

# Heavy Industrial RS-422/485 Isolated Repeater

Model 485OPDRI-PH

**B+B SMARTWORX**

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## PRODUCT FEATURES

- IEEE-61850-3, IEEE-1613
- NEMA TS2
- -40 to 85°C Operating Temperature
- Rugged IP30 Metal Panel Mount Case
- 50G Shock, 4G Vibration
- 2kV Triple Isolation
- 10 to 48 VDC Input Power

Model 485OPDRI-PH is our premium heavy industrial RS-422/485 isolated repeater. Designed for rugged industrial environments, it has been put through some of the most exacting compliance tests in the industry. Meeting the requirements of IEC 61850-3 and IEEE 1613, it is suitable for installation in electrical substations. These specifications are more stringent than the NEMA TS1/TS2 requirements for transportation applications. Powerful isolation on both data ports protects your equipment and data from damaging ground loops and surges. Additional isolation on the power supply circuits adds a third degree of protection.

Packaged in a rugged IP30 metal case, it extends full or half-duplex RS-422/485 signals an additional 4000 feet and allows you to add another 32 nodes to your network. Bit-wise enabled circuitry automatically detects the data rate without setting a DIP switch.

## ORDERING INFORMATION

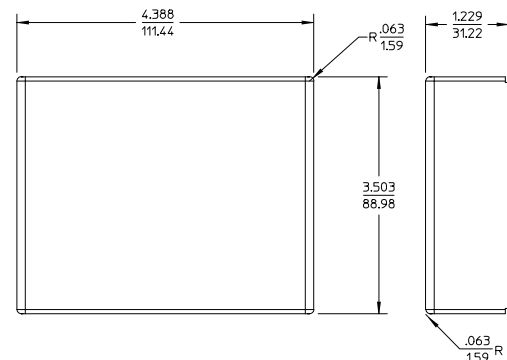
MODEL NUMBER	DESCRIPTION
485OPDRI-PH	Heavy Industrial RS-232 to RS-422/485 Isolated Repeater

## ACCESSORIES

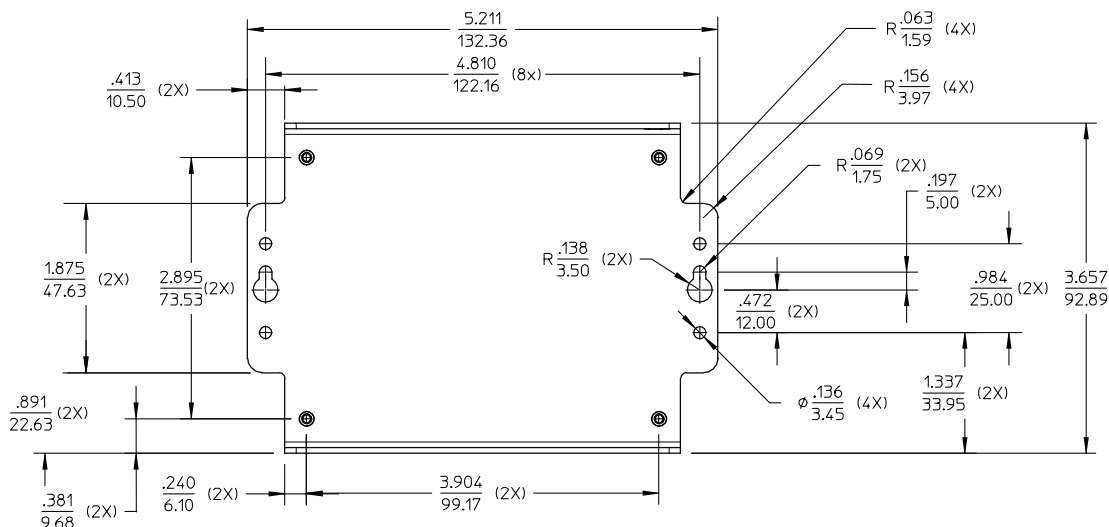
**MDR-40-24** - DIN Rail Mount Power Supply 24VDC, 1.7 A output power

**DRAD35** - DIN Rail Mounting Kit, 35mm

**TBKT1** - Replacement Terminal Block, 2



## MECHANICAL



All product specifications are subject to change without notice.

