BF360-12 (12 V DC, 2 A) & BF360-24 (24 V DC, 1.5 A)

EN54-4 Boxed Power Supply Units (PSU) Installation Instructions

THIS EQUIPMENT MUST ONLY BE INSTALLED AND MAINTAINED BY A SUITABLY SKILLED AND TECHNICALLY COMPETENT PERSON. THE PSUs ARE CLASS 1 EQUIPMENT AND MUST BE EARTHED.

BF360-12 and BF360-24 are boxed Mains to regulated DC power supplies providing 2 A @ 12 Vdc (BF360-12) and 1.5 A @ 24 Vdc (BF360-24). Combining the functions of power supply units, battery charging units and battery monitoring units, they are fully compliant with EN 54-4:1997 + A1:2002 + A2:2006 and conform to the relevant EU-Directives and EU-Regulation: (EU) No. 305/2011 – Construction Product Regulation; 2006/95/ECC low voltage directive and 2004/108/ECC EMC directive. The PSUs are approved products by the VdS and carry the CE mark.

INSTALLATION

Location

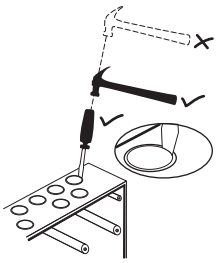
The power supplies must be sited indoors on a dry, flat surface in an area that is well ventilated. Ideally the panel indicators should be at eye level and the ambient light level should allow the status of the indicators to be clearly seen.

Mounting

Using the five mounting holes provided, mount the plastic base securely onto a wall. Assess the condition and construction of the wall and use suitable screw fixings. The mounting holes are suitable for use with No.8-10 or 4-5 mm countersunk screws. Any dust or swarf created during the mounting process must be kept out of the enclosure and care must be taken not to damage any wiring or components.

Wiring and Cable Entry

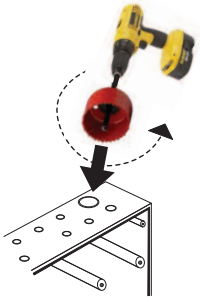
All wiring should be installed in accordance with the current edition of the IEE Wiring Regs (BS7671), or the relevant national standards. The requirement for the Mains supply to the panel is fixed wiring, using 3-core cable (no less than 1 mm^2 and no greater than 2.5 mm^2), or a suitable three conductor system fed from an isolating switched spur fused at 3 A.



In order to maintain cable segregation, the incoming Mains cable should be fed into the panel via the top right-hand side of the enclosure.

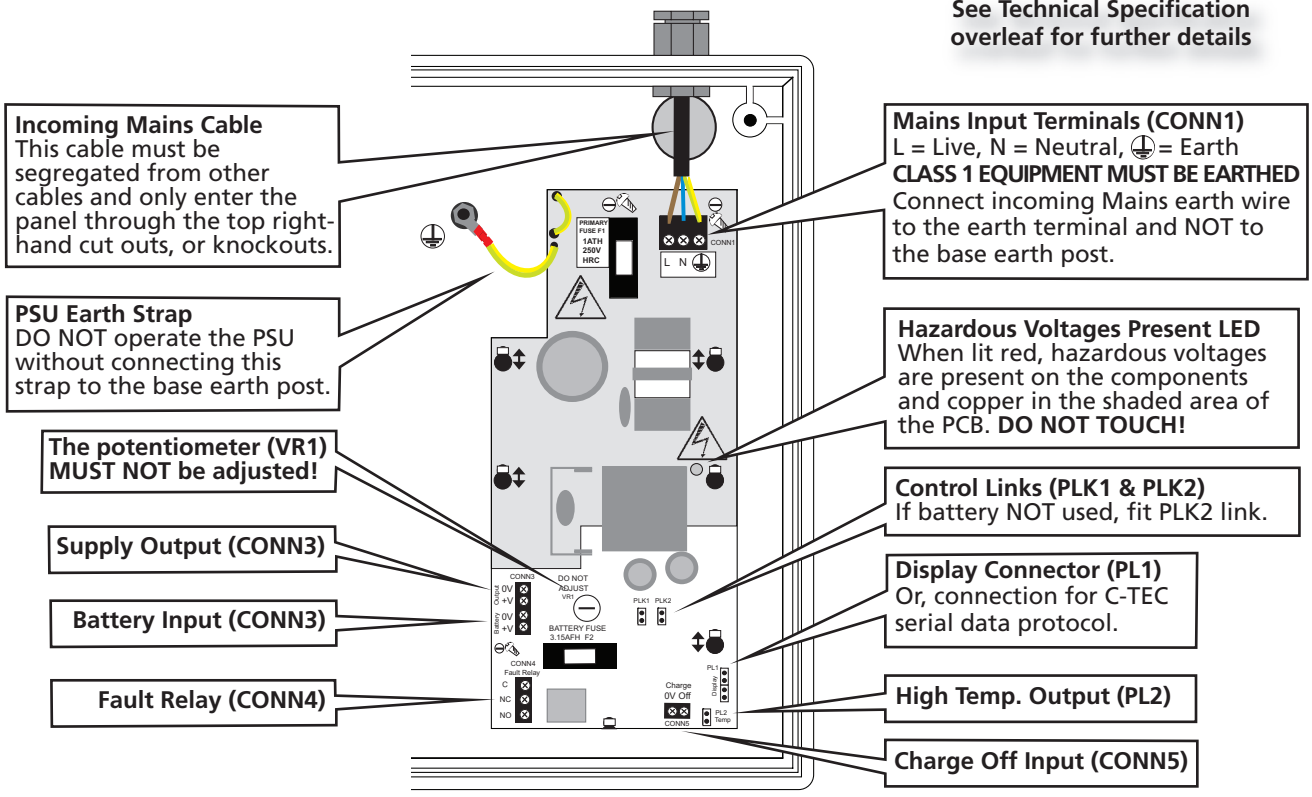
Depending on the enclosure type, either cut out suitable holes in the enclosure using a hole saw, directed by a pilot bit in the centre of the hole saw (see right) or, remove knockouts with a sharp, light tap using a 6 mm flat-bladed screwdriver (see left). Always ensure that if a hole is cut out, or knocked out, it is filled with a good quality 20 mm cable gland. Any unused holes must be securely blanked off.

