

OPUS HE BULK RACK 12 kW Building Block Rack

OPUS HE 24-9.0 BULK R9U F
OPUS HE 48-12.0 BULK R9U F
OPUS HE 60-12.0 BULK R9U F
OPUS HE 110-12.0 BULK R9U F
OPUS HE 125-12.0 BULK R9U F
OPUS HE 220-12.0 BULK R9U F

OPUS HE BULK SLAVE RACK
MASTER-SLAVE SET-UP 24KW
MULTI CABINET UP TO 64KW



UIF Display to cabinet door

VIDI Controller and pre-wired alarm terminals mounted to cabinet locally.

Wiring and parameters settings are made and tested in Enedo factory.



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 significantly 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 level, short delivery times 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
- 12.0 kW power, 1-6 rectifiers per rack
- Master-Slave connection up to 24kW
- VIDI+ I/O controller, local and remote interfaces
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
- Rectifier input and output breakers included to the rack
- Bulk output, battery terminals and battery shunt included.
- Safety:
Rectifiers: EN 62368-1, EN 50124-1 rail
- EMC:
Rectifiers: EN 61000-6-1 / -2 / -3 / -4 / -5
EN 50121-4 rail, ETSI EN 300386 (48/60V)

Technical Specifications

| General construction | |
|----------------------|---|
| Cooling | Natural convection, air flow plate |
| Dimensions & weight | Height 9U (400 mm) Depth 400 mm Width 23" OR side wall mounting 537mm (542mm incl screw heads) Weight 15 kg w/o rectifiers |

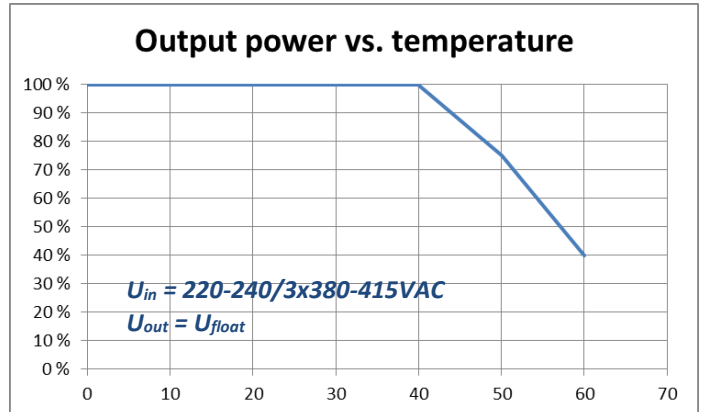
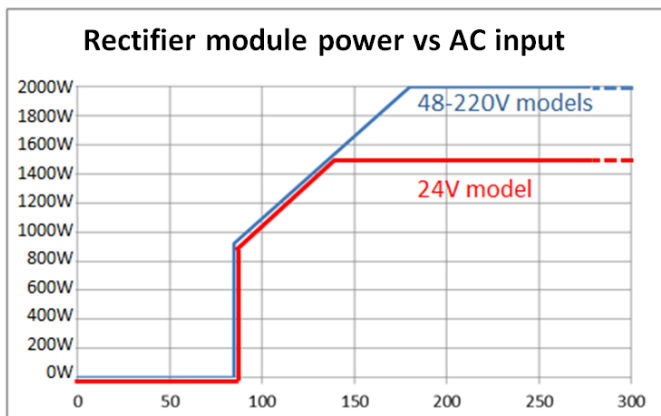
| Environment and standards | |
|------------------------------------|--|
| Temp. range | -25 ... +60°C, see derating, Start-up at -40°C |
| Safety, rectifiers EMC, Rectifiers | EN 62368-1, EN 50124-1 rail EN61000-6-1 / -2 / -3 / -4 Generic EN61000-6-5 Utility, surge level 2 EN 50121-4 Rail, ETSI EN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

