BANNER R45C Analog to IO-Link Device Converter User Manual

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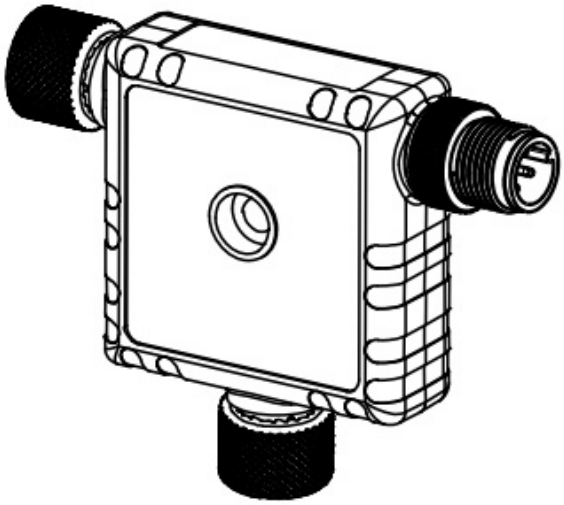
Contents

R45C Analog to IO-Link Device Converter

This guide is designed to help you set up and install the R45C Analog to IO-Link Device Converter. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for p/n 222980 to view the Instruction Manual. The use of this document assumes familiarity with pertinent industry standards and practices.



- Compact analog to IO-Link device converter that outputs an analog value, voltage, or current, as presented by the IO-Link Master
- The converter also connects to an analog source, voltage, or current, and outputs the value to the IO-Link master
- Rugged over-molded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use

Overview

Analog In
When an analog input value is received by this converter, 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 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.

Status Indicators

The R45C Analog to IO-Link Device Converter has two ambers 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.

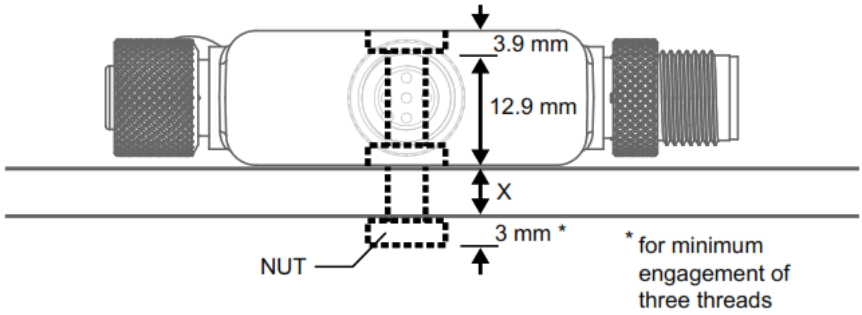
IO-Link Amber LED	
Indication	Status
Off	IO-Link communications
Flashing Amber (900 ms On, 100 ms Off)	IO-Link communications

Analog In Amber LED	
Indication	Status
Off	The Analog current value is less than setpoint SP1 OR analog value is greater than setpoint SP2
Solid Amber	The Analog current value is between setpoint SP1 AND setpoint S
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 the 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. All mounting hardware is supplied by the user. 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. See the figure below to help in determining the minimum screw length.



Screw Length (with screw head fitting in counterbore) = 12.9 mm + “X” mm + 3 mm

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
Supply Protection Circuitry
Protected against reverse polarity and transient voltages
Leakage Current Immunity 400 µA
Resolution 14 bits
Accuracy 0.5%
Indicators Green: Power
Amber: IO-Link communications
Amber: Analog input value present
Amber: Analog output value in the range
Connections
Integral male/female 4-pin M12 quick disconnect
Construction
Coupling Material: Nickel-plated brass
Connector Body: PVC translucent black
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 Europe Park Lane, Culliganlaan 2F bus 3, 1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House, Blenheim Court, Wickford, Essex SS11 8YT, Great Britain

IO-Link®
Environmental Rating
IP65, IP67, IP68
NEMA/UL Type 1
Operating Conditions
Temperature: –40 °C to +70 °C (–40 °F to +158 °F)
90% at +70 °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 the 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 Protect
20	5
22	3
24	2
26	1
28	0.8
30	0.5

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For patent information, see **www.bannerengineering.com/patents**.
FCC Part 15
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.
Industry Canada
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

More sensors more solutions

Documents / Resources

	BANNER R45C Analog to IO-Link Device Converter [pdf] User Manual R45C Analog IO-Link Device Converter, R45C, Analog IO-Link Device Converter, IO-Link Device Converter, Converter

References

- Banner Engineering
- Patents