

**B&B ELECTRONICS**

# High-Speed, Isolated, RS-422/485 Repeater

## 4850PDR-HS



### PRODUCT FEATURES

- 2 kV Isolation
- IEC Level 2,  $\pm 4$  kV contact ESD protection, IEC Level 3,  $\pm 8$  kV air ESD Protection
- 1.5 Mbps Data Rate
- -40 to 80°C Operating Temperature
- USB 2.0 – High Speed (480 Mbps)
- NEMA TS2

### 4850PDR-HS

The 4850PDR-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

The 4850PDR-HS provides 2 kV digital Isolation with 8 kV air ESD protection and 600 W transient voltage suppression on the data lines.

#### Range Extension

The 4850PDR-HS can be used to extend the range of a network up to 4000 ft. (1.2 km), 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 repeater operates on externally sourced 10 to 30 VDC power. The enclosure has a DIN rail mount that is designed to fit easily on a standard 35mm rail.

### ORDERING INFORMATION

MODEL NUMBER	
4850PDR-HS	High Speed Isolated RS-422/485 Repeater

### ACCESSORIES

MDR-20-24 - DIN rail mount power supply 24VDC, 1.0 A output power

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

## 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.

# High-Speed, Isolated, RS-422/485 Repeater

## 4850PDR-HS



### 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	0.7 W
Source	External
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
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### ENCLOSURE

Material	Plastic
IP Rating	20
Dimensions	1.0 x 3.1 x 3.7 in (2.5 x 7.9 x 9.5 cm)
Mounting	35 mm DIN (Panel Mount Adapter is 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
MTBF	117316
MTBF Calculation Method	MIL217F Parts Count Reliability

### APPROVALS AND CERTIFICATIONS

Agency Approvals	CE, FCC, NEMA TS2
	EN61000-6-2 (Heavy Industrial)
	EN61000-4-2 (ESD) $\pm 4$ kV contact, $\pm 8$ kV air
	EN61000-4-3 (RI) 10 V/m, 80-1000 MHz; 3 V/m 1.3 to 2.7 GHz
	EN61000-4-4 (EFT Burst) $\pm 2$ kV DC ports; $\pm 1$ kV signal ports
	EN61000-4-5 (Surge) $\pm 2$ kV common; $\pm 1$ kV differential
	EN61000-4-6 (CI) 10 Vrms, 0.15 to 80 MHz
	EN61000-4-8 (Magnetic) 10 A/m, 50 Hz & 60 Hz
Other	IEC60068-2-27 (Shock) 50 G Peak, 11 ms, 3 axes
	IEC60068-2-6 (Vibration) 140-500 Hz, 4G, 3 axes
	IEC60068-2-32 (Drop) 10 total drops from sides, corner, edges
	Emissions FCC Class B, CISPR Class B (EN55022)

### MECHANICAL DIAGRAM

