

RTU513 Remote Terminal Unit DataSheet & Connection Setting

Mounting Plate Rack WMS12

Application

The WMS12 rack is designed to be used with or without redundant power supply. Therefore, it has 2 slots for redundant power supply units (48PSM) and 17 slots that can be used for I/O modules, communication units (CMU) or a mixture of both. It is interfaced to other racks via the RTU513 serial peripheral bus (SPB). Up to 7 , WMS12 racks can be connected to a I/O Bus segment. By using the bus connection unit BCU04, the WMS12 becomes a rack with up to 8 communication unit (513CMB10) .



For applications requiring a communication unit, the use of BCU04 is required. The rack WMS12 is mounted on a mounting plate in a cubicle.

Characteristics

On the mounting plate with height of 6 HE is mounted a 19" rack height 3 HE for single Euro card format boards (DIN 41494). There are 20 slots available for the installation of boards.

Each power supply unit has a predefined slot allocated to it (slot 21 and slot 19). A second redundant 48PSM must be operated in slots 18 and 19. These slots can be used only with 48PSM module.

Slot 1 to 17 can be used for I/O boards and/or CMU modules. If no redundant power supply is used, slot 18 can be used for an additional I/O board.

Allocation of the slots:

Two slots for:

- 1 or 2 power supply units (each 2 slots wide)

17 slots for:

- Up to 8 communication units
- Up to 17 I/O boards (with redundant power supply)
- Up to 18 I/O boards (if only one 48PSM is used)

Connections

For the physical interfacing of boards edge connectors of type F (DIN 41612) are used. Rows 2 to 20 of the edge connectors connect the RTU513 system bus and are soldered directly to printed circuit board. The 18 connection points of an F female connector for the connection of the process signals are located on a plug-in socket block on the mounting panel. The process signal cables are connected to plug-in sockets with screw terminals or to connection pins for 'Standard Termi Point'. The process signals can therefore be disconnected from the plug-in socket block at any time.

A monitoring circuit on the rack WMS12 checks the supply voltages of the board (24 V DC, 5 V DC). Supply voltage failure is indicated by a status relay contact.

An additional circuit shows the status of the power supplies. Power supply failure is also indicated by a status relay contact.

Besides to the process signal connections, the following interface possibilities are located on the rear side of the printed circuit board:

- Interface to the serial peripheral bus
- Status relay contact for monitoring the internal voltages (24 V DC and 5 V DC) and status of 48PSM's.
- Interface and supply power for the BCU04

Sub-Rack Address Settings

The DIP switch register S1 (table.1) specifies the logical rack address of the PKS RTU513. Each sub-rack must have a unique rack address within one peripheral bus segment.


S1-1	S1-2	S1-3	Rack address
ON	OFF	OFF	1
OFF	ON	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
ON	OFF	ON	5
OFF	ON	ON	6
ON	ON	ON	7
S1-4 Not used			
			

Table.1: Rack address setting


Serial Peripheral Bus Connection

Table.2 shows the principle serial peripheral bus routing. The two RJ45 jacks X1 and X2 are used to expand the PKS RTU 513 with additional sub-racks by a daisy chain connection. The serial peripheral bus must be terminated by a 1 kΩ resistor at both ends. This is done in the first sub-rack by the communication unit (CMU).

The resistor is equipped per default, and can be removed by carefully opening the drill hole X4 with a 1.5 mm drill from the back side of the sub-rack. The resistor will stay only on the last sub-rack of the peripheral bus segment.

Connector X1 and X2		
Pin	Signal	
1	-	Not used
2	TA	Data-
3	TB	Data+
4	-	Not used
5	GND	Ground
6	-	Not used
7	-	
8	-	
	Shield	Connected to the enclosure

RJ45



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8

Table.2: Serial peripheral bus connector

Serial Peripheral Bus with FOSM10

If a longer distance must be linked or if the grounding situation is not clear, the fiber optic coupler FOSM10 must be used to connect the serial peripheral bus between two subracks. Figure 4 shows the principle connection and the termination of the serial peripheral bus.

Grounding Principle

Each sub-rack WMS12 must be grounded by using one of the two 6.3 mm Fasten connectors on the back side. At delivery the 0 V and the PE are connected . If this principle does not fit to the grounding principle of the plant, this connection can be removed by opening the drill hole X5 with a 5.0 mm drill at the back side of the sub-rack .

