Delivering power, **when you need it.**

MHE DC POWER RECTIFIER

RECTIFIER>solutions

MHE | 24-1500 | 48-2000 | 60-2000 | 110-2000 | 125-2000 | 220-2000 |

Dependable, critical power when you need it.

Simple maintenance.

Recycling Options

Single or Three phase input.

Utility and Grid installations.

Switch Mode Rectifiers providing expandable and scaleable power.

Wide range of system sizes as standard.

Optitherm™ convection cooled.

High efficiency and reliability built-in.

Driving lower emissions.

Ready for standby power, emergency lighting or as a power supply.

Cost-effective lifetime solutions.

Efficiency. **99%**

Output ranges

24>220VDC

Various battery technologies capability.

5 YEAR WARRANTY

Standard throughout our product range.

Bespoke Variations

Including chassis only, dual charger schemes, self-contained units with an integrated battery compartment and units including power distribution panels.

The images in this document are for illustration purposes only and may not accurately represent the product.

RECTIFIER SOLUTIONS OVERVIEW

The MHE Rectifier utilizes our company's long experience and latest technology on high performance industrial power supplies.

Rectifiers meet demanding requirements of utility, industrial, rail and telecom applications with modern high efficiency modular technology.

MHE rectifiers are convection cooled and requires no fans. Rated output power is 2000W in 48V – 220V output versions and 1500W in 24V version. Rectifier input is single phase, range 85 – 300VAC.

Rectifiers can be operated either with a ACVF™ system controller or as stand-alone modules with or without batteries in the output.

AC Imput	MHE 24 – 1500	MHE 48 – 1500	MHE 60 – 2000	MHE 110 – 2000	MHE 125 – 2000	MHE 220 – 2000
Input Voltage	Nominal 100 – 250VAC					
Input Range	Max range 85 – 300VAC Rated full power range: 48 – 220V models 180VAC – 275VAC, 24V models 140 – 275VAC *(See derating curves on next page)*, 1200W power available at nominal 120VAC input Temporary high voltage range 275 – 300VAC, continuous supply voltage above 275VAC not recommended.					
Start-up/Shutdown Limits	Start-up voltage 90VAC / Shut down at 85VAC Shutdown over voltage limit 300VAC/re-start at 290VAC					
Input Frequency	Rated 45 – 66 Hz, reduced power at 35 – 45 Hz. Shut down at 35 Hz					
Maximum Current	12.5A @ U*in* 85 – 130V	12.5A @ U*in* 85 – 130V	12.5A @ U*in* 85 – 130V	12.5A @ U*in* 85 – 130V	12.5A @ U*in* 85 – 130V	12.5A @ U*in* 85 – 130V
Maximum Current	8A	11A	11A	11A	11A	11A
Max Current at Unom 220VAC	>80% depending on options fitted					
Inrush Current	ETS 300 132-1, Active limitation typical <20A					
Power Factor (Typical)	>0.99 at 85 – 275VAC input					
THD (Typical)	<5% @ 100%, <9% @ 50% at 85 – 275VAC input					
Input Protection	External MCB 16A C-curve (24V C10A or C16A), Internal varistor and gas discharge tube for transient surge protection, Automatic shut-off above 300VAC (Restart at 290VAC).					
Generator Start-up Ramp	7 seconds ramp from 200W to full 2kW controlled by Input power, used with generator input supply (User programmable feature, enable/disable, default disable).					
Start-up Delay	Default start-up time approx. 5 sec., User Programmable additional delay 0 – 120 sec. (+15%/0%).					

For all our **QHES Accreditations,** please visit the website.

Delivering power, **when you need it.**

PE SYSTEMS POWER PROTECTION SPECIALISTS

DC Output	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500
Voltage Range	21 – 33VDC	42 – 59VDC	51 – 72VDC	90 – 150VDC	100 – 160VDC	178 – 280VDC
Voltage Factory Setting	27.24VDC	54.48VDC	68.10VDC	122.58VDC	136.20VDC	245.16VDC
Maximum Current @ nominal Output	62.5A @24V	41.7A @48V	33.3A @60V	18.5A @108V	16.7A @120V	9.3A @216V
Constant Output Power	1500W	2000W	2000W	2000W	2000W	2000W
Current Limit	<65A	<45A	<35A	<20A	<20A	<10A
Type of Current Limit	MHE rectifier supplies constant short circuit current 500sec, then hiccup mode in 500sec cycles					
Hold-up Time	>20 ms at 80% load, output voltage reduces from float voltage to nominal					
Static Voltage Regulation	±0.5 % (load, line, temperature)					
Dynamic Load Regulation	±5.0 % for 10 – 90% or 90 – 10% load step, recovery time <2.0ms					
Ripple and Noise	<50mVp-p	<100mVp-p	<115mVp-p	<225mVp-p	<250mVp-p	<450mVp-p
Output Protection	Output overvoltage shutdown Power limiting & shutdown based illustrated on: temperature, input voltage and frequency, derating curves *(see next page)*.					

