



FEATURES

- OCP based products
- 3OU height
- Size : 537(W) x 788.7(L) x 131.7(H) mm
- Accommodates up to 15 PSU modules and 3 RMU
- 50.5/54.5V output
- PSU & RMU are hot-swappable
- N+1 / N+N Redundancy
- Specialized for liquid immersion cooling



For full details go to
www.murata-ps.com/rohs

PRODUCT OVERVIEW

MWOCES-213-P-C-L is a 21" 3OU, OCP V3 based power shelf specialized for liquid immersion cooling that provides a delivery system for up to fifteen(15) 68mm, 10U [Power Supplies \(PSU\)](#), and three [Remote Management Units \(RMU\)](#), intended for 50.5V/54.5V power distribution architectures. Three AC input connectors support either three-phase four-wire delta (without neutral) or three-phase five-wire wye (with neutral) configurations for added flexibility. DC output connection is provided by pluggable bus bars.

ORDERING GUIDE

Part Number ¹	Input Configuration	DC Output Busbar Configuration
MWOCES-213-P-C-L ²	Three-Phase four wire Delta Three-Phase five wire Wye Single-Phase HVDC	Bar clip

¹ Shelf does not include the power supply modules and RMU and needed to be ordered separately as required.

² Contact Murata for availability.

- There is no warranty against coolants. A PoC (proof of concept) is required in your system.
- If you are unable to conduct a PoC in advance, you cannot use this product in a production environment.
- Provide us with your test report, so that you can have
 - The right to purchase products for the production environment.
 - One year of warranty for above products.
- If a problem occurs within the warranty period
 - We will replace it free of charge unless it is clearly the customer's fault.
- Since the product is immersed in the coolants, it may be difficult to analyze defects, and in some cases, detailed analysis may not be possible.
- This product is confirmed to operate with a single-phase immersion cooling system.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Nom.	Max.	Units
Input Voltage Operating Range	Line to Line (Delta source)	180	200/208/277	305	Vac
	Line to Line (Wye source with neutral connection)	312	346/360/480	528	
	HVDC	192	240/380	400	Vdc
Frequency	AC input	47	50/60	63	Hz
Input Current For Input 1 & Input 2	Wye / Single-phase: 200-277Vac (Each input, per line)			41	Arms
	Delta : 200-277VAC (Each input, per line)			72	
	240-380VDC (each input, per line)			34	Adc
Input Current For Input 3	Wye / Single-phase: 200-277Vac (Each input, per line)			20.5	Arms
	Delta : 200-277VAC (Each input, per line)			36	
	240-380VDC (each input, per line)			17	Adc

ENVIRONMENTAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Storage temperature range	Non-operating	-40		70	°C
Operating temperature range	Single-phase immersion liquid cooling	Depend on the customer environment.*			
Storage humidity	Non-condensing	10		90	%
Weight (Typical)	Shelf Only, without PSUs and RMU	39			kg

*Please maintain the operating temperature below 55°C. If it exceeds 55°C, the PSU will issue a warning.

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Insulation safety rating/test voltage	Input to output – Reinforced	5,000**			Vdc
	Input to chassis	2,500**			
Isolation	Output to chassis	50**			Vdc

EMISSION AND IMMUNITY

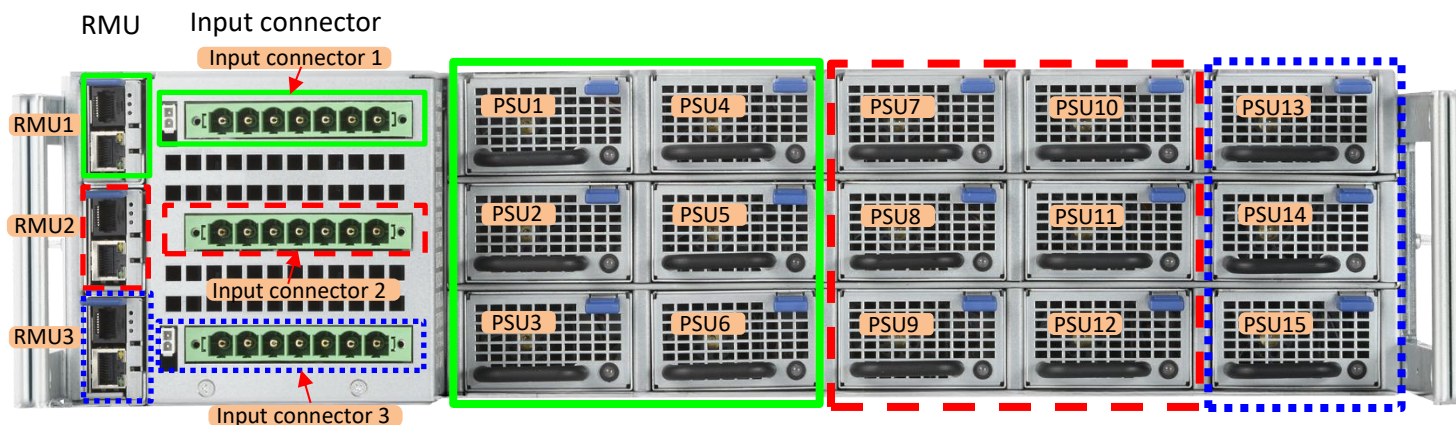
Parameter	Standard	Criteria
Input current harmonics	IEC/EN 61000-3-12	Class A**
Conducted emission	CISPR 32	Class A**
ESD immunity	IEC/EN 61000-4-2	Level 4 criteria A**
Electrical fast transient/burst immunity	IEC/EN 61000-4-4	Level 3 criteria B**
Surge immunity	IEC/EN 61000-4-5	Level 3 criteria A**

** The evaluation conditions are the shelf alone and an air-cooled environment.

Under these conditions, this product has a performance value that meets the standards in the table.

PRODUCT VIEWS AND CONNECTOR DETAILS

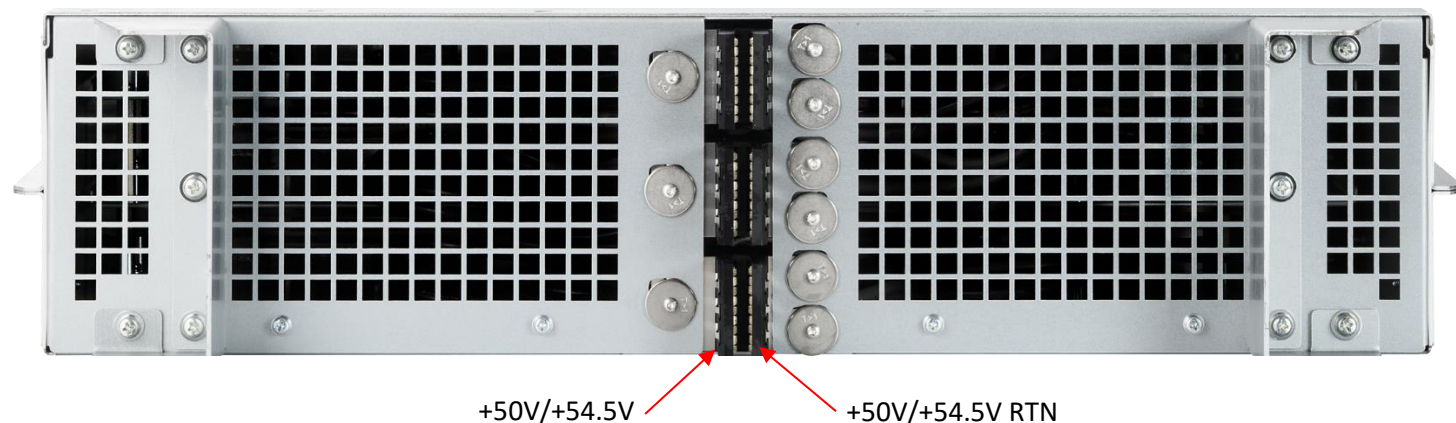
Front View



The combination of inputs provided to the PSU is as follows.

