



PRODUCT OVERVIEW

MWOCES-192 Series is a 19" 2U, OCP compliant power shelf that provides a delivery system for up to six 74mm 1U [Power Supplies \(PSU\)](#), one [Remote Management Unit \(RMU\)](#), two Automatic Transfer Switches (ATS)¹ intended for Power Distribution architectures. Two AC input connectors are provided supporting either 3 Phase, 4W Delta without Neutral or 3 phase 5W WYE with Neutral configurations for increased flexibility. The DC output is provided by a single set of busbars and six C13 AC outlets are provided for peripheral equipment power.

FEATURES

- OCP compliant
- 15kW Total Output Power (N+1)¹
- 2U Height
- 444(W)x680(L)x87(H)mm
- Accommodates up to six PSUs, two ATS modules and one RMU²
- Input redundancy can be achieved with ATS²
- 12.3V Output
- Optional mounting kit available
- N+1 Redundancy
- Hot Swappable
- Equipped with six C13 2.5A / AC outlet
- Support external BBU (Murata battery backup system)

¹includes power drawn from the AC outlets

² MWOCES-192-M Model does not support ATS module(s)



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



ORDERING GUIDE

Part Number ¹	Output Busbar Configuration	Input Configuration	ATS Function
MWOCES-192-A	Multi-link busbar	Three-phase four wire Delta	Yes
MWOCES-192-G ²		Three-phase five wire Wye	Yes
MWOCES-192-M		Three-phase four wire Delta Three-phase five wire Wye Single-phase	No

¹ shelf does not include PSU, ATS or RMU items; refer to the product datasheet for details

² contact Murata for availability

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Nom.	Max.	Units
Input Voltage	Line to Line (MWOCES-192-A, M)	180	200-240	264	Vac
Operating Range	Line to Line (MWOCES-192-G, M)	312	346-415	457	
Frequency		47	50/60	63	Hz
Input Current	MWOCES-192-A, M (200-240VAC line to line) per line			56.0	Arms
	MWOCES-192-G, M (200-240VAC line to Neutral) per line			56.0	

OUTPUT CHARACTERISTICS

Output Voltage	Parameter	Conditions	Min.	Typ.	Max.	Units
12.3Vdc	Output Power ^{4,5}	With six (6) PSUs	0		15,000	W
		With five (5) PSUs	0		15,000	
		With four (4) PSUs	0		12,000	
		With three (3) PSUs	0		9,000	
		With two (2) PSUs	0		6,000	
		With one (1) PSU	0		3,000	
	Output Current ⁵	With six (6) PSUs	0		1,220	A
		With five (5) PSUs	0		1,220	
		With four (4) PSUs	0		976	
		With three (3) PSUs	0		732	
		With two (2) PSUs	0		488	
		With one (1) PSU	0		244	
	Holdup Time	With six (6) PSUs [5+1]	14.4			ms
		With six (6) PSUs [3+3]	24			
		With five (5) PSUs [4+1]	15			
With four (4) PSUs [3+1]		16				
With four (4) PSUs [2+2]		24				
With three (3) PSUs [2+1]		18				
With two (2) PSUs [1+1]		24				
With one (1) PSU		12				

⁴In case of 3 bus bar (V1 Open Rack) connection with/without KIT, output power through a bus bar shall be less than 5kW.

⁵Refer to [OUTPUT CHARACTERISTICS](#) table for deployments with MWOC-ATS-1.

OUTPUT CHARACTERISTICS FOR DEPLOYMENTS WITH ATS-1

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Power (With PSUs)	With six (6) PSUs	0		15,000	W
	With five (5) PSUs	0		12,500	
	With four (4) PSUs	0		10,000	
	With three (3) PSUs	0		7,500	
	With two (2) PSUs	0		5,000	
	With one (1) PSU	0		2,500	
Output Current (With PSUs)	With six (6) PSUs	0		1,220	A
	With five (5) PSUs	0		1,016	
	With four (4) PSUs	0		813	
	With three (3) PSUs	0		610	
	With one (2) PSUs	0		407	
	With one (1) PSU	0		203	

ENVIRONMENTAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Storage temperature range		-40		70	°C
Operating temperature range	Altitude < 3,000m	0		40	
Storage humidity	Non condensing	10		90	%
Operating humidity	Non condensing	10		85	
MTBF	Per Telcordia SR-332 M1C1 @ 40°C	200k			Hrs
Shock	12G non-operating				
Vibration	Operating, sine vibration, 5-500Hz 1G				
Safety approval	c-CSA-us (CSA 60950-1-03 / UL 60950-1 second edition) RoHS				
Weight	Shelf only, without PSUs/ATSs/RMU		16.6		Kg

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Insulation safety rating / test voltage	Input to output - Reinforced	3,000			Vrms
	Input to chassis	1,922			
Isolation	Output to chassis	50			Vdc

EMISSION AND IMMUNITY

Parameter	Standard	Criteria
Input current harmonics	IEC/EN 61000-3-2	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 4 criteria A

ATS SLOT ASSIGNMENTS

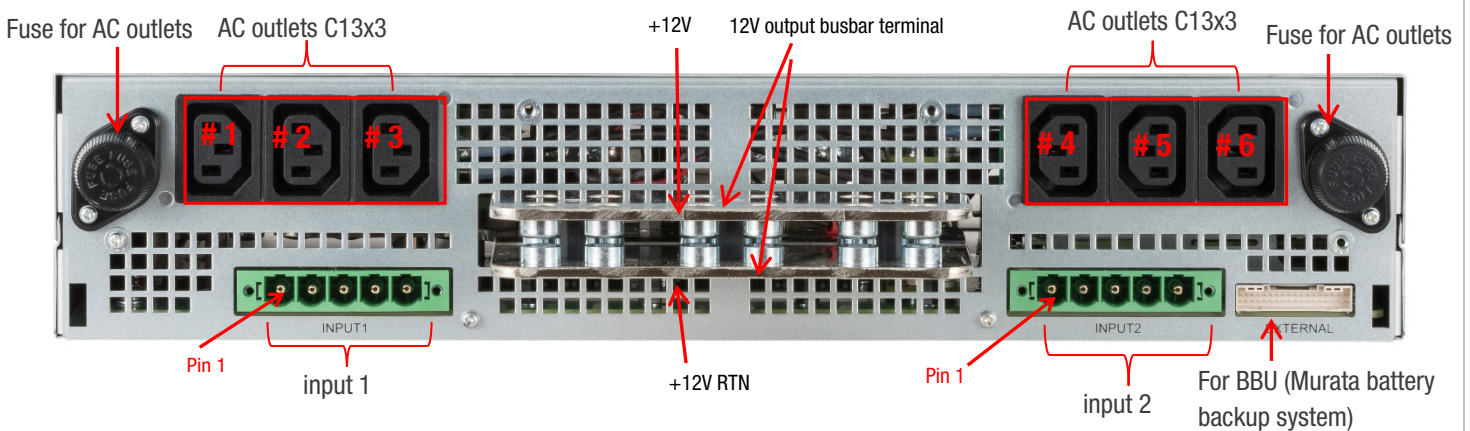
Power Shelf	ATS Slot A	ATS Slot B	Description
MWOCES-192-A	MWOC-ATS-1	MWOC-ATS-1	Delta Input Configuration
	MWOC-ATS-3	MWOC-ATS-B	Delta Input Bypass No ATS
MWOCES-192-G	MWOC-ATS-2	MWOC-ATS-2	Wye input configuration
	MWOC-ATS-4	MWOC-ATS-B	Wye input By-pass No ATS

PRODUCT VIEWS AND CONNECTOR DETAILS

FRONT VIEW: MWOCES-192-A, G



REAR VIEW: MWOCES-192-A, G



SAFETY CONSIDERATIONS



Junction between shelf and rack Busbar may be extremely hot, in the case of a heavy load and especially when shelf is mounted in V2 Open Rack (Single Busbar). Please be aware and take adequate precautions.

