



AJ100

Embedded Blue[®]

DIN Rail PoE+ Injector • Two Port M12-X Gigabit Ethernet

Technical Features

General

- ▶ PoE+ 1000BASE-T Ethernet midspan power injector box, for DIN rail mount or wall mount
- ▶ PSE power sourcing equipment configuration
- ▶ 4 x M12-X Gigabit Ethernet connectors (2 x in, 2 x out)
- ▶ 802.3at PoE+ (up to 30W/port)
- ▶ Intended for industrial use
- ▶ Dimensions: 30mm (W) x 140mm (H) x 70mm (D) w/o DIN rail brackets
- ▶ Metal case, DIN rail bracket or wall mount plate
- ▶ M12-A 5-pin power connector
- ▶ Option terminal block power connector
- ▶ Option desktop power adapter connector
- ▶ Nominal 48VDC/54VDC power input operation

Front Panel I/O

- ▶ Two groups of dual M12-X circular receptacles, shielded, Cat 5, input/output
- ▶ 1000BASE-T magnetics 1:1, PoE+
- ▶ 1000BASE-T, 100BASE-TX, 10BASE-T compliant data transfer rate

- ▶ M12-A 5-pin front power connector
- ▶ Option terminal block power input 3.5mm pitch 4-position screw lock (bottom of box)

Power Requirements

- ▶ DC Input, 44V-57V (48VDC, 54VDC)
- ▶ Power consumption 65W max. (@60W external load)
- ▶ Fast acting chip fuse (PCB soldered type - no replacement on-site)
- ▶ Protected against reverse polarity
- ▶ ESD protection (TVS)
- ▶ Common mode input filter
- ▶ M12-A 5-pin male power connector
- ▶ Option 4-position terminal block 3.50mm pitch screw locked
- ▶ Option rear power connector (desktop supply 4-pos. circular connector)

Technical Features

Power over Ethernet

- ▶ PSE PoE+ according to IEEE 802.3at-2009
- ▶ Maximum power delivered per port 30W (25.4W at powered device PD per specification)
- ▶ Maximum power delivered in total 60W
- ▶ IEEE 802.3at Type 2 Mode A (power over M12-X pins 1/2 & 3/4, 600mA)
- ▶ Option IEEE 802.3at Type 2 Mode B (M12-X pins 5/6 & 7/8)
- ▶ TPS23861 PSE controller, automatic mode
- ▶ Auto detect & classification, auto turn-on & disconnect

Applications

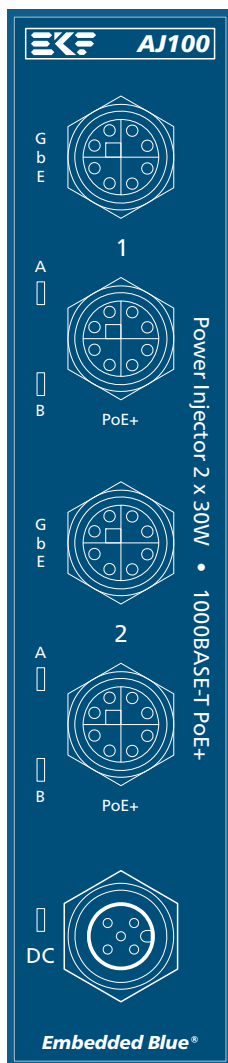
- ▶ Industrial networks - IIoT
- ▶ Rugged environments
- ▶ Edge computing
- ▶ Transportation
- ▶ Railway

