901B-4G-B-US	4G	N/A	1	1	N/A	Battery Function
SE5901B-IO-4G-B-US	4G	1+1*	N/A	1	2/2	Battery Function
SE5901B-IO-4G-GPS-B-US	4G	1+1*	N/A	1	2/2	GPS/Battery Function

* one TB sw-selectable RS485/RS232 and one TB RS232.

SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 151) for Block Diagram.



3G DB9 Type **4G DB9 Type** **3G IO Type** **4G IO Type**

Feature Highlights:

- Extensive 3G and LTE Band Support
  - US: 1900/AWS/850/700/700/1900MHz (B2/B4/B5/B13/B17/B25)
- High-performance IPsec VPN throughput, data-rate up to 37.9Mbps
- Wide temperature, industrial grade platform
- 1 x 10/100/1000Mbps Ethernet port
- 1-port RS-232/485, baud rate up to 921.6 Kbps
- 1-Port USB2.0 high speed OTG + 1-Port USB Power only
- TCP Server/Client, UDP, Virtual COM supported
- 2 Digital Inputs/ 2 Digital outputs in I/O version
- Additional embedded power-bank for fault-relay capability (B version)

Network Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X)
Compliance	1x 10/100/1000BASE-TX RJ-45

Serial Interface

Connector	DB Model	D-Sub9 RS-232/485 software selectable
	Integrated with DI/DOs	14-Pin 5.08mm Terminal Block
Port	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)	
Baud Rate	1,200 ~ 921,600bps software selectable	
Data Bits	7, 8 software selectable	
Stop Bits	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	

USB Interface

USB ports	2 x USB A Type (USB 2.0) - 1-port High-Speed OTG + 1-port power only

Digital Inputs/Outputs (IO Models)

Digital Inputs (DIs)	2 channels photo coupler isolated digital input
Digital Outputs (DOs)	2 channels digital output. N.O.(2A@24VDC)

Link Mode

TCP Server	4 connections, Virtual COM, or Reverse Telnet
TCP Client	Single destination or Virtual COM
UDP	Up to 4 ranges of IPs

Power Management

Input Voltage	9-48 VDC
Connector	3-Pin 5.08mm Lockable Terminal Block
Power Consumption	0.6A @ 12VDC (7.2 W Max)
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes

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%~95%, (Non-condensing)

Mechanicals

Reset Button	Yes

Software

Serial Server-related	VirtualCOM (Serial/IP), Virtual Server (port Forwarding)
Security	VPN IPsec. Max VPN throughput 37.9Mbps *
Network	IPv4, Dynamic DNS, DHCP Client, ICMP, TCP, UDP, HTTP, RFC2217, TELNET
Configuration	Embedded Web-Server (Web UI), TELNET, Atop Device Management Utility
Features	IPsec, OpenVPN, RSTP, PPTP

Wireless Interface

Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE		
Wireless Module	Quectel EC20-A		
Band Options	Band	Bands	
	FDD LTE	1900/1700/850/700/700bMHz (B2/B4/B5/B12/B17)	
	TDD LTE	1900/1700/850MHz (B2/B4/B5)	
	GSM	850/1900MHz	
Data Rate	Band	Downlink Speed	Uplink Speed
	LTE-FDD LTE-TDD DC-HSPA+ UMTS TD-SCDMA EDGE GPRS	100 Mbps 61 Mbps 42 Mbps 384 Kbps 4.2 Mbps 236.8 Kbps 85.6 Kbps	50 Mbps 18 Mbps 5.76 Mbps 384 Kbps 2.2 Mbps 236.8 Kbps 85.6 Kbps

Regulatory Approvals

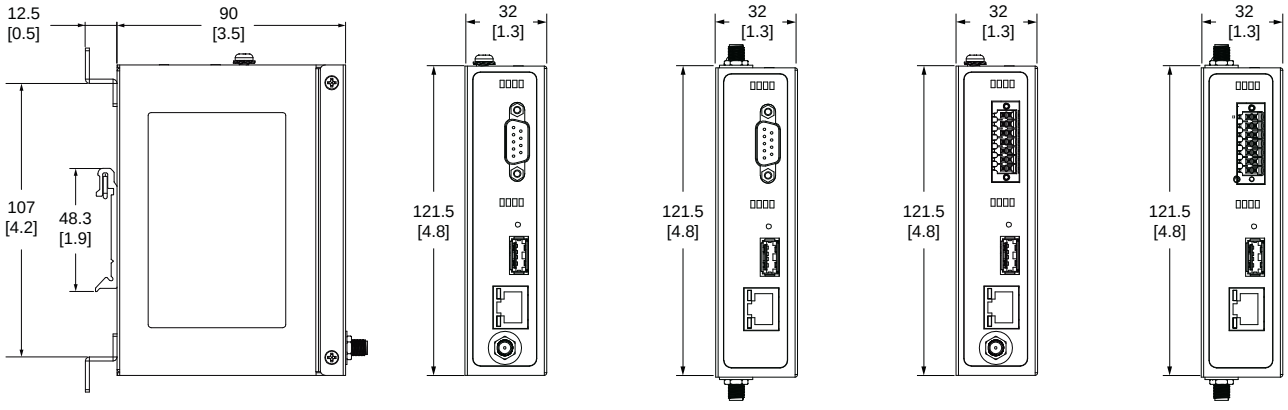
Safety	EN 60950-1:2006, UL60950			
EMC/Radio	FCC 47 CFR PART 22H, FCC 47 CFR PART 24H,FCC PART 27L, FCC Part 15B, EN301511,EN301908-1,EN301908-2,EN301489-1,EN301489-7,EN301489-24, EN55032,EN55024, EN61000-6-2,EN61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±1.0KV	3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%,Reduction,0.5 period 30%, Reduction,25 period >95%,Reduction,250 period	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

* : test carried out with one VPN-IPsec Tunnel, Peer-to-Peer mode, Ethernet cable. Performance can change based on the Cellular Network

Industrial Cellular 3G/4G Serial Device Servers, EU						
Part Number	**Band**	**RS-232 RS-485 TB14**	**RS-232 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Digital Input/ Output**	**GPS/ Battery Function**
SE5901B-D3G-EU	3G	N/A	1	1	N/A	N/A
SE5901B-IO-D3G-EU	3G	1+1*	N/A	1	2/2	N/A
SE5901B-IO-D3G-GPS-EU	3G	1+1*	N/A	1	2/2	GPS
SE5901B-4G-EU	4G	N/A	1	1	N/A	N/A
SE5901B-IO-4G-EU	4G	1+1*	N/A	1	2/2	N/A
SE5901B-IO-4G-GPS-EU	4G	1+1*	N/A	1	2/2	GPS
SE5901B-4G-B-EU	4G	N/A	1	1	N/A	Battery Function
SE5901B-IO-4G-B-EU	4G	1+1*	N/A	1	2/2	Battery Function
SE5901B-IO-4G-GPS-B-EU	4G	1+1*	N/A	1	2/2	GPS/Battery Function

* one TB sw-selectable RS485/RS232 and one TB RS232.

SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 151) for Block Diagram.



3G DB9 Type **4G DB9 Type** **3G IO Type** **4G IO Type**

Feature Highlights:

- Extensive 3G and LTE Band Support
  - EU: 2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)
- High-performance IPsec VPN throughput, data-rate up to 37.9Mbps
- Wide temperature, industrial grade platform
- 1 x 10/100/1000Mbps Ethernet port
- 1-port RS-232/485, baud rate up to 921.6 Kbps
- 1-Port USB2.0 high speed OTG + 1-Port USB Power only
- TCP Server/Client, UDP, Virtual COM supported
- 2 Digital Inputs/ 2 Digital outputs in I/O version
- Additional embedded power-bank for fault-relay capability (B version)

Network Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X)
Compliance	1x 10/100/1000BASE-TX RJ-45

Serial Interface

Connector	DB Model	D-Sub9 RS-232/485 software selectable
	Integrated with DI/DOs	14-Pin 5.08mm Terminal Block
Port	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)	
Baud Rate	1,200 ~ 921,600bps software selectable	
Data Bits	7, 8 software selectable	
Stop Bits	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	

USB Interface

USB ports	2 x USB A Type (USB 2.0) - 1-port High-Speed OTG + 1-port power only

Digital Inputs/Outputs (IO Models)

Digital Inputs (DIs)	2 channels photo coupler isolated digital input
Digital Outputs (DOs)	2 channels digital output. N.O.(2A@24VDC)

Link Mode

TCP Server	4 connections, Virtual COM, or Reverse Telnet
TCP Client	Single destination or Virtual COM
UDP	Up to 4 ranges of IPs

Power Management

Input Voltage	9-48 VDC
Connector	3-Pin 5.08mm Lockable Terminal Block
Power Consumption	0.6A @ 12VDC (7.2 W Max)
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes

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%~95%, (Non-condensing)

Mechanicals

Reset Button	Yes

Software

Serial Server-related	VirtualCOM (Serial/IP), Virtual Server (port Forwarding)
Security	VPN IPsec. Max VPN throughput 37.9Mbps *
Network	IPv4, Dynamic DNS, DHCP Client, ICMP, TCP, UDP, HTTP, RFC2217, TELNET
Configuration	Embedded Web-Server (Web UI), TELNET, Atop Device Management Utility
Features	IPsec, OpenVPN, RSTP, PPTP

Wireless Interface

Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE	
Wireless Module	Quectel EC25-E	
Band Options	Band	Bands
	FDD LTE	1900/1700/850/700/700bMHz (B2/B4/B5/B12/B17)
	TDD LTE	1900/1700/850MHz (B2/B4/B5)
	WCDMA	2100/850/900MHz (B1/B5/B8)
	GSM	850/1900MHz

Data Rate	Band	Downlink Speed	Uplink Speed
	LTE-FDD	150 Mbps	50 Mbps
	LTE-TDD	130 Mbps	35 Mbps
	DC-HSPA+	42 Mbps	5.76 Mbps
	UMTS	384 Kbps	384 Kbps
	TD-SCDMA	4.2 Mbps	2.2 Mbps
	EDGE	236.8 Kbps	236.8 Kbps
	GPRS	85.6 Kbps	85.6 Kbps

Regulatory Approvals

Safety	EN 60950-1:2006, UL60950
EMC/Radio	FCC 47 CFR PART 22H, FCC 47 CFR PART 24H,FCC PART 27L, FCC Part 15B, EN301511,EN301908-1,EN301908-2,EN301489-1,EN301489-7,EN301489-24, EN55032,EN55024, EN61000-6-2,EN61000-6-4

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±1.0KV	3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%,Reduction,0.5 period 30%, Reduction,25 period >95%,Reduction,250 period	-

Shock	IEC 60068-2-27
Drop	IEC 60068-2-32
Vibration	IEC 60068-2-64
RoHS	Yes
Warranty	5 Years

* : test carried out with one VPN-IPsec Tunnel, Peer-to-Peer mode, Ethernet cable. Performance can change based on the Cellular Network

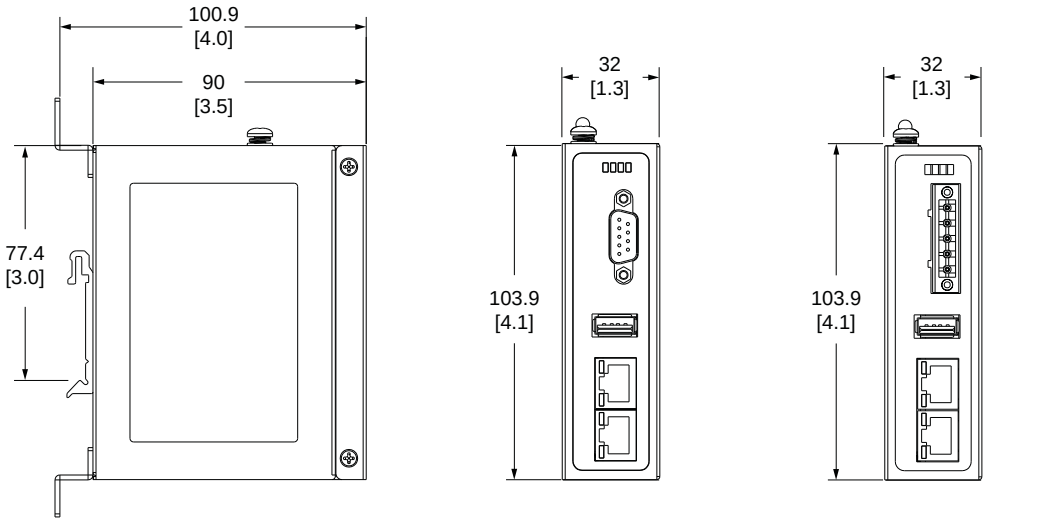
Industrial Networking Solutions

Serial Device Servers

Advanced Serial Device Servers | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Advanced Industrial Serial Device Servers					
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**PoE Powered**	**Features**
E45SS-DB9-2RJ45 [SE5901-DB]	N/A	1	2	No	Industrial EMC Protection
E45SS-TB5-2RJ45 [SE5901-TB]	1	N/A	2	No	
E45SS-DB9-2RJ45-POE [SE5901-POE-DB]	N/A	1	2	Yes	
E45SS-TB5-2-RJ45-POE [SE5901-POE-TB]	1	N/A	2	Yes	

SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 151) for Block Diagram.



E45SS-DB9-2RJ45
E45SS-DB9-2RJ45-POE

E45SS-TB5-2RJ45
E45SS-TB5-2-RJ45-POE

Feature Highlights:

- Industrial EMC protection, wide temperature operation, -40°C~85°C
- Rugged metal case with wall or DIN-Rail mount
- 2-port 10/100Mbps Fast Ethernet, 1-port USB 2.0 high speed OTG
- 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
- Optional 802.3af PoE models can be powered through the Ethernet cable

Network Interface		
Speed		IEEE 802.3 10BaseT, IEEE 802.3u 100BaseT(X)
PoE standard supported		IEEE 802.3 af (PoE)
Connector ports		RJ45 x 2
Serial Interface		
Connector	DB Models	D-Sub9 RS-232/422/485 software selectable
	TB Models	5.08mm 5-Pin Terminal block RS-232/422/485 sw selectable
Ports		1
Baud Rate		110 ~ 921.6Kbps software selectable
Data Bits		5, 6, 7, 8 software selectable
Stop Bits		1, 2 software selectable
Flow Control		None, Xon/Xoff, RTS/CTS
USB interface		
Speed		USB 2.0
Connector		USB A Type
Power Management		
Input Voltage		9 - 48VDC (non-PoE Models); or through Ethernet Cable (PoE versions)
Input Current (@ 9VDC)		0.65 A
Power Consumption		Approximately 6 W (Max)
Connector		3-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection		Yes
Mechanicals		
Reset Button		Yes
Environmental Limits		
Operating Temperature		-40°C ~ 75°C (-40°F ~ 167°F)
Storage Temperature		-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity		5%~95%, 55°C (Non-condensing)

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, Telnet, RFC2217
Configuration	Atop Management Utility, Web UI, Telnet
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP
Link Modes	
TCP Client	Single destination or VirtualCOM
TCP Server	4 Connections; VirtualCOM or reverse Telnet
UDP	Up to 4 Ranges IP
Regulatory Approvals	
Safety	EN60950-1:2006
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4

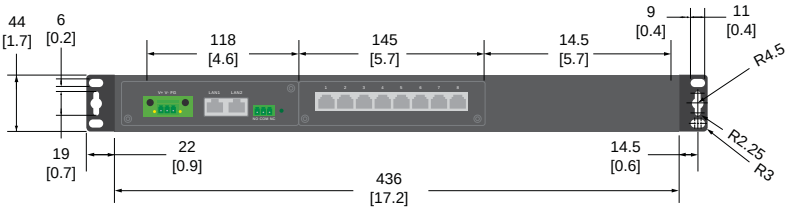
EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8KV ±15KV	4 4
IEC 61000-4-3	RS	Radiated (Enclosure)	10(V/m)	3
IEC 61000-4-4	EFT	DC Power Port Signal Port	±2.0 KV ±2.0 KV	3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 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	Power Port	-	A

Shock	IEC 60068-2-27
Drop	IEC 60068-2-32
Vibration	IEC 60068-2-6
RoHS II	Yes
Warranty	5 Years

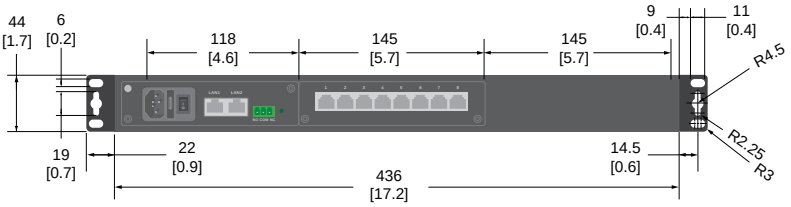
8-Port Advanced Serial Device Servers					
Part Number [MFG #]	**RS-232 RS-422 RS-485 RJ45**	**10/100 RJ45 Ports**	**Isolation**	**Power Connector**	**Features**
RMSS-8RJ45 [SE5908-DC]	8 (RS-232/422/485)	2	N/A	DC TB3	Industrial EMC Protection
RMSS-8RJ45-422-IS [SE5908-SIS-DC]	8 (RS-422/485)	2	2.5 KV	DC TB3	
RMSS-8RJ45-US-AC [SE5908-US]	8 (RS-232/422/485)	2	N/A	AC Inlet (US)	
RMSS-8RJ45-422-IS-US-AC [SE5908-SIS-US]	8 (RS-422/485)	2	2.5 KV	AC Inlet (US)	
RMSS-8RJ45-EU-AC [SE5908-EU]	8 (RS-232/422/485)	2	N/A	AC Inlet (EU)	
RMSS-8RJ45-422-IS-EU-AC [SE5908-SIS-EU]	8 (RS-422/485)	2	2.5 KV	AC Inlet (EU)	

RS-232/RS-485-RS-422 function is available on non-isolated versions. Isolated versions support RS-485 and RS-422 only.
SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 151) for Block Diagram.

DC Terminal Block



AC Inlet



Feature Highlights:

- Remotely monitor, manage, and control industrial field devices
- Industrial EMC protection, Opt. Serial port Isolation, -20°C~70°C operation
- 2 Fast-Ethernet ports with RSTP allowing also dual-subnet or redundancy
- 8/16 sw-selectable RS-232/485/422 (*) RJ45 serial ports, up to 921kbps with adjustable pull-high / pull-low resistors.
- 24~48 VDC Power Input or 100~240 VAC Power input (EU or US version)
- TCP Server/Client, UDP, Virtual COM and Tunneling modes supported
- Supports SNMPv1/v2c/v3, RSTP 802.1d:2004 and cascade connecting
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility

Network Interface		
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X)	
LAN Mode	Dual Subnets or Network Redundancy	
Connector ports	2 x 10/100BASE-T(X) RJ-45	
Power Management		
Input Voltage	DC	24 - 48VDC
	US/EU	100~240 VAC (EU or US Plug)
Input Current	DC	0.54 A @24VDC
	US/EU	0.21A@100VAC
Power Consumption	Approximately 21 W (Max)	
Connector	DC	5.08mm 3-pin Lockable Terminal Block
	US/EU	IEC 60320-1 C14 AC Power Inlet
Power Redundancy	No	
Reverse Polarity Protection	Yes (DC Input only)	
Relay Output	Yes (1)	
Mechanicals		
Reset Button	Yes	
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%, (non-condensing)	
Software		
Protocol	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, SNMPv1,v2c,v3, HTTP, Telnet, RFC2217, Syslog	
Configuration	Atop Management Utility, Web UI, Telnet	
Virtual COM	Windows / Linux redirection software	
Features	IPsec, OpenVPN, RSTP, PPTP	
Link Modes		
TCP Server	Dual destination supports raw-data or VirtualCOM	
TCP Server	4 Connections mode supports raw-data; VirtualCOM or reverse Telnet	
UDP	Up to 4 Ranges IP	

Serial Interface		
Connector	Non-Isolation Models	RJ45 RS-232/422/485 software selectable
	Isolation Models	RJ45 Isolated RS-422/485 software selectable
Ports	8 Ports	
Mode	RS-232/422/485, software selectable. Consult factory for the different modes supported in each model.	
Baud Rate	50 ~ 921,600 bps software selectable	
Parity	None, Odd, Even, Space, Mark	
Data bits	5, 6, 7, 8 software selectable	
Stop Bit	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	
Isolation	2.5 KV (Isolation models only)	

Regulatory Approvals				
Safety	EN60950-1:2006/ IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B, EN 61000-3-2, EN 61000-3-3, EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Enclosure Contact Air Discharge	±8kV ±15kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 V rms 10 V rms 10 V rms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	DIP	AC Power Ports	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

Industrial Networking Solutions

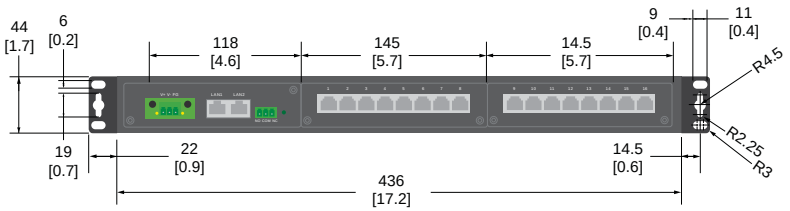
Serial Device Servers

Advanced Serial Device Servers | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

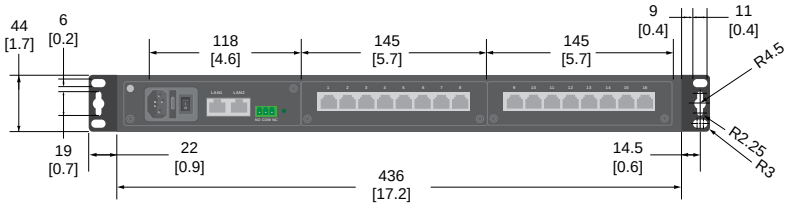
16-Port Advanced Serial Device Servers					
Part Number [MFG #]	**RS-232 RS-422 RS-485 RJ45**	**10/100 RJ45 Ports**	**Isolation**	**Power Connector**	**Features**
RMSS-16RJ45 [SE5916-DC]	16 (RS-232/422/485)	2	N/A	DC TB3	Industrial EMC Protection
RMSS-16RJ45-422-IS [SE5916-SIS-DC]	16 (RS-422/485)	2	2.5 KV	DC TB3	
RMSS-16RJ45-US-AC [SE5916-US]	16 (RS-232/422/485)	2	N/A	AC Inlet (US)	
RMSS-16RJ45-422-IS-US-AC [SE5916-SIS-US]	16 (RS-422/485)	2	2.5 KV	AC Inlet (US)	
RMSS-16RJ45-EU-AC [SE5916-EU]	16 (RS-232/422/485)	2	N/A	AC Inlet (EU)	
RMSS-16RJ45-422-IS-EU-AC [SE5916-SIS-EU]	16 (RS-422/485)	2	2.5 KV	AC Inlet (EU)	

RS-232/RS-485-RS-422 function is available on non-isolated versions. Isolated versions support RS-485 and RS-422 only.
SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 151) for Block Diagram.

DC Terminal Block



AC Inlet



Feature Highlights:

- Remotely monitor, manage, and control industrial field devices
- Industrial EMC protection, Opt. Serial port Isolation, -20°C~70°C operation
- 2 Fast-Ethernet ports with RSTP allowing also dual-subnet or redundancy
- 8/16 sw-selectable RS-232/485/422 (*) RJ45 serial ports, up to 921kbps with adjustable pull-high / pull-low resistors.
- 24~48 VDC Power Input or 100~240 VAC Power input (EU or US version)
- TCP Server/Client, UDP, Virtual COM and Tunneling modes supported
- Supports SNMPv1/v2c/v3, RSTP 802.1d:2004 and cascade connecting
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility

Advanced Serial Device Servers | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface		
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X)	
LAN Mode	Dual Subnets or Network Redundancy	
Connector ports	2 x 10/100BASE-T(X) RJ-45	
Power Management		
Input Voltage	DC	24 - 48VDC
	US/EU	100~240 VAC
Input Current	DC	0.54 A @24VDC
	US/EU	0.21A@100VAC
Power Consumption	Approximately 21 W (Max)	
Connector	DC	5.08mm 3-pin Lockable Terminal Block
	US/EU	IEC 60320-1 C14 AC Power Inlet
Power Redundancy	No	
Reverse Polarity Protection	Yes (DC Input only)	
Relay Output	Yes (1)	
Mechanicals		
Reset Button	Yes	
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%, (non-condensing)	
Software		
Protocol	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, SNMPv1,v2c,v3, HTTP, Telnet, RFC2217, Syslog	
Configuration	Atop Management Utility, Web UI, Telnet	
Virtual COM	Windows / Linux redirection software	
Features	IPsec, OpenVPN, RSTP, PPTP	
Link Modes		
TCP Server	Dual destination supports raw-data or VirtualCOM	
TCP Server	4 Connections mode supports raw-data; VirtualCOM or reverse Telnet	
UDP	Up to 4 Ranges IP	

Serial Interface		
Connector	Non-Isolation Models	RJ45 RS-232/422/485 software selectable
	Isolation Models	RJ45 Isolated RS-422/485 software selectable
Ports	16 Ports	
Mode	RS-232/422/485, software selectable. Consult factory for the different modes supported in each model.	
Baud Rate	50 ~ 921,600 bps software selectable	
Parity	None, Odd, Even, Space, Mark	
Data bits	5, 6, 7, 8 software selectable	
Stop Bit	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	
Isolation	2.5 KV (Isolation models only)	

Regulatory Approvals				
Safety	EN60950-1:2006/ IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B, EN 61000-3-2, EN 61000-3-3, EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Enclosure Contact Air Discharge	±8kV ±15kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 V rms 10 V rms 10 V rms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	DIP	AC Power Ports	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

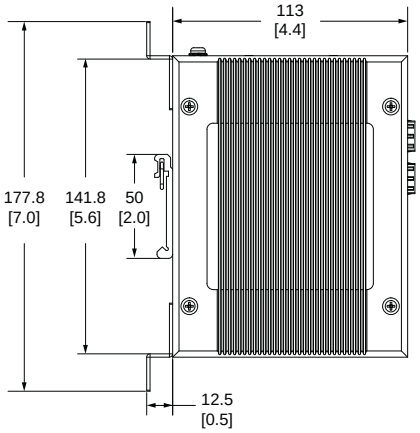
Industrial Networking Solutions

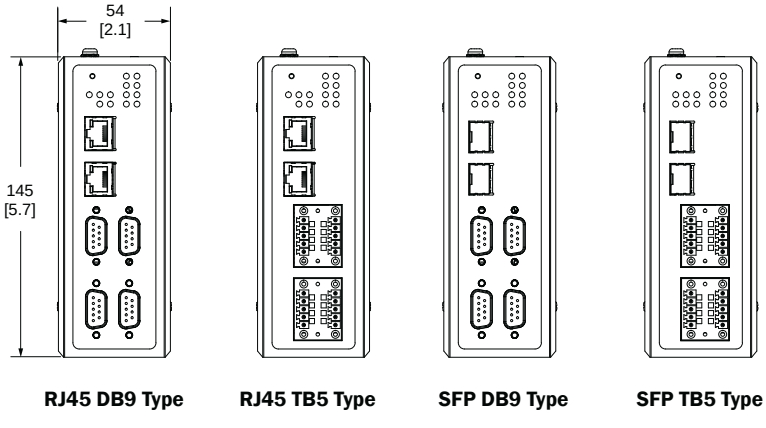
Serial Device Servers

Industrial Serial Device Servers | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Serial Device Servers						
Part Number [MFG #]	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**1000 SFP Slots**	**Isolation**	**Features**
E45SS-4DB9-2RJ45 [SE5904D-4P-DB]	N/A	4	2	N/A	N/A	Industrial EMC Protection
E45SS-4TB5-2RJ45 [SE5904D-4P-TB]	4	N/A	2	N/A	N/A	
E45SS-4TB5-2RJ45-IS [SE5904D-4P-SIS]	4	N/A	2	N/A	3 KV	
E45SS-4DB9-2POE [SE5904D-4P-POE-DB]	N/A	4	2 with PoE	N/A	N/A	
E45SS-4TB5-2POE [SE5904D-4P-POE-TB]	4	N/A	2 with PoE	N/A	N/A	
E45SS-4TB5-2POE-IS [SE5904D-4P-POE-SIS]	4	N/A	2 with PoE	N/A	3 KV	
E45SS-4M-4DB9-2SFP [SE5904D-4P-G-DB-SFP]	N/A	4	N/A	2	N/A	
E45SS-4M-4TB5-2SFP [SE5904D-4P-G-TB-SFP]	4	N/A	N/A	2	N/A	
E45SS-4M-4TB5-2SFP-IS SE5904D-4P-G-SIS-SFP]	4	N/A	N/A	2	3 KV	

SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 152) for Block Diagram.





RJ45 DB9 Type **RJ45 TB5 Type** **SFP DB9 Type** **SFP TB5 Type**

Feature Highlights:

- Industrial EMC protection, wide temperature operation, -40°C~85°C
- Rugged metal case with wall or DIN-Rail mount
- 2 Fast-Ethernet ports or SFP Gigabit slots
- 4 Software-selectable RS-232/RS-485/RS-422 serial ports, up to 921kbps
- Isolated Redundant 12~48 VDC Power Inputs or powered (PoE models) through through the Ethernet cable (802.3af)
- 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

Network Interface	
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) IEEE 802.3z for 1000Base-X
PoE standard supported	IEEE 802.3 af
LAN Mode	Dual Subnets or Network Redundancy
Connector ports	2x 10/100BASE-T(X) RJ-45 or 2x 1000 Base-X SFP Slots (SFP version)

USB Interface	
Speed	USB 2.0
Connector	USB A Type x 1

Link Mode	
TCP Server	4 Connections; VirtualCOM or reverse Telnet
TCP Client	Single destination or VirtualCOM
UDP	Up to 4 Ranges IP

Power Management	
Input Voltage	Dual 12 - 48VDC (non-POE Models); or through Ethernet Cable (POE versions)
Input Current (@ 12VDC)	0.65 A
Power Consumption	Approximately 6 W (Max)
Connector	7-Pin 5.08mm Lockable Terminal Block
Power Redundancy	Yes
Reverse Polarity Protection	Yes
Relay Output	1A @ 30 VDC (normal open)

Physical Characteristics	
Reset Button	Yes

Environment Limits	
Operating	-40°C~85°C (-40°F~185°F)
Storage	-40°C~85°C (-40°F~185°F)
Humidity	5%~95%, 55°C (Non-condensing)

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, Telnet, RFC2217
Configuration	Atop Management Utility, Web UI, Telnet
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

Serial Interface		
Connector	DB Models	D-Sub9 RS-232/422/485 software selectable
	TB Models	5.08mm 5-Pin Terminal block RS-232/422/485 sw selectable
Ports		4 + 1 console port (RJ45)
Baud Rate		110 ~ 921,600 bps software selectable
Data Bits		7, 8 software selectable
Stop Bits		1, 2 software selectable
Flow Control		None, Xon/Xoff, RTS/CTS
Isolation		3 kV (Isolation versions only)

Regulatory Approvals				
Safety	UL61010-2-201			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Enclosure Contact Enclosure Air	±8kV ±15kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port Signal Port	±2.0KV ±2.0KV	3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 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	Power Port	-	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

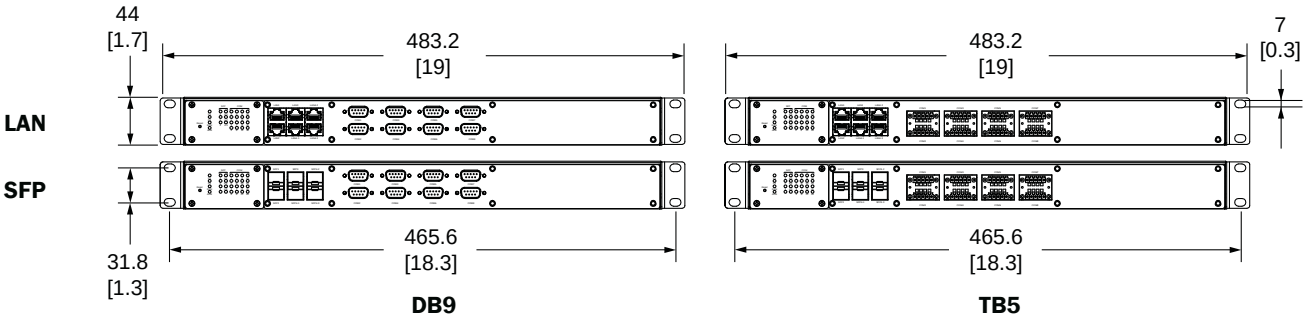
Industrial Networking Solutions

Serial Device Servers

Industrial Serial Device Servers | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

IEC61850-3 Certified Industrial 8-Port Serial Device Servers					
Part Number [MFG #]	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
RMSS-IND-6RJ45-8DB9 [SE5908A]	24-48 VDC	6 (RJ45)	8 x DB9	N/A	Industrial EMC Protection IEC61850-3 Certified
RMSS-IND-6RJ45-8TB5 [SE5908A-TB]		6 (RJ45)	8 x TB5	N/A	
RMSS-IND-6RJ45-8TB5-IS SE5908A-SIS]		6 (RJ45)	8 x TB5	2.5KV	
RMSS-IND-6SFP-8DB9 [SE5908A-6SFP]		6 (SFP Slot)	8 x DB9	N/A	
RMSS-IND-6SFP-8TB5 [SE5908A-6SFP-TB]		6 (SFP Slot)	8 x TB5	N/A	
RMSS-IND-6SFP-8TB5-IS [SE5908A-6SFP-SIS]		6 (SFP Slot)	8 x TB5	2.5KV	
RMSS-IND-6RJ45-8DB9-HV [SE5908A-HV]	100-240 VAC/ 100-370 VDC	6 (RJ45)	8 x DB9	N/A	
RMSS-IND-6RJ45-8TB5-HV [SE5908A-TB-HV]		6 (RJ45)	8 x TB5	N/A	
RMSS-IND-6RJ45-8TB5-IS-HV [SE5908A-SIS-HV]		6 (RJ45)	8 x TB5	2.5KV	
RMSS-IND-6SFP-8DB9-HV [SE5908A-6SFP-HV]		6 (SFP Slot)	8 x DB9	N/A	
RMSS-IND-6SFP-8TB5-HV [SE5908A-6SFP-TB-HV]		6 (SFP Slot)	8 x TB5	N/A	
RMSS-IND-6SFP-8TB5-IS-HV [SE5908A-6SFP-SIS-HV]		6 (SFP Slot)	8 x TB5	2.5KV	

SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 152) for Block Diagram.



Feature Highlights:

- Remotely monitor, manage, and control industrial field devices
- Industrial EMC protection, wide temperature operation, -40°C~85°C
- IEC61850-3 certified, can be easily set up into IEC61850-3 substations
- Redundant Power Input for fault protection, either 24~48 VDC or High-Voltage AC/DC
- 6 Fast-Ethernet ports, either RJ45 or SFP slot
- 8 or 16 RS-232/RS-485/RS-422 Serial ports
- TCP Server/Client, UDP, Virtual COM and Tunneling modes supported
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility, remote firmware upgrade

Industrial Serial Device Servers | 8-Port | 19" Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) - RJ45 version IEEE 802.3u 100Base-FX - SFP version
Connector ports	RJ45 x 6 (RJ45 version) SFP x 6 (SFP version)

Power Management	
Input Voltage	Redundant 24-48 VDC or Redundant 100-240 VAC/ 100-370 VDC (HV Series)
Input Current	0.73 A @ 24 VDC 0.35 A @ 100 VAC 0.20 A @ 100 VDC
Power Consumption	Approximately 20 W
Power Redundancy	Yes
Connector	10-Pin Terminal Block
Reverse Polarity Protection	Yes

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)

Software	
Protocol	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, Telnet, Syslog
Configuration	Atop Management Utility, Web UI, Telnet, Console
Virtual COM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

Link Modes	
TCP Server	Single destination or VirtualCOM
TCP Client	4 Connections; VirtualCOM or reverse Telnet
UDP	Up to 4 Ranges IP

Serial Interface	
Connector	D-Sub9 (DB models, supporting only 5-pin RS-232 mode) or 5.08mm 5-Pin Terminal block (TB Models)
Ports	8 Ports
Mode	RS-232/422/485 Software selectable
Baud Rate	110 ~ 921.6Kbps software selectable
Parity	None, Odd, Even, Mark, Space
Data bits	5, 6, 7, 8 software selectable
Stop Bit	1, 2 software selectable
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
Isolation	2.5 KV (Isolation models only)

Regulatory Approvals

Safety	EN 61010-2-201
EMI	FCC Part 15, Subpart B, Class B, EN 55032, Class B, EN 61000-6-2 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-4, IEC 61850-3 / IEEE 1613

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8kV ±15kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 V rms	3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Ports	-	-
IEC 61000-4-11	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3

Shock	MIL-STD-810F Method 516
Drop	MIL-STD-810F Method 516
Vibration	MIL-STD-810F Method 514.5 C1 & C2
RoHS II	Yes
Warranty	5 Years

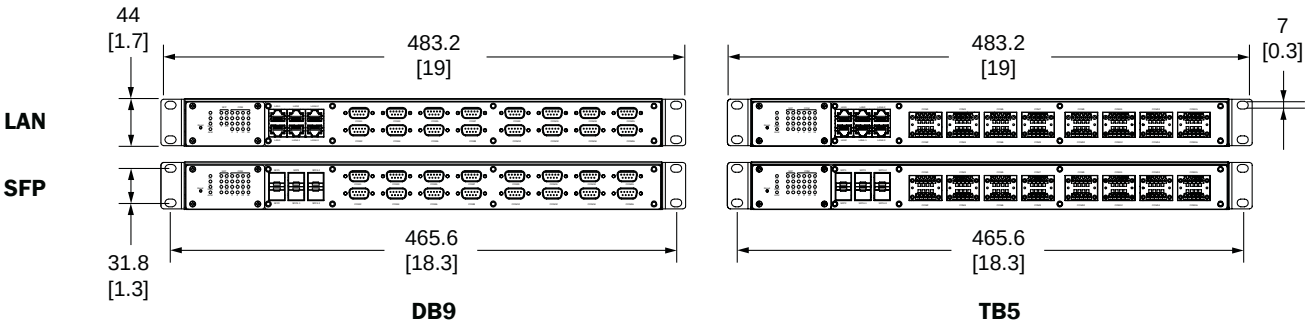
Industrial Networking Solutions

Serial Device Servers

Industrial Serial Device Servers | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

IEC61850-3 Certified Industrial 16-Port Serial Device Servers					
Part Number [MFG #]	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
RMSS-IND-6RJ45-16DB9 [SE5916A]	24-48 VDC	6 (RJ45)	16 x DB9	N/A	Industrial EMC Protection IEC61850-3 Certified
RMSS-IND-6RJ45-16TB5 [SE5916A-TB]		6 (RJ45)	16 x TB5	N/A	
RMSS-IND-6RJ45-16TB5-IS [SE5916A-SIS]		6 (RJ45)	16 x TB5	2.5KV	
RMSS-IND-6SFP-16DB9 [SE5916A-6SFP]		6 (SFP Slot)	16 x DB9	N/A	
RMSS-IND-6SFP-16TB5 [SE5916A-6SFP-TB]		6 (SFP Slot)	16 x TB5	N/A	
RMSS-IND-6SFP-16TB5-IS [SE5916A-6SFP-SIS]		6 (SFP Slot)	16 x TB5	2.5KV	
RMSS-IND-6RJ45-16DB9-HV [SE5916A-HV]	100-240 VAC/ 100-370 VDC	6 (RJ45)	16 x DB9	N/A	
RMSS-IND-6RJ45-16TB5-HV [SE5916A-TB-HV]		6 (RJ45)	16 x TB5	N/A	
RMSS-IND-6RJ45-16TB5-IS-HV [SE5916A-SIS-HV]		6 (RJ45)	16 x TB5	2.5KV	
RMSS-IND-6SFP-16DB9-HV [SE5916A-6SFP-HV]		6 (SFP Slot)	16 x DB9	N/A	
RMSS-IND-6SFP-16TB5-HV [SE5916A-6SFP-TB-HV]		6 (SFP Slot)	16 x TB5	N/A	
RMSS-IND-6SFP-16TB5-IS-HV [SE5916A-6SFP-SIS-HV]		6 (SFP Slot)	16 x TB5	2.5KV	

SDK version and SDK-Node-RED version are available, please consult the factory. See Appendix (Page 152) for Block Diagram.



Feature Highlights:

- Remotely monitor, manage, and control industrial field devices
- Industrial EMC protection, wide temperature operation, -40°C~85°C
- IEC61850-3 certified, can be easily set up into IEC61850-3 substations
- Redundant Power Input for fault protection, either 24~48 VDC or High-Voltage AC/DC
- 6 Fast-Ethernet ports, either RJ45 or SFP slot
- 8 or 16 RS-232/RS-485/RS-422 Serial ports
- TCP Server/Client, UDP, Virtual COM and Tunneling modes supported
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility, remote firmware upgrade

Industrial Serial Device Servers | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) - RJ45 version IEEE 802.3u 100Base-FX - SFP version
Connector ports	RJ45 x 6 (RJ45 version) SFP x 6 (SFP version)

Power Management	
Input Voltage	Redundant 24-48 VDC or Redundant 100-240 VAC/ 100-370 VDC (HV Series)
Input Current	0.73 A @ 24 VDC 0.35 A @ 100 VAC 0.20 A @ 100 VDC
Power Consumption	Approximately 20 W
Power Redundancy	Yes
Connector	10-Pin Terminal Block
Reverse Polarity Protection	Yes

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)

Software	
Protocol	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, Telnet, Syslog
Configuration	Atop Management Utility, Web UI, Telnet, Console
Virtual COM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

Link Modes	
TCP Server	Single destination or VirtualCOM
TCP Client	4 Connections; VirtualCOM or reverse Telnet
UDP	Up to 4 Ranges IP

Serial Interface	
Connector	D-Sub9 (DB models, supporting only 5-pin RS-232 mode) or 5.08mm 5-Pin Terminal block (TB Models)
Ports	16 Ports
Mode	RS-232/422/485 Software selectable
Baud Rate	110 ~ 921.6Kbps software selectable
Parity	None, Odd, Even, Mark, Space
Data bits	5, 6, 7, 8 software selectable
Stop Bit	1, 2 software selectable
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
Isolation	2.5 KV (Isolation models only)

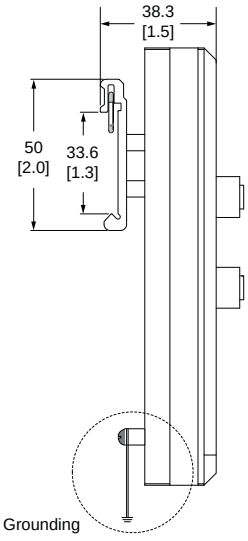
Regulatory Approvals				
Safety	EN 61010-2-201			
EMI	FCC Part 15, Subpart B, Class B, EN 55032, Class B, EN 61000-6-2 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-4, IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8kV ±15kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Port DC Power Port Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 V rms	3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Ports	-	-
IEC 61000-4-11	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
Shock	MIL-STD-810F Method 516			
Drop	MIL-STD-810F Method 516			
Vibration	MIL-STD-810F Method 514.5 C1 & C2			
RoHS II	Yes			
Warranty	5 Years			

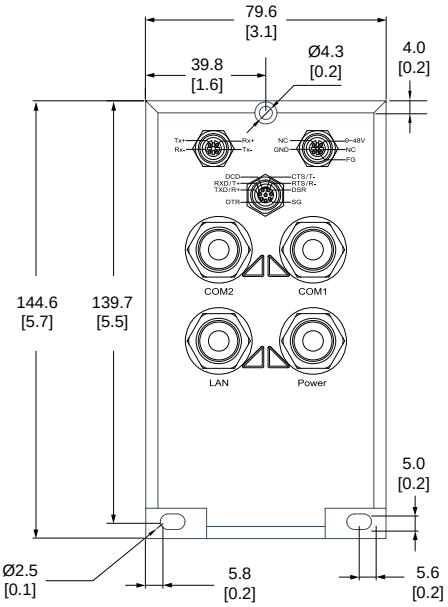
Industrial Networking Solutions

Serial Device Servers

Railway Specific Serial Device Servers | Surface/DIN-Rail Mount | Aluminum Housing | IP68 Rating

EN50155 Railway Waterproof Serial Device Servers				
Part Number [MFG #]	**RS-232 RS-422 RS-485 M12**	**10/100 M12 Ports**	**Isolation**	**Features**
MDE45SS-2-RW [SE8502-M12]	2	1	N/A	Industrial EMC Protection Relay Output
MDE45SS-2-IS-RW [SE8502-SIS-M12]	2	1	2 KV	





Feature Highlights:

- 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

Ethernet	
Compliance	IEEE802.3 10BASE-T / IEEE802.3u 100BASE-TX
Port	1-Port
Transmission Rate	10/100 Mbps
Connector	4-Pin D-coded Female M12
Auto MDI/MDI-X	Yes

Power Management	
Input Voltage	9-48 VDC
Input Current	0.40A max
Power Consumption	Max. 3.6W
Connector	5-Pin A-coded Female M12

LED	
Indicator	COM, LAN, RUN

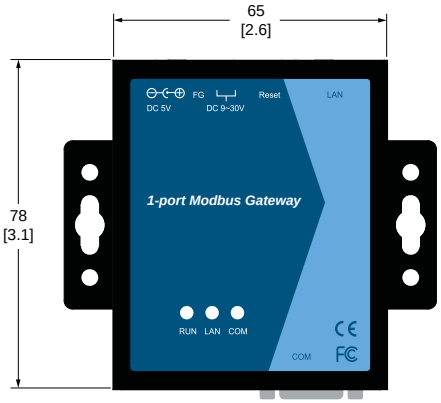
Software	
Configuration	Serial Manager / Web UI / Telnet
Virtual COM	Windows / Linux driver
Protocol	IPv4, ICMP, TCP, UDP, DHCP Client, SNMP, HTTP, Telnet, RFC2217, NTP, DNS, SMTP

Environmental Limits	
Operating Temperature	-40°C ~ 75°C(-40°F ~ 167°F)
Storage Temperature	-40°C ~ 85°C(-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% (non-condensing)

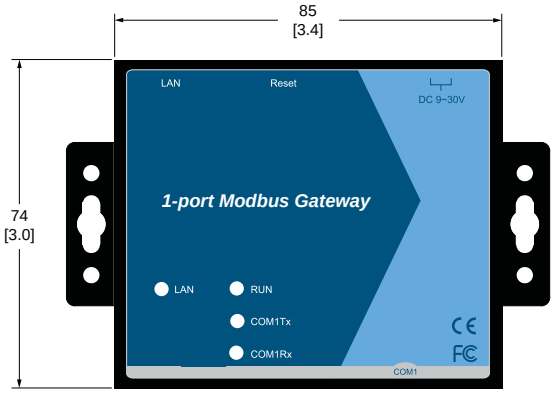
Serial Interface		
Mode	MDE45SS-2-RW	RS-232/422/485 Software selectable
	MDE45SS-2-IS-RW	RS-422/485 Software selectable
Ports	2-Ports	
Baud Rate	MDE45SS-2-RW	110bps~921kbps
	MDE45SS-2-IS-RW	110bps~230kbps
Parity	None, Odd, Even, Mark, Space	
Data bits	5, 6, 7, 8	
Stop Bit	1, 2	
Flow Control	None, Xon/Xoff, RTS/CTS	
Connector	8-Pin A-Coded Female M12	

Regulatory Approvals		
EMI	EN 55022 Class A, FCC Part 15, Subpart B, Class A	
EMS Test	**Item**	**Level**
EN 55024	-	-
IEC 61000-4-2	ESD	3
IEC 61000-4-3	RS	3
IEC 61000-4-4	EFT	3
IEC 61000-4-5	Surge	3
IEC 61000-4-6	CS	2
IEC 61000-4-8	PFMF	1
IEC 61000-4-11	Dip	-
Rail Traffic	EN50155, EN50121-3-2, EN50121-4	
Shock	IEC 60068-2-27	
Drop	IEC 60068-2-32 (ISTA Test Procedure 2A)	
Vibration	IEC 60068-2-64	
MTBF	264711 hrs (30.21Years) (Data base: MIL-HDBK-217F, GB 25°C)	
RoHS II	Yes	
Warranty	5 Years	

Modbus TCP/RTU/ASCII Gateways			
Part Number [MFG #]	**10/100 RJ45 Ethernet Ports**	**Serial Ports**	**Isolation**
E45MB-DB9-RJ45 [MB5001C]	1	1 (DB9)	N/A
E45MB-TB5-RJ45-IS [MB5001C-SIS]	1	1 (TB)	2 KV



E45MB-DB9-RJ45



E45MB-TB5-RJ45-IS

Feature Highlights:

- 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
- Rugged high-strength housing

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

Power Management		
Input	E45MB-DB9-RJ45	DC 5V(DC-Jack) and 9-30V(TB3)
	E45MB-TB5-RJ45-IS	DC 9-30V(TB3)
Power Consumption	E45MB-DB9-RJ45	Max. 2.7 W
	E45MB-TB5-RJ45-IS	Max. 3.6 W

Environmental Limits	
Operating Temperature	0°C ~ 60°C (32º ~ 140ºF)
Storage Temperature	20º ~ 70ºC (-4º~ 158ºF)
Ambient Relative Humidity	5 ~ 95%RH, (non-condensing)

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

Serial Interface		
Mode	E45MB-DB9-RJ45	RS-232/RS-422/RS-485 Software selectable
	E45MB-TB5-RJ45-IS	RS-422/RS-485 Isolation Software selectable
Ports	1-Port	
Baud Rate	1200bps~230Kbps	
Parity	None, Odd, Even, Mark, Space	
Data bits	7, 8	
Stop Bit	1, 2	
Flow Control	None, Software: Xon/Xoff, Hardware: RTS/CTS	
Connector	E45MB-DB9-RJ45	9-pin D-Sub
	E45MB-TB5-RJ45-IS	5-pin 3.81mm Terminal block

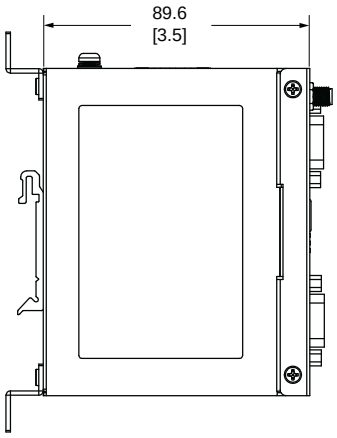
Regulatory Approvals		
FCC	FCC Part 15, Subpart B, Class A CISPR 22 ICES-003 ANSI C63.4	
CE	EN 55022 EN 61000-3-2 EN 61000-3-3 EN 55024 IEC 61000-4-2 (ESD) IEC 61000-4-3 (RS) IEC 61000-4-4 (EFT) IEC 61000-4-5 (Surge) IEC 61000-4-6 (CS) IEC 61000-4-8 (PFMP) IEC 61000-4-11 (DIP)	
Shock	IEC 60068-2-27	
Drop	IEC 60068-2-32	
Vibration	IEC 60068-2-6	
MTBF	E45MB-DB9-RJ45	485853hrs / 55.46 years (25°C)
RoHS II	Lead(Pb) Free	
Warranty	5 Years	

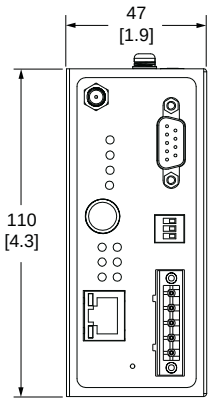
Industrial Networking Solutions

Modbus Gateways

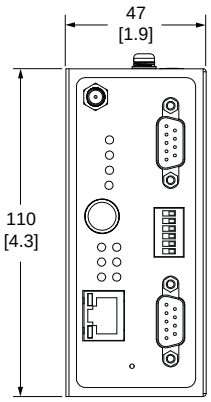
Wifi and Celluar Modbus Gateways | DIN-Raill/Wall Mount | Metal Housing | IP30 Rating

Wireless b/g/n Modbus TCP/RTU/ASCII Gateways				
Part Number [MFG #]	**10/100 RJ45 Ethernet Ports**	**RS-232/422/485 Serial Ports**	**Isolation**	**Features**
E45MW-DB9-TB5-P2P [MW5501C]	1	1 Combo (DB9 or TB5)	N/A	Wireless Distribution System (WDS)
E45MW-2DB9-P2P [MW5502C]	1	2 (DB9)	N/A	
E45MW-2TB5-P2P [MW5502C-TB]	1	2 (TBS)	2.5 KV	

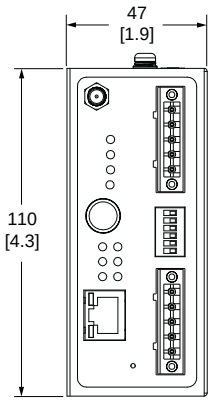




E45MW-DB9-TB5-P2P



E45MW-2DB9-P2P



E45MW-2TB5-P2P

Feature Highlights:

- Designed for 802.11 b/g/n networks, FCC (USA), ETSI (Europe) certified
- 1 x 100BaseT(X) RJ45 port, and 1 or 2 sw-selectable RS-232/485/422 ports, either D-Sub 9 or Terminal Block connector
- Bi-Directional Modbus TCP/RTU/ASCII conversion from Serial to Ethernet or Wireless and Vice-versa
- Advanced features include Virtual ID remapping, VirtualCOM mode, exception handling and many others
- Supports WiFi-Direct for Simple Peer Pairing
- Web server / Utility configuration

Wifi and Celluar Modbus Gateways | DIN-Raill/Wall Mount | Metal Housing | IP30 Rating

Network Interface

Wired	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X)
Connector ports	RJ45 x 1

Wireless interface

Wireless Standard Conformance	IEEE 802.11b	1, 2, 5.5 and 11 Mbps	
	IEEE 802.11g	6, 9, 12, 18, 24, 36, 48 and 54 Mbps	
	IEEE 802.11n	20 MHz: 1Nss	65Mbps @ 800GI, 72.2Mbps @ 400GI (Max.)
		40MHz: 1Nss	135Mbps @ 800GI, 150Mbps @ 400GI (Max.)
Wireless Module		Atheros AR9382	
Tx/Rx		1T1R MIMO (1 x 1 with MCS 0-7)	
Antenna		3/5 dBi antenna design, SMA(R) Female connector	
Operating Frequency		2.4 GHz	
United States (FCC) Europe (ETSI)		2412-2462(20Mhz)/ 2422-2452(40MHz) 2412-2472(20Mhz)/ 2422-2462(40MHz)	

Power Management

Input Voltage	9 ~ 48VDC
Input Current (@ 9VDC)	0.65 A
Power Consumption	Approximately 5.85 W (Max)
Connector	3-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Yes

Mechanicals

Reset Button	Yes
Wifi-Direct Button	Yes

Environmental Limits

Operating Temperature	-10°C ~ 60°C (14°F ~ 140°F)
Storage Temperature	-40º ~ 85ºC (-40º~ 185ºF)
Ambient Relative Humidity	5~95%, 55°C (non-condensing)

Software

Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, SMTP, HTTP, DNS, NTP, RADIUS, RFC2217, WPS, SysLog, Modbus TCP, Modbus RTU, Modbus ASCII
Wireless Security	WEP, WPA, WPA2, TKIP, AES, 802.1x
Configuration	Atop Management Utility, Web UI
Virtual COM	Windows / Linux redirection software

Link Modes

TCP Server	4 Connections; VirtualCOM or reverse Telnet
TCP Client	Dual destination or VirtualCOM
UDP	Up to 4 ranges of IPs

Serial Interface

Connector	DB9 Models	D-Sub9 RS-232/422/485 software selectable
	TB Models	5.08mm 5-Pin Terminal block RS-232/422/485 sw selectable
Ports	E45MW-DB9-TB5-P2P	1 Port
	E45MW-2DB9-P2P E45MW-2TB5-P2P	2 Ports
Baud Rate		110 ~ 921,600 bps software selectable
Parity		None, Odd, Even, Mark, Space
Data Bits		5, 6, 7, 8 software selectable
Stop Bits		1, 2 software selectable
Flow Control		None, Xon/Xoff, RTS/CTS

Regulatory Approvals

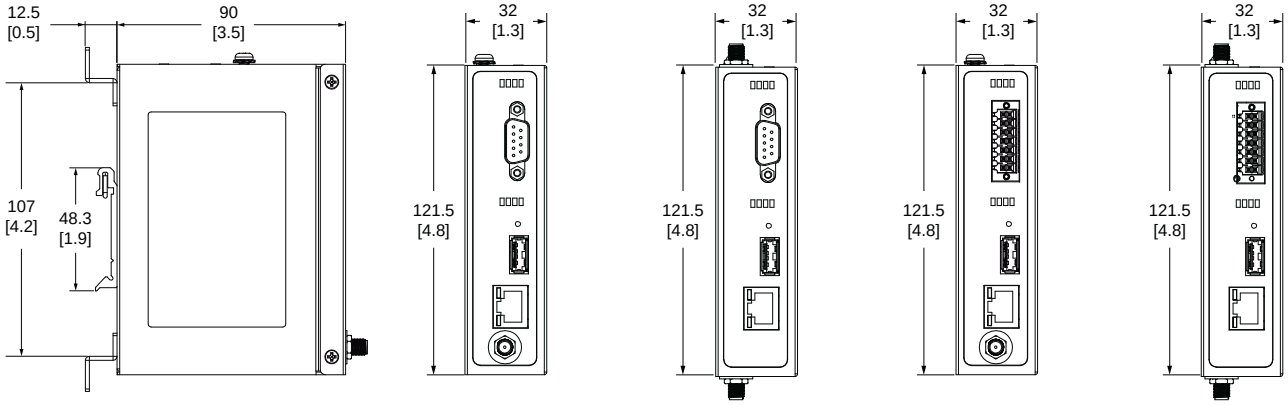
Safety	UL60950-1/CB, EN60950-1
EMC	EN 301489-1 V1.9.2, EN301489-17 V2.2.2 (Class A), FCC 15B (Class A), EN55032, EN55024
Radio	FCC 15C 15.247, FCC 15E 15.407, EN 301893 V1.7.1, EN 300328 V1.8.1
EMF	EN 62311: 2008, EN 50385: 2002

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±4KV ±8KV	2 3
IEC 61000-4-3	RS	Radiated (Enclosure)	3 (V/m)	2
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0 KV ±0.5kV / ±1.0kV ±0.5kV	3 1/2 2
IEC 61000-4-5	Surge	AC Power Port	L-to-L±1.0kV/L-to Earth±2.0kV	3
		DC Power Port	Line-to Earth±0.5kV / ±1.0kV	1/2
		Signal Port	L-to-L±1.0KV/L-to Earth±1.0KV	2
IEC 61000-4-6	CS	Conducted (Enclosure)	3 V rms	2
IEC 61000-4-8	PFMF	Enclosure	3 A/m	2
IEC 61000-4-11	DIP	Power Port	-	-

Shock	IEC 60068-2-27
Drop	IEC 60068-2-32
Vibration	IEC 60068-2-64
MTBF	22 years (MIL-HDBK-217F)
RoHS	Yes
Warranty	5 Years

3G/4G LTE Cellular to Ethernet and Serial Secure Modbus Gateway/Router, US						
Part Number	**Band**	**RS-232 RS-485 TB14**	**RS-232 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Digital Input/ Output**	**GPS/ Battery Function**
MB5901B-D3G-US	3G	N/A	1	1	N/A	N/A
MB5901B-IO-D3G-US	3G	1+1*	N/A	1	2/2	N/A
MB5901B-IO-D3G-GPS-US	3G	1+1*	N/A	1	2/2	GPS
MB5901B-4G-US	4G	N/A	1	1	N/A	N/A
MB5901B-IO-4G-US	4G	1+1*	N/A	1	2/2	N/A
MB5901B-IO-4G-GPS-US	4G	1+1*	N/A	1	2/2	GPS
MB5901B-4G-B-US	4G	N/A	1	1	N/A	Battery Function
MB5901B-IO-4G-B-US	4G	1+1*	N/A	1	2/2	Battery Function
MB5901B-IO-4G-GPS-B-US	4G	1+1*	N/A	1	2/2	GPS/Battery Function

* one TB sw-selectable RS485/RS232 and one TB RS232.



3G DB9 Type **4G DB9 Type** **3G IO Type** **4G IO Type**

Feature Highlights:

- GPRS/3G/4G Cellular Protocol Gateway with extensive LTE Band support:
  - EU Model: 2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)
- Industrial-grade hardware for operating in harsh environments
- Wide temperature range for operations at extreme temperatures
- VPN over IPsec or OpenVPN with throughput up to 37.9Mbps
- 1 x 10/100/1000Mbps Ethernet port, 1 x RS-232/485 port,up to 921.6 Kbps
- Modbus TCP to RTU/ASCII conversion
- Management via Web Browser, SMS, SNMP v1/v2c/v3
- 2 Digital Inputs; 2 Digital outputs / Additional RS-232 in I/O version
- Additional embedded power-bank for fault-relay capability (B version)

Network Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X)
Compliance	1x 10/100/1000BASE-TX RJ-45

Serial Interface

Connector	DB Model	D-Sub9 RS-232/485 software selectable
	Integrated with DI/DOs	14-Pin 5.08mm Terminal Block
Port	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)	
Baud Rate	1,200 ~ 921,600bps software selectable	
Data Bits	7, 8 software selectable	
Stop Bits	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	

USB Interface

USB ports	2 x USB A Type (USB 2.0) - 1-port High-Speed OTG + 1-port power only

Digital Inputs/Outputs (IO Models)

Digital Inputs (DIs)	2 channels photo coupler isolated digital input
Digital Outputs (DOs)	2 channels digital output. N.O.(2A@24VDC)

Modbus Features

Protocol	Bi-directional Modbus TCP/RTU/ASCII, Virtual ID mapping	
Supported Modes	Ethernet	Modbus TCP Server/Client(or VCOM)
	Serial	Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 32 slave connections	

Power Management

Input Voltage	9-48 VDC
Connector	3-Pin 5.08mm Lockable Terminal Block
Power Consumption	0.6A @ 12VDC (7.2 W Max)
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes

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%~95%, (Non-condensing)

Mechanicals

Reset Button	Yes

Software

Security	IPsec or OpenVPN VPN tunneling. Max VPN throughput 37.9Mbps *
Network	IPv4, DHCP Client, ICMP, TCP, UDP, HTTP, RFC2217, TELNET, NAT
Management	Web, ATOP Device Management Utility, SNMPv1/v2c/v3, SMS
Configuration	Embedded Web-Server (Web UI), TELNET, Atop Device Management Utility
Features	IPsec, OpenVPN, RSTP, PPTP

Wireless Interface

Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE	
Wireless Module	Quectel EC20-A	
Band Options	Band	Bands
	FDD LTE	1900/1700/850/700/700bMHz (B2/B4/B5/B12/B17)
	TDD LTE	1900/1700/850MHz (B2/B4/B5)
	GSM	850/1900MHz

Data Rate	Band	Downlink Speed	Uplink Speed
	LTE-FDD	100 Mbps	50 Mbps
	LTE-TDD	61 Mbps	18 Mbps
	DC-HSPA+	42 Mbps	5.76 Mbps
	UMTS	384 Kbps	384 Kbps
	TD-SCDMA	4.2 Mbps	2.2 Mbps
	EDGE	236.8 Kbps	236.8 Kbps
	GPRS	85.6 Kbps	85.6 Kbps

Regulatory Approvals

Safety	EN 60950-1:2006, UL60950
EMC/Radio	FCC 47 CFR PART 22H, FCC 47 CFR PART 24H,FCC PART 27L, FCC Part 15B, EN301511,EN301908-1,EN301908-2,EN301489-1,EN301489-7,EN301489-24, EN55032,EN55024, EN61000-6-2,EN61000-6-4

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±1.0KV	3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%,Reduction,0.5 period 30%, Reduction,25 period >95%,Reduction,250 period	-

Shock	IEC 60068-2-27
Drop	IEC 60068-2-32
Vibration	IEC 60068-2-64
RoHS	Yes
Warranty	5 Years

* : test carried out with one VPN-IPsec Tunnel, Peer-to-Peer mode, Ethernet cable. Performance can change based on the Cellular Network

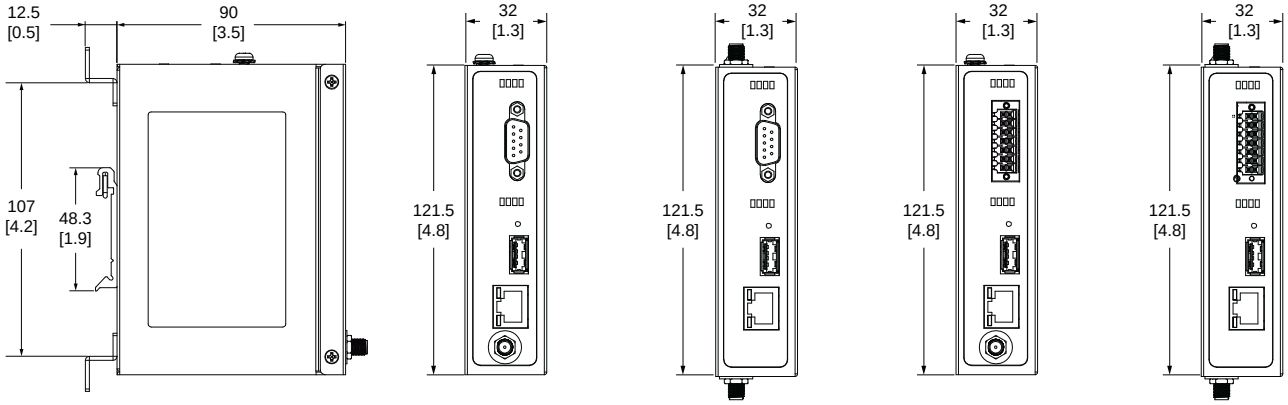
Industrial Networking Solutions

Modbus Gateways

Wireless/Cellular Modbus Gateways | EU Version | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

3G/4G LTE Cellular to Ethernet andSerial Secure Modbus Gateway/Router, EU						
Part Number	**Band**	**RS-232 RS-485 TB14**	**RS-232 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Digital Input/ Output**	**GPS/ Battery Function**
MB5901B-D3G-EU	3G	N/A	1	1	N/A	N/A
MB5901B-IO-D3G-EU	3G	1+1*	N/A	1	2/2	N/A
MB5901B-IO-D3G-GPS-EU	3G	1+1*	N/A	1	2/2	GPS
MB5901B-4G-EU	4G	N/A	1	1	N/A	N/A
MB5901B-IO-4G-EU	4G	1+1*	N/A	1	2/2	N/A
MB5901B-IO-4G-GPS-EU	4G	1+1*	N/A	1	2/2	GPS
MB5901B-4G-B-EU	4G	N/A	1	1	N/A	Battery Function
MB5901B-IO-4G-B-EU	4G	1+1*	N/A	1	2/2	Battery Function
MB5901B-IO-4G-GPS-B-EU	4G	1+1*	N/A	1	2/2	GPS/Battery Function

* one TB sw-selectable RS485/RS232 and one TB RS232.



3G DB9 Type **4G DB9 Type** **3G IO Type** **4G IO Type**

Feature Highlights:

- GPRS/3G/4G Cellular Protocol Gateway with extensive LTE Band support:
  - EU Model: 2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)
- Industrial-grade hardware for operating in harsh environments
- Wide temperature range for operations at extreme temperatures
- VPN over IPsec or OpenVPN with throughput up to 37.9Mbps
- 1 x 10/100/1000Mbps Ethernet port, 1 x RS-232/485 port,up to 921.6 Kbps
- Modbus TCP to RTU/ASCII conversion
- Management via Web Browser, SMS, SNMP v1/v2c/v3
- 2 Digital Inputs; 2 Digital outputs / Additional RS-232 in I/O version
- Additional embedded power-bank for fault-relay capability (B version))

Wireless/Cellular Modbus Gateways | EU Version | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Network Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X)
Compliance	1x 10/100/1000BASE-TX RJ-45

Serial Interface

Connector	DB Model	D-Sub9 RS-232/485 software selectable
	Integrated with DI/DOs	14-Pin 5.08mm Terminal Block
Port	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)	
Baud Rate	1,200 ~ 921,600bps software selectable	
Data Bits	7, 8 software selectable	
Stop Bits	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	

USB Interface

USB ports	2 x USB A Type (USB 2.0) - 1-port High-Speed OTG + 1-port power only

Digital Inputs/Outputs (IO Models)

Digital Inputs (DIs)	2 channels photo coupler isolated digital input
Digital Outputs (DOs)	2 channels digital output. N.O.(2A@24VDC)

Modbus Features

Protocol	Bi-directional Modbus TCP/RTU/ASCII, Virtual ID mapping	
Supported Modes	Ethernet	Modbus TCP Server/Client(or VCOM)
	Serial	Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 32 slave connections	

Power Management

Input Voltage	9-48 VDC
Connector	3-Pin 5.08mm Lockable Terminal Block
Power Consumption	0.6A @ 12VDC (7.2 W Max)
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes

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%~95%, (Non-condensing)

Mechanicals

Reset Button	Yes

Software

Security	IPsec or OpenVPN VPN tunneling. Max VPN throughput 37.9Mbps *
Network	IPv4, DHCP Client, ICMP, TCP, UDP, HTTP, RFC2217, TELNET, NAT
Management	Web, ATOP Device Management Utility, SNMPv1/v2c/v3, SMS
Configuration	Embedded Web-Server (Web UI), TELNET, Atop Device Management Utility
Features	IPsec, OpenVPN, RSTP, PPTP

Wireless Interface

Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE		
Wireless Module	Quectel EC25-E		
Band Options	Band	Bands	
	FDD LTE	2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)	
	TDD LTE	2600/2300/2500MHz (B38/B40/B41)	
	WCDMA	2100/850/900MHz (B1/B5/B8)	
	GSM	900/1800	
Data Rate	Band	Downlink Speed	Uplink Speed
	LTE-FDD LTE-TDD DC-HSPA+ UMTS TD-SCDMA EDGE GPRS	150 Mbps 130 Mbps 42 Mbps 384 Kbps 4.2 Mbps 236.8 Kbps 85.6 Kbps	50 Mbps 35 Mbps 5.76 Mbps 384 Kbps 2.2 Mbps 236.8 Kbps 85.6 Kbps

Regulatory Approvals

Safety	EN 60950-1:2006, UL60950
EMC/Radio	FCC 47 CFR PART 22H, FCC 47 CFR PART 24H,FCC PART 27L, FCC Part 15B, EN301511,EN301908-1,EN301908-2,EN301489-1,EN301489-7,EN301489-24, EN55032,EN55024, EN61000-6-2,EN61000-6-4

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	3 3
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±2.0KV ±2.0KV ±1.0KV	3 3
IEC 61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%,Reduction,0.5 period 30%, Reduction,25 period >95%,Reduction,250 period	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

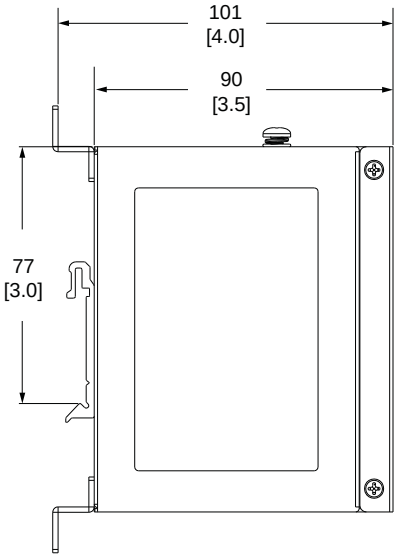
* : test carried out with one VPN-IPsec Tunnel, Peer-to-Peer mode, Ethernet cable. Performance can change based on the Cellular Network

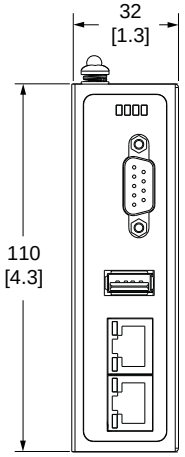
Industrial Networking Solutions

Modbus Gateways

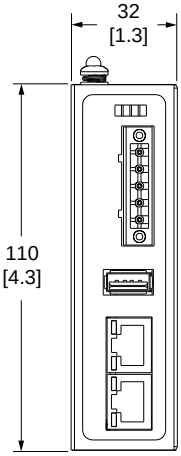
Advanced Modbus Gateways | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Advanced Modbus TCP/RTU/ASCII Gateways			
Part Number [MFG #]	**10/100 RJ45 Ethernet Ports**	**Serial Ports**	**Features**
E45MB-DB9-2RJ45 [MB5901-DB]	2	1 (DB9)	Industrial EMC Protection
E45MB-TB5-2RJ45 [MB5901-TB]	2	1 (TB5)	
E45MB-DB9-2RJ45-POE [MB5901-POE-DB]	2 with PoE	1 (DB9)	
E45MB-TB5-2RJ45-POE [MB5901-POE-TB]	2 with PoE	1 (TB5)	





E45MB-DB9-2RJ45
E45MB-DB9-2RJ45-POE



E45MB-TB5-2RJ45
E45MB-TB5-2RJ45-POE

Feature Highlights:

- Industrial EMC protection, wide temperature operation, -40°C~85°C
- 2-port 10/100Mbps Fast Ethernet, 1-port USB 2.0 high speed OTG
- Bi-Directional Modbus TCP/RTU/ASCII conversion from Serial to Ethernet and Vice-versa
- Advanced features include Virtual ID remapping, VirtualCOM mode, exception handling and many others
- Rugged metal case with wall or DIN-Rail mount
- Configuration via Web Browser / Serial-Telnet Console / Windows Utility
- Remote firmware upgrade
- Optional 802.3af PoE models can be powered through the Ethernet cable

Industrial Networking Solutions

Specifications & Approvals

Advanced Modbus Gateways | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Network interface		
Standards supported	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) IEEE 802.3 af (PoE)	
Connector Port(s)	2 x RJ45	
Serial Interface		
Connector	DB Models	D-Sub9 RS-232/422/485 software selectable
	TB models	5.08mm 5-Pin Terminal block RS-232/422/485 sw selectable
Port(s)	1	
Baud rate	110 ~ 921.6Kbps software selectable	
Data bits	5, 6, 7, 8 software selectable	
Stop Bit	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS	
USB Interface		
Speed	USB 2.0	
Connector	USB A Type	
Power Management		
Input Voltage	9 - 48 VDC	
Input Current (@9VDC)	0.65A	
Power Consumption	Approximately 6 W (Max)	
Connector	3-Pin 5.08mm Lockable Terminal Block	
Reverse Polarity Protection	Yes (DC input)	
Mechanicals		
Reset Button	Yes	
Environmental Limits		
Operating Temperature	-40°C ~ 80°C (-40~176°F)	
Storage Temperature	-40°~85°C (-40°~185°F)	
Ambient Relative Humidity	5 ~ 95%, 55°C, (non-condensing)	

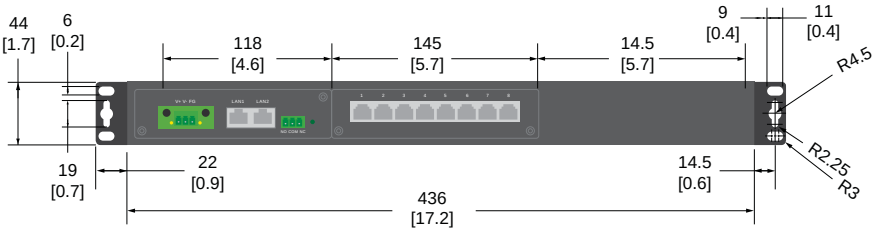
Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, Telnet, RFC2217
Configuration	Atop Management Utility, Web UI, Telnet
Virtual COM	Windows / Linux driver
Features	IPsec, OpenVPN, RSTP, PPTP
Link Mode	
TCP Server	Single destination or VirtualCOM
TCP Server	4 Connections; VirtualCOM or reverse Telnet
UDP	Up to 4 Ranges IP
Modbus Features	
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 32 slave connections

Regulatory Approvals				
Safety	EN60950-1:2006			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±5 kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	DC Power Ports Signal Ports	±2 KV ±2 KV	3 3
IEC 61000-4-5	Surge	DC Power Ports DC Power Ports Signal Ports	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 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	Power Ports	-	A
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
RoHS II	Yes			
Warranty	5 Years			

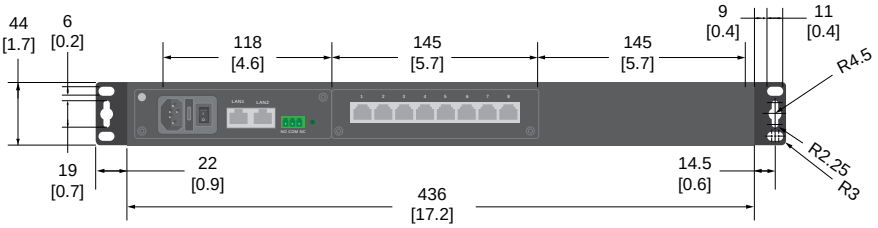
Advanced Modbus Gateways | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

8-Port Advanced Secure Modbus TCP/RTU/ASCII Gateways					
Part Number	**RS-232 RS-422 RS-485 RJ45**	**10/100 RJ45 Ports**	**Isolation**	**Power Connector**	**Features**
MB5908-DC	8 (RS-232/422/485)	2	N/A	DC TB3	Industrial EMC Protection
MB5908-SIS-DC	8 (RS-422/485)	2	2.5 KV	DC TB3	
MB5908-US	8 (RS-232/422/485)	2	N/A	AC Inlet (US)	
MB5908-SIS-US	8 (RS-422/485)	2	2.5 KV	AC Inlet (US)	
MB5908-EU	8 (RS-232/422/485)	2	N/A	AC Inlet (EU)	
MB5908-SIS-EU	8 (RS-422/485)	2	2.5 KV	AC Inlet (EU)	

DC Terminal Block



AC Inlet



Feature Highlights:

- Industrial EMC protection, Opt. Serial port Isolation, -20°C~70°C operation
- 2 Fast-Ethernet ports, dual-subnet or redundancy
- 8/16 sw-selectable RS-232/485/422 (*) RJ45 serial ports, up to 921kbps
- 24~48 VDC Power Input or 100~240 VAC Power input (EU or US version)
- Bi-Directional Modbus TCP/RTU/ASCII conversion from Serial to Ethernet and viceversa, VirtualCOM support, advanced Modbus Options available
- Supports SNMPv1/v2c/v3, Embedded security with IPsec VPN
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility / LCM Matrix

Industrial Networking Solutions

Specifications & Approvals

Advanced Modbus Gateways | 8-Port | 19" Rack Mount | Metal Housing | IP30 Rating

Network Interface		
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X)	
LAN Mode	Dual Subnets or Network Redundancy	
Connector ports	2x 10/100BASE-T(X) RJ-45	

Serial Interface		
Connector	Non-Isolation Models	RJ45 RS-232/422/485 software selectable
	Isolation Models	RJ45 Isolated RS-422/485 software selectable
Port(s)	8	
Baud rate	1,200 ~ 921,600 bps software selectable	
Data bits	5, 6, 7, 8 software selectable	
Stop Bit	1, 2 software selectable	
Parity	None, Odd, Even, Space, Mark	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	
Isolation	2.5 kV (SiS versions only)	

Power Management		
Connector	AC	IEC 60320-1 C14 AC Power Inlet
	DC	5.08mm 3-pin Lockable Terminal Block
Input Voltage	AC	100~240 VAC
	DC	24-48 VDC
Power Consumption	Approximately 21 W (Max)	
Power Redundancy	No	
Reverse Polarity Protection	Yes (DC version only)	
Relay Output	Yes (1)	

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95%, (non-condensing)

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, HTTPS, Telnet, RFC2217, Security through IPsec host-to-host or host-to-side VPN with up to 37.9Mbps VPN throughput
Configuration	Atop Management Utility, Web UI, Telnet, Serial Console, LCM Display
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

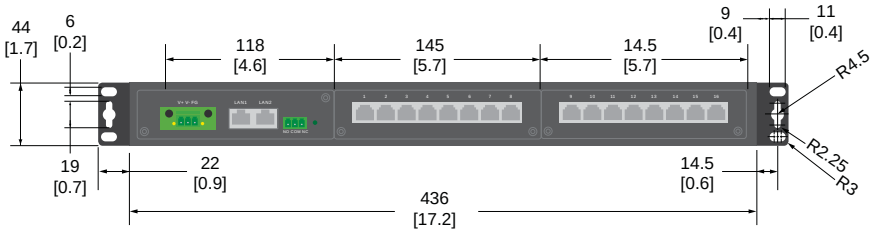
Modbus Features	
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 32 slave connections

Regulatory Approvals				
Safety	EN60950-1:2006/ IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B, EN 61000-3-2, EN 61000-3-3, EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Ports DC Power Ports Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

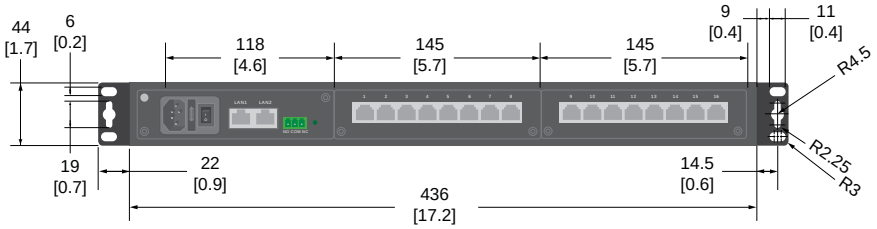
Advanced Modbus Gateways | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

16-Port Advanced Secure Modbus TCP/RTU/ASCII Gateways					
Part Number	**RS-232 RS-422 RS-485 RJ45**	**10/100 RJ45 Ports**	**Isolation**	**Power Connector**	**Features**
MB5916-DC	16 (RS-232/422/485)	2	N/A	DC TB3	Industrial EMC Protection
MB5916-SIS-DC	16 (RS-422/485)	2	2.5 KV	DC TB3	
MB5916-US	16 (RS-232/422/485)	2	N/A	AC Inlet (US)	
MB5916-SIS-US	16 (RS-422/485)	2	2.5 KV	AC Inlet (US)	
MB5916-EU	16 (RS-232/422/485)	2	N/A	AC Inlet (EU)	
MB5916-SIS-EU	16 (RS-422/485)	2	2.5 KV	AC Inlet (EU)	

DC Terminal Block



AC Inlet



Feature Highlights:

- Industrial EMC protection, Opt. Serial port Isolation, -20°C~70°C operation
- 2 Fast-Ethernet ports, dual-subnet or redundancy
- 8/16 sw-selectable RS-232/485/422 (*) RJ45 serial ports, up to 921kbps
- 24~48 VDC Power Input or 100~240 VAC Power input (EU or US version)
- Bi-Directional Modbus TCP/RTU/ASCII conversion from Serial to Ethernet and viceversa, VirtualCOM support, advanced Modbus Options available
- Supports SNMPv1/v2c/v3, Embedded security with IPsec VPN
- Configuration via Web Browser / Serial Console / Telnet Console / Windows Utility / LCM Matrix

Advanced Modbus Gateways | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface		
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X)	
LAN Mode	Dual Subnets or Network Redundancy	
Connector ports	2x 10/100BASE-T(X) RJ-45	

Serial Interface		
Connector	Non-Isolation Models	RJ45 RS-232/422/485 software selectable
	Isolation Models	RJ45 Isolated RS-422/485 software selectable
Port(s)	16	
Baud rate	1,200 ~ 921,600 bps software selectable	
Data bits	5, 6, 7, 8 software selectable	
Stop Bit	1, 2 software selectable	
Parity	None, Odd, Even, Space, Mark	
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)	
Isolation	2.5 kV (SiS versions only)	

Power Management		
Connector	AC	IEC 60320-1 C14 AC Power Inlet
	DC	5.08mm 3-pin Lockable Terminal Block
Input Voltage	AC	100~240 VAC
	DC	24-48 VDC
Power Consumption	Approximately 21 W (Max)	
Power Redundancy	No	
Reverse Polarity Protection	Yes (DC version only)	
Relay Output	Yes (1)	

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95%, (non-condensing)

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, HTTPS, Telnet, RFC2217, Security through IPsec host-to-host or host-to-side VPN with up to 37.9Mbps VPN throughput
Configuration	Atop Management Utility, Web UI, Telnet, Serial Console, LCM Display
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

Modbus Features	
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 32 slave connections

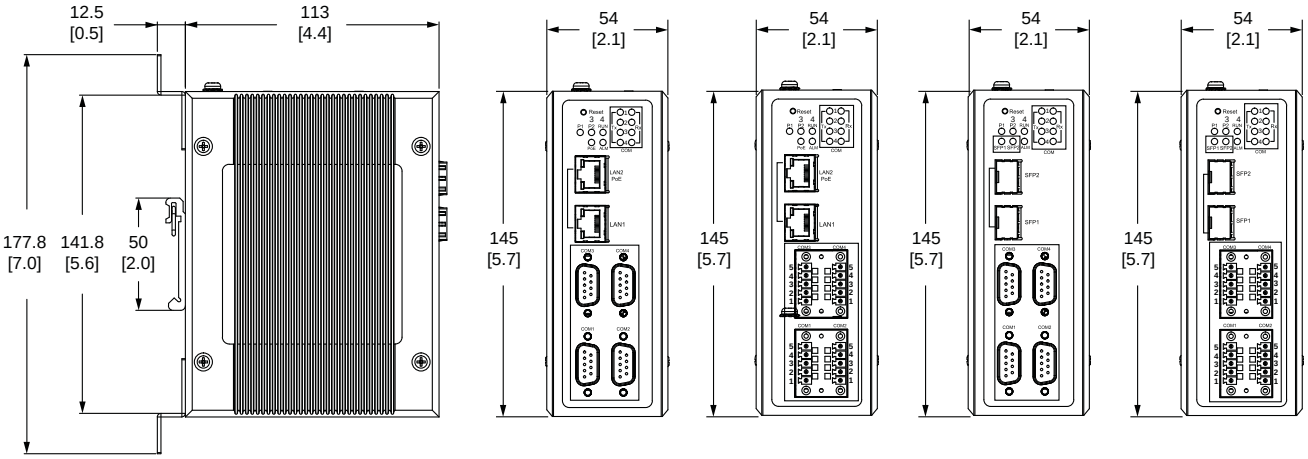
Regulatory Approvals				
Safety	EN60950-1:2006/ IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B, EN 61000-3-2, EN 61000-3-3, EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Ports DC Power Ports Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

Industrial Networking Solutions

Modbus Gateways

Industrial Modbus Gateways | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Secure Modbus TCP/RTU/ASCII Gateways				
Part Number	**Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
MB5904D-4P-DB	2 x RJ45	4 x DB9	N/A	Industrial EMC Protection
MB5904D-4P-TB	2 x RJ45	4 x TB5	N/A	
MB5904D-4P-SIS	2 x RJ45	4 x TB5	3 KV	
MB5904D-4P-POE-DB	2 x RJ45 with PoE	4 x DB9	N/A	
MB5904D-4P-POE-TB	2 x RJ45 with PoE	4 x TB5	N/A	
MB5904D-4P-POE-SIS	2 x RJ45 with PoE	4 x TB5	3 KV	
MB5904D-4P-G-DB-SFP	2 x SFP Slot	4 x DB9	N/A	
MB5904D-4P-G-TB-SFP	2 x SFP Slot	4 x TB5	N/A	
MB5904D-4P-G-SIS-SFP	2 x SFP Slot	4 x TB5	3 KV	



RJ45 DB9 Type **RJ45 TB5 Type** **SFP DB9 Type** **SFP TB5 Type**

Feature Highlights:

- Industrial EMC protection, wide temperature operation, -40°C~85°C
- 2 Fast-Ethernet ports or 100/1000 SFP slots
- 4 Software-selectable RS-232/RS-485/RS-422 serial ports, up to 921kbps
- Bi-Directional Modbus TCP/RTU/ASCII conversion from Serial to Ethernet and viceversa, VirtualCOM support, advanced Modbus Options available
- Isolated Redundant 12~48 VDC Power Inputs or powered (PoE models) through through the Ethernet cable (802.3af)
- Embedded security with IPsec VPN
- Configuration via Web Browser/ Serial Console/ Telnet Console/ Utility
- Rugged metal case with wall or DIN-Rail mount

Network Interface		
Supported Standards	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) IEEE 802.3u for 100Base-X IEEE 802.3z for 1000Base-X (SFP version only)	
Power over Ethernet	IEEE 802.3af for Power over Ethernet (PD) - PoE version only	
LAN Mode	Dual Subnets or Network Redundancy	
Connector ports	2x 10/100BASE-T(X) RJ-45 or 2x 100/1000 Base-X SFP Slots (SFP version)	
Serial Interface		
Connector	DB	4x D-Sub9 RS-232/422/485 software selectable
	TB	4x 5.08mm 5-Pin Terminal block RS-232/422/485 sw selectable
Baud rate	1,200 ~ 921,600 bps software selectable	
Data bits	7, 8 software selectable	
Stop Bit	1, 2 software selectable	
Flow Control	None, Xon/Xoff, RTS/CTS	
Isolation	3 kV (Sis versions only)	
USB Interface		
Universal Serial Bus	1x USB A Type connector (USB 2.0)	
Power Management		
Input Voltage	Dual 12 - 48VDC (non-PoE Models); or through Ethernet Cable (PoE versions)	
Input Current (@ 12VDC)	0.65 A	
Power Consumption	Approximately 6 W (Max)	
Power Redundancy	Yes	
Reverse Polarity Protection	Yes	
Connector	7-Pin 5.08mm Lockable Terminal Block	
Relay Output	1A@30 VDC (normal open)	
Mechanicals		
Reset Button	Yes	
Environmental Limits		
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)	

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1,v2c,v3, HTTP, HTTPS, Telnet, RFC2217, Security through IPsec host-to-host or host-to-side VPN with up to 37.9Mbps VPN throughput
Configuration	Atop Management Utility, Web UI, Telnet
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP
Modbus Features	
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 32 slave connections

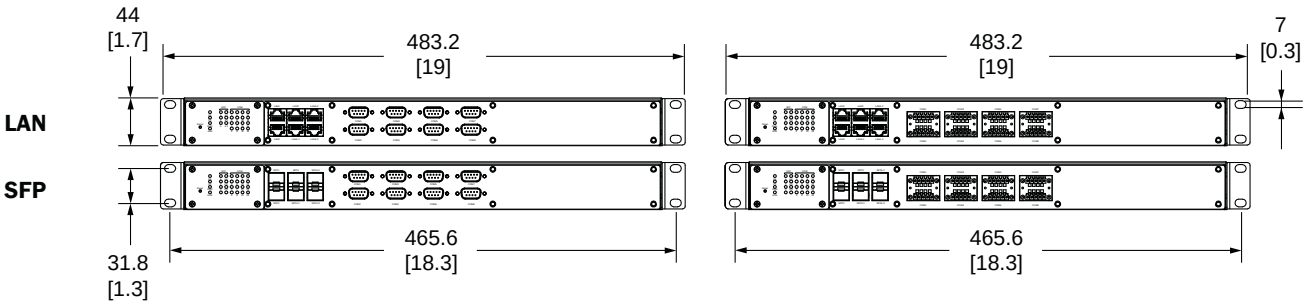
Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port Signal Port	±2.0KV ±2.0KV	3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	Conducted (enclosure)	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	10 A/m	3
IEC 61000-4-11	DIP	Power Port	-	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

Industrial Networking Solutions

Modbus Gateways

Industrial Modbus Gateways | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

8-Port IEC61850-3 Certified Industrial Secure Modbus Gateways					
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
MB5908A	24-48 VDC	6 (RJ45)	8 x DB9	N/A	Industrial EMC Protection IEC 61850-3 Certified
MB5908A-TB		6 (RJ45)	8 x TB5	N/A	
MB5908A-8P-SIS		6 (RJ45)	8 x TB5	2.5KV	
MB5908A-6SFP		6 (SFP Slot)	8 x DB9	N/A	
MB5908A-6SFP-TB		6 (SFP Slot)	8 x TB5	N/A	
MB5908A-6SFP-SIS		6 (SFP Slot)	8 x TB5	2.5KV	
MB5908A-HV	100-240 VAC/ 100-370 VDC	6 (RJ45)	8 x DB9	N/A	
MB5908A-TB-HV		6 (RJ45)	8 x TB5	N/A	
MB5908A-SIS-HV		6 (RJ45)	8 x TB5	2.5KV	
MB5908A-6SFP-HV		6 (SFP Slot)	8 x DB9	N/A	
MB5908A-6SFP-TB-HV		6 (SFP Slot)	8 x TB5	N/A	
MB5908A-6SFP-SIS-HV		6 (SFP Slot)	8 x TB5	2.5KV	



DB9 **TB5**

Feature Highlights:

- Remotely access Modbus RTU/ASCII devices, convert to Modbus TCP
- Supporting advanced Modbus Features. Configuration via Web Browser
- IEC61850-3 certified, can be easily set up into IEC61850-3 substations
- ndustrial EMC protection, wide temperature operation, -40°C~85°C
- Redundant Power Input for fault protection, either 24~48 VDC or High-Voltage AC/DC (100~240VAC or 100~370VDC)
- 6 Fast-Ethernet interfaces, either RJ45 or SFP slot
- 8 or 16 RS-232/RS-485/RS-422 Serial ports, with or without isolation
- Supporting VIrtualCOM, embedded security with IPsec VPN
- Configuration via Web Browser/ Serial Console / Telnet/ Windows Utility

Industrial Modbus Gateways | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) - RJ45 version IEEE 802.3u 100Base-FX - SFP version
Connector ports	RJ45 x 6 (RJ45 version) SFP x 6 (SFP version)

Serial Interface	
Connector	D-Sub9 (supporting only 5-pin RS-232 mode) or 5.08mm 5-Pin Terminal block
Port(s)	8
Mode	RS-232/422/485 or RS-422/485 (SiS version) Software selectable
Serial port isolation	3 kV isolation (SiS version only)
Baud rate	1,200 ~ 921,600 bps software selectable
Parity	None, Odd, Even, Mark, Space
Data bits	5, 6, 7, 8 software selectable
Stop Bit	1, 2 software selectable
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management	
Connector	10-Pin Terminal Block
Input Voltage	Redundant 24-48 VDC or Redundant 100-240 VAC/ 100-370 VDC (HV Series)
Input Current	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Power Consumption	Approximately 20 W
Power Redundancy	Yes
Reverse Polarity Protection	Yes

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1, v2c,v3, HTTP, HTTPS, Telnet, RFC2217, Security through IPsec host-to-host or host-to-side VPN with up to 37.9Mbps VPN throughput
Configuration	Atop Management Utility, Web UI, Telnet, Console
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

Modbus Features	
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 247 slaves

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Regulatory Approvals

Safety	EN 61010-2-201
EMC	FCC Part 15, Subpart B, Class B, EN 55032, Class B, EN 61000-6-2 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-4, IEC 61850-3 / IEEE 1613

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Ports	Line-to Line±1.0KV	3
		DC Power Ports	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3

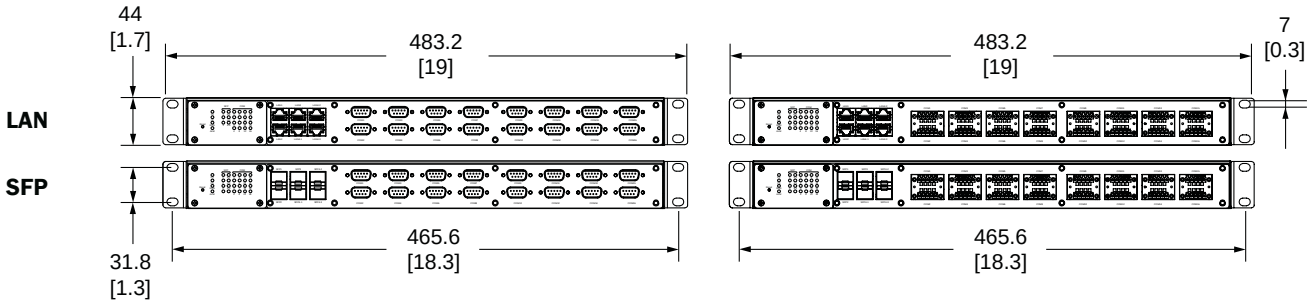
Shock	MIL-STD-810F Method 516.5
Drop	MIL-STD-810F Method 516.5
Vibration	MIL-STD-810F Method 514.5 C1 & C2
RoHS	Yes
Warranty	5 Years

Industrial Networking Solutions

Modbus Gateways

Industrial Modbus Gateways | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

16-Port IEC61850-3 Certified Industrial Secure Modbus Gateways					
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
MB5916A	24-48 VDC	6 (RJ45)	16 x DB9	N/A	Industrial EMC Protection IEC 61850-3 Certified
MB5916A-TB		6 (RJ45)	16 x TB5	N/A	
MB5916A-8P-SIS		6 (RJ45)	16 x TB5	2.5KV	
MB5916A-6SFP		6 (SFP Slot)	16 x DB9	N/A	
MB5916A-6SFP-TB		6 (SFP Slot)	16 x TB5	N/A	
MB5916A-6SFP-SIS		6 (SFP Slot)	16 x TB5	2.5KV	
MB5916A-HV	100-240 VAC/ 100-370 VDC	6 (RJ45)	16 x DB9	N/A	
MB5916A-TB-HV		6 (RJ45)	16 x TB5	N/A	
MB5916A-SIS-HV		6 (RJ45)	16 x TB5	2.5KV	
MB5916A-6SFP-HV		6 (SFP Slot)	16 x DB9	N/A	
MB5916A-6SFP-TB-HV		6 (SFP Slot)	16 x TB5	N/A	
MB5916A-6SFP-SIS-HV		6 (SFP Slot)	16 x TB5	2.5KV	



DB9 **TB5**

Feature Highlights:

- Remotely access Modbus RTU/ASCII devices, convert to Modbus TCP
- Supporting advanced Modbus Features. Configuration via Web Browser
- IEC61850-3 certified, can be easily set up into IEC61850-3 substations
- ndustrial EMC protection, wide temperature operation, -40°C~85°C
- Redundant Power Input for fault protection, either 24~48 VDC or High-Voltage AC/DC (100~240VAC or 100~370VDC)
- 6 Fast-Ethernet interfaces, either RJ45 or SFP slot
- 8 or 16 RS-232/RS-485/RS-422 Serial ports, with or without isolation
- Supporting VIrtualCOM, embedded security with IPsec VPN
- Configuration via Web Browser/ Serial Console / Telnet/ Windows Utility

Industrial Modbus Gateways | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Speed	IEEE 802.3 10BaseT IEEE 802.3u 100BaseT(X) - RJ45 version IEEE 802.3u 100Base-FX - SFP version
Connector ports	RJ45 x 6 (RJ45 version) SFP x 6 (SFP version)

Serial Interface	
Connector	D-Sub9 (supporting only 5-pin RS-232 mode) or 5.08mm 5-Pin Terminal block
Port(s)	16
Mode	RS-232/422/485 or RS-422/485 (SiS version) Software selectable
Serial port isolation	3 kV isolation (SiS version only)
Baud rate	1,200 ~ 921,600 bps software selectable
Parity	None, Odd, Even, Mark, Space
Data bits	5, 6, 7, 8 software selectable
Stop Bit	1, 2 software selectable
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management	
Connector	10-Pin Terminal Block
Input Voltage	Redundant 24-48 VDC or Redundant 100-240 VAC/ 100-370 VDC (HV Series)
Input Current	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Power Consumption	Approximately 20 W
Power Redundancy	Yes
Reverse Polarity Protection	Yes

Software	
Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1, v2c,v3, HTTP, HTTPS, Telnet, RFC2217, Security through IPsec host-to-host or host-to-side VPN with up to 37.9Mbps VPN throughput
Configuration	Atop Management Utility, Web UI, Telnet, Console
VirtualCOM	Windows/Linux redirection software
Features	IPsec, OpenVPN, RSTP, PPTP

Modbus Features	
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients; Maximum 247 slaves

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class B, EN 55032, Class B, EN 61000-6-2 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-4, IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Radiated (enclosure)	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Ports	Line-to Line±1.0KV	3
		DC Power Ports	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
Shock	MIL-STD-810F Method 516.5			
Drop	MIL-STD-810F Method 516.5			
Vibration	MIL-STD-810F Method 514.5 C1 & C2			
RoHS	Yes			
Warranty	5 Years			

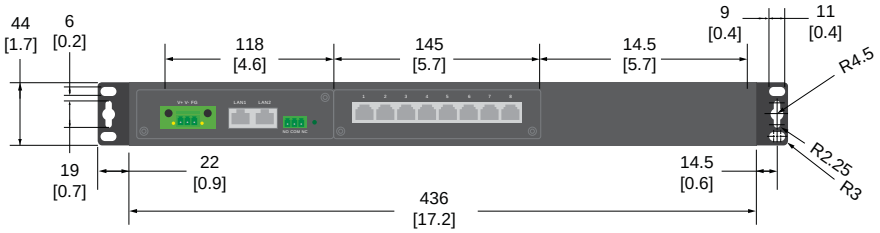
Industrial Networking Solutions

Modbus Gateways

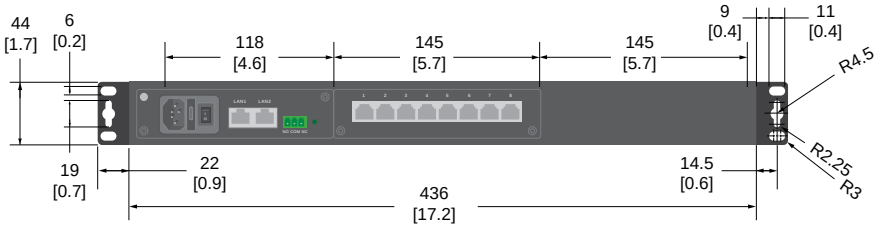
Advanced Modbus Concentrators | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

8-Port Advanced Modbus TCP/RTU/ASCII Concentrators					
Part Number	**RS-232 RS-422 RS-485 RJ45**	**10/100 RJ45 Ports**	**Isolation**	**Power Connector**	**Features**
MB5908-DC-CT	8 (RS-232/422/485)	2	N/A	DC TB3	Industrial EMC Protection Concentrator Device Redundancy
MB5908-SIS-DC-CT	8 (RS-422/485)	2	2.5 KV	DC TB3	
MB5908-US-CT	8 (RS-232/422/485)	2	N/A	AC Inlet (US)	
MB5908-SIS-US-CT	8 (RS-422/485)	2	2.5 KV	AC Inlet (US)	
MB5908-EU-CT	8 (RS-232/422/485)	2	N/A	AC Inlet (EU)	
MB5908-SIS-EU-CT	8 (RS-422/485)	2	2.5 KV	AC Inlet (EU)	

DC Terminal Block



AC Inlet



Feature Highlights:

- With only one connection/one query, master device will be able to access all connected IEDs’ data through the MB5908-CT series
- Database synchronization for redundancy when two concentrators work in pair
- 8 port RS-232/422/485, baud rate up to 921.6 Kbps
- LCM display with 4-key touch pad for configuration
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC variations
- Works in environments from -20 to 70°C
- Embedded IPsec VPN for enhanced security

Network Interface	
Ethernet Port	2 x RJ-45
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X)

Serial Interface	
Connector	RJ45
Mode	RS-232/422/485, software selectable
Port(s)	8
Baud rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5, 6, 7, 8
Stop Bit	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management		
Connector	AC	IEC 60320-1 C14 AC Power Inlet
	DC	5.08mm 3-pin Lockable Terminal Block
Input Voltage	AC	100~240 VAC
	DC	24-48 VDC
Power Consumption	AC	0.21A @100 VAC
	DC	0.54A @24 VDC
Reverse Polarity Protection	Yes (DC input only)	
Power Redundancy	No	

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95%RH, (non-condensing)

Software	
Protocols	Modbus TCP/ASCII/RTU, IPv4, ARP, ICMP, TCP, DHCP Client, SNMPv1/v2c/v3, HTTP, HTTPS, Telnet, RFC2217, NTP, DNS, SMTP, Syslog, IPsec VPN
Modbus TCP Slave	32 connections
Modbus TCP Master	16 client
Modbus Slave Node Address	1-255 (248 reserved for concentrator)
Concentrator Slave	16 slaves on each port
Concentrator Slave Command	32 profiles x 32 commands each
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals				
Safety	EN 60950-1/IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B EN 61000-3-2 EN 61000-3-3 EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Ports DC Power Ports Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	Dip	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

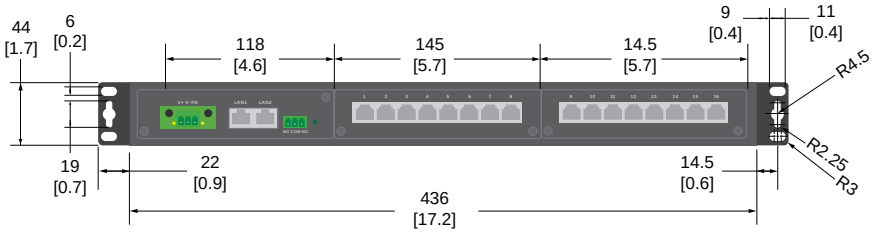
Industrial Networking Solutions

Modbus Gateways

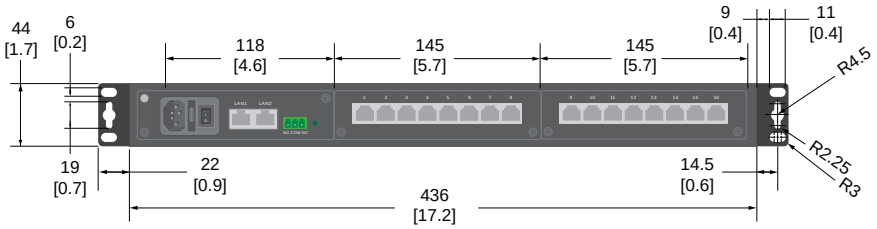
Advanced Modbus Concentrators | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

16-Port Advanced Modbus TCP/RTU/ASCII Concentrators					
Part Number	**RS-232 RS-422 RS-485 RJ45**	**10/100 RJ45 Ports**	**Isolation**	**Power Connector**	**Features**
MB5916-DC-CT	16 (RS-232/422/485)	2	N/A	DC TB3	Industrial EMC Protection Concentrator Device Redundancy
MB5916-SIS-DC-CT	16 (RS-422/485)	2	2.5 KV	DC TB3	
MB5916-US-CT	16 (RS-232/422/485)	2	N/A	AC Inlet (US)	
MB5916-SIS-US-CT	16 (RS-422/485)	2	2.5 KV	AC Inlet (US)	
MB5916-EU-CT	16 (RS-232/422/485)	2	N/A	AC Inlet (EU)	
MB5916-SIS-EU-CT	16 (RS-422/485)	2	2.5 KV	AC Inlet (EU)	

DC Terminal Block



AC Inlet



Feature Highlights:

- With only one connection/one query, master device will be able to access all connected IEDs’ data through the MB5916-CT series
- Database synchronization for redundancy when two concentrators work in pair
- 16 port RS-232/422/485, baud rate up to 921.6 Kbps
- LCM display with 4-key touch pad for configuration
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC variations
- Works in environments from -20 to 70°C
- Embedded IPsec VPN for enhanced security

Advanced Modbus Concentrators | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Ethernet Port	2 x RJ-45
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X)

Serial Interface	
Connector	RJ45
Mode	RS-232/422/485, software selectable
Port(s)	16
Baud rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5, 6, 7, 8
Stop Bit	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management		
Connector	AC	IEC 60320-1 C14 AC Power Inlet
	DC	5.08mm 3-pin Lockable Terminal Block
Input Voltage	AC	100~240 VAC
	DC	24-48 VDC
Power Consumption	AC	0.21A @100 VAC
	DC	0.54A @24 VDC
Reverse Polarity Protection	Yes (DC input only)	
Power Redundancy	No	

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95%RH, (non-condensing)

Software	
Protocols	Modbus TCP/ASCII/RTU, IPv4, ARP, ICMP, TCP, DHCP Client, SNMPv1/v2c/v3, HTTP, HTTPS, Telnet, RFC2217, NTP, DNS, SMTP, Syslog, IPsec VPN
Modbus TCP Slave	32 connections
Modbus TCP Master	16 client
Modbus Slave Node Address	1-255 (248 reserved for concentrator)
Concentrator Slave	16 slaves on each port
Concentrator Slave Command	32 profiles x 32 commands each
Features	IPsec, OpenVPN, RSTP, PPTP

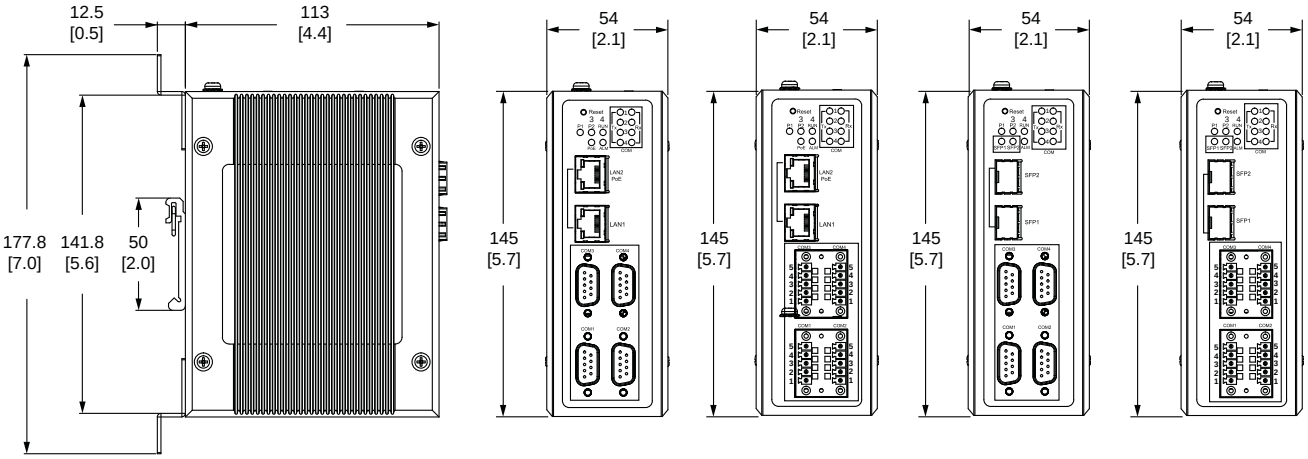
Regulatory Approvals				
Safety	EN 60950-1/IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B EN 61000-3-2 EN 61000-3-3 EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Ports DC Power Ports Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	Dip	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

Industrial Networking Solutions

Modbus Gateways

Industrial Modbus Concentrators | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial Modbus TCP/RTU/ASCII Concentrators				
Part Number	**Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
MB5904D-4P-DB-CT	2 x RJ45	4 x DB9	N/A	Industrial EMC Protection Relay Output Concentrator Device Redundancy
MB5904D-4P-TB-CT	2 x RJ45	4 x TB5	N/A	
MB5904D-4P-SIS-CT	2 x RJ45	4 x TB5	3 KV	
MB5904D-4P-POE-DB-CT	2 x RJ45 with PoE	4 x DB9	N/A	
MB5904D-4P-POE-TB-CT	2 x RJ45 with PoE	4 x TB5	N/A	
MB5904D-4P-POE-SIS-CT	2 x RJ45 with PoE	4 x TB5	3 KV	
MB5904D-4P-G-DB-SFP-CT	2 x SFP Slot	4 x DB9	N/A	
MB5904D-4P-G-TB-SFP-CT	2 x SFP Slot	4 x TB5	N/A	
MB5904D-4P-G-SIS-SFP-CT	2 x SFP Slot	4 x TB5	3 KV	



Feature Highlights:

- With only one connection/one query, master device will be able to access all connected IEDs' data through the MB5904D-CT series
- Database synchronization for redundancy when two concentrators work in pair
- Dual 10/100 Mbps Ethernet port, with optional PoE or 1000 Mbps SFP Slot
- 4-port RS-232/422/485, baud rate up to 921.6 Kbps
- Isolated redundant power inputs with 12-48VDC (48VDC for PoE models)
- PoE powered models are available for better flexibility when installing
- Works in environments from -40 to 85°C

Network Interface	
Ethernet Port	2x 10/100BASE-T(X) RJ-45 or 2x 1000 Base-X SFP Slots
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3z for 1000BASE-X

Serial Interface	
Connector	1x2 5 pin 3.81mm Terminal Block, or D-sub9 connector
Port(s)	4
Mode	RS-232/422/485, software selectable
Baud rate	50~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	7,8
Stop Bit	1,2
Flow Control	None, Xon/Xoff, RTS/CTS
Isolation	3 KV

USB Interface	
Speed	USB 2.0
Connector	USB A Type *1

Power Management	
Connector	Terminal Block
Input Voltage	12-48 VDC, or 48 VDC (supplied by PoE)
Power Consumption	0.65A @12 VDC (max.)
Reverse Polarity Protection	Yes
Redundancy	Yes
Relay Output	1A@30 VDC (normal open)

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)

Software	
Protocols	Modbus TCP/ASCII/RTU, IPv4, ARP, ICMP, TCP, DHCP Client, SNMP, HTTP, Telnet, RFC2217, NTP, DNS, SMTP, Syslog
Modbus TCP Slave	32 connections
Modbus TCP Master	16 client
Modbus Slave Node Address	1-255 (248 reserved for concentrator)
Concentrator Slave	16 slaves on each port
Concentrator Slave Command	32 profiles x 32 commands each
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals

Safety	EN 61010-2-201
EMC	FCC Part 15, Subpart B, Class A EN 55032 EN 61000-3-2 EN 61000-3-3 EN 55024

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	80-1000MHz	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port Signal Port	±2.0KV ±2.0KV	3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	10 A/m	3
IEC 61000-4-11	Dip	AC Power Port	1. >95%, Reduction, 0.5period 2. 30%, Reduction, 25 period 3. >95%, Reduction, 250 period	-

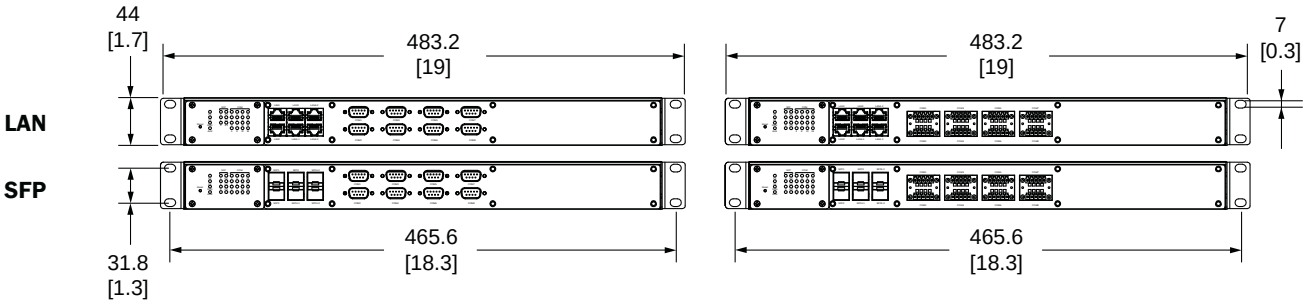
Shock	IEC 60068-2-27
Drop	IEC 60068-2-32
Vibration	IEC 60068-2-64
RoHS	Yes
Warranty	5 Years

Industrial Networking Solutions

Modbus Gateways

Industrial Modbus Concentrators | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Industrial 8-Port Modbus TCP/RTU/ASCII Concentrators					
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
MB5908A-CT	24-48 VDC	6 (RJ45)	8 x DB9	N/A	Industrial EMC Protection IEC 61850-3 Certified Concentrator Device Redundancy
MB5908A-TB-CT		6 (RJ45)	8 x TB5	N/A	
MB5908A-8P-SIS-CT		6 (RJ45)	8 x TB5	2.5KV	
MB5908A-6SFP-CT		6 (SFP Slot)	8 x DB9	N/A	
MB5908A-6SFP-TB-CT		6 (SFP Slot)	8 x TB5	N/A	
MB5908A-6SFP-SIS-CT		6 (SFP Slot)	8 x TB5	2.5KV	
MB5908A-HV-CT	100-240 VAC/ 100-370 VDC	6 (RJ45)	8 x DB9	N/A	
MB5908A-TB-HV-CT		6 (RJ45)	8 x TB5	N/A	
MB5908A-SIS-HV-CT		6 (RJ45)	8 x TB5	2.5KV	
MB5908A-6SFP-HV-CT		6 (SFP Slot)	8 x DB9	N/A	
MB5908A-6SFP-TB-HV-CT		6 (SFP Slot)	8 x TB5	N/A	
MB5908A-6SFP-SIS-HV-CT		6 (SFP Slot)	8 x TB5	2.5KV	



DB9 **TB5**

Feature Highlights:

- With only one connection/one query, master device will be able to access all connected IEDs’ data through the MB5908A-CT Series
- Database synchronization for redundancy when two concentrators work in pair
- 8 or 16-port RS-232/422/485, baud rate up to 921.6 Kbps
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC, 100-370 VDC variations
- Works in environments from -40 to 85°C
- IEC 61850-3 and IEEE 1613 Power Substation Standards certified

Industrial Networking Solutions

Specifications & Approvals

Industrial Modbus Concentrators | 8-Port | 19" Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Ethernet Port	6 x RJ-45 or 6 x SFP slot
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X) and 100BASE-FX

Serial Interface	
Connector	5-Pin 5.08mm Terminal Block or D-Sub9 connector
Port(s)	8
Mode	RS-232/422/485, software selectable
Baud rate	50~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5,6,7,8
Stop Bit	1,2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management	
Connector	10-Pin Terminal Block
Input Voltage	24-48 VDC 100-240 VAC/ 100-370 VDC for HV Series
Power Consumption	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Reverse Polarity Protection	Yes (Two Modules)
Redundancy	Yes

Mechanicals	
Reset Button	Yes

Software	
Protocols	Modbus TCP/ASCII/RTU, IPv4, ARP, ICMP, TCP, DHCP Client, SNMP, HTTP, Telnet, RFC2217, NTP, DNS, SMTP, Syslog
Modbus TCP Slave	32 connections
Modbus TCP Master	16 client
Modbus Slave Node Address	1-255 (248 reserved for concentrator)
Concentrator Slave	16 slaves on each port
Concentrator Slave Command	32 profiles x 32 commands each
Features	IPsec, OpenVPN, RSTP, PPTP

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)

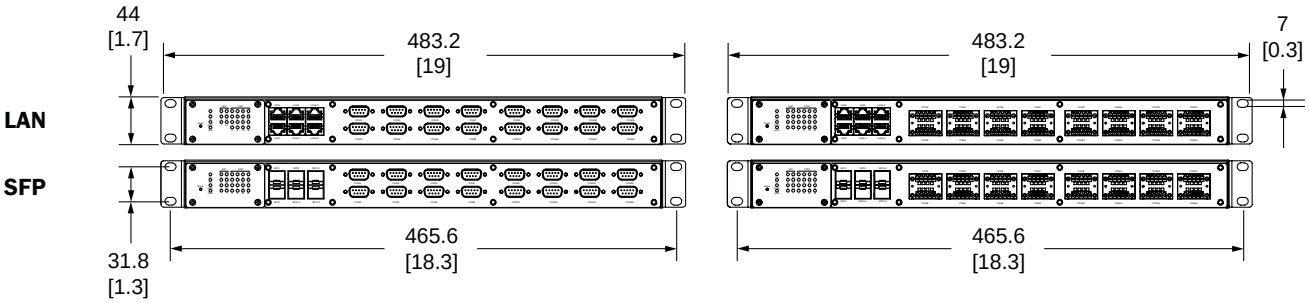
Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class B EN 55032, Class B EN 61000-6-2, Class B EN 61000-3-2 EN 61000-3-3 EN 55024 EN 61000-6-4 IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure Ports	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Ports	Line-to Line±1.0KV	3
		DC Power Ports	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	Dip	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

Industrial Networking Solutions

Modbus Gateways

Industrial Modbus Concentrators | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Industrial 16-Port Modbus TCP/RTU/ASCII Concentrators					
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
MB5916A-CT	24-48 VDC	6 (RJ45)	16 x DB9	N/A	Industrial EMC Protection IEC 61850-3 Certified Concentrator Device Redundancy
MB5916A-TB-CT		6 (RJ45)	16 x TB5	N/A	
MB5916A-8P-SIS-CT		6 (RJ45)	16 x TB5	2.5KV	
MB5916A-6SFP-CT		6 (SFP Slot)	16 x DB9	N/A	
MB5916A-6SFP-TB-CT		6 (SFP Slot)	16 x TB5	N/A	
MB5916A-6SFP-SIS-CT		6 (SFP Slot)	16 x TB5	2.5KV	
MB5916A-HV-CT	100-240 VAC/ 100-370 VDC	6 (RJ45)	16 x DB9	N/A	
MB5916A-TB-HV-CT		6 (RJ45)	16 x TB5	N/A	
MB5916A-SIS-HV-CT		6 (RJ45)	16 x TB5	2.5KV	
MB5916A-6SFP-HV-CT		6 (SFP Slot)	16 x DB9	N/A	
MB5916A-6SFP-TB-HV-CT		6 (SFP Slot)	16 x TB5	N/A	
MB5916A-6SFP-SIS-HV-CT		6 (SFP Slot)	16 x TB5	2.5KV	



Feature Highlights:

- With only one connection/one query, master device will be able to access all connected IEDs’ data through the MB5916A-CT Series
- Database synchronization for redundancy when two concentrators work in pair
- 8 or 16-port RS-232/422/485, baud rate up to 921.6 Kbps
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC, 100-370 VDC variations
- Works in environments from -40 to 85°C
- IEC 61850-3 and IEEE 1613 Power Substation Standards certified

Industrial Networking Solutions

Specifications & Approvals

Industrial Modbus Concentrators | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Ethernet Port	6 x RJ-45 or 6 x SFP slot
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X) and 100BASE-FX

Serial Interface	
Connector	5-Pin 5.08mm Terminal Block or D-Sub9 connector
Port(s)	16
Mode	RS-232/422/485, software selectable
Baud rate	50~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5,6,7,8
Stop Bit	1,2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management	
Connector	10-Pin Terminal Block
Input Voltage	24-48 VDC 100-240 VAC/ 100-370 VDC for HV Series
Power Consumption	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Reverse Polarity Protection	Yes (Two Modules)
Redundancy	Yes

Mechanicals	
Reset Button	Yes

Software	
Protocols	Modbus TCP/ASCII/RTU, IPv4, ARP, ICMP, TCP, DHCP Client, SNMP, HTTP, Telnet, RFC2217, NTP, DNS, SMTP, Syslog
Modbus TCP Slave	32 connections
Modbus TCP Master	16 client
Modbus Slave Node Address	1-255 (248 reserved for concentrator)
Concentrator Slave	16 slaves on each port
Concentrator Slave Command	32 profiles x 32 commands each
Features	IPsec, OpenVPN, RSTP, PPTP

Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)

Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class B EN 55032, Class B EN 61000-6-2, Class B EN 61000-3-2 EN 61000-3-3 EN 55024 EN 61000-6-4 IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure Ports	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Ports	Line-to Line±1.0KV	3
		DC Power Ports	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	Dip	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

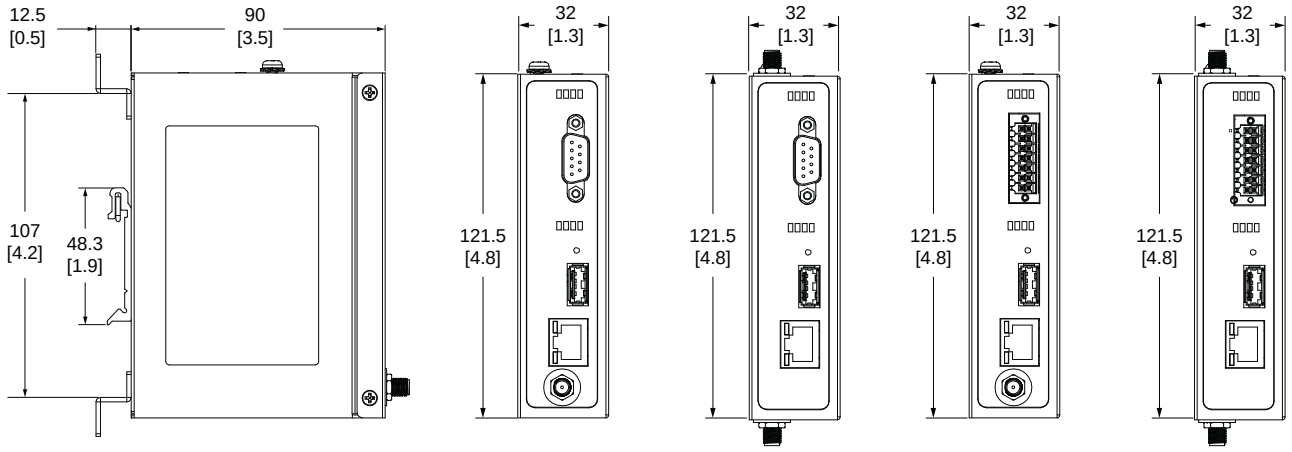
Industrial Networking Solutions

Protocol Gateways

Wireless/Cellular Protocol Gateways | US Version | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial M2M Cellular Protocol Gateways, US						
Part Number	**Band**	**RS-232 RS-485 TB14**	**RS-232 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Digital Input/ Output**	**GPS/ Battery Function**
PG5901B-D3G-US	3G	N/A	1	1	N/A	N/A
PG5901B-IO-D3G-US	3G	1+1*	N/A	1	2/2	N/A
PG5901B-IO-D3G-GPS-US	3G	1+1*	N/A	1	2/2	GPS
PG5901B-4G-US	4G	N/A	1	1	N/A	N/A
PG5901B-IO-4G-US	4G	1+1*	N/A	1	2/2	N/A
PG5901B-IO-4G-GPS-US	4G	1+1*	N/A	1	2/2	GPS
PG5901B-4G-B-US	4G	N/A	1	1	N/A	Battery Function
PG5901B-IO-4G-B-US	4G	1+1*	N/A	1	2/2	Battery Function
PG5901B-IO-4G-GPS-B-US	4G	1+1*	N/A	1	2/2	GPS/Battery Function

* one TB sw-selectable RS485/RS232 and one TB RS232.



