

MRC 110-1600 MRC 220-1600

Rectifier Modules
for OPUS C Series
DC Power Systems



General description

MRC rectifier modules are designed and optimised for demanding industrial and telecom applications.

These convection cooled MRC rectifiers are the key building blocks of OPUS C Series DC Power Systems. The rectifier delivers 1600W output power at 110 VDC or 220 VDC, with a single phase, semi-wide input voltage range.

MRC rectifiers may be operated either with a system controller or as stand-alone modules, with or without parallel-connected batteries.

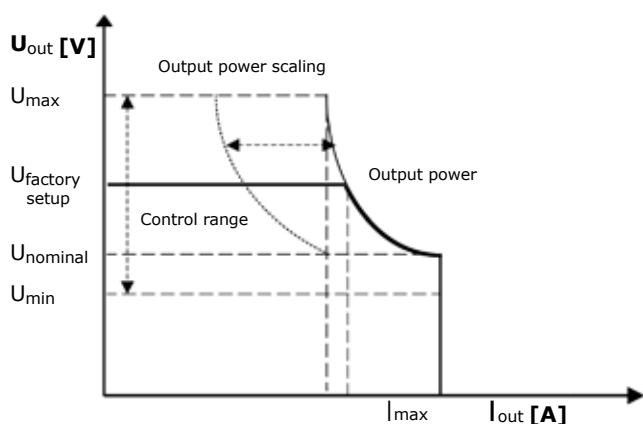


Figure 1. Output power characteristics.

Features

- Convection cooled
- 110 VDC and 220 VDC output
- 1600W output power
- Constant output power characteristics
- Nominal 230 VAC input, range 140–290 VAC
- Active load current sharing
- Internal overtemperature protection
- Digital communication over CAN bus with VID1 controller
- Flexible design with full front cabling
- EMC: EN 55022 class B
- Safety: IEC/EN 60950-1

Technical specifications

AC Input	MRC 110-1600	MRC 220-1600
Input range	140 VAC – 290 VAC (nominal 180–275 VAC)	
Start-up voltage	180 VAC	
Reduced output power (active limitation)	140–180 VAC, derating factor 1% / 1 VAC	
Input Frequency range	45 to 65 Hz	
Maximum current (at 180VAC, full load)	9.6 A	
Power factor (typical @ 230 VAC)	0.99	
Input protection	Mains fuse Varistor and gas discharge tube for transient surge protection Automatic shut-off above 290 VAC (restart at 280 VAC)	

DC Output	MRC 110-1600	MRC 220-1600
Output voltage range	97–132 VDC	189–265 VDC
Output voltage factory set-up	123.6 VDC	245.3 VDC
Maximum output current	14.5 A @ 110 V	7.2 A @ 220 V
Constant output power (figure 1)	1600 W	1600 W
Hold-up time @ full load, output voltage from nominal to minimum	>20 ms	
Static voltage regulation (load, line & temp.)	±0.3 %	
Dynamic load regulation	±4.0% for 10%–90% or 90%–10% load step, recovery time < 1.0 ms	
Ripple and noise	< 100 mVp-p	
Output protection	Overvoltage shutdown Current limit / short circuit protection Power limiting Internal overtemperature protection	

Features	MRC 110-1600	MRC 220-1600
Efficiency, typical (at 50–85% load)	>92%	>92%
Load current share	±5 % from true average current between modules	
Rectifier Alarms	Mains fault alarm (high/low) Low output voltage alarm Overvoltage shutdown alarm Rectifier fault alarm Temperature alarm	
Visual indications	Green LED: ON, no faults Red LED: rectifier fault Green LED blinking: communication error (controller not present) Red LED blinking: temporary failure (e.g. mains fault, overtemperature) Amber LED: test mode Amber LED blinking: LED test	
Energy save operation mode	See VIDDI controller manual	

Mechanical	MRC 110-1600	MRC 220-1600
Dimensions (HxWxD)	230 x 83 x 350 mm	
Weight	4.60 kg	
Enclosure	IP 20 / IEC 529	

Connections	MRC 110-1600	MRC 220-1600
Connector, AC	Appliance plug IEC 320 / 10 A male	
Connector, DC	FCI TwinBlade™ Power IO connector	
Connector, PowerCAN	2*RJ45	

Environmental	MRC 110-1600	MRC 220-1600
Cooling	Natural convection	
Acoustic noise	< 40 dB (A)	
Operating temp (min/max)	-20 / +50 °C (power derated up to +70 °C)	
Storage temperature (min/max)	-40 / +70°C	
Humidity (max)	95 % (relative humidity, non condensing)	
Altitude (max)	2000 m above sea level	

Applicable standards	MRC 110-1600	MRC 220-1600
EMC	ETSI EN 300 386:2005	
Emissions	EN55022 class B EN 61000-3-2 EN 61000-3-3	
Immunity	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-8	
Narrow band noise	ETSI 300 132-2	
Environmental	Operation: ETS 300 019-2-3 cl T3.2 Storage: ETS 300 019-2-1 cl T1.2 Transportation: ETS 300 019-2-2 cl T2.3	
Safety	IEC/EN 60950-1 ed.2 (2005-12)	
Approvals	CE, CB	
RoHS, WEEE	2002/95/EC	
Quality	Manufacture and design conform to ISO 9001, ISO 14001	

Product selection guide

Rectifier

Description	Part no.
MRC 110-1600 (110 VDC, 1600 W)	92G300- *
MRC 220-1600 (220 VDC, 1600 W)	92G320- *

* Note, "-" to be replaced with revision letter (A,B,C,...) for a complete-, valid product code.

