

Product End of Life Notification

Date: December 21st, 2011

Product Being Discontinued

Model Number	Description
485BAT2	BATT POWRD RS485 CONV

Replacement Product

Model Number	Description
485BAT3	2AAA POWERED DB9F 232 TO TB485

Orders will be accepted and shipped until the following dates

Last Time Buy:	April 1 st , 2012
Last Time Ship:	April 30 th , 2012

Please contact us immediately if you have any special needs for this product or have any other concerns.

Thank You,

Brian Foster, Product Manager
bfoster@bb-elec.com

Battery Powered RS-232 to RS-422/485 Converter CE Model 485BAT2



The 485BAT2 converts unbalanced RS-232 signals to balanced, full or half duplex RS-485 signals. RS-485 is an enhanced version of the RS-422 Standard. It allows multiple drivers and receivers on a two wire system.

The RS-232 port has a female DB25 connector with pins 2 (TD), 3 (RD), and 7 (Signal Ground) supported. Pins 4 (RTS) and 5 (CTS) are tied together, and pins 6 (DSR), 8 (CD), and 20 (DTR) are also tied together. Pins 1 (Frame Ground) and 7 (Signal Ground) are connected straight through to the RS-485 connector. The RS-485 port has a DB-25 male with pins 2 (TD A), 14 (TD B), 3 & 5 (RD A), 16 & 17 (RD B), 1 (Frame Ground), and 7 (Signal Ground) supported. Table 2 and 3 show the RS-232 and RS-485 pinouts. The 485BAT2 has an On-Off switch for conserving battery life when the unit is not in use.

Figure 2 shows how to interconnect two RS-485 converters using two 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. The 485BAT2 allows for the addition of a terminating resistor at R5 as shown in Figure 1. This unit also allows for changing the values for R4 and R8 (4.7k biasing resistors). When the values are to be changed, remove the surface mount component and then install new value in the corresponding through hole.

The 485BAT2 uses two methods to control the RS-485 driver, handshake control (RTS) and send data (SD) control. These methods are jumper selectable (JP1 & 2). See Figure 1. Handshake control requires that the RS-232 device software raise RTS (pin 4 on the RS-232) to enable the RS-485 driver. After the transmission is complete, the RS-232 device must lower RTS to disable the RS-485 driver and enable the RS-485 receiver. SD control uses the leading edge of the first character transmitted from the RS-232 device to enable the RS-485 driver. After the last character is transmitted the converter waits one character time (1ms at 9600 baud) to disable the RS-485 driver.

There are two components on the printed circuit board, a resistor (R9) and a capacitor (C2) that are part of the send data control circuit. These components are factory selected for 9600 baud, which will allow the converter to run at 9600 baud or higher. With these two components the RS-485 driver will shut off approximately 1ms after the last character has been sent. If you need to change to a baud rate lower than 9600 baud, or would like to configure the 485BAT2 to match a specific baud rate, see Table 1. Note that these timing components are not used when this converter is using RTS to enable the RS-485 driver.

Table 1			
COMPONENT REPLACEMENTS FOR CHANGING BAUD RATE TIMEOUTS			
Baud Rate	Time (ms)	Resistor R9 (ohm)	Capacitor (C2) (mfd)
300	33.3	330K	0.1
600	16.6	160K	0.1
1200	8.33	820K	0.01
2400	4.16	430K	0.01
4800	2.08	200K	0.01
9600	1.04	100K	0.01
19200	.520	56K	0.01
38400	.260	27K	0.01
57600	.176	16K	0.01
115200	.0868	8.2K	0.01

Table 2	
RS-232 Pinouts	Description
1	Frame Ground
2	Transmit Data (DCE port)
3	Receive Data
4	Request to Send
7	Signal Ground

Incoming signal from RS-232 device

Table 3	
RS-485 Pinouts	Description
1	Frame Ground
2	Transmit Data A (-)
3 or 5	Receive Data A (-)
7	Signal Ground
14	Transmit Data B (+)
16 or 17	Receive Data B (+)

Outgoing signal to RS-485 device

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This product designed and manufactured in USA of domestic and imported parts by

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The Echo jumper (JP3) controls the RS-485 receiver, it can be removed which constantly enables the receiver (RS-422, 4-wire mode) or install the jumper which allows the receiver to be enabled only when the RS-485 driver is disabled (2-wire mode). When the jumper is installed and in 2-wire mode, the data being sent from the RS-232 port will not be echoed back to the RS-232 port. See Figure 1 for jumper locations.

