

INSTALLATION NOTE

4A OFFLINE SWITCHING POWER SUPPLY

Operation

The Pertronic Industries *Offline Power Supply Unit (PSU)* is a 27.4V, 3A continuous, 4A peak, current-limited, switch-mode power supply. The *PSU* is designed for use by Pertronic Fire and Indicating Equipment and for float charging two 12V Lead Acid Batteries connected in series.

DC connectors are provided for two 27.4V outputs.

A four-way IDC monitoring connector is provided for use by Pertronic Fire Panels. This enables a connected Panel to perform test functions such as Battery Low, Battery Absent, Mains Lost, and a 24-hour Battery Fault Test.

A Green 'Mains On' LED located within the case is illuminated when the mains is present. It will not illuminate if the mains fuse is blown or if the mains is lost.

The *PSU* is fully temperature-compensated, and it is set at the factory to $27.4V \pm 0.05V$ at 20°C. As the ambient temperature becomes higher, the output voltage is decreased, and it is increased when the ambient temperature becomes less. This optimises battery charge and battery life.

Installation

The batteries should be in the same enclosure as the *PSU* and placed as close as possible to it.

When installing the *PSU* in Pertronic Fire Panels, ensure that the unit is mounted securely in the vertical position by four M4 nuts and washers. The low voltage and mains cables must remain separated.

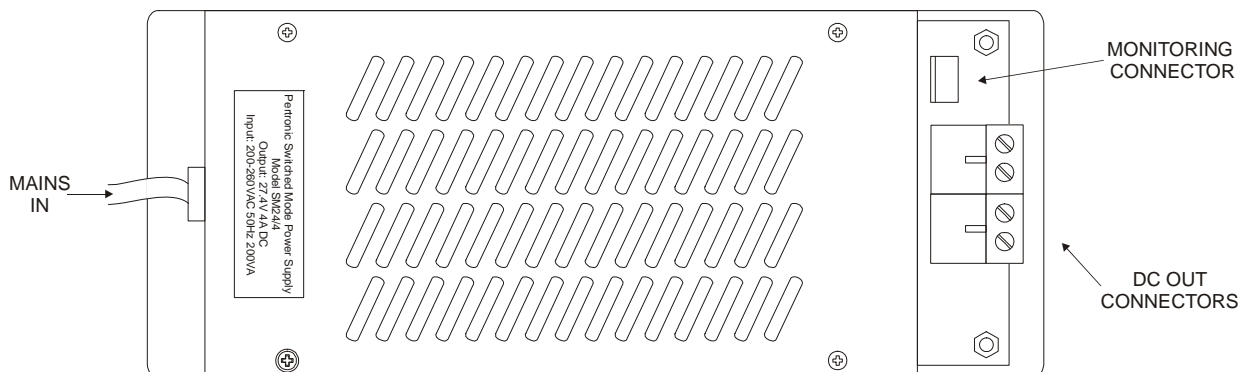
All points of the chassis must be well earthed; this includes the base, lid and its four mounting nuts. Failure to do so will render the product unsafe, and it will not comply with AS/NZS 548.

Do not use the *PSU* when there is no earth connection to the case.

Use the supplied cable assembly to connect the *PSU* to the mains via an integral two-pole switch. A mains cable may then be connected between the switch and supply by the installer. There must be no exposed wiring that may cause electrical shock.

The *PSU* case cooling vents must not be restricted in any way, and, for units with a fan, there must be at least 20mm clearance above the fan for optimum airflow.

Figure 1. PSU Details



The *PSU* has two DC outputs. These may be connected directly to the panel master board, or, when needed, to a distribution board. The *PSU* may also be connected directly to a battery, as long as the peak

discharge current does not exceed 10 Amps. In this case, a battery lead with an inline 10A fuse must be installed (see figure 2 and figure 3).

Care should be taken to prevent reverse polarity connections between the PSU, its load, and the battery. The maximum cable size for the output connector is 2.5mm².

The *PSU* has an isolated four-way IDC connect for mains and battery monitoring. This connects to a corresponding connector on the F100, F120 and F16e master boards.

THE PSU COVER SHOULD NEVER BE REMOVED. DOING SO WILL EXPOSE THE USER TO DANGEROUS HIGH VOLTAGES AND THE RISK OF ELECTRIC SHOCK.

