J Series

Rectifier Module

Overview

Eltek rectifier modules provide industry-leading power density and efficiency in 1 or 2 RU footprints. With a wide range of power ratings and form factors, there is an Eltek rectifier for your power needs. Versatility, scalability, and "hot swap" capability make for optimal system design and cost-effective deployment—from initial install to future upgrades.

The Eltek Difference

Optimization

Eltek rectifiers are optimized for the demanding power and power conversion needs of wireless communications, enterprise and broad-band access equipment.

Small size, big power

At only 1RU in height and 10" in depth, Eltek *J-series* rectifiers can provide up to 1,500 Watts of power. The small size frees up space to reduce system size or incorporate additional electronics.

Industry-leading efficiency

Industry-leading efficiency reduces the thermal load, thus improving overall system reliability and availability.

Flexibility

J-series rectifiers are designed to operate in Eltek's *J Front Wire* and *J Rear Wire* DC Power Systems. They are versatile modules that can operate either as standalone units or with a system controller.

Features

- Small 1RU footprint
- 48V output
- Output power up to 1680W
- Conversion efficiency of 91%
- Operating temperature range: from -40°C to +65°C
- Universal AC input
- Power factor correction
- Hot-pluggable/hot-swappable
- Redundant parallel operation
- Active load sharing
- Advanced internal monitoring
- Front status LEDs
- NEBS Level 3
- UL Recognized
- VDE Certified
- CE Mark
- RoHS EU Directive 2002/95/EC compliant
- GR-3108 compliant
- MTBF of 420,000 hours at 40°C

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J Series Rectifier Module

Additional Technical Specifications

AC Input

J SERIES	J0600A1	J1000A1	J1500A1*		NOTES
			@low line	@ high line	
Input Voltage (min)	90 Vac	90 Vac	90 Vac	180 Vac	Startup Voltage. Unit operates to 5V below startup voltage
Input Voltage (max)	264 Vac	264 Vac	170 Vac	264 Vac	Steady State Voltage. Unit with stands short duration excursions to 300Vac.
Input Frequency (min)	47 Hz – 63 Hz				
Input Current (max)...					
@ 100 Vac (amps)	9.8	12.9	16	-	56 VDC and rated current
@ 120 Vac (amps)	6.4	10.6	13	-	56 VDC and rated current
@ 180 Vac (amps)	4.2	7.0	-	10.4	56 VDC and rated current
@ 208 Vac (amps)	3.7	6.0	-	8.9	56 VDC and rated current
Inrush Current (max)	30 amps peak				Excludes X caps in the EMC input filter.
Power Factor	.99				

DC Output

J SERIES	J0600A1	J1000A1	J1500A1*		NOTES
			@low line	@ high line	
Vo Set Point (min/typ/max)	42/48/59 Vdc				
Regulation (min/max)	±1%				Total regulation line, load, aging & temperature
Output Current (min/max amps)	0/12	0/20	0/25	0/30	42V - 56V – Full rated current. 56V - 59V – 85% rated current based on rectifier setpoint.
Output Power (watts max)	672	1120	1400	1680	56 Vdc and full rated current
Current Limit Setpoint	105% to 110% of maximum rated load				
Output Noise*	40 mV rms typical (10kHz to 20MHz) 32 dBrnc (measured w/o external battery) 250mV P-P (10 Khz to 20 Mhz)				
Output Rise Time* (min/max)	100/400 msec				Measured at 10 – 90% of final output level
Dynamic Response*	4%				Change in output voltage within 10 msecs after a 10 to 100% load step change
Turn On Delay*	3.5 sec				Measured from application of valid AC voltage to regulation set-point
Backup Over-voltage Protection	60 Vdc				
Load Sharing	±5%				Percentage of full load
Reverse Output Current (max)	0.5 amps				Internal reverse protection is provided.
Efficiency	89%	91%			56 VDC and rated current

*Compliant from -20°C to +50°C

Typical specifications, unless otherwise stated
Nominal line: 230 VAC
Nominal setpoint: 48 VDC
Nominal load: 100% of rated current
Specifications subject to change without notice

Eltek, Inc.
1303 E. Arapaho Rd, Richardson, TX 75081, USA
Phone: +1 (469) 330-9100 Fax: +1 (469) 330-9101

Additional Technical Specifications

Auxiliary Output

PARAMETER	J0600A1	J1000A1	J1500A1	NOTES
Output 1*				
Nominal Voltage	12V			
Vmin/max	10.5 / 14			
Source Current Rating** (min/max)	0 / 500mA			
Sink Current (max)**	100mA			Current required for internal controls when AC is not present
Output 2*				
Nominal Voltage	5V			
Vmin/max	4.75 / 5.25			
Source Current Rating** (min/max)	0 / 250mA			

