

# DCP-485

## Fully Isolated RS-232/RS-485 Converter

- ✓ 1500 VRMS Isolation with Optical Couplers and Power DC-to-DC Converter (6,000 VDC, 1 min)
- ✓ Industrial Surge Protection Devices and 15 KV ESD Protected RS-232 Inherent
- ✓ Four LED Diagnostic Indicators
- ✓ 115.2 K BPS (BAUD) at 0.8 mile (1.3 km), 38.4 K BPS (BAUD) at 1 mile (1.6 km)
- ✓ RTS, DTR, or Auto RS-485 Transmitter Control
- ✓ Tri-State Outputs for Multidrop Applications, up to 32 Devices
- ✓ Selection of Connectors
- ✓ Pluggable Solderless Screw Terminal Field Connections
- ✓ Easily Mounts on Standard DIN Rail
- ✓ 2-Wire or 4-Wire RS-485

The DCP485 is a compact RS-232-to-RS-485 converter which features a complete electrical isolation barrier and heavy duty electrical surge protectors. These devices feature a DIN rail mountable enclosure, for application to a junction box, a panel, a relay rack, the side of your computer, or anywhere a DIN rail can be mounted. Isolation is provided by optical couplers and a transformer-isolated DC-to-DC converter. The RS-232 connection is made through male or female EIA 9-pin D sub connectors, or a 3-wire RS-232 connection can be made through convenient pluggable screw terminals. The RS-485 connections are made through convenient pluggable solderless screw terminals.

The DCP485 series is designed for full duplex operation over two-wire pairs. Outputs are tri-state, allowing multidropping of up to 32 units. Data rates are up to 115.2 K bits per second (baud). Four diagnostic LED



**\$261**  
Basic Unit

indicators are provided for installation guidance and system troubleshooting. The RS-232 interface includes Request To Send (RTS) and Data Terminal Ready (DTR), either of which can be used via a DIP switch to enable the RS-485 transmitter. Alternately, the DCP-485 offers automatic line switching: the RS-485 transmitter is enabled automatically by each character sent on the RS-232 Transmit Data (TD) line. Additionally, the RS-485 transmitter and receiver can be independently enabled continuously or under RS-232 control. A convenient null modem switch is provided for the data lines. Also, line termination switches independently connect line termination and line bias resistors to the RS-485 lines. The units are powered from wide-range voltages of 10 to 30 Vdc through pluggable solderless screw terminals.

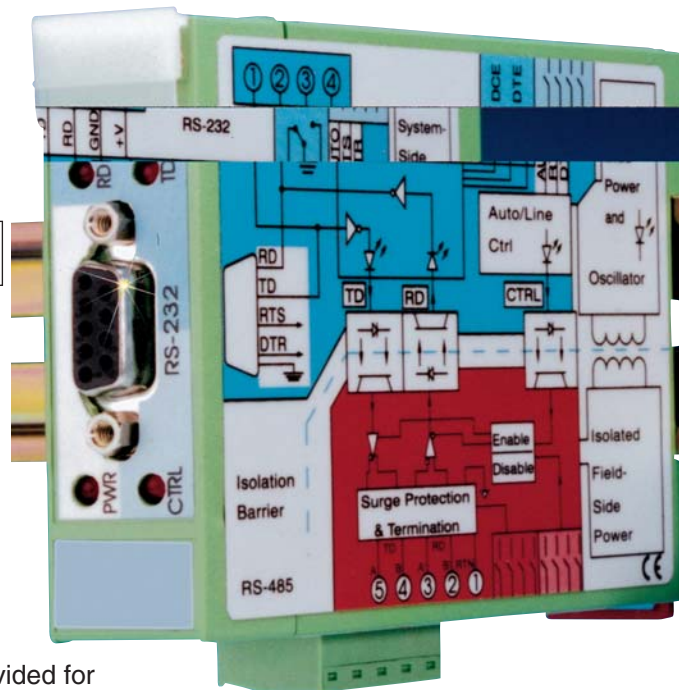
### Component Functions and Descriptions:

#### Front of Unit—DB-9 Connector

RS-232 standard 9-position D sub pinout with pin 9 not connected

#### LED's

TD - shows state of RS-232 Transmit Data line - "on" when TD is a SPACE.



RD - shows state of RS-232 Receive Data line - "on" when RD is a SPACE.  
CTRL - shows state of RS-232 control line (RTS/DTR) or data enabled auto mode  
RS-485 transmitter control line - LED is on when control line is asserted.  
PWR - is on when DCP-485 is supplied with +10 to +30 Vdc power.

#### RS-232 Side – Terminal Block

Includes DCP-485 power input and optional RS-232 TD, RD and ground connections.

#### DIP Switches

COMM MODE DCE/DTE - reverses pins 2 & 3 of the DB-9 connector and screw terminals 3 & 4 of the RS-232/Power terminal block.  
CTRL MODE AUTO/RTS/DTR - select AUTO mode or RTS/DTR to enable the RS-485 transmitter.  
LINE RTS/DTR - select RTS or DTR to enable the RS-485 transmitter.

#### RS-485 Side – Terminal Block

Includes four RS-485 terminals and one isolated return terminal

## DIP Switches

TD Term - switches a 120 Ω termination resistor across the RS-485 transmit data lines TD A & TD B.

RD Pull Up/Term/Pull Dn - RD Term switches a 120 Ω termination resistor across the RS-485 receive data lines. RD Pull Up & RD Pull Dn switch a pull up resistor to RD B' and a pull down resistor to RD A', respectively.

TD Cont En/Ctrl'd - select continuous enable or RS-232 side signal control of the RS-485 transmitter. RD Cont En/Ctrl'd - select continuous enable or RS-232 side signal control of the RS-485 receiver.

## Specifications

**Baud Rates (bps):** 115.2 K, 57.6 K, 38.4 K, 19.2 K, 9.6 K, 4.8 K, 0-2.4 K  
**Distance (miles):** 0.8, 0.9, 1.0, 2.6, 3.5, 4.0, 7.0

**Distance (km):** 1.3, 1.5, 1.6, 4.2, 5.6, 6.4, 11.3

**Wire Capacitance:** equal to 25 pF per foot and up to 32 multidrop units

**Max Multidrop Units:** 32

### COMMON MODE ISOLATION

**Surge:** 6000 Vdc, 1 min.

**Continuous:** 1500 Vrms

**Differential Mode Surge**

**Protection:** (dc input and RS-232 inputs and outputs, RS-485 inputs and outputs)

**Modes:** Asynchronous 4-wire duplex, 2-wire half duplex, 2-wire simplex

**Channel Lines:** (1) TD, RD

**Control Lines:** (1) RTS, DTR

**Null Modem Switch:**

1 (Reverses RS-232 pins 2 and 3)

**RS-485 Output Drive:** 28 mA max/output

**RS-485 Input Impedance:**

12 kΩ min/input

**Power:** 10 to 30 Vdc @ 150 mA max

### TEMPERATURE

**Operating Range:** 0 to 60°C

(32 to 140°F)

**Storage Range:** 0 to 70°C

(32 to 158°F)

