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B&B ELECTRONICS PRODUCT INFORMATION

Integrate – Expand – Simplify

Model 485BAT3

Battery Powered RS-232 to RS-422/485 Converter CE

Model 485BAT3 features power versatility, making it perfect for field testing solutions. It converts unbalanced RS-232 signals to balanced RS-422 or RS-485 signals. RS-485 is an enhanced version of the RS-422 standard, allowing multiple drivers and receivers on a two-wire system.

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Power

The 485BAT3 can be powered in three ways: batteries, port powered, or power supply. Use the battery power option when you have a low power RS-232 port (found on many laptops today) or no handshake lines or when it is inconvenient to use a power supply. Install 2 AAA batteries (not included) and put the Battery On/Off switch in the ON position. The 485BAT3 will draw as much power as possible from the RS-232 port and get any additional current necessary from the batteries.

If you have a full power port and all your handshake lines, turn off your battery switch. This allows you to run fully port powered and saves your batteries for emergencies. **NOTE**: The Battery On-Off switch on the 485BAT3 is used for conserving battery life. It does not turn on and off all power to the unit.

For your convenience there is the option to use a stripped and tinned +12VDC power supply. Simply attach it to the terminal blocks and plug it in.

Switches

In addition to the Battery On/Off switch described in the Power section above there is a 2-position dipswitch on the top of the 485BAT3. The position of these switches determines whether the signals on the terminal blocks are RS-422 or RS-485. With both switches in the “Off” position the unit will act as a full duplex RS-232 to RS-422 converter. With both switches in the “On” position, the unit acts as a half-duplex R-232 to RS-485 converter capable of multidropping on the RS-485 side. When the RS-422/RS-485 switch is in the “RS-485” position, the 485BAT3 uses a bit-wise enable method to control the RS-485 driver. This means that the RS-485 driver is enabled with each high bit transmitted. This method requires no handshake control to activate and deactivate the driver. When the RS-422/RS-485 switch is in the “RS-422” position the driver is constantly enabled.

The Echo On/Off switch controls the RS-485 receiver. When it is in the “On” position the receiver is constantly enabled. When this switch is in the “Off” position the receiver is enabled only when the RS-485 driver is disabled for use in 2-wire mode to prevent the transmitted data from echoing back on the RS-232 side.

Connections

The RS-232 port has a female DB9 connector with pins 2 (RD), 3 (TD), and 5 (Signal Ground) supported. Pins 7 (RTS) and 8 (CTS) are tied together, and pins 6 (DSR), 1 (CD), and 4 (DTR) are also tied together. Any incoming data lines in either the high or low state are used to port power the 485BAT3. The more handshake lines available, the longer the battery life, and the more likely the unit can be totally port powered. Table 1 shows the RS-232 pin outs.

Table 1: RS-232 Pinouts

RS - 232 Pinouts	Description
1	DCD
2	RD
3	TD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

The RS-485 port uses terminal blocks for easy field wiring. TD A(-), TD B(+), RD A(-), RD B(+), and Signal Ground lines are supported. Figure 1 shows how to interconnect two RS-485 converters using two wires. Figure 1 shows how to interconnect two RS-422 converters using four wires. Terminating resistors are optional. They should be used only on long length runs or at high baud rates. These resistors should match the impedance of the cable being used, which is normally about 120 Ohms.

Up to 32 receivers can be driven by any one RS-485 driver, allowing you to put together large systems with many drop points. If you are using termination resistors, they should be located at opposite ends of the system.

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Figure 1: Typical RS-485 Two-Wire Setup

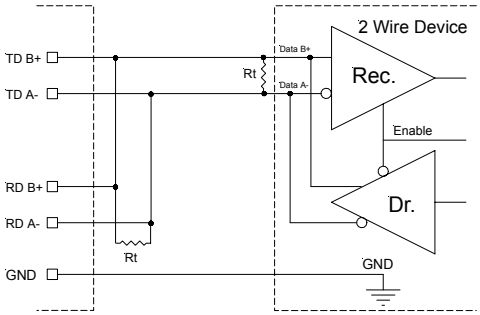
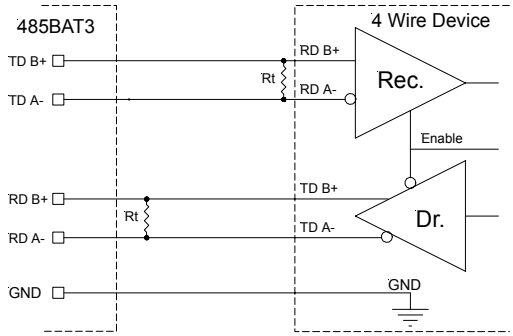


