

INSTALLATION NOTE

1.5A OFFLINE SWITCHING POWER SUPPLY

OPERATION

The Pertronic Industries Offline Power Supply Unit (PSU) is a mains powered 27.3Vdc, 1.5A current-limited, switch-mode power supply. The PSU is designed for use in Pertronic Fire and Indicating Equipment and for float charging two 12V Lead Acid Batteries connected in series.

The PSU is fully temperature-compensated, and is set by the factory to 27.3Vdc \pm 0.1V at 20°C. As the ambient temperature becomes higher, the output voltage is decreased and when the ambient temperature becomes lower the output voltage is increased. This optimises battery charge and maximises battery life.



The supply is provided with an on-board temperature sensor by default, but for increased accuracy an external temperature probe (Pertronic REMTEMP-30k) may be used. This should be located in close proximity to the batteries for optimum float voltage control.

The PSU has an isolated four-way connector for mains and battery monitoring by Pertronic Fire Panels. The connected panel can perform test functions such as Battery Low, Battery Absent, Mains Lost and a 24- hour Battery Fault Test.

Two 27.3Vdc output connectors are provided for connection of batteries and loads.

A Green 'Mains On' LED located within the case is illuminated when the mains voltage is present. It will not illuminate if there is no mains voltage.

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 vertically, mains cord downward, and made secure with three M4 flange nuts. 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 three mounting flange nuts. Failure to do so will render the product unsafe and it will then not comply with AS/NZS 60950.

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.

PSU DETAILS

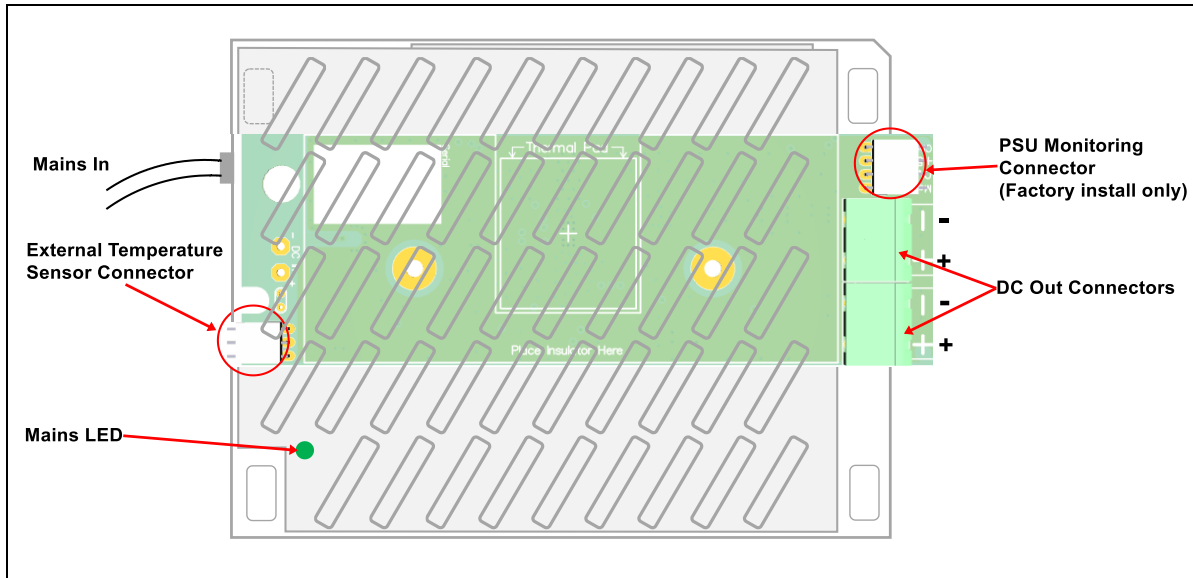


Figure 1: 24Vdc 1.5A Power Supply Unit

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, provided 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 connector for mains and battery monitoring. This connects to a corresponding connector on the F16e, F100A, F120A and F220 master boards.

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

DIAGRAMS

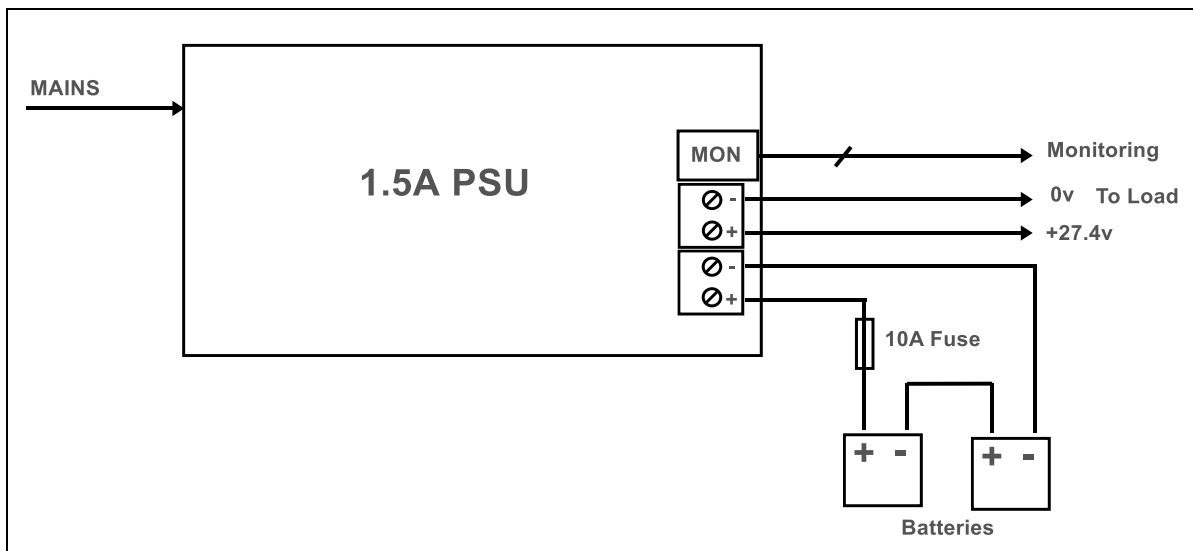


Figure 2: Battery Connected to the PSU (load less than 10A)

