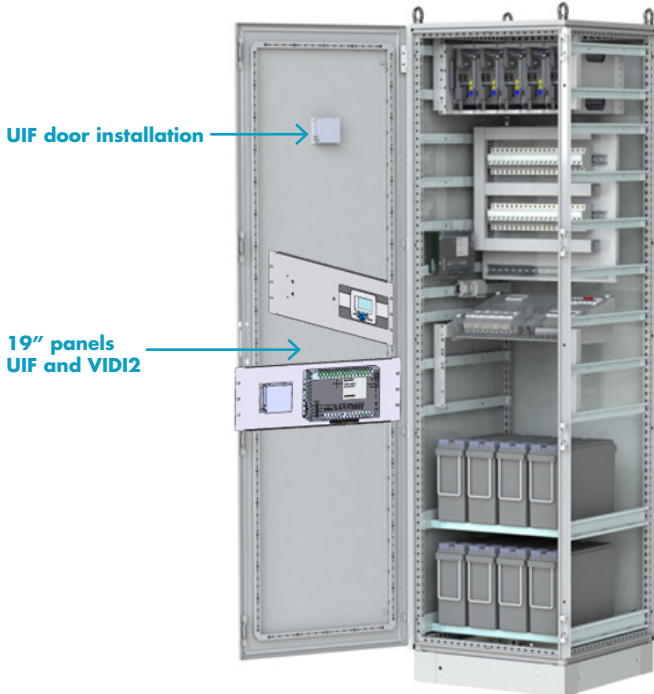


7.5KW-12 KW BUILDING BLOCK RACKS 5U+3U

OPUS HE 19" AND 23" BULK RACKS

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



Features

- » Efficiency up to 97%
- » Convection cooling – no fans
- » Outputs 24, 48, 60, 110, 125, 220 VDC
- » Configurable power 1.5kW-12.0 kW
- » Master-Slave connection up to 80kW
- » 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)

Main features



Use cases



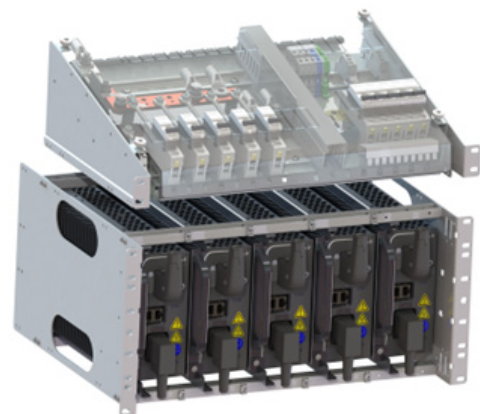
PRODUCT DESCRIPTION

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

- OPUS HE 24-7.5 BULK R19 5U+3U F**
- OPUS HE 24-9.0 BULK R23 5U+3U F**
- OPUS HE 48/60-10.0 BULK R19 5U+3U F**
- OPUS HE 48/60-12.0 BULK R23 5U+3U F**
- OPUS HE 110/125-10.0 BULK R19 5U+3U F**
- OPUS HE 110/125-12.0 BULK R23 5U+3U F**
- OPUS HE 220-10.0 BULK R19 5U+3U F**
- OPUS HE 220-12.0 BULK R23 5U+3U F**



MASTER-SLAVE SET-UP 24KW
MULTI CABINET UP TO 80KW

TECHNICAL SPECIFICATIONS

GENERAL CONSTRUCTION	
Cooling	Natural convection, air flow plate
Dimensions & weight	Height: 5U + 3U (8U/356 mm) Depth: 380 mm Width: 19" / 23" Weight: 15 kg (19") / 17 kg (23")

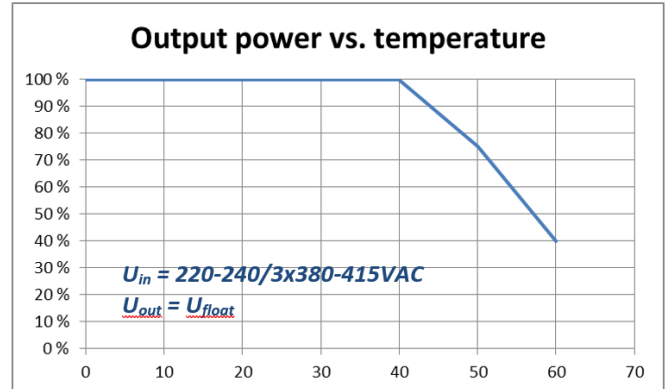
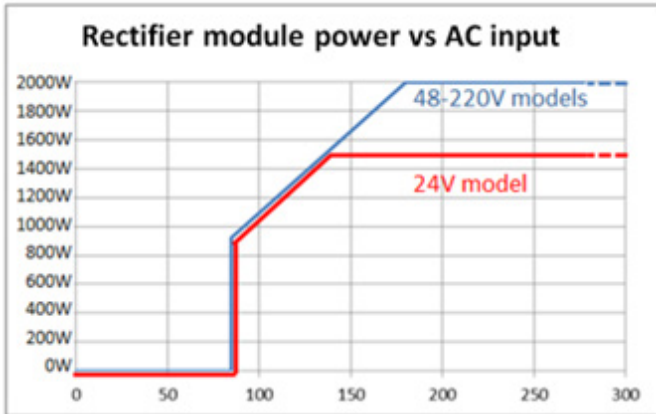
ENVIRONMENT AND STANDARDS	
Temp. range	-25 ... +60°C, see derating, Start-up at -40°C
Safety, rectifiers EMC, Rectifiers	EN 62368-1, EN 50124-1 rail EN61000-6-1 / -2 / -3 / -4 Generic EN61000-6-5 Utility, surge level 2 EN 50121-4/-5 Rail, ETSI EN 300 386 (48/60V)

AC Input	BULK 24V 19", 23"	BULK 48V 19", 23"	BULK 60V 19", 23"	BULK 110V 19", 23"	BULK 125V 19", 23"	BULK 220V 19", 23"
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) Options: 1-phase supply 100-250VAC, 3-phase Delta/IT supply 3 x 173-250VAC					
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 / 3 x 208VAC 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 phase current	25A @ 85-130V	25A @ 85-180VAC				
Recommended mains fuse	3 x 25 A (TN-S)					
Rectifier input protection	MCB C16A / rectifier module					