INPUT CONNECTOR PIN ASSIGNMENT (MWOCES-192-A, G ; AC INPUT 1 & 2)

Phoenix Contact: PC 6-16/5-G1F-10.16-1999039 (power shelf side)

Phoenix Contact PC 6-16/5-G1F-10.16-1711404 (mating connector)

Model: MWOCES-192-A

Pin No.	Signal	Function
P1	PE	Protective Earth
P2	NC	Not Connected
P3	L3	AC line voltage 3
P4	L2	AC line voltage 2
P5	L1	AC line voltage 1

Model: MWOCES-192-G

Pin No.	Signal	Function
P1	PE	Protective Earth
P2	N	Neutral
P3	L3	AC line voltage 3
P4	L2	AC line voltage 2
P5	L1	AC line voltage 1

AC OUTLET CONNECTORS 1-6

Description	Notes
IEC 320-2-2/F (C13)	<ol style="list-style-type: none"> The convenience outlets are internally connected to the main AC inputs and are not galvanically isolated. Output voltage: 200-240VAC 50/60Hz, maximum 2.5A per outlet; Total power drawn from these outlets needs to be considered by end user when selecting the external mains circuit protector and also to ensure maximum input current ratings of this shelf are not exceeded. Branch fuse protection is provided by a 600V 15A Bussmann FNQ-R-15 or LP-CC or Littlefuse KLDR015.TXP. Replaced with same type and ratings.



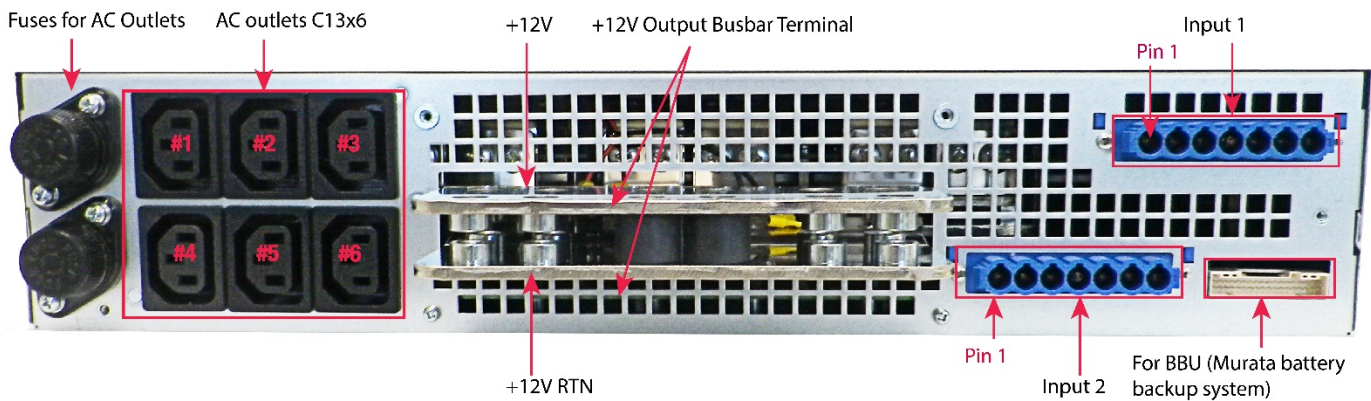
Murata Power Solutions

PRODUCT VIEWS AND CONNECTOR DETAILS

FRONT VIEW: MWOCES-192-M



REAR VIEW: MWOCES-192-M



SAFETY CONSIDERATIONS



Junction between shelf and rack Busbar may be extremely hot, in the case of a heavy load and especially when shelf is mounted in V2 Open Rack (Single Busbar). Please be aware and take adequate precautions.

