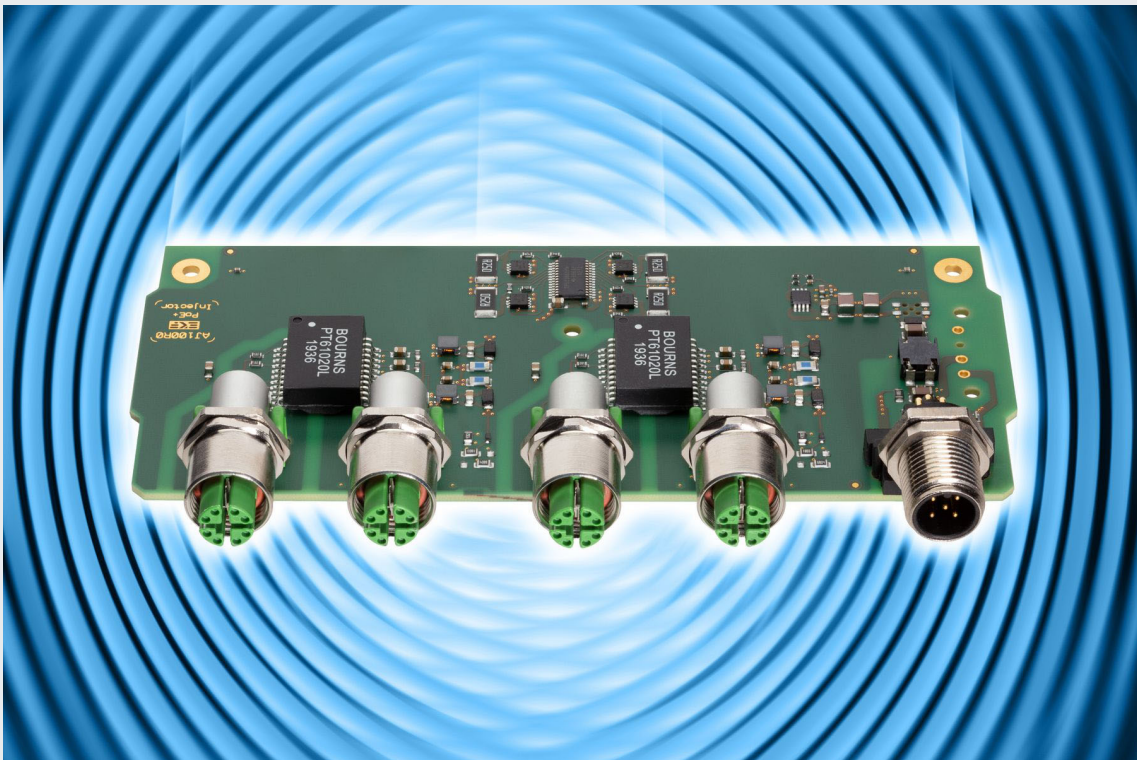




## **GJ100 • *Embedded Go*®**

PoE+ Injector • Two Port M12-X Gigabit Ethernet



## Technical Features

### General

- ▶ PoE+ 1000BASE-T Ethernet midspan power injector
- ▶ Option NBASE-T
- ▶ Intended for rugged industrial applications, ready-for-use (Embedded Go®)
- ▶ Industrial PCB assembly
- ▶ PCB Dimensions 133.0mm x 58.0mm
- ▶ M12-X Gigabit Ethernet connectors, 2 x IN, 2 x OUT
- ▶ M12-A Power connector
- ▶ Terminal block power connector (option)
- ▶ Nominal 48VDC/54VDC power input operation
- ▶ PSE power sourcing equipment configuration
- ▶ 802.3at PoE+ Class 4 (up to 30W/port)

### I/O Connectors

- ▶ Two groups of dual M12-X circular receptacles, inputs GbE, outputs PoE+ GbE
- ▶ Rail approved connector system, Cat6A, IEC 61076-2-109
- ▶ Future proof investment into cabling infrastructure - up to 10Gbps with M12-X Cat6A
- ▶ M12-X to RJ45 connector Cat6A cable assemblies available from several suppliers
- ▶ 1000BASE-T, 100BASE-TX, 10BASE-T compliant data transfer rate
- ▶ 1000BASE-T magnetics 1:1, PoE+
- ▶ NBASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T on request
- ▶ Up to three GJ100 boards can be mezzanine stacked for 4/6 PoE+ ports
- ▶ M12-A 5-position male connector for DC power input
- ▶ Option terminal block power input 3.5mm pitch 4-position screw lock

### Power over Ethernet

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

## Technical Features

### *Power Requirements*

- ▶ DC Input, 44V-57V (48VDC, 54VDC)
- ▶ Rated power consumption 65W max. (@60W external load)
- ▶ Option 4-pair dual PSE Type 2 rated power consumption 125W max. (@120W external load)
- ▶ Fast acting chip fuse
- ▶ Protected against reverse polarity
- ▶ TVS ESD Protection
- ▶ Common mode input filter
- ▶ M12-A 5-Position male connector for DC power input
- ▶ Pigtail cable assemblies available M12-A 5-pos. female plug
- ▶ Option 4-position terminal block power connector, 3.50mm pitch, screw lock removable cable plug

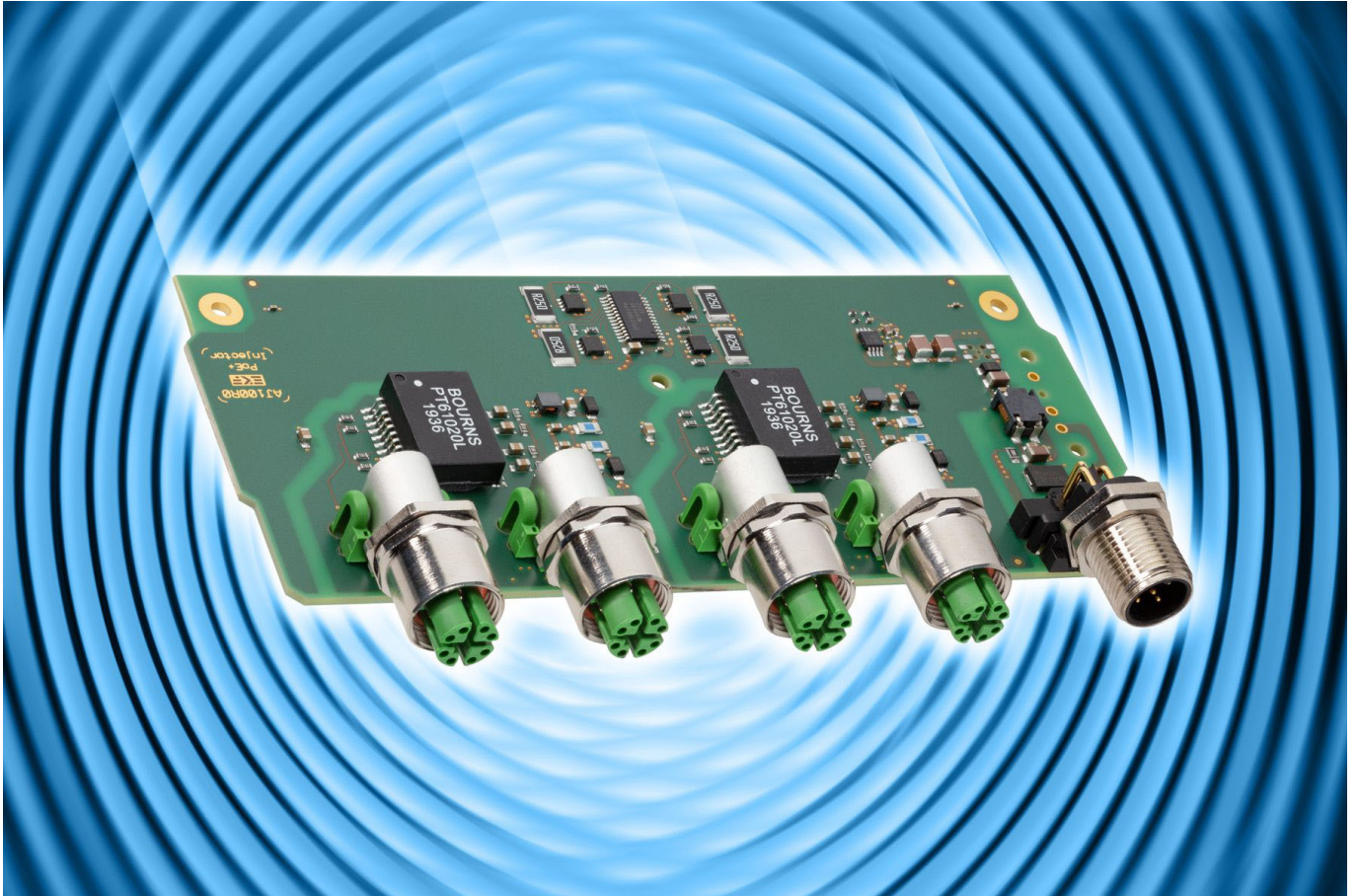
