

ELMDENE

Protecting People & Property

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GEN3-34-R 13.8Vdc 3.0A with 2 x 17Ah Batteries EN50131-6 Grade 3 PSU

FEATURES

Suitable for use in systems designed to comply with PD6662:2017 to Grade 3 and Environmental Class II. Rated to provide **continuous current to load** for systems requiring 34Ah standby from two batteries. Each battery has its own independent charger and monitoring circuits. Three independent output signals are provided for loss of mains fault (EPS), battery fault (APS), and power supply fault (PSU). Comprehensive self-diagnostics can detect blown output and battery fuses, battery fail, low battery voltage and low output voltage. The PSU incorporates intelligent battery management comprising active full load battery testing, low battery voltage detection and deep discharge protection to ensure that the batteries are not permanently damaged through excessive discharge. A brownout filter ensures that short mains voltage dips do not create a false loss of mains alarm. Diagnostic LEDs assist with quick and easy installation by showing presence of mains, correct *individual* battery charging or a fault condition. Comprehensive protection is built-in as standard including mains transient filtering, transformer thermal fuse, electronic output overload protection and fuses on the load and battery outputs.

- EN50131-6:2017 Grade 3 Type A PSU
- EN50131-1 Environmental Class II
- Independent Intelligent Active Battery Monitoring on each battery
- Low quiescent battery monitoring current during standby operation
- Fault signals for loss of mains, battery fail and power supply fault
- Battery Deep Discharge Protection.
- Protection against reverse battery connection.
- Electronic overload protection shuts down output until overload or short circuit is removed (while on mains power).
- Transformer thermal fuse
- Mains transient suppression and brown-out filter

COMPLIANCE

This power supply unit complies with the following European Directives:

Low Voltage: 2014/35/EU EMC: 2014/35/EU WEEE: 2012/19/EU RoHS2: 2011/65/EU

SPECIFICATION

Input

Rated Voltage/Operational Voltage 100-240Vac /90-265Vac (both at 50-60Hz)
Max Mains Input Current(at 90Vac) 2A
Mains input fuse T3.15A 20mm, 250Vac HRC

Output

Voltage 12.80-14.2 Vdc (13.8Vdc nominal) on Mains power)
 9.8 – 13.0 Vdc on Battery Standby
Load Current (Continuous) 3A (Mains power)
 2.8A* (with 2 x 17Ah batteries) (**12 hours**)
 1.4A* (with 2 x 17Ah batteries) (**24 hours**)
Load output fuse F3.15A 20mm, 250Vac glass
Battery fuses (1 & 2) 2 x F3.15A 20mm, 250Vac glass

SPECIFICATION (CONT.)

Ripple	<150mV pk – pk max
Mechanical	
Size	390mm x 410mm x 80mm
Weight	7.25kg (Exc. Batteries)
Environmental	
Temperature - operating	-10 to +40 °C 75% RH non-condensing
Temperature - storage	-20 to +80 °C

* As calculated according to EN50131-6: 1997 Table 2.0 with maximum battery capacity fitted.

STAND-BY BATTERY MANAGEMENT

Warning: risk of explosion if incorrect battery type fitted

Maximum Battery Size	2 x 17Ah 12V Valve Regulated Lead Acid (not supplied with unit)
Intelligent Battery Recharge Time	< 24 hours to 80% A heavily discharged battery having a terminal voltage > 5.0V will attempt to be charged. If battery fails to accept charge in 24 hours it will fail the active load test.
Testing	Battery Not Present: <5.5v battery voltage Low battery voltage: <11.6v (no mains present) Active load test at full rated output current
Protection	Reverse battery connection protection
Deep Discharge Protection	Both batteries disconnect when both have < 10.5v battery terminal voltage
Quiescent Current	100 mA when running on battery < 100 µA after deep discharge protection.

