RHINO PSV Series DIN Rail Power Supplies

Economical Power Supplies Features

15-100W Models

- Ultra-compact size
- Up to 89% efficiency and built-in active PFC
- Universal AC input voltage
- Full power from -10°C to +55°C
- Low earth leakage current < 0.5 ma @ 264VAC
- Extreme low temperature cold start at -40°C
- NEC Class 2 / Limited Power Source (LPS) certified
- Plastic housing
- UL/cUL 508
- UL/cUL Recognized 60950-1
- · Three year warranty







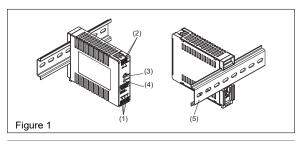
120-480W Models

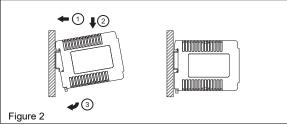
- Universal AC input voltage
- · Built-in constant current circuit for reactive loads
- Up to 89% efficiency
- Full power from -10°C to +50°C
- Compliance to SEMI F47 @ 200VAC voltage sag immunity
- · Metal housing
- UL/cUL 508
- UL/cUL Recognized 60950-1
- CE
- 3-year warranty

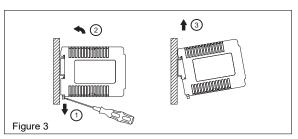


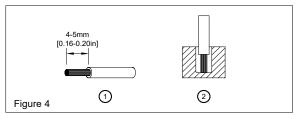
PSV Series Specifications						
Part Number	Price	Drawing Link	Output Voltage	Maximum Output Power [W]	Efficiency [Typ @ 115VAC]	
<u>PSV5-15S</u>	\$27.00	<u>PDF</u>	5V	15	79%	
<u>PSV5-25S</u>	\$41.00	PDF	5V	25	82%	
<u>PSV12-50S</u>	\$41.00	PDF	12V	48	88%	
PSV24-30S	\$27.00	PDF	24V	30	87.5%	
PSV24-50S	\$38.00	<u>PDF</u>	24V	50	89%	
PSV24-100S	\$50.00	PDF	24V	91.2	87%	
PSV24-120S	\$60.00	<u>PDF</u>	24V	120	85%	
PSV24-240S	\$87.00	PDF	24V	240	88%	
PSV24-480S	\$154.00	PDF	24V	480	85%	
PSV48-120S	\$60.00	<u>PDF</u>	48V	120	89%	

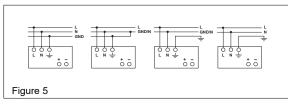
RHINO PSV5-15S Power Supply

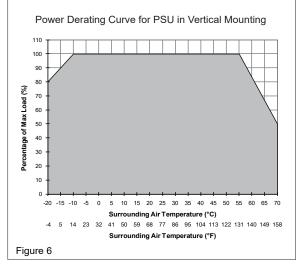












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, please keep a distance of >40mm above and >20mm below the device as well as a lateral distance of >15mm to other cold source or heat source.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

E Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Strande	d / Solid	Tor	que	
	mm²	AWG	N-m	lb-in	
Input	0.32-3.3	22-12	0.51	4.5	
Output	0.52-3.3	20-12	0.51	4.5	

To secure reliable and shock proof connections, the stripping length should be 4-5mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules

Use appropriate copper cables that are designed to sustain operating temperature of at least 60° C/75 $^{\circ}$ C for USA or at least 90° C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or utilized, a minimum value of 10A B- or 6A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 5VDC connection. The output provides 5VDC. The output voltage can be adjusted from 5 to 5.5 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 6.325-7.425 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses ($I_0 = 110-150\%$). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

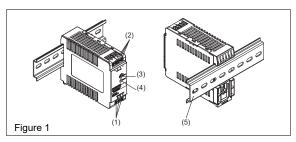
- At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- 2. Above +55°C [131°F], the output capacity has to be reduced by 3.33% per degree Celsius increase in temperature.

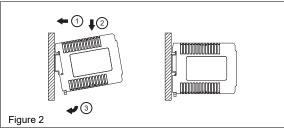
If the output capacity is not reduced when $T_{Amb} > 55^{\circ}C$ [131°F], the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

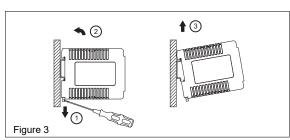
RHINO PSV5-15S Power Supply

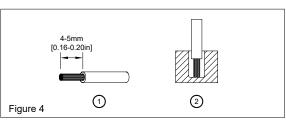
	Tacketed One-Westlers
4 (40)	Technical Specifications
Input (AC)	
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	< 0.5 A @ 115VAC, < 0.3 A @ 230VAC
Inrush current limitation (+25°C, cold start)	< 35A @ 115VAC, < 65A @ 230VAC
Mains buffering at nominal load (typ.)	20ms typ. @ 115VAC (100% load) 100ms typ. @ 230VAC (100% load)
Turn-on time	< 3s @ 115VAC, < 1.5 s @ 230VAC (100% load)
Internal fuse	T 3.15 A / 250V (non-replaceable)
Recommended backup protection	10A B- or 6A C- characteristic circuit breaker
Leakage current	< 1mA @ 240VAC
Output (DC)	
Nominal output voltage U _N / tolerance	5VDC ± 2 %
Voltage adjustment range	5-5.5 VDC (maximum power ≤ 15W)
Nominal current	3A
Derating	Refer to Fig. 6
	-10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation
Startup with capacitive loads Max. power dissipation idling / nominal load approx.	Max. 3,000μF 0.3 W / 4 W
Efficiency at 100% load	78.0% typ. @ 115VAC, 79.0% typ. @ 230VAC
PARD (20MHz) at 100% load	76.0 % typ. @ 115VAC, 73.0 % typ. @ 250VAC <75 mVpp
General Data	(10 ширр
	Plactic /DC\ analogod
Type of housing	Plastic (PC), enclosed
LED signals MTBF	Green LED DC OK
	> 350,000 hrs. as per Telcordia
Dimensions (L x W x H)	75mm x 21mm x 89.5 mm [2.95 in x 0.83 in x 3.52 in] (See www.AutomationDirect.com for complete engineering drawings.)
Weight	0.11 kg [3.9 oz]
Connection method	Screw connection
Stripping length	4-5mm [0.16-0.20 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation Vibration	5 to 95% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60min per axis for all X, Y, Z directions
	Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions
Shock	Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	2
Altitude (operating)	2000m
Certification and Standards	
Safety entry low voltage	SELV (EN60950)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1, Limited Power Source (LPS)
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
Class 2 power supply	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
CE	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Component power supply for general use	EN61204-3
Immunity	EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11)
Emission	(ENG1000-4-2, 3, 4, 3, 0, 8, 11) EN55032, EN55011, EN61000-3-3, EN61000-6-3, EN61000-6-4
	OPET
RoHS Compliant	Yes
Safety and Protection	
Surge voltage protection against internal surge voltages	No
Isolation voltage:	2000
Input / output Input / PE	3kVAC 3kVAC
Output / PE	0.5 kVAC
Protection degree	IP20
Safety class	Class I with PE connection
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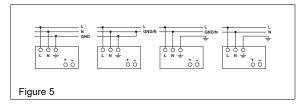
RHINO PSV5-25S Power Supply

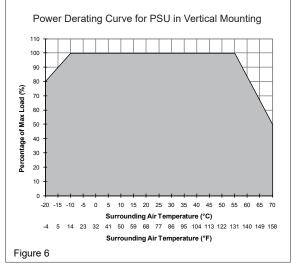












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, please keep a distance of >40mm above and >20mm below the device as well as a lateral distance of >15mm to other cold source. In case the adjacent device is a heat source, the lateral distance will be >25mm.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Strande	d / Solid	Tor	que	
	mm²	AWG	N∙m	lb-in	
Input	0.32-3.3	22-12	0.51	4.5	
Output	0.82-3.3	18-12	0.51	4.5	

To secure reliable and shock proof connections, the stripping length should be 4-5mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ for USA or at least 90°C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or utilized, a minimum value of 20A B- or 10A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 5VDC connection. The output provides 5VDC. The output voltage can be adjusted from 5 to 5.5 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 6.325-7.425 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses (I $_{\rm O}=110\text{-}160\%$). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

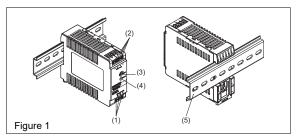
- At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- Above +55°C [131°F], the output capacity has to be reduced by 3.33% per degree Celsius increase in temperature.

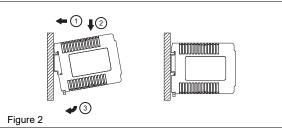
If the output capacity is not reduced when $T_{Amb} > 55^{\circ}C$ [131°F], the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

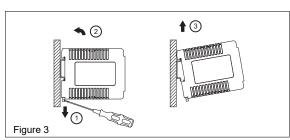
RHINO PSV5-25S Power Supply

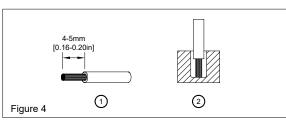
	Technical Specifications
Input (AC)	
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	< 0.8 A @ 115VAC, < 0.5 A @ 230VAC
Inrush current limitation (+25°C, cold start)	< 35A @ 115VAC, < 60A @ 230VAC
Mains buffering at nominal load (typ.)	20ms typ. @ 115VAC (100% load) 100ms typ. @ 230VAC (100% load)
Turn-on time	<3s @ 115VAC, <1.5 s @ 230VAC (100% load)
Internal fuse	T 3.15 A / 250V (non-replaceable)
Recommended backup protection	20A B- or 10A C- characteristic circuit breaker
Leakage current	<1mA @ 240VAC
Output (DC)	C IIIII & ETOVILO
Nominal output voltage U _N / tolerance	5VDC ± 2 %
Voltage adjustment range	5-5.5 VDC (maximum power ≤ 25W)
Nominal current	5-5.5 VDC (Hakillulii powei ≤ 25W) 5A
Nonlinal current	Refer to Fig. 6
Derating	-10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation
Startup with capacitive loads	Max. 3,000μF
Max. power dissipation idling / nominal load approx.	0.4 W / 8 W
Efficiency at 100% load	79.0% typ. @ 115VAC, 80.0% typ. @ 230VAC
PARD (20MHz) at 100% load	< 75 mVpp
General Data	
Type of housing	Plastic (PC), enclosed
LED signals	Green LED DC OK
MTBF	> 350,000 hrs. as per Telcordia
Dimensions (L x W x H)	75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomationDirect.com for complete engineering drawings.
Weight	0.16 kg [5.6 oz]
Connection method	Screw connection
Stripping length	4-5mm [0.16-0.20 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation	5 to 95% RH
Vibration	Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60min per axis for all X, Y, Z directions
Shock	Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis)
Dallytian degree	Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	2000m
Altitude (operating) Certification and Standards	2000111
	05177 (28100020)
Safety entry low voltage Electrical safety (of information technology equipment)	SELV (EN60950) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1, Limited Power Source (LPS)
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
Class 2 power supply	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
CE	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Component power supply for general use	EN61204-3
, , , , , , ,	EN55024, EN61000-6-1, EN61000-6-2
Immunity	(EN61000-4-2, 3, 4, 5, 6, 8, 11)
Emission	EN55032, EN55011, EN61000-3-3, EN61000-6-3, EN61000-6-4
C	C ULSTED US E198298
RoHS Compliant	Yes
Safety and Protection	100
Surge voltage protection against internal surge voltages	No
Isolation voltage:	INU .
Input / output	3kVAC
Input / PE	3KVAC
Output / PE	0.5 kVAC
Protection degree	IP20
Safety class	Class I with PE connection

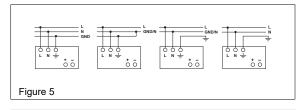
RHINO PSV12-50S Power Supply

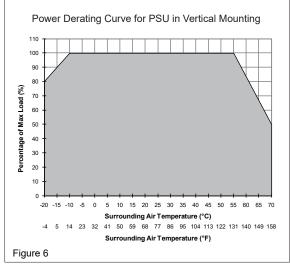












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, please keep a distance of >40mm above and >20mm below the device as well as a lateral distance of >15mm to other cold source. In case the adjacent device is a heat source, the lateral distance will be >25mm.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- · The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Strande	d / Solid	Tor	que	
	mm²	AWG	N∙m	lb-in	
Input	0.32-3.3	22-12	0.51	4.5	
Output	0.52-3.3	20-12	0.51	4.5	

To secure reliable and shock proof connections, the stripping length should be 4-5mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ for USA or at least 90°C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or utilized, a minimum value of 20A B- or 13A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 12 VDC connection. The output provides 12 VDC. The output voltage can be adjusted from 12 to 15 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 16-18.7 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses (I $_{\rm O}=110$ -150%). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

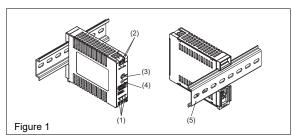
- 1. At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- Above +55°C [131°F], the output capacity has to be reduced by 3.33% per degree Celsius increase in temperature.

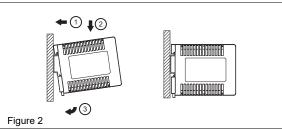
If the output capacity is not reduced when $T_{Amb} > 55^{\circ}C$ [131°F], the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

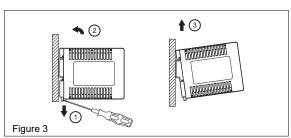
RHINO PSV12-50S Power Supply

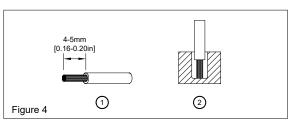
Invest (40)	Technical Specifications
Input (AC)	
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	< 1.0 A @ 115VAC, < 0.6 A @ 230VAC
Inrush current limitation (+25°C, cold start)	< 35A @ 115VAC, < 60A @ 230VAC
Mains buffering at nominal load (typ.)	20ms typ. @ 115VAC (100% load) 90ms typ. @ 230VAC (100% load)
Turn-on time	< 3s @ 115VAC, < 1.5 s @ 230VAC (100% load)
Internal fuse	T 3.15 A / 250V (non-replaceable)
Recommended backup protection	20A B- or 13A C- characteristic circuit breaker
Leakage current	<1mA @ 240VAC
Output (DC)	VIIII 0 2 10 11 0
Nominal output voltage U _N / tolerance	12VDC ± 2 %
Voltage adjustment range	12-15 VDC (maximum power ≤ 48W)
Nominal current	4A
	Refer to Fig. 6
Derating	-10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation
Startup with capacitive loads	Мах. 3,000µF
Max. power dissipation idling / nominal load approx.	0.5 W / 7 W
Efficiency at 100% load	86.0% typ. @ 115VAC, 88.0% typ. @ 230VAC
PARD (20MHz) at 100% load	< 75 mVpp
Parallel operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode
General Data	
Type of housing	Plastic (PC), enclosed
LED signals	Green LED DC OK
MTBF	> 350,000 hrs. as per Telcordia
Dimensions (L x W x H)	75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomationDirect.com for complete engineering drawings.)
Weight	0.18 kg [6.3 oz]
Connection method	Screw connection
Stripping length	4-5mm [0.16-0.20 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation	5 to 95% RH
APhasPas	Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60min per axis for all X, Y, Z directions
Vibration	Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions
Shock	Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis)
	Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	2
Altitude (operating)	2000m
Certification and Standards	0511/5100000
Safety entry low voltage	SELV (EN60950)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1, Limited Power Source (LPS)
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
Class 2 power supply	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
CE	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Component power supply for general use	EN61204-3
, , , , , , , ,	EN55024, EN61000-6-1, EN61000-6-2
Immunity	(EN61000-4-2, 3, 4, 5, 6, 8, 11)
Emission	EN55032, EN55011, EN61000-3-3, EN61000-6-3, EN61000-6-4
	C SPET CINC
· · · · · · · · · · · · · · · · · · ·	LISTED
	Ind. Cont. Eq.
RoHS Compliant	Yes
Safety and Protection	
Surge voltage protection against internal surge voltages	No
Isolation voltage:	914/4.0
Input / output Input / PE	3kVAC 3kVAC
Output / PE	0.5 kVAC
Protection degree	IP20
Safety class	Class I with PE connection
•	,

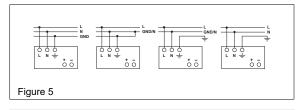
RHINO PSV24-30S Power Supply

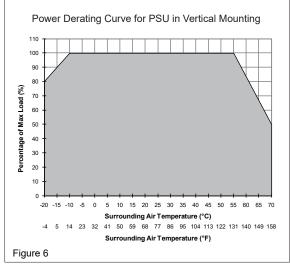












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, please keep a distance of >40mm above and >20mm below the device as well as a lateral distance of >10mm to other cold source. In case the adjacent device is a heat source, the lateral distance will be >25mm.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- · The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- 2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Strande	d / Solid	Tor	que	
	mm²	AWG	N∙m	lb-in	
Input	0.32-3.3	22-12	0.51	4.5	
Output	0.52-3.3	20-12	0.51	4.5	

To secure reliable and shock proof connections, the stripping length should be 4-5mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ for USA or at least 90°C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or utilized, a minimum value of 13A B- or 8A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 24 to 28 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 30-34.8 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses ($I_0 = 110-150\%$). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures

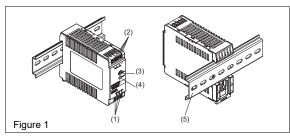
- At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- Above +55°C [131°F], the output capacity has to be reduced by 3.33% per degree Celsius increase in temperature.

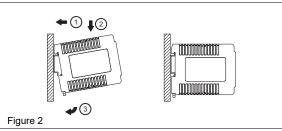
If the output capacity is not reduced when $T_{Amb} > 55^{\circ}C$ [131°F], the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

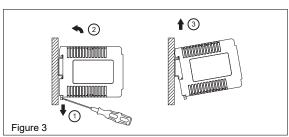
RHINO PSV24-30S Power Supply

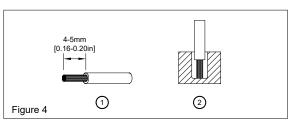
	Taskviral Considerations
Invest (40)	Technical Specifications
Input (AC)	400 040 1412 177 2711
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	< 0.8 A @ 115VAC, < 0.4 A @ 230VAC
Inrush current limitation (+25°C, cold start)	< 35A @ 115VAC, < 60A @ 230VAC 20ms typ. @ 115VAC (100% load)
Mains buffering at nominal load (typ.)	100ms typ. @ 230VAC (100% load)
Turn-on time	< 3s @ 115VAC, < 1.6 s @ 230VAC (100% load)
Internal fuse	T 3.15 A / 250V (non-replaceable)
Recommended backup protection	13A B- or 8A C- characteristic circuit breaker
Leakage current	< 1mA @ 240VAC
Output (DC)	
Nominal output voltage U _N / tolerance	24VDC ± 2 %
Voltage adjustment range	24-28 VDC (maximum power ≤ 30W)
Nominal current	1.25 A
Derating	Refer to Fig. 6 -10°C to -20°C (2%/°C), >55°C (3.33%/°C) in vertical orientation
Startup with capacitive loads	Max. 3,000µF
Max. power dissipation idling / nominal load approx.	0.5 W / 4.5 W
Efficiency at 100% load	87.0% typ. @ 115VAC, 88.0% typ. @ 230VAC
PARD (20MHz) at +25°C, 100% load	< 75 mVpp
Parallel operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode
General Data	·
Type of housing	Plastic (PC), enclosed
LED signals	Green LED DC OK
MTBF	> 350,000 hrs. as per Telcordia
Dimensions (L x W x H)	75mm x 21mm x 89.5 mm [2.95 in x 0.83 in x 3.52 in] (See www.AutomationDirect.com for complete engineering drawings.)
Weight	0.11 kg [3.9 oz]
Connection method	Screw connection
Stripping length	4-5mm [0.16-0.20 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation	5 to 95% RH
Vibration	Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60min per axis for all X, Y, Z directions
Vibration	Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions
Shock	Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	Non-operating. IECoooco-2-27, that sine wave. Sociol a duration of times, 3 shocks for each 3 directions
Altitude (operating)	2000m
Certification and Standards	Loodiii
Safety entry low voltage	SELV (EN60950)
	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1,
Electrical safety (of information technology equipment)	Limited Power Source (LPS)
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
Class 2 power supply	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
CE Component power supply for general year	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Component power supply for general use	EN61204-3 EN55024, EN61000-6-1, EN61000-6-2
Immunity	(EN61000-4-2, 3, 4, 5, 6, 8, 11)
Emission	EN55032, EN55011, EN61000-3-3, EN61000-6-3, EN61000-6-4
	3PET
_ `	LISTED <i>E198298</i>
	Ind. Cont. Eq.
RoHS Compliant	Yes
Safety and Protection	
Surge voltage protection against internal surge voltages	No
Isolation voltage:	3kVAC
Input / output Input / PE	3KVAC
Output / PE	0.5 kVAC
Protection degree	IP20
Safety class	Class I with PE connection

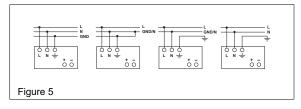
RHINO PSV24-50S Power Supply

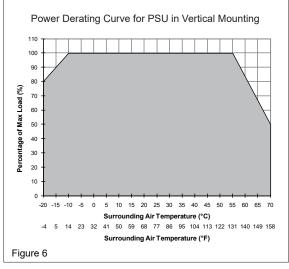












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, please keep a distance of >40mm above and >20mm below the device as well as a lateral distance of >15mm to other cold source. In case the adjacent device is a heat source, the lateral distance will be >25mm.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- · The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Strande	d / Solid	Tor	que	
	mm²	AWG	N⋅m	lb-in	
Input	0.32-3.3	22-12	0.51	4.5	
Output	0.52-3.3	20-12	0.51	4.5	

To secure reliable and shock proof connections, the stripping length should be 4-5mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ for USA or at least 90°C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or utilized, a minimum value of 20A B- or 13A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 24 to 28 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 30-34.8 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses ($I_0 = 110-150\%$). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures

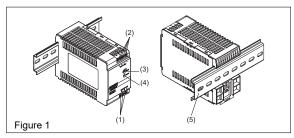
- At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- Above +55°C [131°F], the output capacity has to be reduced by 3.33% per degree Celsius increase in temperature.

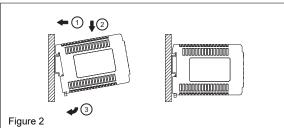
If the output capacity is not reduced when $T_{Amb} > 55^{\circ}C$ [131°F], the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