Environmental, Regulatory

- ▶ Designed & manufactured in Germany
- ▶ ISO 9001 certified quality management
- ▶ Long term availability
- ▶ Rugged solution
- ▶ RoHS compliant
- ▶ Operating temperature -40°C to +85°C (industrial temperature range)
- ▶ Storage temperature -40°C to +85°C, max. gradient 5°C/min
- ▶ Humidity 5% ... 95% RH non condensing
- ▶ Altitude -300m ... +3000m
- ▶ Shock 15g 0.33ms, 6g 6ms
- ▶ Vibration 1g 5-2000Hz
- ▶ EC Regulations EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)
- ▶ International Protection EN60529 IP20
- ▶ MTBF tbd years

all items may be subject to technical changes w/o further notice

Front



Ethernet Port 1-2 LEDs A/B

green (weak)	PoE+ ready
blue	PoE+ active, normal operation
red (blinking or permanent)	internal fault (port chip fuse must be replaced)
A = Mode A, signal pair MX0/MX1 power	B = Mode B, signal pair MX2/MX3 power

DC LED

green	DC input power present
red	internal fault (main chip fuse must be replaced)

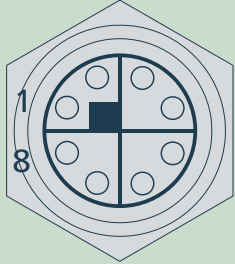
Mounting Options



Photos Similar



M12 X-Coded Front Panel Receptacles

M12-X Front Panel I/O Receptacles Gigabit Ethernet			
	Ports 1-2 In/Out	1	MDX0+
		2	MDX0-
		3	MDX1+
		4	MDX1-
		5	MDX3+
		6	MDX3-
		7	MDX2-
		8	MDX2+

The pin numbers of an M12 X-coded connector do not reflect the RJ45 Gigabit Ethernet signal assignment. For cross-over patch cables M12 to RJ45 please refer to the table below.

M12-X	Signal Colors T568B	RJ45
1	MDX0+ white/orange	1
2	MDX0- orange	2
3	MDX1+ white/green	3
4	MDX1- green	6
5	MDX3+ white/brown	7
6	MDX3- brown	8
7	MDX2- white/blue	5
8	MDX2+ blue	4

Suitable industrial Gigabit Ethernet M12 cable assemblies can be ordered from EKF, or directly from well-known cable and connector manufacturers e.g. Metz, Phoenix, Escha and many others.