Process I/O connections

The process connection is done via the plug-in terminal blocks. The DIN-F connector is directly connected to the terminal blocks. Table 3 shows the references.

Terminal	DIN-F connector		
1			Z32
2		B32	
3	D32		
4			Z30
5		B30	
6	D30		
7			Z28
8		B28	
9	D28		
10			Z26
11		B26	
12	D26		
13			Z24
14		B24	
15	D24		
16			Z22
17	Not used		
18		B22	
19	D22		

Table.3: Process I/O connection

Fixing on the mounting-plate

The sub-rack will be fixed on the mounting-plate with 10 screws. Figure 6 shows in detail the mounting of the equipment, Figure 7 shows the position / size of the holes.

Setting

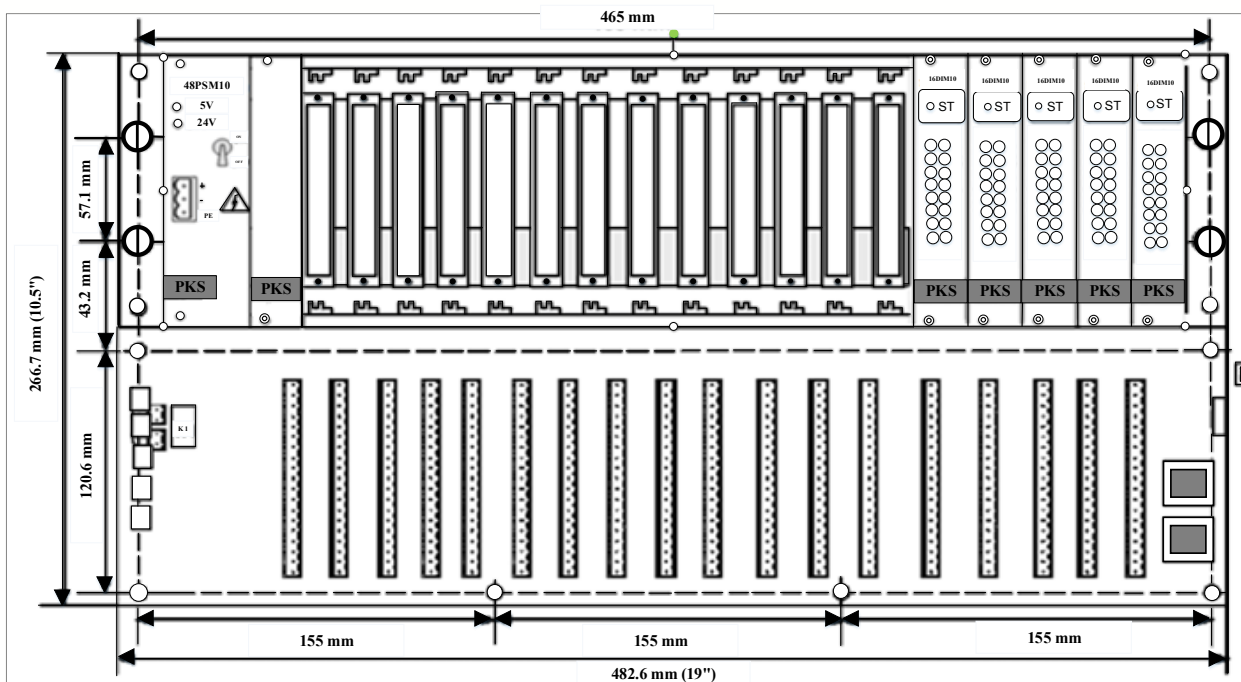


Figure 1: Front view (only one 48PSM shown)

