

SIEMENS

GENERAL GUIDELINES FOR INSTALLING MODEL BC-35

The Model BC-35 battery charger/transfer module complies with UL Standard 864. The module is designed to monitor the battery charge status and alert appropriate personnel when the batteries may not have the standby power capacity required by NFPA Standard 72 Local, Municipal Tie, Remote Station, or Proprietary.

The BC-35 charging circuit provides a charging current only if the voltage of the batteries being used is between 18.3 VDC and 27.7 VDC. If the battery voltage is out of this range, the BC-35 will automatically cut off its charging circuit.

CAUTION: Disconnect the system power input before installing the BC-35 and/or BE-35 cable connections.

The BC-35 module has a trouble signal for both high and low battery conditions. A trouble condition occurs:

During normal AC operation when the instantaneous or constant voltage across the battery is more than 30 volts peak or is less than 24 volts.

During the battery backup operation when the instantaneous or constant voltage across the battery is more than 30 volts peak or is less than 21 volts.

When the battery trouble signal activates because of a low battery voltage, it indicates that the batteries may have inadequacies that will prevent the BC-35 from providing the standby power capacity required to meet national and local codes. When the signal activates because of a high battery voltage, it indicates one of the following: 1) BC-35 malfunction, 2) poor battery terminal connections, or 3) a battery that has an unacceptable high internal resistance.

It is recommended that the batteries be charged prior to installation, if necessary. A voltage check of the batteries should be performed to ensure that the BC-35 charging circuit will begin charging. Follow Steps 1 and 2 below. Step 2 may also be used to troubleshoot the BC-35 when a trouble condition is indicated.

Step 1

Test the batteries connected to the BC-35 module.

- a. Remove the battery leads.
- b. Test the open battery voltage; it should be between 22 and 27 VDC.
- c. Reconnect the battery and test it under a load condition. If possible, remove the AC power from the system and measure the battery voltage. Activate the audible devices and again measure the battery voltage. Under both conditions, the minimum acceptable battery voltage is 21 VDC.
- d. If it is not possible to test the batteries as previously noted, utilize a simulated load. For example, with the batteries disconnected, a 12 ohm, 50 watt resistor should be placed momentarily (2-4 seconds) across the 24 volt battery connections. Measure the battery voltage under this loaded condition. Again, the minimum acceptable voltage is 21 VDC.

Replace the batteries if the results of **b**, **c**, or **d** above are not acceptable.

Step 2

Verify that the BC-35 is providing a charging current.

- a. If an MM-35 is being used in conjunction with a BC-35, check the meter and verify that a current is being supplied to the batteries either in a constant or a pulsed mode.
- b. If no MM-35 is being used, place an analog VOM meter with a 10 amp scale in series with the batteries connected to the BC-35 module. If the batteries are being charged, the VOM meter will indicate a constant current or pulsed current is being provided to the batteries.

A constant charging current or pulsed charging current is displayed if the battery voltage is between 18.3 VDC and 27.7 VDC. Once the battery is fully charged, a pulsed charging current is present on a periodic basis. The time between pulses is determined by the rate of discharge due to the internal circuitry of the charger and the ability of the individual battery to accept and maintain the charge condition. The constant charge current is between .5 and 1.5 amps for the BC-35 and increases proportionally if BE-35 modules are used.

On initial system startup, when the battery charger is functional, but the battery trouble indicator remains on, the batteries may not have had time to properly charge—as much as 24 hours may be necessary for charging. After charging for 24 hours with the charging current as described above, and the BC-35 trouble signal still on:

- 1) If less than 24V is present across the battery:
 - (a) Batteries are not accepting the charge
OR
 - (b) Battery capacity is too large for the BC-35 and the number of BE-35s being used
- 2) If more than 30V is present across the battery:
 - (a) Batteries used have high internal impedance
OR
 - (b) BC-35 is not shutting off the charge state at the required voltage point

If the BC-35 is not providing a charging current, test pin 1 of the P1 plug on the BC-35 module in reference to the negative side of the power supply. If there are no volts at this point, replace the BC-35 module. If there are more than 2 VDC at this point, and no alarm is present, replace the CP-35 panel.

This information is provided to assist you in diagnosing relatively routine problems. There may be extenuating circumstances involved which are not covered here. If further assistance is needed, please contact your Regional Engineer or the Siemens Industry, Inc., Technical Support Group.

WARNING: The BC-35 has been factory set for the batteries specified. Any alteration or adjustment to this module will void both the UL listing and the Manufacturer's Warranty and may cause damage to the battery.