DCP35

DIN Rail Signal-Powered RS-232 Line Drivers

Description

The DCP35 series of products is designed to allow RS-232 devices to be inter-connected over distances sufficient to cover any industrial or institutional complex of buildings. These line drivers feature a DIN rail mountable enclosure for application to a junction box, a panel, a relay rack, the sides of computer equipment, or anywhere a DIN rail can be mounted.

The DCP35 series does not require a power supply for operation. The use of low power circuits and a sensitive optically isolated receiver allows the devices to derive all necessary power from the RS-232 data and control signals. They are designed for full-duplex, asynchronous operation over two, DC-continuous, non-loaded, twisted-wire pairs. Two-wire simplex operation may be accomplished over one twisted-wire pair. The line driver circuits — and, consequently, the host device — are protected from electrical transients due to lightning strikes or operation of heavy industrial equipment.

Each device features a convenient DCE (Data Communication Equipment) to DTE (Data Terminal Equipment) switch which reverses pins 2 and 3 of the RS-232 connector. For installation and system troubleshooting each unit has diagnostic Light Emitting Diodes (LEDs) on the transmit and receive lines.

The RS-232 connector may be ordered as a male or female 9-pin connector. Field connection is made through pluggable solderless screw terminals.

▶Features

- Signal-powered: No Power Source Required
- Optical Isolation: Breaks Ground Loops
- Heavy Duty Surge Protectors: Prevents Lightning Damage
- LED Diagnostic Indicators: Simplifies Installation and System Troubleshooting
- 19.2kbps to 0.5 Mile (0.8km), 9.6kbps to 2.0 Miles (3.2km), 1.2kbps to 7.0 Miles (11.3km)
- Four-Wire Full Duplex, Two-Wire Simplex
- Pluggable Solderless Screw Terminal Field Connections
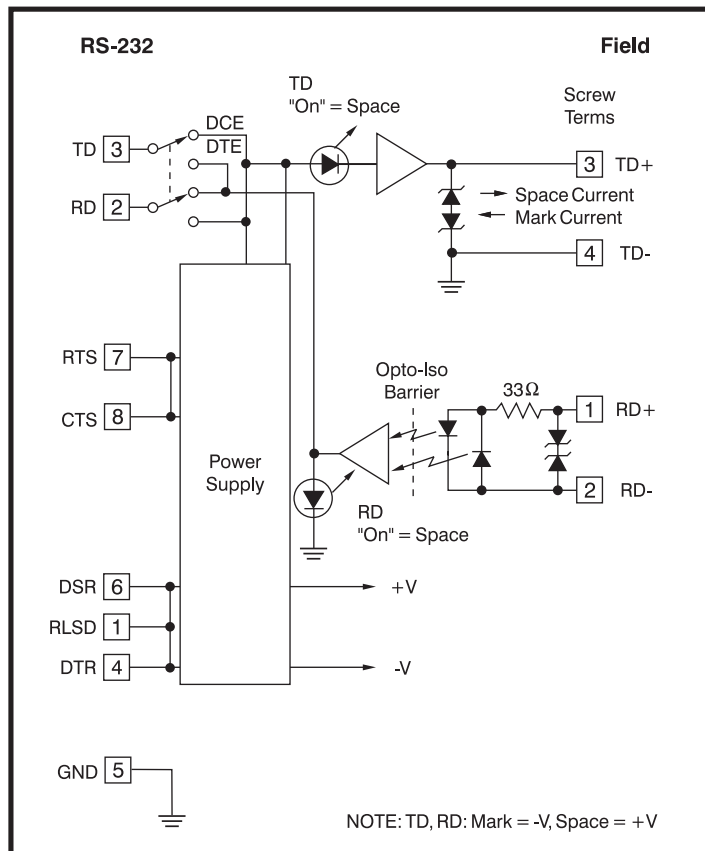- Null Modem Switch
- CE Compliant

Figure 1: DCP35 Block Diagram

Specifications Typical* at T_A=+25°C

Model	DCP35
Bit Rate (bps)	0-19.2kbps
bps vs Distance	19.2k 9.6k 4.8k 2.4k 1.2k-0
Distance(miles)	0.5 2.0 3.0 5.0 7.0
Distance(km)	0.8 3.2 4.8 8.1 11.3
Common Mode Isolation	Surge: 500Vp, 1 min.
	Continuous: 300Vrms
Differential Mode Surge Protection (3 devices)	ANSI/IEEE C37.90.1
Modes	Asynchronous 4-wire full-duplex, 2-wire simplex
Channel Lines[1]	TD, RD
Control Lines[1]	RTS, CTS, DTR, DSR, RLSD(DCD)
Null Modem Switch	1 (Reverses RS-232 pins 2 and 3)
Power	RS-232 data and control signals
RS-232 Data	±5V to ±15V, 3.0mA to 10.0mA
RS-232 Control Signals	±6V to ±15V, 3.0mA to 10.0mA
Environmental:	
Operating Temperature Range	0°C to +70°C
Storage Temperature Range	−10°C to +85°C
Relative Humidity	0 to 95% Noncondensing
Dimensions	4.2″ x 3.3″ x 0.89″
	(107mm x 84mm x 22.5mm)
Weight	4.2 oz (119g)
MTTF[2]	>150,000 hrs

NOTES:
* Contact factory or your local Dataforth sales office for maximum values.
(1) TD = Transmit Data, RD = Receive Data, RTS = Request To Send, CTS = Clear To Send, DTR = Data Terminal Ready, DSR = Data Set Ready, RLSD = Received Line Signal Detect (DCD = Data Carrier Detect).
(2) Ground-benign environmental conditions (no salt atmosphere, <50°C ambient temperature).

Ordering Information

Model	9-Pin Connector	Termination
DCP35-P	1 ch Male	Screw terminals
DCP35-S	1 ch Female	Screw terminals

RS-232 Pin Descriptions

Pin 1 RLSD [8] Receive Line Signal Detect
Pin 2 RD   [3] Receive Data
Pin 3 TD   [2] Transmit Data
Pin 4 DTR [20] Data Terminal Ready
Pin 5 SG   [7] Signal Ground
Pin 6 DSR [6] Data Set Ready
Pin 7 RTS [4] Request To Send
Pin 8 CTS [5] Clear To Send

Pin numbers given are for the 9-pin connector with the 25-pin equivalent in [ ].

Field Pin Descriptions

Screw Terms
Pin 1 RD+ Receive Data +
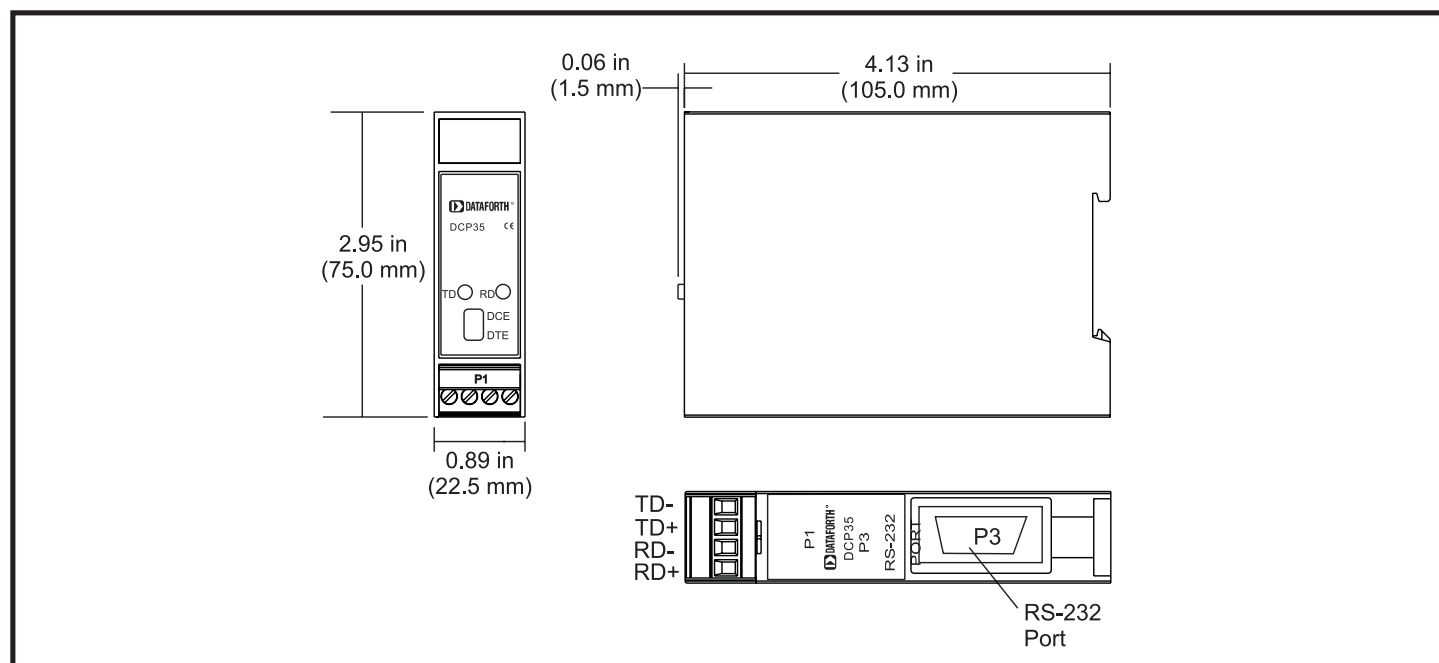Pin 2 RD- Receive Data -
Pin 3 TD+ Transmit Data +
Pin 4 TD- Transmit Data -

Figure 2: DCP35 Dimensions