

## Easy and Secure for Rack Systems

Front I/O solution designed for Railway applications.

- 3 layouts available** ■ 29 pos / 41 pos / 5 Quadrax
- Compact & high density** ■ Design compatible with 3U racks
- Improved shielding** ■ 360° metal housing
- Easy and secure mating** ■ Quick lever with safe locking
- High performance material** ■ Compliant to international fire and smoke requirements



## Technical features

### Mechanical

- Locking system: Lever with lock
- Durability: 500 mating cycles
- Vibration: According to EN 61373 Cat1b
- Shock: According to EN 61373 Cat1b
- Coding: 72 positions by polarization keys

### Environmental

- Temperature range: -40°C to +100°C
- Salt spray resistance: 48 hours
- Sealing: IP40
- Humidity cycle test: according to IEC 60068-2-38

### Material

- Shell: Steel, nickel plated
- Insulator:
  - Hard thermoplastic, HL3/R22 and HL3/R23 following EN45545
  - NFPA 130 compliant.
  - Category, other vehicle components
- Contacts:
  - Plug side: machined crimp contacts, copper alloy, gold plated
  - PCB receptacle side:
    - 41 pos and 29 pos layout: stamped and formed male contacts, gold plated (0.4 µm)
    - 5 Quadrax layout: machined male contacts, gold plated (0.4 µm)

### Electrical

- Contact resistance: Contact #16: <2.5mΩ
- Withstanding voltage: 3000V
- Insulation resistance:
  - Contact #16: > 5000 MΩ (under 500V DC)
- Wire range: Contact #16: 0.5 to 2.5mm<sup>2</sup>
- Creepage and clearance:
  - MSG-3U 29 pos: 3.075mm mini
  - MSG-3U 41 pos: 2.32mm mini
- Operating voltage:
  - 300V max following EN 50-124-1 / OV2PD2
- Electric continuity between plug and receptacle: <5mΩ
- High Speed data Transmission performances:
  - 4 pin Quadrax: Cat. 5 following IEC 11-801

## MSG 41 pos.



### Plug

Delivered without contacts, equipped with polarization keys, grounding plate\* and small cable gland.

Contact type	Wire size mm <sup>2</sup>	Cable direction	Part number
Machined crimp #16	0.13 - 2.5	Upward cabling	MSG41P1Y1
		Downward cabling	MSG41P2Y1

\* Please refer to assembly instruction.

### Receptacle

Fully loaded with right angle stamped and formed male contacts, equipped with polarization keys and fixing blocks.

Panel type and size <sup>(3)</sup>	Cable direction	Specification	Part number
Rack panel system 3U-4HP size	Upward cabling	With ejector handle* position on the lower side	MSG41RR1FPFK <sup>(1)</sup>
Rack panel system 3U-4HP size	Downward cabling	With ejector handle* position on the upper side	MSG41RR2FPFK <sup>(1)</sup>
Rack panel system 6U-4HP size	Upward cabling	-	MSG41RR1FPK <sup>(2)</sup>
Rack panel system 6U-4HP size	Downward cabling	-	MSG41RR2FPK <sup>(2)</sup>
Panel	Upward cabling	-	MSG41RR1BPFK <sup>(2)</sup>
Panel	Downward cabling	-	MSG41RR2BPFK <sup>(2)</sup>