Diagrams

Figure 2. Battery connected to PSU (load less than 10A)

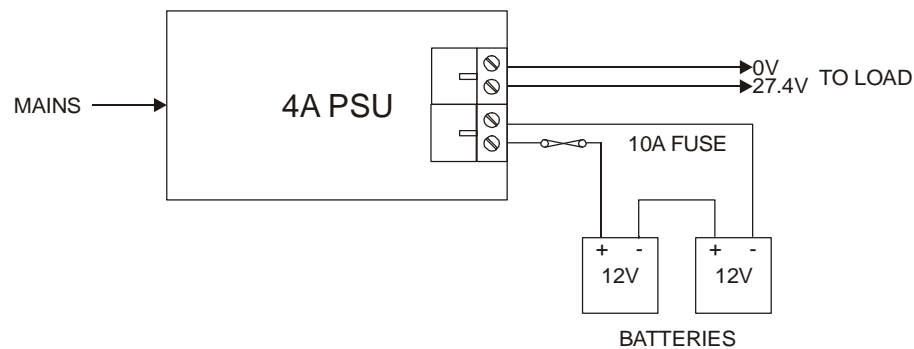
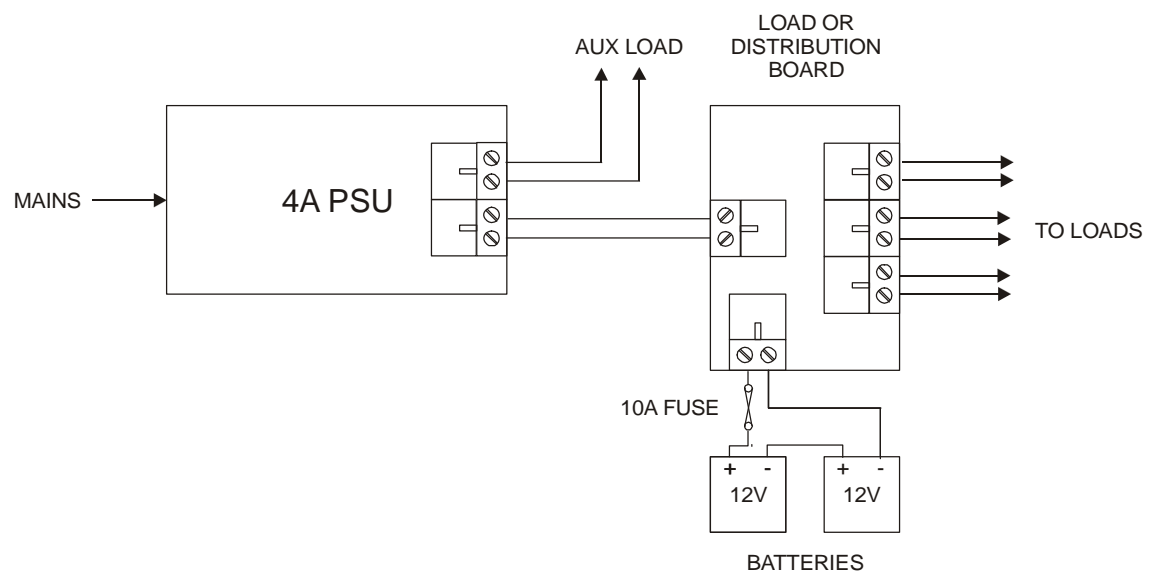


