

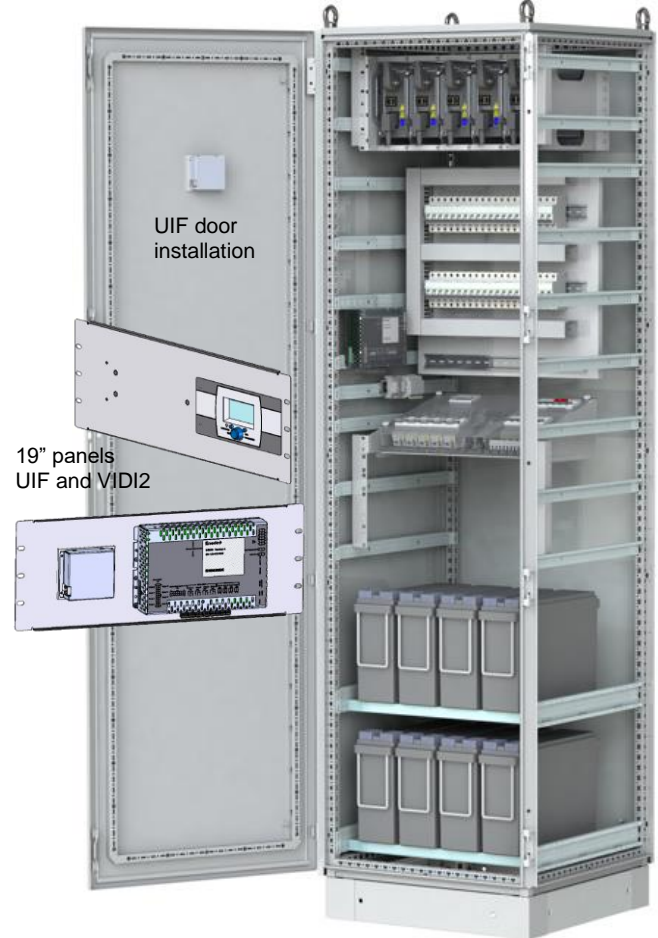
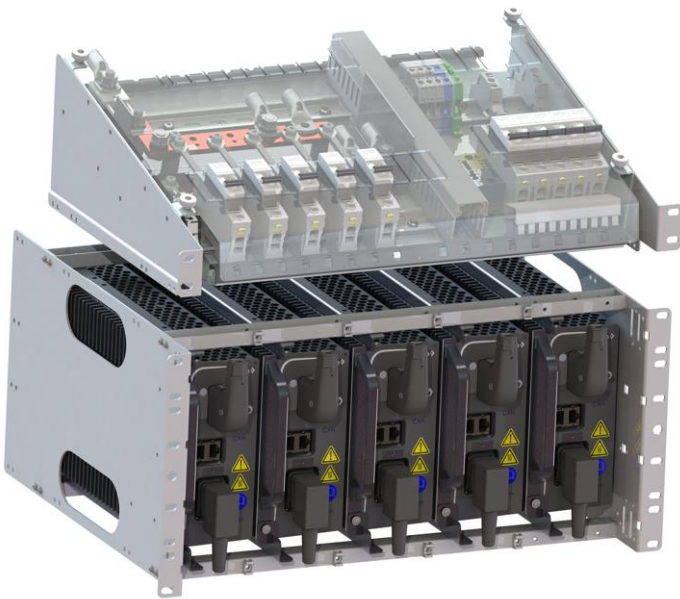
# OPUS HE 19" BULK RACK

## 10 kW Building Block Rack 5U+3U

Application example 19" cabinet:  
Rectifiers top 5U, bulk 3U middle

OPUS HE 24-7.5 BULK R 5U+3U F  
OPUS HE 48/60-10.0 BULK R 5U+3U F  
OPUS HE 110/125-10.0 BULK R 5U+3U F  
OPUS HE 220-10.0 BULK R 5U+3U F

OPUS HE BULK SLAVE RACK  
MASTER-SLAVE SET-UP 20KW  
MULTI CABINET UP TO 64KW



## Product Description

OPUS HE power systems are robust, free convection cooled, n+1 redundant backup power solutions for critical infrastructure applications such as transmission and distribution substations, process industries, railway signalling and substations and telecommunications.