### *Applications*

- ▶ For easy system integration
- ▶ Industrial networks - IIoT
- ▶ Transportation vehicles
- ▶ Construction and harvesting machinery
- ▶ Railway
- ▶ Rugged environments
- ▶ IP67 Environment with respect to M12 connectors
- ▶ Customized connector loading
- ▶ Customized board design

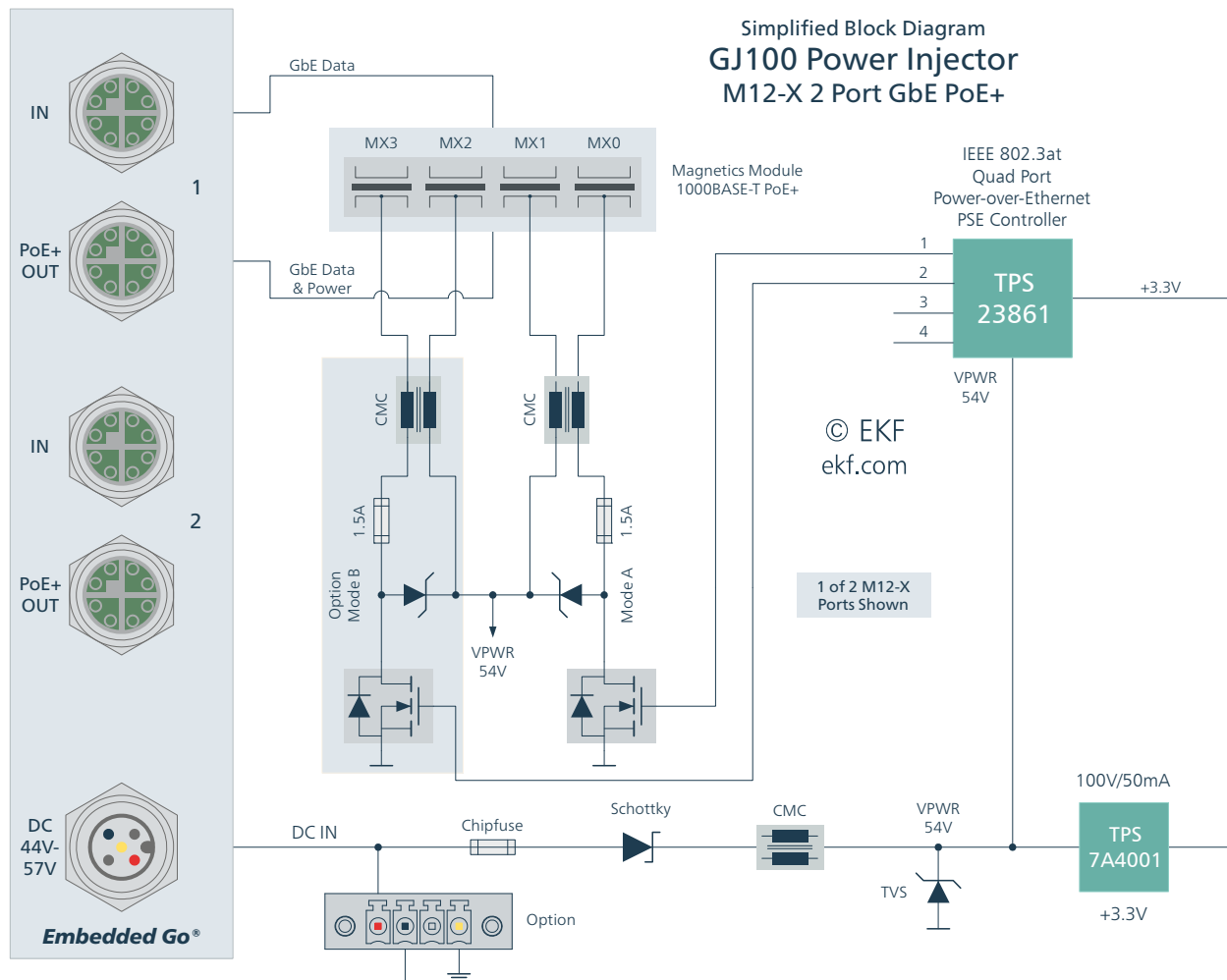
### *Environmental, Regulatory*

- ▶ Designed & manufactured in Germany
- ▶ ISO 9001 certified quality management
- ▶ Long term availability
- ▶ Rugged solution
- ▶ Conformal coating, sealing, underfilling on request
- ▶ 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 Regulatory EN55024, EN55032, EN62368-1
- ▶ MTBF tbd years

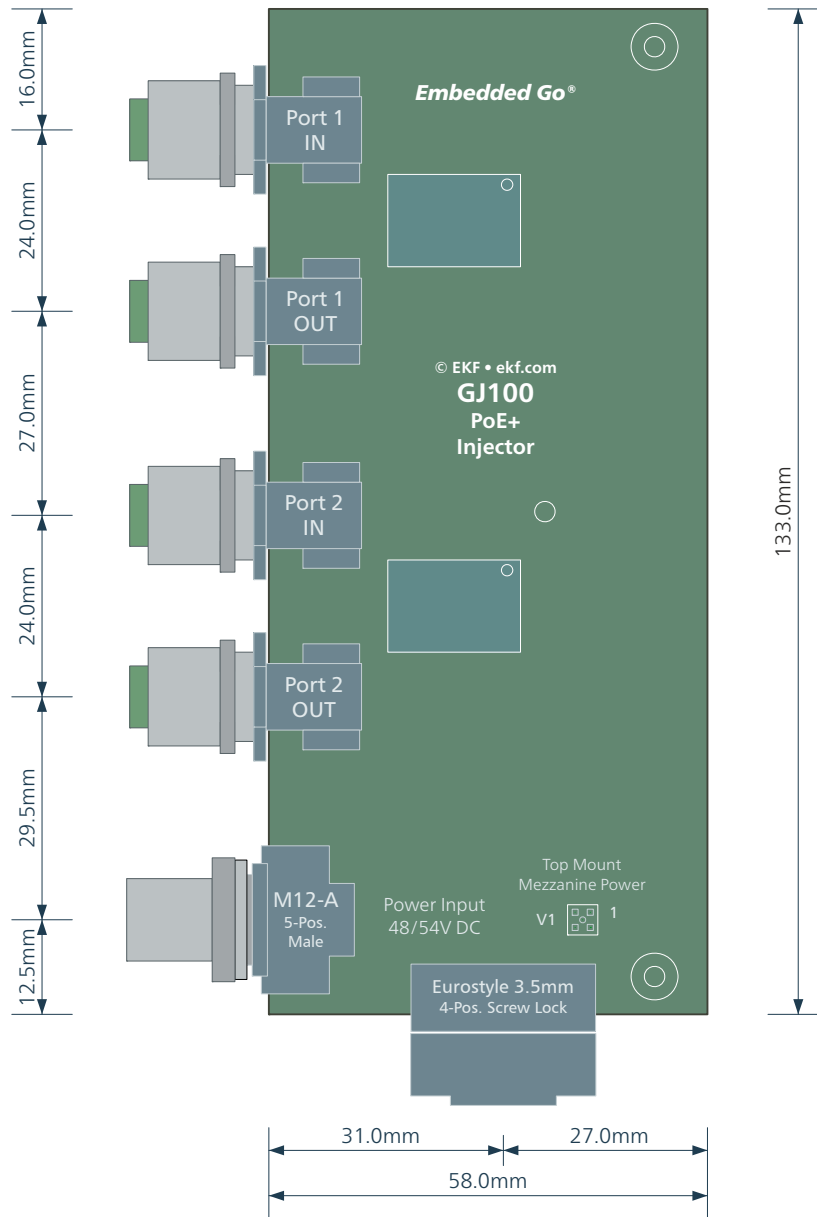
items may be subject to changes

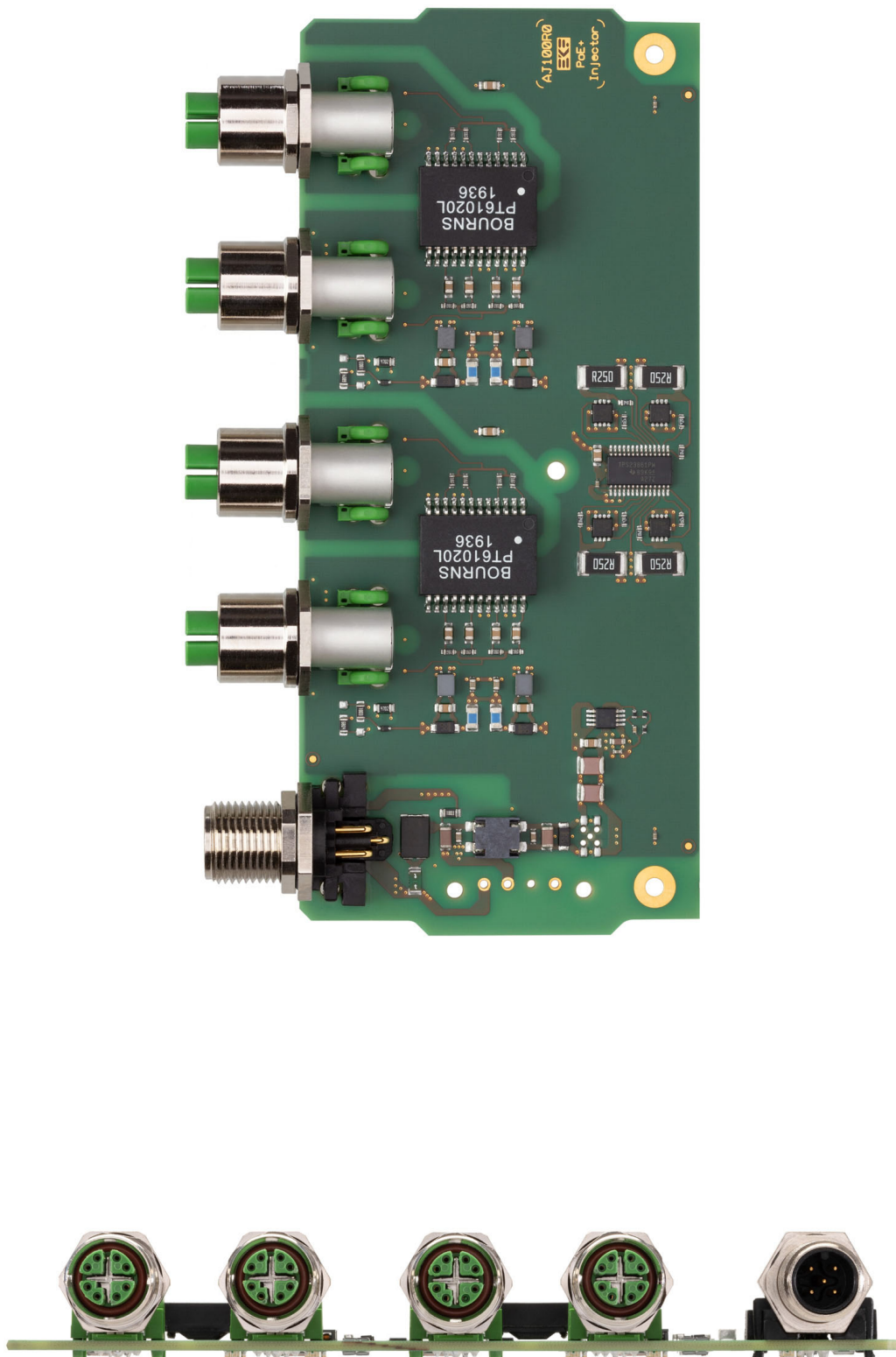


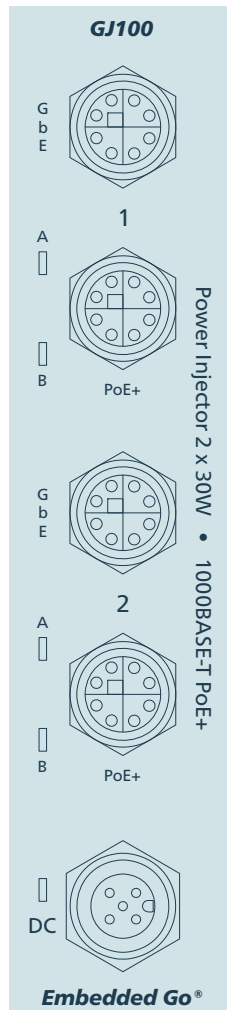