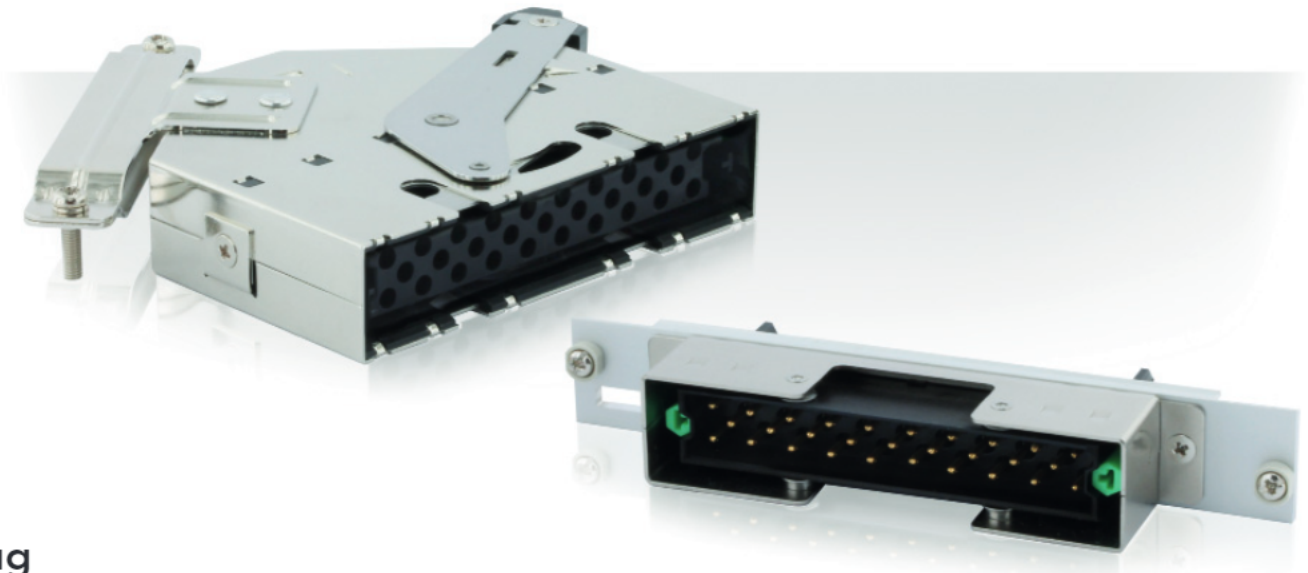
1: Delivered with screws

2: Delivered without screws. Screws to be defined by the customer according to the application

3: See panel mounting page 7

\* Ejector handle to be ordered separately

## MSG 29 pos.



### Plug

Delivered without contacts, equipped with polarization keys, grounding plate\* and small cable gland.

Contact type	Wire size mm <sup>2</sup>	Cable direction	Part number
Machined crimp #16	0.13 - 2.5	Upward cabling	MSG29P1Y1
		Downward cabling	MSG29P2Y1

\* Please refer to assembly instruction.

### Receptacle

Fully loaded with right angle stamped and formed male contacts, equipped with polarization keys and fixing blocks.

Panel type and size <sup>(3)</sup>	Cable direction	Specification	Part number
Rack panel system 3U-4HP size	Upward cabling	With ejector handle* position on the lower side	MSG29RR1FPFK <sup>(1)</sup>
Rack panel system 3U-4HP size	Downward cabling	With ejector handle* position on the upper side	MSG29RR2FPFK <sup>(1)</sup>
Rack panel system 6U-4HP size	Upward cabling	-	MSG29RR1FPK <sup>(2)</sup>
Rack panel system 6U-4HP size	Downward cabling	-	MSG29RR2FPK <sup>(2)</sup>
Panel	Upward cabling	-	MSG29RR1BPFK <sup>(2)</sup>
Panel	Downward cabling	-	MSG29RR2BPFK <sup>(2)</sup>

1: Delivered with screws

2: Delivered without screws. Screws to be defined by the customer according to the application

3: See panel mounting page 7

\* Ejector handle to be ordered separately

## MSG 5 Quadrax.



### Plug

Equipped with polarization keys and small cable gland.

Contact type	Cable direction	Cable sheath diameter	Ground clip <sup>(1) (2)</sup>	Part number
5 Quadrax included	Upward cabling	6.3 to 7.0 mm	In all cavities	MSG5AP1Y1SABCDE
5 Quadrax included	Downward cabling	6.3 to 7.0 mm	In all cavities	MSG5AP2Y1SABCDE
Without 5 Quadrax	Upward cabling	6.3 to 7.0 mm	In all cavities	MSG5AP1Y0SABCDE
Without 5 Quadrax	Downward cabling	6.3 to 7.0 mm	In all cavities	MSG5AP2Y0SABCDE
5 Quadrax included	Upward cabling	6.3 to 7.0 mm	No clip	MSG5AP1Y1S
5 Quadrax included	Downward cabling	6.3 to 7.0 mm	No clip	MSG5AP2Y1S
Without 5 Quadrax	Upward cabling	6.3 to 7.0 mm	No clip	MSG5AP1Y0S
Without 5 Quadrax	Downward cabling	6.3 to 7.0 mm	No clip	MSG5AP2Y0S

1: For other configuration please contact us.