- RMU1 - Input connector 1 - PSU1 to PSU6
- RMU2 - Input connector 2 - PSU7 to PSU12
- RMU3 - Input connector 3 - PSU13 to PSU15

Rear View



INPUT CONNECTOR PIN ASSIGNMENT (AC INPUT 1 & 2 & 3)

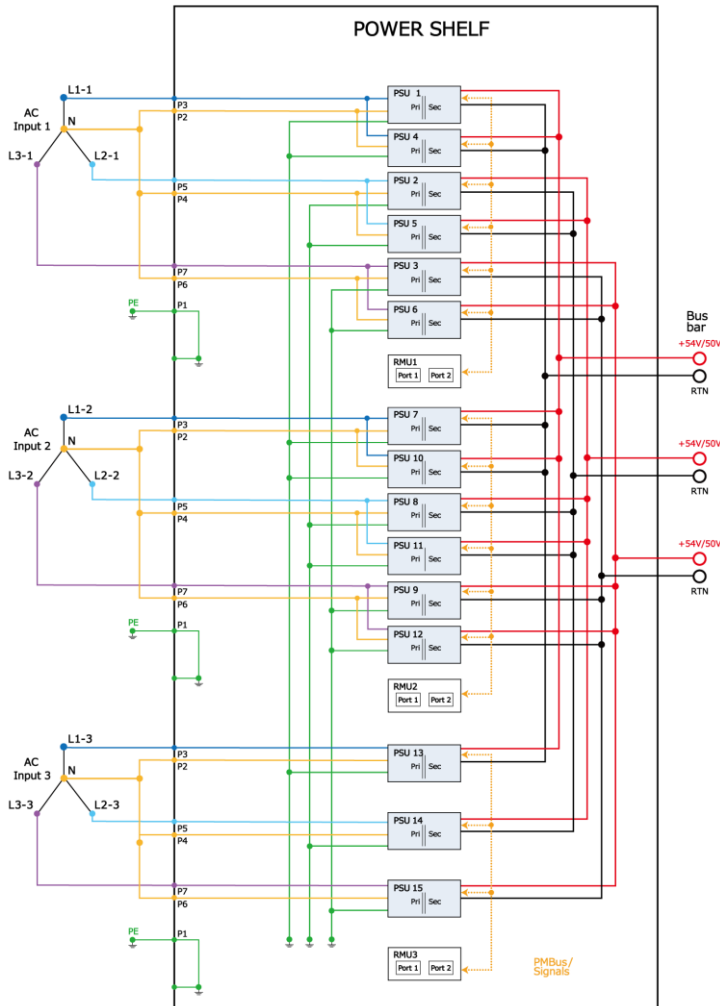
Phoenix Contact: PC 6-16/ 7-G1F-10,16-1999055 (Power shelf side)

Phoenix Contact: SPC 16/7-STF-10.16-1711420 (Mating connector)