NOTE: *Output 1 and 2 operates independent of main DC output and is referenced to Vout-
**Auxiliary bias current not to exceed Aux 1 Current + (2 X Aux 2 Current) = 500mA

Physical

PARAMETER	J0600A1	J1000A1	J1500A1	NOTES
Depth	254.0mm (10")			
Height	42.7mm (1.68")			
Width	101.7 mm (4.00")			
Weight	2.23kg (4.92lbs)			

Environmental

PARAMETER	MINIMUM	MAXIMUM	UNIT	NOTES
Storage Temperature	-40	85	°C	
Operating Temperature	-40	65	°C	Full power is -40°C to +50°C; output power de-rates 2%/°C above 50°C.
Humidity	5	95	%	Relative Humidity Non Condensing
Altitude	-200	8000	Ft	For operation above 8000' , maximum temperature is derated 2°C per 1000'

APPLICABLE STANDARDS			
NEBS Level 3		EN61000-4-3	Radiated radio-frequency, electromagnetic field immunity test,10 V/m
GR-3108-CORE	Class 2: Protected Environments	EN61000-4-4	Electrical fast transient/burst immunity test. 1kV.
EN55022	Radiated emissions and conducted emissions	EN61000-4-5	Surge immunity test. Line to line, 1kV Line to ground, 2kV
EN61000-3-2	Limits for harmonic current emissions	EN61000-4-6	RF common mode, 10Vrms
EN61000-3-3	Limits for voltage and flicker in low voltage systems	EN61000-4-8	Magnetic field, 10A
EN61000-4-2	Electrostatic discharge immunity test, 15kV air, 8kV contact	EN61000-4-11	Voltage dips, short interruptions and voltage variations

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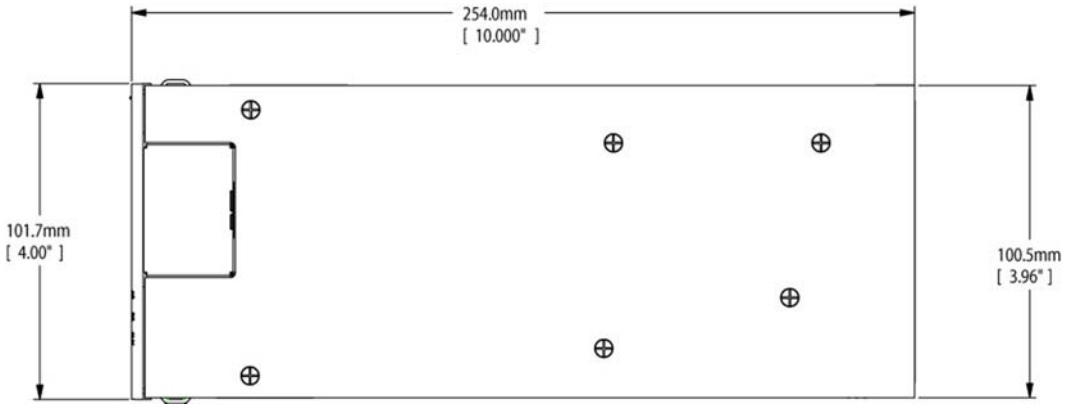
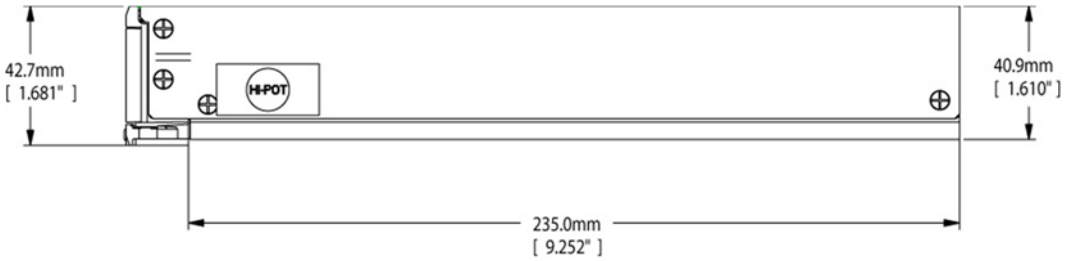
Dimension Drawings

