

## INSTALLATION NOTE

### 4.0A OFFLINE SWITCHING POWER SUPPLY

#### Operation

The Pertronic Industries Offline Power Supply Unit (PSU) is a 27.4V, 4A continuous, 4.4A 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 four 27.4V outputs (Two are labelled 'DC Out', and 'Battery', and the 2 unlabelled outputs are accessory outputs), 'External Temperature Probe', and 'PSU Monitor'.

**Note:** The output labelled Fan is not available



A four-way IDC monitoring connector (PSU Monitor) is provided for use by Pertronic Fire Panels. This enables a connected Panel to monitor functions such as Battery Low, Battery Absent, Mains Lost, and execute 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 can be fully temperature-compensated with the addition of an optional external temperature probe (Product code REMTEMP-30k), and it is set at the factory to  $27.4V \pm 0.05V$  at  $20^{\circ}C$ . 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 Australia and New Zealand safety standards.

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.

## PSU Details

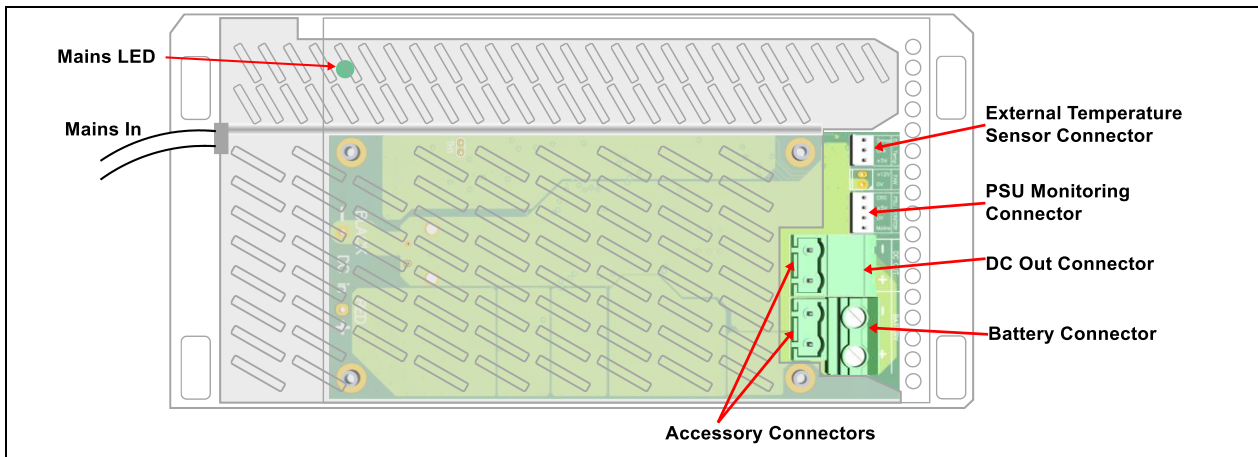


Figure 1: 24Vdc 4A Power Supply Unit

The PSU has four 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 2.5mm<sup>2</sup>.

The PSU has an isolated four-way IDC connect for mains and battery monitoring (Label: PSU Monitor). This connects to a corresponding connector on the F100, F120, F220 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