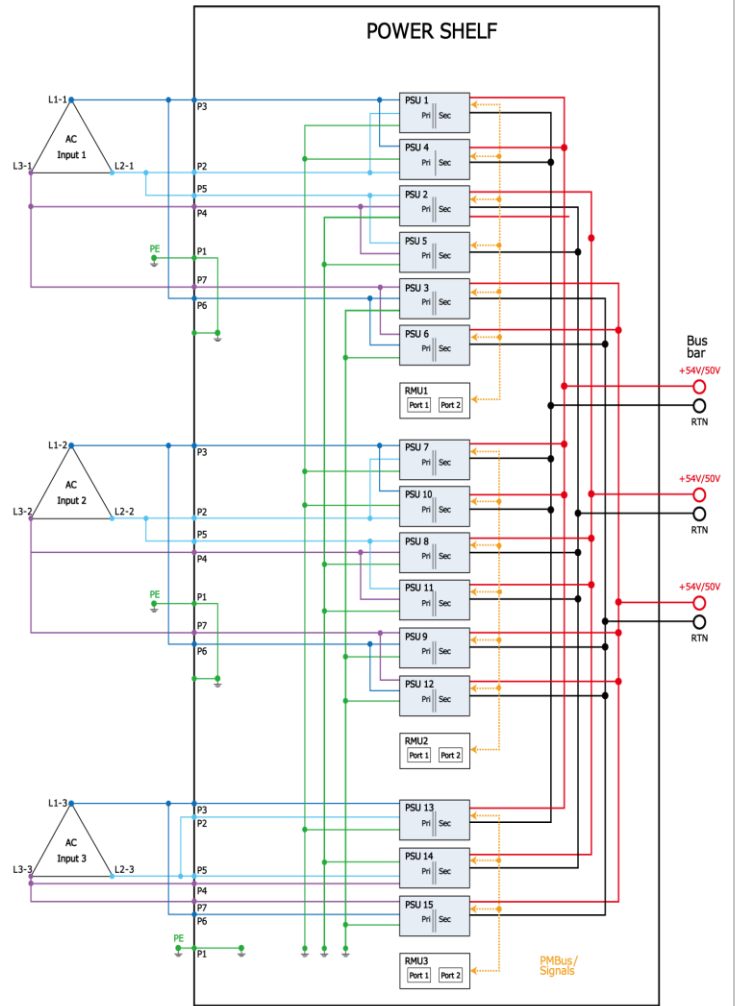
Wye Input			Delta Input			Single Input			HVDC Input		
PIN No	Signal	Function	PIN No	Signal	Function	PIN No	Signal	Function	PIN No	Signal	Function
1	PE	PROTECTIVE EARTH	1	PE	PROTECTIVE EARTH	1	PE	PROTECTIVE EARTH	1	PE	PROTECTIVE EARTH
2	N	Neutral	2	L2	AC Line voltage2	2	N	NEUTRAL	2	(- HVDC)	DC RETURN
3	L1	AC Line voltage1	3	L1	AC Line voltage1	3	L	AC LIVE	3	(+ HVDC)	DC POSITIVE
4	N	Neutral	4	L3	AC Line voltage3	4	N	NEUTRAL	4	(- HVDC)	DC RETURN
5	L2	AC Line voltage2	5	L2	AC Line voltage2	5	L	AC LIVE	5	(+ HVDC)	DC POSITIVE
6	N	Neutral	6	L1	AC Line voltage1	6	N	NEUTRAL	6	(- HVDC)	DC RETURN
7	L3	AC Line voltage3	7	L3	AC Line voltage3	7	L	AC LIVE	7	(+ HVDC)	DC POSITIVE