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.

Proper operation of any RS-485 system requires the presence of a return path. The RS-485 standard recommends that a third wire be used for the return path. For safety, a 100 ohm resistor should be connected between Signal Ground and the "reference wire" at every drop point. While it may be possible to interconnect Signal Grounds directly, this is not recommended due to the danger of circulating currents possibly being present. See interconnection drawing Figure 2.

The 485BAT2 is powered by a 9 volt alkaline battery. To conserve battery life, a slide switch on the side of the unit lets the user disconnect power when not in use. Optional power supply, Model 485PS, is available for externally powering the 485BAT2.

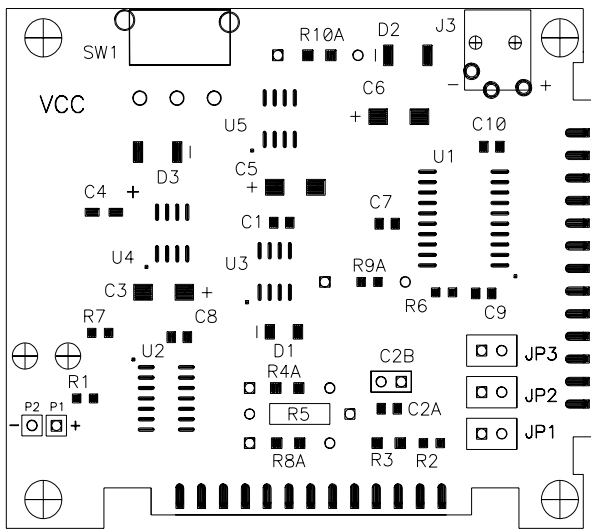


Figure 1

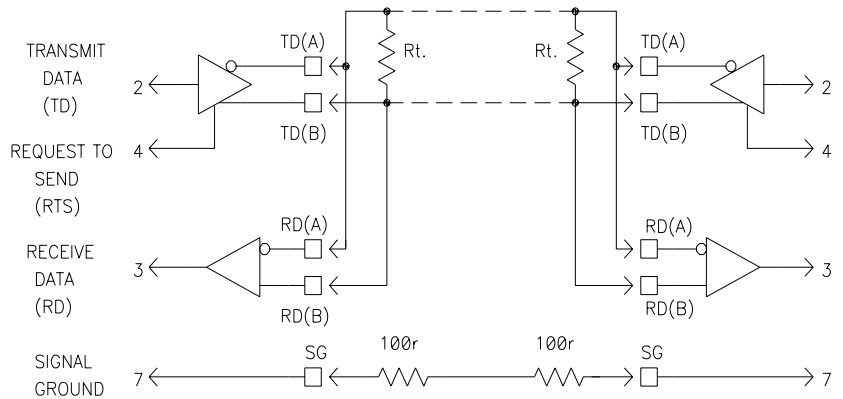


FIGURE 2. INTERCONNECTION DRAWING

Specifications:

Dimensions: 2.75" w x 4.85" l x 1.05" h

Data Rate: Up to 115.2K baud

Connectors: RS-232: DB-25 female (DCE)
RS-485: DB-25 male (RS-530 pinouts)

Power Supply: 12VDC @ 100mA--or--9VDC (battery) current draw approx. 18mA @ 9VDC (no load)

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 Number: 485BAT2
 Description: RS-422/485 Battery Powered Converter
 Type: Light industrial ITE equipment
 Application of Council Directive: 89/336/EEC
 Standards: EN 50082-1 (IEC 801-2, IEC 801-3, IEC 801-4)
 EN 50081-1 (EN 55022)

