

INSTALLATION INSTRUCTION

LRSA Series

AC-DC Subrack System

AC INPUT

AC Input A: 100 - 240 VAC, 9 A max

AC Input B: 100 - 240 VAC, 18 A¹ max

Frequency: 50 /60 Hz

Wide input voltage range: no manual change required.

For single converter, the max. input current is 3 A.

¹For single input/output models only section B connectors are populated.

Interconnection of inputs is provided by factory.



DC OUTPUT

OUTPUT (LR2320-9) - independent or parallel connection of sections:

	Number of converters per section					
	1 x LR2320-9		2 x LR2320-9		3 x LR2320-9	
	Power of section: 240 W		Power of section: 480 W		Power of section: 720 W	
	Outputs in parallel	Outputs in series	Outputs in parallel	Outputs in series	Outputs in parallel	Outputs in series
Output A	12 V, 20 A	24 V, 10 A	12 V, 40 A	24 V, 20 A	12 V, 60 A	24 V, 30 A
Output B						

OUTPUT (LR2540-9) - independent or parallel connection of sections:

	Number of converters per section					
	1 x LR2540-9		2 x LR2540-9		3 x LR2540-9	
	Power of section: 240 W		Power of section: 480 W		Power of section: 720 W	
	Outputs in parallel	Outputs in series	Outputs in parallel	Outputs in series	Outputs in parallel	Outputs in series
Output A	15 V, 16 A	28/30 ² V, 8 A	15 V, 32 A	28/30 ² V, 16 A	15 V, 48 A	28/30 ² V, 24 A
Output B						

² Models with 28 V outputs have reduced output power.

Note: Single output systems have parallel interconnection of sections which is provided by the factory. The output power is the sum of power of both sections.

OUTPUT (LR2320-9) - connection of sections in series:

	Number of converters per section		
	2 x LR2320-9	4 x LR2320-9	6 x LR2320-9
	Power of section: 480 W	Power of section: 960 W	Power of section: 1440 W
Output A	48 V, 10 A	48 V, 20 A	48 V, 30 A
Output B			

OUTPUT (LR2540-9) - connection of sections in series:

	Number of converters per section		
	2 x LR2540-9	4 x LR2540-9	6 x LR2540-9
	Power of section: 480 W	Power of section: 960 W	Power of section: 1440 W
Output A	60 V, 8 A	60 V, 16 A	60 V, 24 A
Output B			

Minimum 2 converters must be installed – 1 or more per section. Each section must have equal number of converters.

For single output systems only section B connectors are populated. Interconnection of section A and B is provided by factory.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS — This installation contains important instructions for our LRSA Series models that should be followed during the maintenance of the unit.

DISCLAIMER

It is the customer's responsibility to check the suitability and qualify the product in their application, if any queries please contact Bel (at powersupport@belf.com or website belfuse.com) to ensure product remains within specification at all time.

Supplier shall in no way be liable for use or installation of the product outside of the parameters of the specification.

SAFETY APPROVALS

Approved to the latest version of the following safety standards: UL/CSA 62368-1, IEC/EN 62368-1.

CAUTION

This Power Subrack System is intended exclusively for installation within other equipment by professional installers. This is a Class I equipment; the Subrack System must be properly connected to earth ground in the end-use application. The outputs should not be connected together in any manner which causes the total output voltage to exceed 60 VDC, otherwise the output will not be ES1.

High touch current – connect earth before connecting to supply.

Depending on the model the protective conductor current can reach 17.6 mA.

PROTECTIVE EARTHING

The Subrack System must be properly grounded to the protective earth at end use system. Connection must be provided by inserting wire to the Input connector pin 3 and additionally independent wire mounted to grounding screw – see Fig. 1. Each wire for grounding must have minimal cross section 2.5 mm² (14 AWG).



Fig. 1 Protective earthing of LRSA subrack system

ENVIRONMENTAL CONDITIONS

- TRANSPORTATION & STORAGE:** Ambient Temperature Range: -55 °C to +85 °C
Relative Humidity Range: 0% to 95% RH Non-Condensing
Altitude: 2000 m
- OPERATION:** Ambient Temp. Range: -40°C to +45°C (Natural convection cooling)
-40°C to +71°C (400 LFM Forced cooling *)
Case Temp. Range Tc: -40°C to +95 °C
Relative Humidity Range: 0% to 95% RH Non-Condensing
Altitude: 2000 m
IP40 (from the front side)

Note: ¹ The installer must ensure that under all operating conditions Tc remains within the limits stated in the table Temperature specifications.
If Tc max is exceeded during operating conditions, an adequate forced cooling of system may be required to sustain Tc max is within allowed limits.

FUSING

A Fuse rated 6.3 A / 250 V is installed in each converter. There is no fuse installed on the subrack input(s).
External overcurrent protection 240 V, 25 A, 1500 A interrupting capacity required.

SERVICING

In case of failure, the Subrack must be returned to a Bel Power Solutions Authorized Service Center. The converters could be replaced by the installer.
The converter placement cannot be changed.

LIMITED WARRANTY

Bel Power Solutions warrants each power supply of its manufacture for a period of five years from the date of original shipment. This warranty applies to defects in materials and workmanship that result in non-performance to published specifications. The product(s) must be returned to a Bel Power Solutions Authorized Service Center for repair with a Bel Power Solutions pre-assigned RMA number.
Bel Power Solutions assumes no liabilities for consequential damages of any kind through the use or misuse of its products by any user. No other obligations are expressed or implied. Please note that the specifications, terms, and conditions stated are subject to change without notice.



Manufacturer:
Bel Fuse Inc.
300 Executive Drive, Suite 300
West Orange, NJ 07052
USA

Asia-Pacific
+86 755 298 85888

EMEA
+353 61 498 955

North America
+1 866 513 2839

powersupport@belf.com
belfuse.com

NUCLEAR AND MEDICAL APPLICATIONS

Bel Power Solutions products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Bel Power Solutions.

TECHNICAL REVISIONS

The appearance of product, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

REAR VIEW – BACKPLANE OF LRSA SYSTEMS

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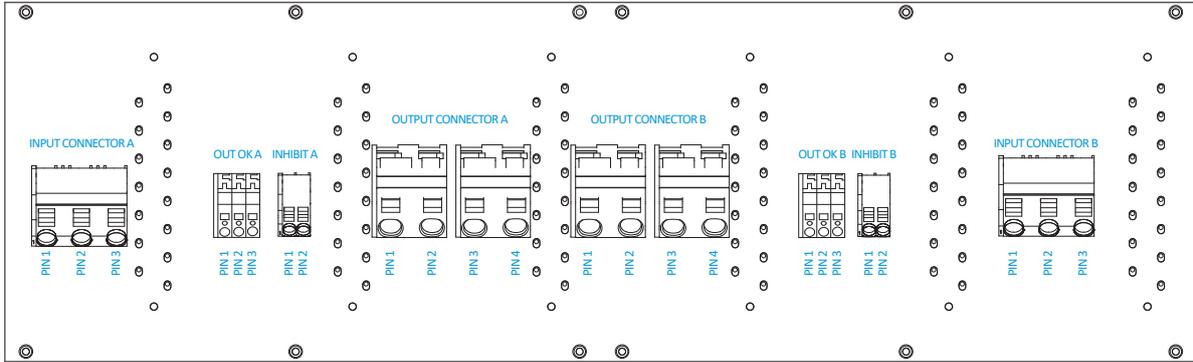


Fig. 2 Rear View - Connectors Position

CONNECTORS AND PINOUTS DESCRIPTION

INPUT A, B

Pin No.	Name	Current rating per pin	Max size of interconnecting wire	Wire rating	Function
1	L -	30 A	10 AWG / 6 mm ²	> 300 Vrms, 105°C	Phase line
2	L +	30 A	10 AWG / 6 mm ²	> 300 Vrms, 105°C	Neutral line
3		30 A	10 AWG / 6 mm ²	> 300 Vrms, 105°C	Protection earth PE & case

OUTPUT A, B

Pin No.	Name	Current rating per pin	Max size of interconnecting wire	Function
1	Vo-	65 A	6 AWG / 16 mm ²	Negative Output
2	Vo-	65 A	6 AWG / 16 mm ²	Negative Output
3	Vo+	65 A	6 AWG / 16 mm ²	Positive Output
4	Vo+	65 A	6 AWG / 16 mm ²	Positive Output

OUT OK

Pin No.	Name	Current rating per pin	Max size of interconnecting wire	Function
1	AL	10 A	12 AWG / 4 mm ²	Rest contact
2	CC	10 A	12 AWG / 4 mm ²	Change contact
3	OK	10 A	12 AWG / 4 mm ²	Operating contact (Vo okay)

INHIBIT A, B

Pin No.	Name	Current rating per pin	Max size of interconnecting wire	Function
1	IN1	10 A	12 AWG / 4 mm ²	Inhibit positive
2	IN0	10 A	12 AWG / 4 mm ²	Inhibit negative



Manufacturer:
 Bel Fuse Inc.
 300 Executive Drive, Suite 300
 West Orange, NJ 07052
 USA

Asia-Pacific
 +86 755 298 85888

EMEA
 +353 61 498 955

North America
 +1 866 513 2839

powersupport@belf.com
belfuse.com

INPUT/OUTPUT & SIGNAL CONNECTOR PINNING

Position	Manufacturer / MPN	# of pins	Min/Max. wire cross section ¹
Input A input B	L N ⊕	WAGO / 745-1403 3	14 / 10 AWG 14 / 10 AWG 14 / 10 AWG
Output A Output B	Vo+ Vo-	WAGO / 745-602 2 WAGO / 745-602 2	16 / 6 AWG 16 / 6 AWG
Out OK A Out OK B	WAGO / 745-103 3	28 / 12 AWG	
Inhibit A Inhibit B	WAGO / 745-102 2	28 / 12 AWG	

¹ This is min./max. wire cross section fitting to the connector, the used wire cross section depends on maximum output current.

