

# Rittal – The System.

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## ► Modular PDU – Smart metering for your IT



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FRIEDHELM LOH GROUP

# Extremely flexible – The modular PDU



Modern IT equipment is constantly evolving, requiring permanent adjustments to the IT infrastructure. With a modern PDU, you can react flexibly at any time to changing requirements for the IT power supply in the server rack, even years later. You can change the slot configuration of the modular PDU (PSM) at any time, and even add completely new functions, without having to interrupt the power supply to the IT rack.

### Flexible configuration

- Vertical, contactless busbar as the basic equipment for any IT rack
- Versatile, plug-in modules with a range of socket types for any application, may be exchanged while operational
- Supports a redundant power supply in a busbar
- Patented plug & play system for changing the modules while operational

### Convincing functions

- Extensive power measurement and switching functions for each output slot, both individually and in groups
- Easily integrated into the CMC III monitoring system
- Single-phase or 3-phase infeed, up to 22 kW per busbar
- Support of all standard protocols in conjunction with CMC III

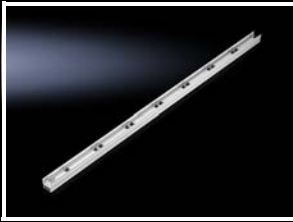
### Top quality

- High-quality aluminium enclosure
- Ambient temperature up to 60°C
- High level of measurement accuracy
- Patented system for a reliable investment



# Power System Module

## PSM busbars



### PSM busbars + PSM socket modules

#### PSM busbars

The modular system facilitates basic configuration of the racks, thanks to a vertical support rail with single-/3-phase infeed.

The various socket modules to supply the active components may be snap-fitted into the support rail. This can even be done whilst the system is operational, because the support section is shock hazard-protected.

#### PSM socket modules

The various modules, earthing pins, IEC 60 320 etc. may be inserted into the support rail in any combination. This is easily achieved, even by non-electricians, thanks to the shock hazard protected plug & play system.

#### Approvals:

Available on the Internet

#### Technical specifications/benefits:

- Each socket module picks off a phase on the support rail, either from infeed **A** or from the redundant infeed **B**, depending on the direction of connection
- Single-/3-phase construction with a maximum current of 2 x (3 x 16 A)
- 3-phase redundant infeed supported
- The redundant circuit is completely separate from the 3 phases of the support rail
- Modules may be retrofitted whilst operational
- Modules may be equipped with integral overcurrent protection, so that only the affected module is deactivated in the event of an excessively high current; the other modules remain operational
- Overvoltage protection may be integrated into the supply line
- Various modules also available with current measurement and switchable outputs



## PSM busbars

For enclosure height mm	Phases per infeed	No. of infeeds	Input current (A)	Maximum no. of module slots	Connection, connector type	Circuit-breaker 16 A	Packs of	Model No.
<b>[1] With measurement of voltage, current and power (consumption), remote-controllable via CMC III</b>								
2000	3	2	16	6	Wago X-COM	–	1 pc(s).	<b>7859.050</b>
2000	1	1	32	6	CEE	2	1 pc(s).	<b>7859.053</b>
<b>[2] With 2 infeeds (jack), 3-phase redundancy</b>								
1200	3	2	16	4	Wago X-COM	–	1 pc(s).	<b>7856.010</b>
2000	3	2	16	7	Wago X-COM	–	1 pc(s).	<b>7856.020</b>
2200	3	2	16	8	Wago X-COM	–	1 pc(s).	<b>7856.008</b>
<b>[3] With 3 m connection cable (connector type CEE/EN 60 309)</b>								
2000	3	1	16	7	CEE	–	1 pc(s).	<b>7856.005</b>
2000	3	2	16	7	CEE	–	1 pc(s).	<b>7856.006</b>
<b>[4] With 3 m connection cable (connector type CEE/EN 60 309)</b>								
2000	1	1	32	6	CEE	2	1 pc(s).	<b>7856.321</b>
2000	3	1	32	6	CEE	6	1 pc(s).	<b>7856.323</b>

#### ! Also required:

- PSM socket modules, see page 7

#### + Accessories:

- Mounting kit for PSM busbars, see page 7
- Connection cables, see page 7
- Cable lock, see Cat. 34, page 413
- Overvoltage protection, see Cat. 34, page 413

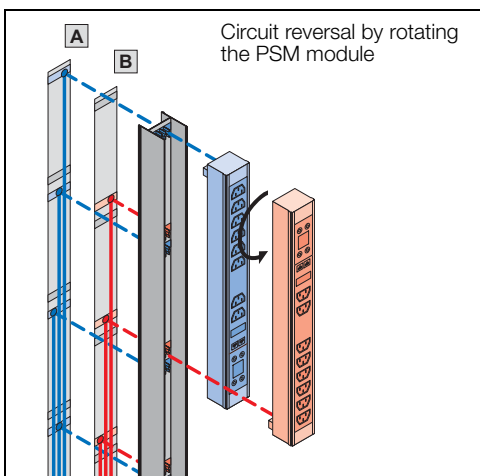
# Power System Module

## PSM measurement modules

### PSM measurement modules with CAN bus for PSM busbars

A power meter and switching functions for the output slots can be added to any PSM busbar with these PSM plug-in modules. The modules are also suitable for upgrading existing PSM installations if it becomes necessary to record the power data or add a switching option for the connected equipment.

There are three variants available with different socket types. In the PSM busbar, the PSM modules occupy two module slots each. Measurements are displayed locally on a backlit LC display. For quick checks, the colour of the display backlight changes to red if current and power limits are exceeded.



#### Functions:

- Simple, shock-hazard-protected, plug & play installation with the system operational
- Measurement of power consumption per module
- Output slots may be switched individually and in groups
- Blue LEDs per slot to visually indicate the switching status
- Status LEDs for CAN bus communication per module
- LC matrix display with multi-coloured backlight for local display
- Location sensor for correct display and Web view in 90° increments
- Adjustable limits for voltage, current and active power
- Configurable overload detection per module
- High level of measurement accuracy
- Alarm signalling via the display
- Facilitates the implementation of requirements to ISO 50001 and EN 50600-2-2
- Stable aluminium section with plastic socket inserts
- Supports universal connector locking of the IEC 60320, C13 and C19 slots
- Supports the closure of unneeded IEC 60320, C13 and C19 slots
- PSM module is easily fitted into and removed from the PSM busbar, allowing it to be used at changing locations
- Compatible with the European PSM busbar range
- Depending on the PSM busbar, up to four modules per bar may be fitted
- In redundant systems, the circuit may be switched over by rotating the module
- For ambient temperatures up to +60°C

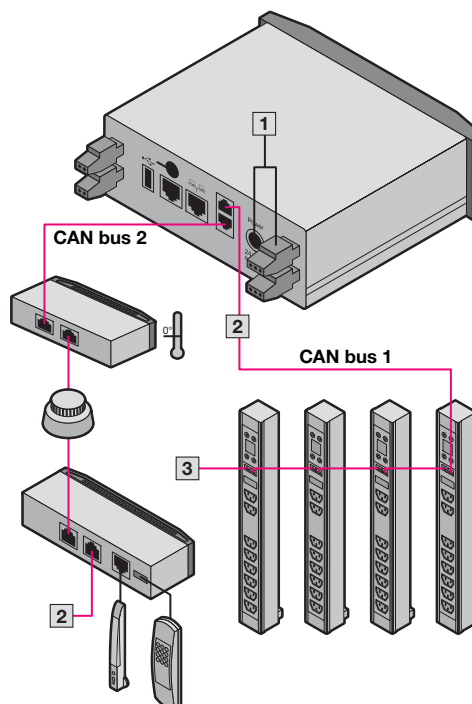


### Integration into the CMC III monitoring system

Multiple modules may be interconnected and linked directly to the CMC III enclosure monitoring system via the integral CAN bus interface. The PSM measurement module supports the configuration of an energy data management (EMS) system to ISO 50001. This may be combined with the CMC III. Using the CMC III, the individual output slots of the PSM modules may be switched individually or in groups via the network. Similarly, data logging, including diagrammatic representation, is also available via the CMC III website. Data is forwarded from the CMC III via an Ethernet interface with common protocols such as SNMPv3, Modbus/TCP and OPC-UA. The switch function is easily linked to other sensors connected to the CMC III monitoring system (e.g. CMC III temperature sensor, smoke alarm or DET-AC III extinguisher system). In larger installations, we recommend incorporating the CMC III PU with PSM modules into a DCIM software package (e.g. RiZone).

#### Additional functions:

- Alarm management via CMC III (e.g. e-mail or text message)
- Visualisation of the switching status on the CMC III website and RiZone
- Up to 16 PSM modules on one CMC III PU (for each IP address)
- Rights management via CMC III (e.g. restriction of the switching function)



- 1 Voltage supply 24 V (DC) and redundant voltage supply 24 V (DC)
- 2 Supports up to 16 sensors per CAN bus (depending on the power supply/connection combinations)
- 3 Supports up to 8 PSM modules per CAN bus

# Power System Module

## PSM measurement modules



### PSM measurement modules with CAN bus for PSM busbars

#### Supply includes:

- PSM measurement module, depending on type
- CAN bus connection cable, 1 m long



#### Also required:

- PSM busbar and accessories, see Cat. 34, from page 409
- CMC III and accessories, see Cat. 34, from page 450



#### Accessories:

- Slot cover, see Innovations 2016
- Connector lock, see Innovations 2016
- Power pack, see Innovations 2016