2: Please refer to assembly instruction.

### Right Angle PCB Receptacle

Fully loaded with machined male Quadrax contacts, equipped with polarization keys and fixing block.

Panel type and size <sup>(5)</sup>	Cable direction	Male Quadrax shell <sup>(6) (7)</sup>	Specification	Part number
Rack panel system 3U-4HP size	Upward cabling	Without	With ejector handle* position on the lower side	MSG5ARR1FPFK <sup>(4)</sup>
Rack panel system 3U-4HP size	Downward cabling	Without	With ejector handle* position on the upper side	MSG5ARR2FPFK <sup>(4)</sup>
Rack panel system 6U-4HP size	Upward cabling	Without	-	MSG5ARR1FPK <sup>(3)</sup>
Rack panel system 6U-4HP size	Downward cabling	Without	-	MSG5ARR2FPK <sup>(3)</sup>
Panel	Upward cabling	Without	-	MSG5ARR1BPFK <sup>(3)</sup>
Panel	Downward cabling	Without	-	MSG5ARR2BPFK <sup>(3)</sup>

\* Ejector handle to be ordered separately

### Straight PCB Receptacle

Fully loaded with machined male Quadrax contacts, equipped with polarization keys and narrow bracket for mounting on 4HP pitch (20.32 mm). Delivered without screws.

Panel type and size <sup>(5)</sup>	Cable direction	Male Quadrax shell <sup>(6) (7)</sup>	Specification	Part number
Panel	Upward cabling	Without	-	MSG5ARS1BPK
Panel	Downward cabling	Without	-	MSG5ARS2BPK
Panel	Upward cabling	Cavity A	-	MSG5ARS1BPAK
Panel	Downward cabling	Cavity A	-	MSG5ARS2BPAK

3: Delivered without screws. Screws to be defined by the customer according to the application