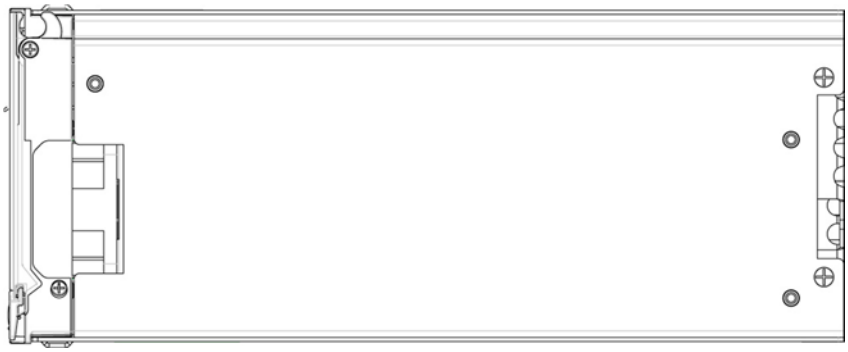
TOP VIEW



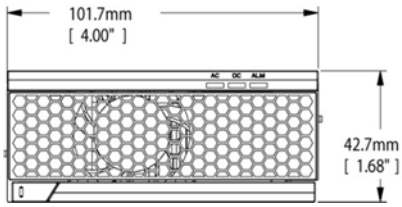
SIDE VIEW



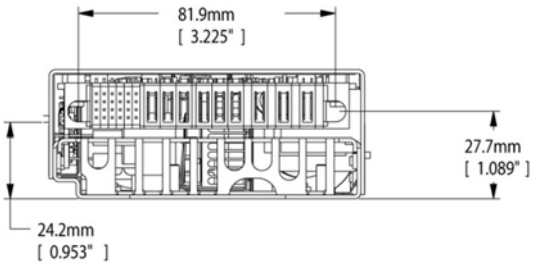
BOTTOM VIEW



FRONT VIEW



BACK VIEW



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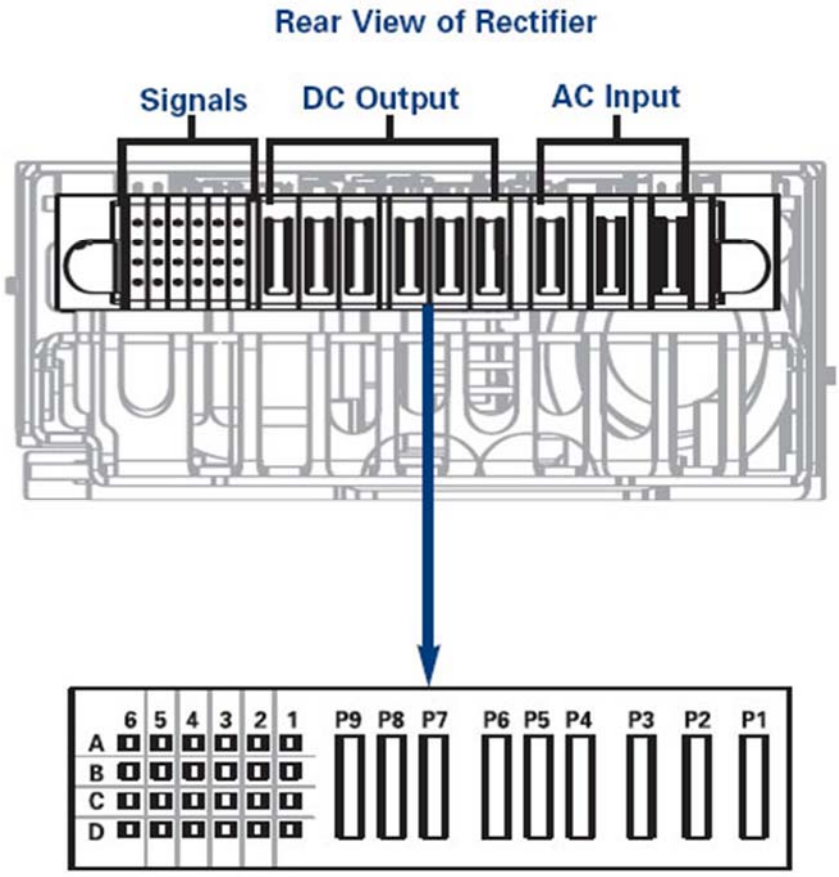
Rectifier Connector Pin-out



Unit Connector p/n: 51939-140LF
Mating Connector p/n: 51866-025LF
Supplier: FCI/BERG

