Regulated Power Supply installation guide

Phason's Regulated Power Supply (RPS) is a CSA approved, Class-2 power supply. The RPS supplies 13.6 VDC and 24 VAC power.

The RPS has a battery-backup option than supplies enough power to maintain or slowly charge a 12 V gel cell battery (not included). If the incoming AC power fails, the battery provides power to the devices connected to the DC output terminal.

If you are using the battery-backup option, you must purchase the Phason battery cable assembly (part number 240012). For more information, contact your dealer.

Features

- 24 VAC and 13.6 VDC outputs
- Battery-backup option
- Overload protection fuse
- Rugged enclosure (corrosion resistant, water resistant, and fire retardant)
- CSA approval
- 90-day limited warranty

Electrical ratings

- Input: 115/230 VAC, 50 VA, 50/60 Hz
- Output: 24 VAC, 13.6 VDC, 15 W (maximum)
- Fuse: 1 A, 250 V fast-acting glass

The RPS has a resettable fuse on the AC output that helps protect the unit against a severe overload. A severe overload of the AC output will trip the fuse. To reset the fuse:

1. Disconnect the incoming power or the AC load.
2. Fix the problem that caused the overload.
3. Reconnect the power or the AC load.

Calculating power consumption

Before connecting multiple devices to the RPS, you need to calculate the total power consumption of all the devices. The RPS supplies a *maximum* of 15 W of power. The combined power consumption of all devices you connect to the RPS cannot be more than 15 W.

Some devices have a power consumption rating in watts; others have a current draw in amperes. To convert an ampere rating to watts, use the following formula:

W=V×A **W**=watts, **V**=volts (24 VAC or 13.6 VDC), **A**=amperes

For example

You have one OMNI Weather Station and seven Local Environment Monitors you want to connect to an RPS. Both the OMNI Weather Station and Local Environment Monitor draw 100 mA. What is the total power consumption for these devices?

- Calculate the power consumption for each device: **13.6 V × .100 A=1.36 W**
- Calculate the total power consumption: **8 × 1.36 W=10.88 W**
- The total power consumption of the devices is 10.88 W.

Always check the installation guide for each product before calculating the power consumption for the devices.

Determining maximum cable length

The maximum length of cable you can have between the power supply's DC output and the last powered device depends on the gauge of cable and the total current draw of the devices.

Gauge of cable	Maximum length (feet*)
16	250 ÷ total current draw of all devices on the cable
18	160 ÷ total current draw of all devices on the cable
20	100 ÷ total current draw of all devices on the cable
22	62 ÷ total current draw of all devices on the cable
24 (not recommended)	37 ÷ total current draw of all devices on the cable
* To convert to metres, divide the number of feet by 3.28.	

For example

Using the example from **Calculating power consumption**, we have one OMNI Weather Station and seven Local Environment Monitors, each drawing 100 mA. You have 20 gauge wire, what is the maximum length of cable you can use?

- Calculate the total current draw: **8 × .1 A = 0.8 A**
- Calculate the maximum length: **100 ÷ 0.8 = 125 ft.**
- You can have a maximum cable length of 125 feet between the RPS and the last device.

Precautions, guidelines, and warnings

The Regulated Power Supply must be installed by a qualified electrician.

Before installing or servicing the Regulated Power Supply, switch OFF the power supply at the source.

Install the Regulated Power Supply and all equipment connected to it according to local electrical codes.

The 24 VAC output is for powering devices that are isolated from the DC outputs. Connecting the output terminals together will destroy the power supply and void the warranty.

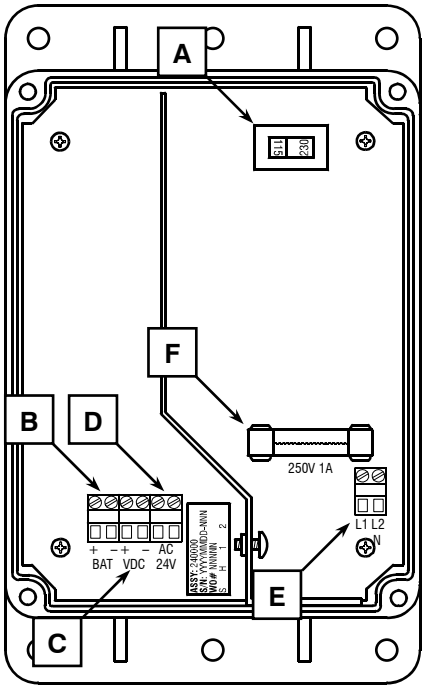
Mount the unit on a sheltered, vertical surface, with the electrical knockouts facing down.

Use a screwdriver to tighten the screws in the enclosure. Do not use a drill or over tighten the screws; this can crack the enclosure and ruin the watertight seal.

Use the electrical knockouts for bringing wires or cables into or out of the enclosure. Use watertight strain reliefs or conduit connectors at all cable-entry points.

Do not make additional holes in the enclosure; this can damage the watertight seal or components and void the warranty.

Regulated Power Supply layout



- **A** Voltage selection switch—make sure you set this switch to the correct voltage before installing the RPS.
- **B** Backup-battery terminal—if you are using the battery-backup option, connect the battery to this terminal.
  If you are not using the battery-backup option, you can use the terminal as another 13.6 VDC output.
- **C** 13.6 VDC output terminal—connect devices that require DC power to this terminal.
- **D** 24 VAC output terminal— connect devices that require AC power to this terminal.
- **E** Incoming power terminal—connect the incoming power (115/230 VAC) to this terminal.
- **F** Incoming power fuse—1 A, 250 VAC non-time-delay glass fuse.

To install the Regulated Power Supply

1. Mount the RPS on a vertical surface with the electrical knockouts facing down.
2. Set the voltage selector switch to the correct incoming power (115 or 230 VAC).
3. Connect the incoming power wires to the incoming power terminal.
4. Connect the devices to the output terminals. For more specific information, see the product's installation guide.

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