INPUT CONNECTOR PIN ASSIGNMENT (MWOCES-192-M; AC INPUT 1 & 2)

Model: MWOCES-192-M

Positronic SP10RSSS48M220A1/AA-2269 (power shelf side)

Positronic SP10RSSS1F0W01/AA-2268 (Mating Connector)

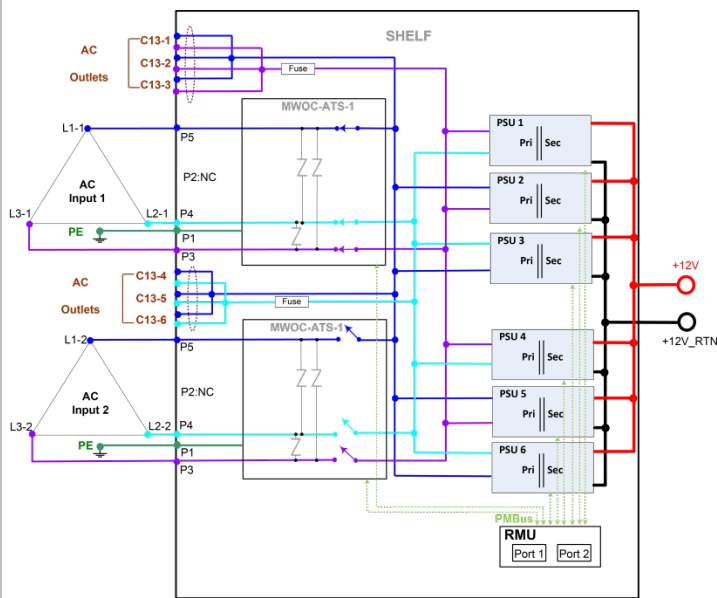
Wye Input			Delta Input			Single Input		
Pin No.	Signal	Function	Pin No.	Signal	Function	Pin No.	Signal	Function
1	L1	AC Line Voltage 1	1	L1	AC Line Voltage 1	1	L	AC Live
2	N	Neutral	2	L2	AC line voltage 2	2	N	Neutral
3	L2	AC line voltage 2	3	L2	AC line voltage 2	3	L	AC Live
4	PE	PROTECTIVE EARTH	4	PE	PROTECTIVE EARTH	4	PE	PROTECTIVE EARTH
5	N	Neutral	5	L3	AC line voltage 3	5	N	Neutral
6	L3	AC line voltage 3	6	L3	AC line voltage 3	6	L	AC Live
7	N	Neutral	7	L1	AC Line Voltage 1	7	N	Neutral

COMMUNICATION (WITH MWOC-RMU-*)

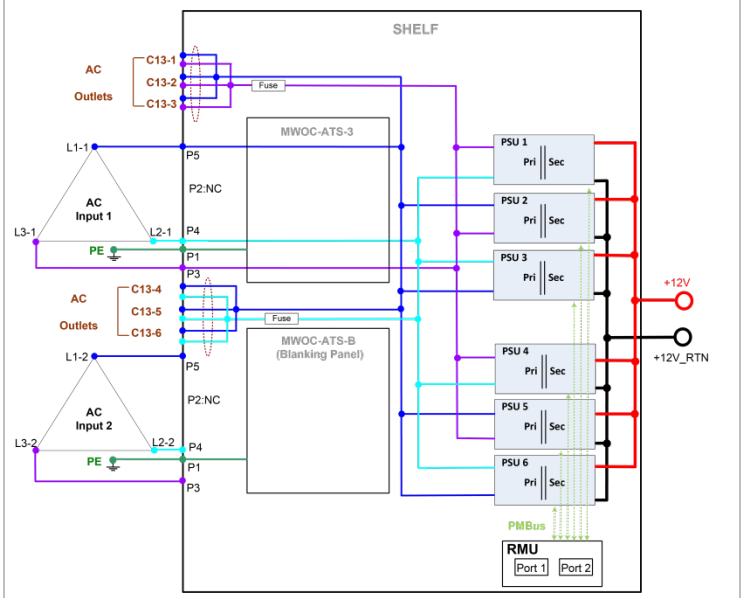
Characteristics	Conditions
Function	Description
Control the units	ON/OFF control of each units installed in power shelf Select the power source line
Report to the host	ON/OFF Status and presence information of each units Status of input power sources Fault information of each units Input power and output power of PSUs Output power and SoC of battery unit