485OPDRI-PH\_2917ds

# Heavy Industrial RS-422/485 Isolated Repeater

Model 485OPDRI-PH



## SPECIFICATIONS

SERIAL TECHNOLOGY	
RS-422	TDA(-), TDB(+), RDA(-), RDB(+)
RS-485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+)
RS-485 2-Wire	Data A(-), Data B(+)
RS-422/485 CON.	5 Position, Removable Terminal Block
Data Rate	1.2 to 115.2 Kbps
Isolation	2 KV RMS, 1 minute
Surge Protection	600 W Peak Power Dissipation Clamping time < 1 pico-second
Industrial Bus	Modbus ASCII / RTU
Bias	Built-in, switchable 1.2KΩ XMT/RCV
Termination	Built-in, switchable 120Ω
POWER	
Source	External
Power Connector	2-Position Removable Terminal Block
Input Voltage	10 to 48 VDC (56 VDC Maximum)
Power Consumption	0.5 W typical (2.3 W with termination)
TERMINAL BLOCKS	
Wire Size Accepted	28 to 12 AWG, Copper wire only
Pitch	5.08 mm
Insulation Resistance	≥500 MΩ @ 500 VDC
Maximum Torque	5 Kg / cm
Temperature Rating of field installed conductors	105°C minimum

INDICATORS	
Power	Red LED
TD / RD (Each Port)	Green LED
MECHANICAL	
Dimensions	13.24 x 9.29 x 3.30 cm 5.2 x 3.7 x 1.3 in
Enclosure	IP30 Metal, Panel Mount
Weight	0.46 lbs (208.65 grams)
MTBF	122832 Hours
MTBF Calc. Method	Parts Count Reliability Prediction
ENVIRONMENTAL	
Operating Temperature	-40 to 85°C (-40 to 176°F)
Storage Temperature	-40 to 85°C (-40 to 176°F)
Operating Humidity	0 to 95% Non-condensing
REGULATORY	
Approvals	FCC, CE, IEC 61850-3, IEEE 1613, UL C1 D2, File: E245458, NEMA TS2

## IEC 61850-3 ELECTRO MAGNETIC INTERFERENCE SPECIFICATIONS

Test	Description		Test Level	Level
61000-4-2	ESD	Enclosure Contact Enclosure Air	8 kV 15 kV	4 4
61000-4-3	Radiated RFI	Enclosure Ports	10 V/m	3
61000-4-4	Burst (Fast Transient)	Signal Ports DC Power Ports	4 kV @ 2.5 KHz 4 kV	- 4
61000-4-5	Surge	Signal Ports DC Power Ports	2 kV line to earth, 1 kV line to line 2 kV line to earth, 1 kV line to line	4 3
61000-4-6	Induced (Conductive) RFI	Signal Ports DC Power Ports	10 V RMS 10 V RMS	3 3
61000-4-12	Damped Oscillatory	Signal Ports DC Power Ports	2.5 kV common, 1 kV diff mode @ 1MHz 2.5 kV common, 1 kV diff mode @ 1MHz	3 3
61000-4-16	Mains Frequency Voltage	Signal Ports DC Power Ports	30 V Continuous, 300 V for 1 s 30 V Continuous, 300 V for 1 s	4 4
61000-4-17	Ripple on DC Power Supply	DC Power Ports	10%	3

## IEEE 1613 C37.90 ELECTROMAGNETIC INTERFERENCE SPECIFICATIONS

Test	Description		Test Level	Level
C37.90.3	ESD	Enclosure Contact Enclosure Air	8 kV 15 kV	- -
C37.90.2	Radiated RFI	Enclosure Ports	10 v/m	-
C37.90.1	Fast Transient	Signal Ports DC Power Ports	4 kV @ 2.5 kHz 4 kV	- -

## ENVIRONMENTAL SPECIFICATIONS

Test	Description	Test Ad	Test Level	Level
60068-2-1	Cold Temperature	Test Ad	(-)40 C, 16 Hours	-
60068-2-2	Dry Heat	Test Bd	(+)85 C, 16 Hours	-
60068-2-30	Humidity (damp heat cycle)	Test Dd	90% (non-condensing) (+)55C, 6 Cycles	-
IEC 600068-2-6	Vibration	Test Fc	4g	Class 2
IEC 600068-2-27	Shock	Test Ea	50g	Class 2
IEC 60068-2-32	Drop	-	6 faces, 1 corner, 3 edges, total 10 drops at 1 m	-