J-series
(Rectifier Module)

Overview:

The Eltek Valere rectifier modules provide unprecedented power density and power levels in a true plug and play format. With a wide range of available voltages, power ratings, and form factors, the rectifiers provide optimal and cost effective solutions for your power needs.

(The Eltek Valere Difference)

Optimization

Eltek Valere rectifiers are optimized for the demanding power needs of wireless communications, enterprise and broadband access equipment.

Small size, big power

These compact 1RU rectifiers can provide up to 1680 Watts of power. The small size frees up space to reduce system size or incorporate additional electronics.

Industry leading efficiency

An industry leading 91% efficiency reduces the thermal load thus improving the overall reliability and availability of the system.

Flexibility

These rectifiers are designed to operate as an integral component in Eltek Valere's J-series front and rear wire DC power systems. They are extremely flexible and can be operated either with a system controller or as a standalone module in enterprise applications.

(Features)

Small 1RU Footprint
48V Output
Output Power up to 1680W
Typical efficiency 91%
Wide Range Operating Temperature from -40°C to +70°C
Universal AC Input
Power-factor Correction
Hot-Pluggable
Redundant Parallel Operation
Active Load Sharing
Advanced Internal Monitoring
UL60950-1 Recognized
VDE EN60950-1 Certified
RoHS EU Directive 2002/95/EC compliant
CE Mark

See reverse side for specifications

(J-series Rectifier Module)

Additional Technical Specifications

AC INPUT SPECIFICATIONS

J SERIES	J0500A1	J1000A1	J1500A1* @low line	J1500A1* @ high line	NOTES
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				
Input Frequency (max)	63 Hz				
Input Current (max)					
@ 100 Vac (amps)	6.5	11.8	16	-	
@ 120 Vac (amps)	5.4	9.9	13	-	
@ 180 Vac (amps)	3.6	6.6	-	10.4	
@ 208 Vac (amps)	3.1	5.7	-	8.9	
Inrush Current (max)	30 amps peak				Excludes X caps in the EMC input filter.
Power Factor	.99 @ typ. @ 230Vac, full load				

NOTE: *J1500A1 automatically decreases current limit at low line voltage levels.

DC OUTPUT SPECIFICATIONS

MAIN OUTPUT	J0500A1	J1000A1	J1500A1* @low line	J1500A1* @ high line	NOTES
Vo Set Point (min/typ/max)	42/48/59				Volts
Regulation (min/max)	±1%				Total regulation line, load, aging & temperature
Output Current (min/max amps)	0/10	0/20	0/25	0/30	42V - 56V – Full rated current. 56V - 59V – 85% rated current based on rectifier setpoint.
Output Power (watts max)	590	1180	1400	1680	
Current Limit Setpoint (min/max amps)	2/12	5/28	5/28	5/33	Current limit setpoint is adjustable via I2C or through Eltek Valere NIC.
Short Circuit Current (peak amps)	16	30	37	45	Excluding output capacitor discharge current.
Short Circuit Current (RMS amps)	6	11	15	20	
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** (maximum)	3%				Change in output voltage within 10 msecs after a 10 to 100% load step change
Turn On Delay** (maximum)	3.5 sec				Measured from application of valid ac voltage to regulation set-point
Adjustable Over-voltage Protection (min/max)	50/60V				Remotely Configured. Adjustable via I2C or through Eltek Valere NIC.
Backup Over-voltage Protection (max)	60 Vdc				
Load Sharing (min/max)	±5%				Of full load
Reverse Output Current (max)	0.5 amps				Internal reverse protection is provided.
Efficiency	90%	91%			Typical @ 230 Vac

NOTE: **Compliant to -20°C to +50°C

AUXILIARY OUTPUT SPECIFICATIONS

AUXILIARY OUTPUT	J0500A1	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 SPECIFICATIONS

PARAMETER	J0500A1	J1000A1	J1500A1	NOTES
Depth	254.0mm (10")			
Height	101.7mm (4.00")			
Width	39.1mm (1.54") (chassis), 42.7mm (1.68") (faceplate)			
Weight	2.23kg (4.92lbs)			

ENVIRONMENTAL SPECIFICATIONS

PARAMETER	Minimum	Maximum	UNIT	NOTES
Storage Temperature	-40	85	°C	
Operating Temperature	-40	70	°C	J1500A @ 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'