Paul A. Boeing

Paul A. Boeing, Director of Engineering



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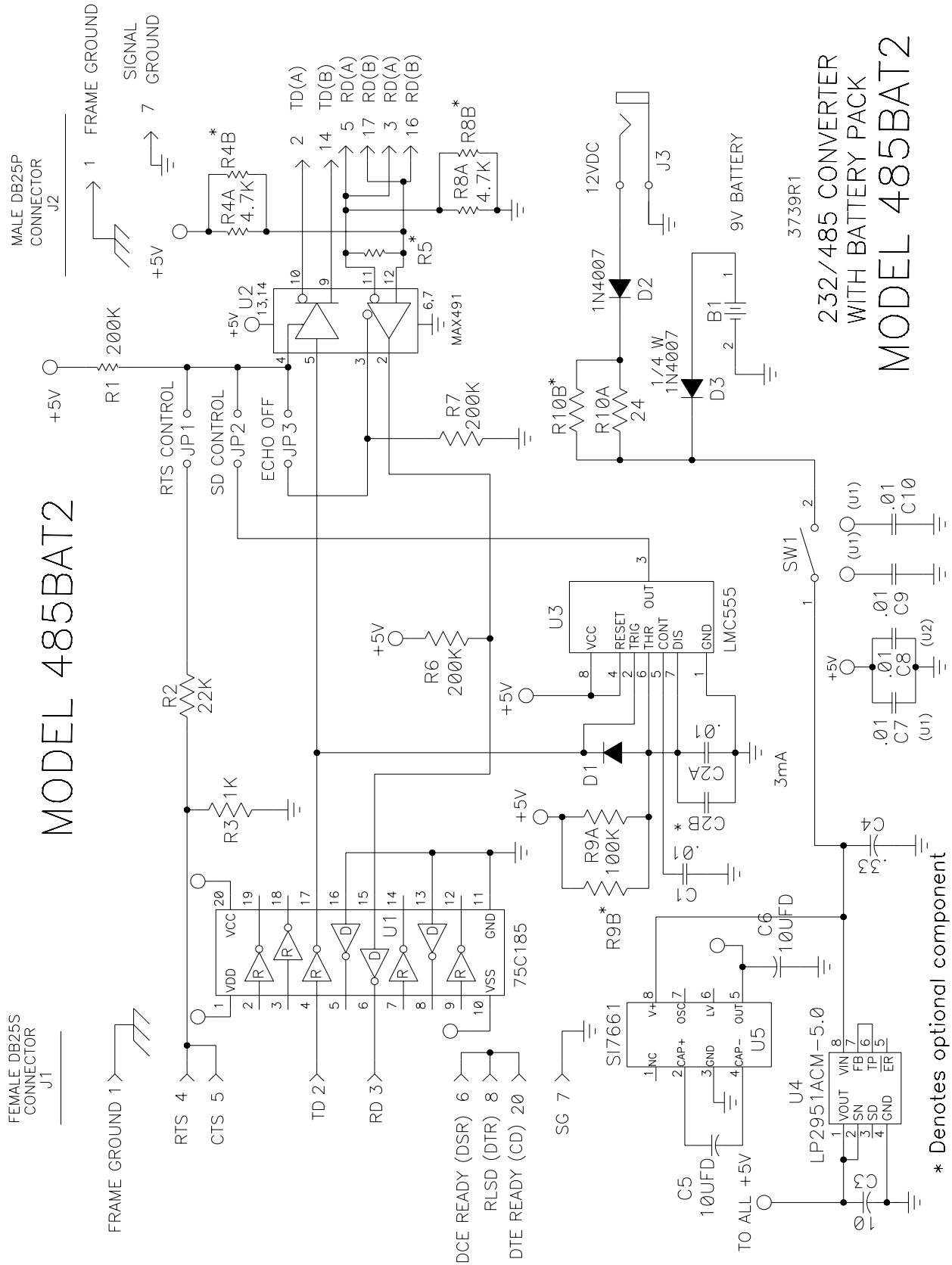
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Model 485BAT3 Battery Powered RS-232 to RS-422/485 Converter €

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.

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.

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.

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

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Figure 1: Typical RS-485 Two-Wire Setup

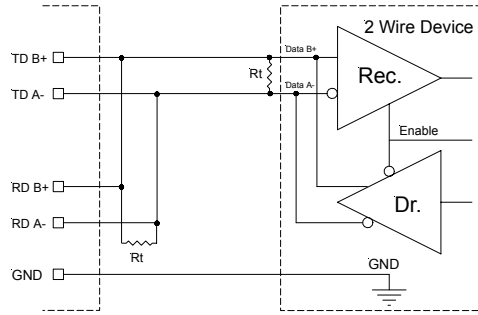
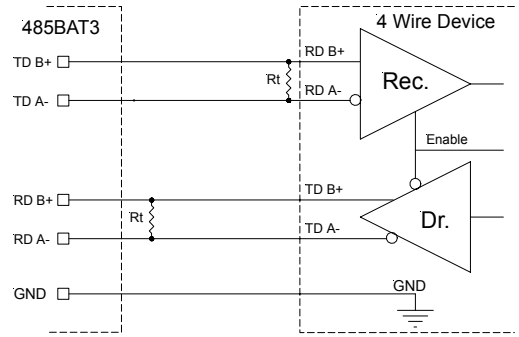