OPUS HE bulk rack is intended for local cabinet system builders. Local builder can use standard building block from Enedo and add local market requirements to cabinet locally. Typical locally added features are load distribution panels, battery fuses, display to cabinet door, double A/B system connections, alarm management and batteries.

Bulk rack includes readymade cable connections and parameter settings, which reduces the design and manufacturing costs needed in local system builder side. Rack is produced in serial production in Enedo factory, which means fully controlled quality and competitive cost level. OPUS HE bulk rack is ideal solution for local partner to increase the flexibility and value provided for local end customers.

## Features

- Efficiency up to 97%
- Convection cooling – no fans
- Outputs 24, 48, 60, 110, 125, 220 VDC
- Configurable power 1.5kW-10.0 kW
- Master-Slave connection up to 64kW
- Qty of rectifier slots and rectifiers configurable per order
- VID12 controller, local and remote interfaces: 4/12 x relays, Ethernet, Modbus, IEC61850, SNMP, RS-232
- Air flow plate for optimized cooling
- Air flow plate guides cooling air to backside of the cabinet and creates chimney effect
- Bulk output, battery terminals and battery shunt included.
- Safety: Rectifiers: IEC 62368-1, EN 50124-1 rail
- EMC: Rectifiers: EN 61000-6-1 / -2 / -3 / -4 / -5 EN 50121-4/-5 rail, ETSI EN 300386 (48/60V)

# Technical Specifications

General construction	
Cooling	Natural convection, air flow plate
Dimensions & weight	Height 5U + 3U (8U/356 mm)
	Depth 380 mm
	Width 19"
	Weight 15 kg w/o rectifiers

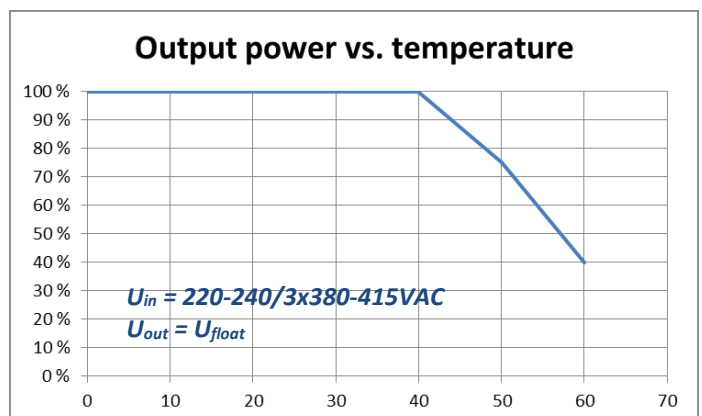
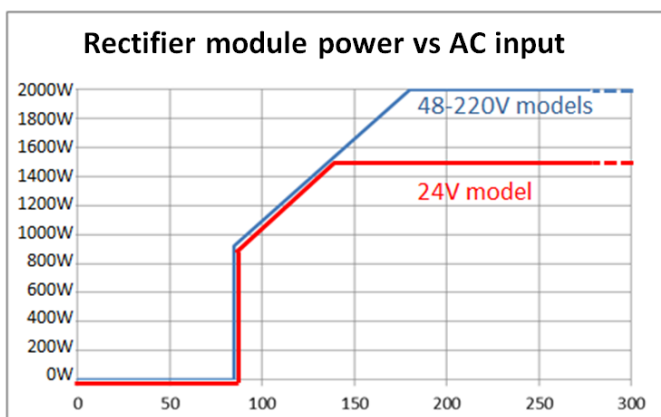
Environment and standards	
Temp. range	-25 ... +60°C, see derating, Start-up at -40°C
Safety, rectifiers EMC, Rectifiers	EN 62368-1, EN 50124-1 rail EN61000-6-1 / -2 / -3 / -4 Generic EN61000-6-5 Utility, surge level 2 EN 50121-4/5 Rail, ETSI EN 300 386 (48/60V)