| AC Input | OPUS HE 24-9 BULK R9U F | OPUS HE 48-12 BULK R9U F | OPUS HE 60-12 BULK R9U F | OPUS HE 110-12 BULK R9U F | OPUS HE 125-12 BULK R9U F | OPUS HE 220-12 BULK R9U 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 R9U F | OPUS HE 48-12 BULK R9U F | OPUS HE 60-12 BULK R9U F | OPUS HE 110-12 BULK R9U F | OPUS HE 125-12 BULK R9U F | OPUS HE 220-12 BULK R9U 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 6 pcs | | | | | |
| Max current | 375A @ 24V | 250A @ 48V | 200A @ 60V | 111A @ 108V | 100A @ 120V | 55.5A @ 216V |
| Max Power | Max 9kW | Max 12kW | Max 12kW | Max 12kW | Max 12kW | Max 12kW |
| Static voltage regulation | ± 2 % @ rack terminals (load, line, temp) | | | ± 1 % @ rack terminals (load, line, temp) | | |
| Rectifier output protection | MCB C63A | MCB C50A | MCB C40A | 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 ++ - - Battery shunt included (no battery fuse) |
| Alarms, Inputs | Configurable relay alarms 8 pcs (option up to 12), Spring terminals 0.75mm ² ... 1.5mm ² cable Configurable alarm/temp. inputs 6 pcs (option up to 12), Spring terminals 0.75mm ² ... 1.5mm ² cable |

