

Product End of Life Notification

Date: September 28th, 2011

Product Being Discontinued

Model Number	Description
485RPTR	485/485 REPEATER

Replacement Product

Model Number	Description
485OP	RS-485 OPTICAL ISOLATOR
485OPDR	DIN RAIL 485/422 ISO. REPEATR

Orders will be accepted and shipped until the following dates

Last Time Buy:	November 21 st , 2011
Last Time Ship:	December 30 th , 2011

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

485OP

Optically Isolated RS-422/485 Repeater



- ✓ 2 KV Isolation
- ✓ Power Supply Included
- ✓ Modbus
- ✓ RS-422 or 2-Wire & 4-Wire RS-485
- ✓ UL Recognized

Model 485OP is an optically isolated RS-422/485 signal repeater. In addition to offering 2KV isolation on the data lines, it can be used to extend your RS-422/485 circuit an additional 4,000 ft, doubling the range. An added benefit is that you are able to add another 32 nodes to your RS-485 network and join 2 and 4 wire systems.

The compact design lets you fit this repeater almost anywhere. Terminal blocks allow easy installation. A 12 VDC wall transformer power supply is included with convenient stripped and tinned leads.

Serial Protocols

RS-422
 RS-485 4-Wire
 RS-485 2-Wire

Isolation

Lines Protected Data Lines
 Method Optical
 Rating 2000 V

Surge Suppression

Lines Protected Data Lines
 Method TVS
 Rating 6.5V bi-directional
 600W peak power dissipation

Industrial Bus

MODBUS ASCII/RTU

Power

Connector Terminal Block
 Voltage 10 to 14 VDC
 Power Consumption 1.0 W
 Source Included Wall Transformer or other 10 to 14 VDC Source

Included Wall Transformer Power Supply

Input Voltage 120 VAC
 Plug Style US
 Output Voltage 12 VDC @ 500 mA
 Output connection Leads stripped and tinned

Terminal Blocks

Wire Size 22 to 14 AWG
 Torque 0.5 Nm

LED Indicators

2 x DATA (RED) Flashes when data received

Enclosure

Material Plastic
 IP Rating 30
 Dimensions 3.8 x 2.4 x 1.0 in (9.7 x 6.1 x 2.5 cm)
 Mounting In line

Environmental

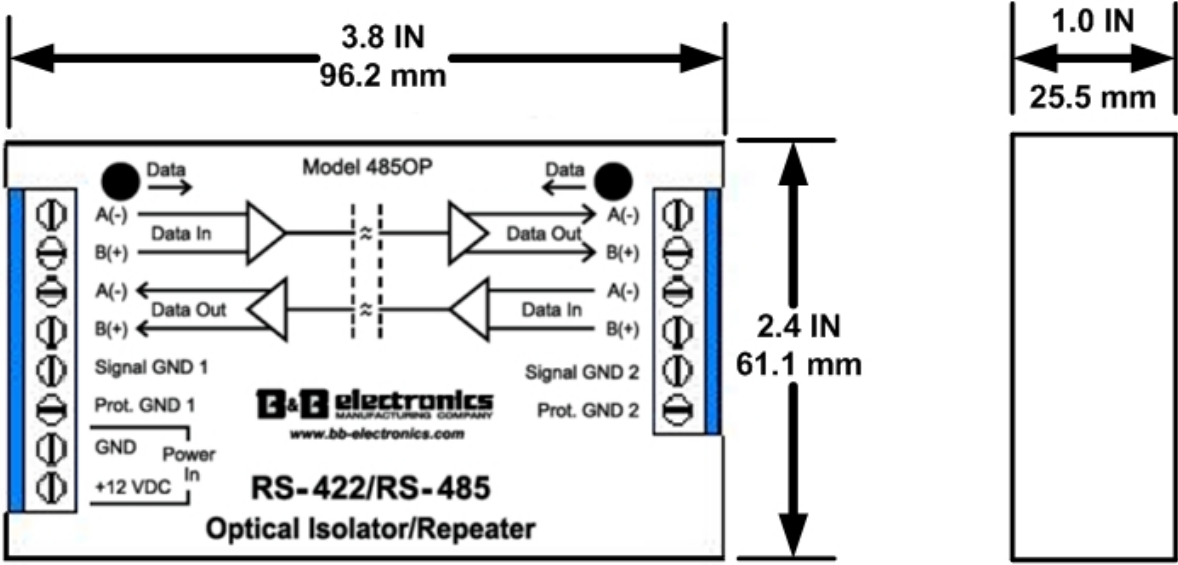
Operating Temperature 0 to 55 C (32 to 131 F)
 Operating Humidity 0 to 95% Non-condensing
 MTBF 453103 hours
 MTBF Calculation Method Parts Count Reliability Prediction

Agency Approvals

CE, FCC
 cULus Recognized, File E222870
 Declaration of Conformity available for download at www.bb.elec.com

Ordering Information

Model Number 485OP
 Replacement P. Supply 485PS4



485OPDR

RS-422/485 Isolated Repeater



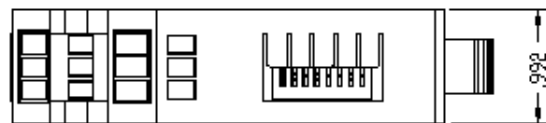
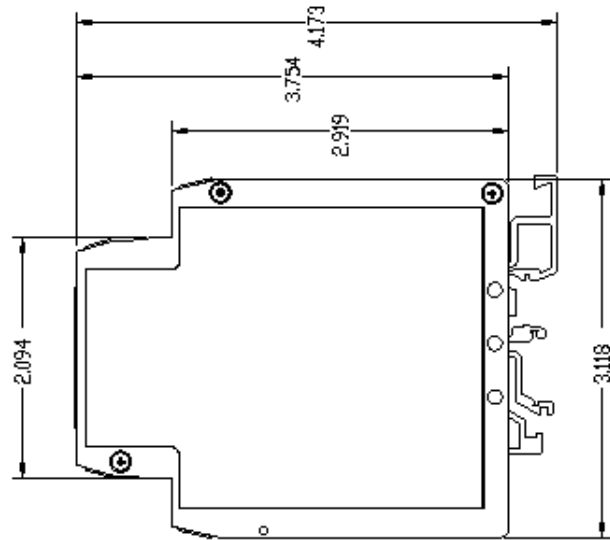
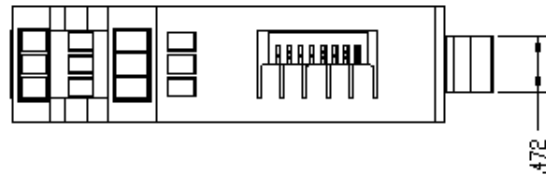
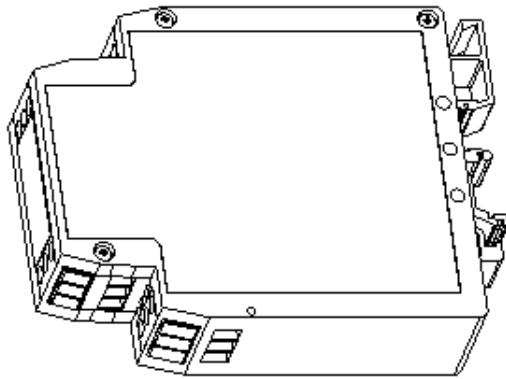
- ✓ Extend Data up to 4000 ft / 1.2 km
- ✓ 2000V Optically Isolated Data Lines
- ✓ -40 to 80°C Operating Temperature
- ✓ Modbus ASCII/RTU

The 485OPDR is an optically isolated RS-422/485 isolated line repeater which can be used to isolate a piece of equipment from the rest of the network. As a repeater, it extends the distance of an existion network an additional 4000 ft (1.2 km) and expands it beyond the 32-node limitation. Data signals and the power inputs connect to the terminal block. 600W surge suppression ensures that the connected equipment is protected even in the harshest of environments. 2-Wire RS-485, 4-Wire RS-485 and RS-422 are supported.

The repeater operates on externally sourced 10 to 30 VDC power. The enclosure has a DIN rail mount that is designed to fit easily on a standard 35mm rail. The 485OPDR is ideal for your critical industrial communications needs.