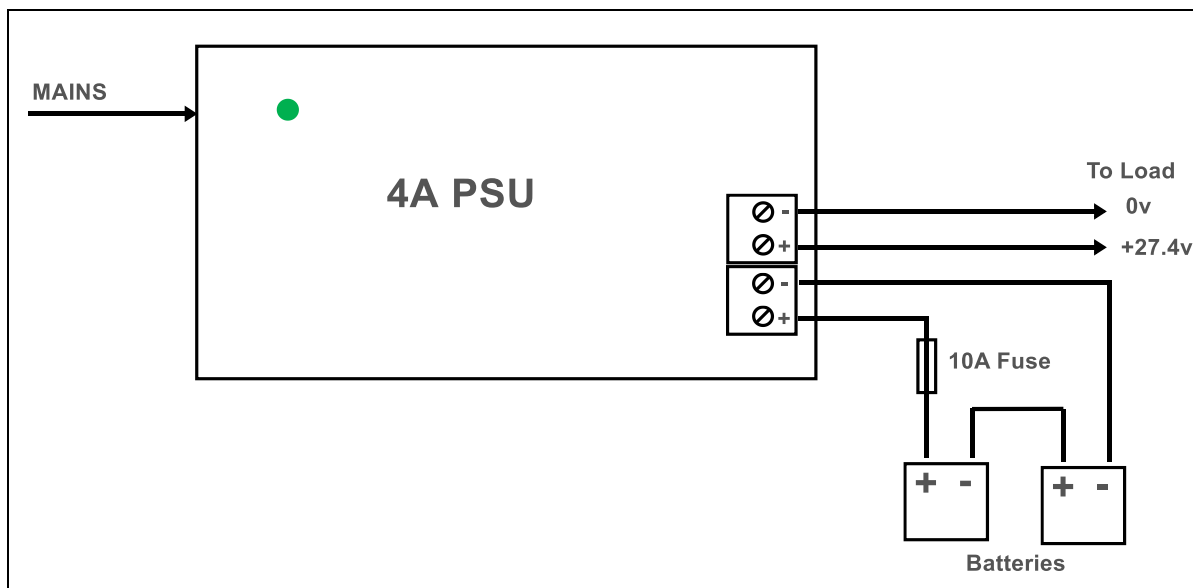


Figure 2: Battery Connections to the PSU (load less than 10A)

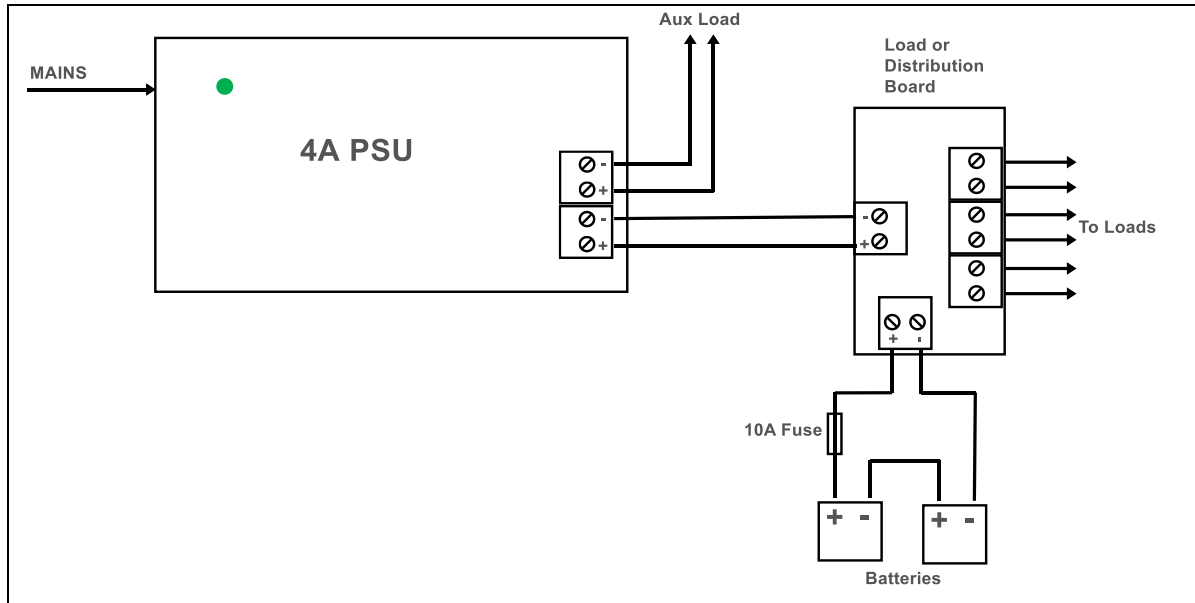


Figure 3: Battery Connections to the PSU (load greater than 10A)