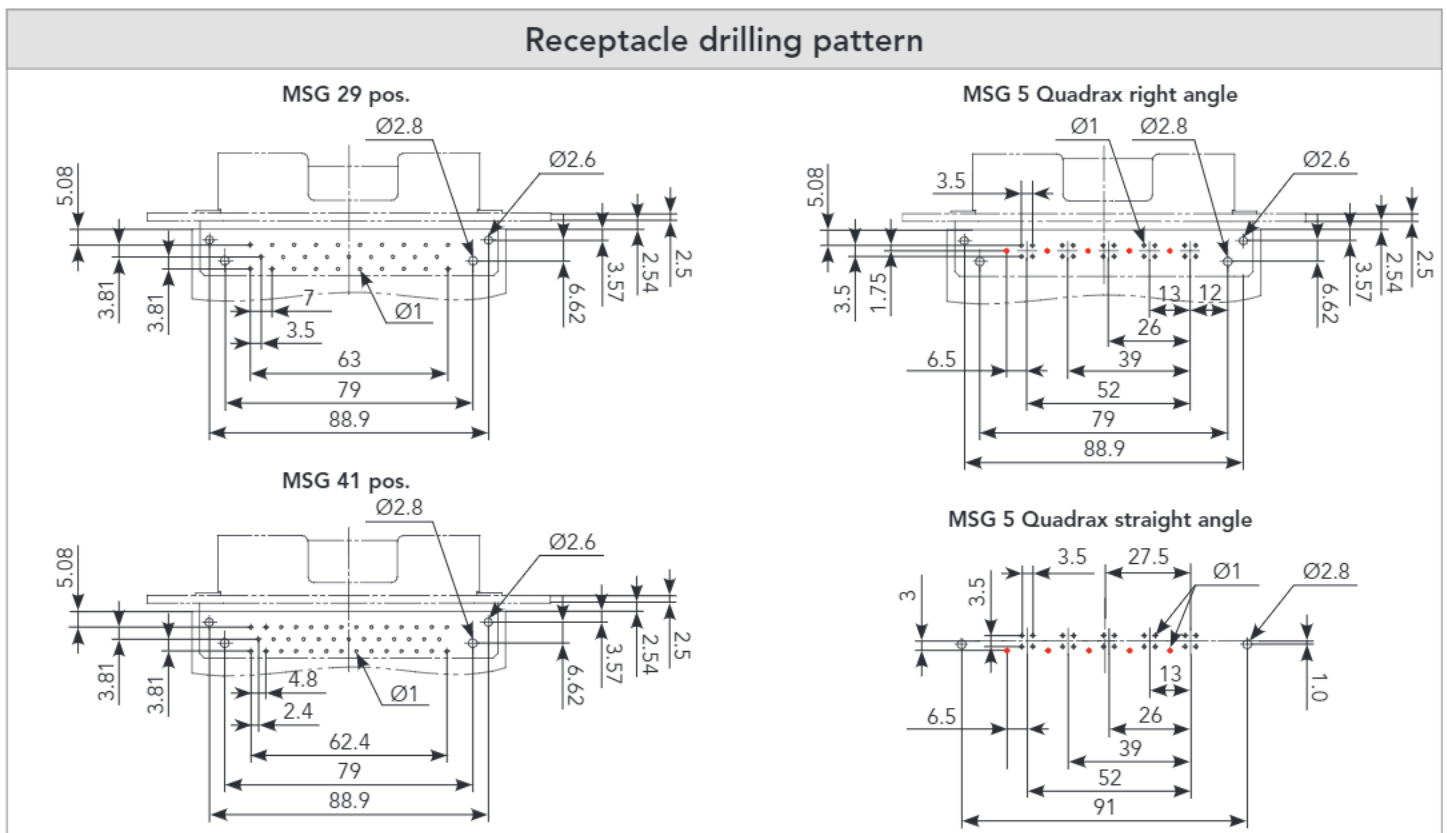
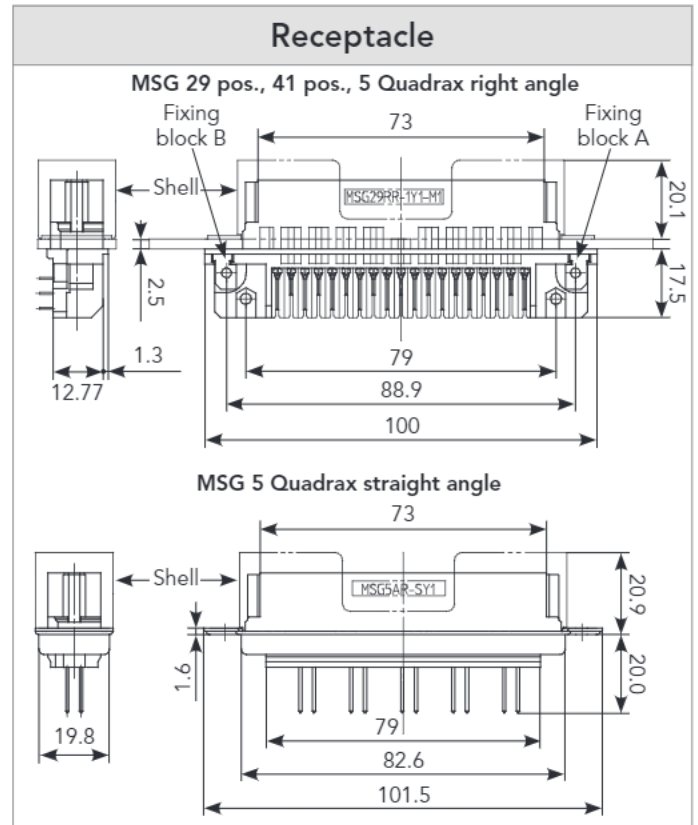
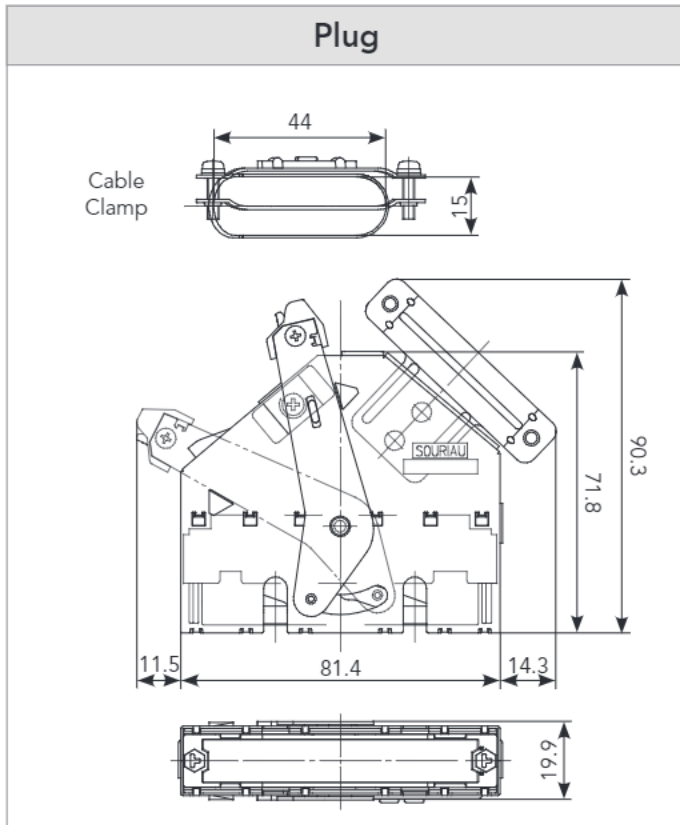
4: Delivered with screws  
5: See panel mounting page 7

