RHINO Installation Instructions for PSB60-REM40S Redundancy Module

READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

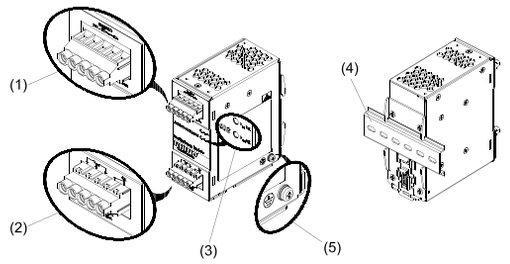


Figure 1

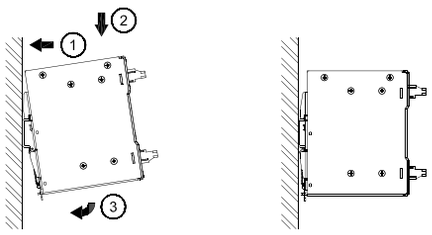


Figure 2

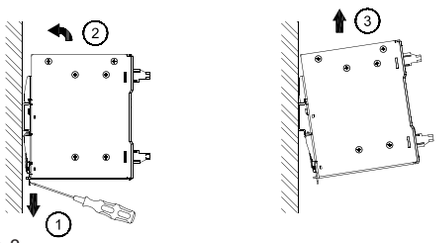
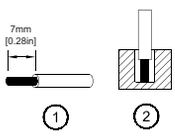


Figure 3

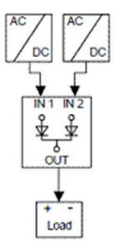


PSB60-REM40S	
AWG (mm²)	ADC Ferrule p/n
12 (4.0)	BM-00508
10 (6.0)	BM-00610

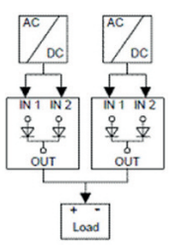
Figure 4

Typical Application Notes

5.1



5.2



5.3

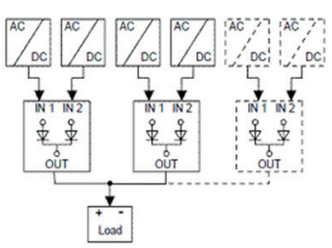


Figure 5

Power Derating Curve for Redundancy Module

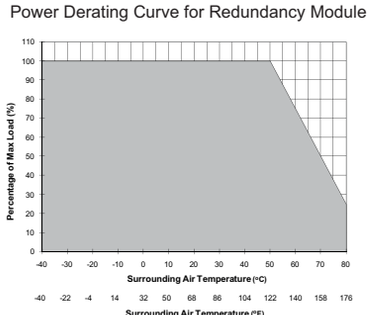


Figure 6

1. Safety instructions

- Switch main power off before connecting or disconnecting the device to prevent danger of explosion.
- To guarantee sufficient convection cooling, please keep a distance of 50 mm (1.97 in) above and below the device as well as lateral distance of 20 mm (0.79 in) to other units.
- Please note, that the enclosure of the device can become very hot depending on on the ambient temperature and load of the power supply. Risk of burns!
- The main power must be turned off before connecting or disconnecting wires to the terminals!
- Do not introduce any objects into the unit!
- Dangerous voltage present for at least 5 minutes after disconnecting all sources of power.
- The supply of the unit shall comply with any isolated secondary circuit according to UL508, Clause 32
- The unit must be installed in an IP54 enclosure or cabinet in the final installation. The enclosure or cabinet must comply with EN60079-0 or EN60079-15.
- Warning: Explosion Hazard - Substitution of components may impair suitability for Class I, Division 2.
- Warning: Explosion Hazard - Do not disconnect equipment unless the power has been switched off or the area is known to be non-hazardous.
- **CAUTION**: "For use in a controlled environment"

2. Device description (Fig. 1)

(1) Input terminal block connector
(2) Output terminal block connector
(3) LED indicator of V_{in1} & V_{in2}
(4) 35mm DIN rail mounting (DIN rail sold separately)
(5) Ground connection

3. Mounting (Fig. 2)

The redundancy module unit can be mounted on 35 mm DIN rail in accordance with EN60715.
The device should be installed with input terminal block at the top.
Each device is delivered ready to install.
Snap onto the DIN rail as shown in Fig. 2:
1. Tilt the unit slightly upwards and put it onto the DIN rail.
2. Push downwards until stopped.
3. Press against the bottom front side for locking.
4. Tug on the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, pull or slide down the latch as shown in Fig. 3. Then, slide the power supply unit (PSU) up, release the latch and pull out the PSU from the rail.

5. Connection (Fig. 4)

The terminal block connectors allow easy and fast wiring.
You can use flexible (stranded wire) or solid wire with cross section 3.3-5.3 mm² (AWG 12-10) and torque of 0.72Nm (6.3lb in). To secure reliable and shock proof connections, the stripping length should be 7 mm [0.28 in] (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).
In accordance to EN 60950 / UL 60950, flexible wires require ferrules.
Use appropriate copper wire that is designed to sustain operating temperature of at least 60°C / 75°C [140°F / 167°F] or more to fulfill UL requirements.

6. Typical Application Notes (Fig. 5)

5.1. 1+1 Redundancy: Using 1 more PSU as the redundant unit
5.2. Single Use: Connecting only one PSU to one PSB60-REM40S to reduce the stress of the diodes and hence increase the reliablity.
5.3. 1+N Redundancy: Using more PSUs as the redundant units to increase the reliability

Risk of electrical shock, fire, personal injury or death.
(1) Turn power off before working on the device.
(2) Make sure the wiring is correct by following all local and national codes.
(3) Do not modify or repair the unit.
(4) Use caution to prevent any foreign objects from entering into the housing.
(5) Do not use in wet locations.
(6) Do not use the unit in area where moisture or condensation can be expected.

FOR TECHNICAL ASSISTANCE CALL 770-844-4200

Technical Data For PSB60-REM40S

Input (DC)	
Nominal input voltage	24 VDC and 48 VDC
Voltage range	22 - 60 VDC (for UL508)
Input current	(1+1 Redundancy) = Nom. 2x25 Amps, See Fig. 5.1 (N+1 Redundancy) = Nom. 2x20 Amps, See Fig. 5.3 (Single use) = Nom. 1x40 Amps, See Fig. 5.2
Input voltage alarm	24V system: both Vin1 & Vin2 > 18V ± 5% or < 30V max. 48V system: both Vin1 & Vin2 > 36V ± 5% or < 60V max.
Output (DC)	
Output voltage	Input - 0.65V
Nominal current	40A Max
Derating	50% of full load @ 70°C derated linearly.
Component derating	Vin = 22 - 60 VDC, full load. - $T_{ambient}$ = 50°C (122°F) - T_j < 85% of T_{jmax}
Voltage drop	0.65V
Efficiency	> 97% typ.
Short circuit	< 50A, no damage
General Data	
Type of housing	Aluminum
Signals	Green LED V_{in1} & V_{in2}
MTBF	> 800,000 hrs.as per BELL CORE STD or IEC61709, Tested @ full load with 25°C (77°F) ambient and 24 VDC & 48VDC input
Relay contact (max)	30VDC / 1A
Dimensions (L x W x H)	121 mm x 50 mm x 122 mm [4.76 in x 1.97 in x 4.80 in]
Weight	0.52 kg [1.15 lb]
Connection method	Screw connection
Wire size / torque	3.3-5.3 mm² (AWG 12-10) / 0.72Nm (6.3lb in)
Stripping length	7 mm [0.28 in]
Ambient operating temperature	-40°C to +80°C [-40°F to +176°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C [77°F], no condensation	<95 % RH non-condensing per IEC 68-2-2, 68-2-3, protection from moisture & condensation
Surface temperature (for internal reference only)	< 100°C (212°F), with safety warning
Vibration (non-operating)	10 to 500Hz @ 30m/s² (3G peak); displacement of 0.35mm; 60 min per axis for all X, Y, Z directions. Refer to IEC60068-2-6. Note: all figures quoted are amplitudes (peak values)
Shock (in all directions)	30G (300m/s²) in all directions according to IEC60068-2-27
Pollution degree	2
Altitude (operating)	2500 Meters
Certification and Standards	
Electrical equipment of machines	IEC60204-1
Electronic equipment for use in electrical power installations	EN 50178 / IEC62103
Safety entry low voltage	PELV (EN 60204), SELV (EN 60950)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No.60950-1 (file no. E198298), CB test certificate and report to IEC60950-1, and CE
Industrial control equipment	UL/C-UL recognized to UL508 and CSA C22.2 No. 107.1-01 (file no. E197592)
Hazardous Location	cCSAus to CSA C22.2 No. 213-M1987, ANSI / ISA 12.12.01:2007 [Class I, Division 2, Group A,B,C,D T4, Ta = -40°C to +80°C (> +50°C derating)], (file no. 249074)
Protection against electric shock	DIN 57100-410
CE	In conformance with EMC directive 2004/108/EC and low voltage directive 2006/95/EC
ITE	EN55022, EN61000-3-2, EN61000-3-3, EN55024
Industrial	EN55011
Limitation of mains harmonic currents	EN61000-3-2
RoHS	Yes
CE c UL us E197592 — c UL us *E198298* — 249074 SA Class I, Div. 2 Group A, B, C, D T4 c US	
Safety and Protection	
Isolation voltage: Input & Output / GND	1.5kVac
Protection degree	IP20
Safety class	Class III with GND connection