



Read these instructions before installation and operation

## BF560-12/E (12 V DC, 2 A)

## INSTALLATION INSTRUCTIONS

### Caged Power Supply Unit (PSU) to EN54-4/A2



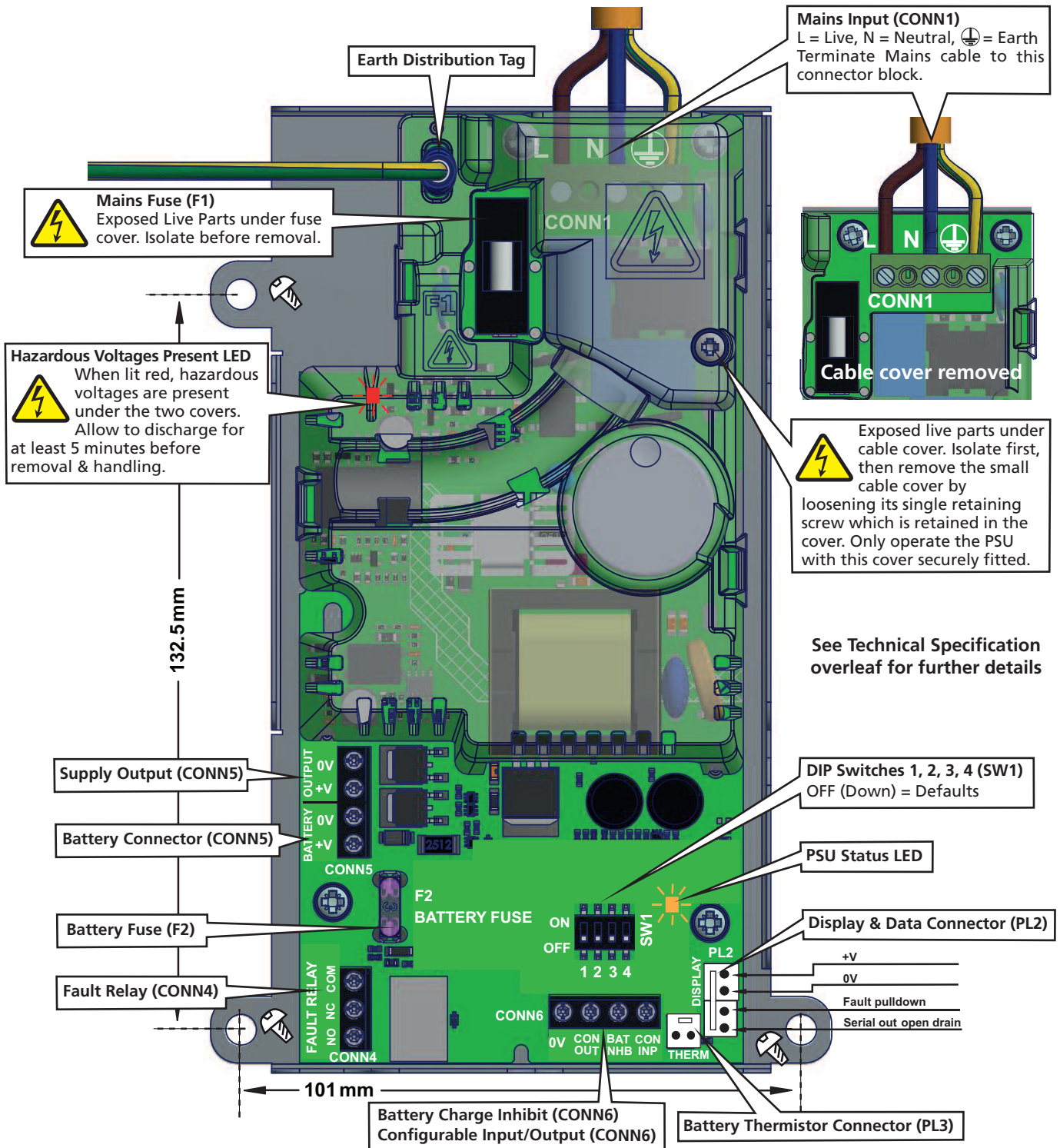
**WARNING: THIS PSU MUST BE INSTALLED AND MAINTAINED BY A SUITABLY SKILLED AND TECHNICALLY COMPETENT PERSON. THIS PSU IS A PIECE OF CLASS 1 PERMANENTLY CONNECTED EQUIPMENT AND MUST BE EARTHED.**

