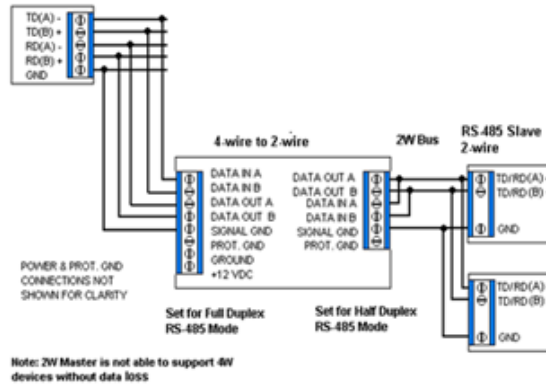
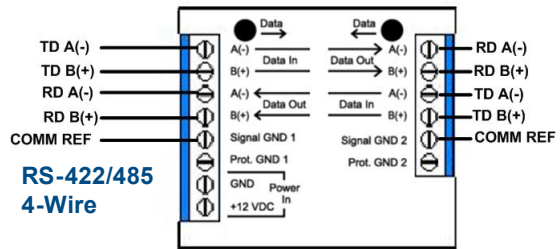
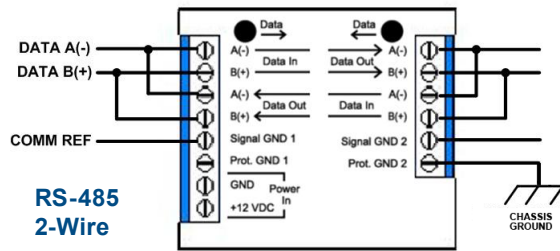
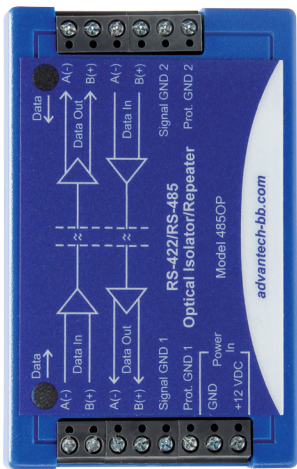


# Product Overview



RS-485 Master 4-Wire

## 1 Wire the 485OP

Label	Side	Signal
A(-) Data In	Left	TDA(-) / Data A(-)
B(+) Data In	Left	TDB(+) / Data B(+)
A(-) Data Out	Left	RDA(-) / Data A(-)
B(+) Data Out	Left	RDB(+) / Data B(+)
Signal GND 1	Left	Signal Ground
Prot. GND 1	Left	Protected Ground
GND	Left	Power Ground
A(-) Data Out	Right	RDA(-) / Data A(-)
B(+) Data Out	Right	RDB(+) / Data B(+)
A(-) Data In	Right	RDA(-) / Data A(-)
B(+) Data In	Right	RDB(+) / Data B(+)
Signal GND 2	Right	Signal Ground
Prot. GND 2	Right	Protected Ground

## 2 Set the Jumpers

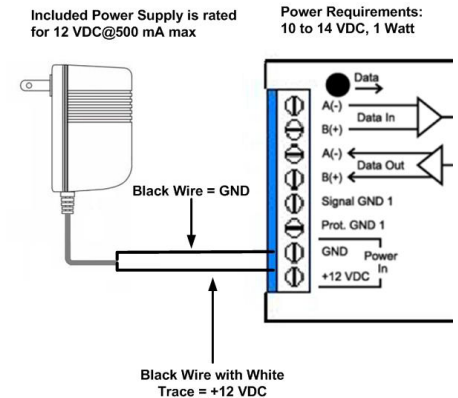
Set the Jumpers for 2 or 4-wire and for baud rate. Default on both sides is 2-Wire, 9600. If you want to set the unit for 4-Wire or change the baud rate, you will need a screwdriver. Remove the 4 screws and open the unit. Set jumpers as shown below.