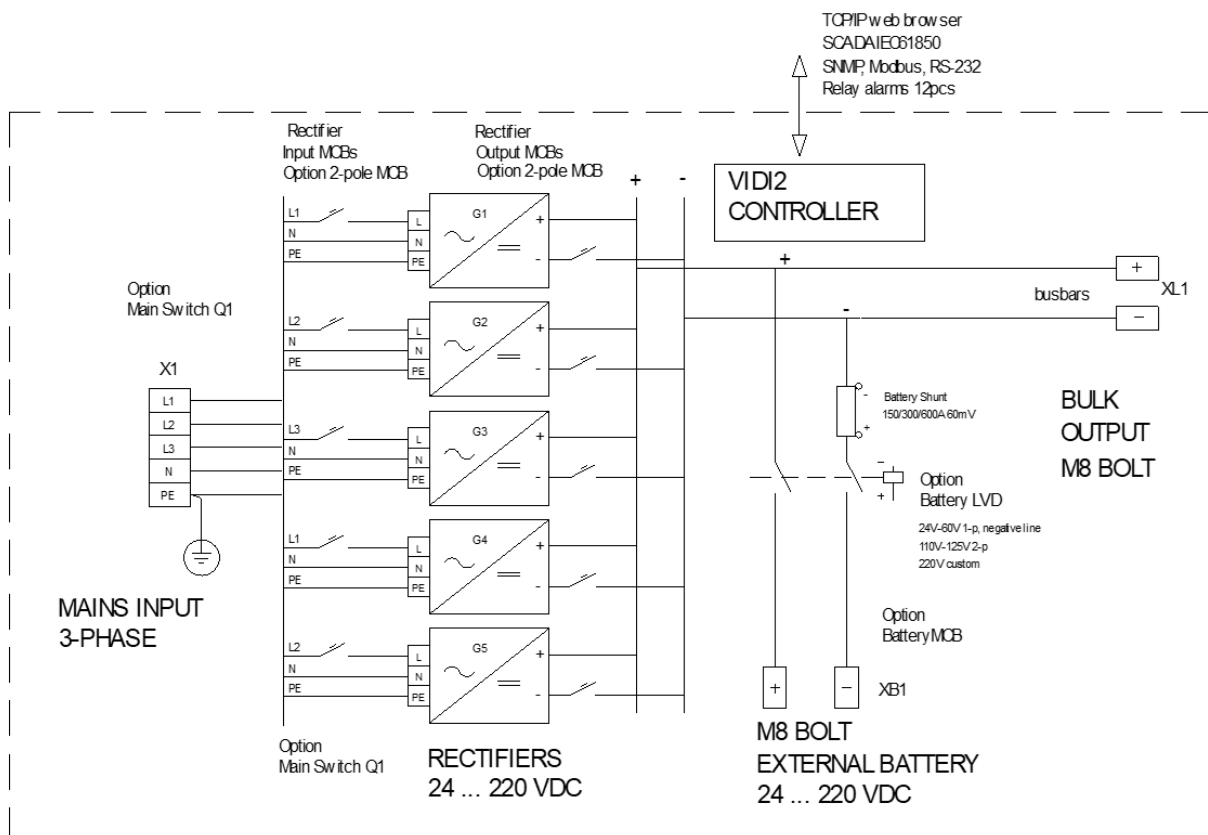
DC Output	BULK 24V 19", 23"	BULK 48V 19", 23"	BULK 60V 19", 23"	BULK 110V 19", 23"	BULK 125V 19", 23"	BULK 220V 19", 23"
Grounding	Floating, 2-pole system					
Nominal voltage	24 VDC	48 VDC	60 VDC	108 VDC	120 VDC	216 VDC
Voltage factory setting	27.24 VDC	54.48 VDC	68.10 VDC	122.58 VDC	136.20 VDC	245.16 VDC
Voltage range	21-33 VDC	42-59 VDC	51-72 VDC	90-150 VDC	100-160 VDC	178-280 VDC
Quantity of rectifiers	19" racks 5 pcs, 23" racks 6pcs					
Max Power	19" 7.5kW, 23" 9kW	19" 10kW, 23" 12kW				
Max current, 19" racks Max current, 23" racks	312.5A @ 24V 375A @ 24	208.3A @ 48V 250A @ 48V	166.7A @ 60V 200A @ 60V	92.5A @ 108V 111A @ 108V	83.3A @ 120V 100A @ 120V	46.3A @ 216V 55.5A @ 216V
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 ² , 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 ++ - - Configurable battery shunt 150/300/600A, default no battery fuse or configurable battery MCB
Alarms, Inputs	Configurable relay alarms 4 pcs (option up to 12), Spring terminals 0.75mm ² ... 1.5mm ² cable Configurable alarm/temp. inputs 4 pcs (option up to 12), Spring terminals 0.75mm ² ... 1.5mm ² cable

