

PERTRONIC INDUSTRIES LTD

VESDA® PSU Installation Note



Operation:

The **VESDA® Power Supply Unit** incorporates a 1.5 amp switching regulated power supply with voltage monitoring and battery test facilities.

The VESDA PSU was initially designed for use with the VESDA range of aspirating detectors. It supports the following Brigade connected (24 Hour Standby) detectors:

Model	Maximum	Charge Current	Battery Size
LaserSCANNER	1	0.82A	12AHr
LaserPLUS	1	0.82A	12AHr
LaserCOMPACT	4	1.4A	18AHr
LaserFOCUS : VLF-500	1	0.84A	12AHr
LaserFOCUS : VLF-250	2	0.9A	12AHr

If more detectors or batteries larger than 12Ahr are required, use the 24V/4A Switch Mode PSU. If the peak current drawn from the power supply exceeds 2.5A, then the output load should be connected directly to the Battery terminal block—the in-line polyswitch is rated 2.5A

Indicators:

The green **Mains On** LED illuminates when the Mains supply is present.

The red **Overload-Recharge** LED illuminates when the Charger load exceeds 1.3A.

The yellow **Autotest** LED glows during the daily power supply test. The **Power Supply Unit** monitors the Battery voltage and also performs a Battery Capacity Test every 24 hours by reducing the power supply voltage to 22.0Vdc for 60 minutes.

If the **RESET** switch is pressed for more than 1 second, the 60 minute Battery Test starts and the **Autotest** LED turns ON. Subsequent Battery Tests occur every 24 hours from this time.

Fault Monitoring:

The Fault relay—located at the bottom centre of the PCB—is normally energised, de-energising after a delay to indicate that a defect has occurred.

Delays for the various Fault types are shown in the following Table:

Fault	Value	Encoded Pulse	Delay Before Fault Relay Activates
High Battery/Charger Voltage	> 28.8Vdc	1st	55 minutes
Low Battery (When Mains is off or the Charger in Test mode)	< 24.3Vdc	2nd	55 minutes
Battery Missing (Charger in Test mode)	< 23.6Vdc	3rd	25 seconds
Battery Missing (Charger not in Test mode)	Checked every 10 secs		15 seconds
Mains Lost		4th	1 hour

Encoded Fault Indications and Fault Relay Delay times

Four non-latching Fault conditions are detected:

The yellow **Battery Fault** LED indicates which fault conditions are active.

The indication is immediate for **High, Low Battery, Battery Missing, and Mains Lost** faults; but the fault relay is delayed in de-energising, as the table above shows.

Momentary operation of the **RESET** switch restarts the 24-Hour Timer. The battery test commences 23 hours after reset, and then every 24 hours subsequently.

The power supply frequency is the reference for the timing functions. The **Power Supply** adjusts automatically for 50Hz and 60Hz supplies. When the Mains supply is absent, an internal clock provides reference until the Mains supply is restored.

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Mounting:

The power supply is designed as a wall mounting unit and should be mounted in a clean dry area in such a way that natural convection between the unit and the wall and through all other cooling slots is not restricted in any way.

Connectors:

Mains (K1): a 3-terminal block with an integral three-pole switch for Mains wiring.

Battery (K2): a 2-terminal block for Battery wiring.

DC OUT (K3): a 2-terminal block to connect the load – use only if peak load current is less than 1A.

Care should be taken to prevent reverse polarity connections between the power supply and load.

Fault Relay (K5): provides clean C-NC-NO contacts rated 1A @ 24Vdc.

Commissioning:

It is recommended that the power supply initially be connected to the Mains without the load connected. The green **Mains On** LED should be ON. The load should then be connected to the power supply and run without the batteries connected. The red **Overload** LED should remain OFF. If the red overload LED turns ON, the load is too great for the power supply. If this is so, the batteries will recharge very slowly or not at all. With the load connected, connect the two 12V batteries to the power supply—take care to observe the correct polarity.

Press the RESET switch for 1 second. The **Autotest** LED turns ON, indicating the 24-Hour Test has started. Check for any Fault conditions, and press RESET momentarily to reset the **Autotest** and the **Autotest** Timer. Future Auto Tests will occur 23 hours after the reset.

Installation Diagram:

