

# Industrial RS-232 to RS-422/485 Converter

## 485DRCi



### PRODUCT FEATURES

- Data rates up to 115.2 kbps
- Three-way 2,000V optical isolation (input, output, power)
- Wide operating temperature
- UL Class 1/Division 2
- Modbus ASCII/RTU compatible
- 10–48 VDC input power range

Model 485DRCi industrial-grade isolated serial converter changes RS-232 signals to RS-422 for increased range, or to RS-485 for increased range plus multi-drop capability.

Designed for rugged industrial use, the 485DRCi is UL approved and certified for operation in Class 1/Division 2 environments and also offers 2,000V 3-way optical isolation on input, output, and power lines. In addition to optical isolation, the unit has surge suppression on the RS-422/485 lines. This DIN rail mountable converter optically isolates and converts unbalanced, full or half-duplex, RS-232 signals to balanced RS-422/485 signals at baud rates up to 115.2 kbps. Configuration is made via a 12-position DIP switch on the bottom of the converter.

Featuring Automatic Send Data Control circuitry, the converter does not require special software control of handshake signals in RS-485 mode. Removable terminal blocks for power and RS-422/485 signals make wiring easy. It is powered by a supply voltage of 10 to 48 VDC which is isolated from all data and signal ground lines.

### ORDERING INFORMATION

MODEL NUMBER	RS-232 CONNECTOR	RS-422/485 CONNECTOR	ISOLATION
485DRCi	DB9 Female (DCE)	Removable Terminal Block	2,000 V

### ACCESSORIES

MDR-40-24 - DIN Rail Mount Power Supply 24VDC, 1.7 A output power

EK-CLIP-MPC - Replacement DIN Rail Clip

TBKT1 - Replacement Term Block, 2 position 5.08mm

TBKT2 - Replacement Term Block, 5 position 5.08mm

### Automatic Send Data Control Explained

As operating systems become more complex, it is increasingly difficult to control an RS-485 driver with standard software and the RTS line. This is especially true in Windows and multi-tasking operating systems. With B&B Electronics' Automatic Send Data Control circuit, driver control is in the converter hardware, so you do not have to work with software at all.

The circuit monitors data flow and enables the driver during transmission and automatically disables it when no data is being sent. There is no need to rework software or install new drivers. Most B&B Electronics RS-232 to RS-485 converters and RS-485 serial cards include Automatic Send Data Control.

### IN THE FIELD

#### Resolving Electrical Substation Data Glitches

Industry: Energy & Natural Resources  
Utilities

Product: Optically Isolated Converter



[www.bb-elec.com/  
Substation](http://www.bb-elec.com/Substation)

485DRCi

Carrier data charges  
may apply.



# Industrial RS-232/422/485 Converter

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### SPECIFICATIONS

#### SERIAL TECHNOLOGY

Data Rate 1.2 to 115.2 kbps

#### RS-232

Connector DB9 female (DCE)

Signals TD, RD, GND

#### RS-422/485

Connector Removable terminal block, 28 to 14 AWG

RS-485, 2-wire Data A(-), Data B (+), GND

RS-422/485, 4-wire TDA(-), TDB(+), RDA (-), RDB(+), GND

#### ISOLATION

Rating 2,000 V

Lines Protected 3-way (input, output, power lines)

Method Optical

#### SURGE SUPPRESSION

Lines Protected Data lines

Rating 600W peak power dissipation

Clamping/Response Time < 1 pico-second

#### INDUSTRIAL BUS

Modbus ASCII/RTU

#### POWER

Connector Removable terminal block, 28 to 14 AWG

Voltage 10-48 VDC

Consumption 960 mW

Source External

#### MECHANICAL

LED Indicators Transmit, Receive, and Power

Dimensions 11.4 x 3.3 x 12.4 cm (4.5 x 1.3 x 4.9 in)

Enclosure 35mm DIN mount, plastic, IP30

Weight 204.12 g (0.45 lbs)

#### ENVIRONMENTAL

Operating Temperature -40 to +80 °C (-40 to +176 °F)

Storage Temperature -40 to +85 °C (-40 to +185 °F)

Operating Humidity 0 to 95% non-condensing

MTBF 254617 hours

MTBF Calculation Method Parts Count Reliability Prediction

#### CLASS 1/DIVISION 2 WIRING

Type Solid copper only

Size 28 to 14 AWG

Temperature 105 °C (221 °F) minimum

Terminal Torque 0.5 Nm (Newton-meters)

#### APPROVALS / CERTIFICATIONS - 485DRCi

cUL 508, File Number: E222870 (C1 D2 E245458)

FCC Part 15, CISPR, EN 55022: 2010 + AC:2011 Class B Emissions

CE

EN 61000-6-1: 2007 Generic Standards for Residential, Commercial and Light-Industrial Environments

EN 61000-4-2: 2009 Electro-Static Discharge (ESD)

EN 61000-4-3: 2006 +A1 +A2 +IS1 Radiated Field Immunity (RFI)

EN 61000-4-4: 2012 Electrical Fast Transients-Burst Immunity (EFT)

EN 61000-4-6: 2009 Conducted Immunity

Download complete Declaration of Conformity at [www.bb.elec.com](http://www.bb.elec.com)

### MECHANICAL DIAGRAM