M12 to M12 Cable
Phoenix Contact

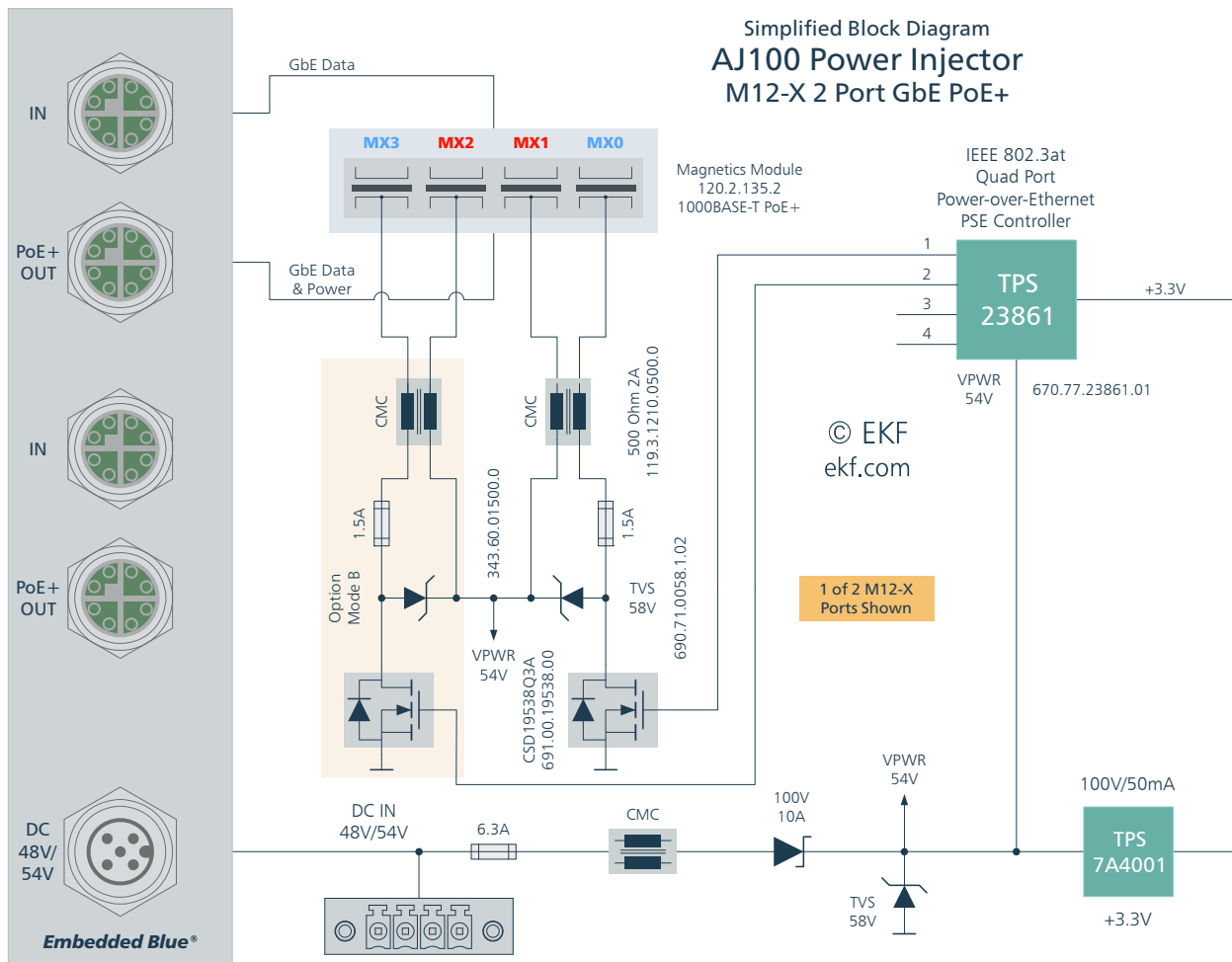


M12 Cable
Connector
Phoenix Contact



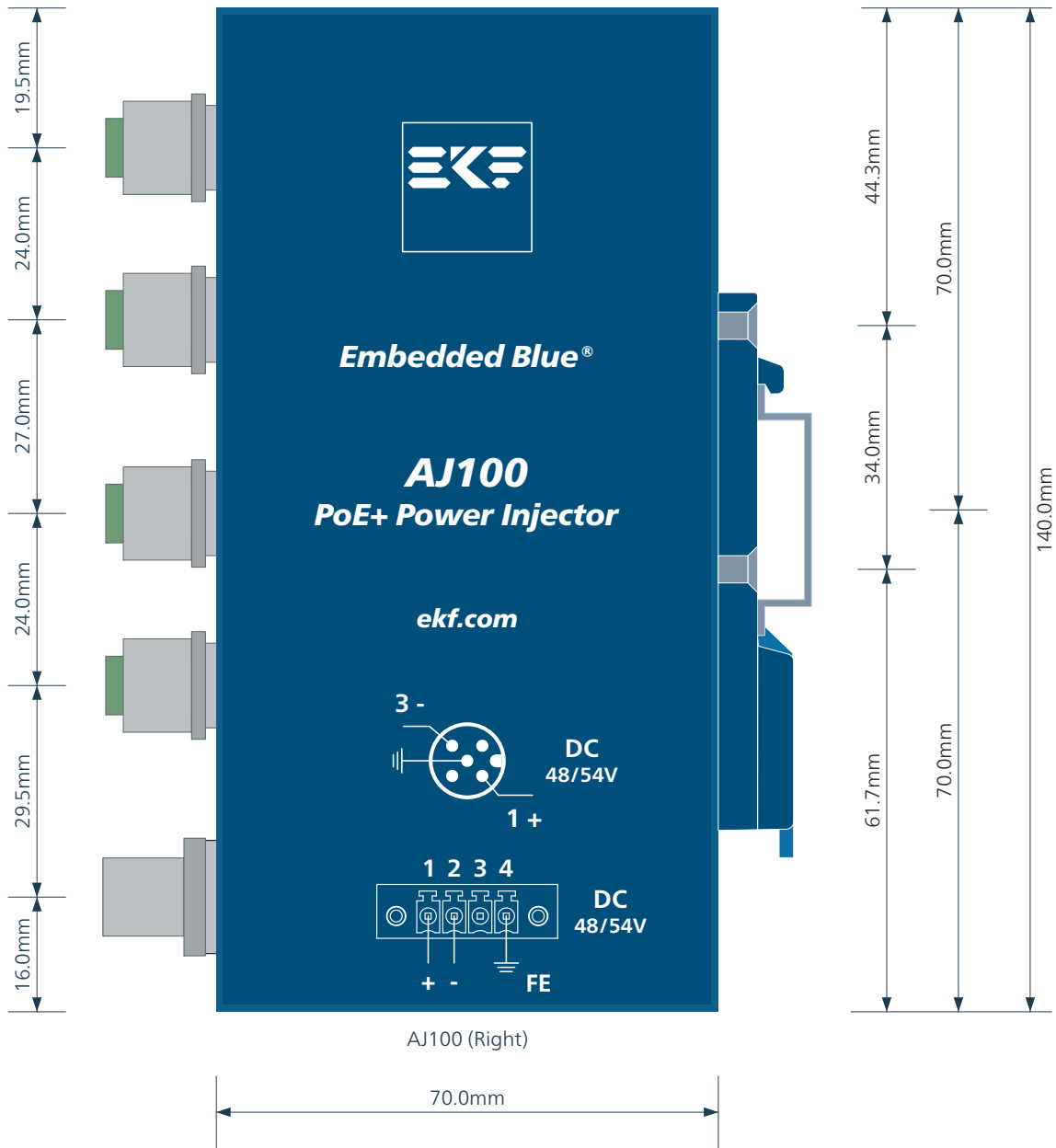
M12 to RJ45 Cable
Phoenix Contact

Block Diagram



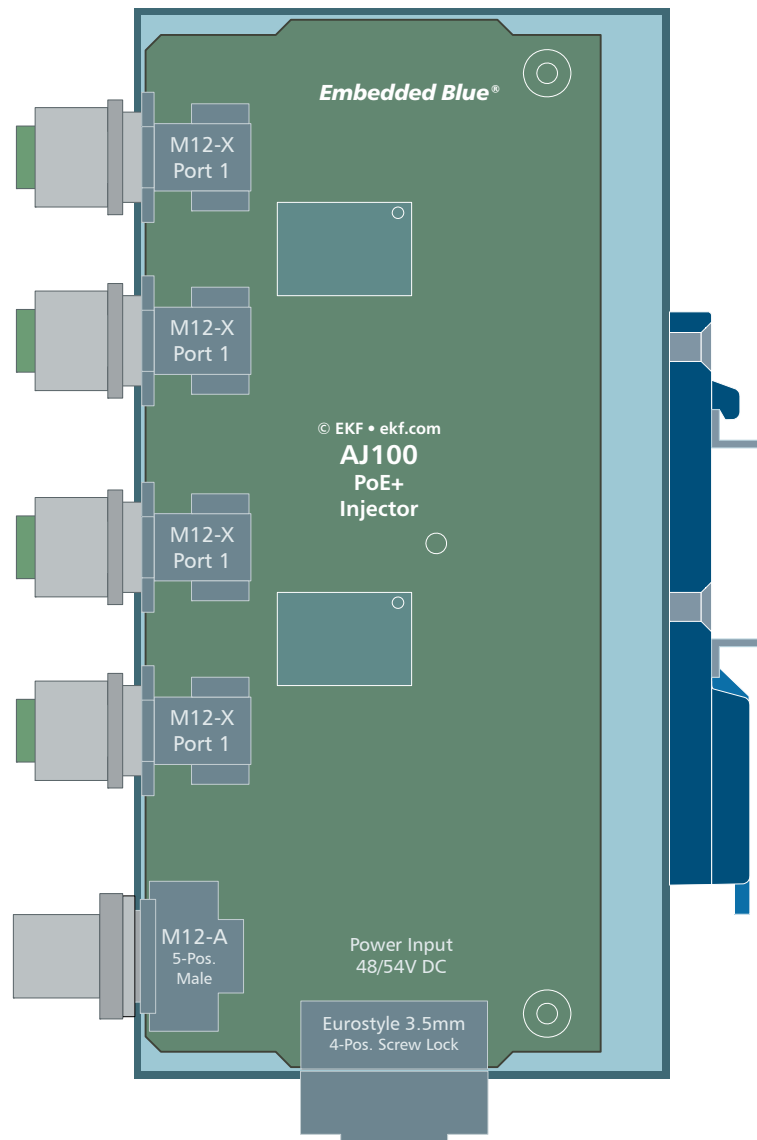
M12-X input and output connectors of each particular port are 1500VRMS isolated between each other by means of magnetics modules. As a result, also any M12-X input connector is isolated from the input connector of another port. The power source however is common to all PoE+ injector ports, which implies that all PoE+ RJ45 output connectors are DC coupled, in a common domain with the external DC power supply. This is usual practice and does not affect normal operation. It is noted here for better understanding only.

