High-Speed, Isolated, RS-422/485 Repeater
Model BB-485OPDR-HS

Model BB-485OPDR-HS is a high speed, optically isolated RS-422/485 repeater that supports data rates up to 1.5 Mbps, making it suitable for use in fieldbus systems such as Profibus.

**Isolation** - Model BB-485OPDR-HS provides 2 kV digital isolation with 8 kV air ESD protection and 600 W transient voltage suppression on the data lines.

**Range Extension** - Model BB-485OPDR-HS can be used to extend the range of a network up to 1.2 km (4000 ft), depending on data rates, and to add additional nodes. 2-wire RS-485, 4-wire RS-485 and RS-422 are supported. Data signals and the power inputs connect to built-in terminal blocks.

**Enclosure** - The enclosure has a DIN rail mount enclosure that is designed to easily fit on standard 35mm DIN rail.

**Power** - The repeater operates on externally sourced 10 to 30 VDC power (power supply is required, not included, sold separately).

### FEATURES
- Extends RS-422/RS-485 an extra 1.2 km (4000 ft)
- 2 kV isolation, IEC ESD protections
- Data rate: 1.5 Mbps
- -40 to +80°C wide operating temperature
- DIN rail mount (panel mount with optional brackets)
- Suitable for fieldbus systems such as Profibus
- Power supply required, not included, sold separately

### ORDERING INFORMATION

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<th>MODEL NUMBER</th>
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<td>BB-485OPDR-HS</td>
<td>High Speed Isolated RS-422/485 Repeater</td>
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### ACCESSORIES - sold separately

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<th>MODEL NUMBER</th>
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<td>BB-MDR-20-24</td>
<td>DIN rail mount power supply, 24VDC, 1.0 A output power</td>
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<td>BB-MDR-40-24</td>
<td>DIN rail mount power supply, 24VDC, 1.7 A output power</td>
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### Profibus Overview

**PROFIBUS** "Process Field Bus" is communication standard for automation technologies and applications.

**PROFIBUS DP** ("Decentralized Peripherals") is the most common version of Profibus. It is used for deterministic communication between Profibus masters and their remote I/O slaves and supports numerous standard diagnostic options. Applications include production automation processes and operating sensors/actuators via centralized controllers.

**PROFIBUS PA** ("Process Automation") is less prevalent and tends to be application specific. It is often used to monitor measurement equipment via process control systems. PA and DP can be used together to help bridge application networks. PA uses the same protocol as DP so it can be linked to a faster DP backbone network to better transmit process signals from equipment to controllers. PA can also be used in hazardous areas. The IEC 61158-2 rated physical layer can bus-power instruments and limit current flow to prevent explosive conditions.

**PROFIBUS FMS** ("Field Bus Message Specification") is a complex communication protocol for more sophisticated communication needs. It supports non-deterministic data communication between Profibus masters.
**SPECIFICATIONS**

**RS-422/485**
- Connector: Terminal Block

**SIGNALS**
- TDA(-), TDB(+), RDA(-), RDB(+), GND
- RS-422
- RS-485 2-wire and 4-wire
- Protected GND on isolated side

**DATA RATE**
- Bit-Wise Enabled: Up to 1.5 Mbps

**ISOLATION**
- Method: Optical
- Rating: 2000 V

**SURGE SUPPRESSION**
- Method: TVS
- Rating: 12 V bi-directional avalanche breakdown device
- 600 W peak power dissipation
- Response Time: < 1 pico-second

**POWER**
- Connector: Terminal block
- Voltage: 10 to 30 VDC
- Power Consumption: 1.9 W, 160 mA @ 12 VDC
- Source: External (power supply required, sold separately)

**TERMINAL BLOCKS**
- Wire Size: 24 to 14 AWG
- Torque: 4 kgf-cm

**LED INDICATORS**
- 2 Data LEDs (Green): Data LED for each side of isolator
- Flashes when data transmitted

**ENCLOSURE**
- Material: Plastic
- IP Rating: 20
- Dimensions: 2.5 x 7.9 x 9.5 cm (1.0 x 3.1 x 3.8 in)
- Mounting: 35 mm DIN (optional Panel Mount Adapter available)

**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

**MEANTIME BETWEEN FAILURES (MTBF)**
- MTBF: 117316
- Calculation Method: MIL217F Parts Count Reliability

**APPROVALS AND CERTIFICATIONS**
- Agency Approvals: FCC Class B, CISPR Class B (EN55032) CE
- CE - Standards: EN 55032 Class A Electromagnetic compatibility of multimedia equipment –Emission requirements
  - EN 55024 Information Technology Equipment – Immunity Characteristics – Limits and methods of measurement
  - EN 61000-6-1 - Generic immunity standard for residential, commercial and light-industrial environments
- Other: EN61000-6-2 (Heavy Industrial) IEC60068-2-27 (Shock) 15G Peak, 11 ms, 3 axes
  - IEC60068-2-6 (Vibration) 140-500 Hz, 1G, 3 axes
  - IEC60068-2-32 (Drop) 10 total drops from sides, corner, edges

**MECHANICAL DIAGRAM**

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