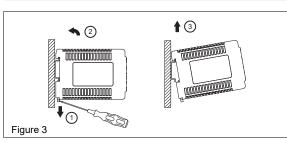
RHINO PSV24-50S Power Supply

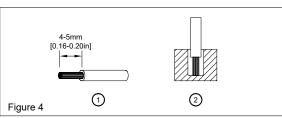
Imput (AC)		
Number of part of voltage / Requency		Technical Specifications
September Sept	Input (AC)	
Finesparts A # 68 Hz	Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Invast current Invastino (125°C, cold start) C. 258 de 1159AC, c. 105 A. D. 2020AC	Voltage range	85-264 VAC
Financial current limitation (+25°C, cold start)	Frequency	47-63 Hz
Mains buffering at nominal load (typ.) Some Sp. 0g. 2000ACC (100% load) Some Sp. 0g. 2000ACC (100% load) Some Sp. 0g. 2000ACC (100% load) Internal truse	Nominal current	< 1.0 A @ 115VAC, < 0.6 A @ 230VAC
Some Syp. @ 230MAC (100% load)	Inrush current limitation (+25°C, cold start)	,
Turn-on time	Mains buffering at nominal load (tvp.)	20ms typ. @ 115VAC (100% load)
Recommended backup protection	***************************************	
Recommended backup protection		
Leakage current		
Output (DC) Author doubt voltage U _N / Iblerance 24 VDC ± 2 % Voltage adjustment range 24 28 VDC (maximum power ≤ 50W) Numbral current 2.1 A Deating 1-0°C to -20°C (2%°C) > 55°C (3.38%°C) in vertical orientation Sartup with zapacitive loads Max 3.000pf Max power dissipation (illing / nominal load approx. Max 3.000pf Efficiency at 100% load 86.0% by -2 ft/VAC, 86.0% by .0° 230VAC PARD (20MHz) at +25°C, 100% load 86.0% by -2 ft/VAC, 86.0% by .0° 230VAC Parallel operation PS860-REMOS / PS869-REMADS or with ORing Diode General Data 75 month of the properties of the proper		
Nominal output voltage U _{IV} folerance	*	☐ CHILD SE ZHOVAC
Voltage adjustment range 24-28 VDC (maximum power ≤ 50W) Nominal ournet 2.1 A Berating -10°C to -20°C (2°%C)C, > 55°C (3.3%%C) in vertical orientation Starting with capacitive loads Max 3,000µF Max, power dissipation idling / nominal load approx. 86.0% byp. © 115VAC, 88.0% byp. © 230VAC Efficiency at 100% load 86.0% byp. © 115VAC, 88.0% byp. © 230VAC PARAID (20MHz) at 25°C, 100% load 2.5 KBO, 25% byp. © 250VAC Paraillet operation PS860-REM20S / PS860-REM40S or with ORing Diode General Data 7 bype of housing Plastic (PC), enclosed LED signals Gene LED DC OK MIEF > 350.0000 firs, as per Telocordia Dimensions (1, x W x H) 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www. AutomationDirect.com for complete engineering in the properature (surrounding air temperature) 350.000 firs, as per Telocordia Weight 9.00 first (PC) (PC) (PC) (PC) (PC) (PC) (PC) (PC)	, , ,	24\/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Nominal current	, , ,	
Derating	• ,	
Defaulty		
Max power dissipation idling / nominal load approx. Biliciency at 100% load 86.0% typ, @ 115VAC, 88.0% typ. @ 230VAC 2-75 m/ypp Parallel operation PSB60-REMZOS / PSB60-REMANOS or with ORing Diode General Data Type of housing Plastic (PC), enclosed LED signals Green LED DC OK MTBF 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutorationDirect.com for complete engineering of the signal parallel operation o	Derating	
Efficiency at 100% load 86.0% typ. © 115VAC, 88.0% typ. © 230VAC 275 mVpp Parallel operation PS860-REM2OS / PS860-REM4OS or with ORing Diode General Data Type of housing Plastic (PC), enclosed LED signals Green LED DC OK MTBF So \$50,000 hrs. as per Telecordia Dimensions (L x W x H) 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www. AutomationDirect.com for complete engineering of the stripping length Operating temperature (surrounding air temperature) Storage temperature -20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6) Storage temperature -40°C to +85°C [-40°F to +186°F] Humidity at +25°C, no condensation Operating: IEC600068-2-6, Sine Wave: 10Hz to 500Hz @ 19 6m/8*, displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for addression (S axis) Altitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C222 No. 60950-1 (File No. E198298). CB scheme to IEC60058-2 Component power supply for general use Incomponent power supply for general	Startup with capacitive loads	Max. 3,000μF
PARD (20MHz) at +25°C, 100% load	Max. power dissipation idling / nominal load approx.	0.5 W / 7W
Parallel operation General Data Type of housing Plastic (PC), enclosed ED signals Green LED DC OK MTBF 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomationDirect.com for complete engineering of the signal of the si	Efficiency at 100% load	86.0% typ. @ 115VAC, 88.0% typ. @ 230VAC
Plastic (PC), enclosed Plastic (PC), enclosed	PARD (20MHz) at +25°C, 100% load	< 75 mVpp
Type of housing Plastic (PC), enclosed LED signals Green LED DC NK MTBF 355,0000 hrs. as per Telcordia Dimensions (t x W x H) 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomationDirect.com for complete engineering of the properties of the proper	Parallel operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode
LED signals Green LED DC OK MTBF > 350,000 hrs. as per Telcordia Dimensions (L x W x H) 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomatioDirect.com for complete engineering weight Connection method Screw connection Stripping length 4-5mm [0.16-0.20 in] Operating temperature (surrounding air temperature) -20°C to +70°C (1-4°F to +185°F) (Refer to Fig. 6) Stroage temperature -20°C to +85°C [-40°F to +185°F] Humidity at +25°C, no condensation Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz ② 19 6myS², displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z direction Non-Operating: IEC60068-2-27, Half Sine Wave: 106 for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 506 for a duration of 11ms, shock for each 3 direction Pollution degree 2 Alfitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C222 No. 60950-1 (File No. E198298), CB scheme to IEC60085-2 (PNG00950) UL/C-UL listed to UL508 and CSA C222 No. 107.1-01 (File No. E197592) Class 2 power supply for general use Inmunity Inmunity Ensiston ENS5032, ENS5011, ENS1000-6-3, EN61000-6-4 INSTED ENS5032, ENS5011, ENS1000-3-3, EN61000-6-3 ENS5032, ENS5011, ENS1000-3-3, EN61000-6-4	General Data	
Street S	Type of housing	Plastic (PC), enclosed
Dimensions (L x W x H) 75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomationDirect.com for complete engineering of the properties of t	LED signals	Green LED DC OK
Weight O.18 kg [6.3 oz] Connection method Screw connection Stripping length 4-5mm [0.16-0.20 in] Operating temperature (surrounding air temperature) -20°C to +70°C [-40°F to +186°F] (Refer to Fig. 6) Storage temperature (surrounding air temperature) -20°C to +85°C [-40°F to +186°F] Humidity at +25°C, no condensation To sos 9% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s², displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z direction Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for ach 3 direction Pollution degree 2 altitude (operating) Certification and Standards Safety entry low voltage SELV (EN60950) Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No. 107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN55032, EN55032, EN55011, EN61000-6-3, EN61000-6-4 EN55032, EN55031, EN55031, EN61000-6-3, EN61000-6-4	MTBF	> 350,000 hrs. as per Telcordia
Connection method Screw connection Stripping length 4-5mm [0.16-0.20 in] Operating temperature (surrounding air temperature) -20°C to +70°C [-44°F to +158°F] [Refer to Fig. 6) Storage temperature -40°C to +85°C [-40°F to +158°F] Humidity at +25°C, no condensation 5 to 95% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz (20 9 Grms); displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (20 9 Grms); 20 min. per axis for a directions Non-Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shocks for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shocks for each 3 direction Pollution degree 2 Altitude (operating) Certification and Standards Safety entry low voltage Safety entry low voltage Set (EN60950) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Component power supply for general use EN55032, EN55032, EN55011, EN61000-6-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55031, EN61000-6-3, EN61000-6-4	Dimensions (L x W x H)	75mm x 30mm x 89.5 mm [2.95 in x 1.18 in x 3.52 in] (See www.AutomationDirect.com for complete engineering drawings.)
Stripping length 4-5mm [0.16-0.20 in] Operating temperature (surrounding air temperature) -20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6) Storage temperature -40°C to +85°C [-40°F to +185°F] Humidity at +25°C, no condensation Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz (2.90 grms); 20 min. per axis for at directions Non-Operating: IEC60068-2-6, Random: SHz to 500Hz (2.09 grms); 20 min. per axis for all X, Y, Z direction Non-Operating: IEC60068-2-27, Half Sine Wave: 10F to 500Hz (2.09 grms); 20 min. per axis for all X, Y, Z direction Shock Operating: IEC60068-2-27, Half Sine Wave: 10F to 500Hz (2.09 grms); 20 min. per axis for all X, Y, Z direction Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 direction Certification and Standards Safety entry low voltage SELV (EN60950) UL/C-UL recognized to UL60950-1 and CSA C222 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C222 No. 107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C222 No. 107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-3	Weight	0.18 kg [6.3 oz]
Operating temperature (surrounding air temperature) -20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6) Storage temperature -40°C to +85°C [-40°F to +185°F] Humidity at +25°C, no condensation Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s², displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z direction Shock Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 90G for a duration of 11ms, shocks for each 3 direction Pollution degree 2 Altitude (operating) Certification and Standards Safety entry low voltage SELV (EN60950) UL/C-UL recognized to UL60950-1 and CSA C222 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C222 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C222 No.107.1-01 (File No. E197592) UL/C-UL listed to UL508 and CSA C222 No.107.1-01 (File No. E197592) In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Emission EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-4	Connection method	Screw connection
Storage temperature -40°C to +85°C [-40°F to +185°F] Humidity at +25°C, no condensation 5 to 95% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s², displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z direction Shock Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 direction Pollution degree Altitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No. 107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No. 107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN51024-3 EN55032, EN55011, EN61000-6-3, EN61000-6-4 3PET (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission En55032, EN55011, EN61000-6-3, EN61000-6-4	Stripping length	4-5mm [0.16-0.20 in]
Humidity at +25°C, no condensation Sto 95% RH	Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60min per axis for a directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all IX, Y, Z direction Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 direction Pollution degree Altitude (operating) Certification and Standards Safety entry low voltage SELV (EN60950) Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-3	Storage temperature	-40°C to +85°C [-40°F to +185°F]
Vibration Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z direction Operating: IEC60068-2-27, Half Sine Wave: 106 for a duration of 11ms, 3 shocks for each 3 direction Pollution degree 2 Altitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) Industrial control equipment UL/C-UL recognized to UL60950-1 and CSA C222 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C222 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-6-3, EN61000-6-4	Humidity at +25°C, no condensation	5 to 95% RH
Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z direction Shock Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 direction Pollution degree Altitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 Immunity En55032, EN55011, EN61000-6-3, EN61000-6-4 SPET CUESTED E197592 US E198298		Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60min per axis for all X, Y, Z
Shock Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 direction 2 Altitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) Industrial control equipment UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-6-3, EN61000-6-4	Vibration	
Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 direction Pollution degree 2 Altitude (operating) 2000m Certification and Standards Safety entry low voltage SELV (EN60950) Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-6-3, EN61000-6-4	Charle	Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis)
Altitude (operating) Certification and Standards Safety entry low voltage Electrical safety (of information technology equipment) Industrial control equipment Class 2 power supply Cle In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-6-3, EN61000-6-4		Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Certification and Standards Safety entry low voltage SELV (EN60950) Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-6-3, EN61000-6-4	•	
Safety entry low voltage SELV (EN60950) Electrical safety (of information technology equipment) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS) Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-6-3, EN61000-6-4		
UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC6095 Limited Power Source (LPS)		
Limited Power Source (LPS) Industrial control equipment	Safety entry low voltage	
Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-3, EN61000-6-4	Electrical safety (of information technology equipment)	
Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592) CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-4	Industrial control equipment	
CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU Component power supply for general use EN61204-3 Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-4 CE CULUSTED E197892 LISTED E198298		
Component power supply for general use EN61204-3 Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-4 EN55032, EN55011, EN61000-6-3, EN61000-6-4 EN55032, EN55011, EN61000-6-3, EN61000-6-4	1 112	,
EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11) Emission EN55032, EN55011, EN61000-3-3, EN61000-6-4 C C U USEP197892 USEP198298		
Emission EN55032, EN55011, EN61000-3-3, EN61000-6-4 C C U US E197592 US E198298	, , , , , ,	EN55024, EN61000-6-1, EN61000-6-2
C C CUL E197592 C SUS E198298	·	
C C CUL EUS US E198298		
USTED E198298		SPET SPET
USTED E198298	<u> </u>	c (UL) E197592 C 7 LL US
Ind. Cont. Fo.	_ `	LISTED <i>E198298</i>
· •		Ind. Cont. Eq.
RoHS Compliant Yes		Yes
Safety and Protection		
Surge voltage protection against internal surge voltages No		No
Isolation voltage: Input / output 3KVAC		3P/VC
Input / output 3kVAC Input / PE 3kVAC	Input / PE	
Output / PE 0.5 kVAC		
Protection degree IP20	Protection degree	IP20
Safety class Class I with PE connection	Safety class	Class I with PE connection