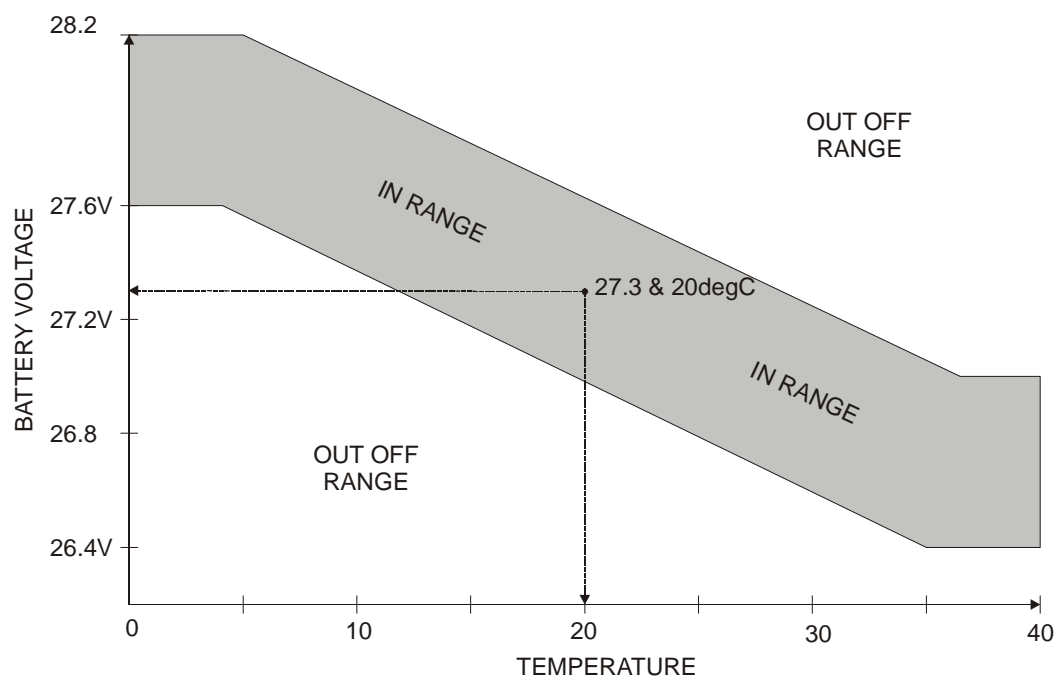
Figure 3. Battery connected to PSU (load greater than 10A)



Commissioning Guide

PROCEDURE	ACTION
Before powering, check all input and output connections for safety.	Correct if faulty.
Turn on the mains power with the load disconnected.	The mains LED should illuminate. If not, return the <i>PSU</i> to the manufacturer.
With the load still disconnected, check the output voltage.	The output should be around 27.4V at 20°C (see Figure 4). If not, return the PSU to the manufacturer.
Turn off the mains, and connect the load. Apply mains power and check the output voltage.	The output should be around 27.4V at 20°C (see Figure 4). If there is a heavy load, the voltage may be lower due to the PSU entering current limit mode. If incorrect, return the PSU to the manufacturer.
Check the 24 hour test charger output by disconnecting the battery and load. Put the panel into 24 hour test mode.	The PSU output should drop to around 22.5V. If it doesn't, check the monitoring cable between PSU and master board. If incorrect, return the PSU to the manufacturer.
Check the mains lost detection circuitry by turning the mains off (with the batteries connected).	A 'Mains Lost' message should appear on the panel. If it doesn't, check monitoring cable between PSU and master board. If incorrect, return the PSU to the manufacturer.

Figure 4. PSU Temperature Compensation





SPECIFICATION

INPUT SPECIFICATIONS

AC Input:	200 – 260Vac
Frequency:	50 – 60 Hz Single phase
Input Current:	0.8A max with 4A load
Inrush Current:	Limited by internal thermistor
Turn-on Time:	120ms at 230V ac 25°C
Input Protection:	Internal 1A slow blow fuse provided

OUTPUTS SPECIFICATIONS

Nominal Output Voltage:	27.4V 1% DC at 20 °C
Output Current:	3A continuous 4A peak (24 hours maximum duration)
Temperature coefficient:	0.145%/°C set for battery charging
Voltage Regulation:	0.13% over full load at 20°C
Output Current Range:	No load to full load current (4A Max)
Overload Protection:	Current limited to 4A
Over voltage Protection:	33V Max with zener feedback clamp cct
Output Ripple:	50mV pk-pk maximum over full load range
Transient Response:	Recovers to 1% within 2us with 50% load change
Reverse Voltage Protection:	400A peak Diode

OPERATING SPECIFICATIONS

Efficiency:	70% minimum
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ENVIROMENTAL SPECIFICATIONS

Environment:	Indoor Use Only, IP00
Operating Temperature:	0 °C to 40 °C

STANDARDS AND APPROVALS

C-Tick:	Conducted: AS/NZS 3548 class B Radiated: AS/NZS 3548 class A*
Safety:	AS/NZ 61558.2.15:2001 AS4428.5:1998

MECHANICAL SPECIFICATIONS

Dimensions:	210mm x 80mm x 60mm
Net Weight:	4.5 Kg, not including batteries
Mains Power Lead Length:	300mm

**In a domestic environment this product may cause radio interference, in which case the user should choose its location with care.*