INPUT/OUTPUT CABLING AND INTERCONNECTION

Section A and section B of the Subrack System have almost two identical parts of LRSA system. According to the model the sections can be isolated or interconnected on the input side and/or on the output side. The single output models – outputs of the sections connected in parallel, or series have only connectors of section B populated.

The mains must be led to each input to power up any converter in the respective section. Mains can be connected in parallel (non-redundant system) or each section may be supplied from an independent (redundant system) power source.

Protective earth must be connected first.

For configurations using both sections of a Subrack System to accumulate output power or to provide redundancy, outputs A and B must be connected to the load in parallel. A similar resistance of connecting wires is recommended.

OUTPUT VOLTAGE SETTING SPECIFICATION

LRSA systems output voltage is NOT configurable by the end user and has to be configured only by factory.

MECHANICAL DIMENSIONS

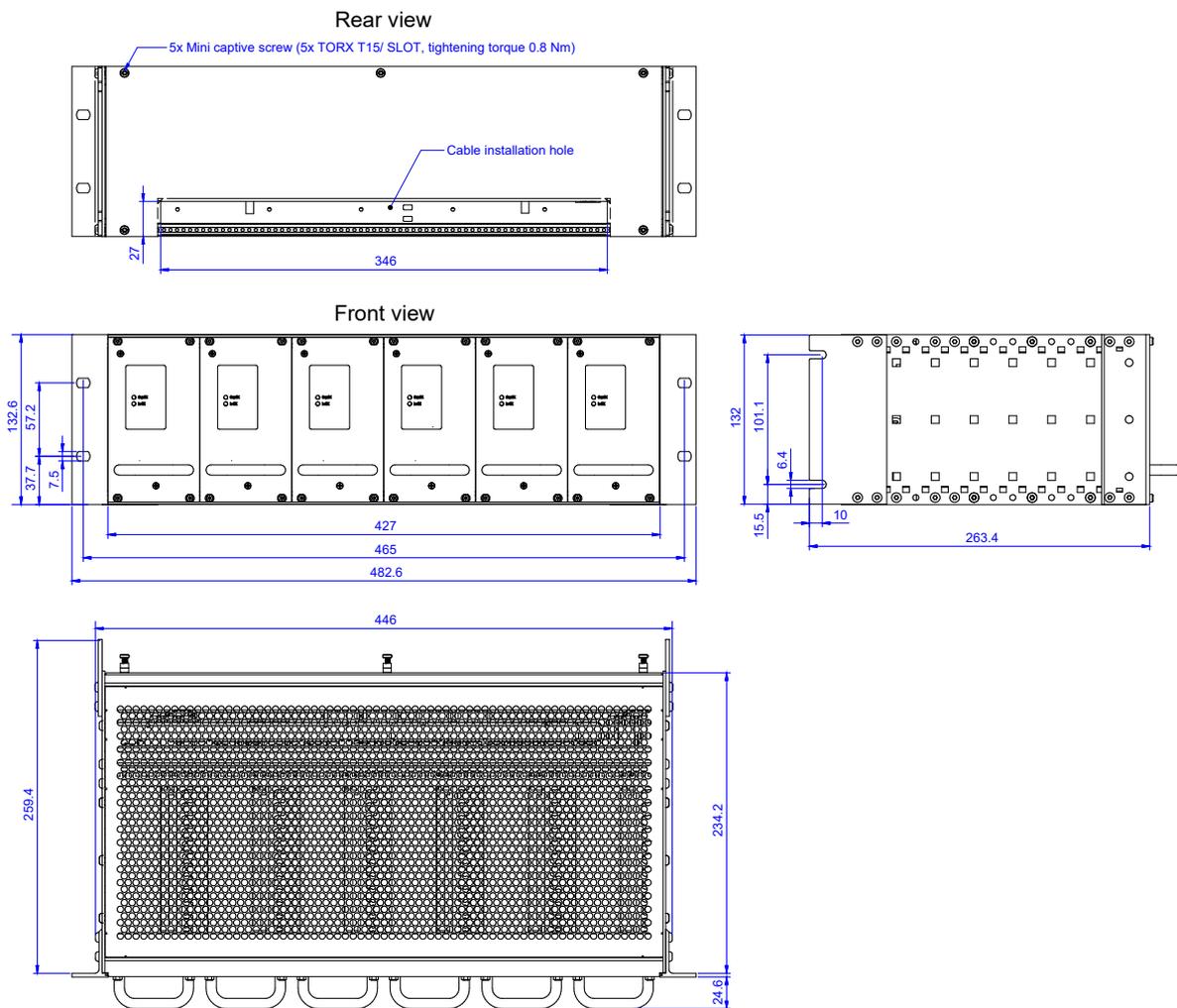


Fig 3. Mechanical dimensions



Manufacturer:
Bel Fuse Inc.
300 Executive Drive, Suite 300
West Orange, NJ 07052
USA

Asia-Pacific
+86 755 298 85888

EMEA
+353 61 498 955

North America
+1 866 513 2839

powersupport@belf.com
belfuse.com