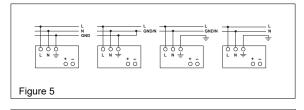
RHINO PSV24-100S Power Supply

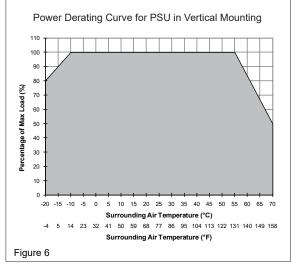












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, please keep a distance of >40mm above and >20mm below the device as well as a lateral distance of >25mm to other cold source or heat source.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Strande	d / Solid	Tor	que	
	mm²	AWG	N∙m	lb-in	
Input	0.32-3.3	22-12	0.51	4.5	
Output	0.52-3.3	20-12	0.51	4.5	

To secure reliable and shock proof connections, the stripping length should be 4-5mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ for USA or at least 90°C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or utilized, a minimum value of 20A B- or 10A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 22 to 24 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 30-34.8 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses ($I_0 = 110-150\%$). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

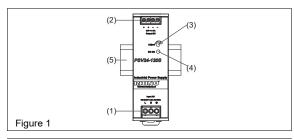
- 1. At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- 2. Above +55°C [131°F], the output capacity has to be reduced by 3.33% per degree Celsius increase in temperature.

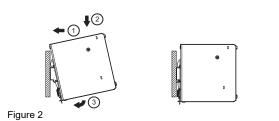
If the output capacity is not reduced when $T_{Amb} > 55^{\circ}C$ [131°F], the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

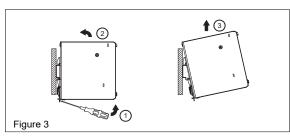
RHINO PSV24-100S Power Supply

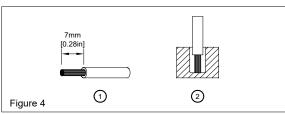
Technical Specifications	
Nominal input voltage / frequency $ 85-264 \text{VAC} / 50-60 \text{Hz} $ Voltage range $ 85-264 \text{VAC} $ Frequency $ 47-63 \text{Hz} $ Nominal current $ < 1.2 \text{A} \otimes 115 \text{VAC} , < 0.6 \text{A} \otimes 230 \text{VAC} $ Inrush current limitation $(+25^{\circ}\text{C}, \text{cold start}) $ $ < 35A \otimes 115 \text{VAC} , < 6.6 \text{A} \otimes 230 \text{VAC} $ Amins buffering at nominal load $(\text{typ.}) $ $ 25 \text{ms typ.} \otimes 115 \text{VAC} , (100\% \text{load}) $ Turn-on time $ < 3s \otimes 115 \text{VAC} , < 1.5 \text{s} \otimes 230 \text{VAC} $ (100% load) $ 10 \text{ternal fuse} $ $ 13.15 \text{A} / 250 \text{V} \text{(non-replaceable)} $ Recommended backup protection $ 20A \text{B- or } 10A \text{C- characteristic circuit breaker} $ Leakage current $ < 1 \text{mA} \otimes 240 \text{VAC} $ $ \frac{\textbf{Output (DC)}}{\textbf{Dutput (DC)}} $ Nominal output voltage $10 \text{V} \text{Voltage} \text{adjustment range} $ $ 22-24 \text{VDC} \text{(maximum power} \text{S} 9.12 \text{W}) $ Nominal current $ 3.8 \text{A} \text{Refer to Fig. 6} $ Perating $ -10^{\circ}\text{C to } -20^{\circ}\text{C} \text{(2\%/°C)}, \text{S} 5^{\circ}\text{C} \text{(3.33\%/°C)} \text{in vertical orientation} $ Startup with capacitive loads $ \frac{\text{Max. power dissipation idling / nominal load approx.} }{\text{Max. power dissipation idling / nominal load approx.} } $ $ \frac{\text{PARD (20MHz) at } +25^{\circ}\text{C}, 100\% \text{load} }{\text{PSB60-REM20S / PSB60-REM40S or with ORing Diode} $	
$Voltage range & 85-264 VAC$ $Frequency & 47-63 Hz$ $Nominal current & < 1.2 A @ 115 VAC, < 0.6 A @ 230 VAC$ $Inrush current limitation (+25^{\circ}C, cold start) & < 35A @ 115 VAC, < 60A @ 230 VAC$ $25ms typ. @ 115 VAC, (100\% load) & 25ms typ. @ 115 VAC (100\% load) & 25ms typ. @ 230 VAC (100\% load) & 23ms typ. @ 230 VAC (100\% load) & 27ms typ. @ 2300 VAC (100\% load) & 27ms typ. @ 2300 VAC (100\% load) & 27ms typ. @ 2300 VAC (100\%$	
Frequency Nominal current A7-63 Hz	
Nominal current < 1.2 A @ 115VAC, < 0.6 A @ 230VAC	
Inrush current limitation (+25°C, cold start) < 35A @ 115VAC, < 60A @ 230VAC	
Mains buffering at nominal load (typ.) 25ms typ. @ 115VAC (100% load) 50ms typ. @ 230VAC (100% load) Turn-on time < 3s @ 115VAC, < 1.5 s @ 230VAC (100% load)	
Main's burlering at nominal load (typ.) 50ms (yp. @ 230VAC (100% load) Turn-on time < 3s @ 115VAC, < 1.5 s @ 230VAC (100% load) Internal fuse T 3.15 A / 250V (non-replaceable) Recommended backup protection 20A B- or 10A C- characteristic circuit breaker Leakage current < 1mA @ 240VAC Output (DC) Nominal output voltage U _N / tolerance 24VDC ± 2 % Voltage adjustment range 22-24 VDC (maximum power ≤ 91.2 W) Nominal current 3.8 A Refer to Fig. 6 −10°C to −20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. 0.4 W / 10W Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp Parallel operation PSB60-REM40S or with ORing Diode	
Turn-on time	
Recommended backup protection 20A B- or 10A C- characteristic circuit breaker Leakage current $<1mA @ 240VAC$ **Output (DC)** Nominal output voltage U_N / tolerance 24VDC $\pm 2 \%$ Voltage adjustment range 22-24 VDC (maximum power ≤ 91.2 W) Nominal current 3.8 A Derating -10°C to -20°C (2%/°C), >55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Leakage current Output (DC) Nominal output voltage U _N / tolerance Voltage adjustment range Voltage adjustment range 22-24 VDC (maximum power ≤ 91.2 W) Nominal current 3.8 A Perating 1-10°C to -20°C (2%/°C), >55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. power dissipation idling / nominal load approx. Efficiency at 100% load PARD (20MHz) at +25°C, 100% load PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Output (DC) Nominal output voltage U_N / tolerance $24\text{VDC} \pm 2\%$ Voltage adjustment range $22\text{-}24\text{ VDC}$ (maximum power ≤ 91.2 W) Nominal current 3.8 A Derating Refer to Fig. 6 -10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. $0.4 \text{ W} / 10\text{W}$ Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp	
Nominal output voltage $\mathrm{U_N}/\mathrm{tolerance}$ 24VDC $\pm 2~\%$ Voltage adjustment range 22-24 VDC (maximum power $\leq 91.2~\mathrm{W})$ Nominal current 3.8 A Derating -10°C to -20°C (2%/°C), >55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000 μ F Max. power dissipation idling / nominal load approx. 0.4 W / 10W Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Voltage adjustment range 22-24 VDC (maximum power ≤ 91.2 W) Nominal current 3.8 A Derating Refer to Fig. 6 -10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. 0.4 W / 10W Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp	
Nominal current 3.8 A Derating Refer to Fig. 6 -10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. 0.4 W / 10W Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp	
Derating Refer to Fig. 6 -10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Defaultig -10°C to -20°C (2%/°C), > 55°C (3.33%/°C) in vertical orientation Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Startup with capacitive loads Max. 3,000µF Max. power dissipation idling / nominal load approx. Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Max. power dissipation idling / nominal load approx. O.4 W / 10W Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Efficiency at 100% load 87.0% typ. @ 115VAC, 89.0% typ. @ 230VAC PARD (20MHz) at +25°C, 100% load < 75 mVpp	
PARD (20MHz) at +25°C, 100% load <75 mVpp Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Parallel operation PSB60-REM20S / PSB60-REM40S or with ORing Diode	
Type of housing Plastic (PC), enclosed	
LED signals Green LED DC OK	
MTBF > 350,000 hrs. as per Telcordia	
Dimensions (L x W x H) 75mm x 45mm x 100mm [2.95 in x 1.77 in x 3.94 in] (See www.AutomationDirect.com for complete	e engineering drawings.)
Weight 0.325 kg [11.5 oz]	
Connection method Screw connection	
Stripping length 4-5mm [0.16-0.20 in]	
Operating temperature (surrounding air temperature) -20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)	
Storage temperature -40°C to +85°C [-40°F to +185°F]	
Humidity at +25°C, no condensation 5 to 95% RH	
Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s²; displacement of 0.35 mm, 60mi Vibration	in per axis for all X, Y, Z
Vibration directions Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all 2	X, Y, Z directions
Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 dire	ection (X axis)
NOTE-Operating. Tecouode-2-27, maii Sine wave, bud ful a duration of thins, b shocks for e	each 3 directions
Pollution degree 2	
Altitude (operating) 2000m Certification and Standards	
III /C III recognized to III 60050.1 and CCA C22.2 No. 60050.1 /Eilo No. E100200\ CP coho	me to IFC60950-1.
Limited Power Source (LPS)	
Industrial control equipment UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)	
Class 2 power supply UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)	
CE In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/3	35/EU
Component power supply for general use EN61204-3	
Immunity EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11)	
Emission EN55032, EN55011, EN61000-3-3, EN61000-6-3, EN61000-6-4	
3PFT ———	
C E c UL bis service C TU us	
LISTED E198298	
Ind. Cont. Eq.	
RoHS Compliant Yes	
Safety and Protection	
Surge voltage protection against internal surge voltages No	
Isolation voltage: Input / output 3kVAC	
Input / PE 1.5 kVAC	
Output / PE 0.5 kVAC	
Protection degree IP20	
Safety class Class I with PE connection	