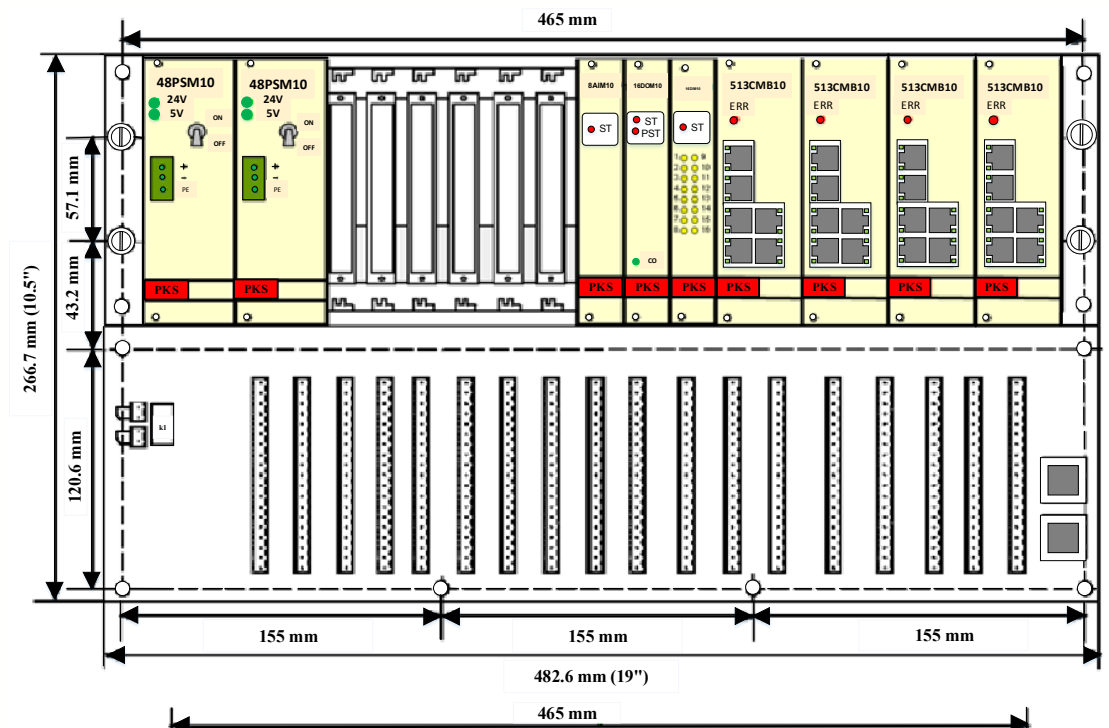


Figure 2: Configuration example (redundant power supply, four 513CMB10, three I/Os)

Setting

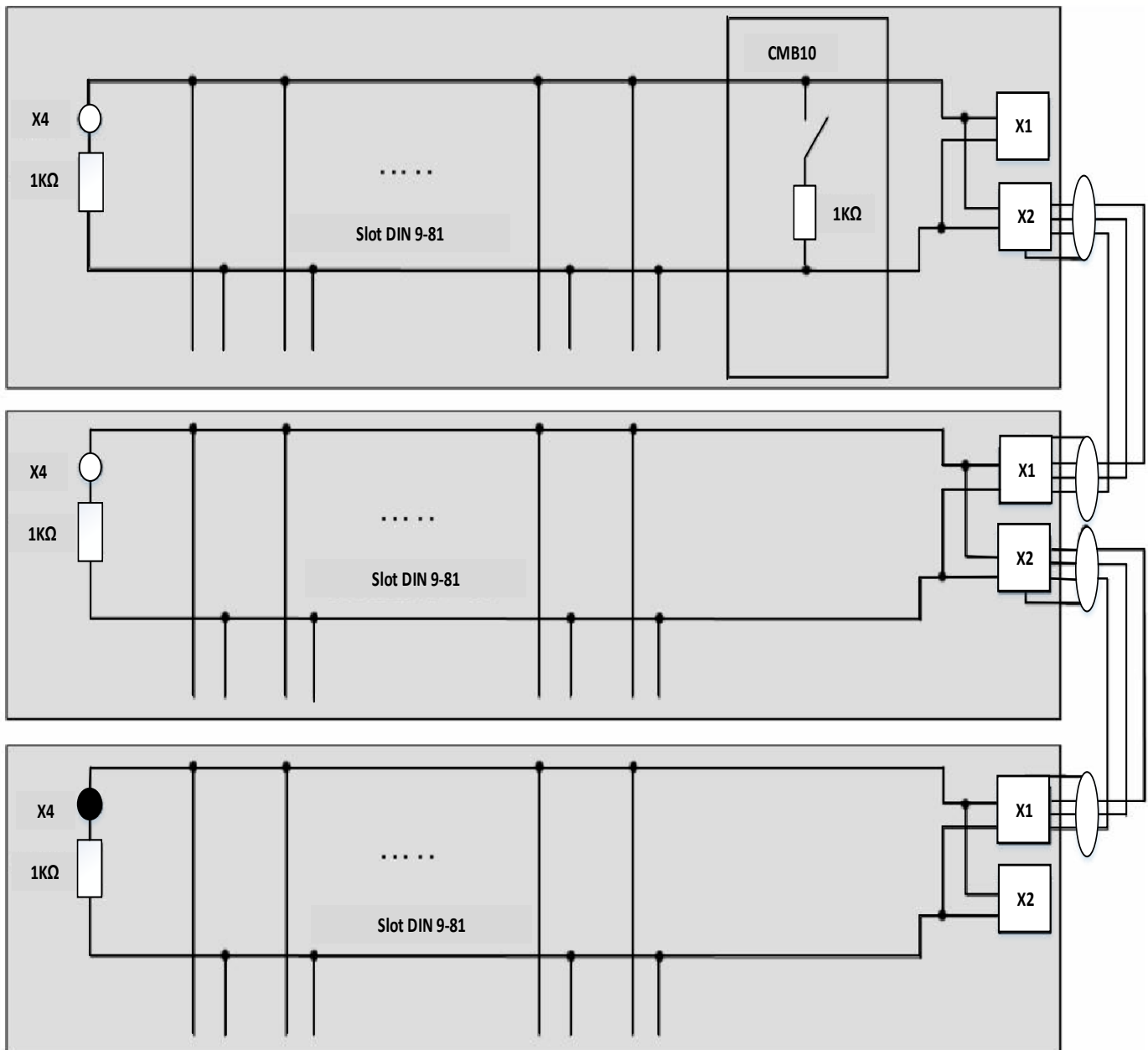


Fig. 3: Serial peripheral bus termination

Setting