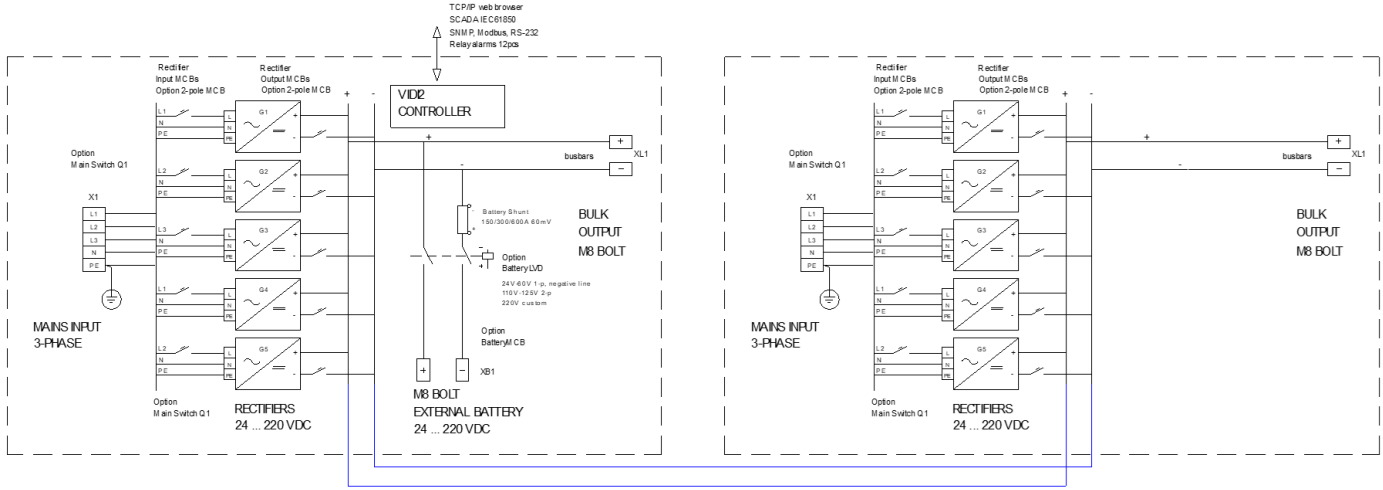
DERATING CURVES



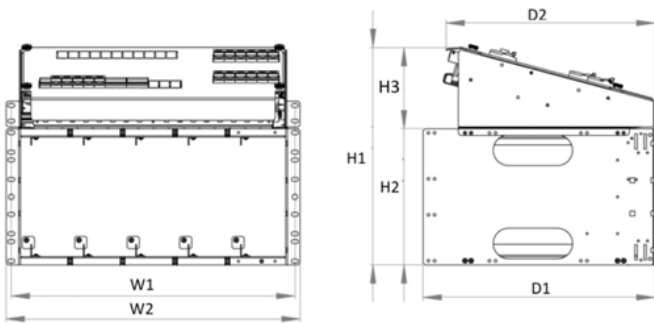
BLOCK DIAGRAM



BLOCK DIAGRAM, MASTER – SLAVE CONNECTION UP TO 24KW



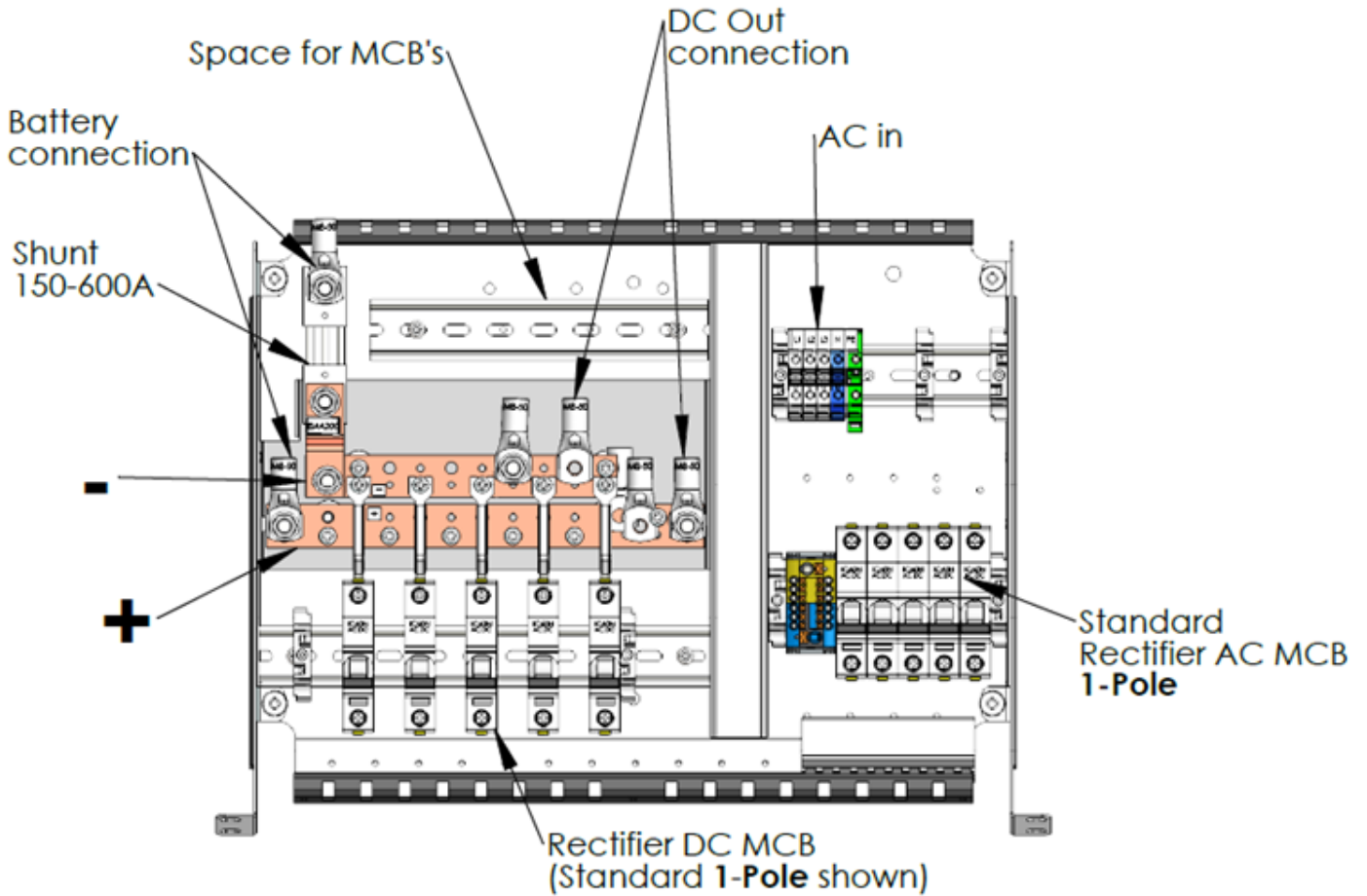
MECHANICAL DIMENSIONS