Dimensions

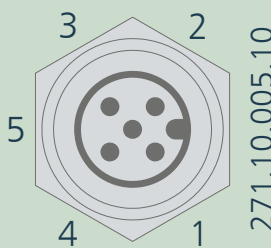


AJ100 (Right)

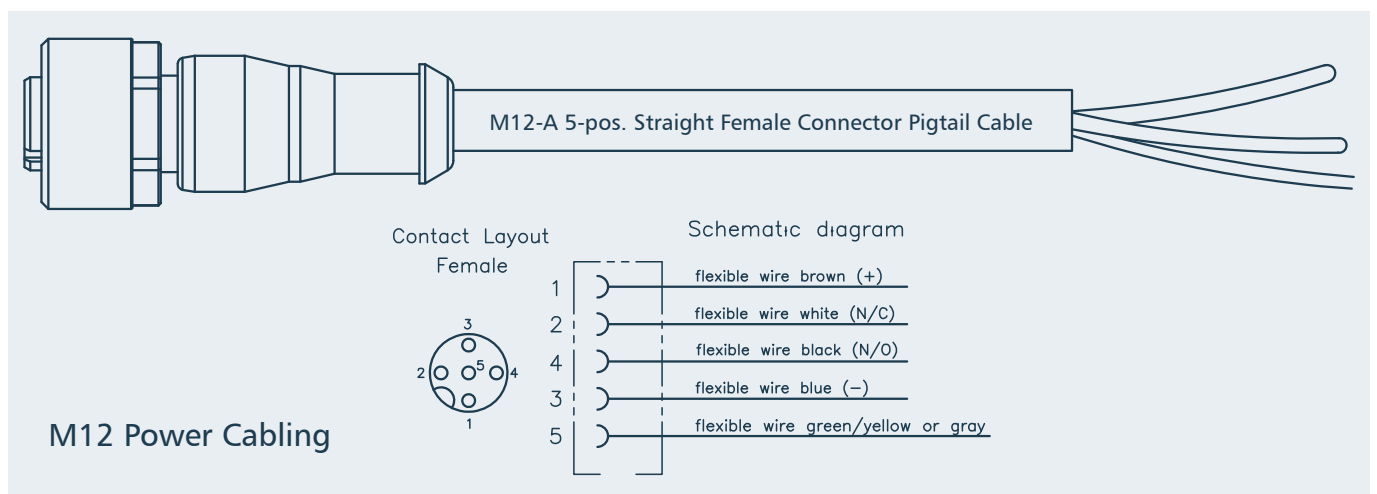
Component Orientation



Option M12-A Power Connector

M12-A 5-Position Male 4A/Pin			
 <p>271.10.005.10</p>	<p>+V=48/54VDC</p>	1	+V
		2	Reserved
		3	-V (GND)
		4	Reserved
		5	FE (Shield)

