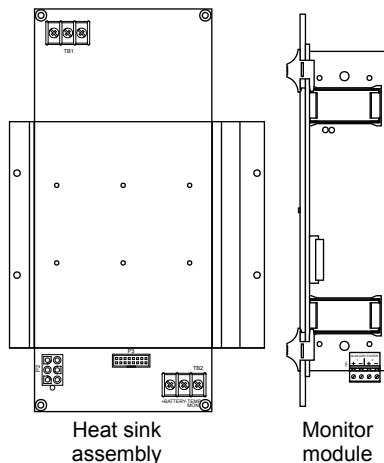


Power Supplies Installation Sheet



Description

This installation sheet applies to the following models:

- 3-PPS/M(-230) Primary Power Supply
- 3-BPS/M(-230) Booster Power Supply
- 3-BBC/M(-230) Booster/Charger Supply

3-PPS/M(-230) Primary Power Supply

The 3-PPS/M(-230) Primary Power Supply provides the required power and related supervision functions for the control panel. The 3-PPS/M(-230) comprises a heat sink assembly and a monitor module. The monitor module plugs into the rail, and the heat sink and the heat sink assembly mount onto the rail chassis.

The 3-PPS/M(-230) provides filtered, regulated power to the rail chassis modules as well as 24 VDC for operating ancillary equipment. AC power and battery connections are made to fixed terminals on the heat sink assembly, away from the panel's power-limited wiring.

The 3-PPS/M(-230) provides a dual rate constant current battery charger circuit with automatic temperature compensation. To prevent memory problems and total battery discharge, a battery monitor circuit supervises the standby batteries and disconnects them when they reach the low battery threshold.

The 3-PPS/M(-230) checks the AC input source and automatically switches to battery power in the event of a brownout or loss of AC power. In the event of a failure of one or more booster power supplies, the 3-PPS/M(-230) determines its ability, along with the surviving booster supplies, to supply the load. If the load exceeds the ability of the primary and surviving booster supplies to meet the demand, the 3-PPS/M(-230) automatically switches in the standby batteries. The 3-PPS/M(-230) also switches in the standby batteries if an overload causes the heat sink temperature to reach a high level.

The power supply monitor module provides the interface between the 3-PPS/M(-230) and the panel, making the required data and power connections to and from the rail chassis. The monitor module requires one rail space and is secured to the assembly using snap rivet fasteners. The monitor module has a hinged front panel for mounting displays or a blank protective faceplate.

3-BPS/M(-230) Booster Power Supply and 3-BBC/M(-230) Booster/Charger Supply

The 3-BPS/M(-230) and 3-BBC/M(-230) booster power supplies are used to provide additional power over and above that of the 3-PPS/M(-230). Each model is composed of a heat sink assembly and a monitor module. The monitor module plugs into the rail and the heat sink assembly mounts onto the rail chassis.

Depending on the size of the cabinet, up to three booster power supplies can be added to make a total of 28 A available for both internal and external applications. Each booster supply provides filtered, regulated power to the rail chassis modules as well as 24 VDC for operating ancillary equipment.

A 3-BPS/M(-230) supply can share a common set of standby batteries with the 3-PPS/M(-230) or 3-BBC/M(-230). Each 3-BPS/M(-230) supervises its own battery connection but does not have any battery charging capability. The 3-BBC/M(-230) is capable of charging standby batteries.

Each booster supply shares the panel's 24 VDC electrical load with the 3-PPS/M(-230). In the event of a booster power supply failure, a trouble is annunciated, and the panel load is distributed among the remaining operational power sources. Should the load ever exceed the ability of the operable power sources to supply the power, as in the event of an alarm, the system automatically switches to standby batteries.

The booster supply monitor module provides the interface between the booster power supply and the panel, making the required data and power connections to and from the rail chassis. The monitor module requires one rail space and is secured to the assembly using snap rivet fasteners. The monitor module has a hinged front panel for mounting displays or a blank protective faceplate.