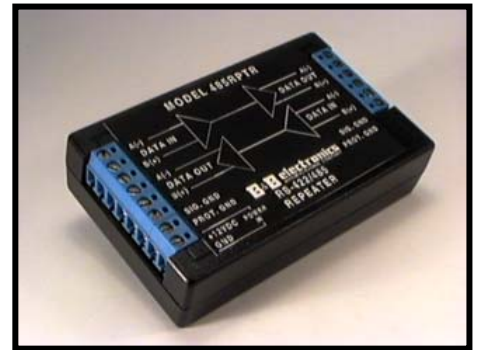
Specifications

RS-422/485	
Connector Signals	Terminal Block TDA(-), TDB(+), RDA(-), RDB(+), GND RS-485 2-Wire and 4-Wire Protected GND on Isolated Side
Isolation	
Method	Optical
Rating	2000 V
Surge Suppression	
Method	TVS
Rating	6.5V bi-directional avalanche breakdown device 500W peak power dissipation
Response Time	< 1 pico-second
Industrial Bus	
	MODBUS ASCII/RTU
Power	
Connector	Terminal Block
Voltage	10 to 30 VDC
Power Consumption	0.7 W
Source	External
Terminal Blocks	
Wire Size	24 to 14 AWG
Torque	4 kgf-cm
LED Indicators	
2 DATA LEDs (RED)	Data LED for each side of isolator Flashes when data transmitted
Enclosure	
Material	Plastic
IP Rating	20
Dimensions	1.0 x 3.1 x 3.7 in (2.5 x 7.9 x 9.5 cm)
Mounting	35 mm DIN (Panel Mount Adapter is available)
Environmental	
Operating Temperature	-40 to 80 C (-40 to 176 F)
Storage Temperature	-40 to 85 C (-40 to 185 F)
Operating Humidity	0 to 95% Non-condensing
MTBF	225299 hours
MTBF Calculation Method	MIL217F Parts Count Reliability
Agency Approvals	
	CE, FCC cULus Recognized, File E222870
Ordering Information	
Model Number	485OPDR
Power Supply	An external source is required. MDR-20-24 Recommended
Panel Mount Adapter	DRPM25



RS-422/485 Line Repeater With Surge Suppression

Model 485RPTR



Introduction

The 485RPTR can extend RS-485 data lines an additional 4000 feet. The 485RPTR can expand an existing RS-485 system greater than the 32 node limitation defined by the RS-485 Standard. A typical setup using the 485RPTR as an RS-485 repeater is shown in Figure 3. The unit has surge suppression on both sides to dampen any transient voltage spikes.

The 485RPTR uses terminal blocks on each side of the device and supports Transmit Data (A) and (B), Receive Data (A) and (B), Signal Ground, and Protective Ground. Switch positions are the same for both switches on the 485RPTR (e.g. switch position 3 on both switches is 9600 baud).

Connection

The 485RPTR can operate in two-wire half-duplex systems, four-wire half-duplex systems, or full-duplex systems (see Figures 1 and 2). The 485RPTR can also operate as a four-wire to two-wire converter (Figure 2). By connecting one side of the 485RPTR as a two-wire device and one side as a four-wire device, equipment meant for a point-to-point RS-422 interface can be connected directly to an RS-485 two-wire multi-drop system.

As a good practice, protective ground (Prot.GND) should be tied to a good frame (chassis, green wire, or earth) ground. The RS-422/485 Application Note explains how to use termination resistance and how to ground RS-422/485 systems. The Application Note is available on B&B's web site or one can be mailed to you free of charge upon request.

Operation

When no data is being transmitted through the 485RPTR, the receivers are enabled on both sides of the device. As data is received on one side of the 485RPTR, the opposite driver is enabled. When the 485RPTR receives the falling edge of the last data bit, it waits one character time to disable the driver. This timeout period is factory preset for about one millisecond to accommodate a baud rate of 9,600 bits per second. The timeout period can be selected with dipswitches by removing the cover. The preset baud rate dipswitch settings available on the 485RPTR should accommodate most systems. Alternative timeouts can be achieved by turning the baud rate dipswitches OFF (for recommended baud rates timeouts see table 2) and placing a specified value through hole resistor (R7 & R26) and/or through hole capacitor (C2 & C7). Through hole resistor values for time-out periods are given in Table 2.

The 485RPTR is set up at B&B in two-wire mode (switch positions 7 & 8 are ON) at a baud rate of 9600 (switch position 3 is ON).