## Block Diagram



Dimensions





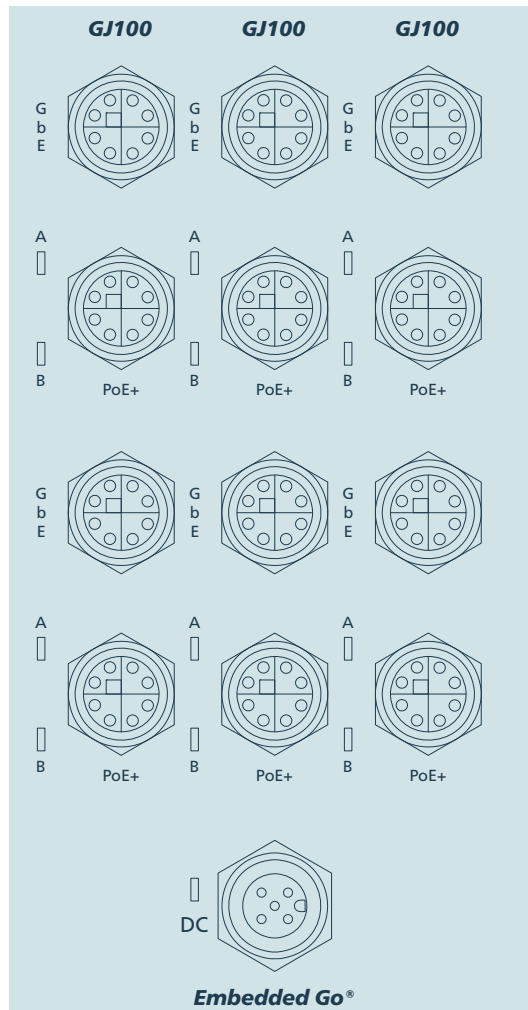
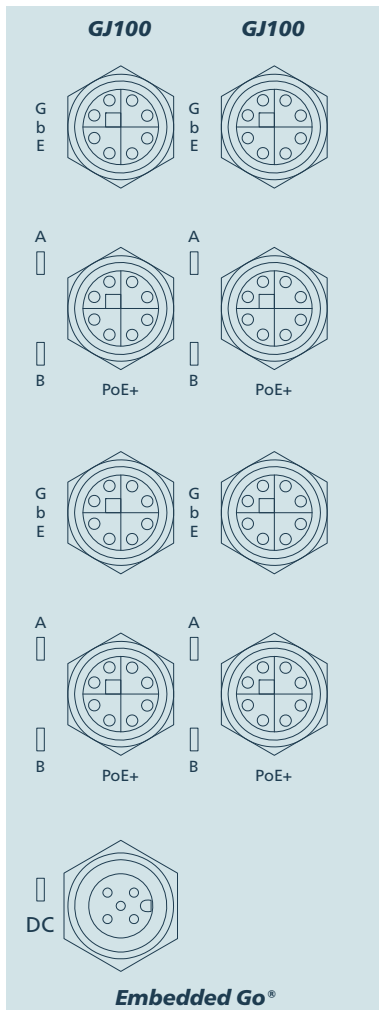


Sample F/P

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

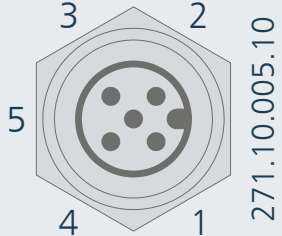
DC LED	
green	DC input power present
red	internal fault (main chip fuse must be replaced)



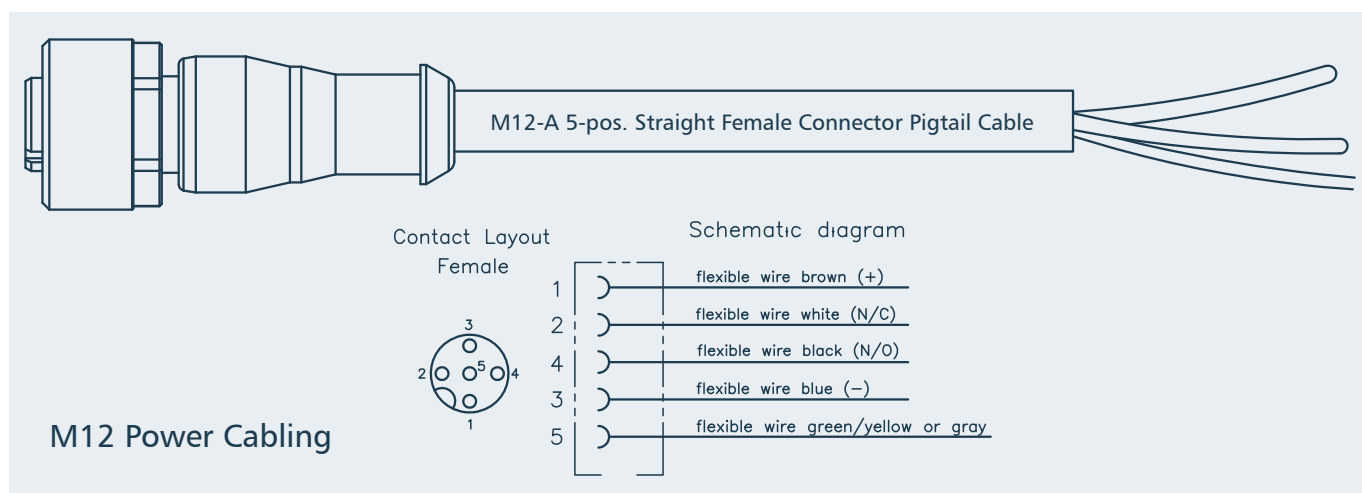


Sample F/P for Mezzanine Stack

## M12 Power Connector Pin Assignment

PCB Connector M12-A 5-Position Male 4A/Pin											
	<p>V=48/54VDC</p>										
	<table border="1"> <tr> <td>1</td> <td>+V</td> </tr> <tr> <td>2</td> <td>RSV</td> </tr> <tr> <td>3</td> <td>GND</td> </tr> <tr> <td>4</td> <td>RSV</td> </tr> <tr> <td>5</td> <td>FE (Shield)</td> </tr> </table>	1	+V	2	RSV	3	GND	4	RSV	5	FE (Shield)
	1	+V									
	2	RSV									
	3	GND									
4	RSV										
5	FE (Shield)										

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



pre-assembled standard pigtail cables - wires #2 and #4 not in use with GJ100 (reserved)

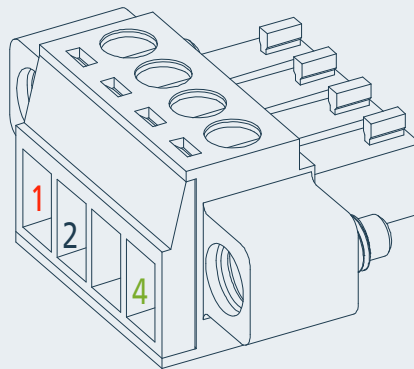
Mating DIN Rail Power Supply	
EKF	352.1.120.48.1
Meanwell	NDR-120-48, 120W 48VDC/2.5A

## Option Terminal Block Power Connector Pin Assignment

3.50mm 4-Position Terminal Block 8A/Contact		
<p>245.35.04.00</p> <p>1 2 3 4</p>	<p>V=48/54VDC</p>	1 +V
		2 GND
		3 RSV
		4 FE (Shield)

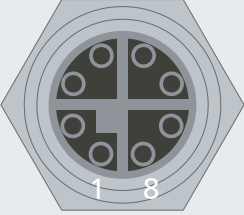
Mating Plugs w. Screw Lock	
EKF	245.35.04.20
FCI Amphenol	20020000-C041B01LF
Molex	39504-0004
Phoenix Contact	1847071
Tyco	284510-4

### Option Terminal Block Plug Power Cabling



245.35.04.20

## M12- X Receptacles

M12-X Receptacles • Gigabit Ethernet			
<p>271.12.008.00</p>  <p>© EKF • ekf.com Draft - Do Not Scale</p>	<p>Ports 1-2</p>	1	MDX0+
		2	MDX0-
		3	MDX1+
		4	MDX1-
		5	MDX3+
		6	MDX3-
		7	MDX2-
		8	MDX2+

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

### Mating Cable Assemblies

Gigabit Ethernet cable M12 to M12: #271.14.008.xx (xx=length/meter)

Gigabit Ethernet cable M12 to RJ-45: #271.15.008.xx (xx=length/meter)

Ordering Information

For popular GJ100 SKUs please contact [sales@ekf.de](mailto:sales@ekf.de)

Product Homepage

<https://www.ekf.com/g/gj100/gj100.html>

# ***Embedded Go***®

Ready-for-Use Industrial PCB Assemblies

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