Installation

Installing a heat sink assembly

Heat sink assemblies are installed on the rail chassis behind the rail module connectors. Refer to Figure 1.

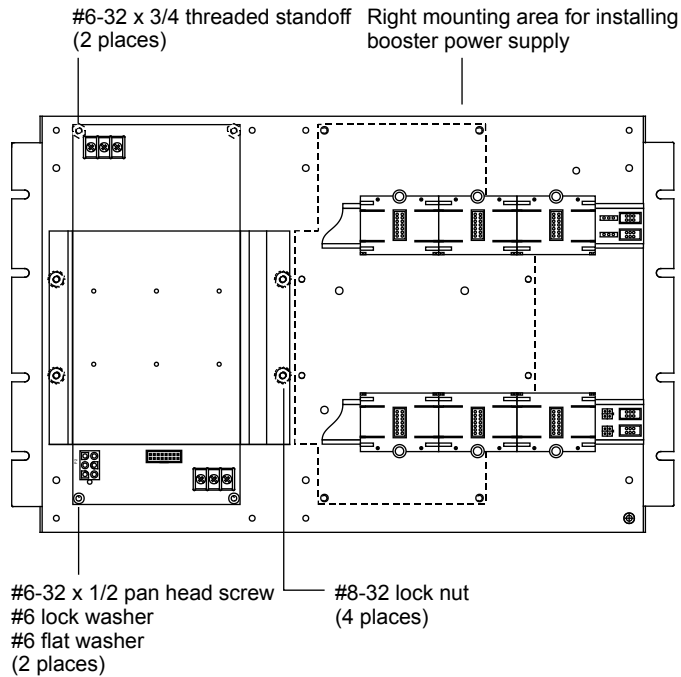
To install a heat sink assembly:

1. Attach the heat sink assembly to the four threaded mounting studs on the rail chassis using lock nuts provided in the hardware kit.
2. Secure the bottom edge of the heat sink assembly to the threaded standoffs on the rail chassis using screws provided in the hardware kit.
3. Secure the top edge of the heat sink assembly to the rail chassis using the two threaded standoffs provided in the hardware kit.
4. Attach the AC terminal block cover to the threaded standoffs using two #6-32 x 1/2 pan head screws.

Notes

- Always mount the heat sink assembly for the primary power supply onto the left mounting space of the rail chassis in which the central processor module is installed.
- Booster supplies, if installed, can be mounted on any rail chassis, but no more than three booster supplies may be installed in the same enclosure.

Figure 1: Heat sink assembly installation



Installing a monitor module

Caution: Equipment damage hazard. This product is sensitive to electrostatic discharge (ESD). To avoid damage, follow accepted ESD handling procedures.

To install a monitor module:

1. Plug the cable harness and ribbon cable into the monitor module as shown in Figure 2. Ensure the cable connections are secure.
2. For a power supply monitor module, align the module to the guide posts on slot 3 of the rail chassis.

For a booster supply monitor module, align the module to the guide posts on slot 3 or slot 5 of the rail chassis, whichever is closest to the heat sink assembly.
3. Route the cable harness over and behind the bottom rail and connect it to P2 on the heat sink assembly. Push in until the connector clicks.
4. Route the ribbon cable under the bottom rail and connect it to P3 on the heat sink assembly.
5. Plug the module into the rail connectors and lock it into place using the snap rivet fasteners.