3G DB9 Type **4G DB9 Type** **3G IO Type** **4G IO Type**

Feature Highlights:

- Supports Modbus TCP/RTU/ASCII, DNP3, IEC61850, IEC60870-5-101/104, and Ethernet/Serial in client/server master/slave modes.
- GPRS/3G/4G Cellular Protocol Gateway with extensive LTE Band support, including:
  - US Model: 1900/AWS/850/700/700/1900MHz (B2/B4/B5/B13/B17/B25)
- Industrial-grade hardware for operating in harsh environments
- 1 x 10/100/1000Mbps Ethernet port
- 1 x RS-232/485 port – baud rate up to 921.6 Kbps
- 2 x High speed USB 2.0 ports
- Configuration via Web Browser and Windows Utility
- VPN over IPSec or OpenVPN for secure communications

Network Interface

Ethernet Port	1x 10/100/1000BASE-TX RJ-45
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T

Serial Interface

Connector	14-Pin 5.08mm Terminal Block (integrated with DI/DOs) or D-Sub9 connector
Port	1 or 2 (IO model only)
Mode	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)
Baud Rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data Bits	7, 8
Stop Bits	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

USB Interface

Speed	USB 2.0
Connector	USB A Type x 2

Digital Inputs/Outputs (IO Models)

Digital Inputs (DIs)	2 channels photo coupler isolated digital input
Digital Outputs (DOs)	2 channels digital output. N.O.(2A@24VDC)

Internal Battery function (Battery model only)

Battery function	Provide normal operation at least 10 seconds after power failure function *No need to replace

Power Management

Connector	3-Pin 5.08mm Lockable Terminal Block
Input Voltage	9-48 VDC
Power Consumption	0.6A @ 12VDC
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes

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%~95%, (Non-condensing)

Mechanicals

Reset Button	Yes

Software

Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1/v2c/v3, HTTP, HTTPS, RFC2217, RSTP
Additional features	Remote SMS monitoring
Security	VPN through IPsec tunneling (max 10 tunnels) and OpenVPN on cellular or LAN
Network	NAT
Features	IPsec, OpenVPN, RSTP, PPTP

Wireless Interface

Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE		
Band Options	Band	Bands	
	FDD LTE	1900/1700/850/700/700bMHz (B2/B4/B5/B12/B17)	
	WCDMA	1900/1700/850MHz (B2/B4/B5)	
	GSM	850/1900MHz	
Data Rate	Band	Downlink Speed	Uplink Speed
	LTE-FDD LTE-TDD DC-HSPA+ UMTS TD-SCDMA EDGE GPRS	Max100 Mbps Max 61 Mbps Max 42 Mbps Max 384 Kbps Max 4.2 Mbps Max 236.8 Kbps Max 85.6 Kbps	Max 50 Mbps Max 18 Mbps Max 5.76 Mbps Max 384 Kbps Max 2.2 Mbps Max 236.8 Kbps Max 85.6 Kbps

Regulatory Approvals

Safety	EN 60950-1, UL60950			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN61000-6-4, EN 61000-3-2, EN 61000-3-3, EN 55024, EN61000-6-2			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	4 4
IEC 61000-4-3	RS	80-1000MHz	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port Signal Port	±2.0 KV ±2.0 KV	3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 V rms	3
IEC 61000-4-8	PFMF	Enclosure	10 A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%,Reduction,0.5 period 30%, Reduction,25 period >95%,Reduction,250 period	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

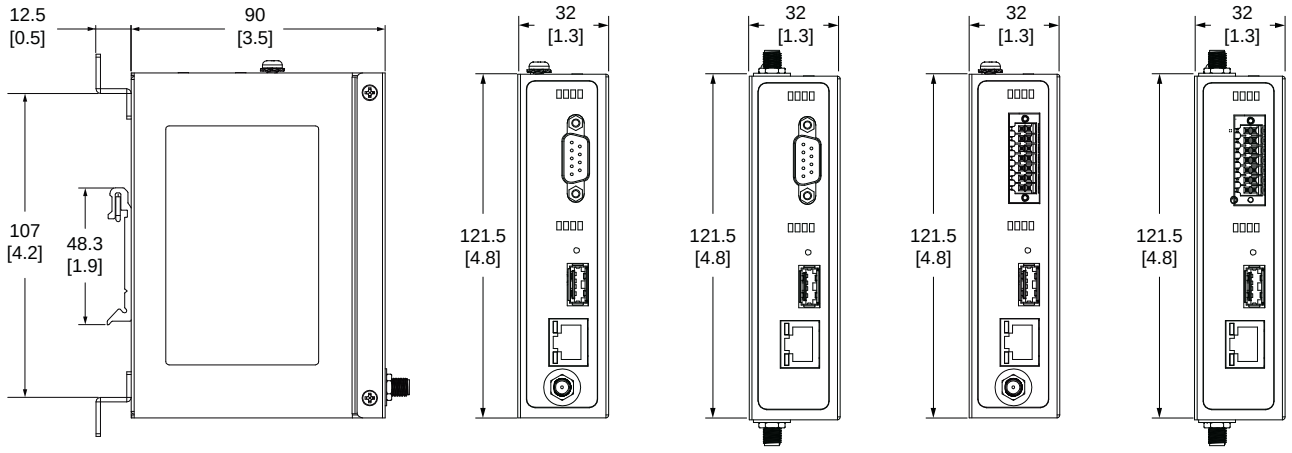
Industrial Networking Solutions

Protocol Gateways

Wireless/Cellular Protocol Gateways | EU Version | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

Industrial M2M Cellular Protocol Gateways, EU						
Part Number	**Band**	**RS-232 RS-485 TB14**	**RS-232 RS-485 DB9**	**10/100 /1000 RJ45 Ports**	**Digital Input/ Output**	**GPS/ Battery Function**
PG5901B-D3G-EU	3G	N/A	1	1	N/A	N/A
PG5901B-IO-D3G-EU	3G	1+1*	N/A	1	2/2	N/A
PG5901B-IO-D3G-GPS-EU	3G	1+1*	N/A	1	2/2	GPS
PG5901B-4G-EU	4G	N/A	1	1	N/A	N/A
PG5901B-IO-4G-EU	4G	1+1*	N/A	1	2/2	N/A
PG5901B-IO-4G-GPS-EU	4G	1+1*	N/A	1	2/2	GPS
PG5901B-4G-B-EU	4G	N/A	1	1	N/A	Battery Function
PG5901B-IO-4G-B-EU	4G	1+1*	N/A	1	2/2	Battery Function
PG5901B-IO-4G-GPS-B-EU	4G	1+1*	N/A	1	2/2	GPS/Battery Function

* one TB sw-selectable RS485/RS232 and one TB RS232.



3G DB9 Type **4G DB9 Type** **3G IO Type** **4G IO Type**

Feature Highlights:

- Supports Modbus TCP/RTU/ASCII, DNP3, IEC61850, IEC60870-5-101/104, and Ethernet/Serial in client/server master/slave modes.
- GPRS/3G/4G Cellular Protocol Gateway with extensive LTE Band support, including:
  - EU Model: 2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)
- Industrial-grade hardware for operating in harsh environments
- 1 x 10/100/1000Mbps Ethernet port
- 1 x RS-232/485 port – baud rate up to 921.6 Kbps
- 2 x High speed USB 2.0 ports
- Configuration via Web Browser and Windows Utility
- VPN over IPSec or OpenVPN for secure communications

Network Interface

Ethernet Port	1x 10/100/1000BASE-TX RJ-45
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3ab for 1000BASE-T

Serial Interface

Connector	14-Pin 5.08mm Terminal Block (integrated with DI/DOs) or D-Sub9 connector
Port	1 or 2 (IO model only)
Mode	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)
Baud Rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data Bits	7, 8
Stop Bits	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

USB Interface

Speed	USB 2.0
Connector	USB A Type x 2

Digital Inputs/Outputs (IO Models)

Digital Inputs (DIs)	2 channels photo coupler isolated digital input
Digital Outputs (DOs)	2 channels digital output. N.O.(2A@24VDC)

Internal Battery function (Battery model only)

Battery function	Provide normal operation at least 10 seconds after power failure function *No need to replace

Power Management

Connector	3-Pin 5.08mm Lockable Terminal Block
Input Voltage	9-48 VDC
Power Consumption	0.6A @ 12VDC
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes

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%~95%, (Non-condensing)

Mechanicals

Reset Button	Yes

Software

Protocols	IPv4, ICMP, TCP, UDP, DHCP Client, SNMPv1/v2c/v3, HTTP, HTTPS, RFC2217, RSTP
Additional features	Remote SMS monitoring
Security	VPN through IPsec tunneling (max 10 tunnels) and OpenVPN on cellular or LAN
Network	NAT
Features	IPsec, OpenVPN, RSTP, PPTP

Wireless Interface

Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE	
Band Options	Band	Bands
	FDD LTE	2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)
	TDD LTE	2600/2300/2500MHz (B38/B40/B41)
	WCDMA	2100/850/900MHz (B1/B5/B8)
	GSM	900/1800

Data Rate	Band	Downlink Speed	Uplink Speed
	LTE-FDD LTE-TDD DC-HSPA+ UMTS TD-SCDMA EDGE GPRS	Max 150 Mbps Max 130 Mbps Max 42 Mbps Max 384 Kbps Max 4.2 Mbps Max 236.8 Kbps Max 85.6 Kbps	Max 50 Mbps Max 35 Mbps Max 5.76 Mbps Max 384 Kbps Max 2.2 Mbps Max 236.8 Kbps Max 85.6 Kbps

Regulatory Approvals

Safety	EN 60950-1, UL60950
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN61000-6-4, EN 61000-3-2, EN 61000-3-3, EN 55024, EN61000-6-2

EMS Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±6KV ±8KV	4 4
IEC 61000-4-3	RS	80-1000MHz	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port Signal Port	±2.0 KV ±2.0 KV	3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 V rms	3
IEC 61000-4-8	PFMF	Enclosure	10 A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%,Reduction,0.5 period 30%, Reduction,25 period >95%,Reduction,250 period	-

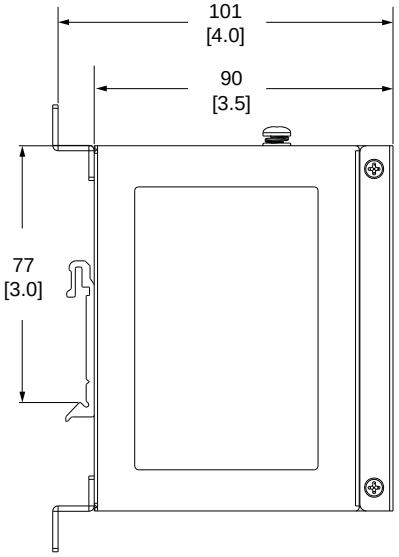
Shock	IEC 60068-2-27
Drop	IEC 60068-2-32
Vibration	IEC 60068-2-64
RoHS	Yes
Warranty	5 Years

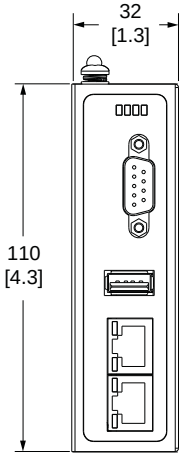
Industrial Networking Solutions

Protocol Gateways

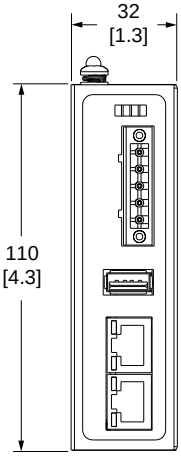
Advanced Protocol Gateways | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

1-Port RS232/485/422 and 2-Port Ethernet DNP3, Modbus, IEC 60870, IEC 61850 Protocol Gateways			
Part Number	**10/100 RJ45 Ethernet Ports**	**Serial Ports**	**Features**
PG5901-DB	2	1 (DB9)	Industrial EMC Protection
PG5901-TB	2	1 (TB5)	
PG5901-POE-DB	2 with PoE	1 (DB9)	
PG5901-POE-TB	2 with PoE	1 (TB5)	





PG5901-DB
PG5901-PoE-DB



PG5901-TB
PG5901-PoE-TB

Feature Highlights:

- Dual 10/100 Mbps Ethernet port, PoE PD
- 1-port RS-232/422/485, baud rate up to 921.6 Kbps
- IP30 Metal housing with Aluminum heat sink
- Strong EMC protection, works in environments from -40 to 85°C
- Same hardware platform for different protocol conversion
  (Modbus TCP/RTU/ASCII, DNP3.0 TCP or serial, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility
- Embedded IPsec VPN for enhanced security

Network interface	
Ethernet Port	2x RJ-45
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX
Serial Interface	
Connector	5-Pin 5.08mm Terminal Block or D-Sub9 connector
Port(s)	1
Mode	RS-232/422/485, software selectable
Baud rate	1,200~921,600 bps
Parity	Parity None, Odd, Even, Space, Mark
Data bits	7, 8
Stop Bit	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
USB Interface	
Speed	USB 2.0
Connector	USB A Type x 1
Power Management	
Connector	3-Pin 5.08mm Lockable Terminal Block
Input Voltage	9-48 VDC, or 48 VDC (supplied by PoE)
Power Consumption	0.65A @ 9VDC
Power Redundancy	No
Reverse Polarity Protection	Yes
Mechanicals	
Reset Button	Yes
Environmental Limits	
Operating Temperature	--40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95% RH (non-condensing)

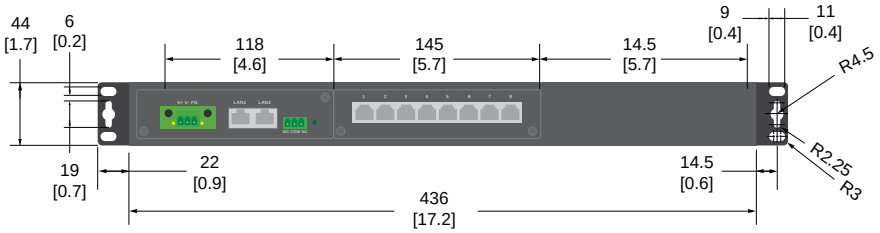
Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(*)
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals				
Safety	EN60950-1			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 61000-3-2, EN 61000-3-3, EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	80-1000MHz	10 V/m	3
IEC 61000-4-4	EFT	AC Power Ports Signal Ports	±2.0 KV ±2.0 KV	3 4
IEC 61000-4-5	Surge	AC Power Ports AC Power Ports Signal Ports	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	10 A/m	3
IEC 61000-4-11	DIP	AC Power Ports	1. >95%, Reduction, 0.5 period 2. 30%, Reduction, 25 period >95%,Reduction, 250 period	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

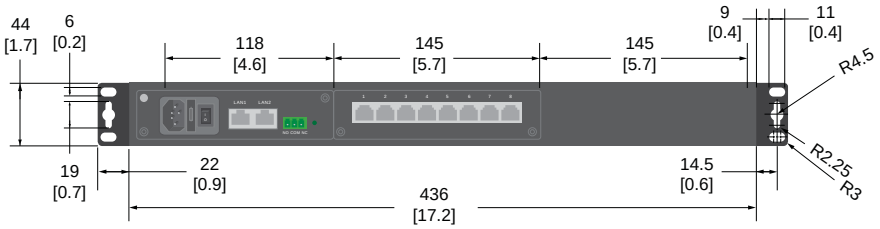
* Testing conditions may affect the VPN throughput

8-Port RS232/485/422 and 2-Port Ethernet DNP3, Modbus, IEC 60870, IEC 61850 Protocol Gateways				
Part Number	**RS-232 RS-422 RS-485 RJ45 Ports**	**10/100 RJ45 Ports**	**Power Connector**	**Features**
PG5908-DC	8	2	DC TB3	Industrial EMC Protection
PG5908-US	8	2	AC Inlet (US)	
PG5908-EU	8	2	AC Inlet (EU)	

DC Terminal Block



AC Inlet



Feature Highlights:

- Dual 10/100Mbps Ethernet ports, Embedded IPsec VPN for enhanced security
- Remotely monitor, manage, and control industrial field devices
- Relay out indicator for Network link-status
- LCM display with 4-key touch pad for configuration
- Same hardware platform for different protocol conversion (Modbus TCP/RTU/ASCII, DNP3.0 TCP or serial, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility

Network Interface	
Ethernet Port	2 x RJ-45
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X)

Serial Interface	
Connector	RJ45
Mode	RS-232/422/485, software selectable
Port(s)	8
Baud rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5, 6, 7, 8
Stop Bit	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management		
Connector	AC	IEC 60320-1 C14 AC Power Inlet
	DC	5.08mm 3-pin Lockable Terminal Block
Input Voltage	AC	100~240 VAC
	DC	24-48 VDC
Power Consumption	AC	0.21A @100 VAC
	DC	0.54A @24 VDC
Reverse Polarity Protection	Yes (DC input only)	
Redundancy	No	

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95%RH, (non-condensing)

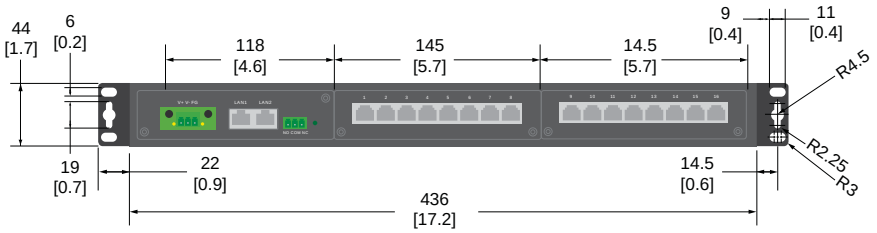
Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(*)
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals				
Safety	EN 60950-1/IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B EN 61000-3-2 EN 61000-3-3 EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Ports DC Power Ports Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

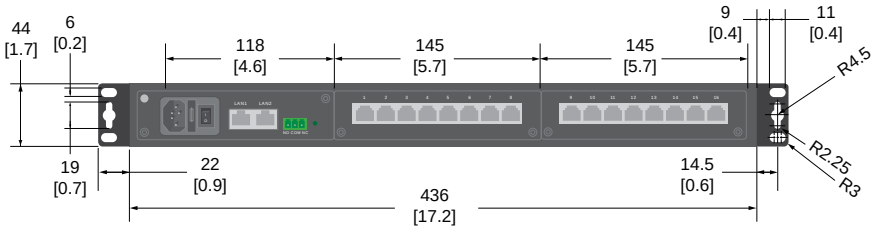
* Testing conditions may affect the VPN throughput

16-Port RS232/485/422 and 2-Port Ethernet DNP3, Modbus, IEC 60870, IEC 61850 Protocol Gateways				
Part Number	**RS-232 RS-422 RS-485 RJ45 Ports**	**10/100 RJ45 Ports**	**Power Connector**	**Features**
PG5916-DC	16	2	DC TB3	Industrial EMC Protection
PG5916-US	16	2	AC Inlet (US)	
PG5916-EU	16	2	AC Inlet (EU)	

DC Terminal Block



AC Inlet



Feature Highlights:

- Dual 10/100Mbps Ethernet ports, Embedded IPsec VPN for enhanced security
- Remotely monitor, manage, and control industrial field devices
- Relay out indicator for Network link-status
- LCM display with 4-key touch pad for configuration
- Same hardware platform for different protocol conversion (Modbus TCP/RTU/ASCII, DNP3.0 TCP or serial, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility

Network Interface	
Ethernet Port	2 x RJ-45
LAN Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X)

Serial Interface	
Connector	RJ45
Mode	RS-232/422/485, software selectable
Port(s)	16
Baud rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5, 6, 7, 8
Stop Bit	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)

Power Management		
Connector	AC	IEC 60320-1 C14 AC Power Inlet
	DC	5.08mm 3-pin Lockable Terminal Block
Input Voltage	AC	100~240 VAC
	DC	24-48 VDC
Power Consumption	AC	0.21A @100 VAC
	DC	0.54A @24 VDC
Reverse Polarity Protection	Yes (DC input only)	
Redundancy	No	

Mechanicals	
Reset Button	Yes

Environmental Limits	
Operating Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Storage Temperature	-40°~85°C (-40°~185°F)
Ambient Relative Humidity	5 ~ 95%RH, (non-condensing)

Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(*)
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals				
Safety	EN 60950-1/IEC60950-1 LVD			
EMC	FCC Part 15, Subpart B, Class B EN 55022, Class B EN 61000-3-2 EN 61000-3-3 EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±2.0KV	4 4 3
IEC 61000-4-5	Surge	AC Power Port AC Power Port DC Power Ports DC Power Ports Signal Port	Line-to Line±2.0KV Line-to Earth±4.0KV Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Line±2.0KV	4 4 3 3 4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	1 A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock	IEC 60068-2-27			
Drop	ISTA Test Procedure 2A			
Vibration	IEC 60068-2-64			
RoHS	Yes			
Warranty	5 Years			

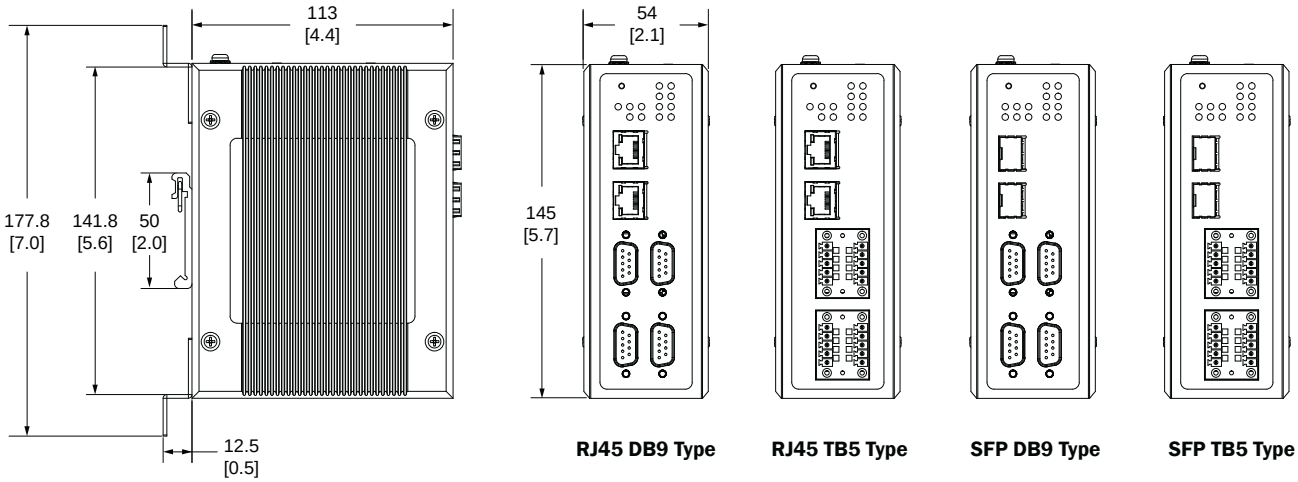
* Testing conditions may affect the VPN throughput

Industrial Networking Solutions

Protocol Gateways

Industrial Protocol Gateways | DIN-Rail/Wall Mount | Metal Housing | IP30 Rating

4-Port RS232/485/422 and 2-Port Ethernet DNP3, Modbus, IEC 60870, IEC 61850 Protocol Gateways						
Part Number	**RS-232 RS-422 RS-485 TB5**	**RS-232 RS-422 RS-485 DB9**	**10/100 RJ45 Ports**	**100/1000 SFP Slots**	**Isolation**	**Features**
PG5904D-4P-DB	N/A	4	2	N/A	N/A	Industrial EMC Protection
PG5904D-4P-TB	4	N/A	2	N/A	N/A	
PG5904D-4P-SIS	4	N/A	2	N/A	3 KV	
PG5904D-4P-POE-DB	N/A	4	2 with PoE	N/A	N/A	
PG5904D-4P-POE-TB	4	N/A	2 with PoE	N/A	N/A	
PG5904D-4P-POE-SIS	4	N/A	2 with PoE	N/A	3 KV	
PG5904D-4P-G-DB-SFP	N/A	4	N/A	2	N/A	
PG5904D-4P-G-TB-SFP	4	N/A	N/A	2	N/A	
PG5904D-4P-G-SIS-SFP	4	N/A	N/A	2	3 KV	



Feature Highlights:

- Dual 10/100 Mbps Ethernet port, with optional PoE PD or 100/1000 Mbps SFP Slot
- 4-port RS-232/422/485, baud rate up to 921.6 Kbps
- IP30 Metal housing with Aluminum heat sink
- Strong EMC protection, works in environments from -40 to 85°C
- Same hardware platform for different protocol conversion
  (Modbus TCP/RTU/ASCII, DNP3.0 TCP or serial, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility
- Embedded IPsec VPN for enhanced security

Network Interface	
Ethernet Port	2x 10/100BASE-T(X) RJ-45 or 2x 100/1000 SFP Slots
LAN-port Mode	Dual Subnets or LAN Redundancy
Compliance	IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-T(X) IEEE 802.3af for Power over Ethernet PD (PoE version only) IEEE 802.3u for 100BASE-X (SFP version only) IEEE 802.3z for 1000BASE-X (SFP version only)

USB Interface	
Speed	USB 2.0
Connector	USB A Type x 1

Power Management	
Connector	Terminal Block
Input Voltage	12-48 VDC, or 48 VDC (supplied by PoE)
Power Consumption	0.65A @12 VDC (max.)
Power Redundancy	Yes
Reverse Polarity Protection	Yes
Relay Output	1A @ 30 VDC (normal open)

Physical Characteristics	
Reset Button	Yes

Environment Limits	
Operating	-40°C~85°C (-40°F~185°F)
Storage	-40°C~85°C (-40°F~185°F)
Humidity	5%~95% RH, (non-condensing)

Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(*)
Configuration	Web interface, Telnet, Device Management Utility (basic device settings)
	eNode Designer windows Utility (protocol conversion related settings)
Features	IPsec, OpenVPN, RSTP, PPTP

* Testing conditions may affect the VPN throughput

Serial Interface	
Connector	1x2 5 pin 3.81mm Terminal Block, or D-sub9 connector
Ports	4
Mode	RS-232/422/485, software selectable
Baud Rate	1,200~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data Bits	7,8
Stop Bits	1, 2
Flow Control	None, Xon/Xoff, RTS/CTS
Isolation	3 kV

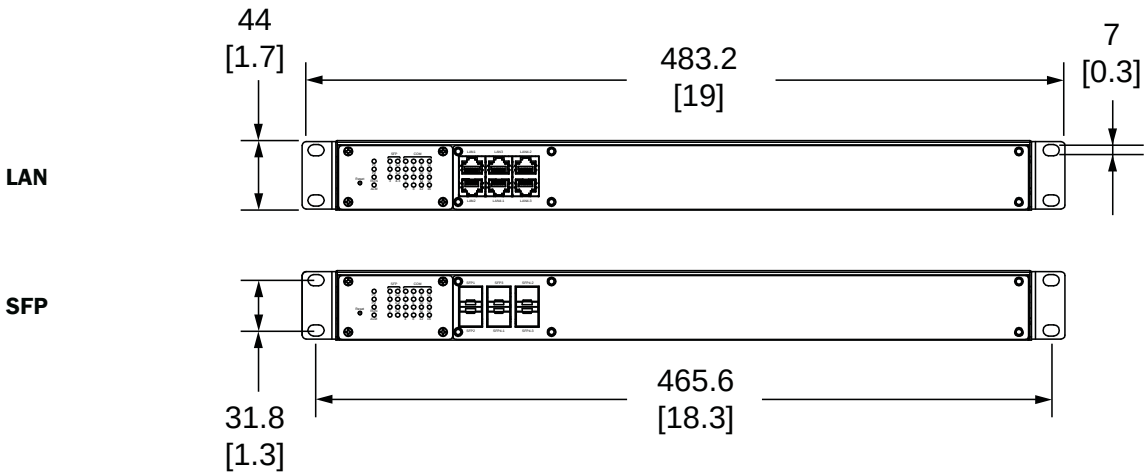
Regulatory Approvals				
Safety	UL61010-2-201			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 61000-3-2, EN 61000-3-3, EN 55024			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8kV ±15kV	4 4
IEC 61000-4-3	RS	80-1000MHz	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port Signal Port	±2.0KV ±2.0KV	3 4
IEC 61000-4-5	Surge	AC Power Port AC Power Port Signal Port	Line-to Line±1.0KV Line-to Earth±2.0KV Line-to Earth±2.0KV	3 3 3
IEC 61000-4-6	CS	0.15-80MHz	10 Vrms	3
IEC 61000-4-8	PFMF	Enclosure	10 A/m	3
IEC 61000-4-11	DIP	AC Power Port	1. >95%,Reduction, 0.5period 2. 30%, Reduction, 25 period 3. >95%,Reduction, 250 period	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS II	Yes			
Warranty	5 Years			

Industrial Networking Solutions

Protocol Gateways

Industrial Protocol Gateways | 6-Port | 19” Rack Mount | Metal Housing | IP30 Rating

6-Port (SFP or RJ45) DNP3, Modbus, IEC 60870, IEC 61850 Protocol Gateways				
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Features**
PG5900A	24-48 VDC	6 (RJ45)	N/A	Industrial EMC Protection IEC 61850-3 Certified
PG5900A-6SFP		6 (SFP Slot)	N/A	
PG5900A-HV	100-240VAC/ 100-370VDC	6 (RJ45)	N/A	
PG5900A-6SFP-HV		6 (SFP Slot)	N/A	



Feature Highlights:

- Compliant with IEC 61850-3 and IEEE 1613 Power Substation Standards
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC, 100-370 VDC
- Extreme EMC protection according to IEC61850-3. Works in environments from -40 to 85°C
- Same hardware platform for different protocol conversion (Modbus TCP, DNP3.0 over Ethernet, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility
- Embedded IPsec VPN for enhanced security

Network Interface	
Ethernet Port	6 x RJ-45 or 6 x SFP slot
LAN Mode	Dual Subnets or LAN Redundancy*
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X) and 100BASE-FX
Power Management	
Connector	10-Pin Terminal Block
Input Voltage	24-48 VDC 100-240 VAC/ 100-370 VDC for HV Series
Power Consumption	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Reverse Polarity Protection	Yes (Two Modules)
Redundancy	Yes
Mechanicals	
Reset Button	Yes
Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)
Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(**)
Features	IPsec, OpenVPN, RSTP, PPTP

* 4 ports can operate in 4 subnets or redundancy more. Port 4-5-6 work as Unmanaged switch.

** Testing conditions may affect the VPN throughput.

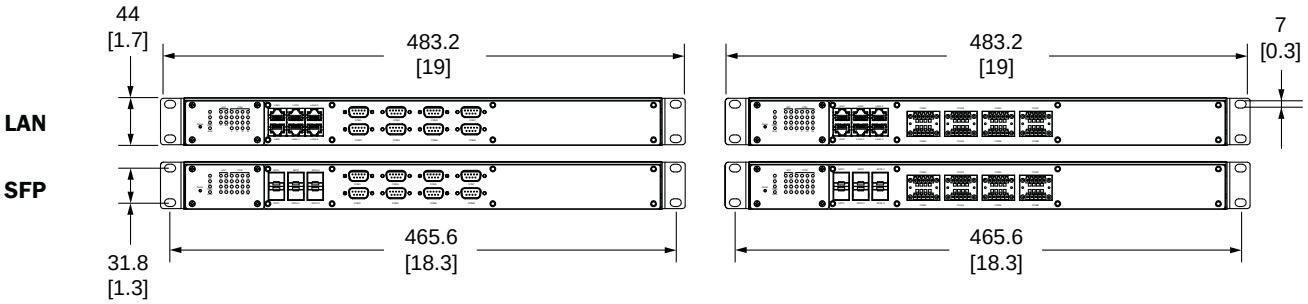
Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class B EN 55032, Class B EN 61000-6-2, Class B EN 61000-3-2 EN 61000-3-3 EN 55024 EN 61000-6-4 IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Port	Line-to Line±1.0KV	3
		DC Power Port	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
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			
Warranty	5 Years			

Industrial Networking Solutions

Protocol Gateways

Industrial Protocol Gateways | 8-Port | 19” Rack Mount | Metal Housing | IP30 Rating

8-Serial and 6-Ethernet DNP3, Modbus, IEC60870, IEC61850 Protocol Converters					
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
PG5908A	24-48 VDC	6 (RJ45)	8 x DB9	N/A	Industrial EMC Protection IEC 61850-3 Certified
PG5908A-TB		6 (RJ45)	8 x TB5	N/A	
PG5908A-8P-SIS		6 (RJ45)	8 x TB5	2.5KV	
PG5908A-6SFP		6 (SFP Slot)	8 x DB9	N/A	
PG5908A-6SFP-TB		6 (SFP Slot)	8 x TB5	N/A	
PG5908A-6SFP-SIS		6 (SFP Slot)	8 x TB5	2.5KV	
PG5908A-HV	100-240 VAC/ 100-370 VDC	6 (RJ45)	8 x DB9	N/A	
PG5908A-TB-HV		6 (RJ45)	8 x TB5	N/A	
PG5908A-SIS-HV		6 (RJ45)	8 x TB5	2.5KV	
PG5908A-6SFP-HV		6 (SFP Slot)	8 x DB9	N/A	
PG5908A-6SFP-TB-HV		6 (SFP Slot)	8 x TB5	N/A	
PG5908A-6SFP-SIS-HV		6 (SFP Slot)	8 x TB5	2.5KV	



Feature Highlights:

- Compliant with IEC 61850-3 and IEEE 1613 Power Substation Standards
- 8 or 16-port RS-232/422/485, baud rate up to 921.6 Kbps
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC, 100-370 VDC variations
- Works in environments from -40 to 85°C
- Same hardware platform for different protocol conversion (Modbus TCP/RTU/ASCII, DNP3.0 TCP or serial, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility
- Embedded IPsec VPN for enhanced security

Industrial Networking Solutions

Specifications & Approvals

Industrial Protocol Gateways | 8-Port | 19" Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Ethernet Port	6 x RJ-45 or 6 x SFP slot
LAN Mode	Dual Subnets or LAN Redundancy*
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X) and 100BASE-FX
Serial Interface	
Connector	5-Pin 5.08mm Terminal Block or D-Sub9 connector
Port(s)	8
Mode	RS-232/422/485, software selectable
Baud rate	50~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5,6,7,8
Stop Bit	1,2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
Power Management	
Connector	10-Pin Terminal Block
Input Voltage	24-48 VDC 100-240 VAC/ 100-370 VDC for HV Series
Power Consumption	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Reverse Polarity Protection	Yes (Two Modules)
Redundancy	Yes
Mechanicals	
Reset Button	Yes
Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)
Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(**)
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class B EN 55032, Class B EN 61000-6-2, Class B EN 61000-3-2 EN 61000-3-3 EN 55024 EN 61000-6-4 IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure Ports	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Port	Line-to Line±1.0KV	3
		DC Power Port	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
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			
Warranty	5 Years			

* 4 ports can operate in 4 subnets or redundancy more. Port 4-5-6 work as Unmanaged switch.

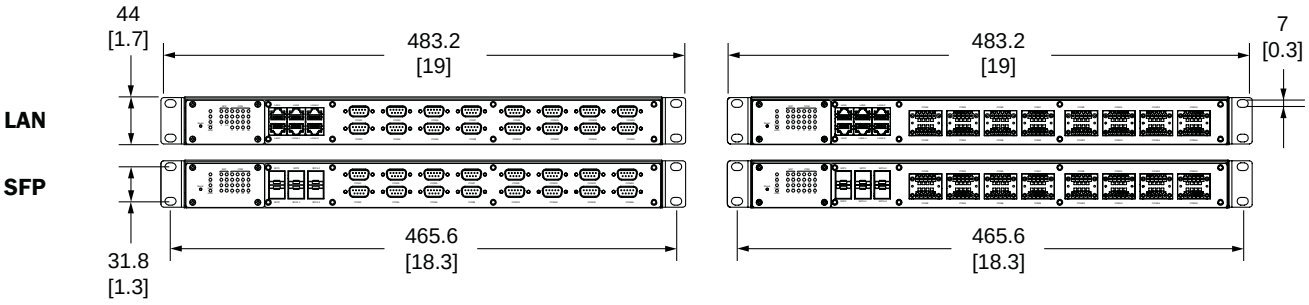
** Testing conditions may affect the VPN throughput.

Industrial Networking Solutions

Modbus Gateways

Industrial Protocol Gateways | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

16-Serial and 6-Ethernet DNP3, Modbus, IEC60870, IEC61850 Protocol Converters					
Part Number	**Input Voltage**	**Fast Ethernet Ports**	**Serial Ports**	**Isolation**	**Features**
PG5916A	24-48 VDC	6 (RJ45)	16 x DB9	N/A	Industrial EMC Protection IEC 61850-3 Certified Concentrator Device Redundancy
PG5916A-TB		6 (RJ45)	16 x TB5	N/A	
PG5916A-8P-SIS		6 (RJ45)	16 x TB5	2.5KV	
PG5916A-6SFP		6 (SFP Slot)	16 x DB9	N/A	
PG5916A-6SFP-TB		6 (SFP Slot)	16 x TB5	N/A	
PG5916A-6SFP-SIS		6 (SFP Slot)	16 x TB5	2.5KV	
PG 5916A-HV	100-240 VAC/ 100-370 VDC	6 (RJ45)	16 x DB9	N/A	
PG 5916A-TB-HV		6 (RJ45)	16 x TB5	N/A	
PG 5916A-SIS-HV		6 (RJ45)	16 x TB5	2.5KV	
PG5916A-6SFP-HV		6 (SFP Slot)	16 x DB9	N/A	
PG5916A-6SFP-TB-HV		6 (SFP Slot)	16 x TB5	N/A	
PG5916A-6SFP-SIS-HV		6 (SFP Slot)	16 x TB5	2.5KV	



Feature Highlights:

- Compliant with IEC 61850-3 and IEEE 1613 Power Substation Standards
- 8 or 16-port RS-232/422/485, baud rate up to 921.6 Kbps
- Isolated redundant power inputs with 24-48 VDC ,100-240 VAC, 100-370 VDC variations
- Works in environments from -40 to 85°C
- Same hardware platform for different protocol conversion (Modbus TCP/RTU/ASCII, DNP3.0 TCP or serial, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850)
- User friendly configuration with a Java-Based Windows utility
- Embedded IPsec VPN for enhanced security

Industrial Networking Solutions

Specifications & Approvals

Industrial Protocol Gateways | 16-Port | 19” Rack Mount | Metal Housing | IP30 Rating

Network Interface	
Ethernet Port	6 x RJ-45 or 6 x SFP slot
LAN Mode	Dual Subnets or LAN Redundancy*
Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-T(X) and 100BASE-FX
Serial Interface	
Connector	5-Pin 5.08mm Terminal Block or D-Sub9 connector
Port(s)	16
Mode	RS-232/422/485, software selectable
Baud rate	50~921,600 bps
Parity	None, Odd, Even, Space, Mark
Data bits	5,6,7,8
Stop Bit	1,2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
Power Management	
Connector	10-Pin Terminal Block
Input Voltage	24-48 VDC 100-240 VAC/ 100-370 VDC for HV Series
Power Consumption	0.73A @ 24 VDC 0.35A @ 100 VAC 0.2A @ 100 VDC
Reverse Polarity Protection	Yes (Two Modules)
Redundancy	Yes
Mechanicals	
Reset Button	Yes
Environmental Limits	
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 ~ 95% RH, (non-condensing)
Software	
Protocols	IPv4, ARP, ICMP, TCP, UDP, DHCP Client, DNS Client, Telnet, HTTP, HTTPS, SNMP v1/v2c/v3, Syslog, IPsec VPN peer-to-peer and peer-to-side, with a maximum VPN throughput of 37.9Mbps(**)
Features	IPsec, OpenVPN, RSTP, PPTP

Regulatory Approvals				
Safety	EN 61010-2-201			
EMC	FCC Part 15, Subpart B, Class B EN 55032, Class B EN 61000-6-2, Class B EN 61000-3-2 EN 61000-3-3 EN 55024 EN 61000-6-4 IEC 61850-3 / IEEE 1613			
EMS Test	**Item**		**Value**	**Level**
IEC 61000-4-2	ESD	Contact Discharge Air Discharge	±8 kV ±15 kV	4 4
IEC 61000-4-3	RS	Enclosure Ports	10 V/m	3
IEC 61000-4-4	EFT	AC Power Port DC Power Port Signal Port	±4.0KV ±4.0KV ±4.0KV	4 4 4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Port	Line-to Line±1.0KV	3
		DC Power Port	Line-to Earth±2.0KV	3
		Signal Port	Line-to Line±2.0KV	4
IEC 61000-4-6	CS	AC Power Port DC Power Port Signal Port	10 Vrms 10 Vrms 10 Vrms	3 3 3
IEC 61000-4-8	PFMF	Enclosure	100 A/m	5
IEC 61000-4-10	Damped Oscillatory Magnetic Field	Enclosure	100 A/m	5
IEC 61000-4-11	DIP	AC Power Port	-	-
IEC 61000-4-12	Damped Oscillatory	AC Power Port	2.5 KV common, 1 KV differential	3
		Signal Port	2.5 KV common, 1 KV differential	3
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			
Warranty	5 Years			

* 4 ports can operate in 4 subnets or redundancy more. Port 4-5-6 work as Unmanaged switch.

** Testing conditions may affect the VPN throughput.

24 VDC Power Supplies | DIN-Rail/Wall Mount | Plastic Housing | IP20 Rating

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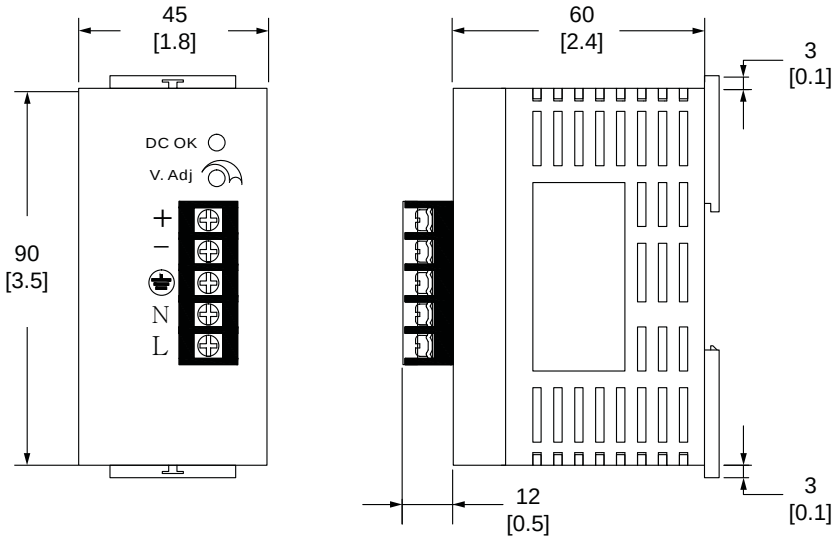
Part Number [MFG #]	Output Power	O/P Current Loading Rated	O/P Current Max.	Ripple Noise	Efficiency	Over Voltage Protection	MTBF
PS1024-24F [AD1024-24F]	DC 24V 24W Single Output	1A	1A	150mVp-p	83%	40VDC Max	Exceed 100,000 hrs (11.42 years)
PS1048-24FS [AD1048-24FS]	DC 24V 48W Single Output	2A	2A	150mVp-p	83%	40VDC Max	Exceed 100,000 hrs (11.42 years)



Feature Highlights:

- High power density
- Universal input range
- Convection cooled
- RoHS compliance
- 3 year warranty
- Great reliability
- DIN Rail / Wall bracket mounting solution
- Optional alarm signal / Redundant function
- Over voltage protection
- Overload protection
- Short circuit protection

General		
Switching Frequency		66kHz
Input Frequency	Input-Output	3000 VAC/4242 VDC
	Input-FG	1500 VAC/2121 VDC
	Output-FG	500 VAC/710 VDC
Isolation Resistance		100MΩ when Input-Output @500VDC
Operating Temperature		-20ºC ~ 50ºC ambient (-4°F ~ 122°F)
Derating		2.5% per degree from 50°C to 70°C
Storage Temperature		-40°C ~ 85°C (-40°F ~ 185°F)
Relative Humidity		5%~95% RH, Non-condensing
Temperature Coefficient		±0.04% of output voltage per °C
Altitude During Operation		2000m
Installation position		Vertical
Vibration		Random vibration, 10~500Hz, 3 axise

Protection	
Input Fuse	2A/250V
Internal Surge Load Protection	Varistor, IEC6100-4-5
Short Circuit Protection	Autorecovery
Over Voltage Protection	Autorecovery
Rated Over Load Protection	150~250 %
Overload protection	Power limited

Regulatory Approvals		
Safety	UL 508 (Certificate) CSA 22.2 (Certificate) EN 60950 (Marking)	
EMC Standards	EN55011 EN55022 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11	Class B Class B Level 3 Level 3 Level 3 Level 3 Level 3 Level 3 Level 3
Warranty	3 years	

Input		
Input Voltage		100~240VAC/120~370VDC
Input Frequency		47~63 Hz
Inrush Current		11A/115VAC Cold Start: 22A/230VAC
Rated Input Current		1A Max., Vi=100~240VAC
Leakage Current		Input-output 0.25mA, Input-FG 3.5mA

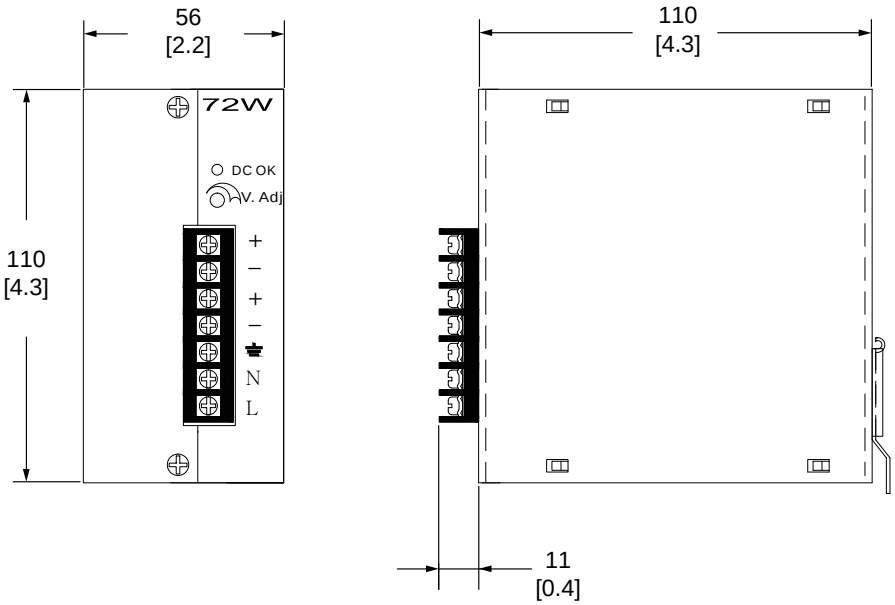
Output		
Output Voltage accuracy		±1%
Minimum Load		0%
Line Regulation		±1%, measuring from low line to high line at rated load
Load Regulation		±1%, measuring from 20% to 100% of rated load at 230VAC input
Voltage Trim Range		±10% (Min.)
Rated Continuous Loading	PS1024-24F	4A@5VDC, 2A@12VDC, 1A@24VDC
	PS1048-24FS	4A@12VDC, 3A@15VDC, 2A@24VDC, 1A@48VDC
Hold Up Time		30mS Min., Full load@230VAC.
Turn On Time		300mS
Rise Time		10ms
Fall Time		35mS
Transient Response	Recovery Time	2mS, Load change 50% to 100%
	Voltage Deviation	5%, Load change 50% to 100%

Industrial Networking Solutions

Power Supplies

24 VDC Power Supplies | DIN-Rail/Wall Mount | Metal Housing | IP20 Rating

Part Number [MFG #]	Output Power	O/P Current Loading Rated	O/P Current Max.	Ripple Noise	Efficiency	Over Voltage Protection	MTBF
PS1072-24F [AD1072-24F]	DC 24V 72W Single Output	3A	3A	150mVp-p	81%	27~30VDC	Exceed 60,000 hrs (6.85 years)
PS1100-24F [AD1100-24F]	DC 24V 100W Single Output	4A	4A	150mVp-p	81%	27~30VDC	Exceed 60,000 hrs (6.85 years)



Feature Highlights:

- High power density
- Universal input range
- Convection cooled
- RoHS compliance
- 3 year warranty
- Great reliability
- DIN Rail / Wall bracket mounting solution
- Optional alarm signal / Redundant function
- Over voltage protection
- Overload protection
- Short circuit protection

General		
Switching Frequency		85kHz
Input Frequency	Input-Output	3000 VAC/4242 VDC
	Input-FG	1500 VAC/2121 VDC
	Output-FG	500 VAC/710 VDC
Isolation Resistance		100MΩ when Input-Output @500VDC
Operating Temperature		-20 ºC ~ 50ºC ambient (-4°F ~ 122°F)
Derating		2.5% per degree from 50°C to 70°C
Storage Temperature		-40°C ~ 85°C (-40°F ~ 185°F)
Relative Humidity		5%~95% RH, Non-condensing
Temperature Coefficient		±0.04% of output voltage per °C
Altitude During Operation		2000m
Installation position		Vertical
Vibration		Random vibration, 10~500Hz, 3 axise

Protection	
Input Fuse	3.15A/250V
Internal Surge Load Protection	Varistor, IEC6100-4-5
Short Circuit Protection	Autorecovery
Over Voltage Protection	Autorecovery
Rated Over Load Protection	160~200%
Overload protection	Power limited

Regulatory Approvals		
Safety	UL 508 (Certificate) CSA 22.2 (Certificate) EN 60950 (Marking)	
EMC Standards	EN55011 EN55022 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11	Class B Class B Level 3 Level 3 Level 3 Level 3 Level 3 Level 3 Level 3
Warranty	3 years	

Input	
Input Voltage	100~240VAC/120~370VDC
Input Frequency	47~63 Hz
Inrush Current	22A/115VAC Cold Start: 44A/230VAC
Rated Input Current	1.5A Max., Vi=100~240VAC
Leakage Current	Input-output 0.25mA, Inout-FG 3.5mA, Vi=250VAC

Output		
Output Voltage accuracy		±1%
Minimum Load		0%
Line Regulation		±1%, measuring from low line to high line at rated load
Load Regulation		±1%, measuring from 20% to 100% of rated load at 230VAC input
Voltage Trim Range		±10% (Min.)
Rated Continuous Loading	PS1072-24F	6A@12VDC, 3A@24VDC, 1.5A@48VDC
	PS1100-24F	8A@12VDC, 4A@24VDC, 2A@48VDC
Hold Up Time	PS1072-24F	25mS Min., Full load@230VAC
	PS1100-24F	20mS Min., Full load@230VAC
Turn On Time		1300mS
Rise Time	PS1072-24F	10ms
	PS1100-24F	13ms
Fall Time	PS1072-24F	35mS
	PS1100-24F	25mS
Transient Response	Recovery Time	2mS, Load change 50% to 100%
	Voltage Deviation	5%, Load change 50% to 100%

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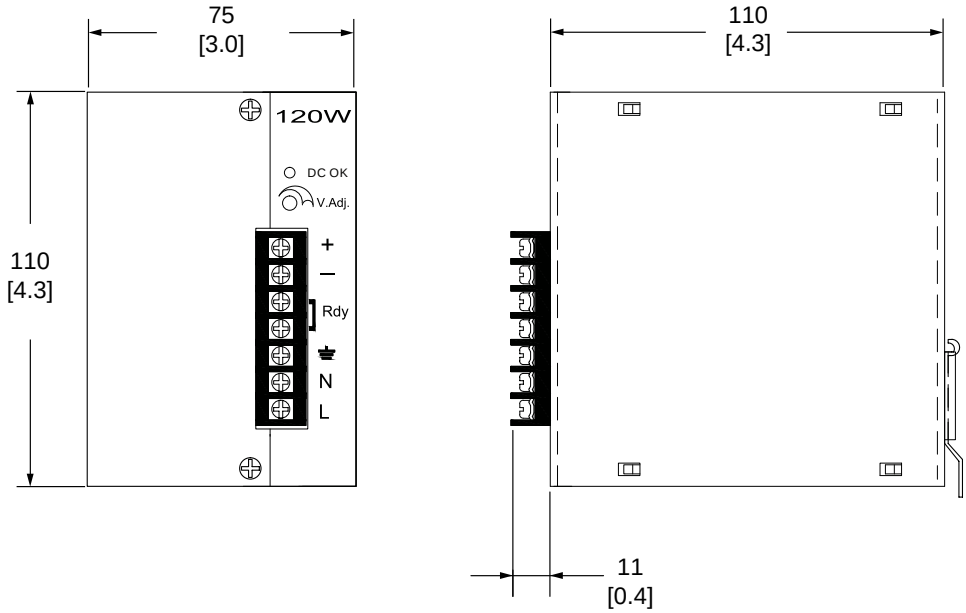
Part Number [MFG #]	Output Power	O/P Current Loading Rated	O/P Current Max.	Ripple Noise	Efficiency	Over Voltage Protection	MTBF
PS1120-24F [AD1120-24F]	DC 24V 120W Single Output	5A	5A	150mVp-p	81%	27~30VDC	Exceed 60,000 hrs (6.85 years)
PS1120-48F [AD1120-48F]	DC 48V 120W Single Output	2.5A	2.5A	250mVp-p	83%	52~56VDC	Exceed 60,000 hrs (6.85 years)



Feature Highlights:

- High power density
- Universal input range
- Convection cooled
- RoHS compliance
- 3 year warranty
- Great reliability
- DIN Rail / Wall bracket mounting solution
- Optional alarm signal / Redundant function
- Over voltage protection
- Overload protection
- Short circuit protection

General		
Switching Frequency		85kHz
Input Frequency	Input-Output	3000 VAC/4242 VDC
	Input-FG	1500 VAC/2121 VDC
	Output-FG	500 VAC/710 VDC
Isolation Resistance		100MΩ when Input-Output @500VDC
Operating Temperature		-20ºC ~ 50ºC ambient (-4°F ~ 122°F)
Derating		2.5% per degree from 40°C to 60°C
Storage Temperature		-40°C ~ 85°C (-40°F ~ 185°F)
Relative Humidity		5%~95% RH, Non-condensing
Temperature Coefficient		±0.04% of output voltage per °C
Altitude During Operation		2000m
Installation position		Vertical
Vibration		Random vibration, 10~500Hz, 3 axise

Protection	
Input Fuse	3.15A/250V
Internal Surge Load Protection	Varistor, IEC6100-4-5
Short Circuit Protection	Autorecovery
Over Voltage Protection	Autorecovery
Rated Over Load Protection	160~200%
Overload protection	Power limited

Regulatory Approvals		
Safety	UL 508 (Certificate) CSA 22.2 (Certificate) EN 60950 (Marking)	
EMC Standards	EN55011 EN55022 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11	Class B Class B Level 3 Level 3 Level 3 Level 3 Level 3 Level 3 Level 3
Warranty	3 years	

Input		
Input Voltage		100~240VAC/120~370VDC
Input Frequency		47~63 Hz
Inrush Current		22A/115VAC Cold Start: 44A/230VAC
Rated Input Current		2.5A Max., Vi=100~240VAC
Leakage Current		Input-output 0.25mA, Inout-FG 3.5mA, Vi=250VAC

Output		
Output Voltage accuracy		±1%
Minimum Load		0%
Line Regulation		±1%, measuring from low line to high line at rated load
Load Regulation		±1%, measuring from 20% to 100% of rated load at 230VAC input
Voltage Trim Range		±10% (Min.)
Rated Continuous Loading		10A@12VDC, 5A@24VDC, 2.5A@48VDC
Hold Up Time		35mS Min., Full load@230VAC
Turn On Time		1300mS
Rise Time		13ms
Fall Time		25mS
Transient Response	Recovery Time	2mS, Load change 50% to 100%
	Voltage Deviation	5%, Load change 50% to 100%

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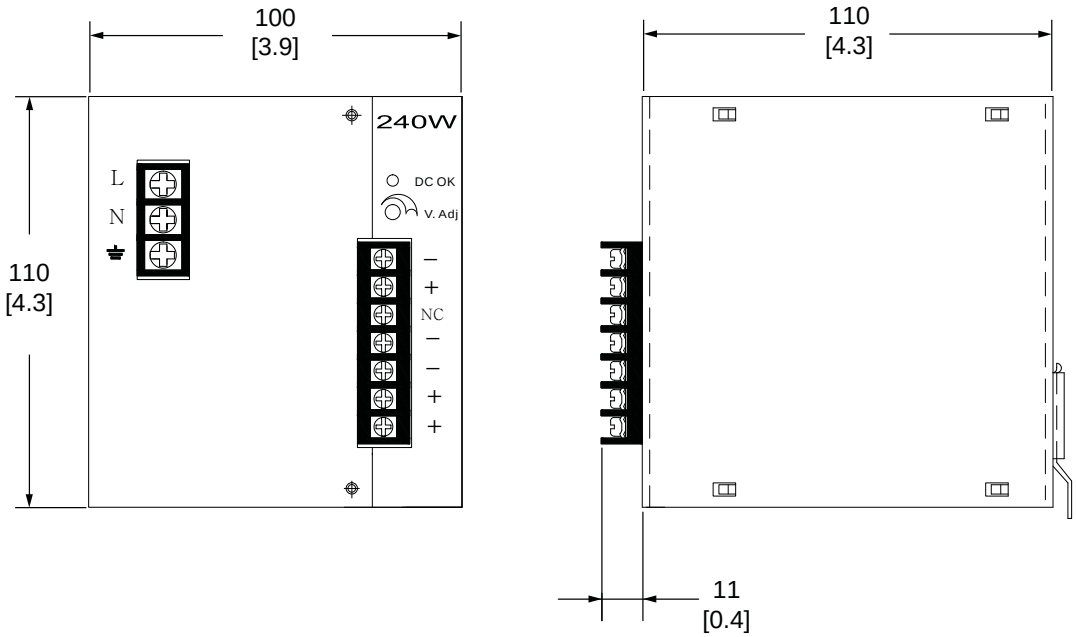
Part Number [MFG #]	Output Power	O/P Current Loading Rated	O/P Current Max.	Ripple Noise	Efficiency	Over Voltage Protection	MTBF
PS1240-48C [AD1240-48C]	DC 48V 240W Single Output	5A	5A	250mVp-p	83%	52~56VDC	Exceed 60,000 hrs (6.85 years)



Feature Highlights:

- High power density
- Universal input range
- Convection cooled
- RoHS compliance
- 3 year warranty
- Great reliability
- DIN Rail / Wall bracket mounting solution
- Optional alarm signal / Redundant function
- Over voltage protection
- Overload protection
- Short circuit protection
- Active PFC to meet EN61000-3-2

General		
Switching Frequency		132kHz
Input Frequency	Input-Output	3000 VAC/4242 VDC
	Input-FG	1500 VAC/2121 VDC
	Output-FG	500 VAC/710 VDC
Isolation Resistance		100MΩ when Input-Output @500VDC
Operating Temperature		-20ºC ~ 50ºC ambient (-4°F ~ 122°F)
Derating		2.5% per degree from 40°C to 60°C
Storage Temperature		-40°C ~ 85°C (-40°F ~ 185°F)
Relative Humidity		5%~95% RH, Non-condensing
Temperature Coefficient		±0.04% of output voltage per °C
Altitude During Operation		2000m
Installation position		Vertical
Vibration		Random vibration, 10~500Hz, 3 axise

Protection	
Input Fuse	5A/250V
Internal Surge Load Protection	Varistor, IEC6100-4-5
Short Circuit Protection	Autorecovery
Over Voltage Protection	Autorecovery
Rated Over Load Protection	130~150%
Overload protection	Power limited

Regulatory Approvals		
Safety	UL 508 (Certificate) CSA 22.2 (Certificate) EN 60950 (Marking)	
EMC Standards	EN55011 EN55022 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11	Class B Class B Level 3 Level 3 Level 3 Level 3 Level 3 Level 3 Level 3
Warranty	3 years	

Input		
Input Voltage		100~240VAC/120~370VDC
Input Frequency		47~63 Hz
Inrush Current		22A/115VAC Cold Start: 44A/230VAC
Rated Input Current		5A Max., Vi=100~240VAC
Leakage Current		Input-output 0.25mA, Inout-FG 3.5mA, Vi=250VAC

Output		
Output Voltage accuracy		±1%
Minimum Load		0%
Line Regulation		±1%, measuring from low line to high line at rated load
Load Regulation		±1%, measuring from 20% to 100% of rated load at 230VAC input
Voltage Trim Range		±10% (Min.)
Rated Continuous Loading		20A@12VDC, 10A@24VDC, 5A@48VDC
Hold Up Time		40mS Min., Full load@230VAC
Turn On Time		1200mS
Rise Time		15ms
Fall Time		30mS
Transient Response	Recovery Time	2mS, Load change 50% to 100%
	Voltage Deviation	5%, Load change 50% to 100%

24 VDC Industrial Power Supply | DIN-Rail Mount | Metal Housing

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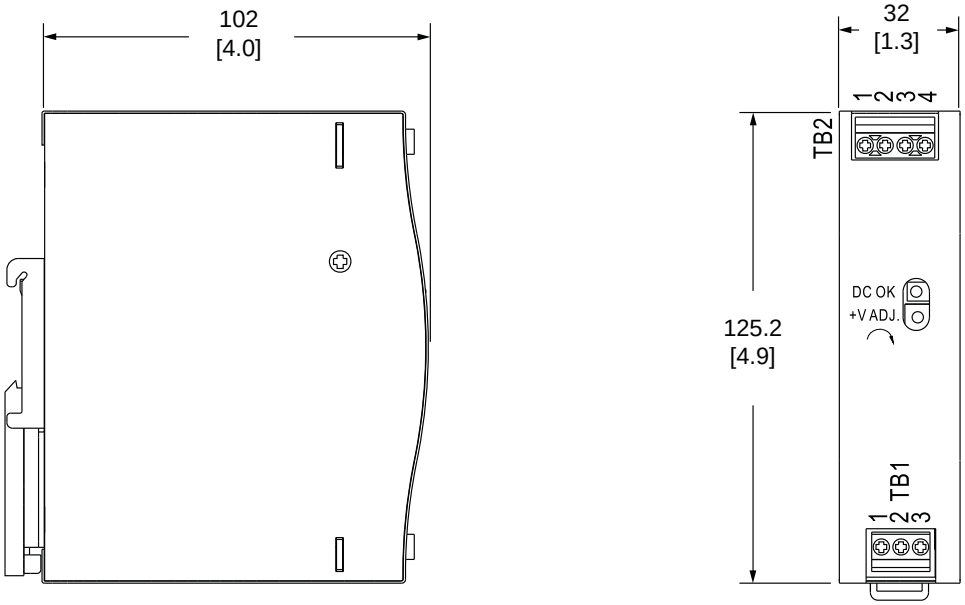
Part Number [MFG #]	Output Power	O/P Current Loading Rated	O/P Current Max.	Ripple Noise	Efficiency	Over Voltage Protection	MTBF
PSDR-75-24 [SDR-75-24]	24VDC 75W Single Output	3.2A	3.2A	100mVp-p	89%	29-33VDC	Exceed 481,900 hrs (55.77 years)



Feature Highlights:

- High Efficiency 90% and low power dissipation
- 150% peak load capability
- Protections: Short circuit/Overload/Over voltage/ Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508 (Industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- 100% full load bum-in test
- 3 years warranty

Output	
Peak Current	4.69A
Peak Power	112.5W (3sec.)
Voltage Adj. Range	24 ~ 28V
Voltage Tolerance	±1.0%
Line Regulation	±0.5%
Load Regulation	±1.0%
Setup, Rise Time	1500ms, 60ms/230VAC 3000ms, 60ms/115VAC at full load
Hold Up Time (Typ.)	80ms/230VAC 20ms/115VAC at full load

Input	
Voltage Range	88 ~ 264VAC 124 ~ 370VDC DC input operation possible by connecting AC/L(+), AC/N(-)
Frequency Range	47 ~ 63Hz
Efficiency (Typ.)	89%
Ac Current (Typ.)	1.4A/115VAC 0.85A/230VAC
Inrush Current (Typ.)	30A/115VAC 50A/230VAC
Leakage Current	<1mA / 240VAC

Protection		
Overload	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage, re-powr on to recover	
	150%~170% rated power, constant current limiting with auto-recovery within 3 seconds, and then shut down o/p voltage after 3 seconds, re-powr on to recover	
Over Voltage	29 ~ 33V	
	Protection type	Shut down o/p voltage, re-powr on to recover
Over Temperature	100°C ±10°C	
	Protection type	Shut down o/p voltage, re-powr on to recover after temperature goes down

Environmental Limits	
Working Temp.	-30°C ~ 70°C (-22°F ~ 158°F)
Working Humidity	20 ~ 95% RH non-condensing
Storage Temp., Humidity	-40°C ~ 85°C (-40°F ~ 185°F), 10 ~ 95% RH
Temp. Coefficient	±0.03%/°C (0 ~ 50°C)

Regulatory Approvals		
Safety Standards		UL508, TUV EN60950-1 approved, design refer to GL
Withstand Voltage	I/P-O/P	3KVAC
	I/P-Fg	2KVAC
	O/P-Fg	0.5KVAC
Isolation Resistance		I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH
EMC Emission		EN55022 (CISPR22) EN61204-3 Class B EN61000-3-2,-3
EMC Immunity		EN61000-4-2,3,4,5,6,8,11 EN55024 EN61000-6-2 (EN50082-2) EN61204-3, heavy industry level, criteria A, SEMI F47 approved
Vibration	Component	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes
	Mounting	IEC60068-2-6
MTBF		481.9K hrs min. MIL-HDBK-217F (25°C)
Warranty		3 years

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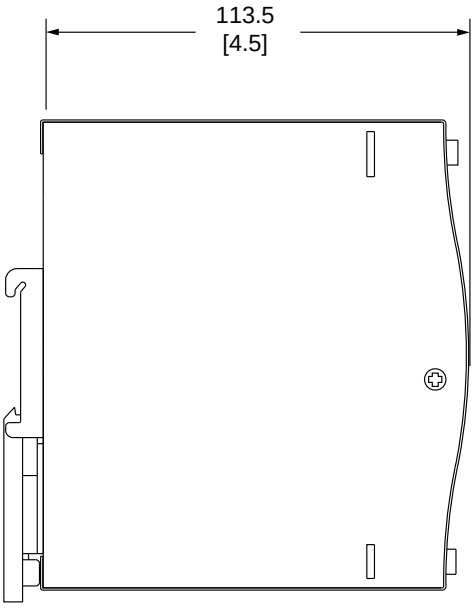
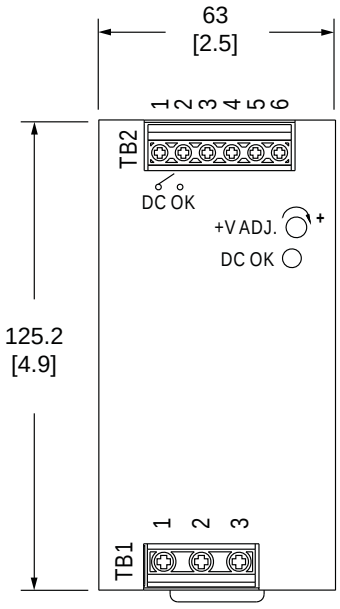
Part Number [MFG #]	Output Power	O/P Current Loading Rated	O/P Current Max.	Ripple Noise	Efficiency	Over Voltage Protection	MTBF
PSDR-240-48 [SDR-240-48]	48VDC 240W Single Output	5A	5A	120mVp-p	94%	56-65VDC	Exceed 169,300 hrs (19.59 years)





Feature Highlights:

- High Efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.93
- Protections: Short circuit/Overload/Over voltage/ Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508 (Industrial control equipment) approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load bum-in test
- 3 years warranty

Output	
Peak Current	7.5A
Peak Power	360W (3sec.)
Voltage Adj. Range	48 ~ 55V
Voltage Tolerance	±1.0%
Line Regulation	±0.5%
Load Regulation	±1.0%
Setup, Rise Time	1500ms, 60ms/230VAC 3000ms 60ms/115VAC at full load
Hold Up Time (Typ.)	20ms/230VAC 20ms/115VAC at full load

Input	
Voltage Range	88 ~ 264VAC 124 ~ 370VDC
Frequency Range	47 ~ 63Hz
Power Factor (Typ.)	0.93/230VAC 0.99/115VAC at full load
Efficiency (Typ.)	94%
Ac Current (Typ.)	2.6A/115VAC 1.3A/230VAC
Inrush Current (Typ.)	33A/115VAC 65A/230VAC
Leakage Current	<1mA / 240VAC

Protection		
Overload	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery	
	>150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	
Over Voltage	56 ~ 65V	
	Protection type	Shut down o/p voltage with auto-recovery
Over Temperature	95°C ±5°C (TSW : detect on heatsink of power switch)	
	Protection type	Shut down o/p voltage, recovers automatically after temperature goes down

Function	
Dc Ok RealyContact Ratings (Max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load

Environmental Limits	
Working Temp.	-25°C ~ 70°C (-13°F ~ 158°F)
Working Humidity	20 ~ 95% RH non-condensing
Storage Temp., Humidity	-40°C ~ 85°C (-40°F ~ 185°F), 10 ~ 95% RH
Temp. Coefficient	±0.03%/°C (0 ~ 50°C)

Regulatory Approvals		
Safety Standards		UL508, TUV EN60950-1 approved; (meet EN60204-1)
Withstand Voltage	I/P-O/P	3KVAC
	I/P-Fg	2KVAC
	O/P-Fg	0.5KVAC
	O/P-Dc Ok	0.5KVAC
Isolation Resistance		I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH
Emc Emission		EN55011 EN55022 (CISPR22) EN61204-3 Class B EN61000-3-2,-3
Emc Immunity		EN61000-4-2,3,4,5,6,8,11 EN55024 EN61000-6-2 (EN50082-2) EN61204-3, heavy industry level, criteria A, SEMI F47, GL approved
Vibration	Component	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes
	Mounting	IEC60068-2-6
MTBF		169.3K hrs min. MIL-HDBK-217F (25°C)
Warranty		3 years

Industrial Networking Solutions

Accessories

Fast Ethernet Series			
Part Number	**LM38-A3S-TI-N**	**LS38-A3S-TI-N**	**AFBR-5715ALZ**
Data Rate (Mbps)	155	155	850
Wavelength (nm)	1310	1310	1310
Light Source	LED	FP	VCSEL
Media Type	Multi-Mode	Single-Mode	Multi-Mode
Tx Power (dBm)	-20 ~ -14 @ 62.5/125 µm fiber	-15 ~ -8 @ 9/125 µm fiber	-9.5~-3
Rx Sensitivity (dBm)	-31	-34	-17 Max
Linkbudget (dBm)	11	19	7.5
Saturation (dBm)	-8	0	-3
Distance	2km	30km	10km
Operating Temperature	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)
Safety	UL/TUV	UL/TUV	UL/TUV

Gigabit Ethernet Series					
Part Number	**LM28-C3S-TI-N**	**LM38-C3S-TI-N**	**LS38-C3S-TI-N**	**LS38-C3L-TI-N**	**AFCT-5715ALZ**
Data Rate (Mbps)	1250	1250	1250	1250	1250
Wavelength (nm)	850	1310	1310	1310	1310
Light Source	VCSEL	FP	FP	DFB	
Media Type	Multi-Mode	Multi-Mode	Single-Mode	Single-Mode	Single-Mode
Tx Power (dBm)	- 9.5 ~ - 4 @50/125 or 62.5/125µm	- 9 ~ - 1@50/125 or 62.5/125µm	--9.5 ~ -3 @ 9/125 µm	-4 ~ +1@ 9/125 µm fiber	-9.5 ~ -3
Rx Sensitivity (dBm)	-18 Max	-19 Max	-20 Max	-24 Max	-19 Max
Linkbudget (dBm)	8.5	10	10.5	20	9.5
Saturation (dBm)	0	-1	-3	-3	-3
Distance	550m	2km	10km	30km	10Km
Operating Temperature	-20ºC~85ºC (-4ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)
Safety	UL/TUV	UL/TUV	UL/TUV	UL/TUV	UL/TUV

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10 Gigabit Ethernet Series				
Part Number	**LM28-H3S-TI-N**	**LS38-H3S-TI-N-EX**	**LS48-H3L-TI-N**	**LS48-H3U-TI-N**
Data Rate (Mbps)	10000	10000	10000	10000
Wavelength (nm)	850	1310	1550	1550
Light Source	VCSEL	FP	EML	EML
Media Type	Multi-Mode	Single-Mode	Single-Mode	Single-Mode
Tx Power (dBm)	- 7.1 ~ - 1 @50/125 or 62.5/125μm fiber	0.5 ~ -6	-4.7 ~ 4	0 ~ 4
Rx Sensitivity (dBm)	-9.9 Max	-14.4 Max	-15.8 Max	-23 Max
Linkbudget (dBm)	2.8	8.4	11.1	23
Saturation (dBm)	-1	0.5	4	4
Distance	33m (OM1 Fiber) 82m (OM2 Fiber) 300m (OM3 Fiber)	10km	40km	80km
Operating Temperature	-10ºC~85ºC (14ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)
Safety	UL/TUV	UL/TUV	UL/TUV	UL/TUV

Copper to Fiber Optic Transceivers		
Part Number	**ASFPT-T3-I**	**ASFPT-T1-I**
Data Rate (Mbps)	10/100/1000 (Auto-neg.)	1000
Interface	SGMII	
Power Supply	3.3V	3.3V
Lan Cable Category	Over Cat5	Over Cat5
Operating Temp.	-40ºC~85ºC (-40ºF~185ºF)	-40ºC~85ºC (-40ºF~185ºF)
Safety	UL/TUV	UL/TUV

Industrial Networking Solutions

Accessories

Power Adapters | US/EU/UK/AU Plugs | DC Jack Connectors

Part Number [MFG #]	**UV305-0510-DC-LV6** [UV305-0510(US-DC) LV6]	**UNE305-0510-DC-LV6** [UNE305-0510(EU-DC) LV6]	**UNUK305-0510-DC-LV6** [UNE305-0510(UK-DC) LV6]	**UNAU305-0510-DC-LV6** [UNE305-0510(AU-DC) LV6]
Plug Type	US	EU	UK	AU
Input Voltage	100-240 VAC			
Output Voltage	5 VDC			
Connector Type	DC Jack			
Physical Characteristics				
Jack Outer Diameter (mm)	3.5 mm			
Jack Inner Diameter (mm)	1.35 mm			
Jack/Plug Length (mm)	7.5 mm			
Dimension w/o cord (LxWxH)	58.8 x 28 x 37.6 mm		-	-
Cord Length(mm)	1500 ±100 mm			
Operating Temperature	0 ~ 40°C (32 ~ 104°F)			
Regulatory Approvals				
Safety	TUV/PSE/CE/FCC	CE/FCC	UL/PSE/FCC	CE/FCC
CEC Level	6	6	6	6

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Part Number [MFG #]	**UN315-1212-LDC-LV6** [UN315-1212(US-LDC) LV6]	**UNE315-1212-LDC-LV6** [UNE315-1212(EU-LDC) LV6]	**US315-12-Y-LV6** [US315-12 (US-Y) LV6]	**USE315-12-Y-LV6** [USE315-12(EU-Y) LV6]
Plug Type	US	EU	US	EU
Input Voltage	100-240 VAC		100-240 VAC	
Output Voltage	12 VDC		12 VDC	
Connector Type	Lockable DC Jack		Y-Type (BT1-10V), include Terminal Block	
Physical Characteristics				
Jack Outer Diameter (mm)	5.5 mm		-	
Jack Inner Diameter (mm)	2.1 mm		-	
Jack/Plug Length (mm)	9.5 mm		10.5 mm	
Dimension w/o cord (LxWxH)	64.5 x 50.2 x 29.8 mm		64.5 x 50.2 x 29.8 mm	
Cord Length(mm)	1500 ±100 mm		1500 ±100 mm	
Operating Temperature	0 ~ 40°C (32 ~ 104°F)		0 ~ 40°C (32 ~ 104°F)	
Regulatory Approvals				
Safety	UL/PSE/FCC	CE/FCC	UL/PSE/CE/FCC	CE/FCC
CEC Level	6	6	6	6

Part Number [MFG #]	**US315-2465-Y-LV6** [UN315-2465 (US) LV6]	**UNE315-2465-Y-LV6** [UNE315-2465(EU) LV6]	**APU10-108-Y** [APU10-108 (US-Y)]	**APU11E-108-Y** [APU11-108 (EU-Y)]
Plug Type	US	EU	US	EU
Input Voltage	100-240 VAC		100-240 VAC	
Output Voltage	24 VDC		24 VDC	
Connector Type	Y-Type (BT1-10V)		Y-Type (BT1-10V)	
Physical Characteristics				
Jack/Plug Length (mm)	10.5 mm		10.5 mm	
Dimension w/o cord (LxWxH)	64.5 x 50.2 x 29.8 mm		56 x 44 x 27.5mm	
Cord Length(mm)	1500 ±100 mm		1220 ±150mm	
Operating Temperature	0 ~ 40°C (32 ~ 104°F)		-40 ~ 70°C (-40 ~ 158°F)	
Regulatory Approvals				
Safety	UL/PSE/CE/FCC	UL/PSE/CE/FCC	UL/PSE/CE/FCC/CB	UL/PSE/CE/FCC/CB
CEC Level	6	6	6	6

Part Number	ANT-WD-A-RF-0305	ANT-WS-AB-RM-05-180	ANT-WS-AB-RM-05-200	ANT-WS-A-NF-09	ANT-WS-A-NF-09-150
Frequency Range	2.4/5 GHz	2.4 GHz	2.4 GHz	2.4~2.5 GHz	2.4~2.5 GHz
Radiation	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Typical Antenna Gain	3/5 dBi	5 dBi	5 dBi	9 dBi	9 dBi
Impedance	50 Ohm	50 Ohm	50 Ohm	50±5 Ohm	50±5 Ohm
Polarization Linear	Vertical	Vertical	Vertical	Linear	Linear
Cable Type	-	RG-316	RG-174	-	RG-58/U
HPBW / Horizontal	360°	360°	360°	360°	360°
HPBW / Vertical	-	-	-	10°	10°
V.S.W.R	≦2	≦2	≦2	1:1.3 Max	1:1.3 Max
Power Handling	-	-	-	15W max	15W max
Antenna Connector*	RP-SMA(Female)	RP-SMA(Male)	RP-SMA(Male)	N-type(Female)	N-type(Female)
Cable Connector*	-	RP-SMA(Female) to RP-SMA(Male)	RP-SMA(Female) to RP-SMA(Male)	-	N-type(Male) to RP-SMA(Male)
Operating Temperature	-20~65°C (-4~149°F)	-20~65°C (-4~149°F)	-30~85°C (-22~185°F)	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)
Antenna Profile	160mm length	236.4mm length with 180cm cable & base	196.6mm length with 200cm cable & base	420mm length	420mm length with 150cm cable

* Connector Types					
N Type (Male)	N Type (Female)	RP-SMA Type (Male)	RP-SMA Type (Female)	SMA Type (Male)	SMA Type (Female)

DIN-Rail Kit		
Part Number [MFG #]	**Description**	**Applicable Network Devices**
CDK-459 [CDK-459-Silver]	Conductive Metal DIN-Rail Kit, Silver	EN50155 Railway Unmanaged Switches Advanced Serial Device Servers
DK-25	Plastic DIN-Rail Kit	Entry Level Serial Device Servers (DB9)
		Entry Level Serial Device Servers
Metal Wall Mount Kit		
WMK-450 [WMK-450-Black]	Aluminum Wall Mount Kit, Black	Layer-2 Managed DIN-Rail Switches Layer-3 Managed DIN-Rail Switches
WMK-UM [WMK-454-Black]	Aluminum Wall Mount Kit, Black	Unmanaged Switches
WMK-459 [WMK-459-Black]	Aluminum Wall Mount Kit, Black	Unmanaged Gigabit PoE Switches EN50155 Railway Unmanaged Switches

SE5901B Series

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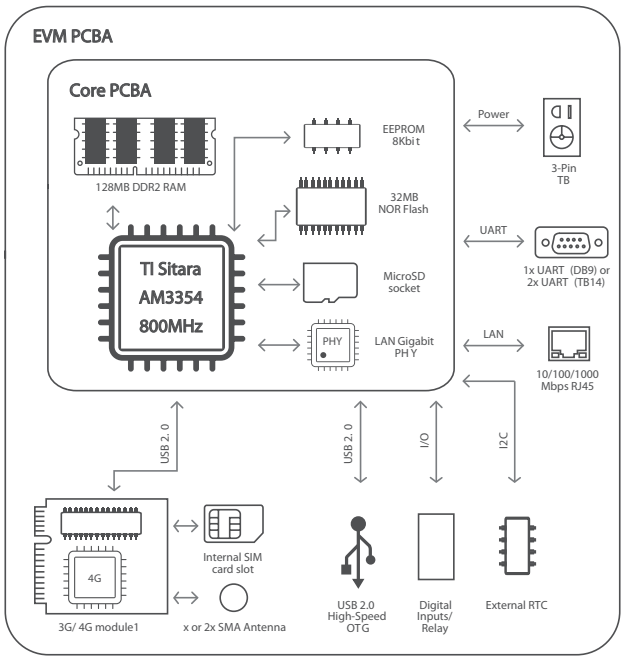

SE5901 Series

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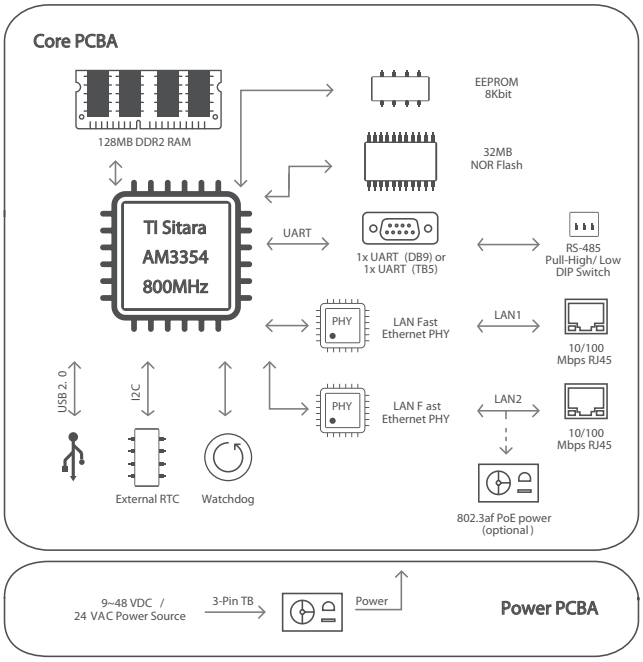

SE5908/5916 Series

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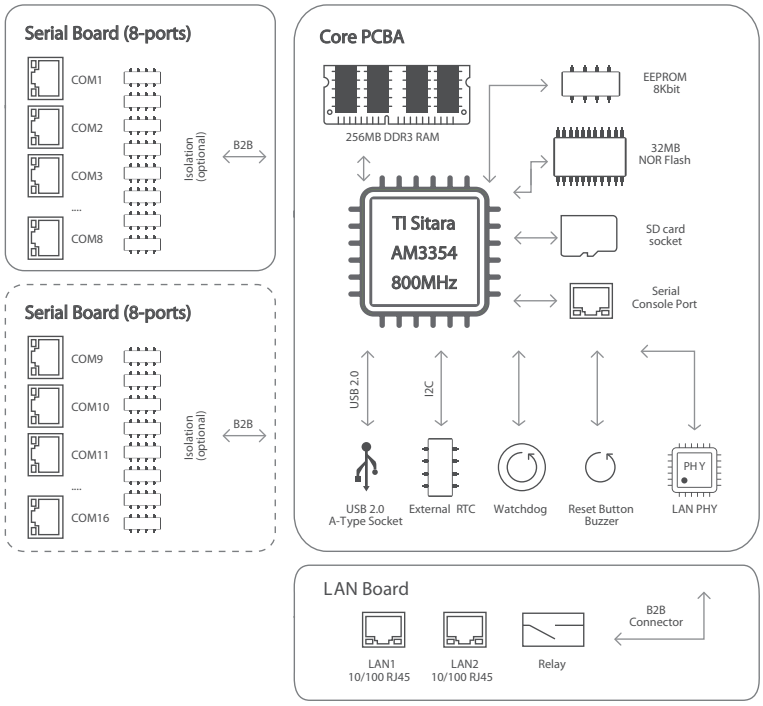

SE5904D Series	SE5908A/5916A Series
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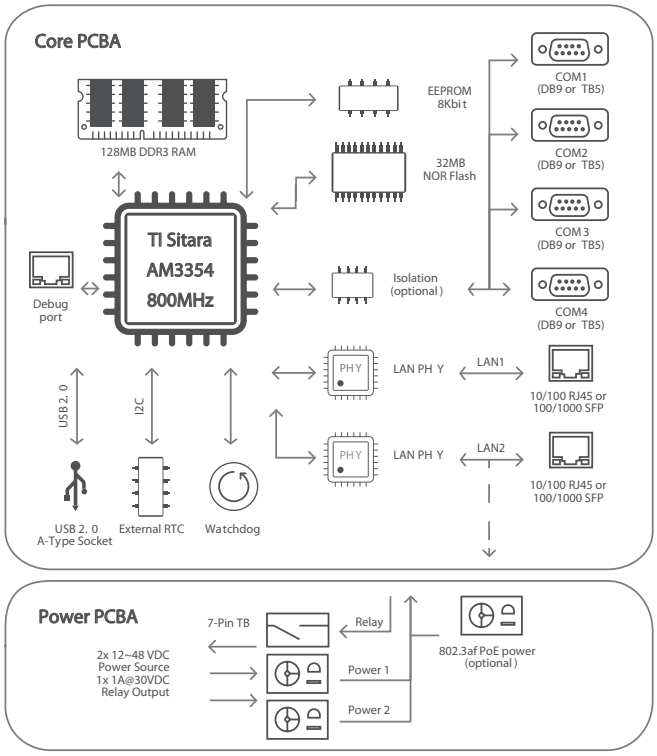
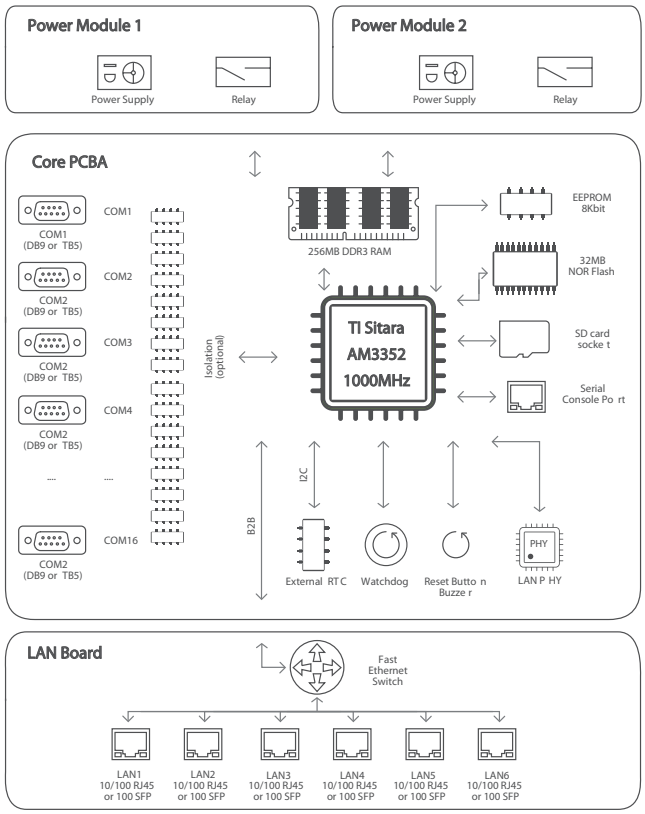




UL File #:
E149111

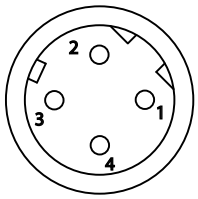
Industrial network systems allow for real-time distributed control of many connection points from a single controller. These “network bus” systems reduce the total amount of cable required and can simplify the overall design. Mencom offers a broad range of industrial network connectivity products to streamline your installation.

Industrial Ethernet

Using Ethernet in industrial applications is becoming more prevalent. This has increased the need for Ethernet product that is built to handle harsh environments. Mencom has addressed this need with a series of rugged Ethernet products. Our E45V3 series connectors allow for an IP67 rating while using standard RJ45 connectors.

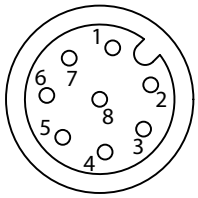
Mencom offers M12 threaded connectors. We refer to this series with a MDE45 prefix. Our MDE45 series utilizes M12 4 wire (D-Coded) connectors with 2 pair Cat 5e cables or M12 8 wire (A-Coded) connectors with 4 pair Cat 5e cable. The MDE45 is specifically used in Industrial Ethernet applications, and has teal cable using twisted pairs of wires inside. This connector has a unique keyway that is known as D-coded.

4 Pole



D-coded

8 Pole



A-coded

Notes:

Ethernet (M12) Series Etherplug Cordsets

Ethernet Series Cordset Part Number Matrix

Not all options available with all cordsets, please consult factory.

MDE45 [ ] - [ ] [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Cable Type

Blank	=	PVC
P	=	PUR
PB	=	PUR / Braided Shield
M	=	Mylar Shield
WB	=	Continuous Flex. TPE / Braided

Number of Conductors

4
8

Connector Configuration

MP	=	Male Plug
FP	=	Female Plug
MFP	=	Male / Female Extension
MFRP	=	Male Straight / Female Right Angle
MRFP	=	Male Right Angle / Female Straight
MMP	=	Male/Male Extension
FFP	=	Female/Female Extension
MSP	=	Male-Shielded to Coupling Nut
FSP	=	Female-Shielded to Coupling Nut
MFPS	=	Male & Female-Shielded to Coupling Nut
MSFP	=	Male Shielded to Coupling Nut / Female Not
MFSP	=	Female Shielded to Coupling Nut / Male Not
MMSP	=	Male/Male Shielded to Coupling Nut
FFSP	=	Female/Female Shielded to Coupling Nut

Length in Meters

1M
2M
4M
5M
6M
10M
15M
Other lengths are available by request.

RJ45

RJ45	=	RJ45 Male on Second End

Armor (See **P.171** for more details)

Blank	=	No Armor
A01	=	SS w/ Cable Inside
A03	=	PVC Covered SS w/ Cable Inside
A50	=	Silicone (Stops at Overmold)
A51	=	Silicone (Covers Overmold)

Coupling Nut

Blank	=	Nickel plated brass
SS	=	Stainless Steel

Cable Jacket Color

Blank	=	Teal
RD	=	Red

R/A or Straight

Blank	=	Straight *
R	=	Right Angle **

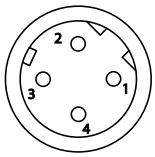
* Unless the Connector Configuration is MFRP or MRFP
** If single ended cable, right angle connector to flying leads
If double ended cable, right angle on both connectors

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Straight Male Cordsets | 300 Volt, 4 amps | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-4MP-**	Teal PVC AWM 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC	1. White/Orange 2. White/Green 3. Orange 4. Green	 M12 x 1
	MDE45B-4MP-**	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45B-4MSP-**	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield to Coupling Nut		
	MDE45P-4MP-**	Teal PUR AWM 4 X 24 AWG 300V, 4A -40°C to +80°C 5.6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-4MP-**	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45PB-4MSP-**	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield to Coupling Nut		
	MDE45WB-4MP-** (Teal) MDE45WB-4MP-**-RD (Red)	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		
	MDE45WB-4MSP-** (Teal) MDE45WB-4MSP-**-RD (Red)	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield to Coupling Nut		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

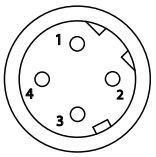
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4MP-1M becomes MDE45-4MP-1M-SS)

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Straight Female Cordsets | 300 Volt, 4 amps | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-4FP-**	Teal PVC AWM 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC	1. White/Orange 2. White/Green 3. Orange 4. Green	 M12 x 1
	MDE45B-4FP-**	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45B-4FSP-**	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield to Coupling Nut		
	MDE45P-4FP-**	Teal PUR AWM 4 X 24 AWG 300V, 4A -40°C to +80°C 5.6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-4FP-**	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45PB-4FSP-**	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield to Coupling Nut		
	MDE45WB-4FP-** MDE45WB-4FP-**-RD (Red)	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		
	MDE45WB-4FSP-** (Teal) MDE45WB-4FSP-**-RD (Red)	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield to Coupling Nut		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

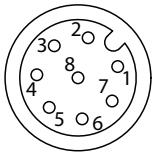
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4FP-1M becomes MDE45-4FP-1M-SS)

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24/26AWG

Straight Male Cordsets | 60 Volt, 2 amps | CAT5e | A-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-8MP-**	Teal PVC AWM 8 X 24 AWG 60V, 2A -20°C to +80°C 6.4mm OD	Industry Standard PVC	1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green	 M12 x 1
	MDE45B-8MP-**	Teal PVC AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -20°C to +80°C 7.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45P-8MP-**	Teal PUR AWM 8 X 24 AWG 60V, 2A -40°C to +80°C 6.3 mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-8MP-**	Teal PUR With Foil & Braided Shield 8 X 26 AWG 60V, 2A -40°C to +75°C 6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45PB-8MSP-**	Teal PUR With Foil & Braided Shield 8 X 26 AWG 60V, 2A -40°C to +75°C 6mm OD	Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield to Coupling Nut		
	MDE45WB-8MP-**	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		
	MDE45WB-8MSP-**	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield to Coupling Nut		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

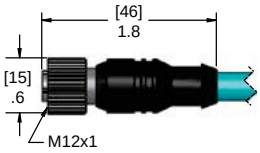
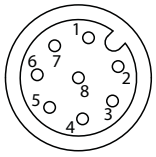
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-8MP-1M becomes MDE45-8MP-1M-SS)

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24/26AWG

Straight Female Cordsets | 60 Volt, 2 amps | CAT5e | A-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-8FP-**	Teal PVC AWM 8 X 24 AWG 60V, 2A -20°C to +80°C 6.4mm OD	Industry Standard PVC	1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green	 M12 x 1
	MDE45B-8FP-**	Teal PVC AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -20°C to +80°C 7.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45P-8FP-**	Teal PUR AWM 8 X 24 AWG 60V, 2A -40°C to +80°C 6.3 mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-8FP-**	Teal PUR With Foil & Braided Shield 8 X 26 AWG 60V, 2A -40°C to +75°C 6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45PB-8FSP-**	Teal PUR With Foil & Braided Shield 8 X 26 AWG 60V, 2A -40°C to +75°C 6mm OD	Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield to Coupling Nut		
	MDE45WB-8FP-**	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		
	MDE45WB-8FSP-**	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield to Coupling Nut		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

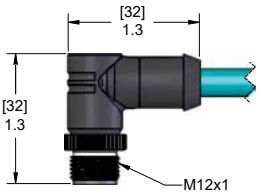
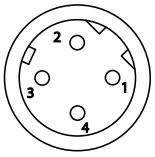
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-8FP-1M becomes MDE45-8FP-1M-SS)

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Right Angle Male Cordsets | 300 Volt, 4 amps | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-4MP-**-R	Teal PVC AWM 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC	1. White/Orange 2. White/Green 3. Orange 4. Green	 M12 x 1
	MDE45B-4MP-**-R	Teal PVC AWM With Foil & Braided Shield 4 X 26 AWG 300V, 4A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45P-4MP-**-R	Teal PUR AWM 4 X 24 AWG 300V, 4A -40°C to +80°C 5.6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-4MP-**-R	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45WB-4MP-**-R (Teal) MDE45WB-4MP-**-R-RD (Red)	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

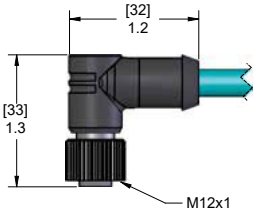
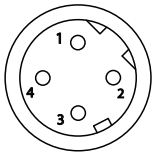
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4MP-1M-R becomes MDE45-4MP-1M-R-SS)

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Right Angle Female Cordsets | 300 Volt, 4 amps | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-4FP-**-R	Teal PVC AWM 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC	1. White/Orange 2. White/Green 3. Orange 4. Green	 M12 x 1
	MDE45B-4FP-**-R	Teal PVC AWM With Foil & Braided Shield 4 X 26 AWG 300V, 4A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45P-4FP-**-R	Teal PUR AWM 4 X 24 AWG 300V, 4A -40°C to +80°C 5.6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-4FP-**-R	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45WB-4FP-**-R (Teal) MDE45WB-4FP-**-R-RD (Red)	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

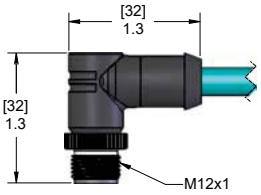
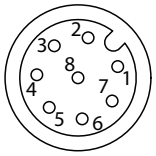
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4FP-1M-R becomes MDE45-4FP-1M-R-SS)

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24AWG

Right Angle Male Cordsets | 60 Volt, 2 amps | CAT5e | A-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-8MP-**-R	Teal PVC AWM 8 X 24 AWG 60V, 2A -20°C to +80°C 6.4mm OD	Industry Standard PVC	1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green	 M12 x 1
	MDE45B-8MP-**-R	Teal PVC AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -20°C to +80°C 7.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45P-8MP-**-R	Teal PUR AWM 8 X 24 AWG 60V, 2A -40°C to +80°C 6.3 mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-8MP-**-R	Teal PUR With Foil & Braided Shield 8 X 26 AWG 60V, 2A -40°C to +75°C 6mm OD	Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45WB-8MP-**-R	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

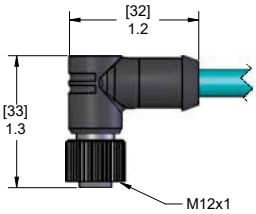
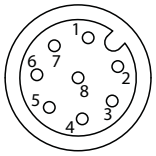
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-8MP-1M-R becomes MDE45-8MP-1M-R-SS)

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24AWG

Right Angle Female Cordsets | 60 Volt, 2 amps | CAT5e | A-Coded | Twisted Pairs | IP67 Rating

c UL us LISTED

Connector Body Style	Part Number	Cables	Features	Color Code	Faceview
	MDE45-8FP-**-R	Teal PVC AWM 8 X 24 AWG 60V, 2A -20°C to +80°C 6.4mm OD	Industry Standard PVC	1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green	 M12 x 1
	MDE45B-8FP-**-R	Teal PVC AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -20°C to +80°C 7.6mm OD	Industry Standard PVC Foil & Braided Shield		
	MDE45P-8FP-**-R	Teal PUR AWM 8 X 24 AWG 60V, 2A -40°C to +80°C 6.3 mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR		
	MDE45PB-8FP-**-R	Teal PUR With Foil & Braided Shield 8 X 26 AWG 60V, 2A -40°C to +75°C 6mm OD	Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield		
	MDE45WB-8FP-**-R	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield		

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

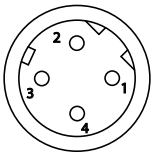
Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a “-SS” suffix. (e.g. MDE45-8FP-1M-R becomes MDE45-8FP-1M-R-SS)

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Double Ended Cordsets | 300V, 4A | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

Only Male to Female versions are UL liasted for safety concerns

Male Faceview	Cables	Features	Male to Female	Male to Male	Female to Female
 M12 x 1	Teal PVC AWM 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC	MDE45-4MFP-**	MDE45-4MMP-**	MDE45-4FFP-**
	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC Foil & Braided Shield	MDE45B-4MFP-**	MDE45B-4MMP-**	MDE45B-4FFP-**
	Teal PUR AWM 4 X 24 AWG 300V, 4A -40°C to +80°C 5.6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR	MDE45P-4MFP-**	MDE45P-4MMP-**	MDE45P-4FFP-**
	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield	MDE45PB-4MFP-**	MDE45PB-4MMP-**	MDE45PB-4FFP-**
	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield to Coupling Nut	MDE45PB-4MFPS-**	MDE45PB-4MMPS-**	MDE45PB-4FFPS-**
	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield	MDE45WB-4MFP-** (Teal) MDE45WB-4MFP-**-RD (Red)	MDE45WB-4MMP-** (Teal) MDE45WB-4MMP-**-RD (Red)	MDE45WB-4FFP-** (Teal) MDE45WB-4FFP-**-RD (Red)
	TPE AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield to Coupling Nut	MDE45WB-4MFPS-** (Teal) MDE45WB-4MFPS-**-RD (Red)	MDE45WB-4MMPS-** (Teal) MDE45WB-4MMPS-**-RD (Red)	MDE45WB-4FFPS-** (Teal) MDE45WB-4FFPS-**-RD (Red)

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4MFP-1M becomes MDE45-4MFP-1M-SS)

Male Plug

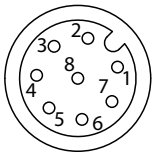
Female Plug

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24AWG

Double Ended Cordsets | 60V, 2A | CAT5e | Twisted Pairs | IP67 Rating

Only Male to Female versions are UL liasted for safety concerns

Male Faceview	Cables	Features	Male to Female	Male to Male	Female to Female
 M12 x 1	Teal PVC AWM 8 X 24 AWG 60V, 2A -20°C to +80°C 6.4mm OD	Industry Standard PVC	MDE45-8MFP-**	MDE45-8MMP-**	MDE45-8FFP-**
	Teal PVC AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -20°C to +80°C 7.6mm OD	Industry Standard PVC Foil & Braided Shield	MDE45B-8MFP-**	MDE45B-8MMP-**	MDE45B-8FFP-**
	Teal PUR AWM 8 X 24 AWG 60V, 2A -40°C to +80°C 6.3 mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR	MDE45P-8MFP-**	MDE45P-8MMP-**	MDE45P-8FFP-**
	Teal PUR With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +75°C 6.3mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield	MDE45PB-8MFP-**	MDE45PB-8MMP-**	MDE45PB-8FFP-**
	Teal PUR With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +75°C 6.3mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield to Coupling Nut	MDE45PB-8MFPS-**	MDE45PB-8MMPS-**	MDE45PB-8FFPS-**
	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield	MDE45WB-8MFP-**	MDE45WB-8MMP-**	MDE45WB-8FFP-**
	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 60V, 2A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield to Coupling Nut	MDE45WB-8MFPS-**	MDE45WB-8MMPS-**	MDE45WB-8FFPS-**

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-8MFP-1M becomes MDE45-8MFP-1M-SS)

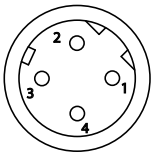
Male Plug

Female Plug

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Double Ended Cordsets | 42 VDC, 1.5 amps | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

Male Faceview	Cables	Features	Shield Type	Male to RJ45	Female to RJ45
 M12 x 1	Teal PVC AWM 4 X 24 AWG 42VDC, 1.5A -20°C to +80°C 6.1mm OD	Industry Standard PVC	Shield not Terminated	MDE45-4MP-RJ45-**	MDE45-4FP-RJ45-**
	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 42VDC, 1.5A -20°C to +80°C 6.6mm OD	Industry Standard PVC Foil & Braided Shield	Shield not Terminated	MDE45B-4MP-RJ45-**	MDE45B-4FP-RJ45-**
	Teal PUR AWM 4 X 24 AWG 42VDC, 1.5A -40°C to +80°C 5.6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR	Shield not Terminated	MDE45P-4MP-RJ45-**	MDE45P-4FP-RJ45-**
	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 42VDC, 1.5A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield	Shield not Terminated	MDE45PB-4MP-RJ45-**	MDE45PB-4FP-RJ45-**
	TPE AWM With Foil & Braided Shield 4 X 24 AWG 42VDC, 1.5A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield	Shield not Terminated	MDE45WB-4MP-RJ45-** (Teal) MDE45WB-4MP-RJ45-**-RD (Red)	MDE45WB-4FP-RJ45-** (Teal) MDE45WB-4FP-RJ45-**-RD (Red)

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4MP-RJ45-1M becomes MDE45-4MP-RJ45-1M-SS)

Red cable jacket is available only for TPE, for red cable jacket add a "-RD" suffix. (e.g. MDE45WB-4MSP-RJ45-1M becomes MDE45WB-4MSP-RJ45-1M-RD)

Mencom Standard Cable Color Code

MDE45		Color		RJ45
1		White/Orange		1
3		Orange		2
2		White/Green		3
4		Green		6

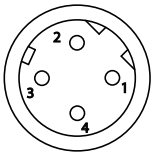
Male - RJ45 Extension

Female - RJ45 Extension

Ethernet (M12) Series Etherplug Cordsets

4 Conductor Ethernet Series Cordsets, 24AWG

Double Ended Cordsets | 42 VDC, 1.5 amps | CAT5e | D-Coded | Twisted Pairs | IP67 Rating

Male Faceview	Cables	Features	Shield Type	Male to RJ45	Female to RJ45
 M12 x 1	Teal PVC AWM With Foil & Braided Shield 4 X 24 AWG 300V, 4A -20°C to +80°C 6.1mm OD	Industry Standard PVC Foil & Braided Shield	Shield to Coupling Nut	MDE45B-4MSP-RJ45-**	MDE45B-4FSP-RJ45-**
			Shield to RJ45	MDE45B-4MP-RJ45S-**	MDE45B-4FP-RJ45S-**
			Shield to Coupling Nut & RJ45	MDE45B-4MSP-RJ45S-**	MDE45B-4FSP-RJ45S-**
	Teal PUR AWM With Foil & Braided Shield 4 X 24 AWG 42VDC, 1.5A -40°C to +80°C 6.4mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield	Shield to Coupling Nut	MDE45PB-4MSP-RJ45-**	MDE45PB-4FSP-RJ45-**
			Shield to RJ45	MDE45PB-4MP-RJ45S-**	MDE45PB-4FP-RJ45S-**
			Shield to Coupling Nut & RJ45	MDE45PB-4MSP-RJ45S-**	MDE45PB-4FSP-RJ45S-**
	TPE AWM With Foil & Braided Shield 4 X 24 AWG 42VDC, 1.5A -40°C to +80°C 6.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield	Shield to Coupling Nut	MDE45WB-4MSP-RJ45-**	MDE45WB-4FSP-RJ45-**
			Shield to RJ45	MDE45WB-4MP-RJ45S-**	MDE45WB-4FP-RJ45S-**
			Shield to Coupling Nut & RJ45	MDE45WB-4MSP-RJ45S-**	MDE45WB-4FSP-RJ45S-**

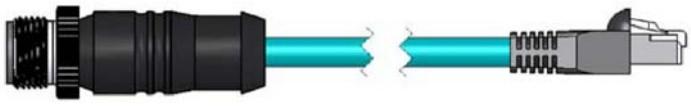
** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-4MP-RJ45-1M becomes MDE45-4MP-RJ45-1M-SS)

Red cable jacket is available only for TPE, for red cable jacket add a "-RD" suffix. (e.g. MDE45WB-4MSP-RJ45-1M becomes MDE45WB-4MSP-RJ45-1M-RD)

Mencom Standard Cable Color Code

MDE45	Color	RJ45
1	White/Orange	1
3	Orange	2
2	White/Green	3
4	Green	6



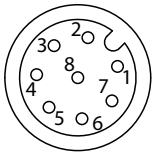
Male - RJ45 Extension

Female - RJ45 Extension

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24AWG

Double Ended Cordsets | 42 VDC, 1.5 amps | CAT5e | A-Coded | Twisted Pairs | IP67 Rating

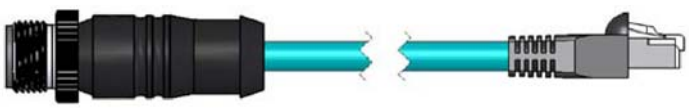
Male Faceview	Cables	Features	Shield Type	Male to RJ45	Female to RJ45
 M12 x 1	Teal PVC AWM 8 X 24 AWG 42VDC, 1.5A -20°C to +80°C 6.4mm OD	Industry Standard PVC	Shield not Terminated	MDE45-8MP-RJ45-**	MDE45-8FP-RJ45-**
	Teal PVC AWM With Foil & Braided Shield 8 X 24 AWG 42VDC, 1.5A -20°C to +80°C 7.6mm OD	Industry Standard PVC Foil & Braided Shield	Shield not Terminated	MDE45B-8MP-RJ45-**	MDE45B-8FP-RJ45-**
	Teal PUR AWM 8 X 24 AWG 42VDC, 1.5A -40°C to +80°C 6.3 mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR	Shield not Terminated	MDE45P-8MP-RJ45-**	MDE45P-8FP-RJ45-**
	Teal PUR With Foil & Braided Shield 8 X 26 AWG 42VDC, 1.5A -40°C to +75°C 6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield	Shield not Terminated	MDE45PB-8MP-RJ45-**	MDE45PB-8FP-RJ45-**
	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 42VDC, 1.5A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield	Shield not Terminated	MDE45WB-8MP-RJ45-**	MDE45WB-8FP-RJ45-**

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-8MP-RJ45-1M becomes MDE45-8MP-RJ45-1M-SS)

Mencom Standard Cable Color Code

M12	Color	RJ45
6	White/Orange	1
4	Orange	2
1	White/Blue	5
7	Blue	4
5	White/Green	3
8	Green	6
2	White/Brown	7
3	Brown	8



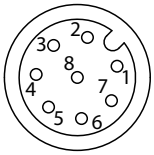
Male - RJ45 Extension

Female - RJ45 Extension

Ethernet (M12) Series Etherplug Cordsets

8 Conductor Ethernet Series Cordsets, 24AWG

Double Ended Cordsets | 42 VDC, 1.5 amps | CAT5e | A-Coded | Twisted Pairs | IP67 Rating

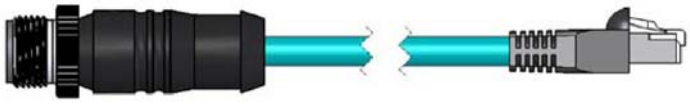
Male Faceview	Cables	Features	Shield Type	Male to RJ45	Female to RJ45
 M12 x 1	Teal PUR With Foil & Braided Shield 8 X 26 AWG 42VDC, 1.5A -40°C to +75°C 6mm OD	Continuous-Flex Oil and Cutting Fluid Resistant Cut Resistant PUR Foil & Braided Shield	Shield to Coupling Nut	MDE45PB-8MSP-RJ45-**	MDE45PB-8FSP-RJ45-**
			Shield to RJ45	MDE45PB-8MP-RJ45S-**	MDE45PB-8FP-RJ45S-**
			Shield to Coupling Nut & RJ45	MDE45PB-8MSP-RJ45S-**	MDE45PB-8FSP-RJ45S-**
	Teal TPE AWM With Foil & Braided Shield 8 X 24 AWG 42VDC, 1.5A -40°C to +80°C 7.6mm OD	Continuous-Flex Weld Slag Resistant TPE Foil & Braided Shield	Shield to Coupling Nut	MDE45WB-8MSP-RJ45-**	MDE45WB-8FSP-RJ45-**
			Shield to RJ45	MDE45WB-8MP-RJ45S-**	MDE45WB-8FP-RJ45S-**
			Shield to Coupling Nut & RJ45	MDE45WB-8MSP-RJ45S-**	MDE45WB-8FSP-RJ45S-**

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

Standard coupling nut is nickel plated brass, for stainless steel coupling nut add a "-SS" suffix. (e.g. MDE45-8FP-RJ45-1M becomes MDE45-8FP-RJ45-1M-SS)

Mencom Standard Cable Color Code

M12	Color	RJ45
6	White/Orange	1
4	Orange	2
1	White/Blue	5
7	Blue	4
5	White/Green	3
8	Green	6
2	White/Brown	7
3	Brown	8



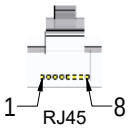
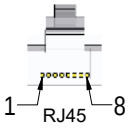
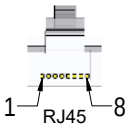
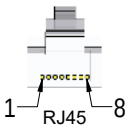
Male - RJ45 Extension

Female - RJ45 Extension

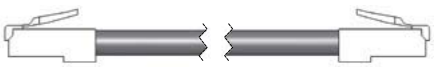
Ethernet Series Etherlink RJ45 Cordsets

8 Conductor Ethernet Series RJ45 Coidsets, 24AWG

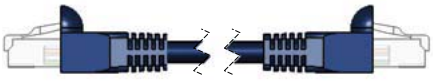
Double Ended Cordsets | 42 VDC, 1.5 amps | CAT5e | Over-Molded | Strain Relief

# of Poles	Front View	Wire AWG Rating	Cable Standard	Cables	Shield Type	Jacket Color	Part Number
RJ45 Male to Male Plug with No Strain Relief							
8		24 AWG 42 VDC 1.5 A	CAT5e	PVC	N/A	Gray	RJ45-*
				PUR	N/A	Gray	RJ45P-**
RJ45 Male to Male Plug with Over-Molded Strain Relief							
8		24 AWG 42 VDC 1.5 A	CAT5e	PVC Over-Molded	N/A	Blue	RJ45-IC-*-BU
						Red	RJ45-IC-*-RD
						Black	RJ45-IC-*-BK
					Foil Shield to RJ45 Connectors	Gray	RJ45S-IC-*-GY
						Blue	RJ45S-IC-*-BU
			CAT6a	PVC Over-Molded	N/A	Blue	RJ45C6-IC-*-BU
RJ45 Male to Male Plug with Strain Relief							
4		24 AWG 42 VDC 1.5 A	CAT5e	PVC	N/A	Teal	RJ45-4MMP-**
				PVC	Foil Shield to RJ45 Connectors	Teal	RJ45S-4MMP-**
				PUR	Foil & Braided Shield to RJ45 Connectors	Teal	RJ45SP-4MMP-**
				TPE	Foil & Braided Shield to RJ45 Connectors	Teal	RJ45SW-4MMP-**
8		24 AWG 42 VDC 1.5 A	CAT5e	PVC	N/A	Teal	RJ45-8MMP-**
				PUR	N/A	Teal	RJ45P-8MMP-**
				PUR	Foil & Braided Shield to RJ45 Connectors	Teal	RJ45SP -8MMP-**
				TPE	Foil & Braided Shield to RJ45 Connectors	Teal	RJ45SW-8MMP-**
		26 AWG 42 VDC 1.5 A	CAT5e	PVC	Foil Shield to RJ45 Connectors	Blue	RJ45S-8MMP-**
			CAT6a	PVC	Foil Shield to RJ45 Connectors	Blue	RJ45C6-8MMPS-**

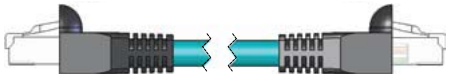
* Lengths in feet. Standard cable lengths are 1, 3, 7, 10, 15, 20, 25 & 50 feet. Consult factory for other lengths.
** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.
Cable specifications on Page 174~175 apply to only 24 AWG 4MMP & 8MMP cables in the table.



RJ45 Male to Male Plug



Over-Molded RJ45 Male to Male Plug

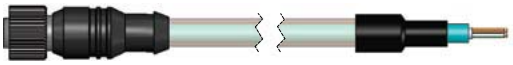
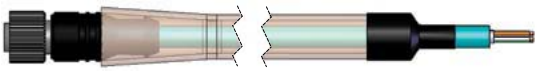


RJ45 Male to Male Plug with Strain Relief

Ethernet (M12) Series Armored Cordsets

Connectivity Solutions for Harsh & Rugged Environments

Stainless Steel Armor | PVC Covered Jacket | Silicone Tube

Connector Body Style	Suffix Number	Description	Features
	A01	Stainless Steel with Cable Inside	Crush, Corrosion and Abrasion Resistant
	A03	PVC Covered Stainless Steel with Cable Inside	Water Tight Crush, Corrosion and Abrasion Resistant
	A50	Silicone Tube (Stops at Overmold)	Chemical and Weld Slag Resistant Hi-Temperature Resistant
	A51	Silicone Tube (Covers Overmold)	Chemical and Weld Slag Resistant Hi-Temperature Resistant

To specify Armored Cable, add the suffix number shown in the table above to the end of the part number (e.g. MDE45-4FP-1M becomes MDE45-4FP-1M-A03).

Why do I need this product?

- To extend the life of existing assemblies in potentially destructive environments.
- Connectorize to make faster installation and future repairs.

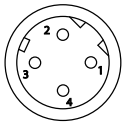
Where are these products used?

Harsh & Rugged Environments exposed to Chemicals, Abrasions, High Temperature, Wash Down, Welding, Cutting, Marine Applications...

Ethernet (M12) Series Etherplug Field Wireable Plugs

4 Conductor Ethernet Series Field Wireable Plugs, 18-24AWG

Field Wireable Plugs | 4 Pole D-Coded | 8 Pole A-Coded | IP67 Rating

# of Poles	Male Faceview	Wire AWG Rating	Cable O.D. Range	Male plugs		Female Plugs	
				Straight	Right Angle	Straight	Right Angle
4	 M12 x 1	18-24 AWG 250V 4A	3-6.5 mm	MDE45-4MP-FW07	MDE45-4MP-FW07-R	MDE45-4FP-FW07	MDE45-4FP-FW07-R
			4-8 mm	MDE45-4MP-FW09	MDE45-4MP-FW09-R	MDE45-4FP-FW09	MDE45-4FP-FW09-R
8	M12 x 1	18-24 AWG 250V 4A	3-6.5 mm	MDC-8MP-FW07	MDC-8MP-FW07-R	MDC-8FP-FW07	MDC-8FP-FW07-R
			4-8 mm	MDC-8MP-FW09	MDC-8MP-FW09-R	MDC-8FP-FW09	MDC-8FP-FW09-R

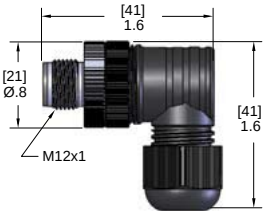
These connectors are easily wired by inserting the individual wires into the screw terminal contacts.
The Connectors are water tight to IP67 and are fully mateable with other D-Coded M12 connectors.

Straight Field Wireable Plugs

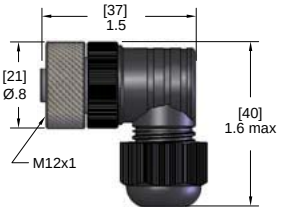
Male Plugs

Female Plugs

Right Angle Field Wireable Plugs



Male Plugs



Female Plugs

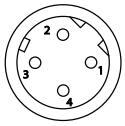
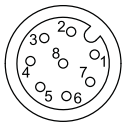
Specifications:

Body:	Black Polyamide
Insulator:	Black Polyamide
Contacts:	Copper Alloy with Gold Plating
Coupling Nut:	Nickel Plated Brass
Seal:	NBR
Temperature:	-25°C to +85°C (-13°F to +185°F)

Ethernet (M12) Series Etherplug Field Wireable Plugs

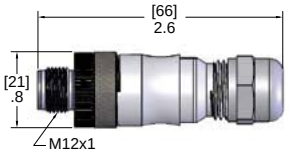
4 & 8 Conductor Ethernet Series Field Wireable Plugs, 18-24/20-24AWG

Straight Field Wireable Plugs | Shielded | 4 Pole D-Coded | 8 Pole A-Coded | IP67 Rating

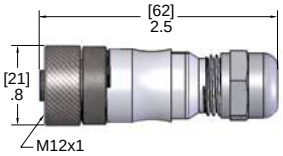
# of Poles	Male Faceview	Rating	Wire AWG	Cable O.D. Range	Part Number	
					Male Plugs	Female Plugs
4	 M12 x 1	250V 4A	18-24 AWG	3-9 mm	MDE45M-4MP-FW	MDE45M-4FP-FW
8	 M12 x 1	50V 4A	20-24AWG	6-8 mm	MDCM-8MP-FW	MDCM-8FP-FW

These connectors are easily wired by inserting the individual wires into the screw terminal contacts.
The Connectors are water tight to IP 67 and are fully mateable with other D-Coded M12 connectors.

4 Pole Version

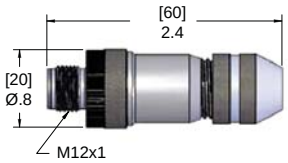


Male Straight

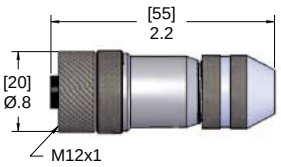


Female Straight

8 Pole Version



Male Straight



Female Straight

Specifications:

Body:	Nickel Plated Brass	Coupling Nut:	Nickel Plated Brass
Insulator:	Black Polyamide	Seal:	NBR
Contacts:	Copper Alloy with Gold Plating	Temperature:	-25°C to +85°C (-13°F to +185°F)

Ethernet Series Accessories

4 Conductor Ethernet Series Accessory Cables

100’ Cables | Raw Cable Spools | CAT5e | Twisted Pairs

# of Conductors	Color Code	Wire AWG Rating	Features	DC Resistance	Continuous Flex	Part Number	
						100’ Cable	Spool
4	White/Orange White/Green Orange Green	24 AWG Stranded 600V	Teal PVC AWM CMX/CMR -20°C to +80°C 6.1mm OD (0.24” OD)	≤ 89 Ω/Km	No	MDE45-4CBL-C	60C0001-*
		24 AWG Stranded 600V	Teal PVC AWM CMX/CMR With Foil/Braided Shield -20°C to +80°C 6.6mm OD (0.26” OD)	≤ 89 Ω/Km	No	MDE45B-4CBL-C	60CS001-*
		24 AWG Stranded 300V	Teal PUR AWM -40°C to +80°C 5.6mm OD (0.22” OD)	≤ 91 Ω/Km	Yes	MDE45P-4CBL-C	60CP001-*
		24 AWG Stranded 300V	Teal PUR AWM With Foil/Braided Shield -40°C to +80°C 6.4mm OD (0.25” OD)	≤ 91 Ω/Km	Yes	MDE45PB-4CBL-C	60CSP01-*
		24 AWG Stranded 600V	Teal TPE AWM CMX/CMR With Foil/Braided Shield -40°C to +80°C 6.6mm OD (0.26” OD)	≤ 140 Ω/Km	Yes	MDE45WB-4CBL-C	60CSW01-*
		24 AWG Stranded 600V	Red TPE AWM CMX/CMR With Foil/Braided Shield -40°C to +80°C 6.6mm OD (0.26” OD)	≤ 140 Ω/Km	Yes	MDE45WB-4CBL-C-RD	60CSWR1-*

* Standard raw spool lengths are 0250, 0500, 0750 & 1000 feet. Consult factory for other lengths.

All testing is conducted off the reel and without connectors attached.
Cable Construction subject to change without notice.

Ethernet Series Accessories

8 Conductor Ethernet Series Accessory Cables

# of Conductors	Color Code	Wire AWG Rating	Features	DC Resistance	Continuous Flex	Part Number	
						100’ Cable	Spool
8	White/Blue White/Brown Brown Orange White/Green White/Orange Blue Green	24 AWG Stranded 600V	Teal PVC AWM CMX/CMR -20°C to +80°C 6.4mm OD (0.25” OD)	≤ 89 Ω/Km	No	MDE45-8CBL-C	60G0001-*
		24 AWG Stranded 600V	Teal PVC AWM With Foil/Braided Shield -20°C to +80°C 7.6mm OD (0.30” OD)	≤ 89 Ω/Km	No	MDE45B-8CBL-C	60GS001-*
		24 AWG Stranded 300V	Teal PUR AWM -40°C to +80°C 6.3mm OD (0.25” OD)	≤ 91 Ω/Km	Yes	MDE45P-8CBL-C	60GP001-*
		26 AWG Stranded 300V	Teal PUR CMX With Foil/Braided Shield -40°C to +75°C 6mm OD (0.24” OD)	≤ 140 Ω/Km	Yes	MDE45PB-8CBL-C	60GSP02-*
		24 AWG Stranded 600V	Teal TPE AWM CMX/CMR With Foil/Braided Shield -40°C to +80°C 7.6mm OD (0.30” OD)	≤ 86 Ω/Km	Yes	MDE45WB-8CBL-C	60GSW01-*

* Standard raw spool lengths are 0250, 0500, 0750 & 1000 feet. Consult factory for other lengths.

All testing is conducted off the reel and without connectors attached.
Cable Construction subject to change without notice.

Notes:

Ethernet (M12) Series Etherplug Receptacles

Ethernet Series Receptacle Part Number Matrix

Not all options available with all receptacles, please consult factory.