Model No.	7859.410	7859.420	7859.430
Packs of	1 pc(s).	1 pc(s).	1 pc(s).
No. of IEC 60 320 C13 slots	8	2	2
No. of IEC 60 320 C19 slots	-	4	-
No. of earthing-pin slots (CEE 7/3 or type F)	-	-	4
Total no. of switchable outputs	8	6	6
No. of slots required in the PSM busbar	2	2	2
Module dimensions (W x L x D) mm	53 x 500 x 45		
Section	Aluminium, anodised		
Plastic	PA6 GF 30 V1		
<b>Electrical</b>			
No. of infeeds per module	1 pc(s).		
Input voltage	230 V AC		
Input voltage, tolerance	207 – 250 V AC		
Rated current	16 A		
Distribution power per module (at 230 V)	3680 W		
Power supply (via CMC III system, alternatively with power pack 7201.210)	18 – 24 V DC		
Relay type	Dual coil/bistable		
Relay switching load	4000 VA		
<b>Measurement functions</b>			
Voltage V, current A, frequency Hz	■		
Active power kW, active energy kWh	■		
Reactive power kVar, reactive energy kVarh	■		
Apparent power kVA, apparent energy kVAh	■		
Power factor cosPhi, crest factor	■		
Operating hours meter d, h, min	■		
Measurement accuracy	±1%		
<b>Resettable measurement functions / reset via software / interval measurement</b>			
Active energy kWh	■		
Operating hours meter h	■		
Threshold values (warning/alarm) freely configurable	Voltage, current, power		
<b>Connectivity / management functions (in conjunction with CMC III)</b>			
Maximum number of usable modules per CMC III Processing Unit	16 (2 x 8)		
Maximum number of usable modules per CMC III Processing Unit Compact	4		
CAN bus for direct connection to CMC III system	2 (RJ 45)		
Network functionality (only in conjunction with CMC III system)	IPv4, IPv6, SNMPv3, Modbus/TCP, OPC-UA		
<b>Ambient conditions</b>			
Operating temperature	+5...+60°C		
Storage temperature	-20...+70°C		
Ambient humidity (non-condensing)	rel. humidity 10 – 90%		
Maximum operating altitude	2000 m		
Pollution degree	2		
Protection class (IEC 60 529)	IP 20		
<b>Approvals and standards</b>			
Approval	CE		
Standard (excerpt)	Low Voltage Directive 2014/35/EU, EMC Directive, 2014/30/EU, EN 50600-2-2, EN 60950		

# Power System Module

## PSM socket modules

### PSM socket modules

Module slots required in PSM busbar	Connector pattern	Slots	Thermal overcurrent protection	Packs of	Model No.
<b>Standard socket modules/non-switchable</b>					
1	C13	6	–	1 pc(s).	<b>7856.080</b>
1	C13	6	■	1 pc(s).	<b>7856.070</b>
1	C13	4	■/per output	1 pc(s).	<b>7856.220</b>
1	Earthing-pin/CEE 7/3	4	–	1 pc(s).	<b>7856.100</b>
1	Earthing-pin/CEE 7/3	4	■	1 pc(s).	<b>7856.090</b>
1	C19	4	–	1 pc(s).	<b>7856.230</b>
1	C13 red	6	–	1 pc(s).	<b>7856.082</b>
1	Earthing-pin, red	4	–	1 pc(s).	<b>7856.240</b>

### International socket modules

1	France/Belgium/CEE 7/5	4	–	1 pc(s).	<b>7856.120</b>
1	Switzerland T23	4	–	1 pc(s).	<b>7856.191<sup>1)</sup></b>

### Socket modules with LED display/current measurement per module

1	C13	6	–	1 pc(s).	<b>7859.120</b>
1	C19	4	–	1 pc(s).	<b>7859.130</b>

<sup>1)</sup> Only available in Switzerland.

### Approvals:

Available on the Internet



### Mounting kit for PSM busbars

#### Without cable routing

For	Installation options	Model No.
TE 8000	Static	<b>7000.684</b>
TS	Static	<b>7856.011</b>
TS IT	Plug & play	<b>7856.029</b>

#### With cable routing

For	Installation options	Model No.
TS	Static	<b>7856.022</b>
	Adjustable, for freely accessible 482.6 mm (19") level	<b>7856.023</b>



### Connection cable for PSM busbar

#### Connection cable (3-phase)

	Length m	Packs of	Model No.
CEE-conforming 5-pole/16 A	3	1 pc(s).	<b>7856.025</b>

#### Connection cable (single-phase)

CEE-conforming 3-pole/16 A	3	1 pc(s).	<b>7856.026</b>
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#### Connection cable, UPS, single-phase

C14/X-COM 10 A/UPS, 1 – 2 kVA	3	1 pc(s).	<b>7856.027</b>
C20/X-COM 16 A/UPS, 3 kVA	3	1 pc(s).	<b>7856.030</b>

#### Connection cable C19/C20

16 A	2	1 pc(s).	<b>7200.217</b>
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#### Connection cable C13/C14

16 A	0.5	2 pc(s).	<b>7856.014</b>
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