



## B-20 Battery Monitor



**GENERAL INFORMATION.** The *B-20 Battery Monitor* is designed to provide monitoring and alarming of 20 sets (channels) of 12 VDC VRLA batteries. Thus, the *B-20* can monitor from 1 to 5 parallel strings of -48 VDC batteries (four each 12 VDC blocks per string). The *B-20* monitors the **voltage** and **temperature** of each 12 VDC block. The *B-20* can also monitor up to 5 battery charge or discharge currents.

The *B-20* is designed to be used in *TwinPack®Plus™* Rectifier Systems that utilize the *SSD3-LT* and *TCP/IP Gate* Monitors and Controllers. The *B-20* can be used in a stand-alone role, with reduced features. If more than 20 each 12 VDC blocks are to be monitored in a system, then a second *B-20* should be ordered.

**SPECIFICATIONS.** The *B-20 Battery Monitor* is designed for rack mounting (19" or 23" wide racks) and is one RU (1.75"/4.5 cm) high x 19" (48 cm) wide x 10" (25 cm) deep. The *B-20* weighs 3.9 lbs. (1.8 kg). Contact the factory for wall mounting options.

The operating ambient temperature range is -40°C (-40°F) to +65°C (149°F). The operating environment relative humidity range is 0% to 95% non-condensing. It will operate fully at all altitudes with the operating ambient temperature range being derated by 2°C for each 1,000 feet of increased elevation above 5,000 feet. Voltage measurements are accurate to 20mV with a resolution of 10mV. Temperature measurements are accurate to 2°C with a resolution of 1°C. Current measurements are accurate to ±0.25% of full scale.

**CONNECTIONS.** The rear of the panel provides connectors for the following:

- Power Input (DC voltage may vary from 18 VDC to 60 VDC, polarity insensitive);
- 20 Connections for monitoring battery voltage;
- 20 Connections for monitoring battery temperature;
- Five connections for monitoring input current (shunts must be ordered separately), and
- FTT-10 network connection (RJ45 UTP).

**ALARM OUTPUTS.** Separate sets of Form “C” contacts are provided for:

1. *Minor Voltage Fail Alarm* - any 12 VDC block has exceeded or fallen outside the *Minor Voltage Alarm* window settings;
2. *Major Voltage Fail Alarm* - any 12 VDC block has exceeded or fallen outside the *Major Voltage Alarm* window settings;
3. *Minor Temperature Alarm* - any 12 VDC block has exceeded the *Minor Temperature Alarm* threshold settings, and
4. *Major Temperature Alarm* - any 12 VDC block has exceeded the *Major Temperature Alarm* threshold settings.

**Note:** All threshold settings are field adjustable or remotely adjustable via the *TCP/IP Gate*. Nominal voltage setpoint range is 10 to 17 VDC. *Minor/Major Alarm* threshold range is 0.02 to 2.00 VDC. The adjustment range for the *Minor/Major Temperature Alarms* is 0 to +75°C.

**OPERATION.** By cycling through the MODE button, one can check the exact voltage and temperature of each of 20 separate 12 VDC VRLA batteries. When the panel is in “Display Mode”, Channel 1 will be indicated with the number “1”, Channel 2 as “2”, and so on.

When the Channel number is displayed and the TEMP/VOLT/AMPS button is pressed, the temperature or voltage will be displayed. Toggling the TEMP/VOLT/AMPS button will display the temperature or voltage.

Pressing the “CANCEL” button will change the display to show the Channel number.

If a Current Sense input number is displayed (e.g., CS1), and the TEMP/VOLT/AMPS button is pressed, the current for the corresponding battery string is displayed.



When the TEMPERATURE MINOR MODE is activated, the display will show the Minor Temperature Alarm setpoint. The UP and DOWN buttons will allow the user to change the setpoint. The ENTER button accepts the change. The CANCEL button cancels the change. The same methods are used to change the Major Temperature Alarm, Minor Voltage Alarm, and Major Voltage Alarm setpoints.

When the *B-20 Monitor* is used in a DC Power System with the *SSD3-LT* (see bulletin 449) and TCP/IP Gate (see Bulletin 451) Monitors, 20 separate 12 VDC battery blocks can be monitored continuously via the Internet or a user's Intranet.

### FRONT PANEL VISUAL INDICATIONS

The following LEDs and indicators are provided on the front panel (as viewed from left to right):

Control/Indicator	Description
20-CBM POWER OPEN (RED LED)	Illuminates to indicate open Power Fuse. Off during normal operation.
POWER FUSE	2A GMT type alarm fuse, protects power wiring to panel.
DISPLAY MODE	Illuminates to indicate that Display Mode is active.
CHANNEL	Illuminates to indicate that the Channel ON/OFF Set Mode is active.
ENABLED	Illuminates to indicate that the currently selected (displayed) channel is Enabled. "OFF" when the currently selected channel is Disabled.
VOLTAGE MAJOR	Flashes to indicate that the Major Voltage Alarm Set Mode is active. "ON" steady to indicate that one or more channel(s) is reporting a Major Voltage Alarm.
VOLTAGE MINOR	Flashes to indicate that the Minor Voltage Alarm Set Mode is active. "ON" steady to indicate that one or more channel(s) is reporting a Minor Voltage Alarm.
TEMPERATURE MAJOR	Flashes to indicate that the Major Temperature Alarm Set Mode is active. "ON" steady to indicate that one or more channel(s) is reporting a Major Temperature Alarm.
TEMPERATURE MINOR	Flashes to indicate that the Minor Temperature Alarm Set Mode is active. "ON" steady to indicate that one or more channel(s) is reporting a Minor Temperature Alarm.
TEMP/VOLT/AMPS BUTTON	Used to cycle through the battery voltage, battery temperature, and battery string currents. The information on the LED display will change accordingly.
EN/DIS BUTTON	Used to toggle Enabled/Disabled state of each channel.
4-DIGIT LED DISPLAY (GREEN)	Displays operating parameters – voltages, temperatures, and alarm setpoints. The display will flash when changes are pending, otherwise it will be "ON" steady.
ENTER BUTTON	Used to save a pending change, overwriting the previously saved setting.
CANCEL BUTTON	Used to cancel a pending change, and revert to previously saved setting.
UP/DOWN ARROWS	Used to cycle through the channels and Current Sense Inputs and to change setpoints.
MODE BUTTON	Cycles through the 20-CBM operating modes.
CHANNEL ALARMS (20 RED LEDs)	When flashing, indicates a channel in Minor Alarm. When "ON" steady, indicates a channel in Major Alarm.

### ORDERING INFORMATION

Description	Part Number	See Bulletin
B-20 Battery Monitor	Contact Factory	452 (this bulletin)
SSD3-LT	7302000000	449
TCP/IP Gate	7305000000	451