GENERAL REQUIREMENTS

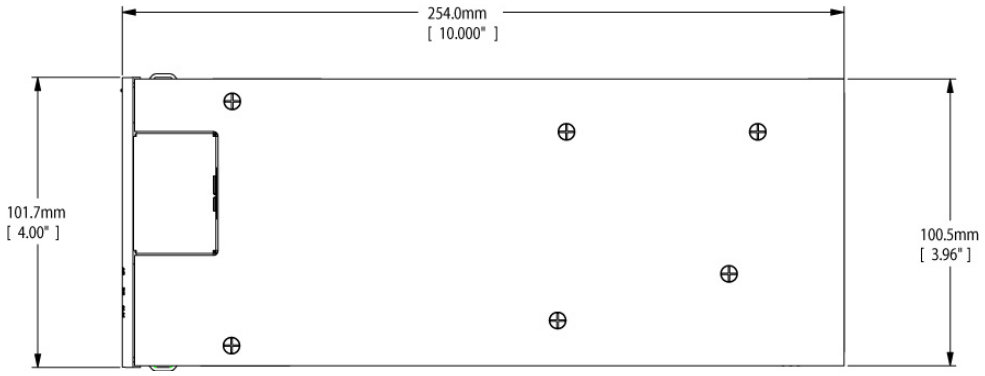
APPLICABLE STANDARDS			
Seismic Rating	Zone 4, per GR-63-CORE	EN61000-4-3	Radiated, radio-frequency, electromagnetic field immunity test
Radiated EMI	Conforms to EN55022, Level A	EN61000-4-4	Electrical fast transient/burst immunity test
Conductive Emissions	EN55022, Level B & FCC Class B	EN61000-4-5	Surge immunity test
NEBS	EMC, Surge Standards, and Electrical Safety per GR-1089-CORE	EN61000-4-6	RF Common Mode
EN61000-3-2	Limits for harmonic current emissions	EN61000-4-8	Magnetic Field
EN61000-3-3	Limits for voltage fluctuations and flicker in low-voltage systems	EN61000-4-11	Voltage dips, short interruptions and voltage variations
EN61000-4-2	Electrostatic discharge immunity test	RoHS Compliant	EU Directive 2002/95/EC

Specifications are subject to change without notice

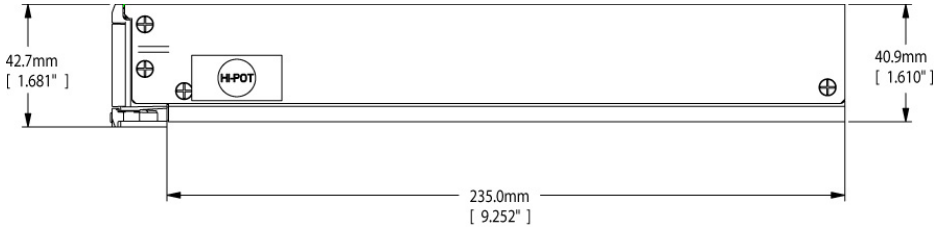
(J-series Rectifier Module)

