R45C IO-Link to Dual Analog Input-Output Converter Quick Start Guide

Features

This guide is designed to help you set up and install the R45C IO-Link to Dual Analog Input-Output Converter. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for part number 228480 to view the Instruction Manual. Use of this document assumes familiarity with pertinent industry standards and practices.

Overview

Analog In

When this converter receives an analog input value, the numerical representational value is sent to an IO-Link Master via Process Data In (PDI).

PDI Analog Ranges:
- Voltage = 0 mV to 10,000 mV
- Current = 4,000 µA to 20,000 µA

Analog Out

This converter also allows for the user to output an analog value by sending the numerical analog value from the IO-Link Master via Process Data Out (PDO).

PDO Analog Ranges:
- Voltage = 0 mV to 11,000 mV
- Current = 0 µA to 24,000 µA

PDO Outside Valid Range (POVR)

If the PDO value sent to this converter is outside of the PDO Analog Range value, then the actual analog output value will be set to one of the three selectable POVR levels after a 2-second delay:
- Low (default): 0 V or 3.5 mA
- High: 10.5 V or 20.5 mA
- Hold: Level retains previous value indefinitely

NOTE: If a connected IO-Link sensor is changed back to SIO mode, then the previous value will be held.

PFM Out

Enables a PFM representation of an analog input as an output.

PFM Input Source Channel

Selects the analog input value from Port 1 or Port 2 as the PFM output source.

Pulse Frequency Configuration

Sets the near and far frequency values.

Status Indicators

The R45C IO-Link to Dual Analog Input-Output Converter has four amber LED indicators on both sides for IO-Link and analog communications to allow for installation needs and still provide adequate indication visibility. There is also a green LED indicator on both sides of the converter, which signals the device's power status.

IO-Link Amber LED	
Indication	**Status**
Off	IO-Link communications are not present
Flashing Amber (900 ms On, 100 ms Off)	IO-Link communications are active

Analog In Amber LED	
Indication	**Status**
Off	Analog current value is less than setpoint SP1 OR analog value is greater than setpoint SP2
Solid Amber	Analog current value is between setpoint SP1 AND setpoint SP2
Default Current Values: • SP1 = 0.004 A • SP2 = 0.02 A	Default Voltage Values: • SP1 = 0 V • SP2 = 10 V

Analog Out Amber LED	
Indication	**Status**
Off	Turns off if written PDO analog value is outside the allowable output range
Solid Amber	Turns on if written PDO analog value is inside the allowable output range
Allowable Current Range: 0 mA to 24 mA	
Allowable Voltage Range: 0 V to 11 V	

Mechanical Installation

Install the R45C to allow access for functional checks, maintenance, and service or replacement. Do not install the R45C in such a way to allow for intentional defeat.

Fasteners must be of sufficient strength to guard against breakage. The use of permanent fasteners or locking hardware is recommended to prevent the loosening or displacement of the device. The mounting hole (4.5 mm) in the R45C accepts M4 (#8) hardware.

CAUTION: Do not overtighten the R45C's mounting screw during installation. Overtightening can affect the performance of the R45C.

Specifications

Supply Voltage

18 V DC to 30 V DC at 50 mA maximum

Power Pass-Through Current

4 A maximum

Analog Input Impedance

Current version: Approximately 250 ohms

Voltage version: Approximately 14.3K ohms

Analog Output Load Resistance

Current version: 1 kilo-ohm maximum load resistance at 24 V DC

Maximum Load Resistance = [(Vcc - 4.5) ÷ 0.02 ohms]

Voltage version: 2.5 kilo-ohms minimum load resistance

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 µA

Accuracy

0.5%

Indicators

Green: Power

Amber: IO-Link communications

Amber: Analog input value present

Amber: Analog output value in range

Vibration and Mechanical Shock

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Resolution

14 bits

Connections

Integral 4-pin M12 male/female M12 quick-disconnect connector

Construction

Coupling Material: Nickel-plated brass

Connector Body: PVC translucent black

Environmental Rating

IP65, IP67, IP68

UL Type 1

Operating Conditions

Temperature: –40 °C to +60 °C (–40 °F to +140 °F)

90% at +60 °C maximum relative humidity (non-condensing)

Storage Temperature: –40 °C to +80 °C (–40 °F to +176 °F)

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

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