

Data Sheet: RM3048HE Rectifier



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Scope

This data sheet provides technical information regards the Enatel RM3048HE rectifier.

Product Definition

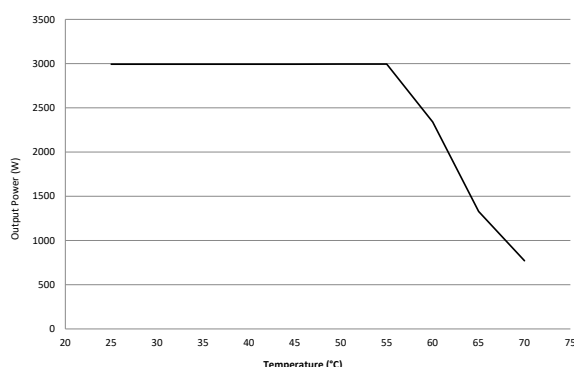
Hardware Version: Rev 11

Firmware Version: SWEN-3048HE-50

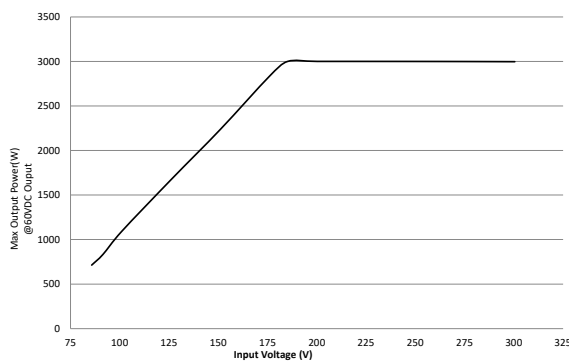
Hardware and Software Compatibility

Controllers:	EM4x all versions.
	SM3x: SM34 and SM36
Systems	ultraCOMPACT, FlexiCOMPACT, FlexiMAX,
Software	
EM4x energy manager firmware	v1.0 and above
SM36 Supervisory Module firmware	v119

Characterization



Output Power Derating with temperature
(AC input voltage >185VAC)



Output Power Derating with AC input voltage
(Ambient temperature <50°C)

AC Input

Rated Voltage Range:	240V (nominal)
Extended Operating Voltage Range:	85 to 300V
Full DC Output:	185 to 275V ^{*1}
Reduced DC Output:	85 to 185V ^{*2}
	^{*1} Temperature dependent, see derating curves.
	^{*2} Not all performance criteria may be met.
Frequency Range:	45 to 66Hz
Maximum Input Current:	16A rms (185Vac, 20°C)
Efficiency:	96.3% peak >95% (30 to 82% load, 230Vac)
Power Factor:	>0.99 (50 to 100% load)
Total Harmonic Distortion (THD):	<5% (50 to 100% load, rated AC voltage)
Swell Tolerance:	Rectifier shuts down above 320V, returns to normal operation when input is within operating range.

AC Input

Input Over-current Protection:	Fuses (phase and neutral) HRC
AC Fuse Ratings:	25A / 250V

DC Output

Nominal Voltage:	48V
Adjustable Voltage Range:	43 to 60V
Rated Output Power:	100Vac: 1050W 120Vac: 1500W 208-240Vac: 3000W
Preset Accuracy:	±0.2V
Regulation:	±0.7% No load to full load

Default (Fail-safe) voltages

Loss of System Communication: Output voltage (current limit and power limit) reset to system presets after 8minutes of loss of communications.

Preset voltage: 54 ±0.2V (manufacturer preset)

Hold-up Time:	10ms At rated output power and rated AC voltage the DC output voltage drops by no more than 20%.
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Start-up time: Soft start

Protection

Current Limit:	Factory set to 60A
Over Temperature Turndown:	Automatic power turndown. See derating graphs.
Over Voltage Shutdown:	Adjustable and latchable (1 Volt maximum negative slope at full load for discrimination)
Short-circuit:	Full short-circuit protection. Output current limited to less than 100% of rated output current. Foldback function is implemented ensuring <35Amps below 30VDC output. Rectifier will continue normal operation after short-circuit is removed. Non-urgent (Current Limit) alarm generated.

DC Output

Noise under nominal conditions

Ripple (<100Hz)	<20mV rms (unweighted)
Audio Frequency (300 Hz – 3.4 kHz):	<2mV (psophometric, with battery connected)
Wide band (5Hz – 1MHz):	<40mV rms (unweighted)
Peak to peak (0 – 20 kHz):	<200mV p-p (unweighted)
Discrete frequency (3.4kHz – 150kHz):	<50mV rms (1kHz wide selective frequency)

Environmental Requirements

Ambient Temperature

Rated Operating Range:	-10°C to +45°C [14°F to 113°F]
Extended Operating Range:	-25°C to +70°C [-13°F to 158°F]
	Output derates above 45°C and below -10°C [14°F]. Refer to graphs

Humidity

Nominal:	50% RH
Range:	< 95% RH (non condensing)

Altitude:	< 2000m [6562']
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Mechanical

Dimensions W, H, D:	115.5mm [4.39 in], 44.0mm [1.73 in], 282.0mm [11.1 in]
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Weight:	1.5kg [3.31 lb]
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Connector:	Positronics "goldfish" type connector
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Front panel LEDs

Power on:	Green
Non-urgent alarm:	Yellow
Urgent alarm:	Red

Cooling:	Forced-air cooled (front to back airflow)
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Communications

System Comms	SBI Bus
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Alarms

Operational	This green LED indicates that mains power is connected to the unit and that the primary stages of the rectifier are operating. A flashing green LED indicates the RM848HE is in power saving mode.
Non-Urgent	Rectifier in output power/current limit. Rectifier over temperature. Fan failed. Rectifier soft starting.
Urgent	Rectifier failed. The AC input voltage is outside the operating range. Rectifier shut down due to output over voltage or over temperature

*Note alarms are user configurable.

Compliances

Safety:	AS/NZS 60950-1, EN 60950-1, IEC62368-1 (pending)
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EMC – Immunity

Electrostatic discharge:	EN 61000-4-2
Radiated radio frequency:	EN 61000-4-3
Electrical fast transients:	EN 61000-4-4
Surge:	EN 61000-4-5
Conducted radio frequency:	EN 61000-4-6
Power frequency magnetic field immunity test)	EN 61000-4-8
Dips, interruptions & variations:	EN 61000-4-11

EMC – Emissions

Conducted emissions (AC):	EN 55022 / CISPR 22
Radiated emissions:	EN 55022 / CISPR 22
Harmonics:	EN 61000-3-2
Fluctuations and flicker:	EN 61000-3-3

Certifications

Europe	CE-mark
Australia	RCM
New Zealand	C-tick, Telepermit