Figure 2: Power supply to monitor module cable connections

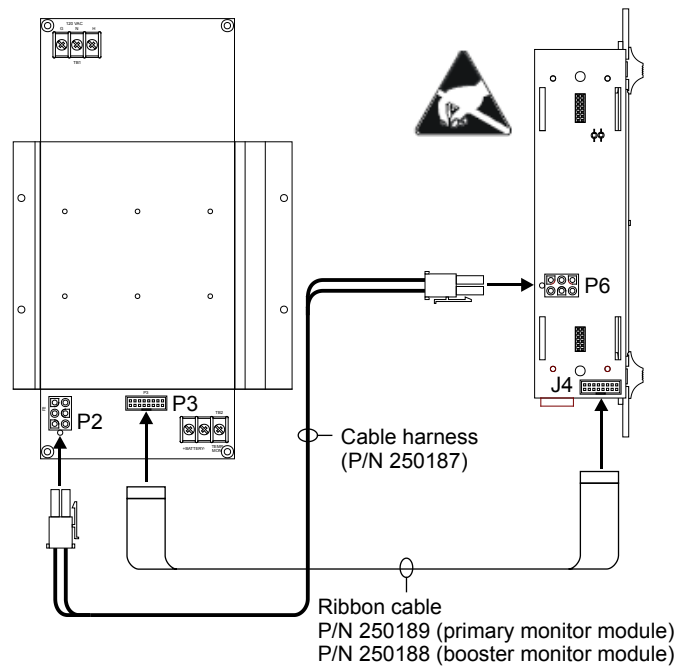
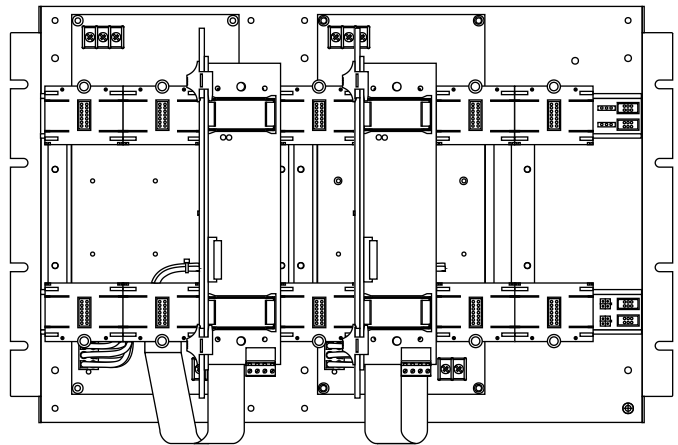


Figure 3 shows a primary power supply and booster power supply installed in a chassis before they are wired.

Figure 3: Primary and booster power supplies installed in a chassis



Wiring

Install and wire these power supplies in accordance with applicable national and local codes, ordinances, and regulations.

Mains power wiring

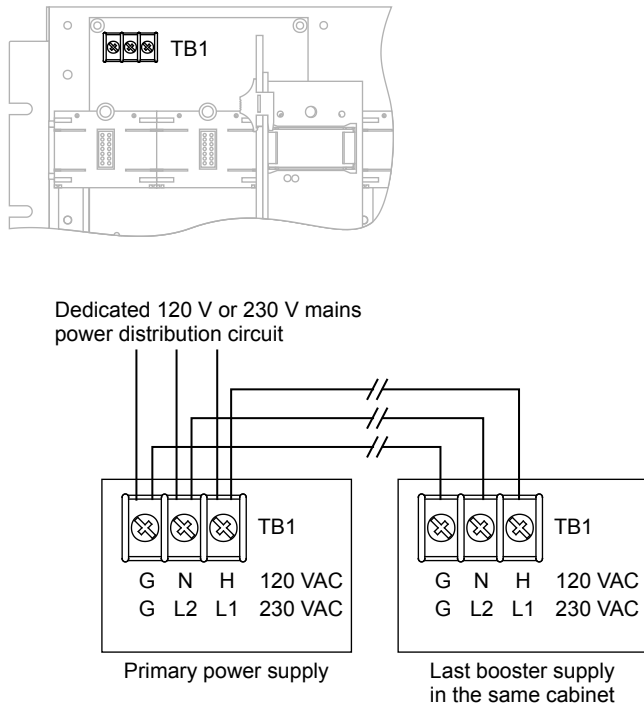
Connect the mains power wiring after all power supplies have been installed. No more than one primary power supply and three booster supplies may be connected to a single mains AC circuit. All mains power wiring must be double insulated.

