Bren-Tronics, Inc.
"Military Batteries & Charging Systems"
10 Brayton Court, Commack, NY 11725-3197
Phone: (631) 499-5155 Fax: (631) 499-5504
E-mail: info@bren-tronics.com
Web site: www.bren-tronics.com

Certified to
ISO 9001:2000
with design

SMBus in Bren-Tronics Batteries

System Management Bus, or SMBus, is a two wire interface which allows various system component chips to communicate with each other, and with other elements of the system. In particular, it allows for power management related tasks and information to be communicated. It is used everyday in modern laptops, so that essential battery information can be communicated to the computer, and finally to the user. Such useful information can include charge status, model number, serial number, and error messages.

Bren-Tronics has implemented this feature on military level battery systems. Many of our Lithium Ion batteries, including the BB-2590/U come standard with an SMBus interface. Our SMBus communication system has been designed according to System Management Bus Specification 1.1 and Smart Battery Data Specification 1.1. Both documents are available publicly on the web at www.smbus.org, or by request from Bren-Tronics.

The use of SMBus features is not necessary to get power from the BB-2590/U, the battery will deliver power as long as contact is made to the main contact. The SMBus contacts of the BB-2590/U are gold plated and shown in Fig. 1 below. Upon delivery, they will be covered with a removable label. It is the option of the user to implement this feature in their application or not.

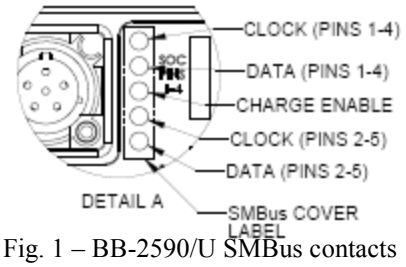

Fig. 1 – BB-2590/U SMBus contacts

Because the BB-2590/U is comprised of two separate sections, there are a total of four SMBus contact on the BB-2590/U. Section 1 Clock, Section 1 Data, Section 2 Clock, and Section 2 Data. Bren-Tronics manufactures a mating connector, BTA-70762-1, for the BB-2590/U that will also mate to the SMBus contacts.

It should be noted that there are a few differences between SMBus and I2C, those differences are available in the System Management Bus Specification 1.1. The following page contains a list of the different data points available from a Bren-Tronics battery equipped with SMBus.

SMBus/SMData Communication Points

SMBus Host to Smart Battery Messages

1) 5.1.1 Manufacturer Access (0x00)
2) 5.1.2 Remaining Capacity Alarm (0x01)
3) 5.1.3 Remaining Time Alarm (0x02)
4) 5.1.4 Battery Mode (0x03)
5) 5.1.5 At Rate (0x04)
6) 5.1.6 At Rate Time To Full (0x05)
7) 5.1.7 At Rate Time To Empty (0x06)
8) 5.1.8 At Rate OK (0x07)
9) 5.1.9 Temperature (0x08)
10) 5.1.10 Voltage (0x09)
11) 5.1.11 Current (0x0a)
12) 5.1.12 Average Current (0x0b)
13) 5.1.13 Max Error (0x0c)
14) 5.1.14 Relative State of Charge (0x0d)
15) 5.1.15 Absolute State of Charge (0x0e)
16) 5.1.16 Remaining Capacity (0x0f)
17) 5.1.17 Full Charge Capacity (0x10)
18) 5.1.18 Run Time To Empty (0x11)
19) 5.1.19 Average Time to Empty (0x12)
20) 5.1.20 Average Time to Full (0x13)
21) 5.1.21 Battery Status (0x16)
22) 5.1.22 Cycle Count (0x17)
23) 5.1.23 Design Capacity (0x18)
24) 5.1.24 Design Voltage (0x19)
25) 5.1.25 Specification Info (0x1a)
26) 5.1.26 Manufacture Date (0x1b)
27) 5.1.27 Serial Number (0x1c)
28) 5.1.28 Manufacturer Name (0x20)
29) 5.1.29 Device Name (0x21)
30) 5.1.30 Device Chemistry (0x22)
31) 5.1.31 Manufacturer Data (0x23)

Smart Battery or SMBus Host to Smart Battery Charger Messages

32) 5.2.1 Changing Current (0x14)
33) 5.2.2 Changing Voltage (0x15)

Smart Battery Charger or SMBus Host to Smart Battery Messages

34) 5.2.1 Changing Current (0x14)
35) 5.2.2 Changing Voltage (0x15)

If any additional information is needed, please do not hesitate to contact Bren-Tronics at:

Phone (631) 499-5155
Or
sales@bren-tronics.com