AC Input	OPUS HE 24-9 BULK R 5U+3U F	OPUS HE 48-12 BULK R 5U+3U F	OPUS HE 60-12 BULK R 5U+3U F	OPUS HE 110-12 BULK R 5U+3U F	OPUS HE 125-12 BULK R 5U+3U F	OPUS HE 220-12 BULK R 5U+3U F
AC connection	TN-S system, 3W + N + PE, (3-phases, neutral and protective earth wires)					
Nominal input	220-240 VAC / 3 x 380-415 VAC (TN-S system) <i>Options: 1-phase supply 100-250VAC, 3-phase Delta/IT supply 3 x 173-250VAC</i>					
Input range	Max range: 85 – 300 VAC / 3 x 147–528 VAC Rated full power range: 180 – 275 VAC / 3 x 312–476 VAC (TN-S system) See derating curves below, 1200W per rectifier at 120VAC Temporary high voltage range 275 - 300VAC / 3 x 476 - 528VAC, continuous supply not recommended					
Input frequency	Rated 45 - 66 Hz, reduced power at 35 - 45 Hz. Shut down at 35 Hz					
Nominal current	16A @ 220/380V	22A @ 220/380VAC				
Maximum current	25A @ 130/226V	25A @ 180/313VAC				
Recommended mains fuse	3 x 25 A (TN-S)					
Rectifier input protection	MCB C16A / rectifier module					

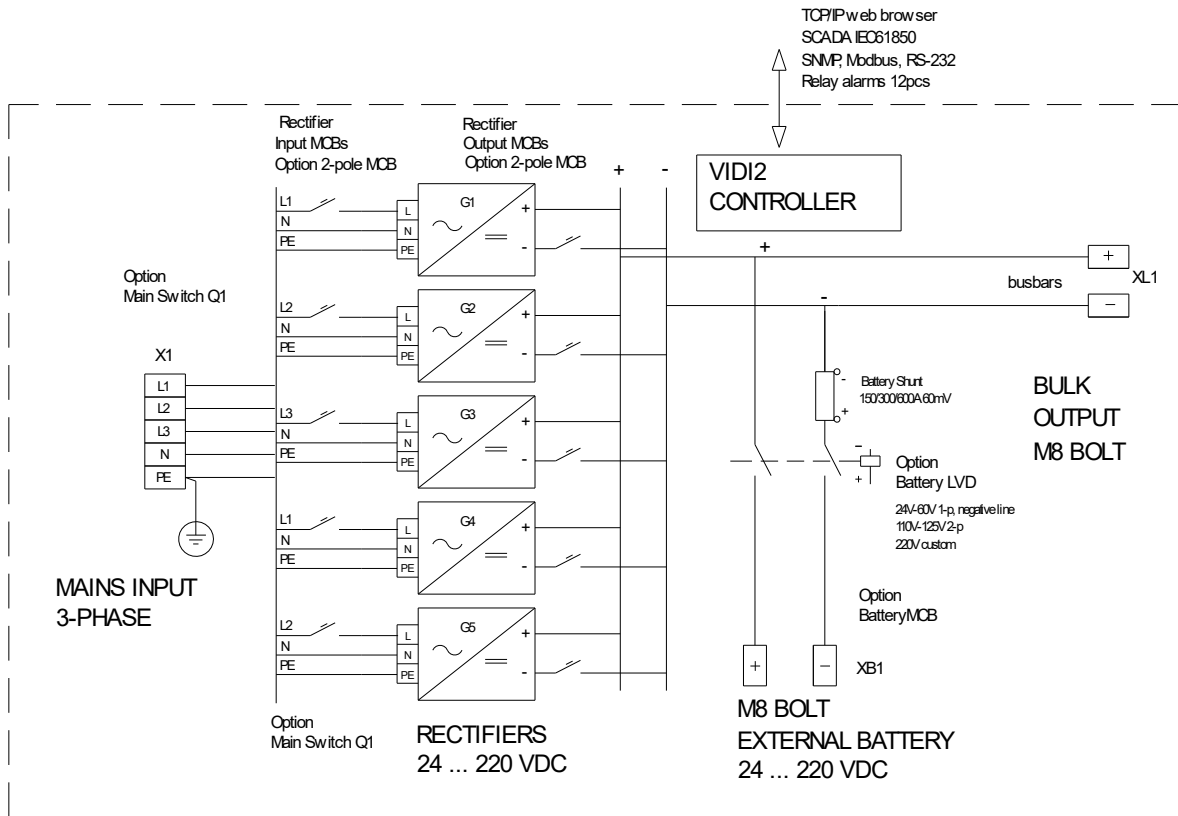
DC Output	OPUS HE 24-9 BULK R 5U+3U F	OPUS HE 48-12 BULK R 5U+3U F	OPUS HE 60-12 BULK R 5U+3U F	OPUS HE 110-12 BULK R 5U+3U F	OPUS HE 125-12 BULK R 5U+3U F	OPUS HE 220-12 BULK R 5U+3U F
Grounding	Floating, 2-pole system					
Nominal voltage	24 VDC	48 VDC	60 VDC	108 VDC	120 VDC	216 VDC
Voltage factory setting	27.24 VDC	54.48 VDC	68.10 VDC	122.58 VDC	136.20 VDC	245.16 VDC
Voltage range	21-33 VDC	42-59 VDC	51-72 VDC	90-150 VDC	100-160 VDC	178-280 VDC
Quantity of rectifiers	Max 5 pcs					
Max current	312.5A @ 24V	208.3A @ 48V	166.7A @ 60V	92.5A @ 108V	83.3A @ 120V	46.3A @ 216V
Max Power	Max 7.5kW	Max 10kW	Max 10kW	Max 10kW	Max 10kW	Max 10kW
Static voltage regulation	± 2 % @ rack terminals (load, line, temp)			± 1 % @ rack terminals (load, line, temp)		
Rectifier output protection	MCB C63A	MCB C50A	MCB C50A	MCB C20A	MCB C20A	MCB C10A