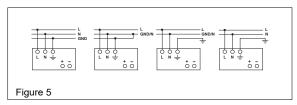
RHINO PSV24-120S Power Supply

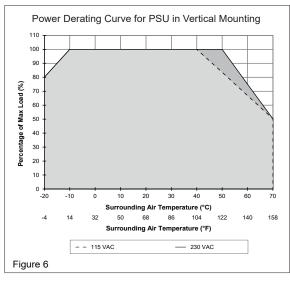












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. **KEEP FOR FUTURE REFERENCE.**

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- · If the unit is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- To guarantee sufficient convection cooling, please keep a distance of 50mm above and 18cm below the device as well as a lateral distance of 10mm to other units.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- Output terminal block connector
- DC voltage adjustment potentiometer
- DC OK LED (green)
- Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. For vertical mounting, the device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Stranded / Solid		Tor	Torque	
	mm²	AWG	N∙m	lb-in	
Input	0.823-8.365	18-8	1.01	9	
Output	0.20-3.3	24-12	0.68	6	

To secure reliable and shock proof connections, the stripping length should be 7mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2). All wire strands must be fully inserted into the terminals with the screws securely fastened in order to ensure safety and

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least 60°C/75°C or more to fulfill UL requirements.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above.



The internal fuse must not be replaced by the user

5.2. Output connection (Fig. 1 (2))Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 22 to 28 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 28.8-35.2 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of an overload $(I_0 = 105-150\%)$ the output voltage will start to droop until overload has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

- 1. At -10° C to -20° C [14° F to -4° F], the output capacity must be reduced by 2% per °C temperature increase.
- 2. Above +40°C [104°F] (115VAC), the output capacity must be reduced by 1.67% per degree Celsius
- Above +50°C [122°F] (230VAC), the output capacity must be reduced by 2.5% per degree Celsius temperature increase.

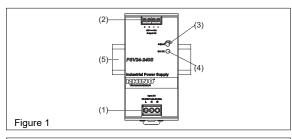
If the output capacity is not reduced when $T_{Amb} > 40^{\circ}C$ (115VAC) or $> 50^{\circ}C$ (230VAC), the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

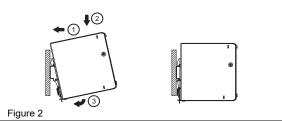
RHINO PSV24-120S Power Supply

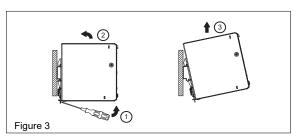
	Technical Specifications
Input (AC)	recomment operations
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	2.2 A typ. @ 115VAC, 1.2 A typ. @ 230VAC
Inrush current limitation (+25°C, cold start)	20A typ. @ 115VAC, 40A typ. @ 230VAC
Mains buffering at nominal load (typ.)	20ms typ. @ 115VAC (100% load) 90ms typ. @ 230VAC (100% load)
Turn-on time	200ms typ. @ 115VAC & 230VAC (100% load)
Internal fuse	T 4A / 250V (non-replaceable)
Leakage current	< 0.25 mA @ 264VAC
Output (DC)	
Nominal output voltage U _N / tolerance	24VDC ± 2 %
Voltage adjustment range	22-28 VDC (maximum power ≤ 120W)
Output current	5A
Derating	Refer to Fig. 6 -10°C to -20°C (2%°C), > 50°C (2.5%°C) @ 115VAC -10°C to -20°C (2%°C), > 50°C (2.5%°C) @ 230VAC
Startup with capacitive loads	Max. 8,000µF
Max. power dissipation idling / nominal load approx.	0.65 W / 13.3 W
Efficiency at 100% load	88.0% typ. @ 115VAC, 90.0% typ. @ 230VAC
PARD (20MHz) at 100% load	88.0% typ. @ 119VAC, 90.0% typ. @ 230VAC < 120 mVpp
· /	
Parallel operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode
General Data	0000 (0 0) (11 (00)
Type of housing	SGCC (Case Cover) / Aluminum (Case Chassis)
LED signals	Green LED DC OK
MTBF	> 700,000 hrs. as per Telcordia
Dimensions (L x W x H)	123.6 mm x 40mm x 117.6 mm [4.87 in x 1.57 in x 4.63 in] (See www.AutomationDirect.com for complete engineering drawings.)
Weight	0.54 kg [19 oz]
Connection method	Screw connection
Stripping length	7mm [0.28 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation Vibration	5 to 95% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s² (2G peak); 10min per cycle, 60min for X direction Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions
Shock	Operating: IEC60068-2-27, Half Sine Wave: 106 for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	2
Altitude (operating)	2000m for industrial application
Certification and Standards	5000m for ITE application
	0517/(570000)
Safety entry low voltage	SELV (EN60950) UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1
Electrical safety (of information technology equipment)	UL/C-UL lecognized to UL50950-1 and CSA C22.2 No. 00950-1 (File No. E196296), CB scriente to IEC00950-1 UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
Industrial control equipment CE	
Component power supply for general use	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU EN61204-3
	EN55024, EN61000-6-1, EN61000-6-2
Immunity	(EN61000-4-2, 3, 4, 5, 6, 8, 11, 12)
Emission	EN55032, EN55011, EN61000-3-2 Class A, EN61000-3-3, EN61000-6-3, EN61000-6-4
Voltage Sag Immunity	SEMI F47 – 0706 @ 200VAC
(LISTED E198298 Ind. Cont. Eq.
RoHS Compliant	Yes
Safety and Protection	
Transient surge voltage protection	Varistor
Current limitation at short-circuits approx.	I _{surge} = 105-150% or Po _{max} typically
Surge voltage protection against internal surge voltages	Yes
Isolation voltage: Input / output	3kVAC
Input / PE	2kVAC
Output / PE	0.5 kVAC
	IP20
Protection degree	Class I with PE connection

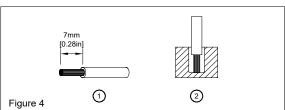
www.automationdirect.com

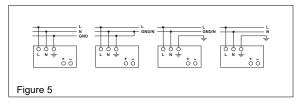
RHINO PSV24-240S Power Supply

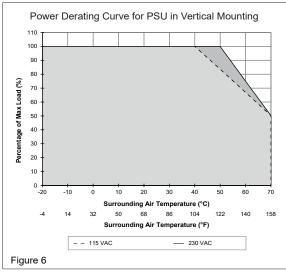












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- If the unit is used in a manner not specified by the manufacturer, the protection provided by the
 equipment may be impaired.
- To guarantee sufficient convection cooling, please keep a distance of 50mm above and 18cm below the device as well as a lateral distance of 10mm to other units.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation
- free environment and indoor location) that is relatively free of conductive contaminants.