FCI NUMBERING	6	5	4	3	2	1
A	LOGIC_GROUND	AC_FAIL	OPEN	LOC1	SCL	ISHARE
B	MODULE_ALARM	MODULE_PRST_OUT	OPEN	LOC0	RESERVED	REMOTE_SENSE-
C	MODULE_DISABLE	MODULE_PRST_IN	RESERVED	AUX_OUTPUT_1	V_MARGIN	SECONDARY_RETURN
D	TEMP_ALARM	OPEN	LOC2	SDA	SHORT_PIN	REMOTE_SENSE+
P9	OUTPUT POSITIVE					
P8						
P7						
P6	OUTPUT RETURN					
P5						
P4						
P3	CHASIS GROUND					
P2	AC LINE 1					
P1	AC LINE 2					

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Rectifier Connector Pin-out Requirements

Non Isolated Signals

OUTPUT+ and OUTPUT-
Power blades used for connecting positive and negative power connections.

REMOTE_SENSE+ and REMOTE_SENSE-
These signals are used to compensate for distribution drop across the output distribution. The maximum voltage drop from the rectifier module to the remote sense connection (the complete round trip) must be maintained to less than 1V. The remote sense leads may be left un-terminated in applications where remote voltage regulation is not required.

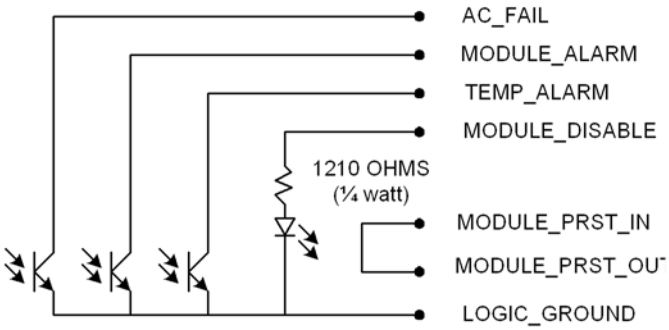
ISHARE
All rectifiers ISHARE pins are tied together on the system backplane to support load sharing. This connection may be terminated between rectifiers or left un-terminated in systems where load share is not required.

SHORT_PIN
The short pin is used to disable the rectifier if not fully seated in a sys- tem. It is required to be tied to OUTPUT- in the system backplane in order for the rectifier to provide proper output voltage. It may not be left un-terminated.

Address Pins (LOC0, LOC1, LOC2, LOC3)
LOC0, LOC1, LOC2 and LOC3 are location pins used to set rectifier address in a system where the I²C bus is shared between rectifiers. They may be left un-terminated to generate logic 1 or connected to OUTPUT- to generate logic 0.

I²C Communications Bus (SCL, SDA)
The I²C Communications Bus provides information about internal rectifier conditions as well as full control of output voltage and alarming setpoints. SCL and SDA are common data signals and can be wired directly to a system controller or on a common shared bus between the rectifiers in a system and the main system controller. The rectifiers communicate via the proprietary Valere Communication Protocol. Contact your Eltek Valere representative for technical assistance in interfacing to the rectifiers using this interface protocol. The I²C Bus signals are logic referenced to OUTPUT-.

Isolated Signals



AC_FAIL
This signal is an opto-isolated open collector signal referenced to LOGIC_GND within each rectifier. AC_FAIL is a normally closed signal which signifies the presence of an alarm with a high impedance. AC_FAIL indicates the presence of valid AC input voltage to the rectifier.

MODULE_ALARM
This signal is an opto-isolated open collector signal referenced to LOGIC_GND within each rectifier. MODULE_ALARM is a normally closed signal which signifies the presence of an alarm with high impedance. MODULE_ALARM is designed to provide a power fail warning to indicate the pending loss of DC voltage during line drop conditions. MODULE_ALARM is asserted at least 5msec prior to loss of DC output voltage during these conditions.

TEMP_ALARM
This signal is an opto-isolated open collector signal referenced to LOGIC_GND within each rectifier. TEMP_ALARM is a normally closed signal which signifies the presence of an alarm with high impedance. TEMP_ALARM indicates that the rectifier module has shut down due to an over-temperature condition.

MODULE_DISABLE
This signal is a current limited input designed to accept a 3.3V to 5V input voltage. Applying a voltage between these pins will result in disabling the DC output voltage from the rectifier. This signal may be left un-terminated in systems where MODULE_DISABLE is not required or is implemented via the I²C Interface.

MODULE_PRESENT_IN/OUT
This is a general-purpose, configurable signal interface used to detect module presence.