Connection terminals	
Mains terminal	Terminal blocks 16 mm <sup>2</sup> , L1-L2-L3-N-PE
DC output	Busbar 5 x 20mm M8 bolt connection, bulk output, 48-220V models + - -, 24V model ++ - -
Battery	Busbar 5 x 20mm M8 bolt connection, bulk output, 48-220V models + - -, 24V model ++ - - Battery shunt included (no battery fuse)
Alarms, Inputs	Configurable relay alarms 4 pcs (option up to 12), Spring terminals 0.75mm <sup>2</sup> ... 1.5mm <sup>2</sup> cable Configurable alarm/temp. inputs 4 pcs (option up to 12), Spring terminals 0.75mm <sup>2</sup> ... 1.5mm <sup>2</sup> cable

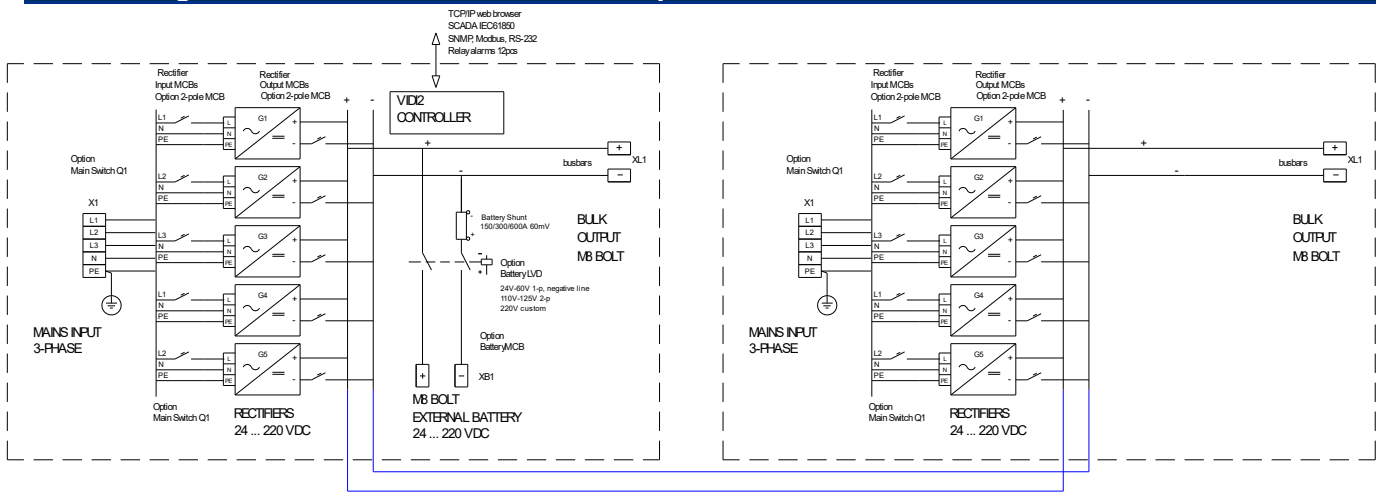
## Derating curves



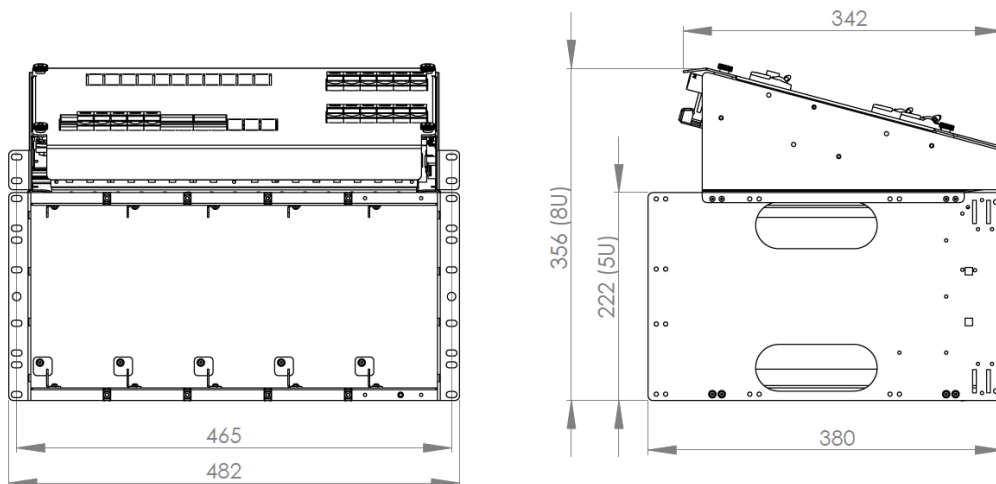
# Block Diagram



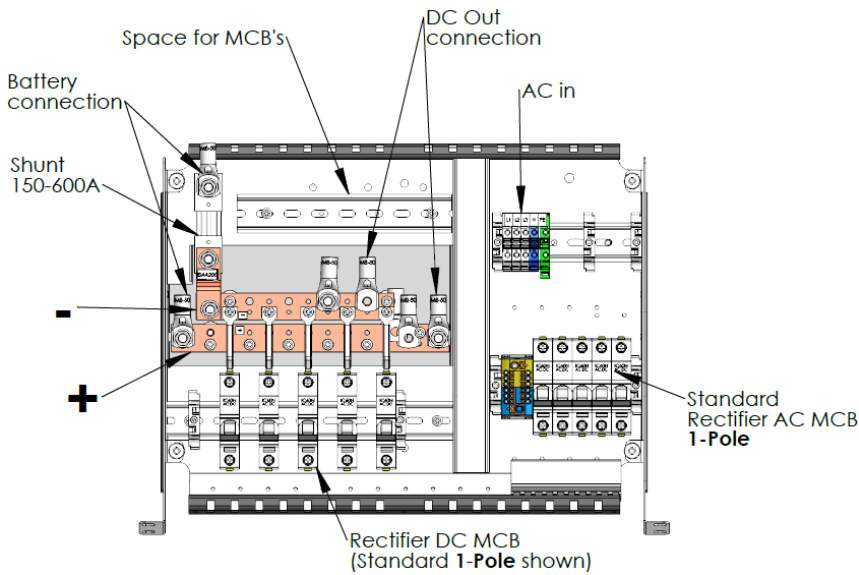
# Block Diagram, Master – Slave connection up to 24kW