The BF560-12/E is a Mains to regulated DC power supply providing nominal 2 A @ 12 V DC, designed for use with fire and security systems. Combining the functions of a power supply unit, battery charging unit and battery monitoring unit, it is designed and intended for use in OEM equipment. It is supplied with a finger-protective 'live parts' cover.

**The system designer must assure the compatibility to all relevant standards for the PSU within the installed enclosure. For full compliance with all relevant standards and directives, the PSU must be installed inside a suitable enclosure.**

Specific parts of the relevant standards are EN 54-4, EN 50131-6, EN 62368-1, EU Directives 2014/30/EU, 2014/35/EU and CPR No. 305/2011.

Figure 1 - PSU Layout and Mains Connections (Full Protective Cover & Cable Cover Shown Fitted)



## INSTALLATION

**Important Note:** It is the responsibility of the OEM to ensure that the final product housing and application of this power supply complies with the requirements of all applicable directives and national standards for the product.

### Mounting

Using suitable screw fixings, secure the power supply into its enclosure using the three mounting holes provided. The mounting holes are suitable for use with M5 fixing screws. Care must be taken not to damage any wiring, or components.

### Connecting Mains (Note: This power supply must be earthed!)

The requirement for the Mains supply is fixed wiring, using 3-core cable (no less than 1 mm<sup>2</sup> and no greater than 2.5 mm<sup>2</sup>). Local guidelines and directives for the installation must be observed including overcurrent protection and disconnect devices.

**WARNING: DO NOT CONNECT THE MAINS SUPPLY TO THE PSU UNLESS ALL COMPONENTS ARE SECURELY INSTALLED IN ITS ENCLOSURE!**

### Battery



**WARNING:** There is a risk of explosion if an incorrect battery type or size is used. Always dispose of used batteries in accordance with the battery manufacturer's instructions and local regulations. Batteries are heavy and can produce dangerously high currents if shorted. Take care when handling and routing battery leads to avoid damage.

Use a good quality, sealed, Valve Regulated Lead Acid (VRLA) battery 1 x 12V. **Note:** On a standard 'as-supplied' unit, DIP Switch 4 ('Battery Not Fitted') is OFF (Down) and a fault will occur on initial power-up if a fully charged battery is NOT connected.

### Battery Fault Monitoring

This PSU complies with EN 54-4 and therefore must monitor battery resistance. The fault threshold is directly related to the ability of the battery to deliver the rated current to the load. For example, batteries stored uncharged for long periods of time, during shipment and/or distribution, degrade leading to increased internal resistance. If a degraded battery is fitted, a fault will be shown by the PSU as mandated by EN 54-4.

No. of LED Flashes	PSU Status
1	Mains Failure: <ul style="list-style-type: none"><li>• Check Mains &amp; Mains Fuse.</li><li>• Fault could occur if PSU trips due to a high DC Load current.</li></ul> Remove the fault, back-up batteries and cycle Mains to reset.
2	Battery Voltage Low
3	Battery Voltage Critical
4	Charger Failure
5	Charger OK (Battery is either actively charging, or in float charge)
6	No Batteries Fitted (indicating DIP Switch 4 position)
7	Battery Resistance Fault (Level set by DIP Switch 2 position)
8	Output Over Voltage