MDE45 - □□ - □ - □ - □ - □ - □ - □

Number of Conductors

4
8

Connector Configuration

MR = Male Receptacle
FR = Female Receptacle

RJ45

Blank = No RJ45
RJ45 = RJ45 Male on Second End
RJ45S = RJ45 Shielded Male on Second End

Mounting Style

2 = Front Mount 1/2”-14 NPT
4 = Front Mount 1/4”-18 NPT
PG9 = Front Mount PG 9 Threads
M16 = Front Mount Metric 16 Threads
M20 = Front Mount Metric 20 Threads
BM = Back Mount
TM = Through Panel Mount

Length in Meters

Termination Type

Blank = Pre-Wired
PCB = PCB Mount
PCB-R = PCB Right Angle

Color Code

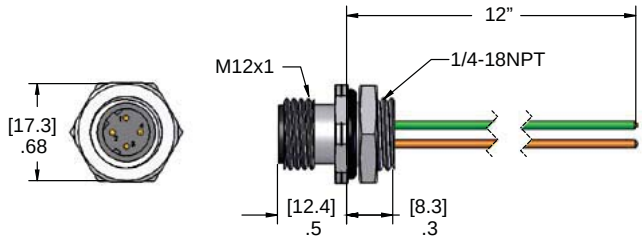
Blank = Standard Color Code w/ Cable
E45 = Discrete Wire Ethernet Color Code
CC = Cross-Over Color Code

Shell Material

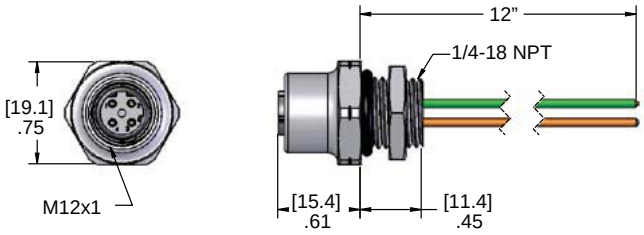
Blank = Aluminum or Nickel plated brass
SS = Stainless Steel

Front Mount

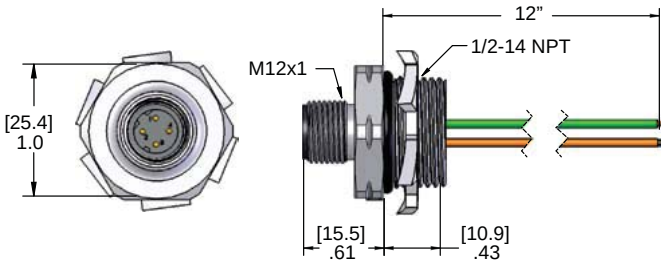
Front Mount, Male, 1/4”-18NPT, 12” Leads Page 183



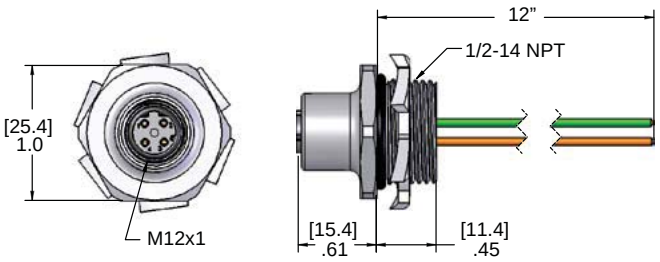
Front Mount, Female, 1/4”-18NPT, 12” Leads Page 183



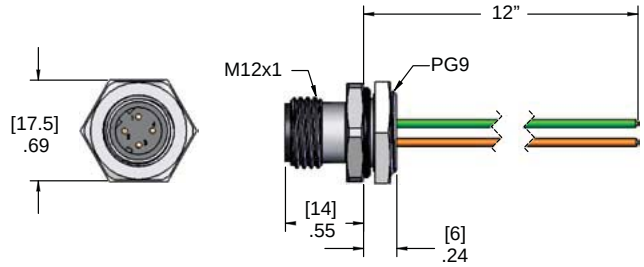
Front Mount, Male, 1/2”-14NPT, 12” Leads Page 183



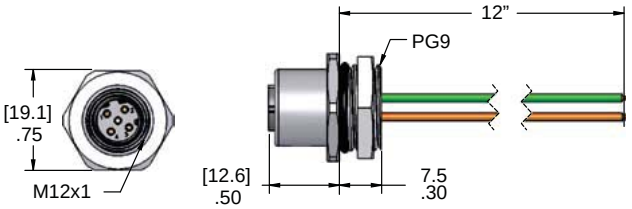
Front Mount, Female, 1/2”-14NPT, 12” Leads Page 183



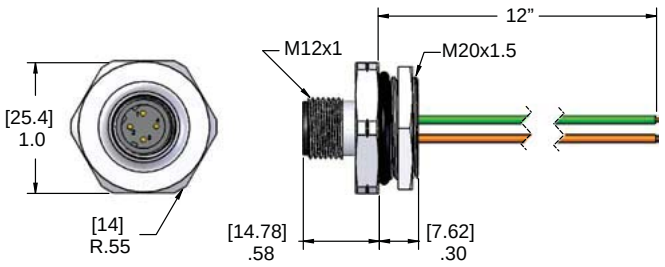
Front Mount, Male, PG 9, 12” Leads Page 183



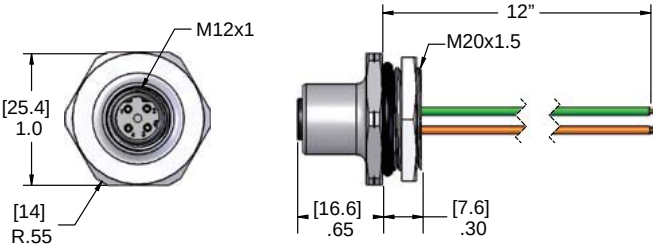
Front Mount, Female, PG 9, 12” Leads Page 183



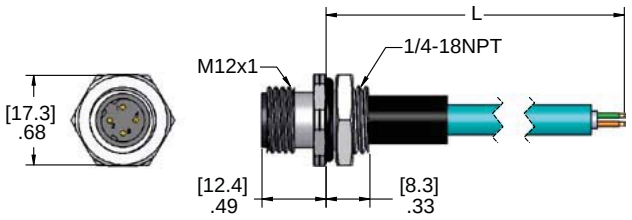
Front Mount, Male, M20, 12” Leads Page 183



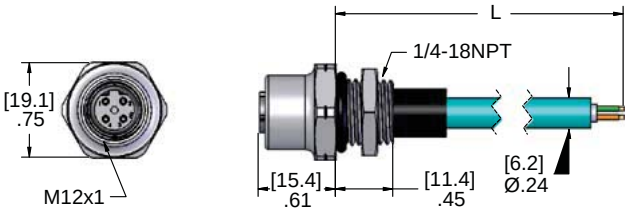
Front Mount, Female, M20 , 12” Leads Page 183



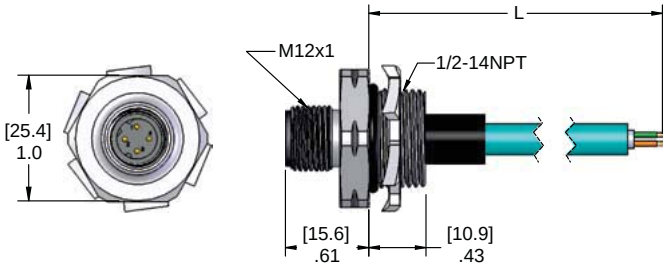
Front Mount, Male, 1/4”-18NPT, CAT5e Cable Page 184



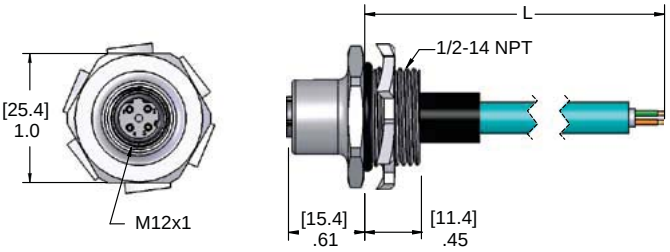
Front Mount, Female, 1/4”-18NPT, CAT5e Cable Page 184



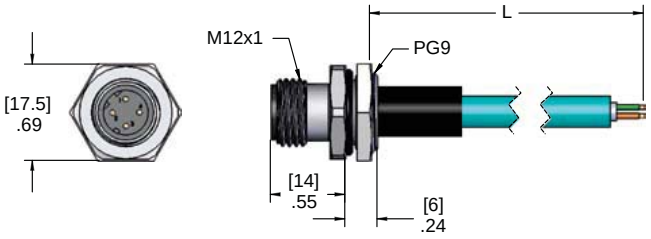
Front Mount, Male, 1/2”-14NPT, CAT5e Cable Page 184



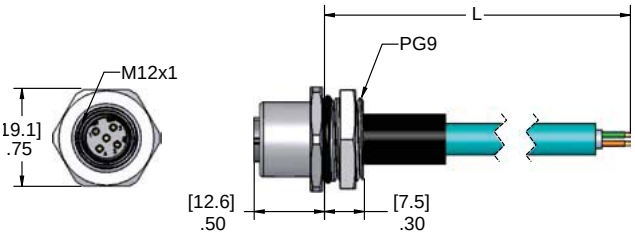
Front Mount, Female, 1/2”-14NPT, CAT5e Cable Page 184



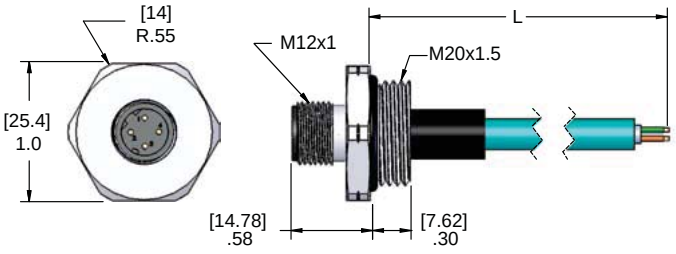
Front Mount, Male, PG 9, CAT5e Cable Page 184



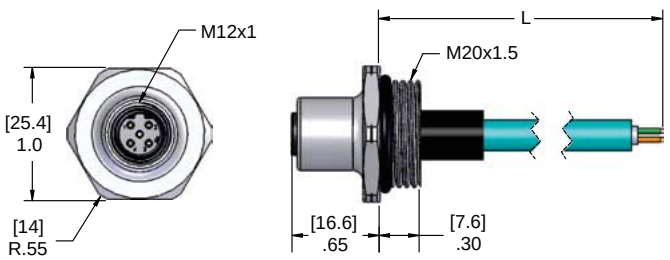
Front Mount, Female, PG 9, CAT5e Cable Page 184



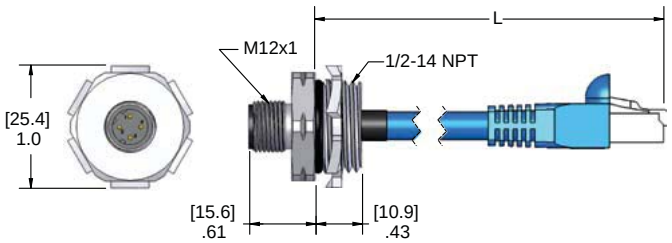
Front Mount, Male, M20, CAT5e Cable Page 184



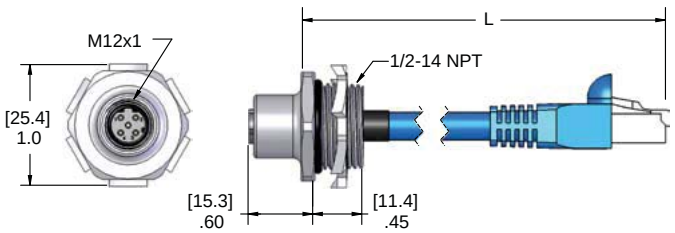
Front Mount, Female, M20, CAT5e Cable Page 184



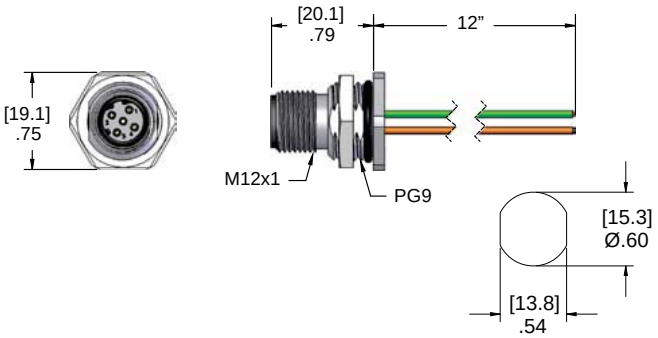
Front Mount, Male, 1/2”-14NPT to Male RJ45 Page 185



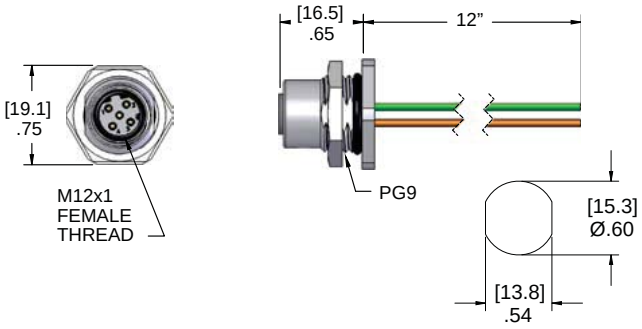
Front Mount, Female, 1/2”-14NPT to Male RJ45 Page 185



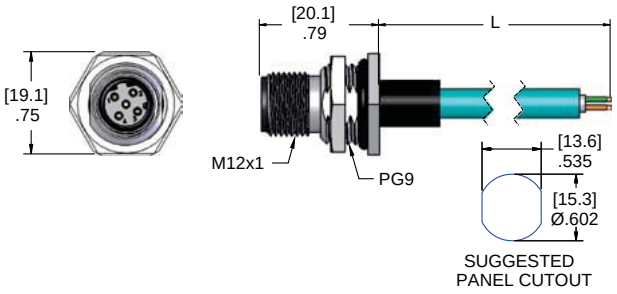
Back Mount, Male, 12” Leads Page 186



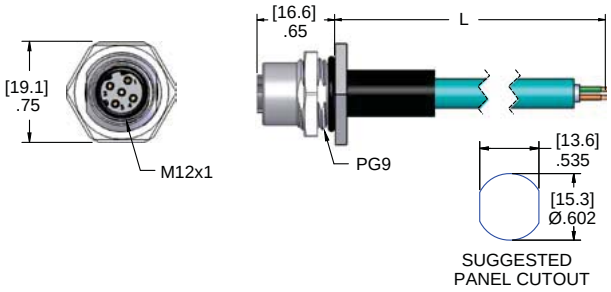
Back Mount, Female, 12” Leads Page 186



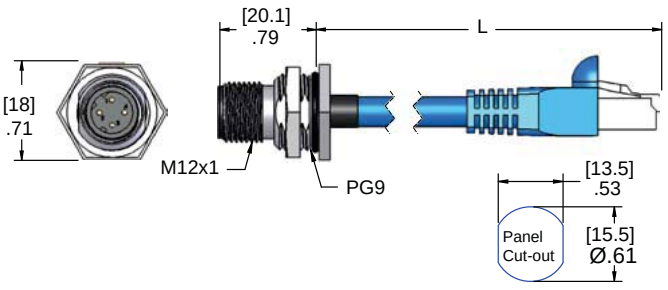
Back Mount, Male, CAT5e Cable Page 186



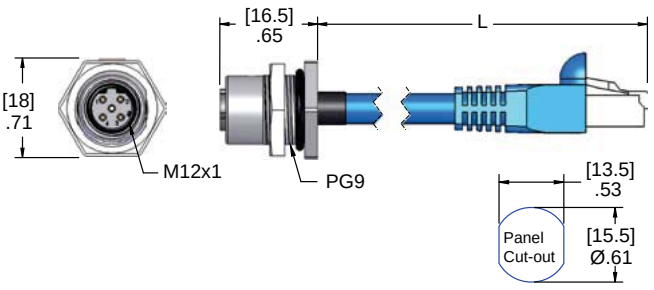
Back Mount, Female, CAT5e Cable Page 186



Male Back Mount MDE45 Male to Male RJ45 Page 187

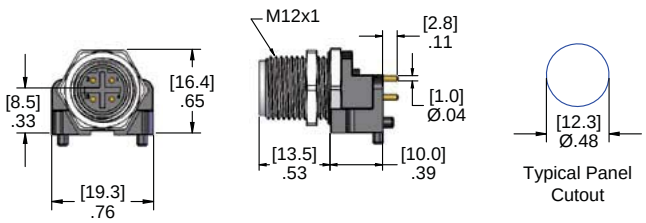


Female Back Mount MDE45 Female to Male RJ45 Page 187



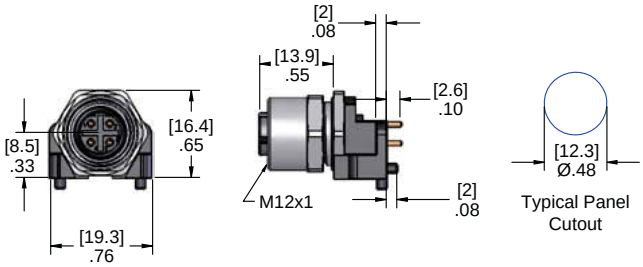
PCB Mount, Male, Straight

Page 188



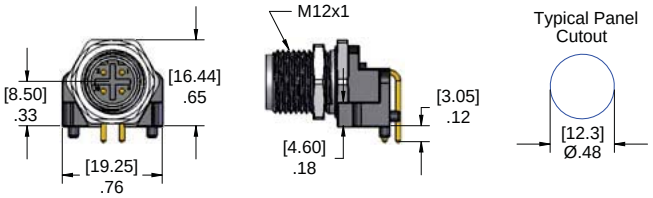
PCB Mount, Female, Straight

Page 188



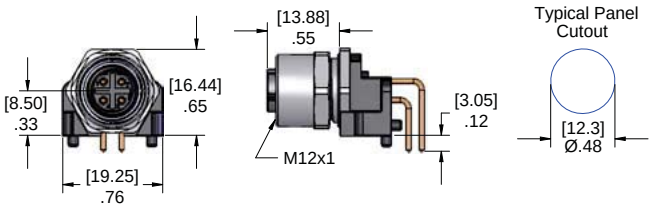
PCB Mount, Male, Right Angle

Page 188



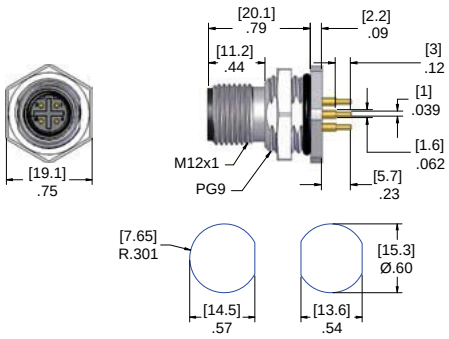
PCB Mount, Female, Right Angle

Page 188



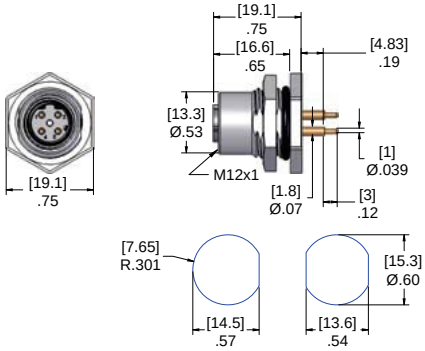
PCB Back Mount, Male

Page 188



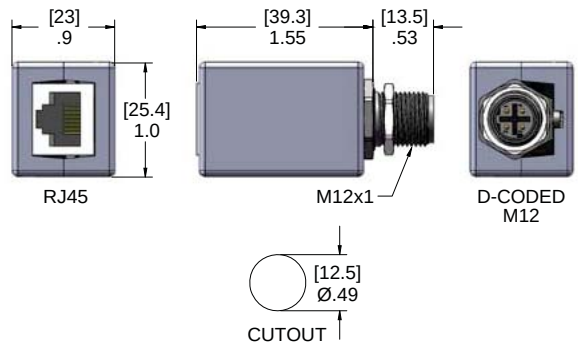
PCB Back Mount, Female

Page 188



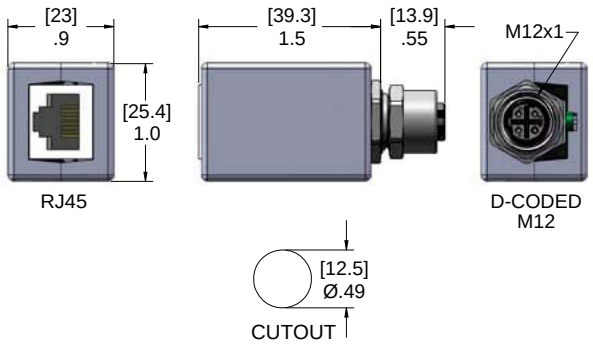
Panel Mount, Male M12 to Female RJ45

Page 189



Panel Mount, Female M12 to Female RJ45

Page 189

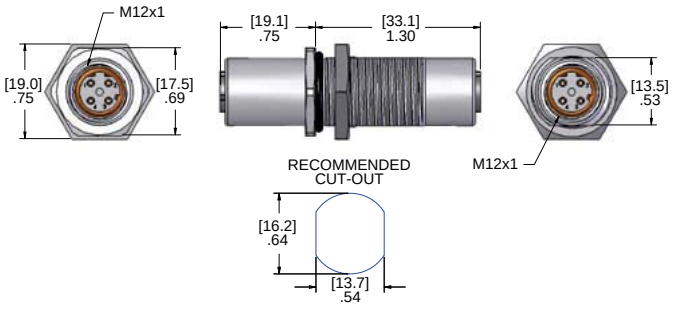


Ethernet (M12) Series Etherplug Receptacles

Ethernet Series Receptacle Index

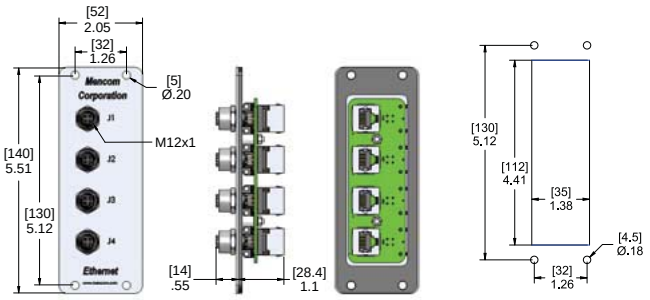
Through Panel Mount | Panel Mount Adapter | Etherlink V3

Through Panel Mount Page 190



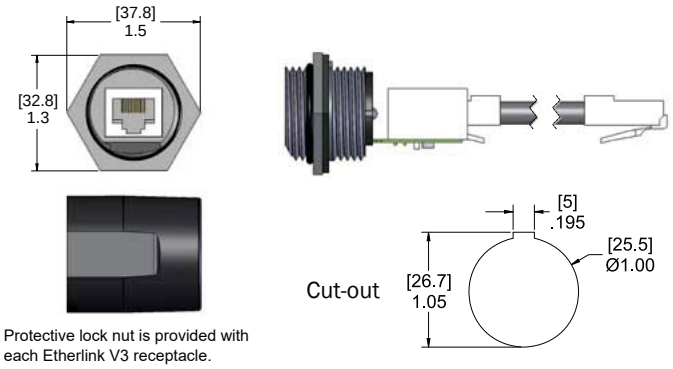
Female to Female shown - Male to Female also available.

Panel Mount Adapter, MDE45 to RJ45 Page 192 ~ 193



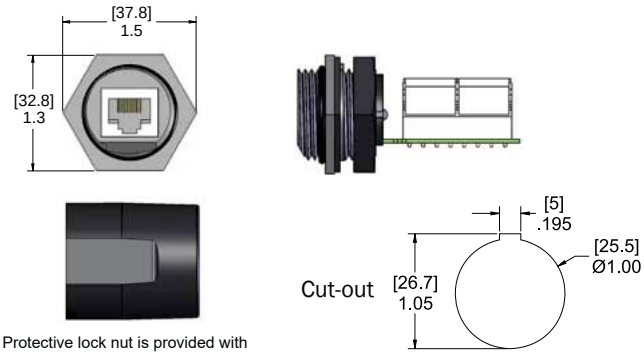
Size 24 shown - Size 32 also available.

RJ45 Etherlink V3 Female to Male RJ45, CAT5e Cable Page 198



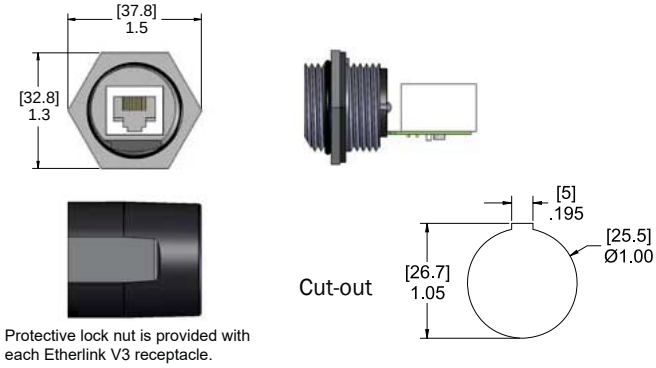
Protective lock nut is provided with each Etherlink V3 receptacle.

RJ45 Etherlink V3 Female to 110 Puchdown Block Page 198



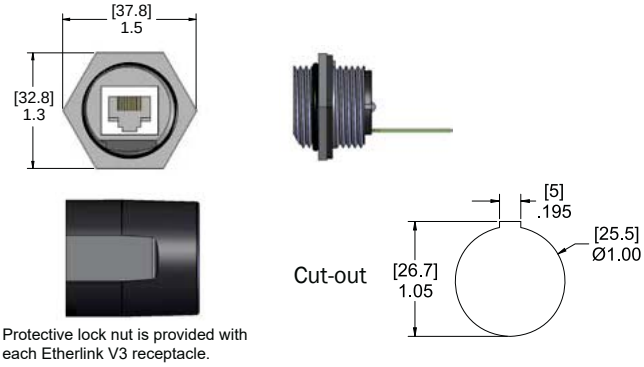
Protective lock nut is provided with each Etherlink V3 receptacle.

RJ45 Etherlink V3 Female to Female RJ45 Receptacle Page 198



Protective lock nut is provided with each Etherlink V3 receptacle.

RJ45 Etherlink V3 Field Wireable, Solder to Board Page 198



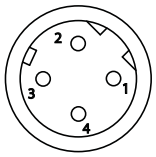
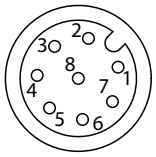
Protective lock nut is provided with each Etherlink V3 receptacle.

Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Receptacles, 24AWG

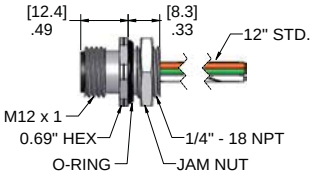
Front Mount Receptacles | NPT, PG, Metric Threads | 12” Leads | 300V, 4A | 60V, 2A | IP67 Rating

c UL us LISTED

# of Poles	Male Faceview	Rating	Wire AWG	Threads	Male Receptacles	Female Receptacles
4 D-Coded	 M12 x 1	300V 4A	22 AWG	1/4”-18NPT	MDE45-4MR-4-E45	MDE45-4FR-4-E45
				1/2”-14NPT	MDE45-4MR-2-E45	MDE45-4FR-2-E45
				PG9	MDE45-4MR-PG9-E45	MDE45-4FR-PG9-E45
				Metric	MDE45-4MR-M20-E45	MDE45-4FR-M20-E45
8 A-Coded	 M12 x 1	60V 2A	24 AWG	1/4”-18NPT	MDC-8MR-4-E45	MDC-8FR-4-E45
				1/2”-14NPT	MDC-8MR-2-E45	MDC-8FR-2-E45
				PG9	MDC-8MR-PG9-E45	MDC-8FR-PG9-E45
				Metric	MDC-8MR-M20-E45	MDC-8FR-M20-E45

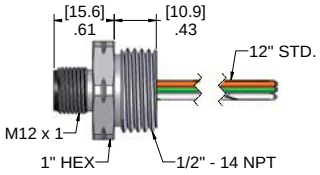
Etherplug receptacles with 12” leads or shorter come with discrete wires.
For 1/2” receptacles with lengths of 15” or longer O-ring and lock nut are included.

1/4”-18NPT Threads



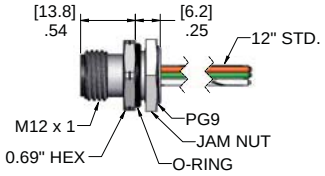
Male Receptacles

1/2”-14NPT Threads



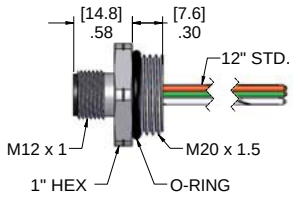
Male Receptacles

PG9 Threads

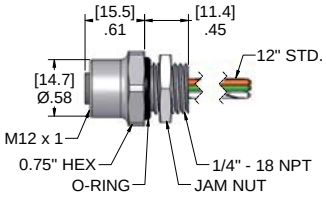


Male Receptacles

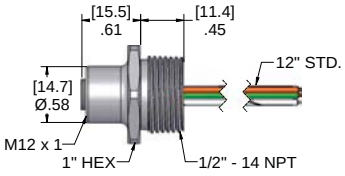
M20 Threads



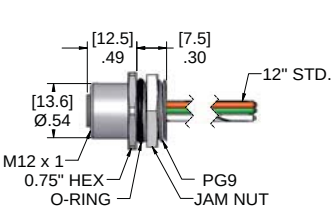
Male Receptacles



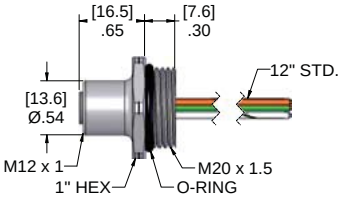
Female Receptacles



Female Receptacles



Female Receptacles



Female Receptacles

Specifications:

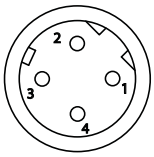
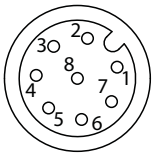
Shell:	1/4” NPT:Nickel Plated Brass 1/2” NPT: Clear Anodized Aluminum PG 9: Nickel Plated Brass M20: Clear Anodized Aluminum	Contacts:	Copper Alloy with Gold Plating
		O-Ring:	NBR
		Lock Nut:	Zinc Plated Brass
		Jam Nut:	Nickel Plated Brass
Insulator:	Polyamide	Temperature:	-40ºC to +80ºC (-40ºF to +176ºF)
Wires:	24 AWG 60V, 2A		

Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Receptacles, 24AWG

Front Mount Receptacles | NPT, PG, Metric Threads | CAT5e Cable | 300V, 4A | 60V, 2A | IP67 Rating

c UL us LISTED

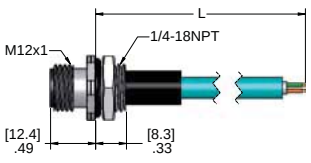
# of Poles	Male Faceview	Rating	Wire AWG	Threads	Male Receptacles	Female Receptacles
4 D-Coded	 M12 x 1	300V 4A	2 Pair 22 AWG	1/4"-18NPT	MDE45-4MR-4-**	MDE45-4FR-4-**
				1/2"-14NPT	MDE45-4MR-2-**	MDE45-4FR-2-**
				PG9	MDE45-4MR-PG9-**	MDE45-4FR-PG9-**
				M20	MDE45-4MR-M20-**	MDE45-4FR-M20-**
8 A-Coded	 M12 x 1	60V 2A	4 Pair 24 AWG	1/4"-18NPT	MDE45-8MR-4-**	MDE45-8FR-4-**
				1/2"-14NPT	MDE45-8MR-2-**	MDE45-8FR-2-**
				PG9	MDE45-8MR-PG9-**	MDE45-8FR-PG9-**
				M20	MDE45-8MR-M20-**	MDE45-8FR-M20-**

** Lengths in meters.

For 1/2" receptacles with lengths of 15" or longer O-ring and lock nut are included.

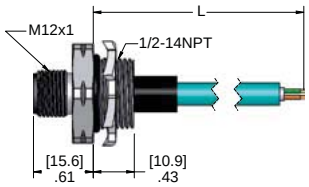
Etherplug receptacles with 12" leads or shorter come with discrete wires.

1/4"-18 NPT



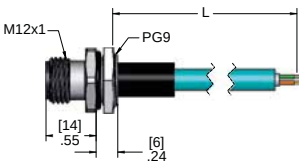
Male Receptacles

1/2"-14 NPT



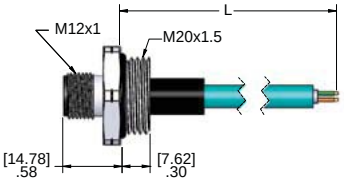
Male Receptacles

PG9 Threads

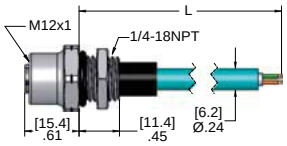


Male Receptacles

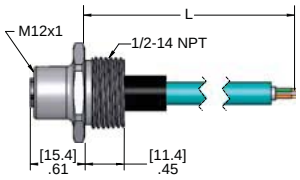
M20 Threads



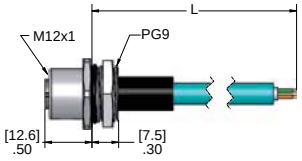
Male Receptacles



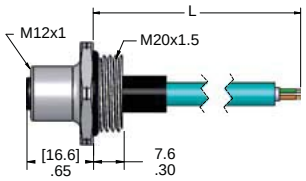
Female Receptacles



Female Receptacles



Female Receptacles



Female Receptacles

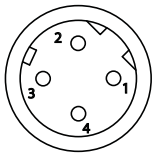
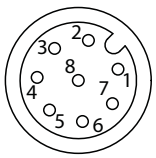
Specifications:

Shell:	1/4" NPT:Nickel Plated Brass 1/2" NPT: Clear Anodized Aluminum PG 9: Nickel Plated Brass M20: Clear Anodized Aluminum	Wires:	24 AWG 60V, 2A
		Contacts:	Copper Alloy with Gold Plating
		O-Ring:	NBR
		Lock Nut:	Zinc Plated Brass
Insulator:	Polyamide	Jam Nut:	Nickel Plated Brass
Cable:	See PVC Cable specifications on page 174~175	Temperature:	-40°C to +80°C (-40°F to +176°F)

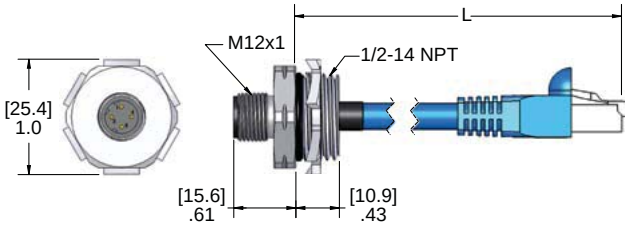
Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Receptacles, 24AWG

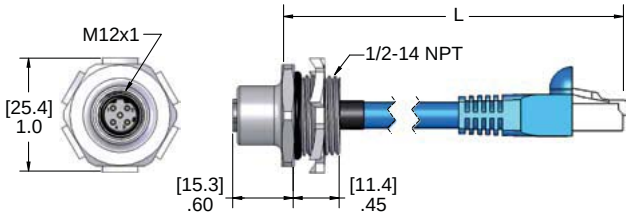
Front Mount M12 to RJ45 with CAT5e Cable | 1/2”-14NPT | 42 VDC, 1.5 amps | IP67 Rating

# of Poles	Male Faceview	Rating	Wire AWG	Wiring M12 to RJ45	Male Receptacles	Female Receptacles
4 D-Coded	 M12 x 1	42 VDC 1.5A	24 AWG	1 to 1 2 to 3 3 to 2 4 to 6	MDE45-4MR-RJ45-2-**	MDE45-4FR-RJ45-2-**
8 A-Coded	 M12 x 1	42 VDC 1.5A	24 AWG	1 to 5 2 to 7 3 to 8 4 to 2 5 to 3 6 to 1 7 to 4 8 to 6	MDE45-8MR-RJ45-2-**	MDE45-8FR-RJ45-2-**

** Lengths in meters.
For Cross-over color code, add a “-CC” suffix (e.g. MDE45-8MR-RJ45-BM-2M-CC).
Shielded versions are available. Please consult the factory.



Male Receptacles



Female Receptacles

Mencom Standard Cable Color Code

MDE45	Color	RJ45
1	White/Orange	1
3	Orange	2
2	White/Green	3
4	Green	6

Mencom Standard Cable Color Code

M12	Color	RJ45
6	White/Orange	1
4	Orange	2
1	White/Blue	5
7	Blue	4
5	White/Green	3
8	Green	6
2	White/Brown	7
3	Brown	8

Specifications:

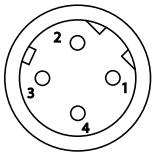
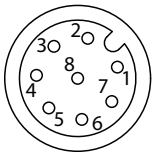
Shell:	Clear Anodized Aluminum
Insulator:	Polyamide
Cable:	See specifications on page 174~175
Contacts:	Copper Alloy with Gold Plating
O-Ring:	NBR
Lock Nut:	Zinc Plated Brass
Temperature:	-40°C to +80°C (-40°F to +176°F)

Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Receptacles, 24AWG

Back Mount Receptacles | 12” Leads & CAT5e Cable | 60 Volt, 2 amps | IP67 Rating

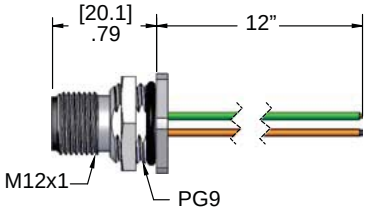
c UL us LISTED

# of Poles	Male Faceview	Wire AWG Rating	12” Leads		CAT5e Cable	
			Male Receptacles	Female Receptacles	Male Receptacles	Female Receptacles
4 D-Coded	 M12 x 1	24 AWG 60V 2A	MDE45-4MR-BM-E45	MDE45-4FR-BM-E45	MDE45-4MR-BM-**	MDE45-4FR-BM-**
8 A-Coded	 M12 x 1	24 AWG 60V 2A	MDC-8MR-BM-E45	MDC-8FR-BM-E45	MDC-8MR-BM-**	MDC-8FR-BM-**

** Lengths in meters.

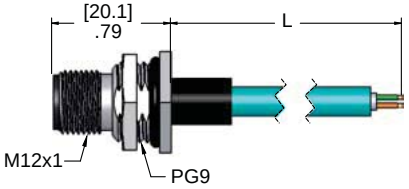
Etherplug receptacles with 12” leads or shorter come with discrete wires.
Shielded versions are available. Please consult the factory.

12” Leads

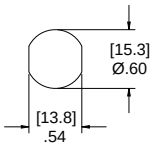


Male Receptacles

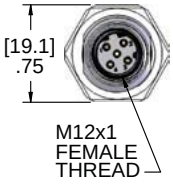
CAT 5 Cable

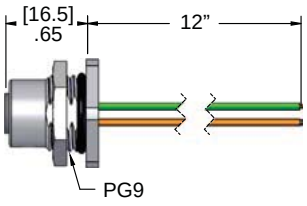


Male Receptacles

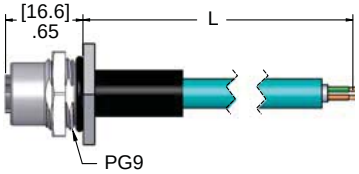


Cut-out

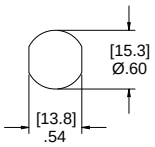




Female Receptacles



Female Receptacles



Cut-out

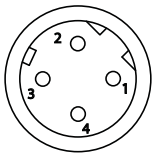
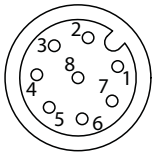
Specifications:

Shell:	Nickel Plated Brass
Insulator:	Polyamide
Cable:	See PVC Cable specifications on page 174~175
Wires:	24 AWG 60V, 2A
Contacts:	Copper Alloy with Gold Plating
O-Ring:	NBR
Jam Nut:	Nickel Plated Brass
Temperature:	-40°C to +80°C (-40°F to +176°F)

Ethernet (M12) Series Etherplug Receptacles

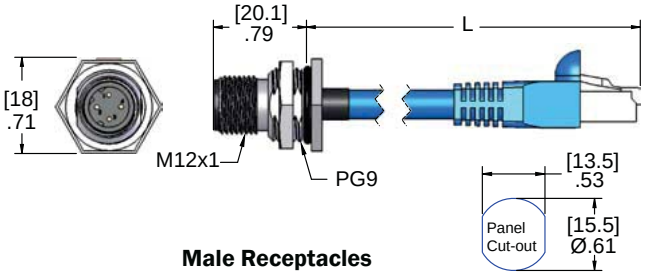
4 & 8 Conductor Ethernet Series Receptacles, 24AWG

Back Mount Receptacles | CAT5e Cable | 60 Volt, 2 amps | IP67 Rating

# of Poles	Male Faceview	Rating	Wire AWG	Wiring M12 to RJ45	Male Receptacles	Female Receptacles
4 D-Coded	 M12 x 1	42 VDC 1.5A	24 AWG	1 to 1 2 to 3 3 to 2 4 to 6	MDE45-4MR-RJ45-BM-**	MDE45-4FR-RJ45-BM-**
8 A-Coded	 M12 x 1	42 VDC 1.5A	24 AWG	1 to 5 2 to 7 3 to 8 4 to 2 5 to 3 6 to 1 7 to 4 8 to 6	MDE45-8MR-RJ45-BM-**	MDE45-8FR-RJ45-BM-**

** Lengths in meters.

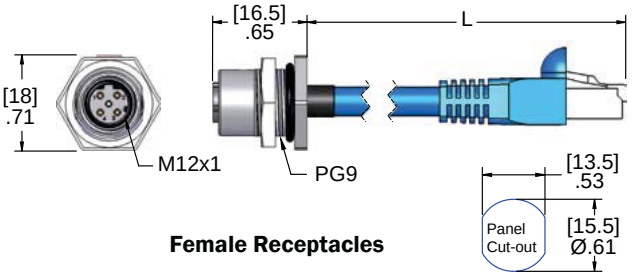
For Cross-over color code, add a "-CC" suffix (e.g. MDE45-8MR-RJ45-BM-2M-CC).
Shielded versions are available. Please consult the factory.



Male Receptacles

Mencom Standard Cable Color Code

MDE45	Color	RJ45
1	White/Orange	1
3	Orange	2
2	White/Green	3
4	Green	6



Female Receptacles

Mencom Standard Cable Color Code

M12	Color	RJ45
6	White/Orange	1
4	Orange	2
1	White/Blue	5
7	Blue	4
5	White/Green	3
8	Green	6
2	White/Brown	7
3	Brown	8

Specifications:

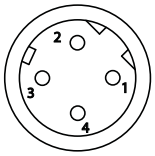
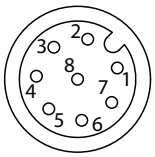
Shell:	Nickel Plated Brass
Insulator:	Polyamide
Cable:	See specifications on page 174~175
Contacts:	Copper Alloy with Gold Plating
O-Ring:	NBR
Jam Nut:	Nickel Plated Brass
Temperature:	-40°C to +80°C (-40°F to +176°F)

Ethernet (M12) Series Etherplug Receptacles

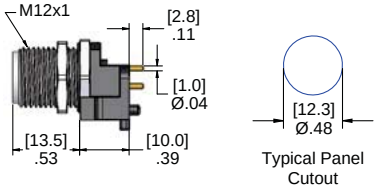
4 & 8 Conductor Ethernet Series Receptacles

PCB Mount & PCB Back Mount Receptacles | 250 Volt, 4 amps | IP67 Rating

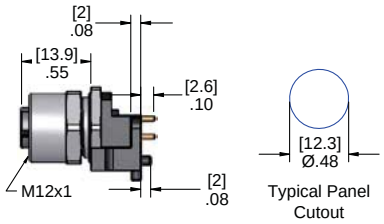
c UL us LISTED

# of Poles	Male Faceview	Rating	Style	Male Receptacles	Female Receptacles
4 D-Coded	 M12 x 1	250V 4A	Front Mount Straight	MDE45-4MR-PCB	MDE45-4FR-PCB
			Front Mount Right Angle	MDE45-4MR-PCB-R	MDE45-4FR-PCB-R
			Back Mount	MDE45-4MR-BM-PCB	MDE45-4FR-BM-PCB
8 A-Coded	 M12 x 1	60V 2A	Front Mount Straight	MDE45-8MR-PCB	MDE45-8FR-PCB
			Front Mount Right Angle	MDE45-8MR-PCB-R	MDE45-8FR-PCB-R
			Back Mount	MDE45-8MR-BM-PCB	MDE45-8FR-BM- PCB

PCB Receptacles

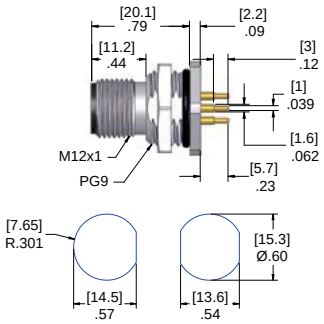


Male Receptacles



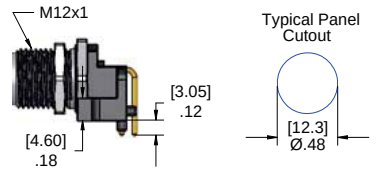
Female Receptacles

PCB Back Mount Receptacles

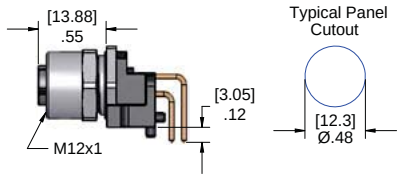


Male Receptacles

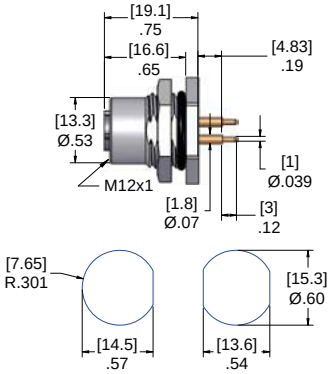
PCB Receptacles Right Angle



Male Receptacles



Female Receptacles



Female Receptacles

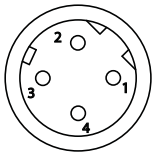
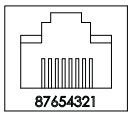
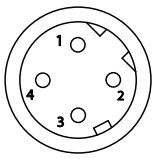
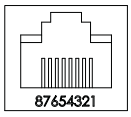
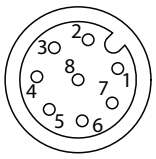
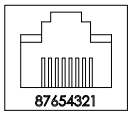
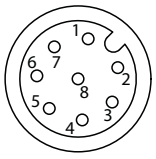
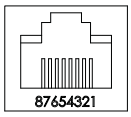
Specifications:

Body:	Polyamide
Contacts:	Copper Alloy with Gold Plating
Shell:	Nickel Plated Brass
O-Ring:	NBR
Jam Nut:	Nickel Plated Brass
Temperature:	-40°C to 105°C (-40°F to +221°F)

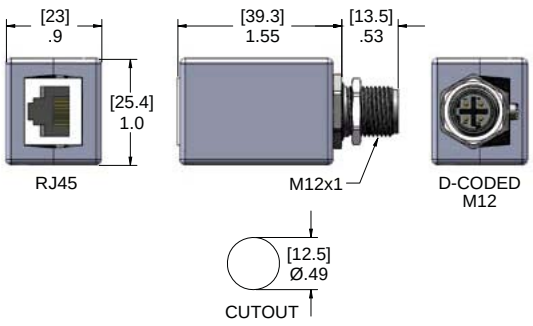
Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Receptacles

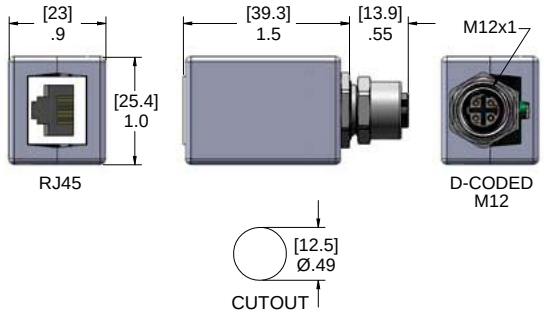
Panel Mount Receptacles | RJ45 to M12 D-Coded | IP67 Rating

# of Poles	MDE45 Faceview	MDE45 Color Code	Wiring MDE45 to RJ45	RJ45 Color Code	Part Number	RJ45 Faceview
4 Pole D-Coded MDE45 to Female RJ45						
4 Male D-Coded	 M12 x 1	1. White/Orange (+TX) 2. White/Green (+RX) 3. Orange (-TX) 4. Green (-RX)	1 to 1 2 to 3 3 to 2 4 to 6	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+ RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C	MDE45RJ-4MFR-BM	 RJ45
4 Female D-Coded	 M12 x 1	1. White/Orange (+TX) 2. White/Green (+RX) 3. Orange (-TX) 4. Green (-RX)	1 to 1 2 to 3 3 to 2 4 to 6	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+ RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C	MDE45RJ-4FFR-BM	 RJ45
8 Pole A-Coded MDE45 to Female RJ45						
8 Male A-Coded	 M12 x 1	1. White/Blue 2. White/Brown 3. Brown 4. Orange (-TX) 5. White/Green (+RX) 6. White/Orange (+TX) 7. Blue 8. Green (-RX)	1 to 5 2 to 7 3 to 8 4 to 2 5 to 3 6 to 1 7 to 4 8 to 6	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+ RX) 4. Blue 5. White/Blue 6. Green (-RX) 7. White/Brown 8. Brown	MDE45RJ-8MFR-BM	 RJ45
8 Female A-Coded	 M12 x 1	1. White/Blue 2. White/Brown 3. Brown 4. Orange (-TX) 5. White/Green (+RX) 6. White/Orange (+TX) 7. Blue 8. Green (-RX)	1 to 5 2 to 7 3 to 8 4 to 2 5 to 3 6 to 1 7 to 4 8 to 6	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+ RX) 4. Blue 5. White/Blue 6. Green (-RX) 7. White/Brown 8. Brown	MDE45RJ-8FFR-BM	 RJ45

Male M12 to Female RJ45



Female M12 to Female RJ45



Specifications:

Housing: PBT
Insulator: Polyamide
Contacts: Copper Alloy with Gold Plating
RJ45 Connector: CAT5e
O-Ring: NBR
Jam Nut: Nickel Plated Brass
Temperature: -40°C to +80°C (-40°F to +176°F)

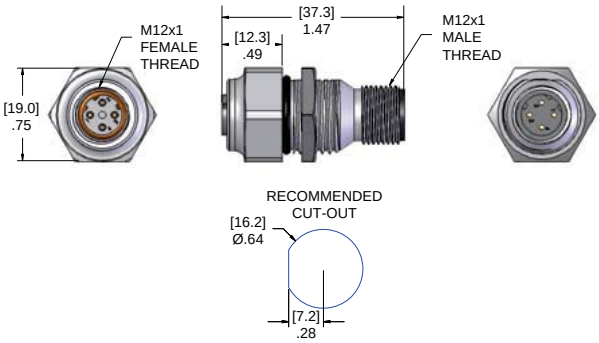
Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Receptacles & Solder Cup Inserts

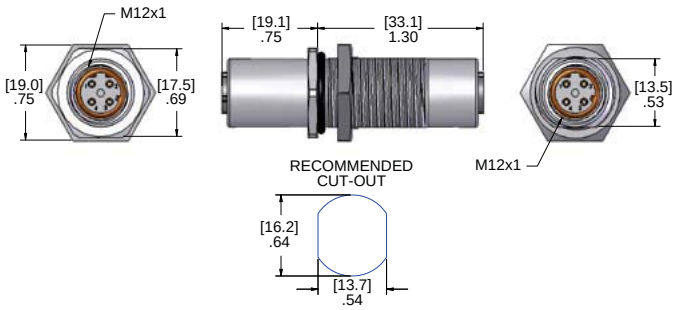
Through Panel Mount Receptacles | Solder Cup Inserts | IP67 Rating

# of Poles	Rating	Wiring		Part Number	
				Male to Female	Female to Female
4 D-Coded	300V 4A	1 to 1 2 to 2 3 to 3 4 to 4		MDE45-4MFR-TM	MDE45-4FFR-TM
8 D-Coded	60V 2A	1 to 1 2 to 2 3 to 3 4 to 4	5 to 5 6 to 6 7 to 7 8 to 8	MDE45-8MFR-TM	MDE45-8FFR-TM

Male to Female



Female to Female



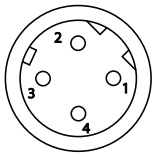
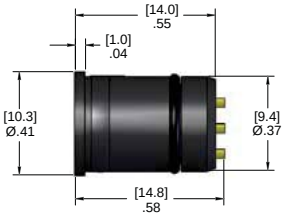
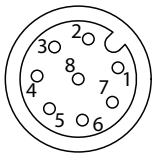
Specifications:

Shell:	Nickel Plated Brass
Insulater:	Polyamide
Contacts:	Copper Alloy with Gold Plating
O-Ring:	NBR
Jam Nut:	Nickel Plated Brass
Temperature:	-40°C to 105°C (-40°F to +221°F)

Ethernet (M12) Series Etherplug Receptacles

4 & 8 Conductor Ethernet Series Solder Cup Inserts

Solder Cup Inserts | Male | 300V Max, 4A Max

# of Poles	Male Faceview	Rating	Wire AWG	Part Number	Housing Style
4	 M12 x 1	300V Max 4A Max	Up to 18 AWG	MDE45-4MR-IN-SC	
8	 M12 x 1	60V Max 2A Max	Up to 22 AWG	MDE45-8MR-IN-SC	

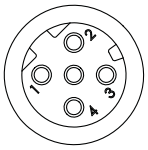
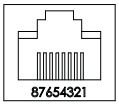
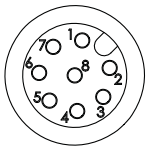
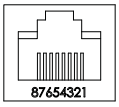
Specifications:

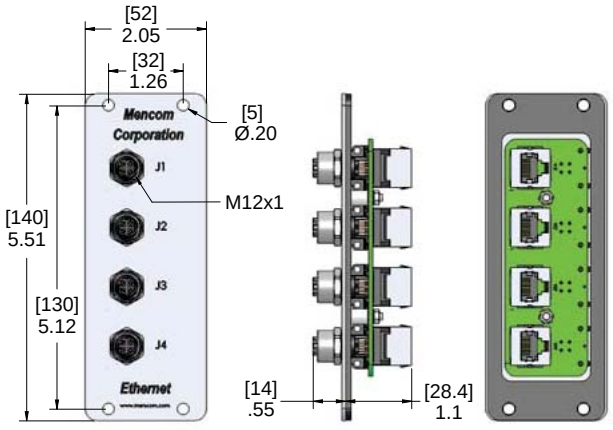
Insert: Black Polyamide
Contacts: Copper Alloy with Gold Plating
O-Ring: NBR
Temperature: --40ºC to 105ºC (-40ºF to +221ºF)

Ethernet (M12) Series Etherplug Receptacles

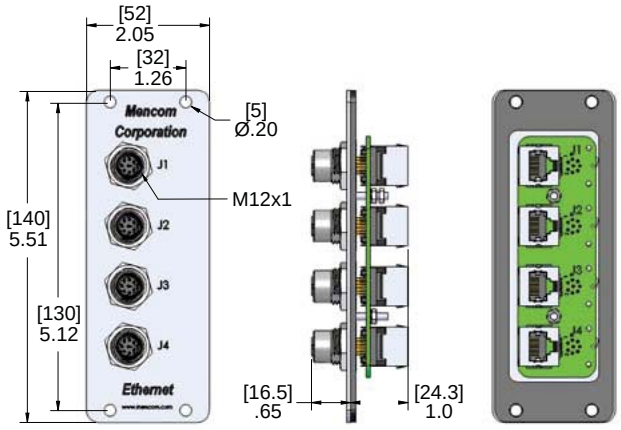
4 & 8 Conductor Ethernet Series Panel Mount Adapter

Size 24 | 4 Port | MDE45 to RJ45

M12 4 Pole to RJ45 Panel Mount Adapters				
# of Poles	**Female Faceview**	**Wiring MDE45**	**Part Number**	**RJ45 Faceview**
4 D-Coded	 M12 x 1 1 = White/Orange (+ TX) 2 = White/Green (+ RX) 3 = Orange (- TX) 4 = Green (- RX)	1 to 1 2 to 3 3 to 2 4 to 6	D24-4MDE45-4FR-RJ45	 87654321 1 = White/Orange (+ TX) 2 = Orange (- TX) 3 = White/Green (+ RX) 4 = N/C 5 = N/C 6 = Green (- RX) 7 = N/C 8 = N/C
M12 8 Pole to RJ45 Panel Mount Adapters				
8 A-Coded	 M12 x 1 1 = White/Blue 2 = White/Brown 3 = Brown 4 = Orange (-TX) 5 = White/Green (+RX) 6 = White/Orange (+TX) 7 = Blue 8 = Green (-RX)	1 to 5 2 to 7 3 to 8 4 to 2 5 to 3 6 to 1 7 to 4 8 to 6	D24-4MDE45-8FR-RJ45	 87654321 1 = White/Orange (+ TX) 2 = Orange (- TX) 3 = White/Green (+ RX) 4 = N/C 5 = N/C 6 = Green (- RX) 7 = N/C 8 = N/C



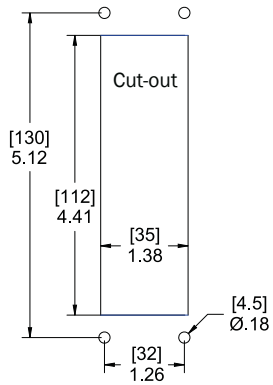
D24-4MDE45-4FR-RJ45



D24-4MDE45-8FR-RJ45

Specifications:

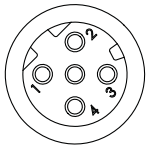
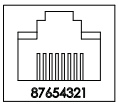
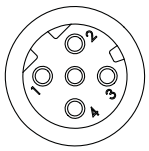
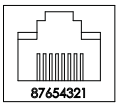
Plate:	Stainless Steel
M12 Coupling:	Nickel Plated Brass
M12 Insert:	Polyamide
Contacts:	Copper Alloy with Gold Plating
O-Rings:	NBR
Gasket:	PVC NBR
RJ45 Connector:	CAT5e
Mounting Screws:	#8 or M4 Screws
Shielding:	Shield connected between M12 Housing and RJ45 Connector
Temperature:	-40°C to +80°C (-40°F to +176°F)

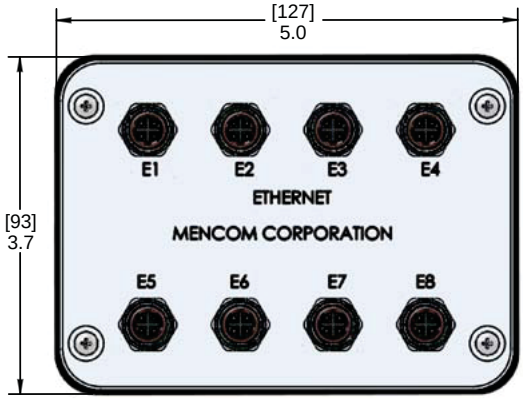


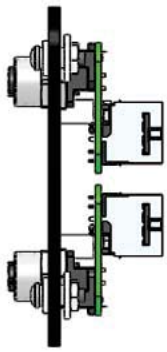
Ethernet (M12) Series Etherplug Receptacles

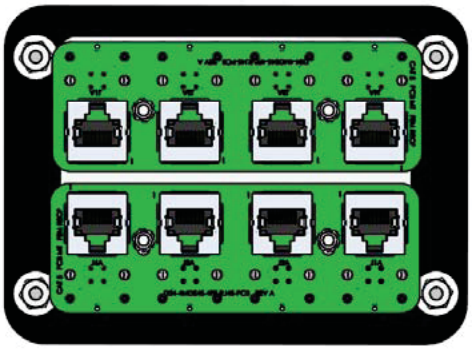
4 Conductor Ethernet Series Panel Mount Adapter

Size 32 | 8 & 10 Port | MDE45 to RJ45

8 Connector Version				
Female Faceview	**# of Poles**	**Wiring MDE45**	**Part Number**	**RJ45 Faceview**
 M12x1 1 = White/Orange (+ TX) 2 = White/Green (+ RX) 3 = Orange (- TX) 4 = Green (- RX)	4 D-Coded	1 to 1 2 to 3 3 to 2 4 to 6	D32-8MDE45-4FR-RJ45	 RJ45 1 = White/Orange (+ TX) 2 = Orange (- TX) 3 = White/Green (+ RX) 4 = N/C 5 = N/C 6 = Green (- RX) 7 = N/C 8 = N/C
10 Connector Version				
 M12x1 1 = White/Orange (+ TX) 2 = White/Green (+ RX) 3 = Orange (- TX) 4 = Green (- RX)	4 D-Coded	1 to 1 2 to 3 3 to 2 4 to 6	D32-10MDE45-4FR-RJ45	 RJ45 1 = White/Orange (+ TX) 2 = Orange (- TX) 3 = White/Green (+ RX) 4 = N/C 5 = N/C 6 = Green (- RX) 7 = N/C 8 = N/C

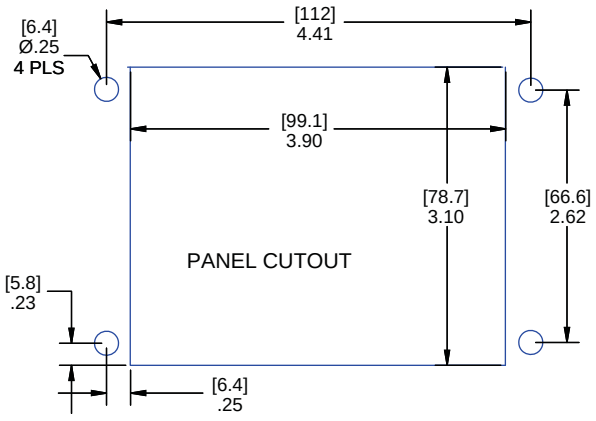






Specifications:

Plate:	Stainless Steel
M12 Coupling:	Nickel Plated Brass
M12 Insert:	Polyamide
Contacts:	Copper Alloy with Gold Plating
O-Rings:	NBR
Gasket:	PVC NBR
RJ45 Connector:	Cat 5
Mounting Screws:	#8 or M4 Screws
Shielding:	Shield connected between MDE45 Housing and RJ45 Connector
Temperature:	-40°C to +80°C (-40°F to +176°F)



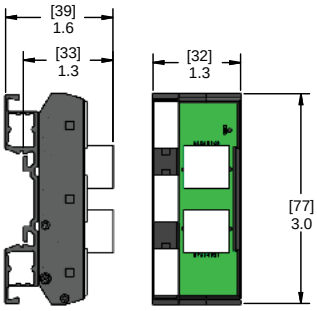
T35 DIN Rail Interface Modules

Ethernet Connector DIN Rail Modules, 30-14AWG

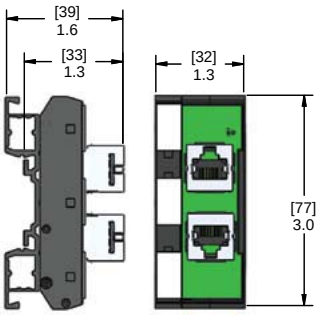
RJ45 to RJ45/Terminal Block | RJ45 to RJ45 | 250V, 1.5amps

Connection Type A	Connection Type B	Wire Range	Features	Part Number	
				Marker Tag	No Marker Tag
RJ45	RJ45	30-14AWG Solid or Stranded ($0.05mm^2$ - $2.5mm^2$)	Shielded Sockets Connected pin to pin 35mm DIN rail mounting	T35-RJ45-RJ45-MC	T35-RJ45-RJ45
Vertical RJ45	Vertical RJ45			T35-RJ45V-RJ45V-MC	T35-RJ45V-RJ45V
RJ45	Spring Clamp Terminal Block			T35-RJ45-TBS-MC	T35-RJ45-TBS

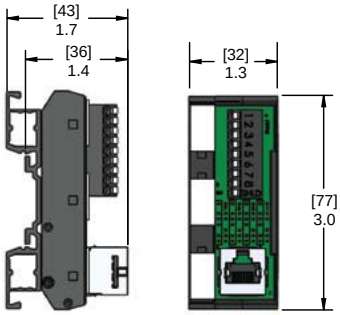
The printed circuit boards have component holes for the easy addition of LED's, resistors, or other electronic components.
Other configurations are available. Please consult factory.



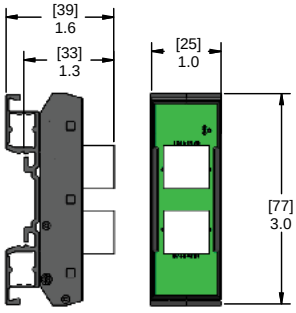
RJ45 to RJ45
with 3 Removable Marker Tags



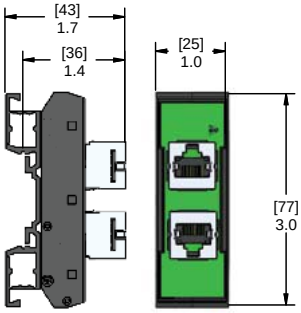
Vertical RJ45 to Vertical RJ45
with 3 Removable Marker Tags



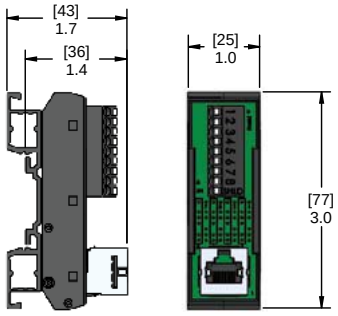
RJ45 to Spring Clamp Terminal Block
with 3 Removable Marker Tags



RJ45 to RJ45



Vertical RJ45 to Vertical RJ45



RJ45 to Spring Clamp Terminal Block

Specifications:

Body:	Polyamide	Marker Tags:	Polyamide
Screw:	Galvanized Steel	Wire Strip Length:	0.3in (6.7mm)
Terminal:	Tin-Plated Brass	Screw Torque:	4.4lbf-in (0.5Nm)
Clamp:	Nickeled Brass	Screw Size:	4-40
Insulators:	Glass-Filled Thermoplastic	Temperature:	-40°C to 105°C
Contacts:	Gold-Plated Copper Alloy		

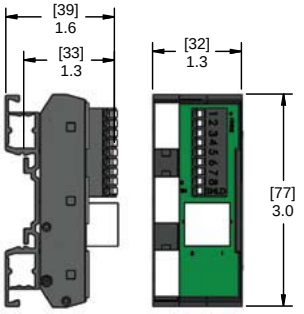
T35 DIN Rail Interface Modules

Ethernet Connector DIN Rail Modules, 30-14AWG

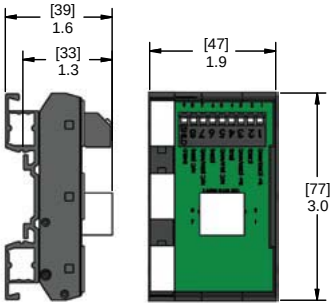
RJ45 to Terminal Block | Spring Clamp Terminal Block to Spring Clamp Terminal Block | 250V, 1.5amps

Connection Type A	Connection Type B	Wire Range	Features	Part Number	
				Marker Tag	No Marker Tag
Horizontal RJ45	Spring Clamp Terminal Block	30-14AWG Solid or Stranded (0.05mm² - 2.5mm²)	Shielded Sockets Connected pin to pin 35mm DIN rail mounting	T35-RJ45H-TBS-MC	T35-RJ45H-TBS
Horizontal RJ45	Horizontal Spring Clamp Terminal Block			T35-RJ45H-TBSH-MC	T35-RJ45H-TBSH
9 Pin Spring Clamp Terminal Block with Shield	9 Pin Spring Clamp Terminal Block with Shield	30-14AWG Solid or Stranded (0.05mm² - 2.5mm²)	Designed for Ethernet Cable Connected pin to pin 35mm DIN rail mounting	T35-TBS9-TBS9-E45-MC	T35-TBS9-TBS9-E45

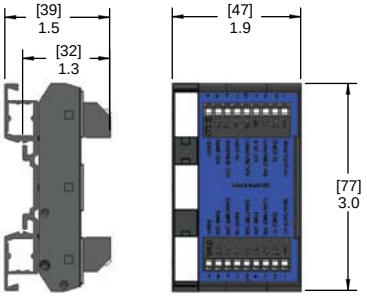
The printed circuit boards have component holes for the easy addition of LED's, resistors, or other electronic components.
Other configurations are available. Please consult factory.



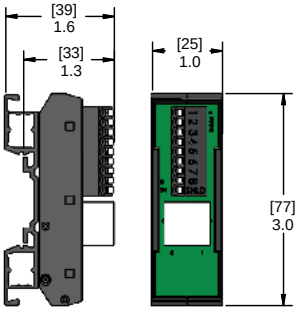
Horizontal RJ45 to
Spring Clamp Terminal Block
with 3 Removable Marker Tags



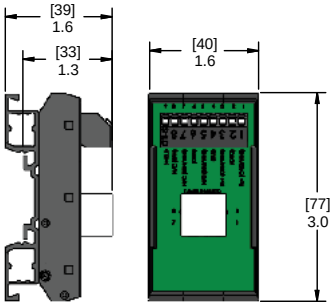
Horizontal RJ45 to
Horizontal Spring Clamp Terminal Block
with 3 Removable Marker Tags



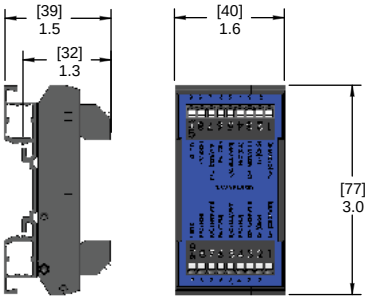
Spring Clamp Terminal Block to
Spring Clamp Terminal Block
with 3 Removable Marker Tags



Horizontal RJ45 to
Spring Clamp Terminal Block



Horizontal RJ45 to
Horizontal Spring Clamp Terminal Block



Spring Clamp Terminal Block to
Spring Clamp Terminal Block

Specifications:

Body:	Polyamide
Screw:	Galvanized Steel
Terminal:	Tin-Plated Brass
Clamp:	Nickeled Brass
Insulators:	Glass-Filled Thermoplastic
Contacts:	Gold-Plated Copper Alloy
Marker Tags:	Polyamide
Wire Strip Length:	0.3in (6.7mm)
Screw Torque:	4.4lbf-in (0.5Nm)
Screw Size:	4-40
Temperature:	-40°C to 105°C

T35 DIN Rail Interface Modules

Ethernet Connector DIN Rail Modules, 30-14AWG

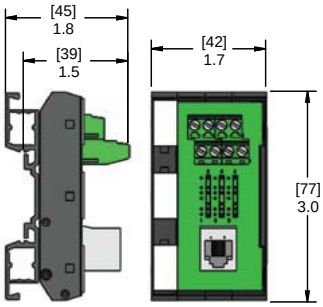
RJ12 to Terminal Block | 250V, 1.5amps

Connection Type A	Connection Type B	Wire Range	Features	Part Number	
				Marker Tag	No Marker Tag
RJ12	Terminal Block	30-14AWG Solid or Stranded (0.05mm² - 2.5mm²)	Shielded Sockets Connected pin to pin 35mm DIN rail mounting	T35-RJ12-TB-MC	T35-RJ12-TB

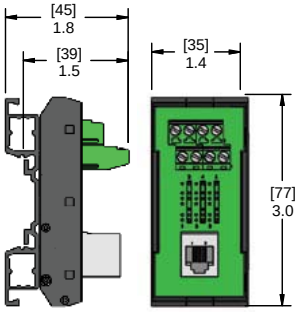
The printed circuit boards have component holes for the easy addition of LED's, resistors, or other electronic components.
Other configurations are available. Please consult factory.

Specifications:

Body:	Polyamide
Screw:	Galvanized Steel
Terminal:	Tin-Plated Brass
Clamp:	Nickeled Brass
Insulators:	Glass-Filled Thermoplastic
Contacts:	Gold-Plated Copper Alloy
Marker Tags:	Polyamide
Wire Strip Length:	0.3in (6.7mm)
Screw Torque:	4.4lbf-in (0.5Nm)
Screw Size:	4-40
Temperature:	-40°C to 105°C



RJ12 to Terminal Block
with 3 Removable Marker Tags



RJ12 to Terminal Block

Ethernet Series Etherlink V3

8 Conductor Ethernet Series V3 Cordsets & Field Wireable Plugs, 24AWG

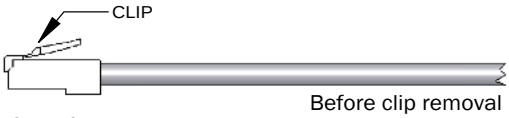
Field Wireable Plugs | Single & Double Ended Male Cordsets | UL Type 4, 6P | IP65 Rating

Patented by Mencom Corporation

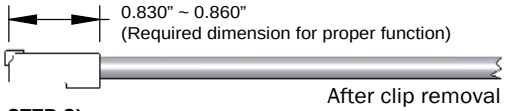
It is recommended that quality Mencom cables are used with the field wireable connectors to assure an accurate fit. However, if using another brand, the dimensions of the connector must meet the dimensions shown below.

Field Wireable Plugs	Part Number	Housing Specifications		Front View
	E45V3-8MP-FW	Coupling Nut : Body : O-Ring : Grommets : Tightening Torque: Max. Panel Thickness: Temperature :	Black Anodized Aluminum Black Polyamide NBR NBR & TPE 4.0 N-m 5.5 mm -25°C to +85°C	

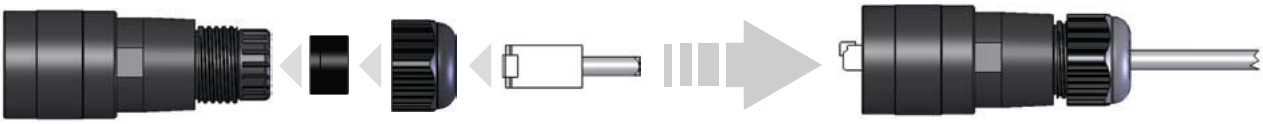
Assembly Instructions



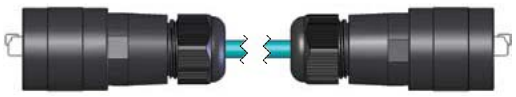
STEP 1)
Remove clip by cutting or by bending it back and forth until it breaks.



STEP 2)
With connector unassembled, push cable through dome nut, split apart the grommet and wrap it around the cable, then push the cable through the connector body.



STEP 3)
Push grommet back into the "fingers" of the shell. Rotate cable 90 degrees and pull it back into the connector until it stops. With slight tension on cable, tighten dome nut (3.75Nm recommended).

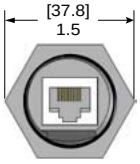
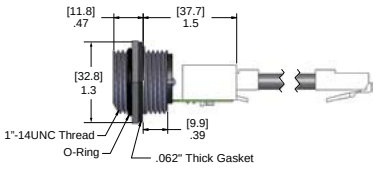
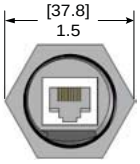
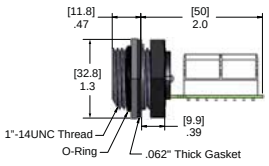
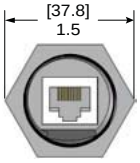
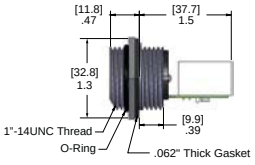
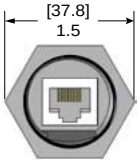
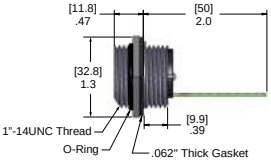
E45V3 to Cable				
# of Poles	Front View	Part Number		Housing Style
		PVC Male	PUR Male	
8		E45V3-8MP-**	E45V3P-8MP-**	
E45V3 to RJ45				
8		E45V3-8MP-RJ45-**	E45V3P-8MP-RJ45-**	
E45V3 Male to Male Extension Cables				
8		E45V3-8MMP-**	E45V3P-8MMP-**	

** Lengths in meters. Standard cable lengths are 1, 2, 4, 5, 6, 10 & 15 meters. Consult factory for other lengths.

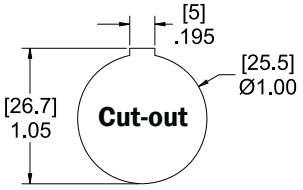
T35 DIN Rail Interface Modules

8 Conductor Ethernet Series Receptacles, 24AWG

Female Front Mount Receptacles | 42 VDC, 1.5 amps | UL Type 4, 4X, 6P | IP65 Rating

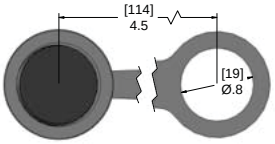
# of Poles	Front View	Rating	Wire AWG	Cap (E45V3-CAP)	Part Number	Housing Style
Etherlink V3 Female Receptacle to Male Plug with CAT5e Cable						
8		42V 1.5A	24	Not Included	E45V3-8FMR-*-M25	
				Included	E45V3-8FMR-*-M25-CP	
Etherlink V3 Female Receptacle to 110 Punchdown Block						
8		N/A	20-26	Not Included	E45V3-8FR-110-M25	
				Included	E45V3-8FR-110-M25-CP	
Etherlink V3 Female Receptacle to Female Receptacles						
8		N/A	N/A	Not Included	E45V3-8FFR-M25	
				Included	E45V3-8FFR-M25-CP	
Etherlink V3 Field Wireable to Female Receptacle Solder to Board						
8		N/A	N/A	Not Included	E45V3-8FR-FW-M25	
				Included	E45V3-8FR-FW-M25-CP	

* Length in feet. Standard cable lengths are 1, 3, 7, 10 & 15 feet. Consult factory for other lengths.



Specifications:

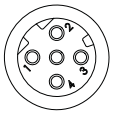
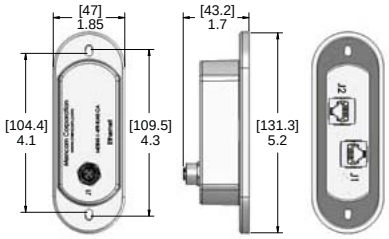
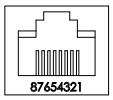
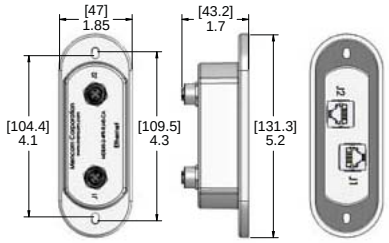
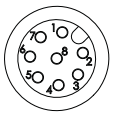
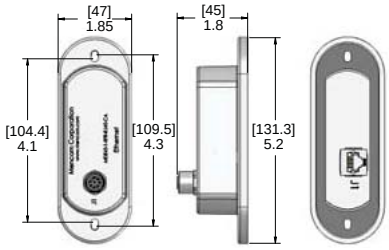
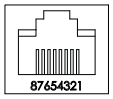
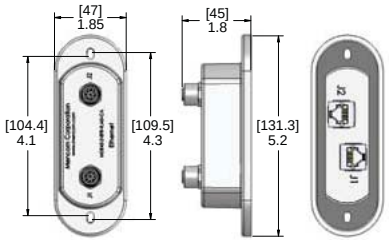
Insulator:	Polyamide
Cable:	CAT5e with PVC Jacket
Contacts:	Copper Alloy with Gold Plating
O-Ring:	NBR
Tightening Torque:	5.0 N-m
Max. Panel Thickness:	5.5 mm
Temperature:	-40°C to +80°C (-40°F to +176°F)

Etherlink V3 Accessories	
Cap	**Part Number**
	E45V3-CAP
Protective Lock Nut	
	Protective lock nut provided with each receptacle.

Ethernet Series Etherlink V3

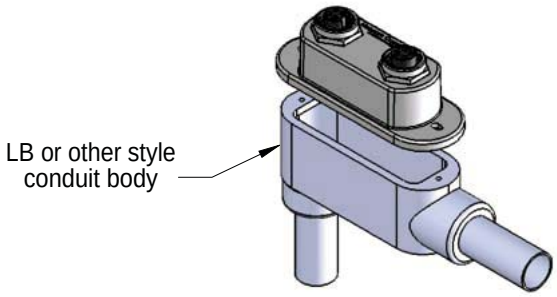
4 & 8 Conductor Ethernet Series Conduit Adapters

Conduit Adapters | 1 & 2 Port | M12 to RJ45 | IP67 Rating

# of Poles	Female Faceview	# of Ports	Part Number	Top View
4 D-Coded	 M12 x 1 1 = White/Orange (+ TX) 2 = White/Green (+ RX) 3 = Orange (- TX) 4 = Green (- RX)	1 Port	MDE45-1-4FR-RJ45-CA	
	 1 = White/Orange (+ TX) 2 = Orange (- TX) 3 = White/Green (+ RX) 4 = N/C 5 = N/C 6 = Green (- RX) 7 = N/C 8 = N/C	2 Port	MDE45-2-4FR-RJ45-CA	
8 A-Coded	 M12 x 1 1 = White/Blue 2 = White/Brown 3 = Brown 4 = Orange (-TX) 5 = White/Green (+RX) 6 = White/Orange (+TX) 7 = Blue 8 = Green (-RX)	1 Port	MDE45-1-8FR-RJ45-CA	
	 1 = White/Orange (+TX) 2 = Orange (-TX) 3 = White/Green (+RX) 4 = Blue 5 = White/Blue 6 = Green (-RX) 7 = White/Brown 8 = Brown	2 Port	MDE45-2-8FR-RJ45-CA	

Specifications:

Housing:	Glass Filled PBT
Recp. Shell:	Nickel Plated Brass
Insert:	Polyamide
Contacts:	Copper Alloy with Gold Plating
Gasket:	NBR
Temperature:	-40ºC to +70ºC (-40ºF to +158ºF)



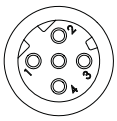
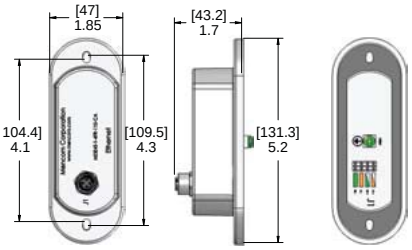
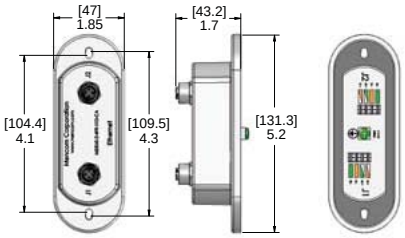
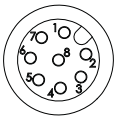
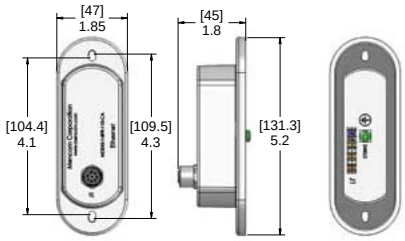
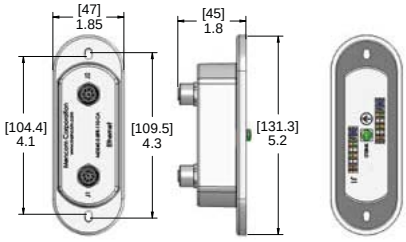
Remove existing Conduit Body cover and replace with Mencom Conduit Adapter.

Works with all standard 3/4" NPT conduit bodies, including Form 8 and Mark 9 adapters. (screws are included with adapter)

Ethernet Series Conduit Adapters

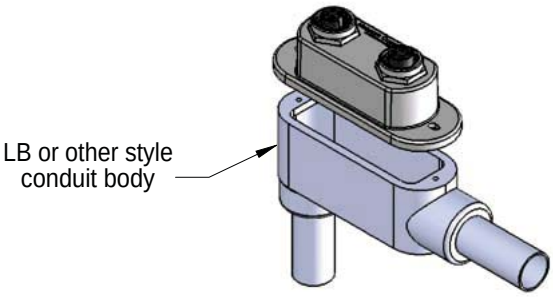
4 & 8 Conductor Ethernet Series Conduit Adapters

Conduit Adapters | 1 & 2 Port | M12 to 110 Punchdown | IP67 Rating

# of Poles	Female Faceview	# of Ports	Part Number	Top View
4 D-Coded	 M12 x 1 1 = White/Orange (+ TX) 2 = White/Green (+ RX) 3 = Orange (- TX) 4 = Green (- RX)	1 Port	MDE45-1-4FR-110-CA	
		2 Port	MDE45-2-4FR-110-CA	
8 A-Coded	 M12 x 1 1 = White/Blue 2 = White/Brown 3 = Brown 4 = Orange (-TX) 5 = White/Green (+RX) 6 = White/Orange (+TX) 7 = Blue 8 = Green (-RX)	1 Port	MDE45-1-8FR-110-CA	
		2 Port	MDE45-2-8FR-110-CA	

Specifications:

Housing:	Glass Filled PBT
Recp. Shell:	Nickel Plated Brass
Insert:	Polyamide
Contacts:	Copper Alloy with Gold Plating
Gasket:	NBR
Temperature:	-40ºC to +70ºC (-40ºF to +158ºF)



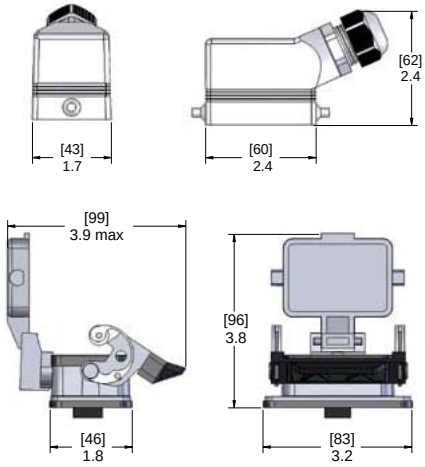
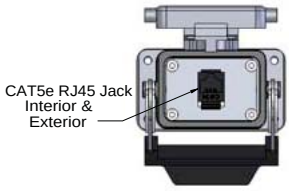
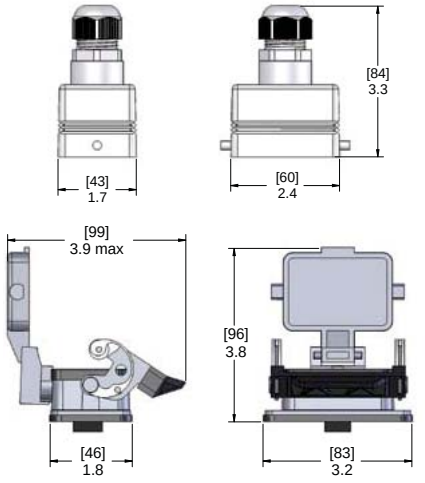
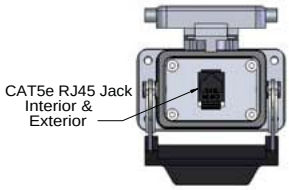
Remove existing Conduit Body cover and replace with Mencom Conduit Adapter.

Works with all standard 3/4" NPT conduit bodies, including Form 8 and Mark 9 adapters. (screws are included with adapter)

Ethernet Series RJ45 Kits

Heavy Duty Ethernet Connection System

RJ45 Kits | Top & Side Entry | IP66 Protection Rating

Housing Style	Entry	Part Number
 	Side Entry	RJ45-CKIT
 	Top Entry	RJ45-CVKIT

These units are designed to be used with Mencom RJ45 Patch Cords:

Part Numbers:	RJ45-03	3 foot patch cord
	RJ45-07	7 foot patch cord
	RJ45-10	10 foot patch cord
	RJ45-15	15 foot patch cord

Other lengths are available, please consult the factory.

Ethernet Series Accessories

Ethernet Series RJ45 Field Wireable Connectror Accessories & Tools

RJ45 Plugs | Strain Relief | Boots | Crimp Tool

Style	Max Cable O.D.	Part Number	Description	Conductors O.D Range
	6.1 mm (0.24")	RJ45-EZ5-FW	24 & 26 AWG Cat 5/5e male RJ45 connector	0.94 mm ~ 1.04 mm (0.037" ~ 0.041")
	6.6 mm (0.26")	RJ45S-EZ5-FW	Shielded Cat 5/5e/6 male RJ45 connector	0.94 mm ~ 1.04 mm (0.037" ~ 0.041")
	10.5mm (0.41")	RJ45-PN-FW	Shielded CAT 6A Straight Plug Field Wireable Ethernet/Profinet	Stranded: 0.46 mm ~ 0.76 mm (0.018" ~ 0.029") Solid: 0.40mm ~ 0.64mm (0.015" ~ 0.025")
		RJ45-PN-FW-R	Shielded CAT 6A Right Angle Plug Field Wireable Ethernet/Profinet	
	6.6 mm (0.26")	RJ45-EZ5-SR-CL	Clear Cat 5e cable strain relief for RJ45-EZ and RJ45S-EZ	N/A
	5.5 mm (0.22")	RJ45-BT-5.5-BK	RJ45 Black Boot	N/A
	6 mm (0.24")	RJ45-BT-6.0-BK		
	6.5 mm (0.26")	RJ45-BT-6.5-BK		
	7 mm (0.28")	RJ45-BT-7.0-BK		
	8 mm (0.31")	RJ45-BT-8.0-BK		
	N/A	RJ45-EZ-CT	Crimp Tool for RJ45-EZ & RJ45S-EZ connectors	N/A

RJ45 Crimp Instructions

1. Strip off approximately two inches of outer cable jacket.

2. Untwist and straighten wires. Place in the desired order for wiring. (see wiring chart)

3. Trim wire ends so all conductors are the same length.

4. Insert wires into the connector and pull connector down over the cable jacket. Cable jacket should seat snugly in rear of connector.

5. Push the connector into the crimp tool, making sure it is fully seated in the crimp cavity.

6. Crimp the connector and break off any remaining loose wires.

Typical T568A / T568B Wiring Chart		
Wire	**T568A**	**T568B**
1	White/Green	White/Orange
2	Green	Orange
3	White/Orange	White/Green
4	Blue	Blue
5	White/Blue	White/Blue
6	Orange	Green
7	White/Brown	White/Brown
8	Brown	Brown

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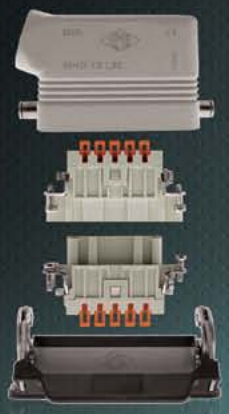

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