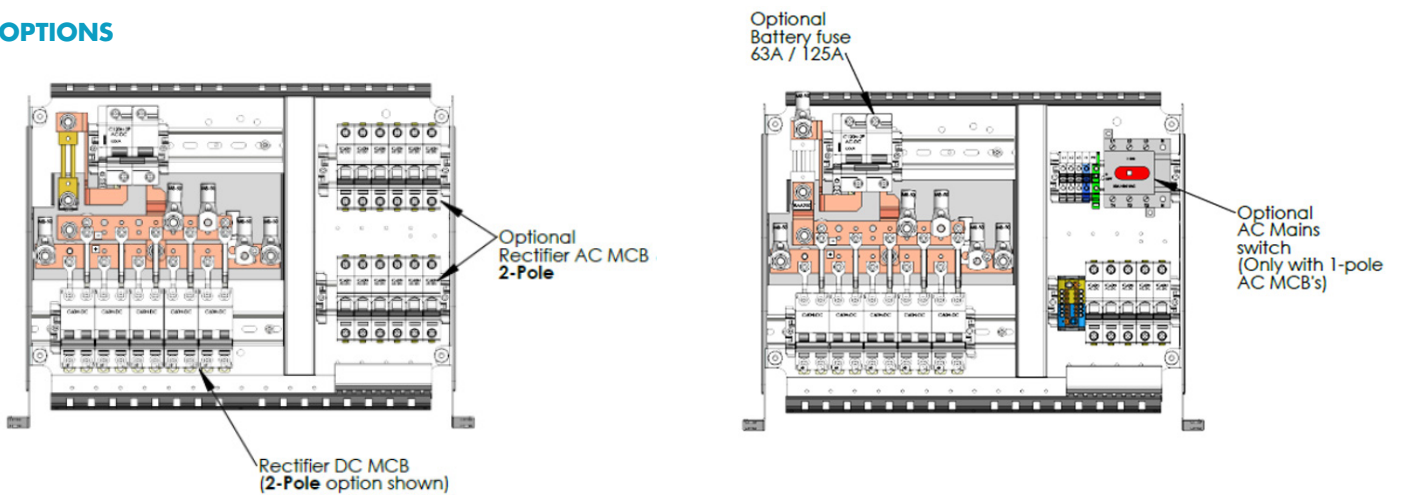
	19" Bulk rack	23" Bulk rack
H1	356 mm / 8U	356 mm / 8U
H2	222 mm / 5U	222 mm / 5U
H3	134 mm / 3U	134 mm / 3U
W1	465 mm	566 mm
W2	482 mm / 19"	584 mm / 23"
D1	380 mm	380 mm
D2	342 mm	342 mm

