

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 lbf-in |
| 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 |

UL Installation Guidance

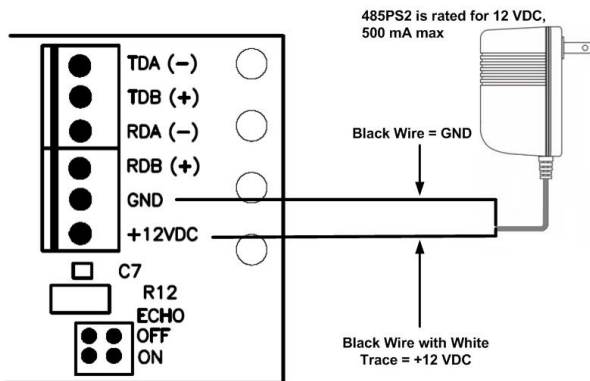
- Input Voltage: 10 – 14 VDC
- Input Power 0.9 Watts
- Wire Range: 26 – 16 AWG
- Tightening Torque: 2.0 lbf-in
- Temperature rating of field installed conductors is 105 °C minimum, sized for 60 °C ampacity.
- Use copper wire only
- Maximum surrounding ambient air temperature 50 °C

Power

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

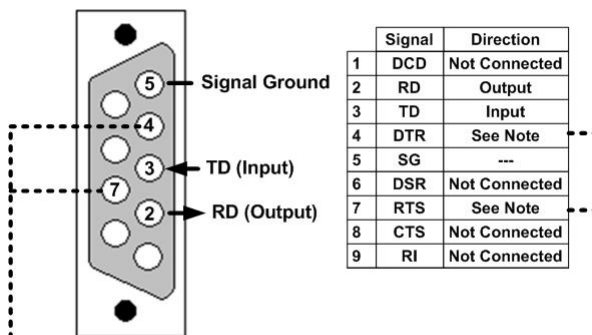
This diagram shows installation of recommended power supply 485PS2. EU and UK power supplies are also available.

Power Requirements:
10 to 14 VDC, 0.9 Watts



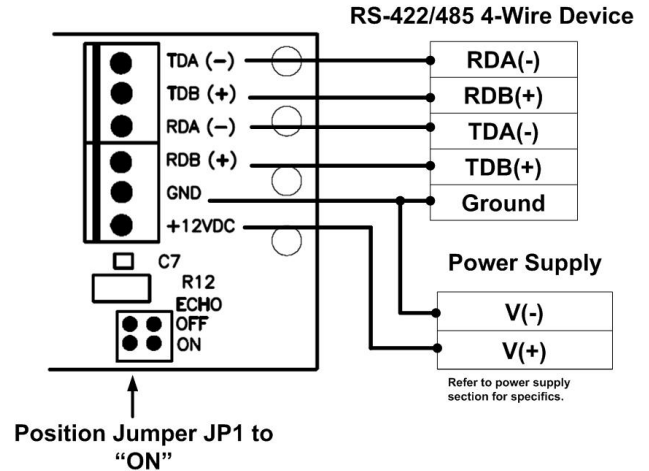
RS-232

DB9 Female (DCE)

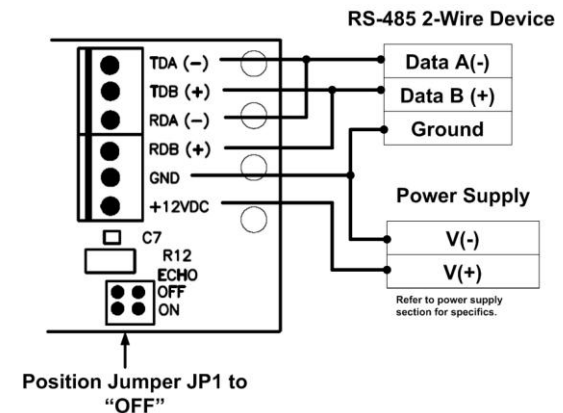


The RS-232 Side of the Converter is powered by the DTR Line (Pin 4) and the RTS Line (Pin 7). One or the other, preferably both, must be raised to a positive state. The Power Supply connected to the terminal block is used to power the RS-422/485 side.

RS-422/4-Wire RS-485



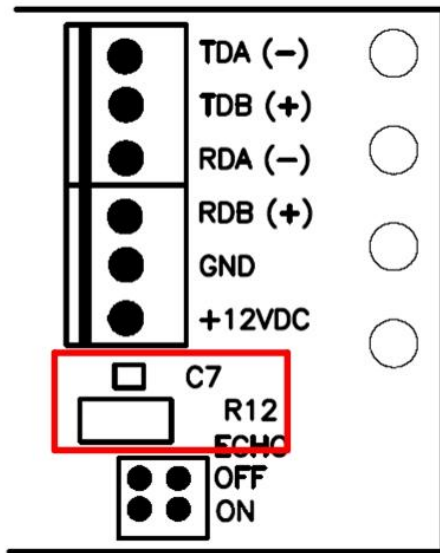
2-Wire RS-485



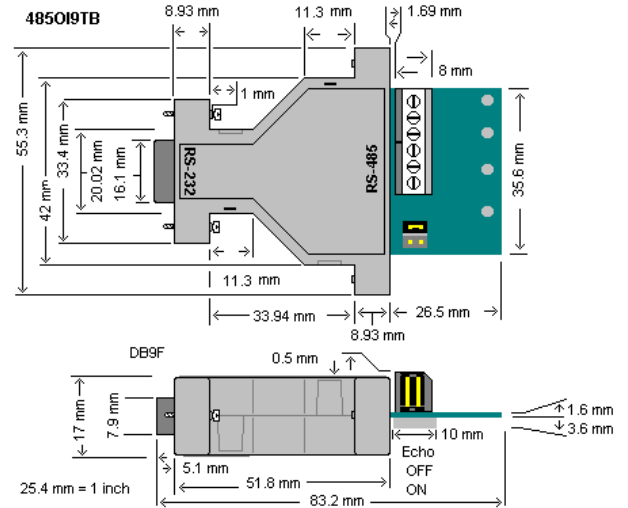
Time-out Selection

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.



Mechanical Diagram



| 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 |