6: Please refer to assembly instruction  
7: For other configuration please consult us



# MSG 3U Series


## Dimensions (mm)



● For GND-pin (shole)

## Accessories

**Polarization key**



For plug      For receptacle


Part number
<b>MSG3UPK1</b> (For receptacle)
<b>MSG3UPK2</b> (For plug)

**Kit of 1 Quadrax for Plug**



Part number
<b>MSG5AKIT</b>

**Receptacle fixing block\***



Part number
<b>MSG3UFB1</b> (Fixing block A)
<b>MSG3UFB2</b> (Fixing block B)

\* Please refer to the receptacle drawing of the page 6

**Receptacle ejector handle**



Part number
<b>MSG3UEJ2</b>

**Receptacle dust cap**

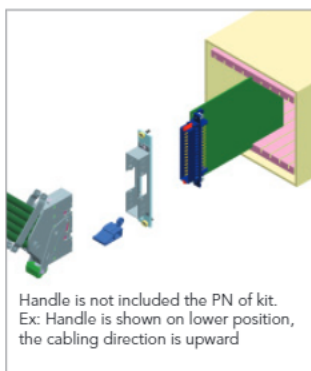


Part number
<b>MSG3UFC1</b>

## Panel Mounting and Cable Direction

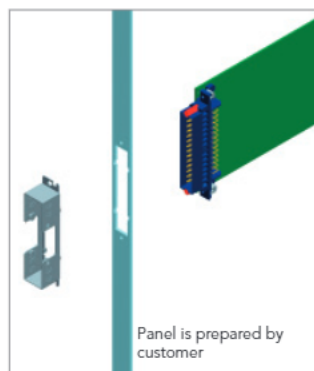
Rack-panel system  
(3U-4HP size)

Layout	For part numbers:
29	<b>MSG29RR1FPFK</b>
29	<b>MSG29RR2FPFK</b>
41	<b>MSG41RR1FPFK</b>
41	<b>MSG41RR2FPFK</b>
5 Quadrax	<b>MSG5ARR1FPFK</b>
5 Quadrax	<b>MSG5ARR2FPFK</b>