INTERNAL CONNECTION

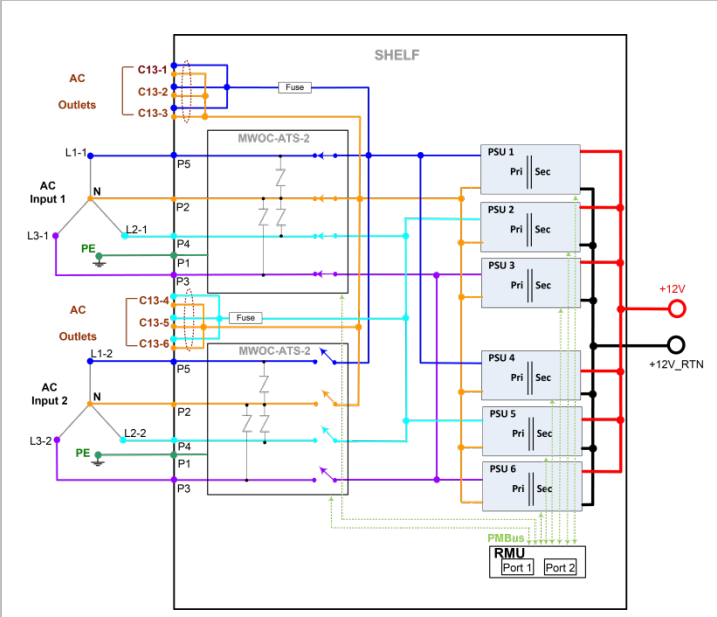
MWOCES-192-A (Delta) with MWOC-ATS-1



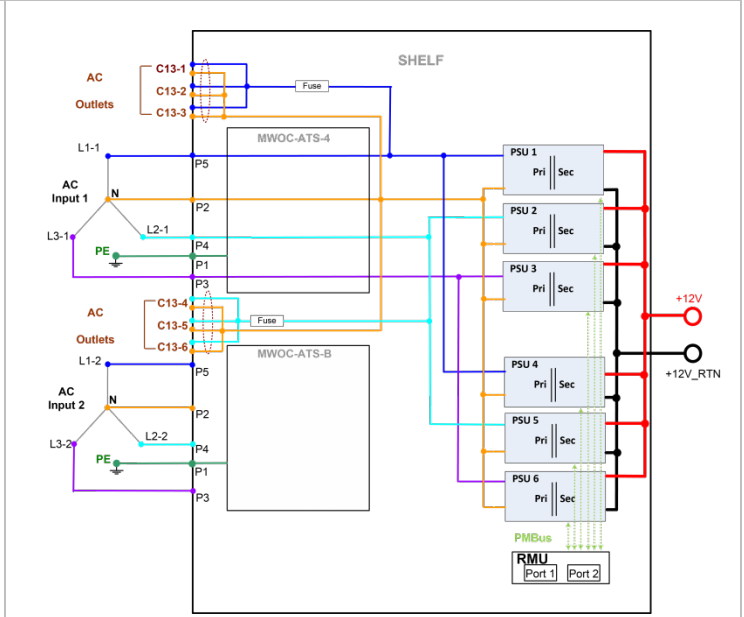
MWOCES-192-A (Delta) with MWOC-ATS-3



MWOCES-192-G (Wye) with MWOC-ATS-2