LAYOUT DRAWINGS

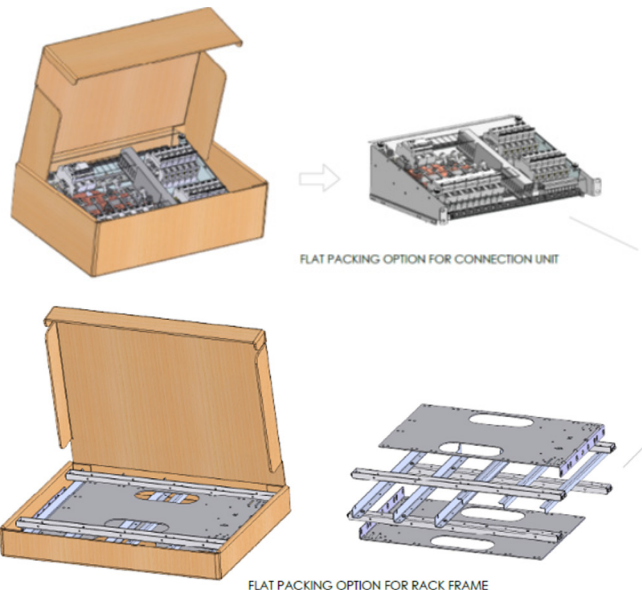
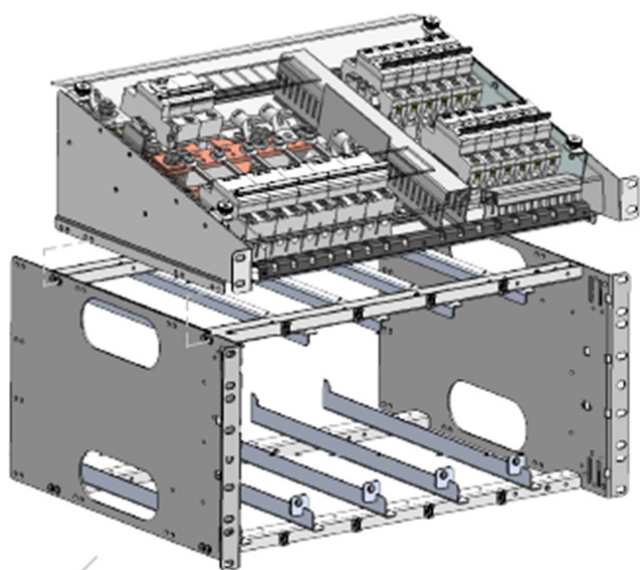
STANDARD CONFIGURATION



OPTIONS



FLAT PACKING OPTION



ORDER INFORMATION

Systems, Description	Order number	Voltage / Current	Max Master-Slave set
OPUS HE 24-7.5 BULK R19 5U+3U F	922XW16114	24VDC / 62.5A – 312.5A	24VDC / 62.5A – 2500A
OPUS HE 24-9.0 BULK R23 5U+3U F	922XW16183	24VDC / 62.5A – 375A	24VDC / 62.5A – 2500A
OPUS HE 48/60-10.0 BULK R19 R 5U+3U F	922XW16115	48VDC / 41.7A – 208.3A	48VDC / 41.7A – 1667A
		60VDC / 33.3A – 166.7A	60VDC / 33.3A – 1333A
OPUS HE 48/60-12.0 BULK R23 5U+3U F	922XW16184	48VDC / 41.7A – 250A	48VDC / 41.7A – 1667A
		60VDC / 33.3A – 200A	60VDC / 33.3A – 1333A
OPUS HE 110/125-10.0 BULK R19 5U+3U F	922XW16117	110VDC / 18.5A – 92.5A	110VDC / 18.5A – 740A
		125VDC / 16.7A – 83.3A	125VDC / 16.7A – 667A
OPUS HE 110/125-12.0 BULK R23 5U+3U F	922XW16185	110VDC / 18.5A – 111A	110VDC / 18.5A – 740A
		125VDC / 16.7A – 100A	125VDC / 16.7A – 667A
OPUS HE 220-10.0 BULK R19 5U+3U F	922XW16119	220VDC / 9.3A – 46.3A	220VDC / 9.3A – 370A
OPUS HE 220-12.0 BULK R23 5U+3U F	922XW16186	220VDC / 9.3A – 55.5A	220VDC / 9.3A – 370A