

Installation & User Manual

LPS-12-G2 / LPS-12-G3 / LPS-ENC-T

INTRODUCTION

This manual covers the Grade 2, Grade 3 and a Tamper only variant of the Li-Power Intruder approved product. This power supply unit has been designed to house common alarm communicators providing compliant, reliable power to the chosen device.

Provided with a Lithium battery pack (Grade 2 and 3 variants) it ensures the device remains powered in the event of a mains failure. The Integrated Intelligent Battery Management features provide active battery testing, low battery voltage detection and deep discharge protection to ensure that the battery is kept in optimal condition. It also has a range of comprehensive self-diagnostics, including thermal cut-off protection. Except the Tamper only variant, the remainder of this manual gives details on the LPS-12-G2 and G3 products.



EN50131-6 approved product. Grade 2 and 3 variants contain Li-ion batteries.

FEATURES

- Provides continuous current to load for systems requiring 12Hrs (Grade 2) or 30Hrs (Grade 3) standby from the supplied battery pack as specified in EN50131.
- Flame retardant (UL94 V0) hinged enclosure with screw lock lid.
- Front / rear tamper detection.
- Can be securely wall mounted.
- Cable ingress/egress management facilitated via breakout features on three sides as well as pilot drill points located around the periphery of the enclosure.
- Independent output signals indicate loss of AC power, battery and power supply fault.
- Inbuilt charger and monitoring circuits ensures safe battery operation.
- Intelligent battery management comprises active load battery testing, low battery voltage detection and deep discharge protection to ensure that the battery is not permanently damaged through excessive discharge.
- Comprehensive self-diagnostics with internal LED status indications
- Product includes AC power transient filtering, electronic output overload protection and fuses for the load and battery outputs.

SAFETY INFORMATION



Refer to the enclosed Safety Sheet before installation and first use.

OPERATION AND MONITORING OVERVIEW

Once installed and commissioned no further involvement is required for normal operation. Under normal conditions with AC mains applied, the power supply will provide a continuous load current of up to 150mA whilst the intelligent battery management automatically charges, tests and maintains the installed battery pack. Should a fault occur, the relevant fault signal will be activated, and in-built diagnostic LEDs will provide additional information regarding the type of fault detected. The unit will continue normal operation once the fault has been rectified.

Should a loss of mains occur, the unit will flag a fault and seamlessly switch to the battery pack for power, with the unit capable of running for up to 30hrs (dependent on load and battery pack installed). Should the battery pack become depleted before mains power is re-applied the Alternative Power Supply (APS) fault will be flagged to indicate battery power is very low, occurring a few minutes (dependent on load, battery pack and other conditions) prior to the battery pack disconnecting and all power to the load being dropped.

Once mains power has been restored, power to the load from the power supply will automatically be provided and the battery pack will start to be recharged as required (subject to environmental conditions).

For monitoring, three independent output signals are provided to indicate, loss of AC power fault (EPS), battery fault (APS), and power supply fault (GEN).

Comprehensive self-diagnostics give detection of:

- blown output fuse
- battery disconnection
- battery fault
- low battery voltage
- low output voltage
- battery charger only operational between 3°C and 50°C

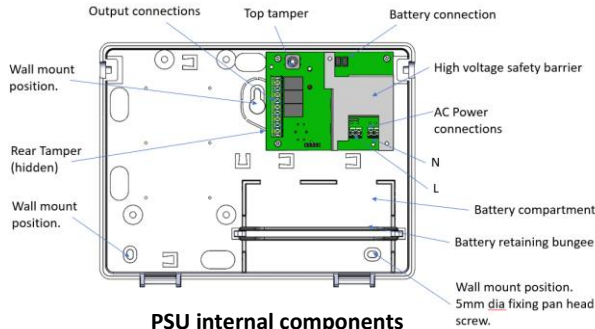
Monitoring functions are described in the Signalling Outputs section.

Comprehensive protection is built-in as standard to include:

- AC power transient filtering
- electronic output overload protection
- fuses on the load and battery outputs
- deep discharge protection
- brownout filter to prevent false loss of AC power fault (10 seconds)

INSTALLATION AND COMMISSIONING

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



The unit must be fed from an AC 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.

1) Mounting

- a) Remove battery and bungee. Mount securely at 3 positions allowing minimum clearance of 10cm from walls, ceilings or other obstacles.
- b) Route power and LV cables via different knockouts / cable entry holes.
- c) Use bushes and cable glands rated to UL94 HB minimum.

2) AC Power Up (commissioning)

- a) Attach correctly rated AC power cable and fasten using cable ties.
- b) Apply AC power. Check for 12Vdc on load outputs and AC power LED is on.
- c) Disconnect AC power.