Specifications

Data Rates: Up to 460.8K baud.
Temperature Rating: 0°C to +80°C
Power Requirements: 9 to 14VDC @ 60mA
Dimensions: 3.8"L x 2.4"W x 1.0"H
FCC Approved Class A



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Table 1. Baud Rate Selection

	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	R7 & R26	Time (ms)
1200	OFF	OFF	OFF	OFF	OFF	OFF	820kΩ	9.02
2400	ON	OFF	OFF	OFF	OFF	OFF	Not Used	4.73
4800	OFF	ON	OFF	OFF	OFF	OFF	Not Used	2.20
9600	OFF	OFF	ON	OFF	OFF	OFF	Not Used	1.10
19200	OFF	OFF	OFF	ON	OFF	OFF	Not Used	.62
38400	OFF	OFF	OFF	OFF	ON	OFF	Not Used	.29
57600	OFF	OFF	OFF	OFF	OFF	ON	Not Used	.17
76800	ON	OFF	ON	ON	OFF	OFF	Not Used	.15
115200	ON	ON	ON	OFF	OFF	OFF	Not Used	.11
153600	OFF	OFF	OFF	OFF	OFF	OFF	6.2kΩ	.07
230400	OFF	OFF	OFF	OFF	OFF	OFF	4.3kΩ	.05
460800	OFF	OFF	OFF	OFF	OFF	OFF	2kΩ	.02

Table 2. Typical Setups

	Position 7 TX Enable	Position 8 RX Enable
RS-485 2-Wire Mode (half duplex)	ON	ON
RS-485 4-Wire Mode (full duplex)	ON	OFF
RS-422 Mode (full duplex)	OFF	OFF

FIG. 1 FOUR WIRE SETUP

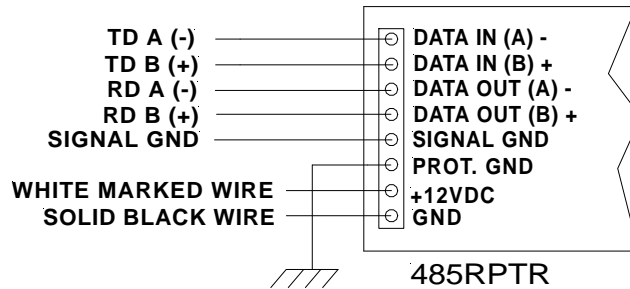


FIG. 2 485RPTR AS A FOUR WIRE TO TWO WIRE CONVERTER

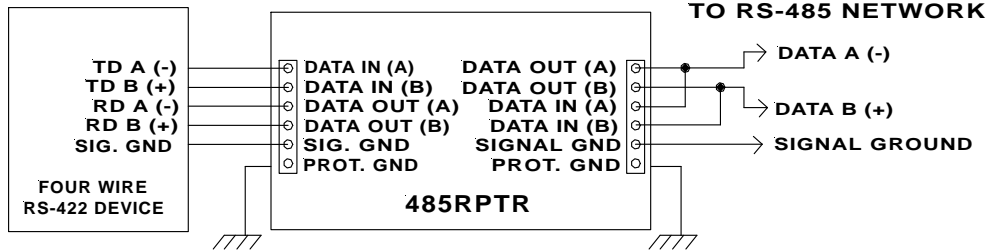
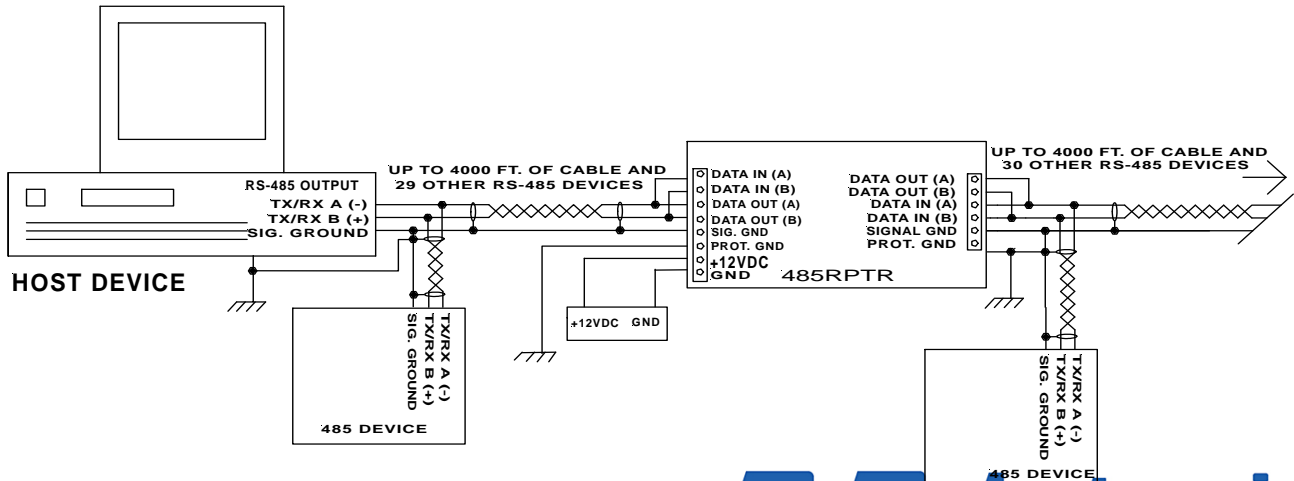
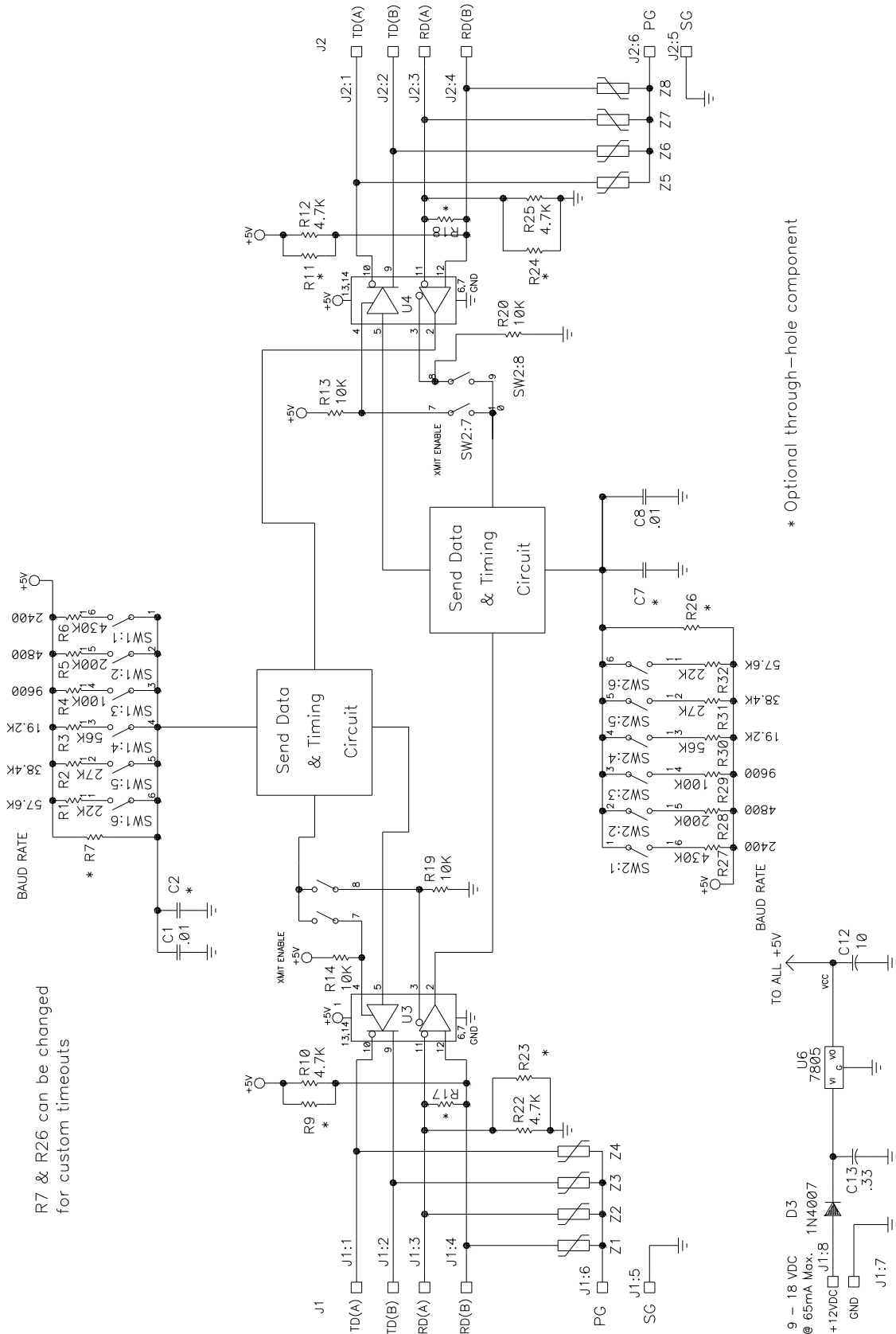


Fig. 3 485RPTR AS A TWO WIRE RS-485 REPEATER



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* Optional through-hole component



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9 - 18 VDC
 @ 65mA Max. 1N4007
 +12VDC J1:8
 GND J1:7