Mating Pigtail Cable Assemblies 1.5m w. Female Straight Plug	
EKF	271.10.505.22.015
Phoenix Contact	1669822
Tyco	2273035-1

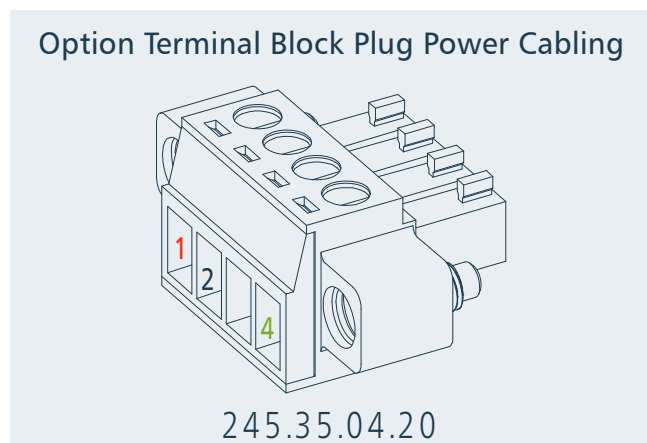


M12 Pigtail Cable
Phoenix Contact

Option Terminal Block Power Connector

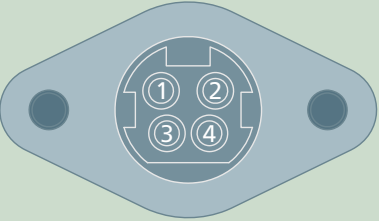
3.5mm 4-Position Terminal Block			
<p>245.35.04.00</p> <p>1 2 3 4</p>	<p>+V=48/54VDC</p>	1	+V
		2	-V (GND)
		3	Reserved
		4	FE (Shield)

Mating Plugs w. Screw Lock	
EKF	245.35.04.20
FCI Amphenol	20020000-C041B01LF
Molex	39504-0004
Phoenix Contact	1847071
Tyco	284510-4



Mating DIN Rail Power Supply	
EKF	352.1.120.48.1
Meanwell	NDR-120-48, 120W 48VDC/2.5A

Option Rear Power Connector

Circular 4-Position Power Receptacle			
 <p>271.04.004.10</p>	<p>V=48/54VDC</p>	1	+V
		2	+V
		3	-V (GND)
		4	-V (GND)
		Shell	FE (Shield)



Option Rear Connector (Similar Photo)

Mating Desktop Power Adapter w. Cable Assy	
EKF	353.1.120.54.1
FSP Technology	FSP120-AWAN3, 120W 54VDC/2.2A

Ordering Information

Ordering key: AJ100-0xy0

x=1-2: number of PoE+ injector ports populated

y=0: terminal block DC power input

y=1: M12-A front connector DC power input

For popular AJ100 SKUs please contact sales@ekf.de

Related Products

AL100	M12-X 5 to 15 port unmanaged GbE switch
AL110	M12-X 5 port GbE switch w. ARM® V8 CPU
AL200	RJ45 8 port unmanaged GbE switch
AL210	RJ45 8 port GbE switch w. ARM® V8 CPU
AL220	RJ45 8 port unmanaged PoE+ GbE switch
AL230	RJ45 8 port PoE+ GbE switch w. ARM® V8 CPU
AJ100	M12-X PoE+ power injector
AJ200	RJ45 PoE+ power injector

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