DATASHEET

Resilient 3000

EP3000AC48IN Rectifier 3000W Output at 48-58V_{dc}

Product Description

The Resilient 3000 is a high Efficiency, single phase, general purpose and ruggedized fan-cooled rectifier for stand-alone use. The power supply is optimized for harsh conditions with ability to operate at temperature extremes and it is conformal coated for protection against dust and high humidity. And it is specifically designed for ease of use. The constant output power (3000W i.e. 55.5A at 54V) characteristic supplies the specified power over the full output voltage range (48 to 58V_{dc}).

There is a digital communication (RS-485 bus) between rectifier and controller which allows flexible system design.

Key Features

- Compliant to RoHS Directive 2011/65/EU and amended Directive (EU) 2015/863
- Compliant to REACH Directive (EC) No 1907/2006
- High Efficiency ≥ 95%
- RoHS compliant
- Wide operating temperature range
- Wide selectable output voltage range
- Ruggedized rectifier features
- RS-485 communication
- +5V auxiliary output
- Compact size and light weight
- High MTBF design
- Easy connectivity

Highly rugged rectifier

Exclusively designed to take care of wide line fluctuations and extreme climatic conditions found in industrial applications.

- Can withstand up to 500V_{ac} (Line-Neutral) continuously without any damage (for battery floated application)
- Can withstand 96 hrs of salt spray test (as per ASTM B117), Special protective coating on the PCBs and superior plating on the metal parts
- Operation up to +70°C

Optimum power performance

Constant power between 176V ... 300V ac, linearly de-rated power between 175V ... 90V ac. Designed for very high MTBF for ready reliable service.

Applications

The typical applications for this rectifier are both in indoor and outdoor environments and include:

- General Purpose 48V Power
- Industrial System Applications
- Remote Site Power

Simple Ease of Use

Convenient 2 piece connectors allow rapid yet confident connection of AC and DC connections. Simple wire and go connectivity assure rapid deployment and servicing.

Technical Specifications

Input Parameters	
Operating Voltage range	90-290V_{ac}
	Disconnect: < 90V_{ac} & > 300V_{ac}
	No damage up to 500V_{ac} (battery Floated application)
Input voltage range for de-rated power	Linear de-ration of output power from
	175 to 90V_{ac}
	3000W @ 176V_{ac}
	1320W @ 90V_{ac}
Frequency	45 to 65 Hz
Maximum Current	19A (rms)
Power Factor	> 0.99 at 230V_{ac}, 100% load
Total Current Harmonic Distortion (THD)	< 5% at 230V_{ac}, 100% load
Efficiency	≥ 95%
Input protection	In built surge protection (6kV/3kA) Mains fuse in both lines

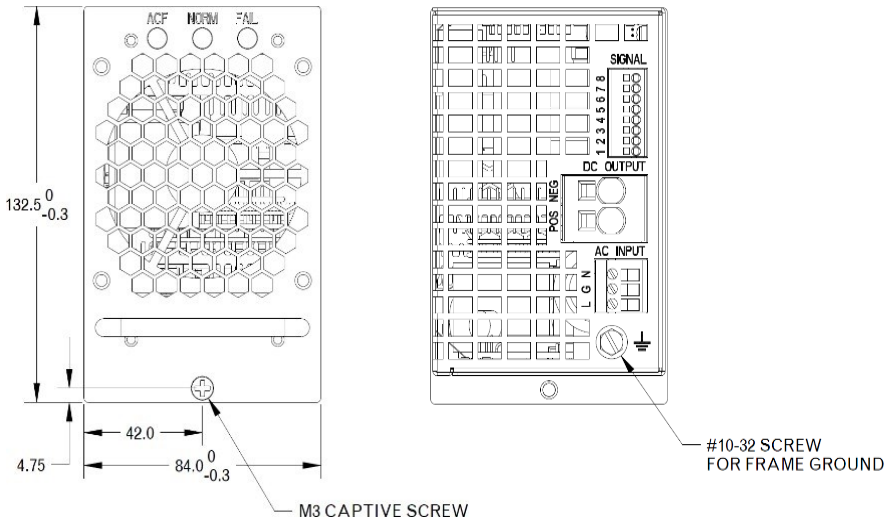
Output Parameters	
Voltage, nominal	52 V_{dc}
Voltage adjust range	48 ~ 58V_{dc}
Rated output Power	3000W
Output Current @V	55.5A@54V
Maximum current	62.5A
Static Voltage regulation	±0.5% from 10% to 100% load
Noise (Ripple + spikes)	≤ 250 mV (p-p)
Load sharing	± 3 A_{dc}
I/P and O/P connector	Rear side
Output protection	Over voltage shutdown
	Over voltage shutdown
	Blocking diode
	Short circuit proof
	High temperature protection