Derating curves

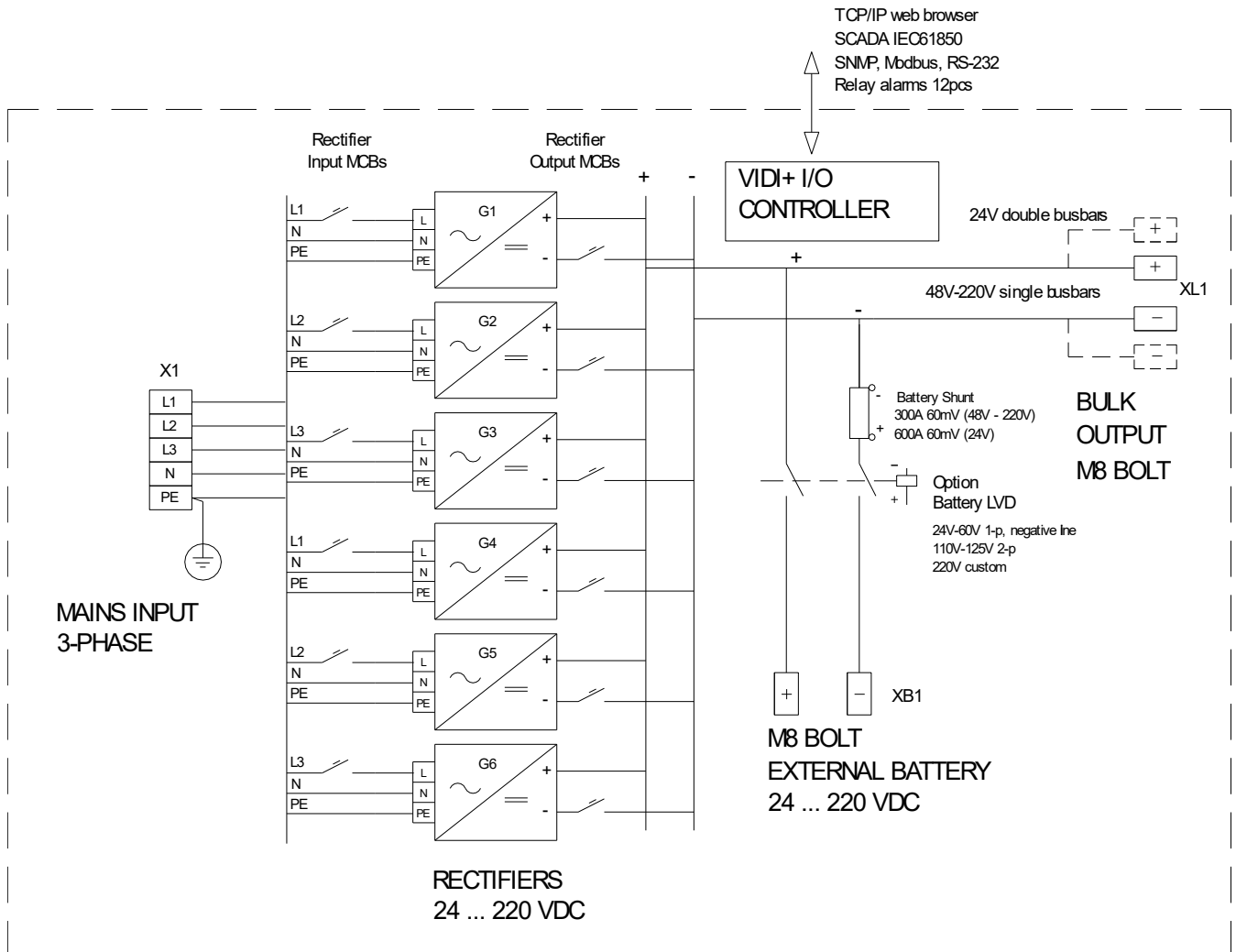


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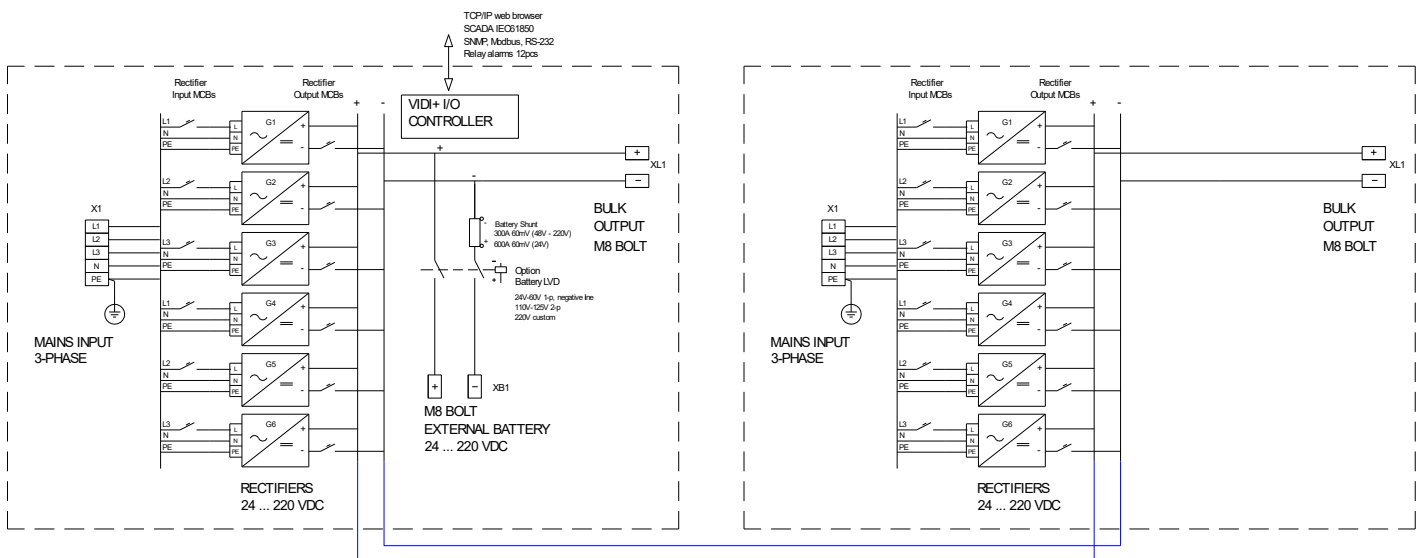
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Block Diagram



Block Diagram, Master – Slave connection up to 24kW

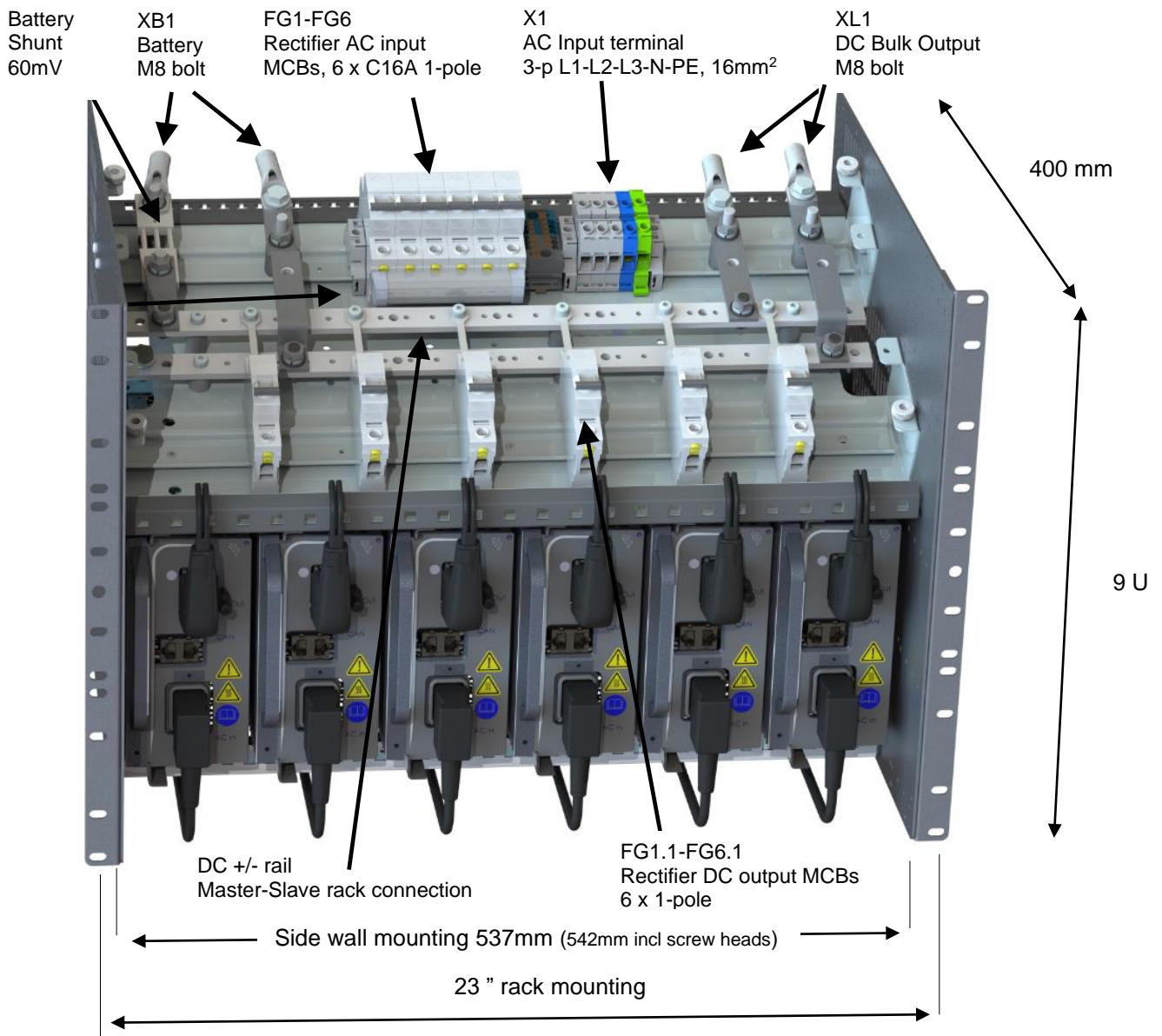


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Layout drawings 48-220V models (24V model double XB1 & XL1 busbars)



Order Information

| Systems, Description | Order number | Voltage / Current | Master-Slave set-up |
|-----------------------------------|--------------|----------------------|----------------------|
| OPUS HE 24-9.0 BULK R9U F | 9220X0015106 | 24VDC / 62.5A – 375A | 24VDC / 62.5A – 750A |
| OPUS HE 24-9.0 BULK SLAVE R9U F | 9220X0015107 | 24VDC / 62.5A – 375A | |
| OPUS HE 48-12.0 BULK R9U F | 9220X0015108 | 48VDC / 41.7A – 250A | 48VDC / 41.7A – 500A |
| OPUS HE 48-12.0 BULK SLAVE R9U F | 9220X0015109 | 48VDC / 41.7A – 250A | |
| OPUS HE 60-12.0 BULK R9U F | 9220X0015110 | 60VDC / 33.3A – 200A | 60VDC / 33.3A – 400A |
| OPUS HE 60-12.0 BULK SLAVE R9U F | 9220X0015111 | 60VDC / 33.3A – 200A | |
| OPUS HE 110-12.0 BULK R9U F | 9220X0014716 | 110V / 18.5A – 111A | 110V / 18.5A – 222A |
| OPUS HE 110-12.0 BULK SLAVE R9U F | 9220X0015114 | 110V / 18.5A – 111A | |
| OPUS HE 125-12.0 BULK R9U F | 9220X0015066 | 125V / 16.7A – 100A | 125V / 16.7A – 200A |
| OPUS HE 125-12.0 BULK SLAVE R9U F | 9220X0015064 | 125V / 16.7A – 100A | |
| OPUS HE 220-12.0 BULK R9U F | 9220X0015112 | 220V / 9,25A – 55,5A | 220V / 9,25A – 111A |
| OPUS HE 220-12.0 BULK SLAVE R9U F | 9220X0015113 | 220V / 9,25A – 55,5A | |

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