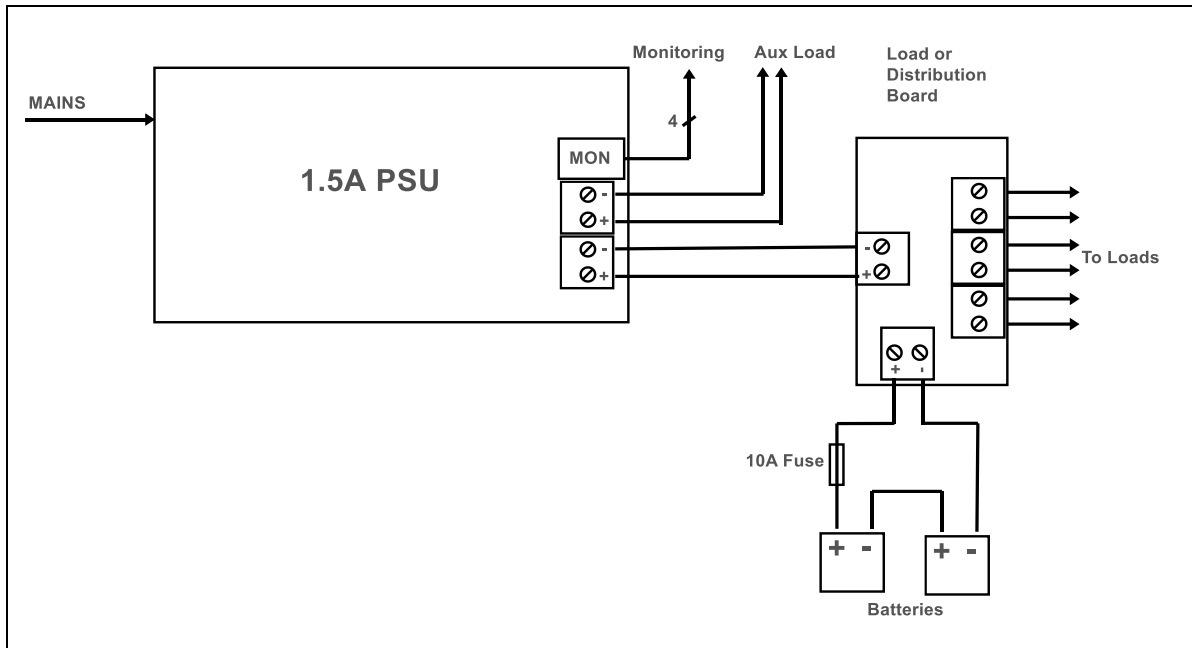


Figure 3: Battery Connections to the PSU (load greater than 10A)

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 Pertronic Industries.
With the load still disconnected, check the output voltage.	The output should be around 27.3V at 20°C. If not, return the PSU to Pertronic Industries.
Turn off the mains, and connect the load. Apply mains power and check the output voltage.	The output should be around 27.3V at 20°C. 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 Pertronic Industries.
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 Pertronic Industries.
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 Pertronic Industries.
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MONITORING PORT

The monitoring port is for connection to an alarm panel board or control board. This connection will normally be installed at manufacture time.

The monitoring port is optically isolated from the rest of the power supply.

Pin	PCB label	Function	Polarity
1	Mains	Mains fail indication (output)	+
2	0V	Mains fail indication (output)	-
3	+5V	Battery test (input)	+
4	Chrg	Battery test (input)	-

SPECIFICATIONS

INPUT SPECIFICATIONS

Mains Input: 200 – 260Vac
Frequency: 50 – 60 Hz Single phase
Input Current: 0.3Aac max with 1.5Adc load

OUTPUT SPECIFICATIONS

Output Voltage: 27.3Vdc $\pm 1\%$ at 20 °C
Temperature coefficient: -36mV/°C for battery charging
Voltage Regulation: $\pm 0.1\%$ over full load range at 20°C
(No load to 1.5Adc)
Overload Protection: Current limited to 1.5Adc
Over voltage Protection: 33V Max with zener feedback clamp cct
Output Ripple: 50mV pk-pk maximum over full load range
Reverse Voltage Protection: Diode

OPERATING SPECIFICATIONS

Efficiency: 80% typical

ENVIROMENTAL SPECIFICATIONS

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

MECHANICAL SPECIFICATIONS

Dimensions: 135mm x 87mm x 50mm
Net Weight: 460g, not including batteries
Mains Power Lead Length: 450mm



ORDERING INFORMATION & NOTES

Product Code	Description
24-1.5 SWMPS	24V 1.5A Switch Mode Power Supply
RemTemp-30K	Remote Temperature Sensor Assembly, 1.8m cable

DOCUMENT CHANGE HISTORY

Issue Number	Reason for Update	Change Note	Author
Issue 4 11 Oct 2017			PF
Issue 5 07 Nov 2023	New PCB	CN3393	RJK
Issue 6 22 April 2024	Ext temperature sensor details. Formatting	CN3451	RJK