



BANNER R45C Analog Output to IO Link Device Converter User Guide

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BANNER R45C Analog Output to IO Link Device Converter



Quick Start Guide

This guide is designed to help you set up and install the R45C Analog Output 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 223052 to view the Instruction Manual. 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
- Rugged over-molded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use

Overview

Analog Out

This converter 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 μ A to 24,000 μ A

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 the 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 Output to IO-Link Device Converter has two 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.

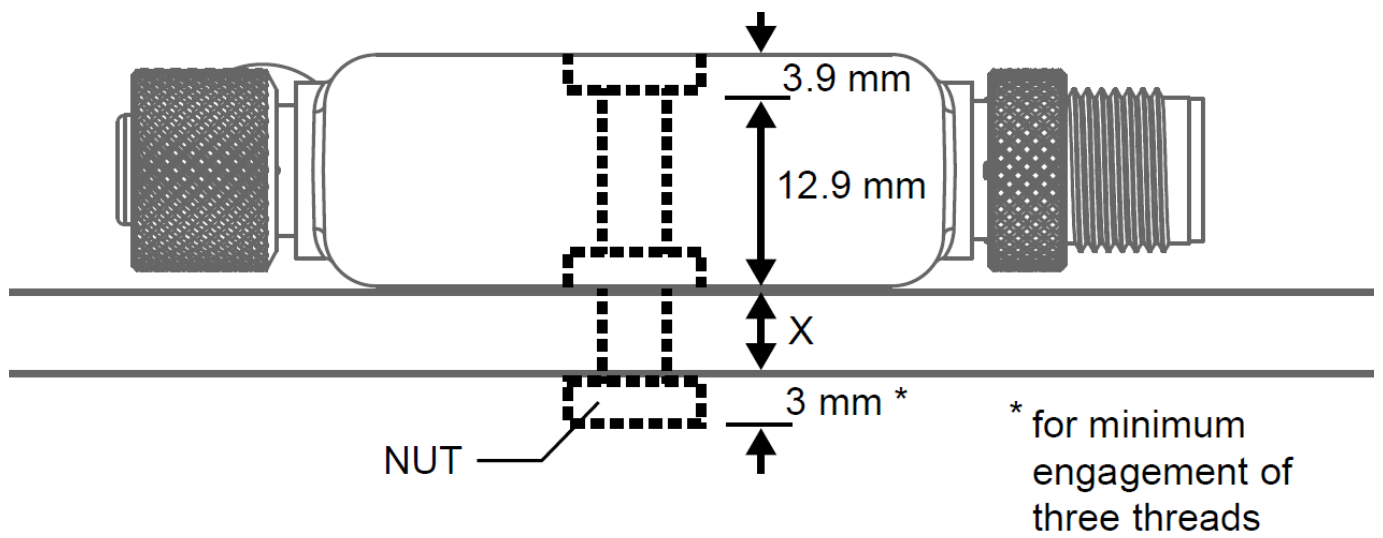
IO-Link Amber LED	
Indication	Status
Off	IO-Link communications are not present
Flashing Amber (900 ms On, 100 ms Off)	IO-Link communications are active

Analog 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.

All mounting hardware is supplied by the user. Fasteners must be of sufficient strength to guard against breakage. 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

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 μ A
- Resolution
 - 14 bits
- Accuracy
 - 0.5%
- Indicators
 - Green: Power
 - Amber: IO-Link communications
 - Amber: Analog output value in 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
- 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 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 (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Banner Engineering Corp. Limited Warranty

- Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.
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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.

Documents / Resources

	BANNER R45C Analog Output to IO Link Device Converter [pdf] User Guide R45C, Analog Output to IO Link Device Converter, R45C Analog Output to IO Link Device Converter
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References

-  [Banner Engineering](#)
-  [Patents](#)