SIGNALLING OUTPUTS

Rating	0.10A @ 60vdc 16Ω solid state relay contacts, voltfree.
EPS Fault	Open if Loss of mains for >10s
APS Fault	Open if for either battery: Battery terminal voltage < 11.6v (with mains off), or Active Battery Monitoring detects a failed battery
PSU Fault	Open if Output voltage < 9.0v, or Output short circuit, or Output fuse blown

LOCAL DIAGNOSTICS

Green LED	On = Mains Present
2 x Red LED's (Bat1 & Bat2)	Individual battery Diagnostics according to table:

Green LED (mains)	Red LED (Bat1 & Bat2)	Status
ON	OFF	Normal. Battery fully charged
ON	One short flash	Normal. Battery charging
ON	Two short flashes	Fault. Battery self test (load test) fail.
ON	Three short flashes	Fault. No Battery or battery fuse failed)
ON	Both Flashing: 1 second on 1 second off	Fault. No Output (Fuse blown or short circuit)
OFF	OFF	Fault. No mains. No output. Batteries disconnected or fully discharged
OFF	One short flash	Normal. Standby Mode. Battery present, healthy and supplying load.
OFF	Two short flashes	Fault. Battery low voltage (<11.5v).

CONNECTIONS

LOAD +, -	Connection to equipment to be powered (Observe polarity)
BATT1 +, -	Connection to standby battery 1. Use cables provided (Observe polarity)
BATT2 +, -	Connection to standby battery 2. Use cables provided (Observe polarity)
APS FAULT	Relay output for battery fail. Open if battery fail or open for low output.
EPS FAULT	Relay output for mains fail. Open if loss of mains.
PSU FAULT	Relay output for General Fault. Open in fault condition

INSTALLATION & COMMISSIONING

This unit is only suitable for installation as permanently connected equipment and must be used with **DC appliances only**. The PSU is NOT SUITABLE for external installation. The PSU should be installed according to all relevant safety regulations applicable to the application.

This unit must be fed from a mains power source having a separate (approved) disconnect device and fitted with a fuse or other over-current protection device rated at 3A maximum. Ensure that the disconnect device used has appropriate earth fault protection to the applicable standard.

Mounting

- 1) Mount securely allowing minimum clearance - see Fig. 1.0.
- 2) Route mains and LV output cables via different knockouts and/or cable entry holes.
- 3) Use bushes and cable glands rated to UL94 HB minimum.

Mains Power Up

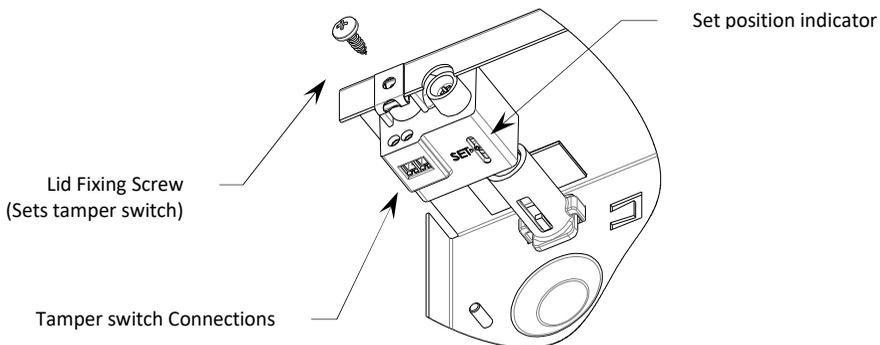
- 4) Attach correctly rated mains cable and fasten using cable ties.
- 5) Apply mains power. Check for 13.8v on load outputs. Check green Mains LED is on.
- 6) Disconnect mains power.

Load Output

- 7) Attach supplied battery cables to terminal block and battery. NOTE: ensure correct polarity of battery connections: **+ve** use **red** lead, **-ve** use **black** lead.
- 8) Apply mains power. Check green Mains LED is on.
- 9) Check there is no fault indication on the Red LEDs. A single short flash indicates that the corresponding battery is not fully charged and is being charged. – This is OK.
- 10) Disconnect mains power. Check that the batteries continue to supply voltage and current to the load. NOTE: batteries must have sufficient charge.
- 11) Reconnect mains.

Tamper

- 12) Connect tamper switch to appropriate inputs of control and indicating equipment (CIE).



- 13) Close the lid and fasten with screw supplied.
- 14) With the unit mounted on the wall check that the rear tamper is not in a position that will affect its operation, for example over a mortar course, recess or raised area on the wall. *
Check that the tamper switch is:
CLOSED when the lid/cover is closed and the retaining screws are fitted,
OPEN when the retaining screws are removed and the lid/cover is open.
Use fine adjustment screw if necessary to align indicator with set point.

- 15) Close the lid/cover and fasten.
Re-check tamper circuit is closed at the control panel.

Battery Installation

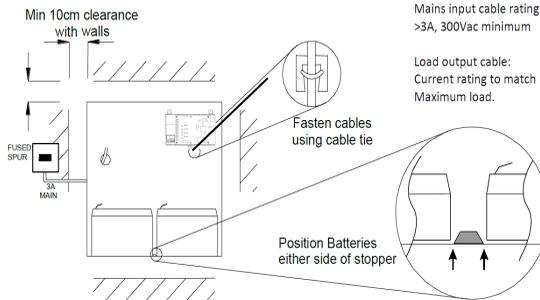


Fig. 1.0 Mounting of Power Supply

OPERATING INSTRUCTIONS

In the event of loss of mains, a battery fault or a PSU fault, the corresponding Fault signal contacts will open. If the output of the PSU fails, the cause of the failure should be investigated e.g. short circuit load, connection of a deeply discharged battery. The fault should be rectified before restoring power to the PSU. If any of the fuses require replacing, ensure the correct fuse rating and type is used.

PREVENTATIVE MAINTENANCE

This unit is intended for use by Service Personnel only. There are NO USER SERVICEABLE parts inside.

There is no regular maintenance required of the PSU other than periodic testing, calibration check and replacement of the standby batteries. **Reference should be made to the battery manufacturer's documentation to determine typical/expected battery life with a view to periodic replacement of the battery.**

CALIBRATION CHECK

This power supply does not require calibration. If it is necessary to validate the calibration to comply with system inspection requirements then use the following procedure.

- 1) Set a calibrated DVM on maximum resolution range to read 6.00 Vdc.
- 2) Connect meter to calibration pins marked J1 (pins 1 and 2 - pin 1 marked with small dot).
- 3) Verify that the meter reading is within the range 5.00 – 5.50 Vdc.

If the unit fails its calibration check, it will continue to function but with reduced accuracy of detection of Low Battery voltage and Low output voltage. Please contact the manufacturer for recalibration options.

SINGLE BATTERY OPERATION

The unit may be operated with only one battery. To avoid generating a fault condition connect +ve (red) battery lead to Bat1+ and Bat2+, and connect the -ve (black) Battery lead to either Bat1- or Bat2-.

DISPOSAL OF PRODUCT AT END OF LIFE

This product falls within the scope of EU Directives 2012/19/EU Waste Electrical and Electronic Equipment (WEEE) and 2013/56/EU (Battery). At the end of life, the product must be separated from the domestic waste stream and disposed via an appropriate approved WEEE disposal route in accordance with all national and local regulations.

Before disposal of the product, any batteries must be removed, and disposed separately via an appropriate approved battery disposal route in accordance with all national and local regulations. Package used batteries safely for onward transport to your supplier, collection point or disposal facility.

**Caution: Risk of fire or explosion
if bare battery wires are allowed to touch.**

See Specification for battery type information. The battery is marked with the crossed out wheelee bin symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg).

For more information see: www.recyclethis.info

*The packaging supplied with this product may be recycled.
Please dispose of packaging accordingly.*

Explanation of symbols: (Not all may apply)



Fault Indication



Shock Risk - isolate before attempting access



Certification Level



Mains Present



Protective Earth



Do not dispose of in unsorted waste

Specifications subject to change without notice