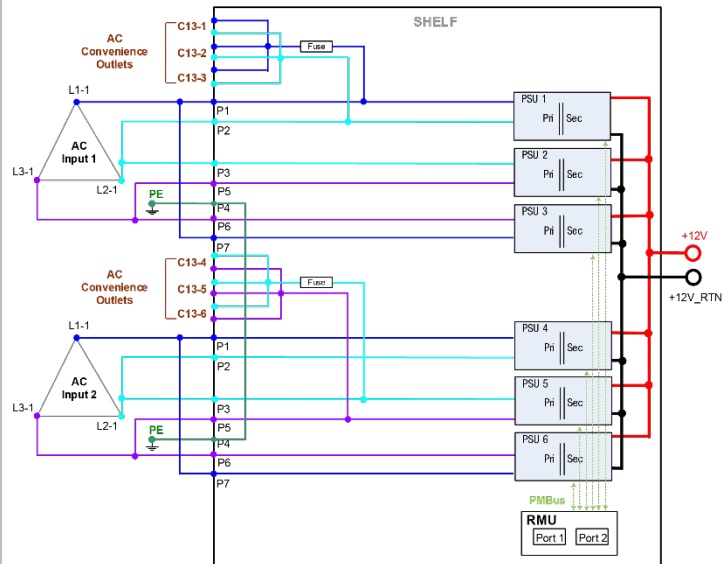


MWOCES-192-G (Wye) with MWOC-ATS-4

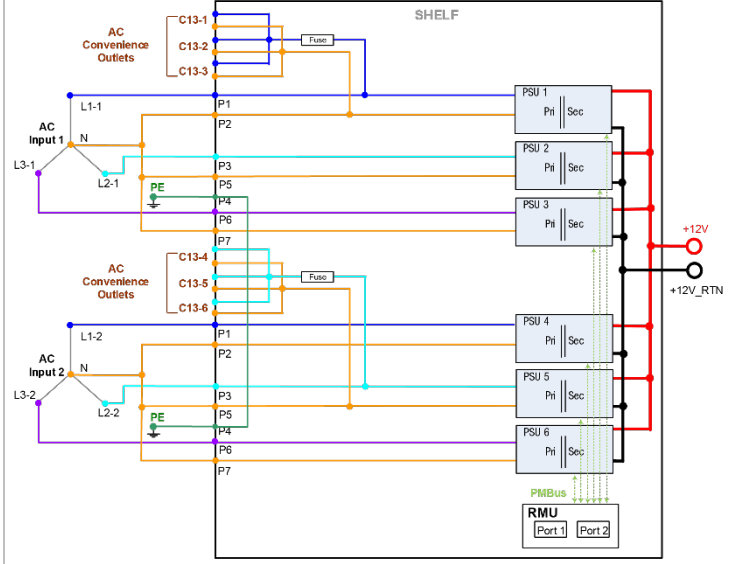


INTERNAL CONNECTION

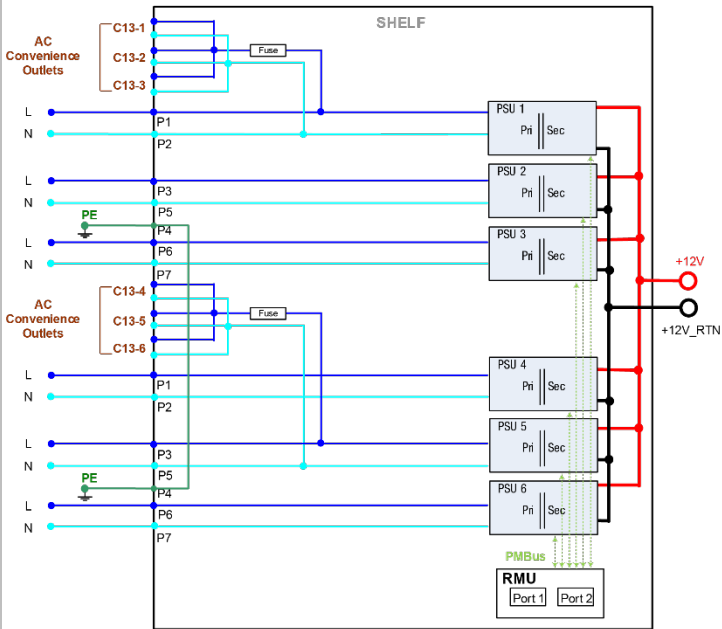
MWOCES-192-M (Delta)