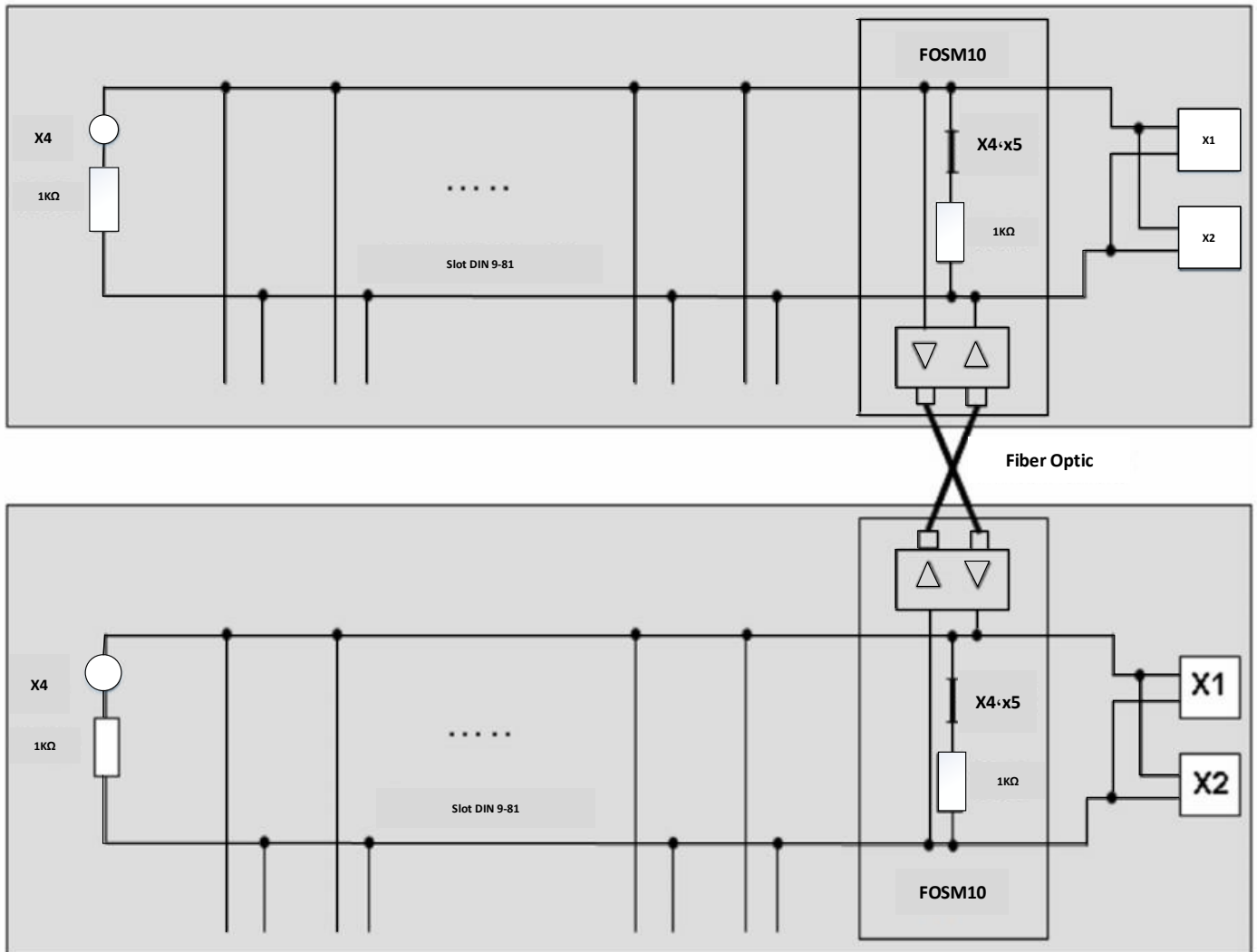


Fig. 4: Serial peripheral bus with FOSM10

Setting

