



## 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
- 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  $\mu\text{m}$ )
    - 5 Quadrax layout: machined male contacts, gold plated (0.4  $\mu\text{m}$ )

### Electrical

- Contact resistance: Contact #16: <2.5m $\Omega$
- Withstanding voltage: 3000V
- Insulation resistance:
  - Contact #16: > 5000 M $\Omega$  (under 500V DC)
- Wire range: Contact #16: 0.5 to 2mm<sup>2</sup>
- Creepage and clearance:
  - MSG-3U 29 pos: 3.075mm
  - MSG-3U 41 pos: 2.32mm
- Operating voltage:
  - 300V max following EN 50-124-1 / OV2PD2
- Shell continuity: <5m $\Omega$
- 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, ground 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	<b>MSG41P1Y1</b>
		Downward cabling	<b>MSG41P2Y1</b>

\* Please refer to assembly instruction.

### Receptacle

Fully loaded with right angle stamped and formed male contacts, equipped with polarization keys and fixing blocks delivered without screws <sup>(1)</sup>

Panel type and size <sup>(2)</sup>	Cable direction	Specification	Part number
Rack panel system 3U-4HP size	Upward cabling	With ejector handle* position on the lower side	<b>MSG41RR1FPPK</b>
Rack panel system 3U-4HP size	Downward cabling	With ejector handle* position on the upper side	<b>MSG41RR2FPPK</b>
Rack panel system 6U-4HP size	Upward cabling	-	<b>MSG41RR1FPPK</b>
Rack panel system 6U-4HP size	Downward cabling	-	<b>MSG41RR2FPPK</b>
Panel	Upward cabling	-	<b>MSG41RR1BPPK</b>
Panel	Downward cabling	-	<b>MSG41RR2BPPK</b>

1: Screws to be defined by the customer according to the application  
2: See panel mounting page 7

\* Ejector handle to be ordered separately

## MSG 29 pos.



### Plug

Delivered without contacts, equipped with polarization keys, ground 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 delivered without screws <sup>(1)</sup>

Panel type and size <sup>(2)</sup>	Cable direction	Specification	Part number
Rack panel system 3U-4HP size	Upward cabling	With ejector handle* position on the lower side	MSG29RR1FPPK
Rack panel system 3U-4HP size	Downward cabling	With ejector handle* position on the upper side	MSG29RR2FPPK
Rack panel system 6U-4HP size	Upward cabling	-	MSG29RR1FPPK
Rack panel system 6U-4HP size	Downward cabling	-	MSG29RR2FPPK
Panel	Upward cabling	-	MSG29RR1BPPK
Panel	Downward cabling	-	MSG29RR2BPPK

1: Screws to be defined by the customer according to the application  
2: 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	<b>MSG5AP1Y1SABCDE</b>
5 Quadrax included	Downward cabling	6.3 to 7.0 mm	In all cavities	<b>MSG5AP2Y1SABCDE</b>
Without 5 Quadrax	Upward cabling	6.3 to 7.0 mm	In all cavities	<b>MSG5AP1Y0SABCDE</b>
Without 5 Quadrax	Downward cabling	6.3 to 7.0 mm	In all cavities	<b>MSG5AP2Y0SABCDE</b>
5 Quadrax included	Upward cabling	6.3 to 7.0 mm	No clip	<b>MSG5AP1Y1S</b>
5 Quadrax included	Downward cabling	6.3 to 7.0 mm	No clip	<b>MSG5AP2Y1S</b>
Without 5 Quadrax	Upward cabling	6.3 to 7.0 mm	No clip	<b>MSG5AP1Y0S</b>
Without 5 Quadrax	Downward cabling	6.3 to 7.0 mm	No clip	<b>MSG5AP2Y0S</b>

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 delivered without screws <sup>(1)</sup>

Panel type and size <sup>(2)</sup>	Cable direction	Quadrax shell <sup>(3)</sup>	Specification	Part number
Rack panel system 3U-4HP size	Upward cabling	Without	With ejector handle* position on the lower side	<b>MSG5ARR1FPFK</b>
Rack panel system 3U-4HP size	Downward cabling	Without	With ejector handle* position on the upper side	<b>MSG5ARR2FPFK</b>
Rack panel system 6U-4HP size	Upward cabling	Without	-	<b>MSG5ARR1FPK</b>
Rack panel system 6U-4HP size	Downward cabling	Without	-	<b>MSG5ARR2FPK</b>
Panel	Upward cabling	Without	-	<b>MSG5ARR1BPFK</b>
Panel	Downward cabling	Without	-	<b>MSG5ARR2BPFK</b>

1: Screws to be defined by the customer according to the application

2: See panel mounting page 7

3: Please refer to assembly instruction.

\* 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 <sup>(1)</sup>

Panel type and size <sup>(2)</sup>	Cable direction	Quadrax shell <sup>(3)</sup>	Specification	Part number
Panel	Upward cabling	Without	-	<b>MSG5ARS1BPK</b>
Panel	Downward cabling	Without	-	<b>MSG5ARS2BPK</b>
Panel	Upward cabling	Cavity A	-	<b>MSG5ARS1BPAK</b>
Panel	Downward cabling	Cavity A	-	<b>MSG5ARS2BPAK</b>