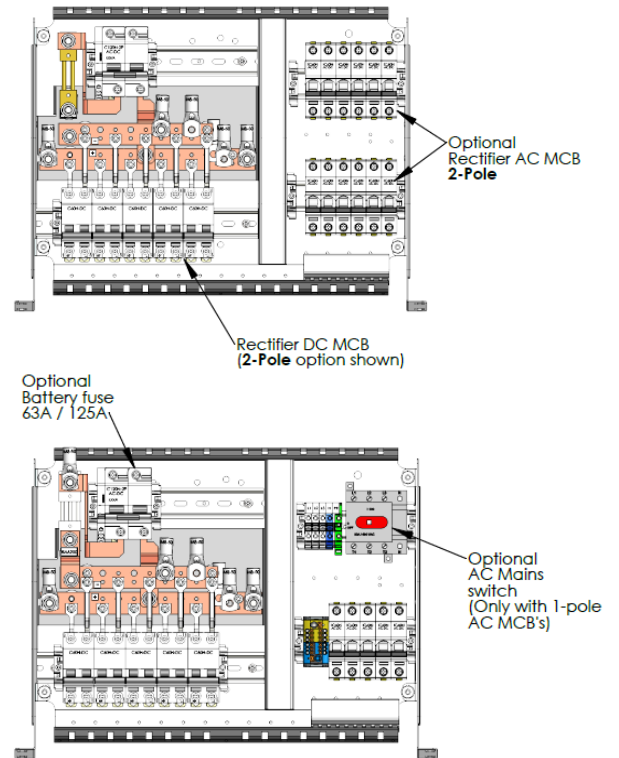
# Mechanical dimensions



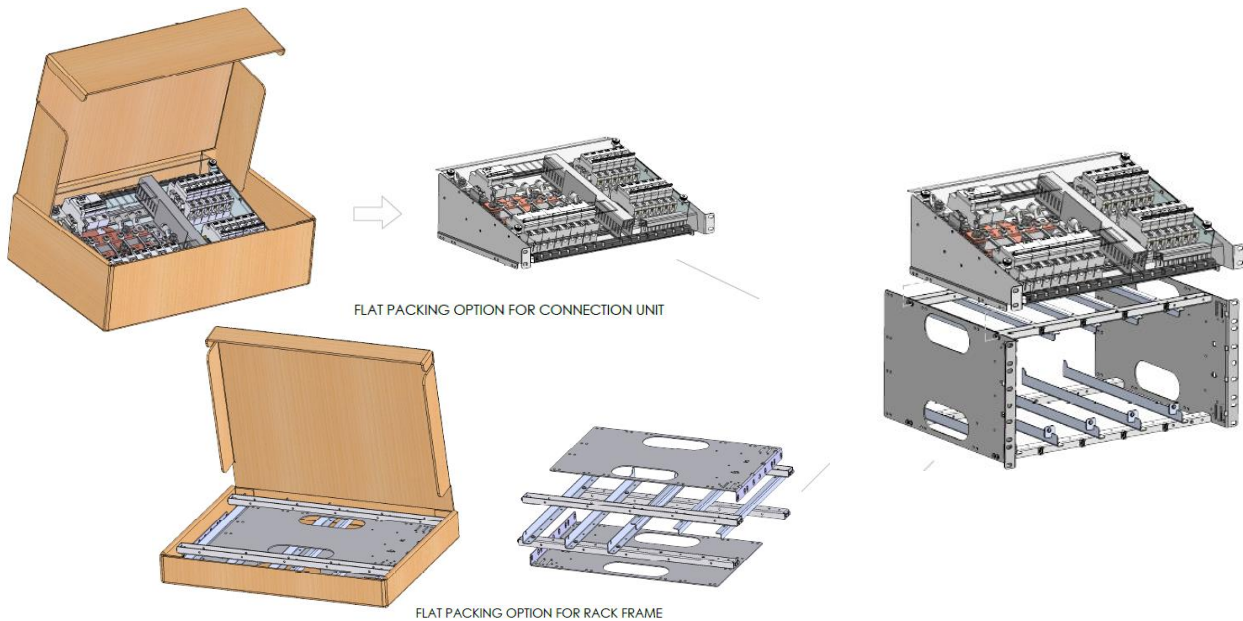
**STANDARD CONFIGURATION**



**OPTIONS**



**Flat packing option**



**Order Information**

Systems, Description	Order number	Voltage / Current	Master-Slave set-up
OPUS HE 24-7.5 BULK R 5U+3U F	922XW16114	24VDC / 62.5A – 312.5A	24VDC / 62.5A – 2000A
OPUS HE 48/60-10.0 BULK R 5U+3U F	922XW16115	48VDC / 41.7A – 208.3A	48VDC / 41.7A – 1333A
		60VDC / 33.3A – 166.7A	60VDC / 33.3A – 1067A
OPUS HE 110/125-10.0 BULK R 5U+3U F	922XW16117	110VDC / 18.5A – 92.5A	110VDC / 18.5A – 592A
		125VDC / 16.7A – 83.3A	125VDC / 16.7A – 533A
OPUS HE 220-10.0 BULK R 5U+3U F	922XW16119	220VDC / 9.3A – 46.3A	220VDC / 9.3A – 296A

See price list and configurators for the system configuration