 The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- 2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. For vertical mounting, the device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

	Electrical Connections and Wire Size				
	Stranded / Solid		Tor	Torque	
	mm²	AWG	N-m	lb-in	
Input	1.3-3.3	16-12	1.01	9	
Output	1.3-3.3	16-12	0.68	6	

To secure reliable and shock proof connections, the stripping length should be 7mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2). All wire strands must be fully inserted into the terminals with the screws securely fastened in order to ensure safety and maximum contact.

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ or more to fulfill UL requirements.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 22 to 28 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 28.8-35.2 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of an overload ($I_0 = 105-150\%$) the output voltage will start to droop until overload has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures

- 1. Above +40°C [104°F] (115VAC), the output capacity has to be reduced by 1.67% per degree Celsius increase in temperature.
- Above +50°C [122°F] (230VAC), the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature.

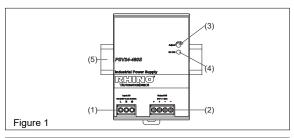
If the output capacity is not reduced when $T_{Amb} > 40^{\circ}C$ [$104^{\circ}F$] (115VAC) or $> 50^{\circ}C$ [$122^{\circ}F$] (230VAC), the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

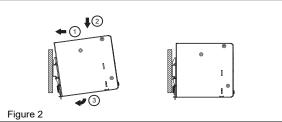
RHINO PSV24-240S Power Supply

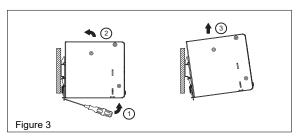
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	Technical Specifications
Input (AC)	
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	2.8 A typ. @ 115VAC, 1.4 A typ. @ 230VAC
Inrush current limitation (+25°C, cold start)	20A typ. @ 115VAC, 40A typ. @ 230VAC
	10ms typ. @ 115VAC (100% load)
Mains buffering at nominal load (typ.)	16ms typ. @ 230VAC (100% load)
Turn-on time	1000ms typ. @ 115VAC & 230VAC (100% load)
Internal fuse	T 6.3 A / 250V (non-replaceable)
Leakage current	< 1mA @ 264VAC
Output (DC)	
Nominal output voltage U _N / tolerance	24VDC ± 2 %
Voltage adjustment range	22-28 VDC (maximum power ≤ 240W)
• ,	
Output current	10A Refer to Fig. 6
Derating	> 40°C (1.67%/°C) @ 115VAC (90-229 VAC)
Bording	> 50°C (2.5%/°C) @ 230VAC (230-264 VAC)
Startup with capacitive loads	Max. 8,000µF
	4.62 W @ 115VAC (0% load)
Many manufactuation tillian (t) bed ever-	2.14 W @ 230VAC (0% load)
Max. power dissipation idling / nominal load approx.	31.53 W @ 115VAC (100% load)
	25.44 W @ 230VAC (100% load)
Efficiency at 100% load	88.0% typ. @ 115VAC, 90.0% typ. @ 230VAC
PARD (20MHz) at 100% load	< 120mVpp @ -10°C to +70°C
,	< 240mVpp @ -20°C to -10°C
Parallel operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode
General Data	
Type of housing	SGCC (Case Cover) / Aluminum (Case Chassis)
LED signals	Green LED DC OK
MTBF	> 700,000 hrs. as per Telcordia
Dimensions (L x W x H)	123.6 mm x 60mm x 117.6 mm [4.87 in x 2.36 in x 4.63 in] (See www.AutomationDirect.com for complete engineering drawings.
Weight	0.80 kg [28 oz]
Connection method	Screw connection
Stripping length	7mm [0.28 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
, , , ,	
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation	5 to 95% RH
Vibration	Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s² (2G peak); 10min per cycle, 60min for X direction Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions
Observation	Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis)
Shock	Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	2
Altitude (operating)	2000m for industrial application
	5000m for ITE application
Certification and Standards	05111/5100503
Safety entry low voltage	SELV (EN60950)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
CE	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Component power supply for general use	EN61204-3
Immunity	EN55024, EN61000-6-1, EN61000-6-2
,	(EN61000-4-2, 3, 4, 5, 6, 8, 11, 12)
Emission	EN55032, EN55011, EN61000-3-2 Class A, EN61000-3-3, EN61000-6-3, EN61000-6-4
Voltage Sag Immunity	SEMI F47 – 0706 @ 200VAC
	4ZW4
	LISTED <i>E198298</i>
	Ind. Cont. Eq.
RoHS Compliant	Yes
Safety and Protection	
Transient surge voltage protection	Varistor
	Varistor I _{suroe} = 105-150% or Po _{max} typically
Current limitation at short-circuits approx.	
Surge voltage protection against internal surge voltages	Yes
Isolation voltage:	אואופ
Input / output	3kVAC 2kVAC
	3kVAC 2kVAC 0.5 kVAC
Input / output Input / PE Output / PE	2kVAC 0.5 kVAC
Input / output Input / PE	2kVAC

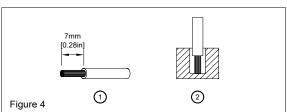
1st Edition, 01/2019 www.automationdirect.com

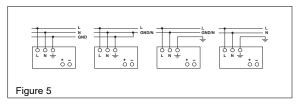
RHINO PSV24-480S Power Supply

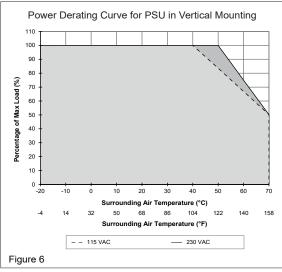












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- If the unit is used in a manner not specified by the manufacturer, the protection provided by the
 equipment may be impaired.
- To guarantee sufficient convection cooling, please keep a distance of 50mm above and 18cm below the device as well as a lateral distance of 10mm to other units.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. For vertical mounting, the device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size					
	Stranded / Solid		Stranded / Solid Torque		que
	mm²	AWG	N-m	lb-in	
Input	1.3-3.3	16-12	1.01	9	
Output	1.3-3.3	16-12	0.68	6	

To secure reliable and shock proof connections, the stripping length should be 7mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2). All wire strands must be fully inserted into the terminals with the screws securely fastened in order to ensure safety and maximum contact.

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ or more to fulfill UL requirements.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 22 to 28 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 28.8-35.2 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of an overload ($I_O = 109-130\%$) the output voltage will start to droop until overload has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

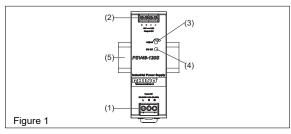
- 1. Above + 40° C [104° F] (115VAC), the output capacity has to be reduced by 1.67% per degree Celsius increase in temperature.
- Above +50°C [122°F] (230VAC), the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature.

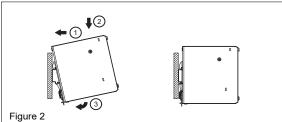
If the output capacity is not reduced when $T_{Amb} > 40^{\circ}C$ [104°F] (115VAC) or $> 50^{\circ}C$ [122°F] (230VAC), the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