3) Load Output (commissioning)

- a) Fit battery in compartment using self-adhesive tape and bungee provided.
- b) Attach supplied battery to the connector B1 (BATT).
NOTE: ensure correct polarity of battery connections.
- c) Apply AC power. Check AC power LED is on.
- d) Check there is no fault indication on the Fault LED. A single short flash indicates the battery is charging, please note, this is normal operation.
- e) Disconnect AC power. Check that the battery continues to supply voltage and current to the load.
- f) Reconnect AC power.

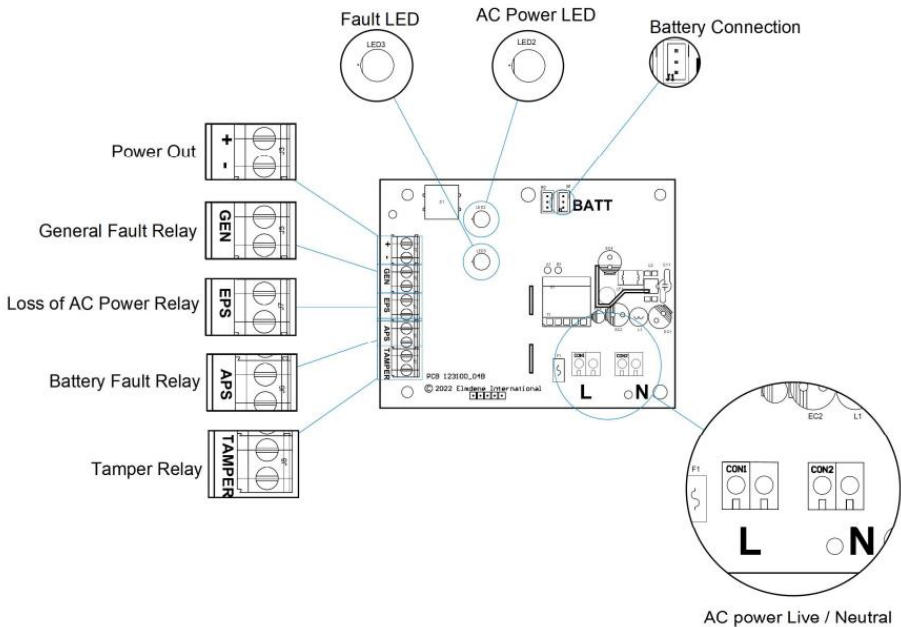
4) Tamper

- a) Connect tamper switch to Control & Indicating Equipment (CIE) inputs.
- b) Check that the CIE recognises the tamper is 'OPEN'.
- c) Close the lid and check that the CIE recognises the tamper is 'CLOSED'.

CONNECTIONS

The figure below shows product connections.

+, -	Connections for equipment to be powered (Observe polarity).
BATT	Connection to the battery pack.
APS FAULT	Relay output for battery fail. Open if battery fail or open for low output or temperature fault - Normally Closed when Healthy.
EPS FAULT	Relay output for AC power fail. Open if loss of AC power - Normally Closed when Healthy.
GEN FAULT	Relay output for General Fault. Open in fault condition - Normally Closed when Healthy.
TAMPER	Front & Rear Enclosure Tamper signal – Normally Closed when Healthy.



In the event of loss of AC power, a battery fault or a PSU fault, the corresponding fault signal contacts will open.

If the PTC output fuse is triggered it will automatically reset once the defect is removed.

SIGNALLING OUTPUTS

Rating	100mA @ 60Vdc 16Ω solid state relay contacts, volt-free.
EPS Fault	Open if Loss of AC power for > 10s
APS Fault	Open if: Battery terminal voltage < 3Vdc (with AC Power off), or active battery monitoring detects a failed battery, or battery temperature is out of limits (<3°C or >50°C)
GEN Fault	Open if: Output voltage < 9.8Vdc, or Output short circuit, or Output fuse blown
TAMPER	0.5 A @ 30Vdc volt-free contact. Open if cover is opened, or if unit is prised from the wall.

BATTERY MANAGEMENT

Warning: risk of explosion if incorrect battery type fitted.