Figure 1: Typical RS-422/485 Four-Wire Setup



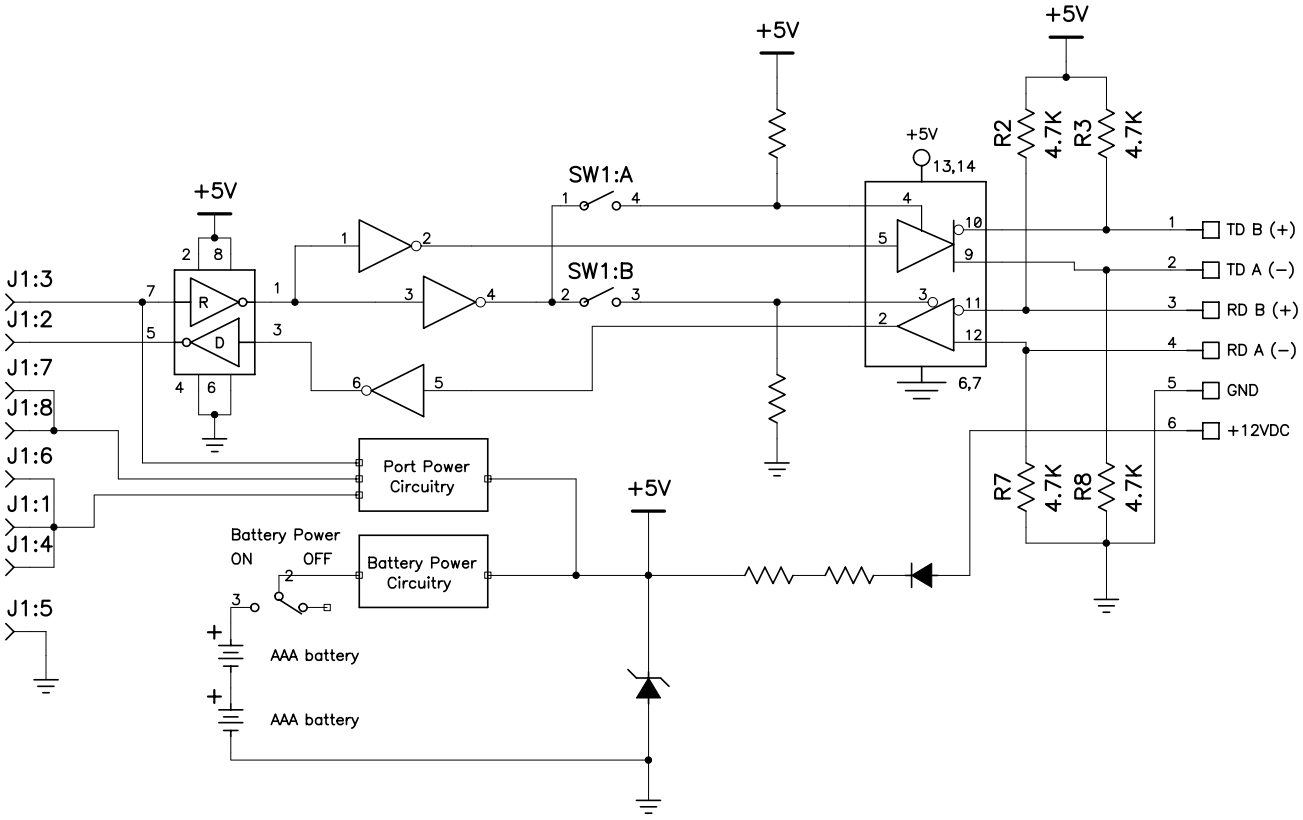
Specifications

Dimensions:	3.6 x 2.6 x 1.1 in. (9.0 x 6.5 x 2.8 cm)
Data Rate:	Up to 115.2 kbps
Connectors:	RS-232: DB-9 female (DCE) RS-485: Terminal blocks
Power Supply Options:	Port-powered 12 VDC @ 100mA 2 AAA batteries (not included) 7 hours fully loaded with no port power available 100 to 250 hours typical
Battery Life:	Two-channel device (transmit and receive only)

DECLARATION OF CONFORMITY

Manufacturer's Name:	B&B Electronics Manufacturing Company
Manufacturer's Address:	P.O. Box 1040 707 Dayton Road Ottawa, IL 61350 USA
Model Numbers:	485BAT3
Description:	RS-232 to RS-422/485 Converter
Type:	Light industrial ITE equipment
Application of Council Directive:	89/336/EEC
Standards:	EN 55022 EN 61000-6-1 EN 61000 (-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11)

William H. Franklin III, Director of Engineering



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