## TECHNICAL SPECIFICATION

POWER SUPPLY SPECIFICATION: BF560-12/E (12 V DC, 2 A)			
Mains supply voltage (a.c.):		230 V ~, 50/60 Hz. Rated current: 0.3 A r.m.s.	
Maximum continuous output current (including charging):		2 A	
Battery charge capacity (C):		2 Ah up to 12 Ah (battery charged to 80% of capacity in 24 hrs)	
Battery characteristics:		Final voltage: 10.5 V	Float charge voltage: 13.65 V ± 1% @ 20°C   Battery temp. compensation: -18 mV / °K
Output power rating:	'I max a' = 1.8 A if DIP Switch 3 OFF (Down), or 1.3 A if DIP Switch 3 ON (Up).		
	'I max b' = 2 A, charging turned off via CONN6.		
	'I min' = 0 mA		
Maximum internal battery resistance 'Ri max':		720 mΩ if DIP Switch 2 OFF (Down)	576 mΩ if DIP Switch 2 ON (Up)
Maximum power output voltage 'V max':		15 V	
Minimum power output voltage 'V min':		10 V ± 2% with Mains Off	10.5 V ± 2% with Mains On
Output ripple voltage (peak-to-peak):		<150 mV over the full input and output range of the PSU	
FUSES (compliant to IEC/EN 60127-2)			
Mains fuse (F1):		T 1 A H 230 V, 20 mm ceramic (T = Time Delay; H = High Breaking Capacity)	
Battery fuse (F2):		3A MINI® automotive blade fuse	
POWER SUPPLY PCB CONNECTIONS			
Mains Input (CONN1):		Mains supply input terminals: Live, Neutral & Earth. 1 mm <sup>2</sup> to 2.5 mm <sup>2</sup> cable size.	
Supply Output (CONN5):		Output for auxiliary equipment. 1 mm <sup>2</sup> cable size, <30 m cable length (screened cable must be used).	
Battery Connector (CONN5):		Connection to the VRLA battery. 1 mm <sup>2</sup> cable size.	
Fault Relay (CONN4):		Isolated changeover relay output, rated 1 A @ 30 Vd.c., 1 mm <sup>2</sup> cable size <30 m cable length (screened cable must be used).	
Battery Inhibit (CONN6):		Connect to 0V to inhibit battery charger. 1 mm <sup>2</sup> cable size.	
Con Inp / Out (CONN6):		Configurable Input / Output (Optional)	
PL2:		4-way connector (Molex KK22-27-2041 2.54 mm spacing) for wiring loom from Power Supply PCB to a display card, or OEM equipment for the transmission of the C-TEC data protocol. Bi-directional data port.	
PL3:		Battery Thermistor Connector (Optional)	
DIP Switch 1 (Default OFF):		OFF (Down) Normal operation; ON (Up) PSU to impose a Mains fault.	
DIP Switch 2 (Default OFF):		OFF (Down) Higher battery resistance threshold 720 mΩ; ON (Up) Lower battery resistance threshold 576 mΩ.	
DIP Switch 3 (Default OFF):		OFF (Down) Lower battery charge rate 0.2 A (1 Ah - 3.5 Ah); ON (Up) Higher battery charge rate 0.7 A (3.5 Ah - 12 Ah).	
DIP Switch 4 (Default OFF):		OFF (Down) Battery fitted; ON (Up) Battery not fitted.	
INDICATORS			
2 x Power Supply PCB (LEDs):		Hazardous Voltages Present (Red LED); PSU Status (Amber LED), see PSU Status table above for further details.	
PHYSICAL			
Dimensions (H x W x D):		174 mm x 112 mm x 50 mm	Construction & Finish: Zintec base, plastic cover
Weight:		300 g	IP Rating: Dependent on mounting enclosure
Clearance:		Create adequate ventilation to ensure power supply components do not overheat	
OPERATING CONDITIONS			
The PSU is designed for indoor use only. The PSU components are selected to operate within their specification when the environmental conditions comply with class 3k5 of the latest edition of IEC 721-3-3. Temperature range: -10°C to +40°C. Maximum humidity: 95% non condensing.			

© E&OE. No responsibility can be accepted by the manufacturer or distributors of these power supplies for any misinterpretation of this instruction, or for the compliance of the system as a whole. The manufacturers policy is one of continuous improvement and we reserve the right to make changes to product specifications at our discretion and without prior notice.