Figure 1: Typical RS-422/485 Four-Wire Setup



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
- Battery Life: 100 to 250 hours typical
Two-channel device (transmit and receive only)

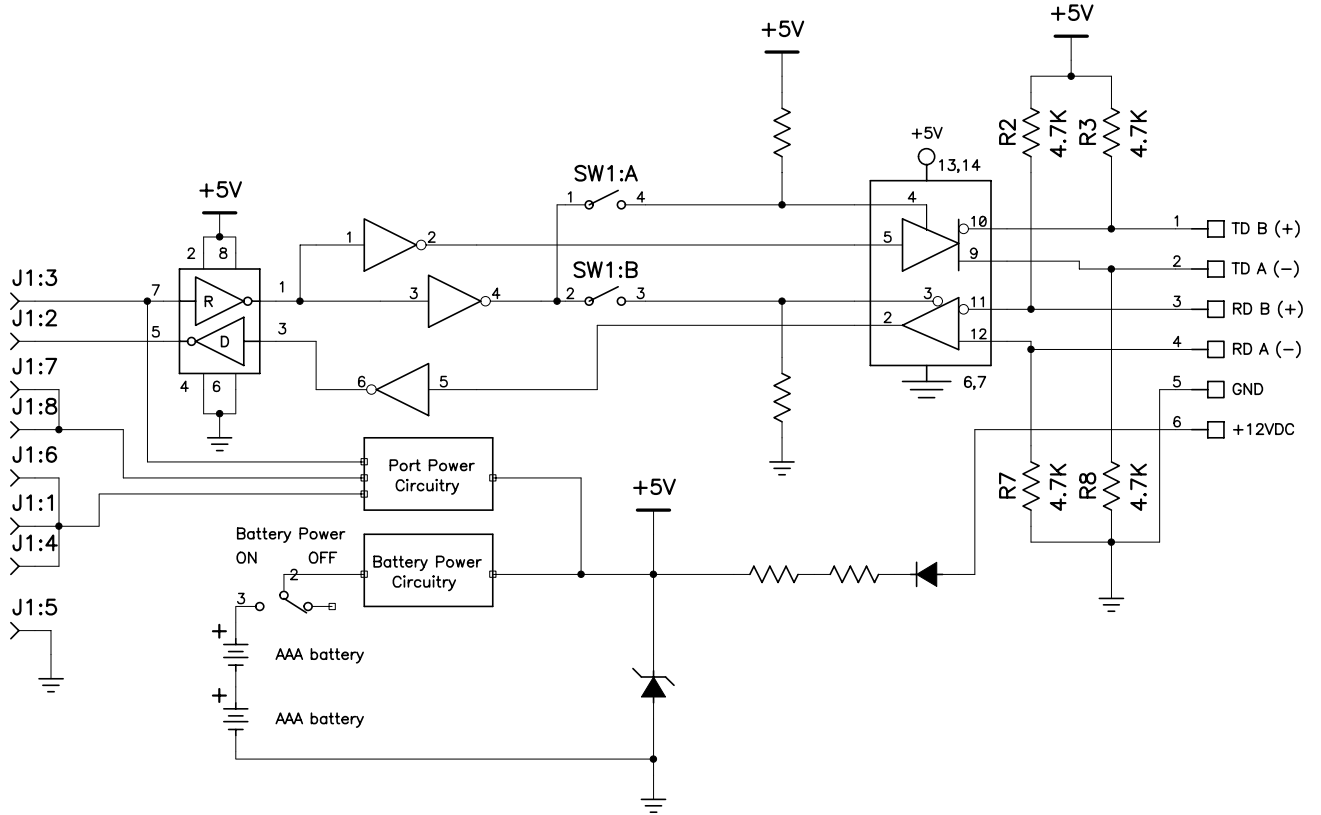
DECLARATION OF CONFORMITY

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



William H. Franklin III, Director of Engineering



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