Other Parameters	
Isolation	3.0 KVAC – I/P & O/P
	1.5 KVAC – input & earth
	0.5 KVDC – output & earth
Visual Indications	Normal LED (Green)
	4 status (Blink
	Fail LED (Red)
	3 status (Blink
	AC Fail LED (Amber)
	2 status (OFF
Operating temp	-10°C to +70°C
Power De-rating	+50°C to +70°C de-ration @ 2.4%/°C
Operating Humidity	5% to 95% RH non-condensing
MTBF	>300, 000 hours Telcordia SR-332, Method 1, Case 3 (Ambient Temperature: 25°C
Audible Noise	<60Dba at an ambient noise level of 45Dba and at ambient temperature of 25°C
Mechanical	Width 84mm (3.3”)
	Height 123mm (4.84”)
	Depth 377mm (14.8”)
	Weight 3.4 kg (7.5 lbs)

Note: As a result of continuous product improvement, all specifications are subject to change without prior notice. All performance parameters are valid at Nominal input (230V_{ac}) and nominal output (52V_{dc}) conditions unless otherwise specified.

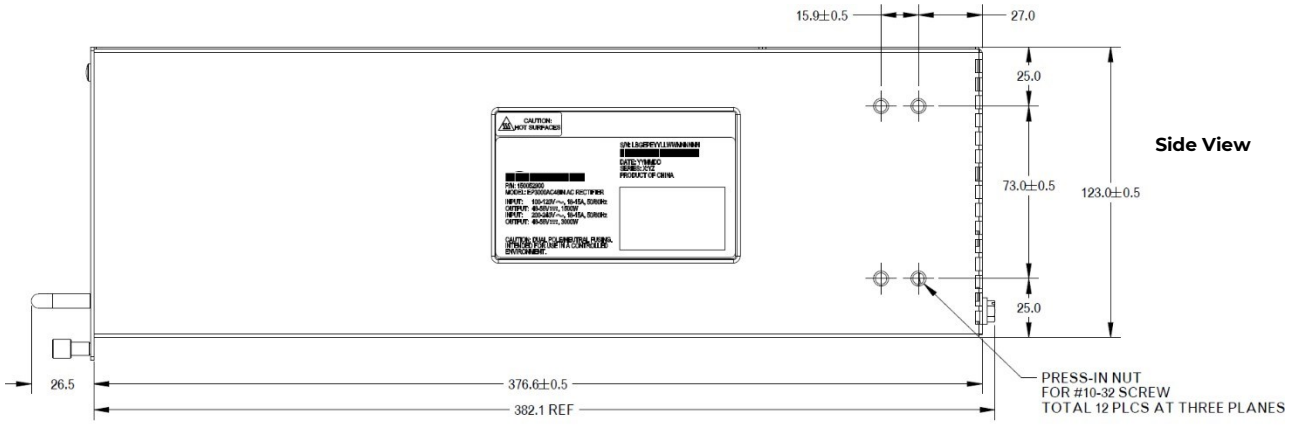
Technical Specifications (continued)