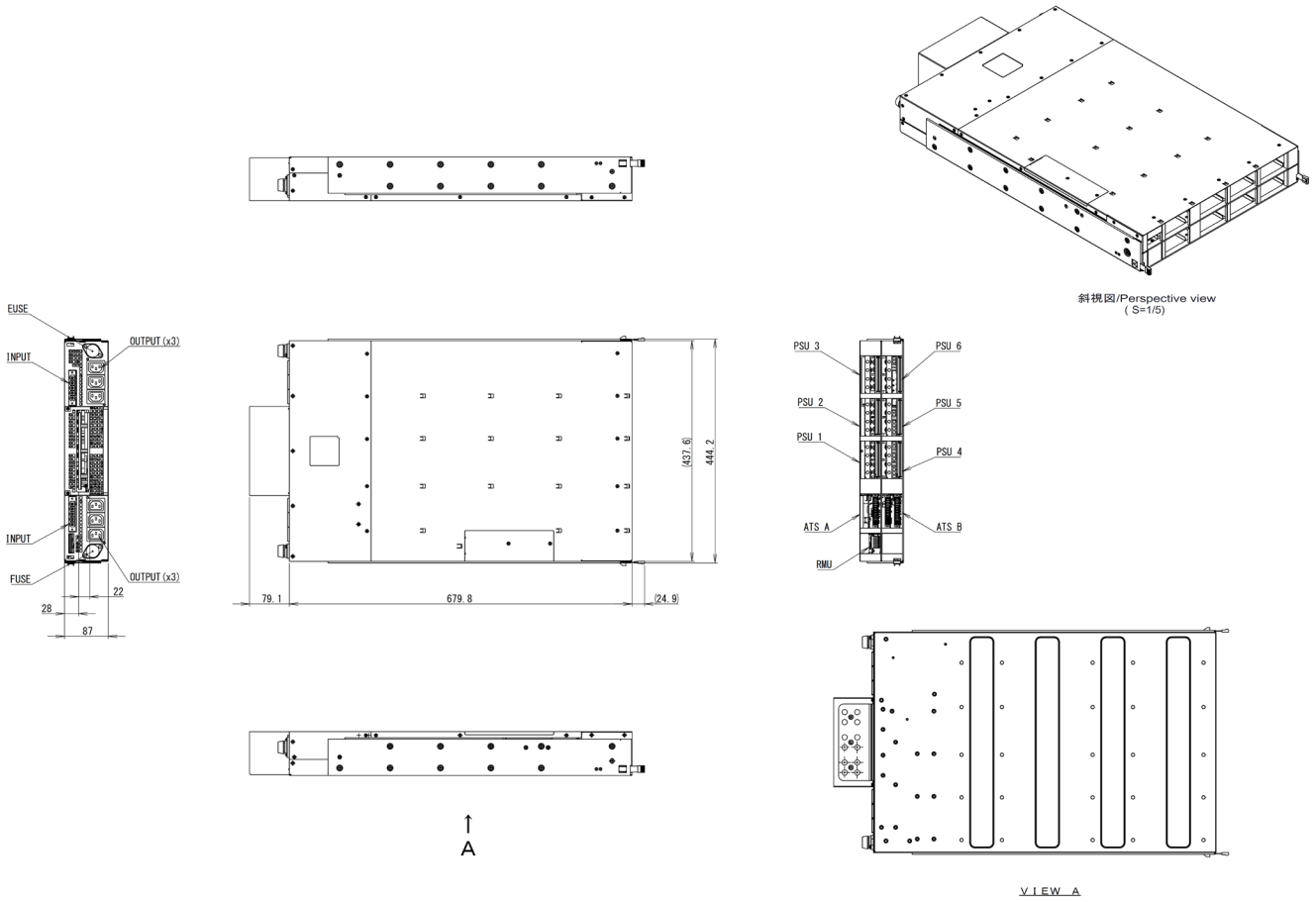
MWOCES-192-M (Wye)



MWOCES-192-G (Single Phase)



MECHANICAL DRAWING



1. This drawing is a graphical representation of the product and may not show all fine details. Please contact Murata for 3D model for details
2. Dimensions in mm

RELATED PRODUCT DATASHEETS

Document Number	Description	Link
MWOCES-211	21" OCP POWER SHELF	https://power.murata.com/datasheet/?data/power/mwoces-211.pdf
MWOC_BLANKING_PANELS	BLANKING PANEL ACCESSORIES	https://power.murata.com/datasheet/?data/power/mwoc_blanking_panels.pdf
MWOC-RMU	MONITOR AND CONTROL UNIT	https://power.murata.com/datasheet/?data/power/mwoc-rmu.pdf
MWOC74-3000-A-RM	3KW AC-DC FRONT END PSU MODULE	https://power.murata.com/datasheet/?data/power/mwoc74-3000-a-rm.pdf

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