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



Terminate the Mains cable at the power supply's connector block CONN1 (see Figure 1 below).

Figure 1 - Power Supply PCB Layout and Connection Details

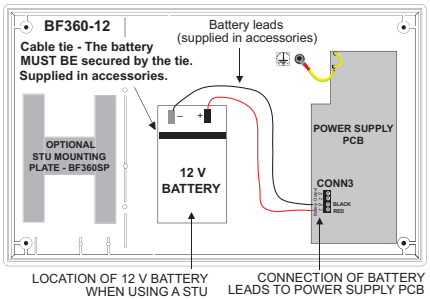


Batteries

CAUTION: There is a risk of explosion if incorrect batteries are used. Always dispose of used batteries in accordance with the battery manufacturers instructions.

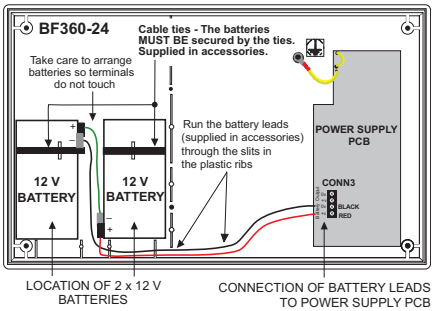
The power supplies are designed for use with good quality, sealed, VRLA batteries with the following characteristics:

	Final Voltage @ Discharge Current	Float Charge Voltage	Battery Temp. Compensation
12 V (6 cell) System:	≤ 10.5 V @ (0.1 x capacity) A	13.65 V @ 20 °C, charging deviation ± 0.15 V	-3 mV / cell / °K rise
24 V (12 cell) System:	≤ 21.0 V @ (0.1 x capacity) A	27.3 V @ 20 °C, charging deviation ± 0.3 V	-3 mV / cell /°K rise



Position and connect 1 x 12 V battery (BF360-12), or 2 x 12 V batteries (BF360-24), as shown in the diagrams. **Batteries must be safely secured using the supplied cable ties.**

Note: On a standard 'as-supplied' unit, PLK2 ('Battery Monitoring' link) is NOT fitted and a fault will occur on initial power-up if fully charged batteries are NOT connected.



TECHNICAL SPECIFICATION

POWER SUPPLY SPECIFICATION			**BF360-12 (12 V DC, 2 A) and BF360-24 (24 V DC, 1.5 A)**
Mains supply voltage	Rated current	VA:	230 Vac, 50/60 Hz | 350 mA | 80.5 VA
Max. continuous output current (including charging):			2 A (BF360-12), 1.5 A (BF360-24). Efficiency at full load = 78%.
Battery charge capacity (C):			2 Ah to 12 Ah
Max VRLA battery size/type determined by cabinet size: (various models listed)			BF360 range = up to 3 Ah (**Note**: BF360-12 without STU plate = 7 Ah) BF362 range = up to 19 Ah
Power rating:	I max a (BF360-12) = 1.8 A or 1.3 A (if PLK1 link fitted); I max a (BF360-24) = 1.3 A or 0.8 A (if PLK1 link fitted). I max b (BF360-12) = 2 A, charging turned off via CONN5 short; I max b (BF360-24) = 1.5 A, charging turned off via CONN5 short. I min = 12 mA approx.		
Maximum internal battery resistance:			Ri max = 720 mΩ (BF360-12), 1500 mΩ (BF360-24).
Maximum output voltage (Mains on):			V max = 15 V (BF360-12), 30 V (BF360-24).
Minimum output voltage (with Mains off):			V min = 9 V (BF360-12), 19.2 V (BF360-24).
Output ripple voltage (peak-to-peak):			BF360-12 = <100 mV over the full input and output range of the power supply. BF360-24 = 1.2 V @ 30 MHz bandwidth, 600 mV with a 100 nF loading.
Mains supply/battery charger monitored for failure:			YES
Batteries monitored for disconnection and failure:			YES
FUSES			
Mains fuse (F1):	1 A T HRC, 20 mm ceramic (T = Timed Delay; HRC = High Rupture Current <equivalent> HBC = High Breaking Capacity)		
Battery fuse (F2):	3.15 A F HRC, 20 mm ceramic (F = Fast Acting)		
POWER SUPPLY PCB CONNECTIONS			
Mains Input (CONN1):	Three Mains supply input terminals: Live, Neutral & Earth		
Supply Output (CONN3):	12 Vdc (BF360-12) or 24 Vdc (BF360-24) output for auxiliary equipment at PSU's rated output of 1.5 A (BF360-24) or 2 A (BF360-12)		
Battery Input (CONN3):	Connection to the Valve Regulated Lead Acid (VRLA) battery/batteries		
Fault Relay (CONN4):	Isolated relay output rated 1 A @ 50 V		
Charge Off Input (CONN5):	Disablement of the battery charge, enabling the charge current to be used at the output during heavy load periods, volt-free short to 0 V to disable charger. Maximum cable length = 2.5 m.		
PLK1:	'Battery Charge Current' link. NOT fitted for 2 Ah to 3.5 Ah (0.2 A charge current). Fitted for 3.5 Ah to 12 Ah (0.7 A charge current). **Only on Enquiry**: Special requests can be catered for, up to 80% of the total PSU output.		
PLK2:	'Battery Monitoring' link. Fit link if batteries NOT used.		
PL1:	Connector to a display card or OEM equipment. Uses C-TEC serial data protocol (Document No. DFU0003631).		
PL2:	High Temperature Output. Operates at approx. 55 °C internal box temperature, 30 V, 200 mA max. current sink.		
INDICATORS			
Panel indicators (LEDs):	SUPPLY PRESENT (Green) - Indicates the supply is present at the output GENERAL FAULT (Amber) - Indicates a fault is present on the PSU. Call the engineer. AUXILIARY FAULT (Amber) - Indicates a fault with an auxiliary unit (user-definable). 10 to 30 V, 6 to 7 mA.		
Power Supply PCB (LED):	Hazardous Voltages Present (Red)		
PHYSICAL ATTRIBUTES			
Dimensions:	380 mm (width) x 235 mm (height) x 96 mm (depth)		
Weight / Construction:	1.55 Kg (without batteries) / Plastic lid and base		
Enclosure finish:	RAL7035 textured		
ACCESSORY PACK			
1 x Installation Instructions – DFU0360000 (this document); 1 x Allen key (for unfastening/securing the panel's lid); 1 x 1 A T HRC, 20 mm ceramic fuse (spare Mains fuse F1); 1 x 3.15 A F HRC, 20 mm ceramic fuse (spare battery fuse F2); 1 link for PLK1 or PLK2; 1 x battery connection kit, 1 x cable tie.			
OPERATING CONDITIONS			
The power supply enclosures have an IP30 rating (to EN60529:1992) and are designed for indoor use only. The components are selected to operate within their specification when the environmental conditions outside the enclosure comply with class 3k5 of the latest edition of IEC 721-3-3:1978. Temperature range: -5 °C to +40 °C. Maximum relative humidity: 95%.			
CERTIFICATES & DECLARATION OF PERFORMANCES to (EU) No. 305/2011, CPR (Certificates and DoPs are available for download on C-TEC's website)			
VdS Approval Nos.: G208155 (BF360-12), G208156 (BF360-24)		CE Cert. Nos.: 0786-CPR-20671 (BF360-12), 0786-CPR-20672 (BF360-24)	
Declaration of Performances: DOP0000008 (BF360-12), DOP0000007 (BF360-24)			