Package Outline

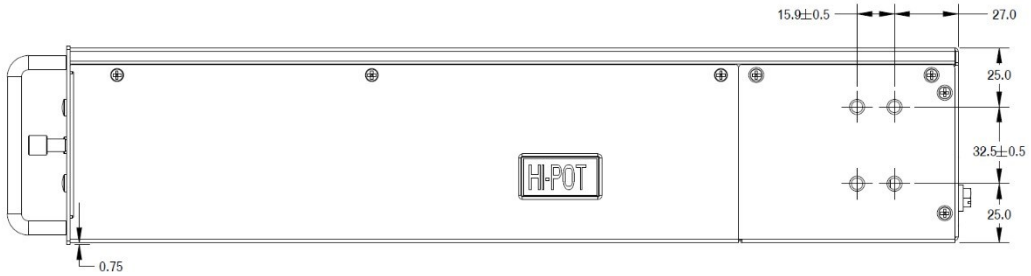


Front View & Rear View

Top View



Side View



Bottom View

Technical Specifications (continued)

Mounting Ear Locations

Rear of rectifier

Signal Pin definition	
8	RESERVE
7	PRESENT
6	RS485B
5	RS485A
4	SHELF_ADR
3	REC_ADR
2	SGND
1	+5V

DC and Signal TB wire connection instruction

Whether it's a push-in spring or a leg spring, the spring principle makes for quick, tool-free conductor connection. Simply insert the solid conductors and conductors with ferrules into the push-in terminal point and release using a screwdriver. When connecting and releasing finely stranded conductors without ferrules, the terminal point can also be opened using a screwdriver.

AC wire connection instruction

Cable routing and actuation of the terminal block screw on one level – front screw connection for narrow device fronts and PCB racks. The conductor is reliably clamped by the force-increasing swiveling movement of the angled pressure plate.

TB connection data

	AC input TB	DC output TB	Signal TB
Conductor cross section solid	0.2~2.5 mm^2	0.75~16mm^2	0.2~1.5mm^2
Conductor cross section flexible	0.2~2.5 mm^2	0.75~16mm^2	0.2~1.5mm^2
Conductor cross section with ferrule without plastic sleeve	0.25~1.5mm^2	0.75~16mm^2	0.25~1.5mm^2 Stripping length 8mm
Conductor cross section with ferrule with plastic sleeve	0.25~1.5mm^2	0.75~10mm^2	0.25~0.75mm^2 Stripping length 8mm
Conductor cross section AWG	24~12 AWG	20~4 AWG	24~16 AWG
Screw tightening torque	0.4~0.5 Nm	NA	NA
Nominal current IN	24A	76A	17.5A
Stripping length	9mm	18mm	10mm

Technical Specifications (continued)

Mounting Ear Locations (continued)

Applicable Standards-Reference	
Electrical safety	IEC 60950-1
	UL 60950-1
	CSA 22.2
EMI	As per CISPR-22 CLASS A
EMC	IEC 61000-4-5, Level 1 (Surge immunity limits)
	IEC 61000-4-6, Level 3 (RF Conducted susceptibility immunity limits)
	IEC 61000-4-3 Level 3 (Radiated Electromagnetic Field immunity limits)
	IEC 61000-4-4 Level 4 (EFT/ Burst immunity limits)
	IEC 61000-4-2, Level 4 (ESD Immunity limits)
Harmonics	EN 61000-3-2
Environment	RoHS compliant, Selected model only

Ordering Information		
Product	Description	Ordering code
EP3000AC48INZ	3000W rectifier at 48-58V (95% efficiency), RoHS 5	1500052900
7000092030A	Mounting Kit (Include #10-32 screw*4, bracket*2)	7000092030A

Note: Mounting kit was provided in carton box of rectifier.

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Contact Us

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Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
1.2	12/23/2021	Updated as per template
1.3	12/01/2023	Updated as per OmniOn template

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