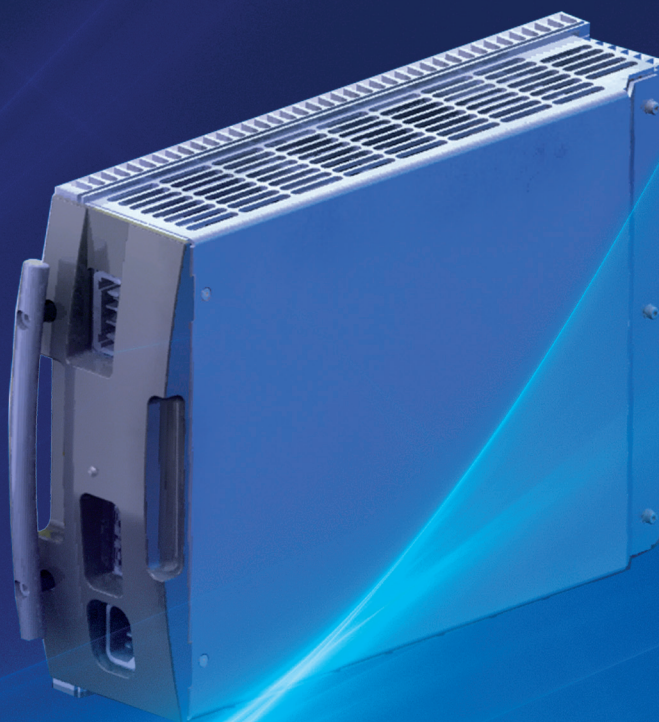


MRC 24-1100 MRC 48-1600 MRC 60-1600

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 1100W to 1600W output power at 24 VDC, 48 VDC or 60 VDC, with a single phase, semi-wide input voltage range.

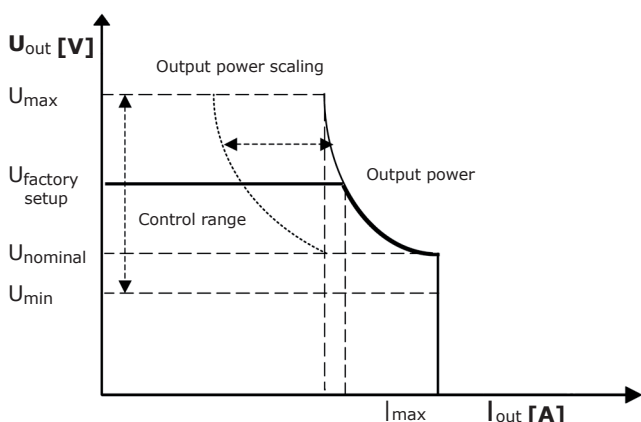


Figure 1. Output power characteristics.

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

Features

- Convection cooled
- 24 VDC, 48 VDC and 60 VDC output
- 1100W to 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
- Hot pluggable
- EMC: EN 300 386:2005
- Safety: IEC/EN 60950-1

Technical specifications

AC Input	MRC 24-1100	MRC 48-1600	MRC 60-1600
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 %/1VAC		
Input Frequency range	45 to 65 Hz		
Maximum current (at 180VAC, full load)	6.9 A	9.7 A	9.8 A
Power factor	0.99		
Input protection	Mains fuse Varistor and gas discharge tube for transient surge protection Automatic shut-off above 290VAC (restart at 280VAC)		

DC Output	MRC 24-1100	MRC 48-1600	MRC 60-1600
Output voltage range	21-30 VDC	42-58 VDC	51-72 VDC
Output voltage factory set-up	27.3 VDC	54.5 VDC	68.1 VDC
Maximum output current	45.8 A @ 24V	32.7 A @ 48V	26.7 A @ 60V
Constant output power (figure 1)	1100 W	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 < 1.0ms		
Ripple and noise	< 100 mVp-p		
Output protection	Overvoltage shutdown Current limit / short circuit protection Power limiting Internal over temperature protection		

Features	MRC 24-1100	MRC 48-1600	MRC 60-1600
Efficiency, typical (at 50-85% load)	90 %	92 %	91 %
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 Blinking Green LED: communication error (controller not present) Blinking Red LED: temporary failure (e.g. mains fault, over temperature) Yellow LED: test mode Blinking Yellow LED: LED test		
Energy save operation mode	See VID controller manual		

Mechanical	MRC 24-1100	MRC 48-1600	MRC 60-1600
Dimensions (HxWxD)	230 x 83 x 350 mm		
Weight	4.60 kg		
Enclosure	IP 20 / IEC 529		

Connections	MRC 24-1100	MRC 48-1600	MRC 60-1600
Connector, AC	Appliance plug IEC 320 / 10 A male		
Connector, DC	FCI TwinBlade™ Power IO connector		
Connector, PowerCAN	2*RJ45		

Environmental	MRC 24-1100	MRC 48-1600	MRC 60-1600
Cooling	Natural convection		
Acoustic noise	< 40 dB (A)		
Operating temp (min/max)	-20 / +50 °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 24-1100	MRC 48-1600	MRC 60-1600
EMC	ETSI EN 300 386:2005		
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-market, CB-certified		
RoHS, WEEE	2002/95/EC		
Quality	Manufacture and design under control of ISO 9001, ISO 14001		

Product selection guide

Rectifier

Description	Part no.
MRC 24-1100 (24 VDC, 1100 W)	92G310- *
MRC 48-1600 (48 VDC, 1600 W)	92G340- *
MRC 60-1600 (60 VDC, 1600 W)	92G290- *

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