1: Screws to be defined by the customer according to the application

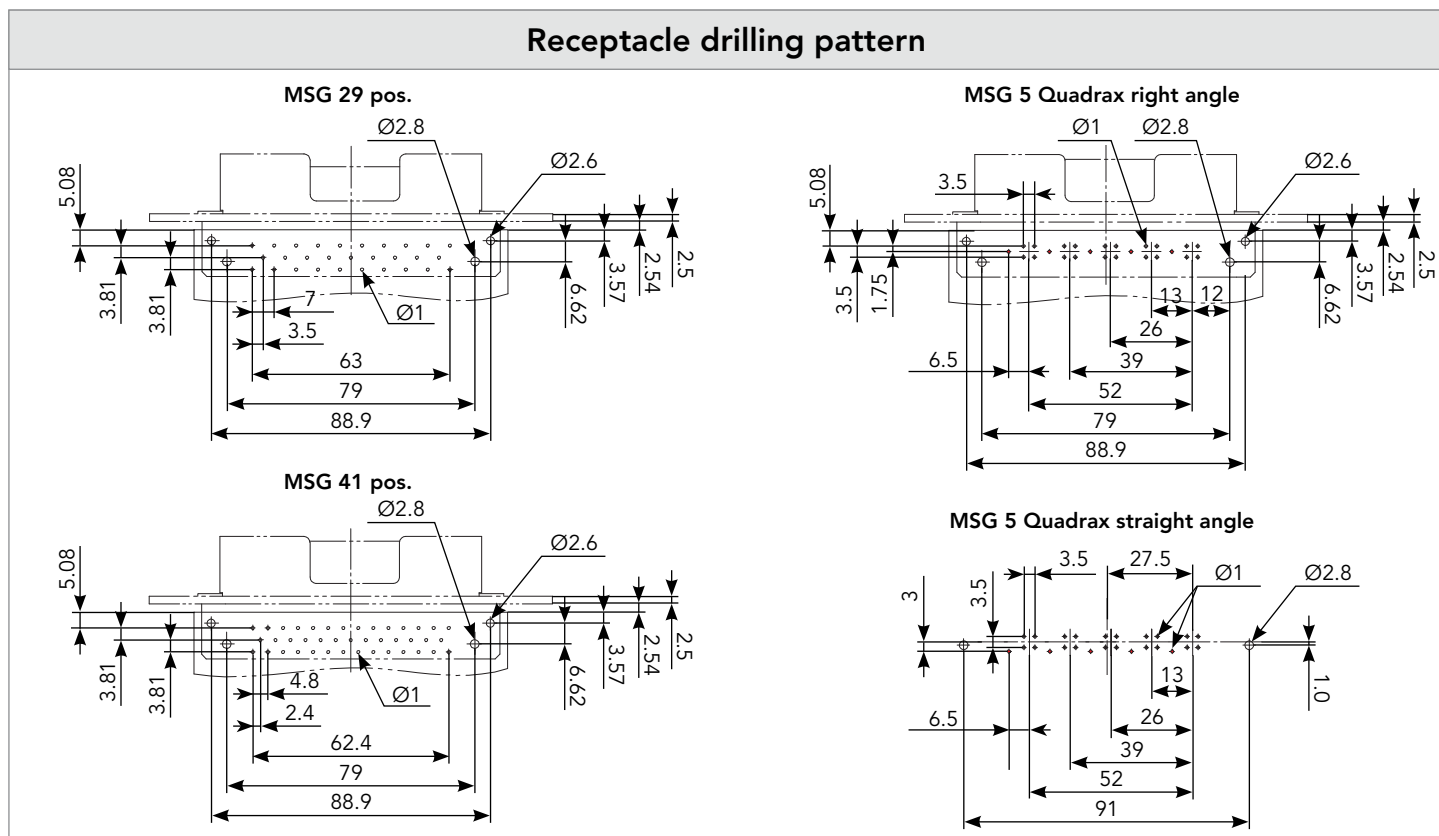
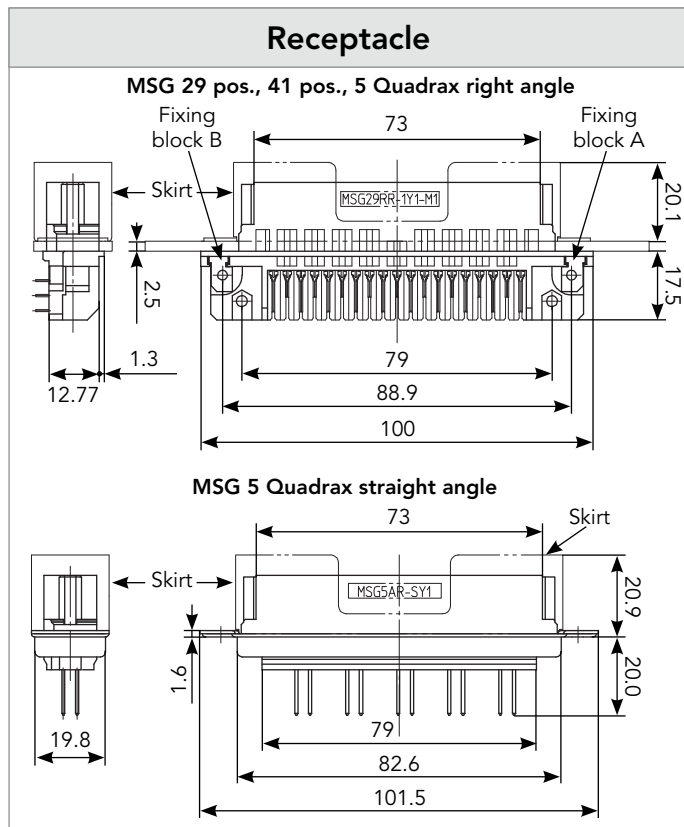
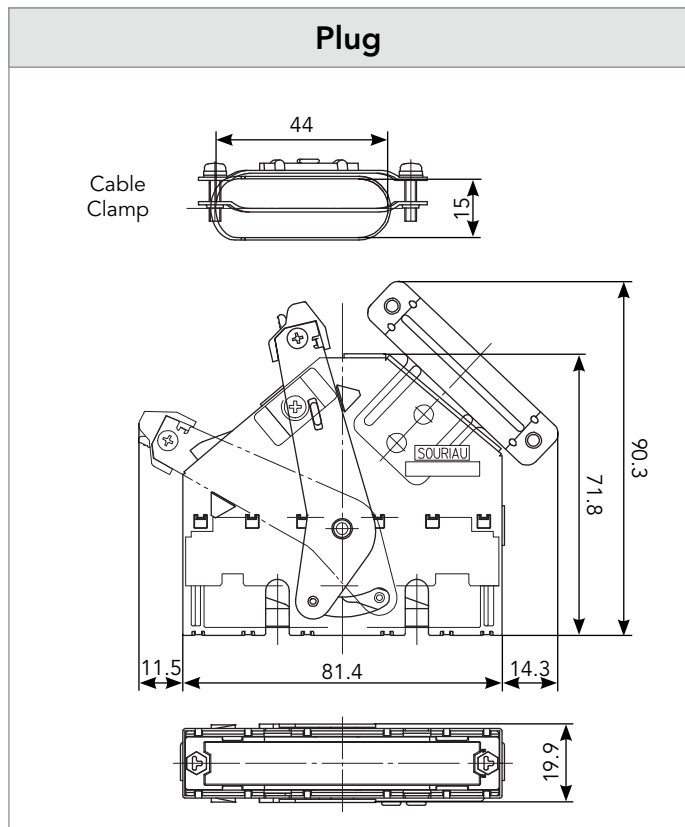
2: See panel mounting page 7