Dimension drawings

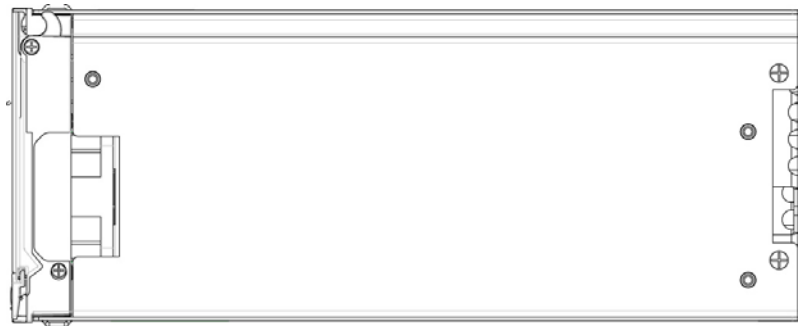
TOP VIEW



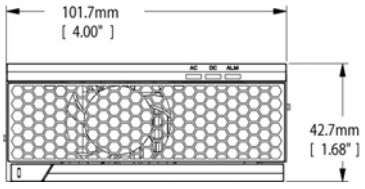
SIDE VIEW



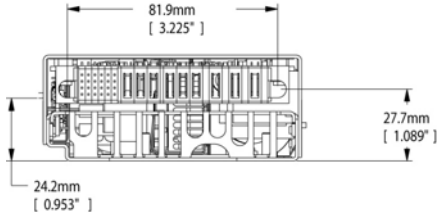
BOTTOM VIEW



FRONT VIEW



BACK VIEW



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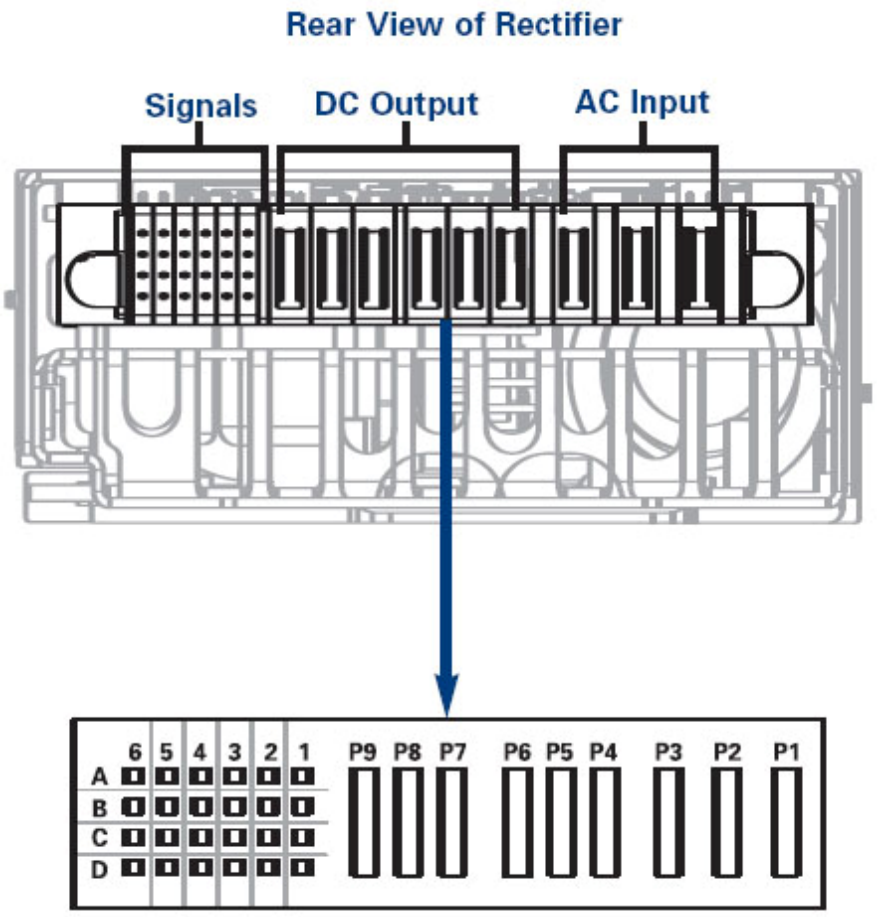
Rectifier Connector Pin-out Requirements



Unit Connector p/n: 51939-103LF
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	CHASSIS GROUND					
P2	AC LINE 1					
P1	AC LINE 2					

(Non-Isolated Signals)

OUTPUT+ and OUTPUT-

Power blades uses 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 system. 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.

V_MARGIN

V_Margin is used in systems where analog voltage margining up of the output voltage is required. The rectifier output voltage will default to the I2C setpoint value, which is factory default set to the nominal output of the specific rectifier (see table on page 2). Analog margining will then allow a host system to increase the rectifier above this I2C setpoint. It may be left un-terminated in systems where this feature is not required.

INPUT VOLTAGE	RECTIFIER OUTPUT VOLTAGE INCREASE
0V or Un-terminated	0V
5V	10V

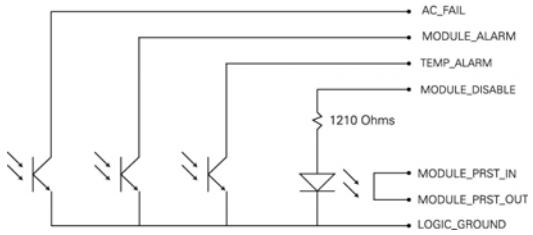
Address Pins (LOC0, LOC1, LOC2)

LOC0, LOC1, and LOC2 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 Eltek 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 ALARM INTERFACE



(Isolated Signals)

MODULE_PRST_IN, MODULE_PRST_OUT

This signal is used to determine the presence of a rectifier module in a system location.

AC_FAIL_ALARM

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 a high impedance. MODULE_ALARM is designed to provide an 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.

OVERTEMP_ALARM

This signal is an opto-isolated open collector signal referenced to LOGIC_GND within each rectifier. OVERTEMP_ALARM is a normally closed signal which signifies the presence of an alarm with a high impedance. OVERTEMP_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 12V input voltage. Applying this voltage results 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.

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