## 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 PSU 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.

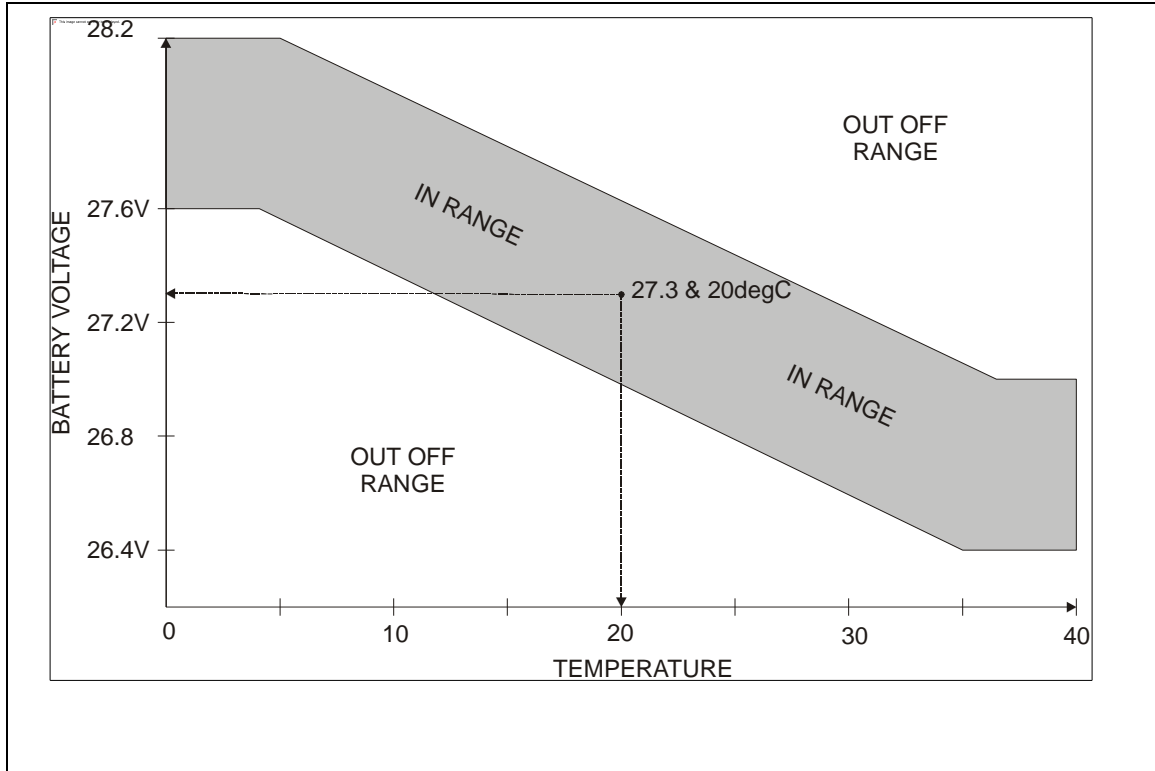


Figure 4: PSU Temperature Compensation with External Temperature Probe (RemTemp -30k)

## SPECIFICATIONS

### 1. 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

### 2. OUTPUTS SPECIFICATIONS

Nominal Output Voltage:	27.4V 1% DC at 20 °C
Output Current:	4A continuous
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 circuit

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

### 3. OPERATING SPECIFICATIONS

Efficiency: 70% minimum

### 4. ENVIROMENTAL SPECIFICATIONS

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

### 5. MECHANICAL SPECIFICATIONS

Dimensions: 212mm x 98mm x 60mm (L x W x D)  
 Net Weight: 0.95 Kg, not including batteries  
 Mains Power Lead Length: 530mm

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

### ORDERING INFORMATION & NOTES

Product Code	Description
24/4PSU	24V 4A Switch Mode PSU with Controller MK2
RemTemp-30K	Remote Temperature Sensor Assembly, 1.8m cable

### DOCUMENT CHANGE HISTORY

Issue Number	Change Note	Description of Changes	Author
Issue 1.0 April 2024	CN3450	New installation note	RJK