WARNING: Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and allow stored energy to discharge before installing or removing equipment. Ensure that the mains power cannot be inadvertently switched on.

To connect the mains power wiring:

1. Ensure that the mains AC circuit is de-energized.
2. Connect the mains AC conductors from the dedicated mains distribution circuit to TB1 on the power supplies (see Figure 4).
3. Secure the power supply cover to the standoffs on the top edge of each power supply.

Figure 4: Mains power wiring

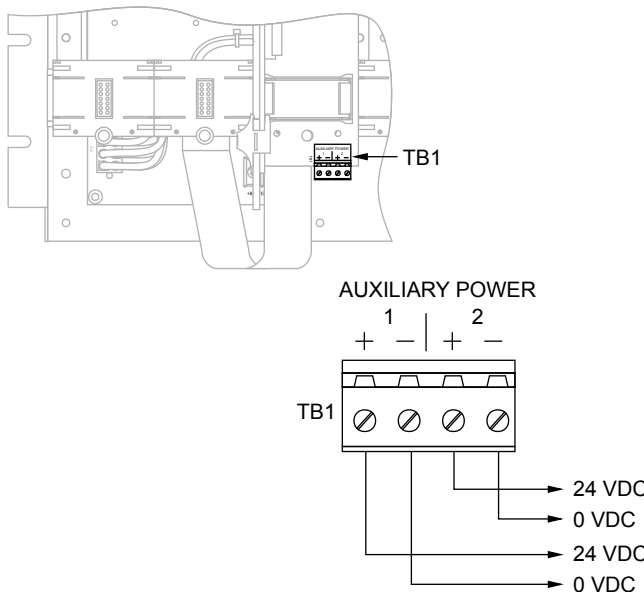


Auxiliary 24 VDC riser wiring

Connect the 24 VDC auxiliary power riser conductors to TB1 on the power supply monitor module as shown in Figure 5.

Note: Current loads must be evenly distributed across all power supplies.

Figure 5: 24 VDC riser wire connections



Standby battery wiring

Connect the standby batteries to TB2 on the heat sink assembly as shown in Figure 6 and according to the following requirements:

- Each set (pair) of batteries must be connected to a separate battery charging circuit, either on a 3-PPS/M(-230) or on a 3-BBC/M(-230).
- Each power supply must be connected to only one set of batteries. A 3-PPS/M(-230) and a 3-BPS/M(-230) can be wired to the same set of batteries, as well as a 3-BBC/M(-230) and a 3-BPS/M(-230), but never a 3-PPS/M(-230) and a 3-BBC/M(-230).
- Each power supply must have its own separate pair of wires connecting it to a set of standby batteries. Daisy chaining battery connections from power supply to power supply is not allowed.
- All battery wiring must be the same length and wire gauge.
- All batteries connected to the same control panel must have the same ampere-hours rating, be from the same manufacturer, and have the same manufacturing date code.
- Batteries greater than 17 Ah and any additional batteries must be installed in an external battery cabinet.
- If an external battery cabinet is used to house standby batteries, the cabinet must be installed within three feet and in the same room as the control panel.

Figure 6: Standby battery wire connections

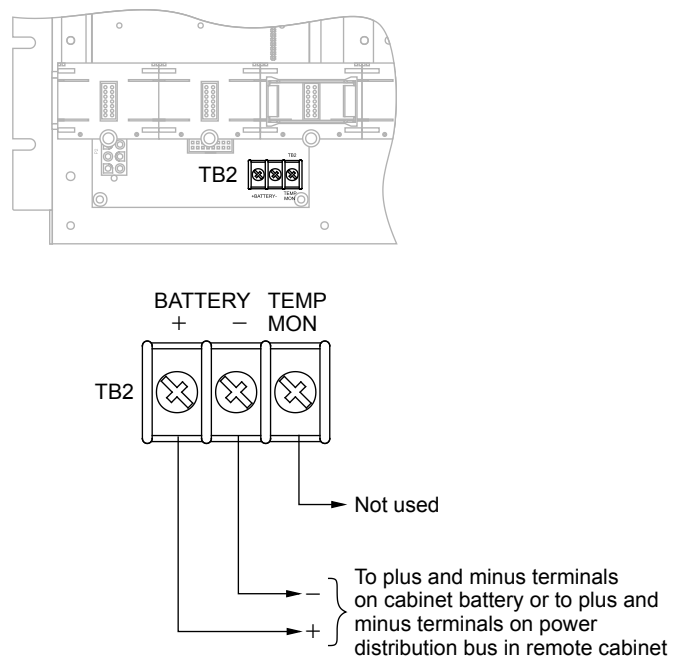


Table 1 lists typical battery and power supply combinations.

Table 1: Typical battery and power supply combinations

Total current	Power supplies required	Battery sets required
7A	1 3-PPS/M(-230)	1 set, 65 Ah max.
14 A	1 3-PPS/M(-230) 1 3-BPS/M(-230)	1 set, 65 Ah max.
	1 3-PPS/M(-230) 1 3-BBC/M(-230)	2 sets, 65 Ah max.
21 A	1 3-PPS/M(-230) 2 3-BPS/M(-230)	1 set, 65 Ah max.
	1 3-PPS/M(-230) 2 3-BBC/M(-230)	3 sets, 65 Ah max.
28 A	1 3-PPS/M(-230) 3 3-BPS/M(-230)	1 set, 65 Ah max.
	1 3-PPS/M(-230) 3 3-BBC/M(-230)	4 sets, 65 Ah max.

Specifications

3-PPS/M(-230), 3-BPS/M(-230), and 3-BBC/M(-230)

Installation	
Heat sink assembly	Mounts onto the rail chassis
Monitor module	Mounts in one rail space
Power input	
	120 VAC, +10%, -15%, 3.0 A, 50 to 60 Hz 230 VAC, +10%, -15%, 1.5 A, 50 to 60 Hz (-230 only)
Brownout level	
	≤ 102 VAC ≤ 195 VAC (-230 only)
Output ratings	
Special applications	
Total	24 VDC at 7.0 A (internal and auxiliary outputs)
Internal DC	24 VDC at 7.0 A max.
Auxiliary DC	Two 24 VDC at 3.5 A max. Power-limited and supervised for ground faults and shorts For special applications, see the EST3 Compatibility List (P/N 3100427-EN)
Regulated applications	
Total	24 VDC at 4.5 A (internal and auxiliary outputs)
Auxiliary DC	Two: one 24 VDC at 3.5 A max. for all circuits except the regulated NAC; one 24 VDC at 1.0 A max. for regulated NACs to 3-IDC8/4 modules only Power-limited and supervised for ground faults and shorts
Termination	
AC input	Terminals on heat sink assembly
Batteries	Terminals on heat sink assembly
Internal DC output	LRM chassis rails via monitor module
Auxiliary DC output	Removable plug-in terminal strips on monitor module
Current requirements	
3-PPS/M(-230)	Included with CPU current requirements
3-BPS/M(-230)	Alarm: 50 mA Standby: 50 mA
3-BBC/M(-230)	Alarm: 70 mA Standby: 70 mA
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	0 to 93% noncondensing

3-PPS/M(-230) and 3-BBC/M(-230)

Battery charging capacity	10 to 65 Ah
Type	Temperature compensated dual rate (1.5 A and 3.0 A)
Supervision	
Low AC	
Low battery	< 22.5 VDC
High battery	
Discharged battery	< 18 VDC
Ground fault	< 10 kΩ

3-BPS/M(-230) only

Supervision	
Low AC	
Low battery	< 22.5 VDC
Ground fault	< 10 kΩ

Contact information

For contact information, see www.edwardsutcs.com.