**Relative Humidity:** 0 to 95%

non-condensing

**Altitude:** To 4574 m (15000')

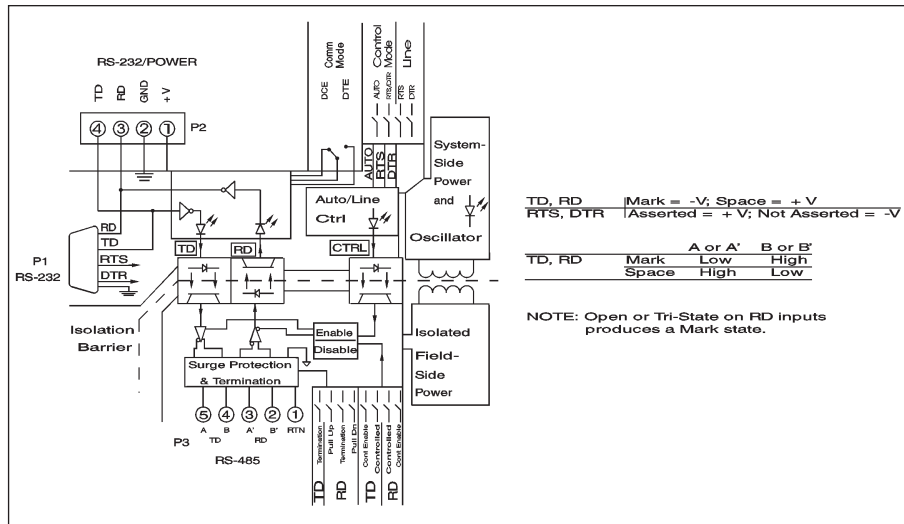
**Dimensions:**

109 mmH x 84mmW x 22.5 mmD

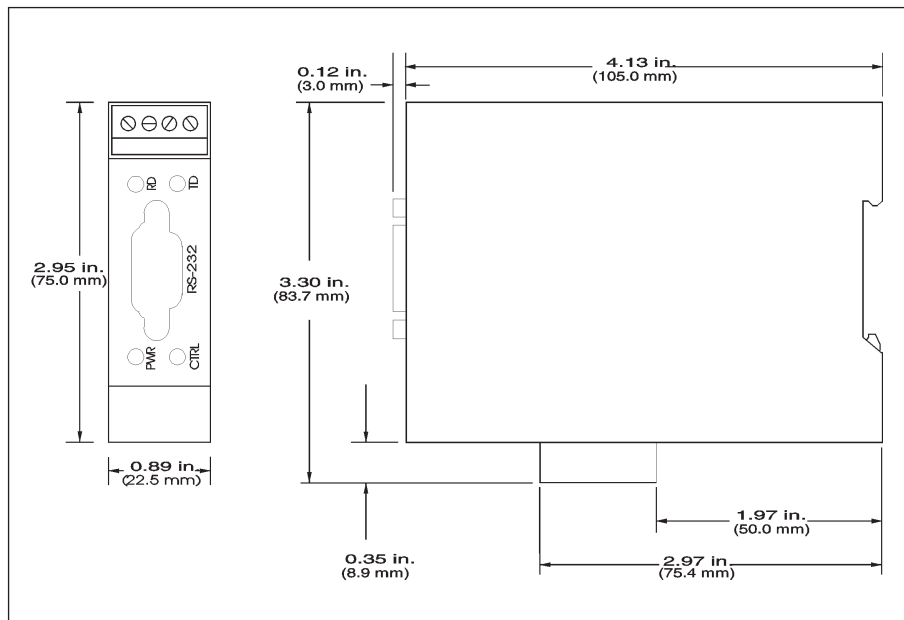
(4.3 x 3.3 x 0.89")

**Weight:** 130 g (4.6 oz)

**MTBF:** (2) >100,000 hrs



DCP-485 Block Diagram



Dimensions for DCP-485

## To Order (Specify Model Number)

Model Number	Price	Description
DCP-485-P	\$261	Isolated RS-232/RS-485 converter with male RS-232 9-pin connector
DCP-485-S	261	Isolated RS-232/RS-485 converter with female 9-pin connector

Includes complete operator's manual.

**Ordering Example:** DCP-485-S and OMEGACARE<sup>SM</sup> 1-year extended warranty for DCP-485-S adds 1 year to standard 1-year warranty), \$261 + 26 = \$287.

### Notes:

(1) TD = Transmit Data, RD = Receive Data, RTS = Request to send, DTR = Data Terminal Ready.  
 (2) Ground-benign environmental conditions (no salt atmosphere, <50°C ambient temperature).



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