Baud Rate	Time (ms)	R26 & R27 (KΩ)	C15 & C16 (mfd)	JP2 & Jp4
300	33.3	330	0.1	E*1
600	16.6	160	0.1	E*1
1200	8.33	820	STD (0.01)	E*1
2400	4.16	STD (430)	STD (0.01)	A
4800	2.08	STD (200)	STD (0.01)	B
9600	1.04	STD (100)	STD (0.01)	C
19.2 K	0.52	STD (56)	STD (0.01)	D
38.4 K	0.26	STD (27)	STD (0.01)	E
57.6 K	0.17	39	STD (0.01)	E*2
115.2 K	0.087	11	STD (0.01)	E*2
230.4 K	0.044	4.7	STD (0.01)	E*2
460.8 K	0.022	2.2	STD (0.01)	E*2

If you set the unit for 38.4 it will usually work at higher baud rates. If you need a specific turn-around time go to: <http://www.bb-elec.com/Products/Serial-Connectivity/Isolators-Repeaters/Optically-Isolated-Repeaters.aspx> and go to the tech notes.

## 3 Power the Unit



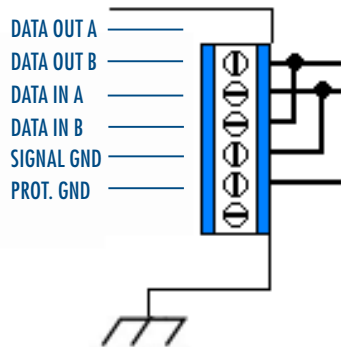
## 4 Loopback Test

You can perform a loopback test by connecting the 485OP to an RS-422 to an RS-422/485 converter, or by connecting it to a USB to RS-422/485 converter.

Set the 485OP for Full duplex on both sides with the jumpers (See step 2). Attach the 232 to 422/485 or USB converter to 1 side of the 485OP. Jump Data In A to Data Out A and Data in B to Data Out B on the other side

## Loopback Test cont..

Using HyperTerminal or similar program, connect to the appropriate COM port. Turn off Hyper Terminal local echo. Set baud rate to 9600. Transmit data. If you can see the data you are typing the test is successful



## Troubleshooting

### Q. What type of cable do I need for RS-422/485?

A. Category 5 cable is available as shielded twisted pair (STP) as well as unshielded twisted pair (UTP) and generally exceeds the recommendations for RS-422 making it an excellent choice for RS-422 and RS-485 systems.

### Q. How do I wire the 485OP for 2-wire?

A. Make sure to externally jump TDA to RDA and TDB to RDB.

### Q. Do I have to run a signal ground on the 485OP?

A. Yes, all of our Optically Isolated devices require a signal ground.

## Installation Information

Underwriters Laboratories Conditions of Acceptability – When installed in the end-use equipment, consideration should be given to the following:

1. The wiring terminals are suitable for factory wiring only.
2. This device is to be mounted in a suitable enclosure in the end-product.

3. This device is suitable for operation at a maximum surrounding air temperature as described in the documentation.

4. These devices are intended for use in a pollution degree 2 environment.

- Input Voltage: 10 – 14 VDC
- Input Power: 1.0 Watt
- Wire Range: 22 – 14 AWG
- Tightening Torque: 0.5 Nm
- Temperature rating of field installed conductors is 105 C minimum, sized for 60 C ampacity.
- Use copper wire only Maximum surrounding ambient air temperature 55 C.

## Recommended Accessories

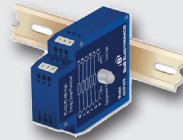
### ESR35

Steel DIN mounting rail



### HESP4DR

Dataline Surge Suppressor



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# + QUICK START GUIDE



## 485OP

RS-422/485 Repeater

Before you begin, be sure you have the following:

- + 485OP
- + 12 VDC Wall Power Supply with Stripped and Tinned Leads

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