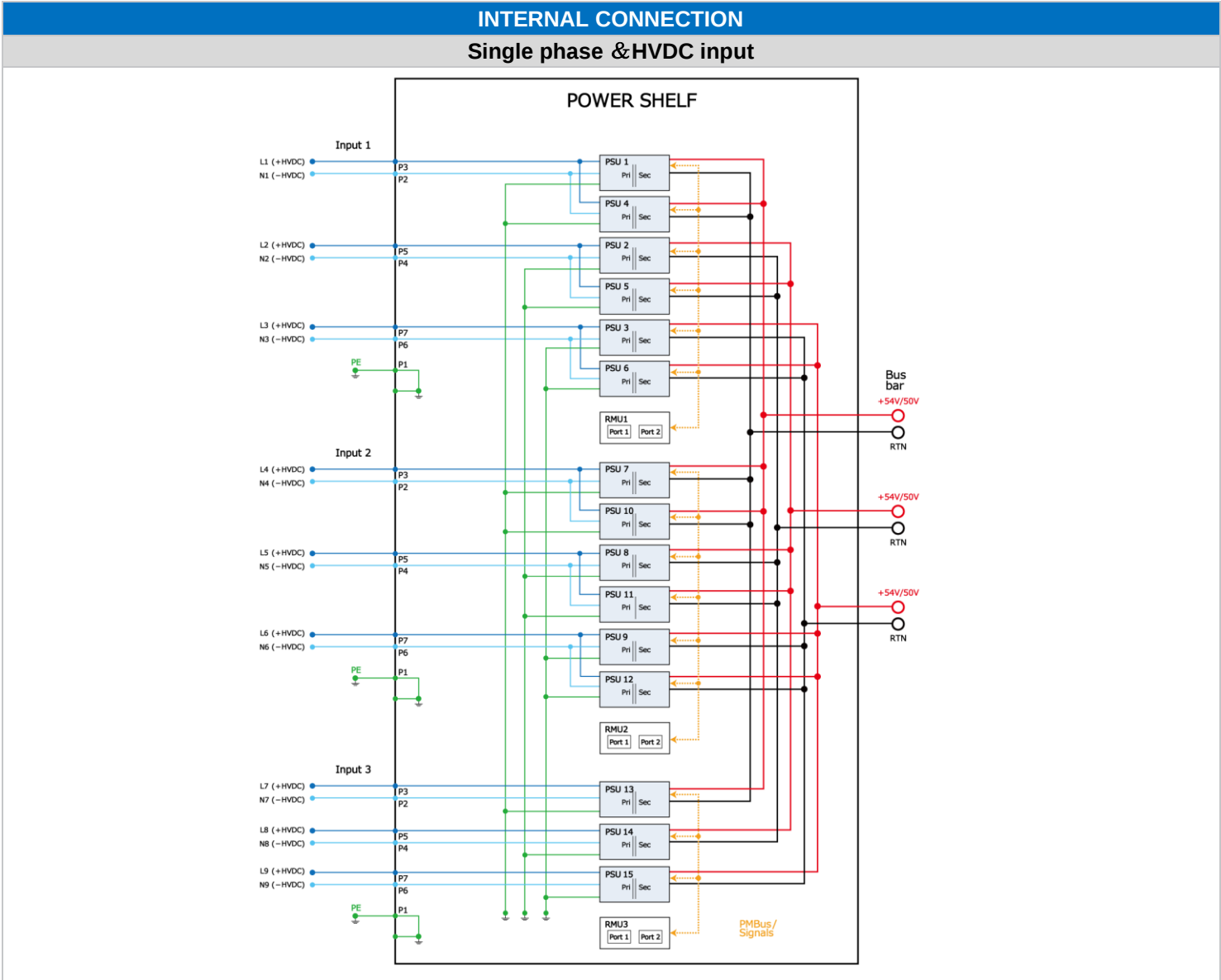
INTERNAL CONNECTION

Wye input



Delta input

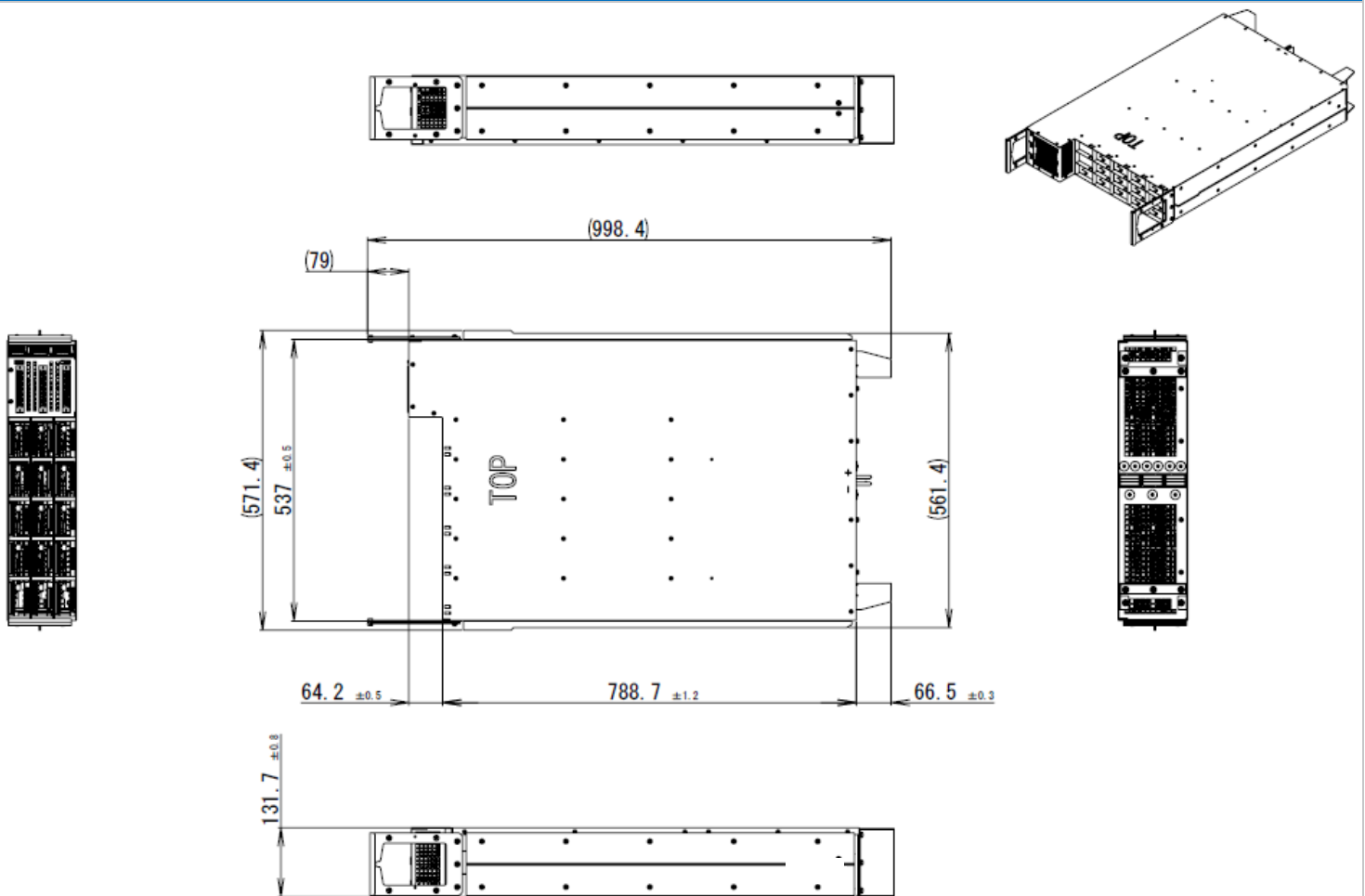




COMMUNICATION (WITH MWOC-RMU)	
FUNCTION	DESCRIPTION
Control the units	ON/OFF control of each unit installed in the power shelf Select the power source line
Reporting to the host	ON/OFF Status and presence information of each unit Status of input power sources Fault information of each unit Input power and output power of PSUs Output power

Link Back To [Order Guide](#)

MECHANICAL DRAWING



RELATED PRODUCT DATASHEETS

Document Number	Description	Link to Related Datasheets
MWOC-RMU-3	Monitor and control unit	URL Link to Document
MWOC68-3600-D-RM	3.6kW/54.5V ac-dc front-end PSU module	URL Link to Document
MWOC68-3600-B-RM	3.6kW/50V ac-dc front-end PSU module	
MWOC_BLANKING_PANELS	Blanking panel accessories	URL Link to Document

[back to the product overview](#)

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ISO 9001 REGISTERED



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