

## Introduction

This document details the installation and commissioning procedure for the Protec BC1 / 3.3 power supply / battery charger.

## Overview

The BC1 is a 1 Amp power supply and battery charger designed to be used in conjunction with two 12V 3.3Ah Sealed Lead Acid batteries. The charger continuously monitors various critical levels and gives a fault warning if any of the levels are out of specified limits. A fault condition may be accepted by momentarily pressing the front panel 'Mute' button. A new fault cancels the muted condition.

## Technical Specification

Supply Voltage	230V AC. +/- 10%.
Supply Current	400mA Maximum.
Mains Fuse	1A HRC 20mm x 5mm.
Mains Fault Monitoring	Mains presence monitored.
Battery Charge Voltage	27.1V DC nominal (Temperature compensated).
Maximum Battery Capacity	3.3Ah.
Battery Charge Current	250mA Maximum.
Battery Fuse	1.6A Fast Acting 20mm x 5mm.
Battery Fault Monitoring	Over Voltage, under Voltage, lack of capacity, removal deep discharge.
Maximum Current from 24V output	1 Amp total (including battery charge current).
Fault Clean Contact Output	Changeover Contacts (1A 30V DC. Max.) operated on <b>any</b> fault.
Fault Buzzer Level	65dB(A) at 1 Metre.
Operating Temperature Range	0 to 40 degrees C.
Enclosure	Painted metal, 3 fixing points.

## Cabling requirements

The BC1 requires a 230V AC. supply. Connections are provided for a 24V DC. output and clean contact fault outputs.

The incoming mains cabling must be kept well away from the low Voltage cabling.

The BC1 metal enclosure must be connected to a solid earth point, an internal stud is provided for this purpose.

## Installation Procedure

- 1) Unpack the BC1 from its packaging.
- 2) Assess cable entry points and carefully remove relevant knock-outs in the top of the metal enclosure. Be sure not to leave any metal swarf in the enclosure.
- 3) Prepare the mounting position by using the template supplied, drill and plug the three mounting holes.
- 4) With the front door open offer the BC1 up to the previously drilled mounting holes and fix with three screws. Be careful to not damage the PCB in the enclosure.
- 5) Connect the incoming mains to the terminal block located at the top of the BC1 PCB, connect outgoing 24V DC. cabling to the terminal block located at the bottom of the BC1 PCB. See figure 1 for clarification.
- 6) Connect the system earth to the earthing stud provided. Ensure the earth cable from the rear of the enclosure to the front door is intact.
- 7) Ensure the main to display board ribbon cable is connected correctly, and will not be trapped in the door when it is closed.
- 8) Remove the battery clamp, insert the two 12V 3.3Ah batteries and replace the battery clamp.

*Continued overleaf...*

**Commissioning Procedure**

- 1) After verifying all connections are correct, switch the mains supply to the BC1 on. The green 'Supply Healthy' indicator should flash several times (indicating the software version of the unit), then illuminate steadily.
- 2) Connect the batteries to the leads supplied, observing battery polarity (RED lead to battery positive, BLACK lead to battery negative).
- 3) If all the connections are correct and the batteries are in good condition the BC1 will not be displaying a fault.
- 4) Close the front door and secure by tightening the hexagonal bolt at the top of the door (an Allen key is provide for this purpose).

**Fault Diagnosis and Rectification**

- **'Supply Healthy' indicator and 'Fault' indicator illuminated.**  
The BC1 has detected a problem with its batteries. Check all battery connections and battery fuse. If these are correct replace the batteries with a new, fully charged set. If the fault persists it is possible the BC1 is faulty and should be replaced.
- **'Supply Healthy' indicator extinguished and 'Fault' indicator illuminated.**  
The BC1 has detected a problem with the incoming mains supply. Verify the mains is present, if so turn the mains off and check the integrity of the mains fuse. If the fault persists it is possible the BC1 is faulty and should be replaced.

**General Notes**

- When the mains supply returns after a period of time running on batteries (mains failed condition), the BC1 could display a fault until the batteries have re-charged sufficiently. This could take several hours depending upon the discharge level of the batteries.
- If the batteries are connected before the mains supply no output will be available until the mains has been switched on.
- A battery fault can take up to two minutes to generate, or clear.

**Figure 1 - BC1 connections (shown from the front)**