3: Please refer to assembly instruction.

\* Ejector handle to be ordered separately

# 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 5 Quadrax for Plug



x5

Part number
<b>MSG5AKIT</b>

### Receptacle fixing block



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

### Receptacle ejector handle



Part number
<b>MSG3UEJ2</b>

### Receptacle dust cap



Part number
<b>MSG3UFC1</b>

## Panel Mounting

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)

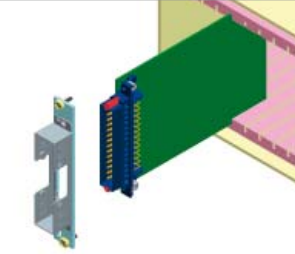
Layout	For part numbers:
29	<b>MSG29RR1FPFK</b>
29	<b>MSG29RR2FPFK</b>
41	<b>MSG41RR1FPFK</b>
41	<b>MSG41RR2FPFK</b>
5 Quadrax	<b>MSG5ARR1FPFK</b>
5 Quadrax	<b>MSG5ARR2FPFK</b>

Panel system

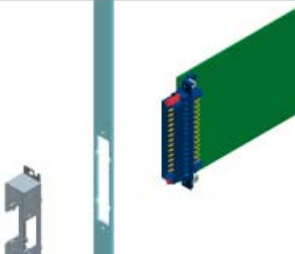
Layout	For part numbers:
29	<b>MSG29RR1BPFK</b>
29	<b>MSG29RR2BPFK</b>
41	<b>MSG41RR1BPFK</b>
41	<b>MSG41RR2BPFK</b>
5 Quadrax	<b>MSG5ARR1BPFK</b>
5 Quadrax	<b>MSG5ARR2BPFK</b>

Panel system

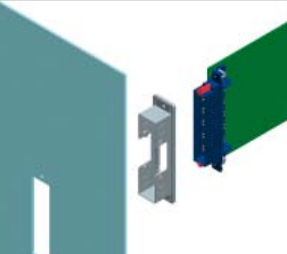
Layout	For part numbers:
5 Quadrax	<b>MSG5ARS1BPK</b>
5 Quadrax	<b>MSG5ARS2BPK</b>
5 Quadrax	<b>MSG5ARS1BPAK</b>
5 Quadrax	<b>MSG5ARS2BPAK</b>



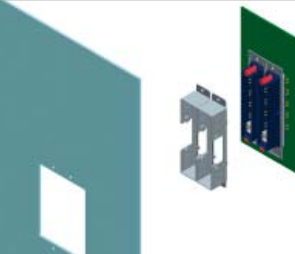
Handle is not included the PN of kit.  
Ex: Handle is shown on lower position, the cabling direction is upward



Panel is prepared by customer



Panel is prepared by customer



Panel is prepared by customer

## 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 5 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 5 Quadrax)	M22520/2-01	M22520/2-08	4/6	TMG3UH01

\*: 20 Contacts #20 included in MSG5AKIT

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