

Industrial Serial to Fiber Optic Converters

FOSTCDRI, FOSTCDRI-INV

B+B SMARTWORX

Powered by

ADVANTECH



PRODUCT FEATURES

- Data rates up to 115.2 kbps
- 10 – 48 VDC input power range
- Wide operating temperature
- 2,000V, 3-way optical isolation
- Modbus ASCII/RTU compatible
- EMI / RFI protection
- UL Class 1/Division 2
- Inverted fiber state option (Model FOSTCDRI-INV)
- TD, RD and Power LED's

Model FOSTCDRI is Advantech B+B SmartWorx' premium industrial serial to multi-mode fiber optic converter. Its rugged design is UL approved and certified for Class 1/Division 2 industrial environments. It extends data communications up to 4km (2.5 miles) . It provides three-way optical isolation on the input, output and power lines.

In addition to direct point-to-point connectivity, it is capable of operating in a multi-drop mode. This allows one serial device to communicate with up to 31 other devices around a fiber ring. Since it supports mixed standards, you can replace other converters and isolators and add the EMI / RFI protection inherent to fiber optic communications.

In RS-232 mode, the converter supports Transmit and Receive data. Handshaking signals are not passed through. An Automatic Send Data Control circuit controls the RS-422/485 driver chip, eliminating the requirement for external software.

Easy to install and configure, it has a 12-position DIP switch on the bottom to configure RS-422/485 parameters. Serial data and power cables connect to removable terminal blocks. ST connectors are used for the fiber.

Model FOSTCDRI-INV features an "inverted fiber state" and is suitable for applications requiring the fiber optic transmit light to be Off in the idle state.

ORDERING INFORMATION

MODEL NUMBER	SERIAL CONNECTOR	FIBER CONNECTOR	ISOLATION
FOSTCDRI	Terminal Block	Multi-mode ST	2,000 V
FOSTCDRI-INV	Terminal Block	Multi-mode ST	2,000 V

ACCESSORIES

MDR-40-24 - 24 VDC, 1A, slim-line DIN rail power supply

DFMM-STST-1M - Multi-mode fiber optic cable with ST/ST connectors (62.5/125 micro-meter), 1 meter

TBKT1 - Replacement 2-position terminal block, 5.08 mm

TBKT2 - Replacement 5-position terminal block, 5.08 mm

What is the difference between Model FOSTCDRI and Model FOSTCDRI-INV?

The FOSTCDRI keeps the light in the fiber turned On when no data is transmitted and the input signal is in the MARK state (idle). If light is lost or too low, the electrical signals go to the SPACE state. The input signal turns the light Off/On in step with the data. This model has an indicator for Transmit and Receive, if no light is received, the RD LED will come on, the RD output will be positive relative to GND (normally negative), and in RS-422 or RS-485 mode, no light will set the TD(A)- line high relative to TD(B)+. The usual voltage with light in the fiber and no signal sets the B line high relative to A (about 4.4 Volts DC no termination).

The FOSTCDRI-INV is the opposite. The fiber is Off in the idle state.

Industrial Serial/Fiber Optic Converters

FOSTCDRI, FOSTCDRI-INV



SPECIFICATIONS

SERIAL TECHNOLOGY

Data Rate 9.6 to 115.2 kbps

RS-232

Connector Removable terminal block

Signals TD, RD, GND

RS-422/485

Connector 5-position, removable terminal block

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

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

Bias Built-in, switchable, 1.2K Ω

Termination Built-in, switchable, 120 Ω

ISOLATION

Rating 2KV RMS, 1 minute

Surge Protection 600 W peak power dissipation

Clamping Time < 1 pico-second

Lines Protected 2-way (input, output lines)

Method Optical

FIBER OPTIC TECHNOLOGY

Type / Wavelength Multi-mode / 820 nm

Output Power -16dBm min, -12dBm typical, -9dBm maximum

Receive Sensitivity -24dBm min, -25.4dBm maximum

Cable 62.5/125 micro-meter

Connector ST

Data Rate 9.6 to 115.2 kbps

Maximum Distance 4 km (2.5 mi)

Idle State, FOSTCDRI Transmitter light ON

Idle State, FOSTCDRI-INV Transmitter light OFF

INDUSTRIAL BUS

Modbus ASCII/RTU

POWER

Source External

Input Voltage 10 to 48 VDC (56 VDC maximum)

Consumption 0.5 W (typical), 1.3W (with termination)

Connector 2-position, removable terminal block, 24 to 14 AWG

TERMINAL BLOCKS

Wire Size Accepted 28 to 12 AWG

Pitch 5.08 mm

Insulation Resistance \geq 500 M Ω @ 500 VDC

Maximum Torque 5 Kg / cm

LED INDICATORS

Power Red LED

FO Receive Red LED

FO Transmit Red LED

MECHANICAL

Dimensions 12.3 x 11.3 x 3.2 cm (4.9 x 4.5 x 1.3 in)

Enclosure IP 20 plastic, 35 mm DIN mount

Weight 199.6 g (0.44 lbs)

ENVIRONMENTAL

Operating Temperature -40 to +80 $^{\circ}$ C (-40 to +176 $^{\circ}$ F)

Storage Temperature -40 to +85 $^{\circ}$ C (-40 to +185 $^{\circ}$ F)

Operating Humidity 0 to 95% non-condensing

MTBF 138904 hours

MTBF Calculation Method Parts Count Reliability Prediction

APPROVALS / CERTIFICATIONS - FOSTCDRI

UL Class 1 Division 2, Groups A, B, C, D

File Number: E222870 (HAZLOC 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

APPROVALS / CERTIFICATIONS - FOSTCDRI-INV

UL 508, File Number: E222870

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

CE

MECHANICAL DIAGRAM