Features	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500	MHE 24 – 1500
Efficiency, Typical 30 – 70% Load, V*in* 230VAC	>95%	>96%	>96%	>96%	>96%	>95%
MTBF, Calculated	>1,800,000 h @25°C, Telcordia SR-332, Method I-D, Ground Fixed uncontrolled environment.					
Dielectric Strength, Type Test	Input – GND (basic), 2 kVAC or 2.83 kVDC, 1 min Input – Output (reinforced) 3.75kVac or 5.3 kVDC, 1 min Output – GND (basic) 2 kVAC or 2.83 kVDC, 1 min					
Load Current Share	±5% from true average current between the modules (>50% load, controlled by VIDI)					
Alarms	Mains fault alarm, Low output voltage alarm, Overvoltage shutdown alarm, Rectifier alarm, Temperature. Alarm, Totally +40 configurable system alarms via VIDI controller.					
Visual Indications	LED: Green/Red/Yellow, see the rectifier user manual for more details					
Energy Saving Mode	The system can be configured to provide low power mode/energy consumption.					

Mechanical

Dimensions (HxWxD)	169x83x357mm, *(see drawing next page).*
Weight	4.6kg
Protection Class, IEC 60529	IP20 when counter-connector in place, DC connector IP10 without counter-connector.

Contact us for a free system survey and learn more about our products.

pe-systems.co.uk/**technical**

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RECTIFIER SOLUTIONS OVERVIEW

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PE SYSTEMS
POWER PROTECTION SPECIALISTS

Connections

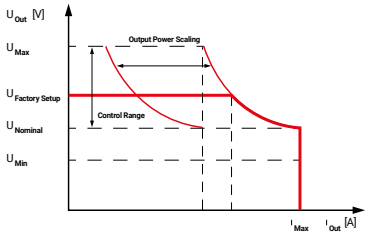
AC Connector	Appliance inlet IEC 60320-1, C20 style, 16A male.
DC Connector	<40dB
PowerCAN Connector	Full power according to Safety Certification -25°C – +45°C, Start- -40°C Derated power at +45°C – +65°C, max 40% power at 65°C, see curve.

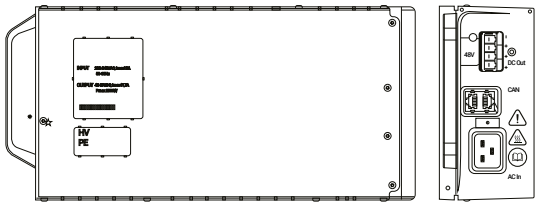
Environmental

Cooling	Appliance inlet IEC 60320-1, C20 style, 16A male.
Acoustic Noise	<40dB
Operating Temperature	Full power accor fety Certification -25°C – +45°C, Start-up at -40°C Derated power at +45°C – +65°C, max 40% power at 65°C, see curve.
Storage Temperature	-40°C – +85°C
Environmental Protection	Lacquered PCB
Humidity	Full power: 2000 m (6500 feet) above sea level De-rating -2%/100m above 2000m, max altitude 5000m.

Applicable Standards

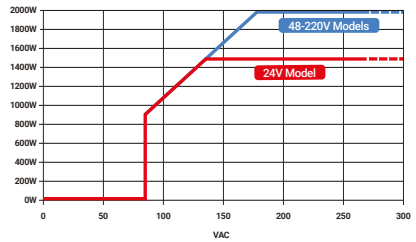
EMC	Generic IEC61000-6-1, IEC61000-6-2, IEC61000-6-3, IEC61000-6-4 Power Utility immunity EN61000-6-5, surge level 2, 2kV line to ground Railway EN 50121-4 signaling systems, EN50121-5 substation environment Telecom ETSI EN 300 386
Safety	EN 62368-1:2014+A11:2017 UL 62368-1 2nd Ed. CAN/CSA C22.2 NO. 62368-1-14 Railway EN 50124-1, Indoor use, Not connected to contact line, Pollution degree 2, Overvoltage category 2
Environment	Operation: ETS 300 019-2-3 cl T3.2 Storage: ETS 300 019-2-1 cl T1.2
Certifications	CE Declaration of Conformity CB Certificate, CB test report UL 62368-1 and CAN/CSA C22.2 NO. 62368-1-14 Certificate & Listing report TÜV Rail and metro system certification: 50121-4/-5, EN 50124-1
Quality	Manufacturing and design conform to ISO 9001, ISO 14001



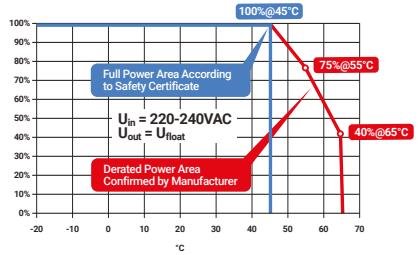


Derating Curves

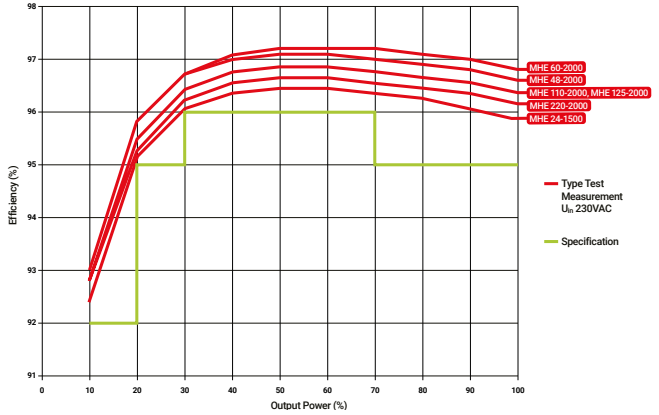
Output Power Vs. AC Input Voltage



Output Power Vs. Temperature



Efficiency Curves



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