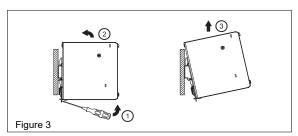
RHINO PSV24-480S Power Supply

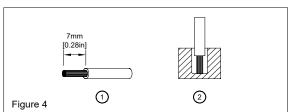
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	Technical Specifications
Input (AC)	
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz
Voltage range	85-264 VAC
Frequency	47-63 Hz
Nominal current	5.4 A typ. @ 115VAC, 2.7 A typ. @ 230VAC
Inrush current limitation (+25°C, cold start)	40A typ. @ 115VAC, 80A typ. @ 230VAC
,	10ms typ. @ 115VAC (100% load)
Mains buffering at nominal load (typ.)	16ms typ. @ 230VAC (100% load)
Turn-on time	1000ms typ. @ 115VAC & 230VAC (100% load)
Internal fuse	F 10 A / 250V (non-replaceable)
Leakage current	< 1mA @ 264VAC
Output (DC)	
Nominal output voltage U _N / tolerance	24VDC ± 2 %
Voltage adjustment range	22-28 VDC (maximum power ≤ 480W)
Output current	20A
ouput current	Refer to Fig. 6
Derating	> 40°C (1.67%/°C) @ 115VAC (90-229 VAC) > 50°C (2.5%/°C) @ 230VAC (230-264 VAC)
Startup with capacitive loads	Мах. 8,000µF
	5W @ 115VAC (0% load) 4W @ 230VAC (0% load)
Max. power dissipation idling / nominal load approx.	50W @ 115VAC (100% load) 40W @ 230VAC (100% load)
Efficiency at 100% load	85.0% typ. @ 115VAC, 88.0% typ. @ 230VAC
	< 120mVpp @ -10°C to +70°C
PARD (20MHz) at 100% load	< 240mVpp @ -20°C to -10°C
Parallel operation	PSB60-REM40S or with ORing Diode
General Data	
Type of housing	SGCC (Case Cover) / Aluminum (Case Chassis)
LED signals	Green LED DC OK
MTBF	> 700,000 hrs. as per Telcordia
Dimensions (L x W x H)	123.6 mm x 85.5 mm x 128.5 mm [4.87 in x 3.37 in x 5.06 in] (See www.AutomationDirect.com for complete engineering drawings.
Weight	1.30 kg [45.9 oz]
Connection method	Screw connection
Stripping length	7mm [0.28 in]
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)
Storage temperature	-40°C to +85°C [-40°F to +185°F]
Humidity at +25°C, no condensation	5 to 95% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s² (2G peak); 10min per cycle, 60min for X direction
Vibration	Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions
Shock	Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis) Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions
Pollution degree	9
	2000m for industrial application
Altitude (operating)	5000m for ITE application
Certification and Standards	
Safety entry low voltage	SELV (EN60950)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)
CE	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Component power supply for general use	EN61204-3
	FN55024, FN61000-6-1, FN61000-6-2
Immunity	(EN61000-4-2, 3, 4, 5, 6, 8, 11, 12)
Emission	EN55032, EN55011, EN61000-3-2 Class A, EN61000-3-3, EN61000-6-3, EN61000-6-4
Voltage Sag Immunity	SEMI F47 – 0706 @ 200VAC
	C S US LISTED Ind. Cont. Eq.
RoHS Compliant	Yes
Safety and Protection	
Transient surge voltage protection	Varistor
Current limitation at short-circuits approx.	I _{surge} = 109-130% or Po _{max} typically (continuous current)
Surge voltage protection against internal surge voltages	Yes
Isolation voltage:	
Input / output	3kVAC
Input / PE Output / PE	2kVAC 0.5 kVAC
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Protection degree	IP20
Safety class	Class I with PE connection
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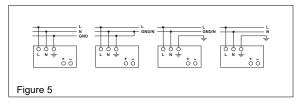
RHINO PSV48-120S Power Supply

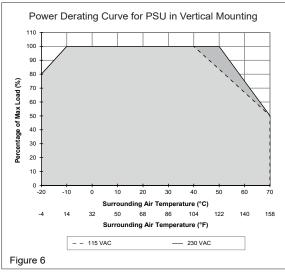












READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- If the unit is used in a manner not specified by the manufacturer, the protection provided by the
 equipment may be impaired.
- To guarantee sufficient convection cooling, please keep a distance of 50mm above and 18cm below the device as well as a lateral distance of 10mm to other units.
- Note that the enclosure of the device can become very hot depending 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 power supplies are built-in units and must be installed in a cabinet or room (condensation
- free environment and indoor location) that is relatively free of conductive contaminants.

 The unit must be installed in an IP54 enclosure or cabinet in the final installation.
- CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT.

2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- 3) DC voltage adjustment potentiometer
- (4) DC OK LED (green)
- (5) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. For vertical mounting, the device should be installed with input terminal block on the bottom.

Each device is delivered ready to install.

Snap on 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. Shake the unit slightly to ensure that it is secured.

4. Dismounting (Fig. 3)

To uninstall, use a flat screwdriver to pull or slide down the latch as shown in Fig. 3. Then slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

Electrical Connections and Wire Size				
	Stranded / Solid		Stranded / Solid Torque	
	mm²	AWG	N-m	lb-in
Input	0.823-8.365	18-8	1.01	9
Output	0.20-3.3	24-12	0.68	6

To secure reliable and shock proof connections, the stripping length should be 7mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2). All wire strands must be fully inserted into the terminals with the screws securely fastened in order to ensure safety and maximum contact.

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least $60^{\circ}\text{C}/75^{\circ}\text{C}$ or more to fulfill UL requirements.

5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and GND connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection. Typical connection methods are shown in Figure 5.

The unit is protected with an internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above.



The internal fuse must not be replaced by the user.

5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 48 VDC connection. The output provides 48 VDC. The output voltage can be adjusted from 44 to 56 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an overvoltage protection limited to 56-67.2 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of an overload $(I_0 = 105-150\%)$ the output voltage will start to droop until overload has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures:

- At -10°C to -20°C [14°F to -4°F], the output capacity has to be reduced by 2% per degree Celsius increase in temperature.
- 2. Above +40°C [104°F] (115VAC), the output capacity has to be reduced by 1.67% per degree Celsius increase in temperature.
- Above +50°C [122°F] (230VAC), the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature.

If the output capacity is not reduced when $T_{\rm Amb} > 40^{\circ}{\rm C}$ [104°F] (115VAC) or $> 50^{\circ}{\rm C}$ [122°F] (230VAC), the device will engage thermal protection by switching off, i.e., the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

RHINO PSV48-120S Power Supply

	Technical Specifications	
Input (AC)		
Nominal input voltage / frequency	100-240 VAC / 50-60 Hz	
Voltage range	85-264 VAC	
Frequency	47-63 Hz	
Nominal current	2.2 A typ. @ 115VAC, 1.2 A typ. @ 230VAC	
Inrush current limitation (+25°C, cold start)	20A typ. @ 115VAC, 40A typ. @ 230VAC	
, , ,	20ms typ. @ 115VAC (100% load)	
Mains buffering at nominal load (typ.)	90ms typ. @ 230VAC (100% load)	
Turn-on time	200ms typ. @ 115VAC & 230VAC (100% load)	
Internal fuse	T 4A / 250V (non-replaceable)	
Leakage current	< 0.25 mA @ 264VAC	
Output (DC)		
Nominal output voltage U _N / tolerance	48VDC ± 2 %	
Voltage adjustment range	44-56 VDC (maximum power ≤ 120W)	
Output current	2.5 A	
	Refer to Fig. 6	
Derating	-10°C to -20°C (2%/°C), > 40°Č (1.67%/°C) @ 115VAC -10°C to -20°C (2%/°C), > 50°C (2.5%/°C) @ 230VAC	
Startup with capacitive loads	Мах. 4,000µF	
Max. power dissipation idling / nominal load approx.	1.21 W / 13.3 W	
Efficiency at 100% load	89.0% typ. @ 115VAC, 90.0% typ. @ 230VAC	
PARD (20MHz) at 100% load	< 150 mVpp	
Parallel operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode	
General Data		
Type of housing	SGCC (Case Cover) / Aluminum (Case Chassis)	
LED signals	Green LED DC OK	
MTBF	> 700,000 hrs. as per Telcordia	
Dimensions (L x W x H)	123.6 mm x 40mm x 117.6 mm [4.87 in x 1.57 in x 4.63 in] (See www.AutomationDirect.com for complete engineering drawings.)	
Weight	0.54 kg [19 oz]	
Connection method	Screw connection	
Stripping length	7mm [0.28 in]	
Operating temperature (surrounding air temperature)	-20°C to +70°C [-4°F to +158°F] (Refer to Fig. 6)	
Storage temperature	-40°C to +85°C [-40°F to +185°F]	
Humidity at +25°C, no condensation	5 to 95% RH Operating: IEC60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s² (2G peak); 10min per cycle, 60min for X direction	
Vibration	Non-Operating: IEC60068-2-6, Random: 5Hz to 500Hz (2.09 Grms); 20 min. per axis for all X, Y, Z directions Operating: IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis)	
Shock	Non-Operating: IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions	
Pollution degree	2	
Altitude (operating)	2000m for industrial application	
***	5000m for ITE application	
Certification and Standards	OFILL/FNIOOFO\	
Safety entry low voltage	SELV (EN60950)	
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), CB scheme to IEC60950-1	
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No.107.1-01 (File No. E197592)	
CE	In conformance with EMC directive 2014/30/EU and Low Voltage Directive 2014/35/EU	
Component power supply for general use	ENG1204-3	
Immunity	EN55024, EN61000-6-1, EN61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11, 12)	
Emission	EN55032, EN55011, EN61000-3-2 Class A, EN61000-3-3, EN61000-6-3, EN61000-6-4	
Voltage Sag Immunity	SEMI F47 – 0706 @ 200VAC	
	20ET	
	C TUUS LISTED E197592 Ind. Cont. Eq.	
RoHS Compliant	Yes	
Safety and Protection		
Transient surge voltage protection	Varistor	
Current limitation at short-circuits approx.	I _{surge} = 105-150% or Po _{max} typically	
Surge voltage protection against internal surge voltages	Yes	
Isolation voltage:		
Input / output	3kVAC	
Input / PE Output / PE	2kVAC 0.5 kVAC	
<u>'</u>	IP20	
Protection degree		
Safety class	Class I with PE connection	

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