*You must replace with the exact same battery
(Refer to Specification Section)*

Maximum Battery Size	1 x 18Ah 3.6Vdc Li-Ion battery pack (supplied)
Intelligent Battery	Recharge Time < 24 hours to 80% If battery fails to charge in 24 hrs a self-test fault is reported (Fault 1 condition)
Minimum Energy Level:	100% of rated battery capacity available when fully charged
Protection	Reverse battery connection protection
Deep Discharge Protection	Battery disconnects when < 2.5Vdc battery terminal

ON-BOARD DIAGNOSTICS

Green LED (AC power)	Red LED (Fault/Diagnostics)	Status
ON	OFF	Normal. Battery fully charged
ON	One short flash	Normal. Battery charging
ON	Two short flashes	Fault 1. Battery self-test (load test) fail. APS open.
ON	Three short flashes	Fault 2. No Battery/battery fuse failed. APS open.
ON	50:50 fast flash	Fault 3. Charger fault. GEN open.
ON	50:50 slow flash	Fault 4. Low Output/fuse blown. GEN open.
ON	Four short flashes	Fault 5. Battery < 3°C or > 50°C. Charger turned off. APS open.
OFF	OFF	Fault 6. No AC power. No output. Battery disconnected or fully discharged. All relays open.
OFF	One short flash	Normal. Standby Mode. Battery present, healthy and supplying load. EPS open.
OFF	Two short flashes	Normal. Standby Mode. Battery present, healthy and supplying load but battery low. APS relay open.

SPECIFICATION

EN50131-6:2017 Type A PSU
EN50131-1 Environmental Class I
Grade 2 supported with 8500mAH battery pack
Grade 3 supported with 18000mAH battery pack (when EPS is sent to an ARC)

Input

Rated Voltage/Operational Voltage	90-265Vac (at 50-60Hz)
Max. AC power Input Current (at 90Vac)	2A
Mains input fuse	T2A - Non replaceable

Class II Double insulated

Output

Voltage	9.8-13.0Vdc (12Vdc nominal)
Output Load Current (continuous)	150mA
Overvoltage Protection	Trips at 125% of rated O/P voltage
Battery Hold-up Time	G2-8500mAh-12hrs (Batt P/N: LPS-BATT-G2) G3-18000mAh-30hrs (Batt P/N: LPS-BATT-G3)

Load output fuse	0.3A PTC resettable fuse
------------------	--------------------------

Ripple	< 150mVdc pk – pk max
--------	-----------------------

Environmental

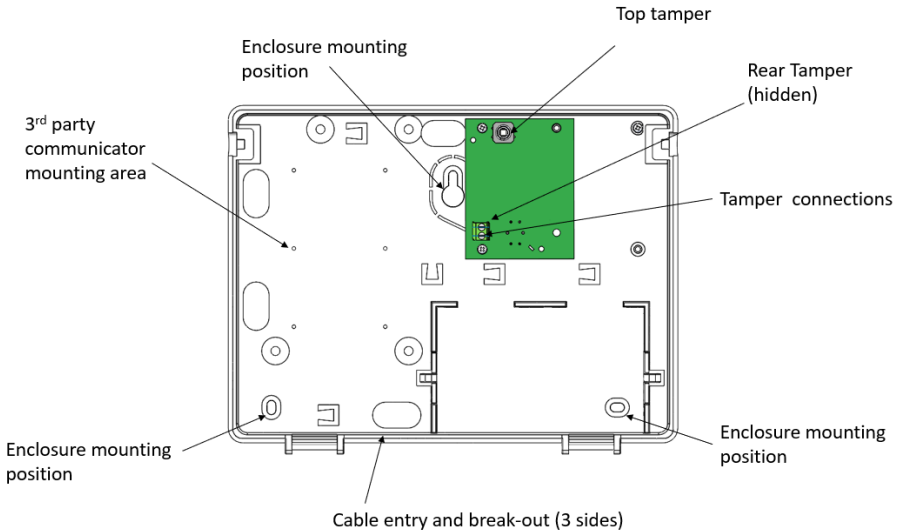
Temperature - Operating	+5°C to +40°C 90% RH non-Condensing
Temperature - Storage	-20°C to +55°C

Dimensions	260mm wide, 201mm high, 67mm deep
------------	-----------------------------------

Weight	1.0kg max with G3 battery. 0.9kg max with G2 battery. 0.72kg max for tamper only enclosure
--------	--

For Indoor Use Only

ENCLOSURE + TAMPER ONLY VARIANT



MAINTENANCE

This unit is intended for use by Service Personnel only. There are **NO USER SERVICEABLE** parts, and no regular maintenance is required of the PSE other than periodic testing and replacement of the standby battery.

END OF LIFE DISPOSAL

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 battery must be removed and disposed of 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.

See Specification for battery type information.

For more information see: www.recyclethis.info

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

COMPLIANCE

See web site for current Declaration of Conformity.



Do not dispose of
in unsorted waste

SYMBOL DEFINITIONS



Double
insulated



Shock Risk - isolate before
attempting access

SUPPORT

Elmdene International Ltd
3 Keel Close, Interchange Park,
Portsmouth, Hampshire, PO3 5QD, UK

Email: technical.support@elmdene.co.uk

Tel: +44(0)23 9269 6638

Web: www.elmdene.co.uk