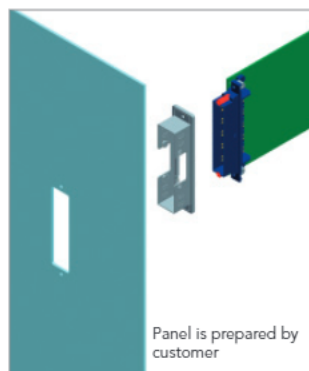
Rack-panel system  
(6U-4HP, 9U-4HP size)

Layout	For part numbers:
29	<b>MSG29RR1FPK</b>
29	<b>MSG29RR2FPK</b>
41	<b>MSG41RR1FPK</b>
41	<b>MSG41RR2FPK</b>
5 Quadrax	<b>MSG5ARR1FPK</b>
5 Quadrax	<b>MSG5ARR2FPK</b>



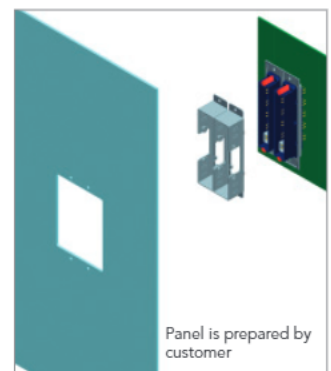
Panel system

Layout	For part numbers:
29	<b>MSG29RR1BPFK</b>
29	<b>MSG29RR2BPFK</b>
41	<b>MSG41RR1BPFK</b>
41	<b>MSG41RR2BPFK</b>
5 Quadrax	<b>MSG5ARR1BPFK</b>
5 Quadrax	<b>MSG5ARR2BPFK</b>



Panel system

Layout	For part numbers:
5 Quadrax	<b>MSG5ARS1BPK</b>
5 Quadrax	<b>MSG5ARS2BPK</b>
5 Quadrax	<b>MSG5ARS1BPAK</b>
5 Quadrax	<b>MSG5ARS2BPAK</b>



## Contacts for Plug

Contact type	Plating	AWG	mm <sup>2</sup>	Max wire Ø	Max insulator Ø	Part number female contact
Machined crimp #16 - Ø 1.6 mm	Gold 0.4µm	26-24	0.13 - 0.2	0.80	1.60	<b>RC24M9K</b>
		22-20	0.32 - 0.52	1.18	2.6	<b>RC20M14K</b>
		22-20	0.32 - 0.52	1.18	2.2	<b>RC20M12K</b>
		22-20	0.32 - 0.52	1.18	1.80	<b>RC20M13K</b>
		20-16	0.5 - 1.5	1.80	3.20	<b>RC16M23K</b>
		16-14	1.5 - 2.5	2.30	3.00	<b>RC14M50K</b>
1 Quadrax including 4 x #20 - Ø 1 mm	Gold 0.4µm	24-18	0.2 - 0.88	1.2	2.5	<b>MSG5AKIT</b> (kit of 1 Quadrax)

Note: all dimensions are in mm

## Tooling

Contact type	Part number female contact	Tool	Locator	Tool selector	Extraction tool
Machined crimp #16 - Ø 1.6 mm	<b>RC24M9K</b>	MH860 (M22520/7-01)	MH86164G	5/6	RX2025GE1
	<b>RC20M14K</b>	MH860 (M22520/7-01)	MH86164G	5/7	
	<b>RC20M12K</b>				
	<b>RC20M13K</b>				
	<b>RC16M23K</b>	MH860 (M22520/7-01)	MH86164G	6/9	
	<b>RC14M50K</b>	AF8 (M22520/1-01)	TP1142	8	
Quadrax #20 - Ø 1 mm	<b>MSG5AKIT*</b> (kit of 1 Quadrax)	M22520/2-01	M22520/2-08	4/6	TMSG3UH01

\*: 4 Contacts #20 included in MSG5AKIT

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