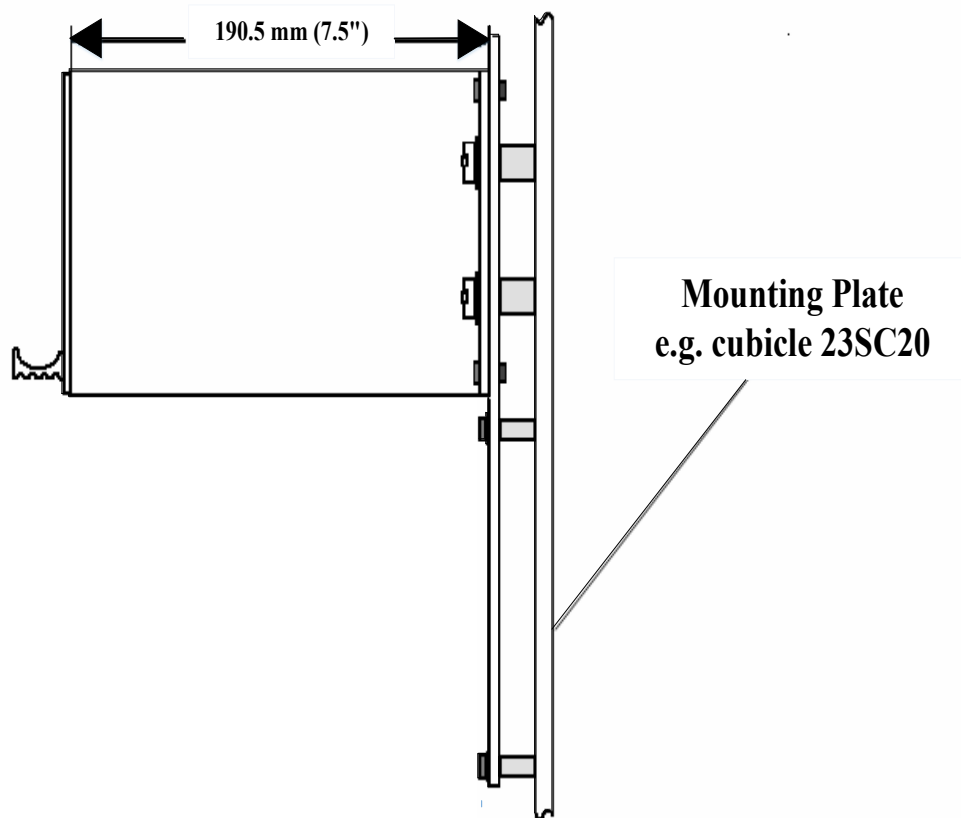
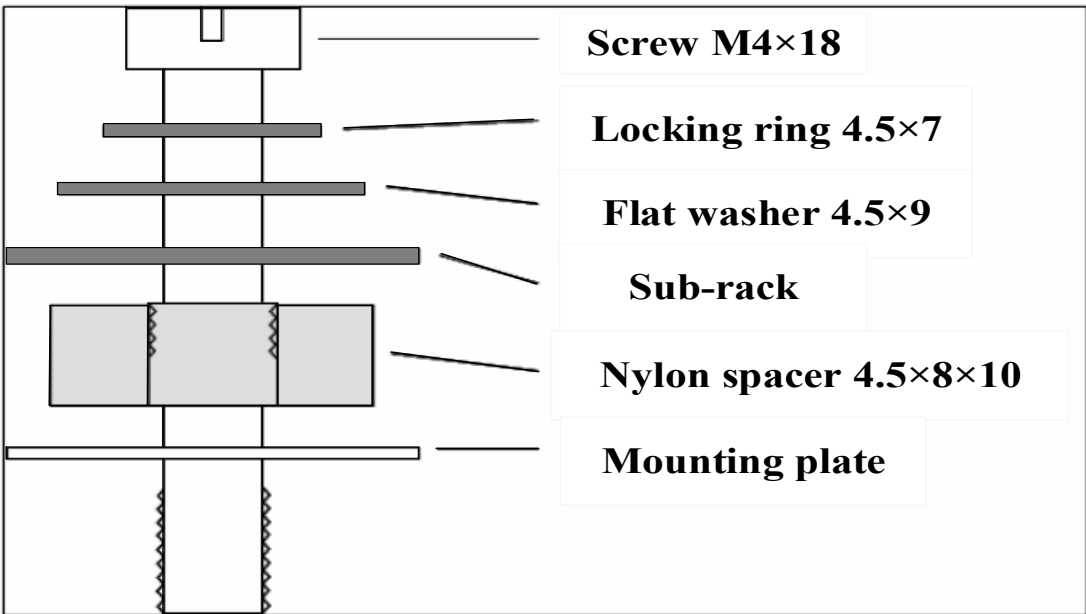
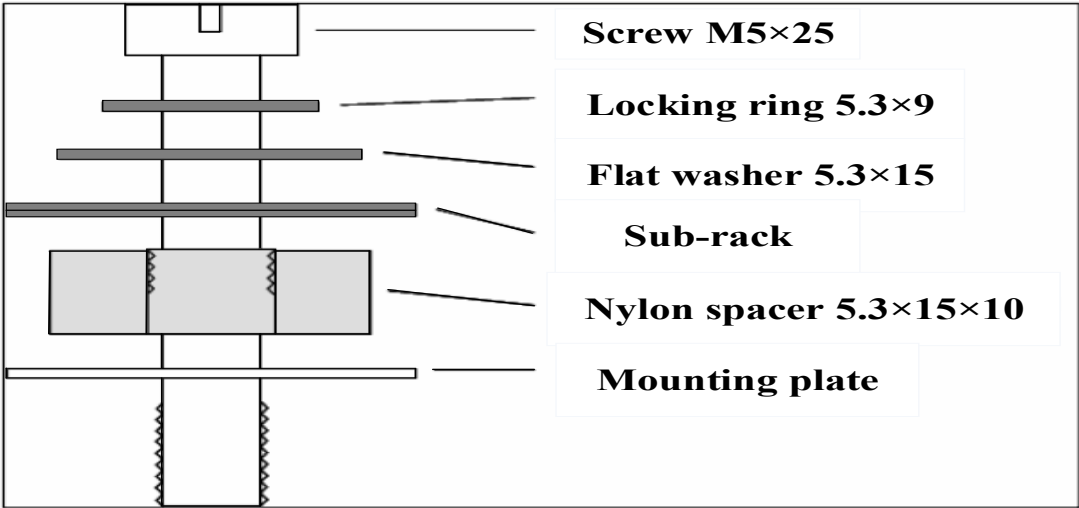


