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PRODUCT INFORMATION

485OI9TB

Optically Isolated RS-232 to RS-422/485 Converter

- ✓**1500 V Optical Isolation**
- ✓**Converts RS-232 to RS-422/485**
- ✓**4-Wire Full-duplex RS-485**
- ✓**2-Wire Half-duplex RS-485**

The 485OI9TB converts unbalanced, full-duplex RS-232 signals to balanced full-duplex (4-Wire) RS-422/485 or half-duplex (2-Wire) RS-485 signals. It also provides 1500 Volts RMS optical isolation of the data lines and ground between the RS-232 and RS-422/485 signals.

The RS-232 port has a female DB9 connector with Pin 3 (TD), Pin 2 (RD), and Pin 5 (Ground) passed through. The RS-422/485 port has a 6 position terminal block. The RS-232 side of the converter derives its power from the DTR (Pin 4) and the RTS (Pin 7) lines. One or the other must be raised to power the RS-232 side. The RS-422/485 side is powered by a 12 VDC power supply which is purchased separately.

Specifications

RS-232	
Connector	DB9 Female (DCE)
Signals	TD, RD, GND
RS-422/485	
Connector	Terminal Block
Signals	TDA(-), TDB(+), RDA(-), RDB(+), GND
Modes	2-Wire and 4-Wire
Baud	Up to 115.2 Kbps
Isolation	
Lines Protected	Data Lines
Method	Optical
Rating	1500 V
Power (RS-422/485 Side)	
Connector	Terminal Block
Voltage	10 to 14 VDC
Power Consumption	0.9 W
Source	External
Power (RS-232 Side)	
Port Powered	DTR & RTS Lines
Terminal Block	
Wire Size	26 to 16 AWG
Torque	2.0 lbfin
Enclosure	
Material	Plastic
Dimensions	2.2 x 3.3 x 0.7 in (5.5 x 8.3 x 1.7 cm)
Mounting	In Line
Environmental	
Operating Temperature	0 to 50 °C (32 to 122 °F)
Operating Humidity	0 to 95% Non-condensing
MTBF	272581 hours
MTBF Calculation Method	MIL 217F Parts Count Reliability
Agency Approvals	CE, FCC cULus Listed, file E222870
Ordering Information	
Model Number	485OI9TB
Power Supply	An external source is required. US – 485PS2 EU – PS2EU-1000 UK – PS2UK-1000

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UL Installation Guidance

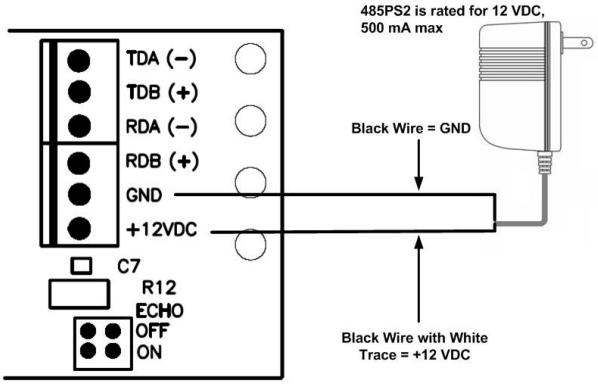
- Input Voltage: 10 – 14 VDC
- Input Power 0.9 Watts
- Wire Range: 26 – 16 AWG
- Tightening Torque: 2.0 lbfin
- Temperature rating of field installed conductors is 105 °C minimum, sized for 60 °C ampacity.
- Use copper wire only
- Maximum surrounding ambient air temperature 50 °C

Power

RS-422/485 Side – See RS-232 section for powering RS-232 Side.

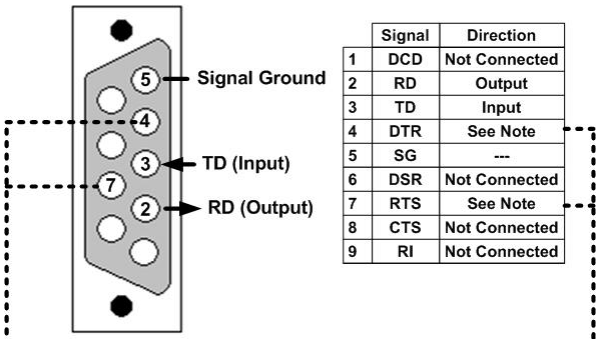
This diagram shows installation of recommended power supply 485PS2. EU and UK power supplies are also available.

Power Requirements: 10 to 14 VDC, 0.9 Watts



RS-232

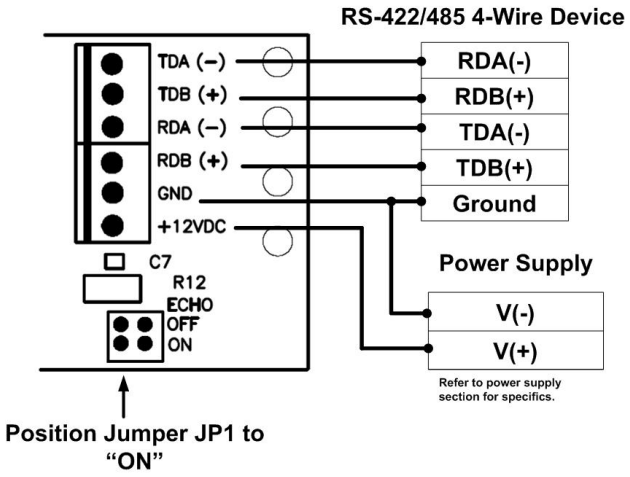
DB9 Female (DCE)



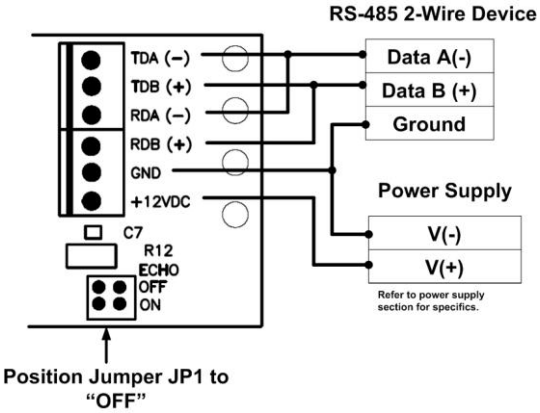
	Signal	Direction
1	DCD	Not Connected
2	RD	Output
3	TD	Input
4	DTR	See Note
5	SG	---
6	DSR	Not Connected
7	RTS	See Note
8	CTS	Not Connected
9	RI	Not Connected

The RS-232 Side of the Converter is powered by the DTR Line (Pin 4) and the RTS Line (Pin 7). One or the other, preferably both, must be raised to a positive state. The Power Supply connected to the terminal block is used to power the RS-422/485 side.

RS-422/4-Wire RS-485



2-Wire RS-485



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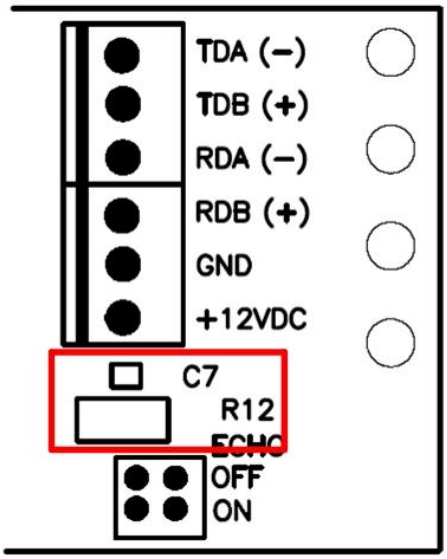
Time-out Selection

The RS-485 driver is enabled by the first transmission of the RS-232 side of the transmit data line (Pin 3). Any transmission on the TD line keeps the RS-485 driver enabled. The transmitter is disabled approximately 1ms after the last transmitted character. This 1ms time out should not have to be changed for data rates of 9600 baud or higher.

If other time-outs are required, R12 and C7 can be replaced with component values listed below.



Baud	Time-out	R12 (Ohms)	C7 (mfd)
300	33.3 ms	330K	0.1
600	16.6 ms	160K	0.1
1200	8.33 ms	820K	0.01
2400	4.16 ms	430K	0.01
4800	2.08 ms	200K	0.01
9600	1.04 ms	100K	0.01
19.2K	0.520 ms	56K	0.01
38.4K	0.260 ms	27K	0.01
57.6K	0.176 ms	16K	0.01
115.2K	0.0868 ms	8.2K	0.01

Mechanical Diagram