

## General Information

Please read these instructions carefully and keep them in a safe place for future reference. These instructions must be followed carefully to ensure proper operation.

The AT-PSU24-1 has been specifically selected for use with TraceTek TTDM-PLUS leak detection panel.

## Overview

The model AT-PSU24-1 Power Supply Unit will provide 27.6Vdc at a maximum of 1A. When fitted with an optional rechargeable battery, the unit provides a standby facility during mains failure. A fault indicator and mains present indicator are fitted as is a battery disconnect feature to protect the rechargeable battery from over discharge.

A regulated 27.6Vdc output supplying continuous full rated current to load and up to an additional 0.5A for trickle charging a standby battery.

- Continuous full rated current to load
- Additional 0.5A to charge standby battery
- Electronic overload protection shuts down output until overload or short circuit is removed
- Deep discharge protection disconnects battery from load when battery voltage falls to 21v
- Mains Indicator LED (green) showing mains present
- Fault indicator LED (Red) flashes on detection of mains failure, output fuse fault, output overload or short circuit
- Open collector Fault Output signals output fault, mains failure, overload

## Product Specification Table

Output Current	1.0A
Load Regulation	0.9%
Battery Charge Current	0.5A max.
Mains LED	✓
Fault LED	✓
Mains Fuse	500mA
Output Fuse	1.25A
Standby Battery Type (12V)	2 x 7Ah in series
Battery Recharge	24 hours
Nominal Case Size (mm)	330 x 275 x 80
Weight (Kg)	4.0

## Input Specification

Voltage: 230Vac nominal +10%/-15%, 50Hz  
Mains Input Fuse: See Table

## Output Specification

Voltage: 27-28 (27.6 nominal) Vdc on mains power @ 230vac. 20 -25 Vdc on battery standby  
Load Current: See table  
Ripple: 50mV pk-pk max @ 230V +/-10%  
600mV pk-pk max @ 230V -15%  
Load Regulation: See Table  
Load Output Fuse: See Table  
Overload: Electronic shutdown until overload/short circuit removed

## Standby Battery

Battery Capacity: See Table  
Recharge Time: See Table

## Local Indicators

MAINS LED (Green): Mains present

FAULT LED (Red Flashing): Fault present: Mains fail, output fuse fail, output overload

## Signalling Outputs

Fault: Open collector output, sink 100mA max. Active pull down to 0v when PSU Healthy i.e. NO Fault condition

## Environmental

Temperature: -10 to +40°C (operating) 95% RH non-condensing.  
-20 to +60°C (storage)

## Connections

LOAD+ +ve voltage O/P to load equipment  
LOAD- -ve voltage O/P to load equipment  
BATT+ +ve connection to standby battery  
BATT- -ve connection to standby battery  
IND Open collector Fault Output

## Approvals CE

This power supply unit complies with the following standards: BSEN 60950:2000, SEN 50081-1:1992, SEN50130-4:1996, SEN 61000-3-2:1995, BSEN 61000-3-3:1995, SEN 61000.4-2:1995, BSEN 61000-4-4:1995, BSEN 61000-4-5:1995, BSEN 61000-4-3:1997, BSEN 61000-4-11:1994

## Operation

The unit is factory adjusted to provide a 27.6 Vdc output. The mains present indicator is a green LED and the red LED pulses if the mains supply fails or if the output fuse fails. During mains failure the load will be supplied from the rechargeable battery. The battery must be connected correctly to prevent damage. An automatic disconnect circuit will operate if the battery voltage becomes too low. Upon restoration of the mains supply the battery will be recharged. Should however a battery be fitted or replaced with one that which has been damaged or over discharged, the PSU will not recharge.

This unit must be used with D.C. appliances only.

## IND Output

Open collector output 0v 100 mA normally. Open circuit upon mains or output failure. Also open circuit if battery is short circuit.

## Installation Instructions

This unit is only suitable for Installation as permanently connected equipment. 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.

- 1) Fix PSU to wall or other support structure in correct orientation i.e. with hinge on left hand side, using screws of sufficient size and length through the mounting holes. Note: The PSU should be installed in area with free air movement and with a minimum of 100mm clearance between the sides and lid of the power supply case and any adjacent wall, ceiling or other partition.
- 2) Knock outs are provided in the case for mating with external trunking or conduit.
- 3) Mains Input cable must be to tile applicable standard with a 3A or greater current capacity, i.e. 0.5mm<sup>2</sup> nominal conductor area, having a minimum operating voltage of 300 / 500 Vac.
- 4) The low voltage output cable must be sized to carry tile rated load current to tile devices connected to tile PSU.
- 5) Mains and low voltage cables should be routed to use different entry / exit holes in case. Bushes should be used to protect cable sheaths from chamfer. The bushings should meet a minimum flammability specification of UL94 HB and should be correctly sized i.e. close fitting with respect to cable sizing.
- 6) Mains Input cable should be securely fastened in position using the cable tie supplied through the saddle.
- 7) Where supplied, the ferrite ring should first be fitted onto the output leads and secured (adjacent to tile PCB terminals) in accordance with the ferrite fixing instructions.
- 8) The low voltage output cables should be securely fastened in position using the cable tie supplied through the saddle adjacent to the cable exit hole.

## Commissioning Instructions

- 1) With no other connections made to the PSU, connect the mains Input wires to the fused mains terminal block, ensuring that the mains isolator (disconnect device) is open. Observe the wiring information on the (yellow) label adjacent to the terminal block.
- 2) Fasten wiring in place with cable tie to the saddle.  
**Note:** Equipment must be earthed.
- 3) Apply mains Input. Ensure that the green Mains LED illuminates.
- 4) Open mains isolator or remove fuse from PSU mains input block to power down the PSU.

- 5) Where ferrite ring supplied, pass the load connection wires through tile ferrite ring (in accordance with the ferrite fixing kit instructions) and connect to the PCB terminals marked LOAD + and -. Fasten ferrite in place with a cable tie to the saddle (adjacent to PCB terminals).
- 6) Where ferrite ring NOT supplied, connect the load wires to the PCB terminals marked LOAD + and LOAD-.
- 7) Fasten load wiring in place with cable tie to saddle (near to cable exit hole).
- 8) Re-apply mains. Verify that the green Mains LED illuminates.
- 9) Connect Red battery cable to +ve (Red) terminal of the battery (1), and the Black battery cable to the -ve (Black) terminal of the battery (2). Where 2 x 12v batteries are used they should be connected in series i.e. -ve terminal of battery 1 is connected to +ve terminal of battery 2 using the short link lead provided.
- 10) Disconnect mains supply. Verify that the load equipment maintains energised from the standby battery and the green. 'MAINS ON' LED is extinguished. Verify also that the Red 'FAULT' is flashing.
- 11) Reconnect the mains. Verify that the green Mains LED is illuminated.
- 12) With the unit still powered, remove the PCB output fuse and verify that the Red 'FAULT' LED is flashing. Replace the PCB output fuse and verify that the Red 'FAUL T' is extinguished.
- 13) Close cover and secure using fastening screws provided.

## Operating Instructions

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

The green Mains LED will be illuminated whilst the mains supply is present in the event of a failure; the red Fault LED will be illuminated (where fitted).

## Maintenance

There is no regular maintenance required of the PSU other than periodic testing and replacement of the standby battery. Reference should be made to the battery manufacturers documentation to determine typical/expected battery life with a view to periodic replacement of the battery.

If the output of the PSU fails the cause of the failure should be investigated e.g. short circuit load. The fault should be rectified before restoring power to the PSU. The fuses may need to be replaced. Ensure the correct fuse rating and type is used.

## Notes

- a) Battery charge current is IN ADDITION to continuous load current.
- b) Mains fuses - 20mm 'T' HBC ceramic type.
- c) Battery fuse -20mm 'F' glass-type.
- d) Standby batteries -Sealed Lead Acid type.
- e) Battery recharge times are for the maximum battery size and minimum charge current available.
- f) All weights shown do not include standby batteries.
- g) Battery Recharge times shown are to 80% capacity.

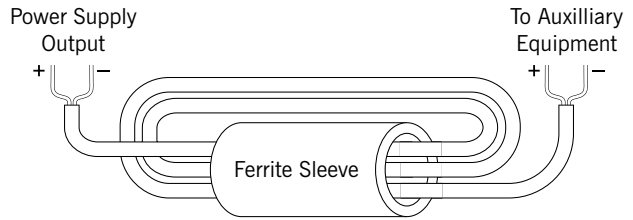
## CAUTION

*Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the battery manufacturer's instructions and all local and national regulations.*

### Ferrite Sleeve

To comply with the E.M.C. European directive the enclosed ferrite sleeve must be installed in line with the power supply output conductors, looping through twice as shown in the diagram. Locate the sleeve within 30mm of PSU output terminals.

To comply with current BSEN60950 safety legislation the enclosed tie wraps and bases must be installed adjacent to the case cable entry / exit points (Used to secure mains input and power output / fault relay wiring).

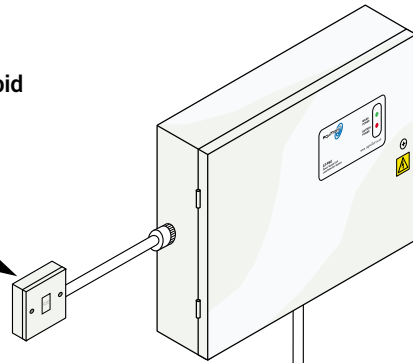


### Typical installation layouts

#### PSU mounted within the ceiling void

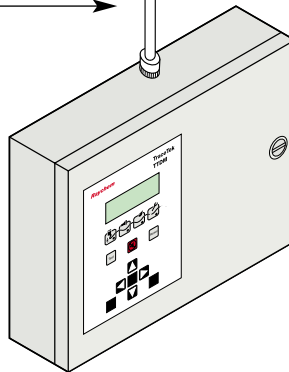
Fused Spur, unswitched 220Vac  
To power the AT-PSU

Two core cable from the  
"LOAD" connections within the  
PSU to the L1 & L2 terminals  
within the TTDM.  
Also apply the ferrite sleeve as  
previously detailed



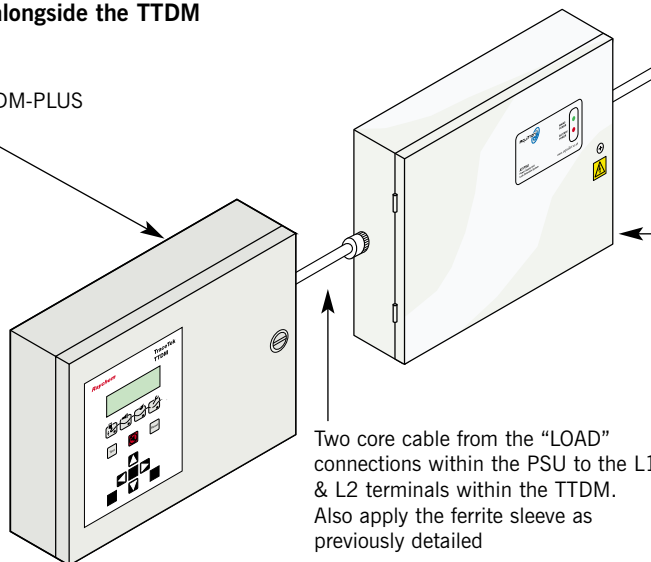
AT-PSU24-1  
220Vac to 24Vdc battery  
back-up unit

Wall mounted TTDM-PLUS  
24Vdc version



#### PSU mounted alongside the TTDM

Wall mounted TTDM-PLUS  
24Vdc version



Fused Spur, unswitched 220Vac  
To power the AT-PSU

AT-PSU24-1  
220Vac to 24Vdc battery  
back-up unit

Two core cable from the "LOAD"  
connections within the PSU to the L1  
& L2 terminals within the TTDM.  
Also apply the ferrite sleeve as  
previously detailed

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