Figure 5: Rear view

Setting



Setting

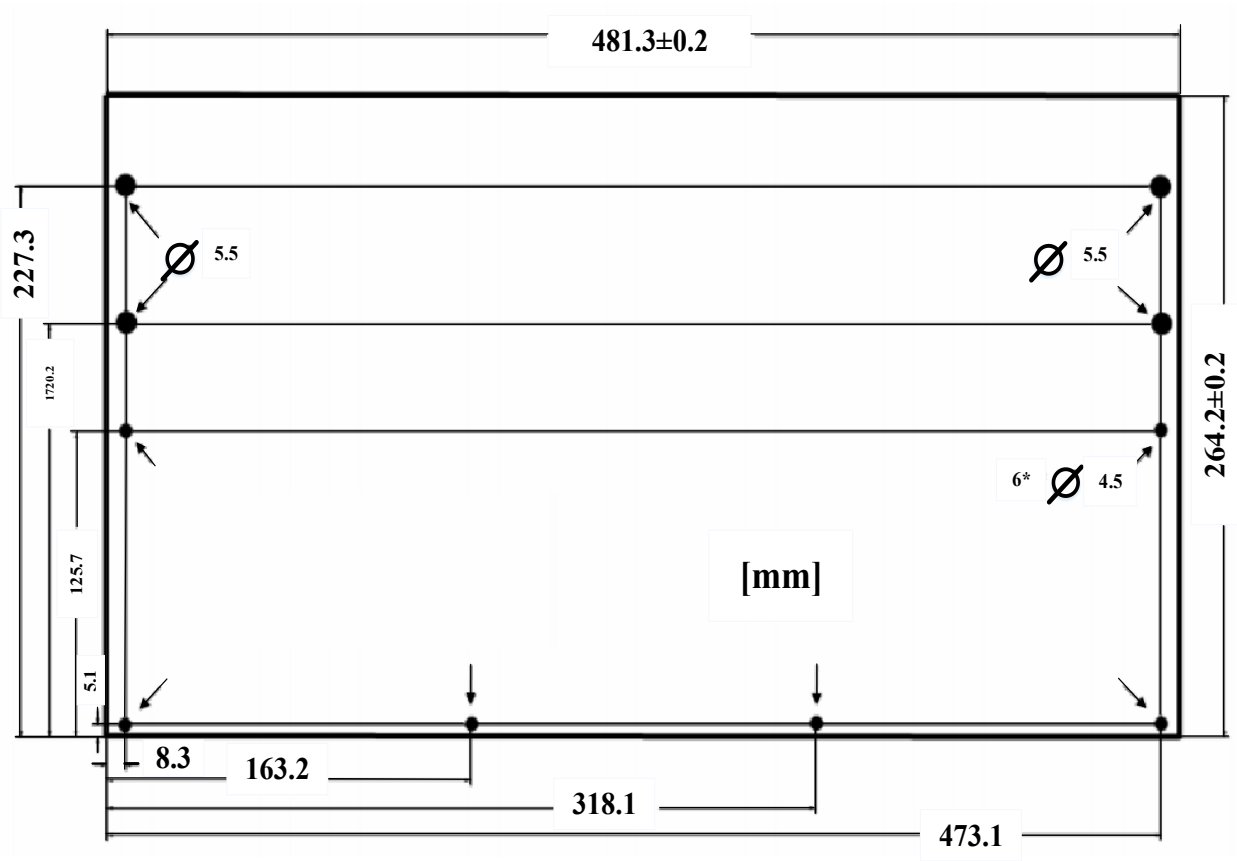


Figure 7: Position / size of the fixing holes

Technical Data

In addition to the general RTU513 technical data, the following applies:

Rack

	19", 3 U, 21 s according DIN 41494, 1s = 20,32 mm.
Dimension	132,8 x 482,6 x 190,5mm (H x W x D)
With boards	212 mm (D)
With boards and connectors	260 mm (D)
Weight	3.7 kg

Mounting Panel

Dimension	6 HE , 256.6 x 482.6 mm (W x H)
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Types of Connection

Peripheral boards	Indirect, female, 48 pole Type of DIN 41612
Process signal con- nection	Plug-in terminal strips, 19- pole, 18 signals

Serial interfaces

SPB (X1,X2)	2* RJ45-jack
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Monitoring Connections

P.S. WARNING

X13, X14, X15	Plug-in terminal strip, 2-pole each
Relay contact	Normal closed contact 1 A / 60 V DC / 30 W

Monitoring Connections

X11,X12	Plug-in terminal strip, 2 pole each
Relay contact	NC-contact 1A /60 VDC /30 W

Protection Earth

PE	2* faaten6.3 mm
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Environmental Conditions

Temperature	0 ... 70 °C
Relative humidity	5 ... 95 % (non condensing)