ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *B and B Electronics 4850PIN* at our website: *Click HERE*

Documentation Number –p/n 8679R0 485OP-1510qsg
©2010 B&B Electronics Manufacturing Company

Quick Start Guide
485OP
Optically Isolated RS-422/485 Repeater



1 Check for All Required Hardware

- ❑ 485OP Optically Isolated Repeater
- ❑ This Quick Start Guide
- ❑ 12VDC Wall Power Supply with stripped and tinned leads.

2 UL Installation Information

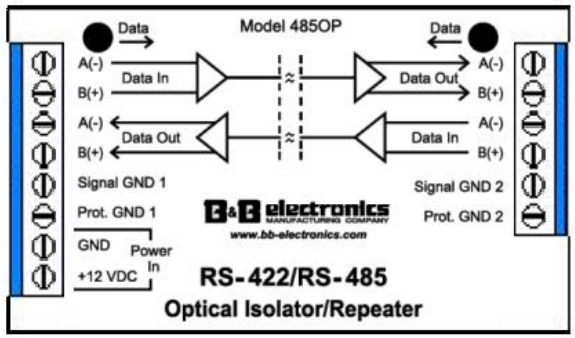
Underwriters Laboratories Conditions of Acceptability – When installed in the end-use equipment, consideration should be given to the following:

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

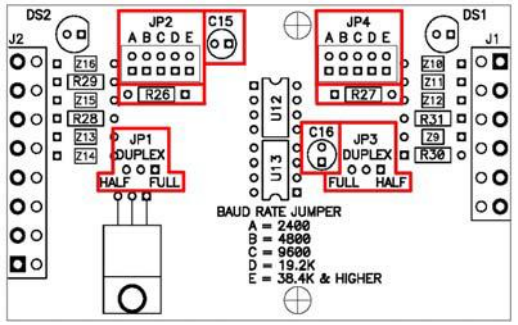
Maximum surrounding ambient air temperature 55 C

3 Information – Terminal Block

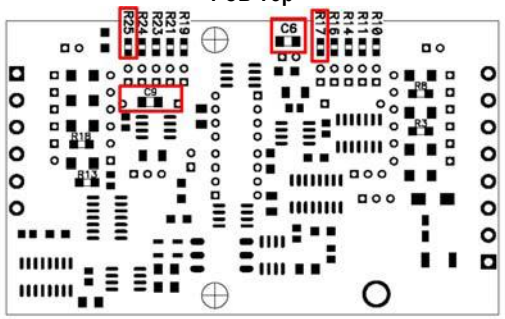


Label	Side	Signal
A(-) Data In	Left	TDA (-) / Data A(-)
B(+) Data In	Left	TDB(+) / Data B(+)
A(-) Data Out	Left	RDA(-) / Data A(-)
B(+) Data Out	Left	RDB(+) / Data B(+)
Signal GND 1	Left	Signal Ground
Prot. GND 1	Left	Protected Ground
GND	Left	Power Ground
+12 VDC	Left	10 – 14 VDC Power Input
A(-) Data 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

4 Mode & Character Timeout



PCB Top



PCB Bottom

Operating Mode

Mode	JP1 & JP3 Position
RS-485 2-Wire (Half Duplex)	Center to Half
RS-484 4-Wire (Full Duplex)	Center to Full
RS-422 (Full Duplex)	Center to Full

Jumpers JP1 and JP3 determine whether the receivers will be disabled when transmitting (half-duplex) or always enabled (full duplex). As a general rule, JP1 and JP3 should be in the half-duplex position for two-wire operation and in the full duplex position for four-wire systems.

B&B electronics MANUFACTURING COMPANY

International Headquarters: 815-433-5100 *www.bb-elec.com*
European Headquarters: +353 91 792444 *www.bb-europe.com*

Artisan Scientific - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisan-scientific.com

©2010 B&B Electronics Manufacturing Company

Timeout Values

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
19.2K	0.52	STD (56)	STD (0.01)	D
38.4K	0.26	STD (27)	STD (0.01)	E
57.6K	0.17	39	STD (0.01)	E*2
115.2K	0.087	11	STD (0.01)	E*2
230.4K	0.044	4.7	STD (0.01)	E*2
460.8K	0.022	2.2	STD (0.01)	E*2

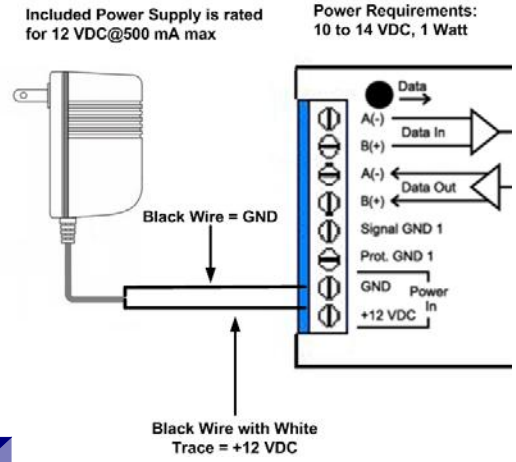
Notes

***1 – Remove resistors R25 & R17 when installing R26&R27, remove C6 & C9 when installing C15 and C16 for 300 or 600 baud.**

***2 – Leave R25 & R17 in place when installing R26 & R27 values listed.**

When no data is being transmitted, the receivers are enabled on both sides of the device. As data is received on one side, the opposite driver is enabled and the data traffic LED is turned on. When the 485OP 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 one millisecond to accommodate a baud rate of 9,600 bits per second. The timeout period can be changed to any value between 0.26 and 4.16 milliseconds by moving jumpers JP2 and JP4. The preset timeouts should accommodate most systems. However, additional timeouts can be achieved by placing JP2 and JP4 in position E and changing the value of the capacitors C6 and C9 and the resistors R17 and R25. Spaces for through-hole replacement of these components are available on the PCB. They are labeled C15, C16, R26 and R27.

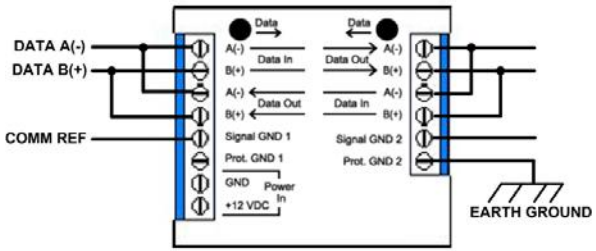
5 Power Connection



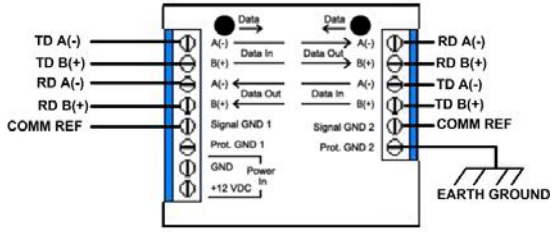
6 Wiring Examples

Proper operation of any RS-485 System requires the presence of a signal return path. The RS-485 standard recommends that a third wire be used for this. For the transient protection to work, the Protective Ground should go directly to a local earth ground or chassis ground. If the wiring to the device is short, Protective Ground is not required on the left side. Protective Ground should never go to Signal Ground.

❑ . Two Wire RS-485



❑ RS-422/ Four Wire RS-485



7 Operating Indications

❑ The DATA LEDs (Red) will flash as data is received as indicated by the direction arrow on the label.

B&B electronics MANUFACTURING COMPANY

International Headquarters: 815-433-5100 *www.bb-elec.com*
European Headquarters: +353 91 792444 *www.bb-europe.com*

Artisan Scientific - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisan-scientific.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP