

# 232OPDRI-PH

## Heavy Industrial RS-232 Isolated Repeater

- ✓ IEEE-61850-3
- ✓ IEEE 1613
- ✓ -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
- ✓ Complies with NEMA TS1 & TS2

### Environmental requirements for Traffic Control Equipment

The 232OPDRI-PH is our premium Heavy Industrial RS-232 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, this repeater operates in wide temperature extremes. The panel mount form factor with DIN Rail mount option makes it easy to integrate into your control panel or other industrial equipment.

Installation and configuration is easy. Data is connected with a DB9 female connector (DCE) and a DB9 male connector (DTE). Power is connected through terminal block that accepts 10 to 48 VDC from any external source.

Remember, when it comes to reliable communications in harsh duty industrial locations, B&B Electronics ILinx™ Brand is your number one choice.



### Specifications

#### Serial Technology

Serial Connector	DB9 F (DCE), DB9 M (DTE)
Data Rate	Up to 115.2 Kbps
Isolation	2KV RMS, 1 Minute

#### Power

Source	External (Not Included)
Power Connector	2 Position, Removable Terminal Block
Input Voltage	10 to 48 VDC (56 VDC Maximum)
Power Consumption	0.55 W (typical), 1.5 W (maximum)

#### Terminal Block

Wire Size Accepted	28 to 12 AWG
Pitch	5.08 mm
Insulation Resistance	≥500 MΩ @ 500 VDC
Maximum Torque	5 Kg / cm

#### Indicators

Power	Red LED
Data	Green LED TD, RD, CTS, RTS

#### Mechanical

Dimensions	5.2 x 3.7 x 1.3 in 132.4 x 92.9 x 33.0 mm
Enclosure	IP30 Metal, Panel Mount
Weight	0.46 lbs (208.65 grams)
MTBF	194712 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 185°F)
Operating Humidity	0 to 95% Non-condensing
NEMA TS1 & TS2	Complies with NEMA TS1 & TS2 Environmental requirements for Traffic Control Equipment

#### Regulatory

Approvals	FCC, CE, IEC61850-3, IEEE 1613 UL C1 D2, File: E245458
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### Ordering Information

232OPDRI-PH	Heavy Industrial RS-232 Isolated Repeater
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#### Optional Accessories

Power Supply	MDR-20-24
DIN Rail Adapter	DRAD35

**IEC 61850-3 Electro Magnetic Interference Specifications**

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

**IEEE 1613 C37.90 Electromagnetic Interference Specifications**

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

**Environmental Specifications**

Test	Description	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 60068-2-6	Vibration	Test Fc	4G
IEC 60068-2-27	Shock	Test Ea	50G
IEC 60068-2-32	Drop	---	6 faces, 3 edges, 1 corner , total 10 drops at 1 m

