R130C 8-Port 2-Channel PNP IO-Link Hub Product Manual

Original Instructions
p/n: 236035 Rev. D
31-Jan-25

Contents

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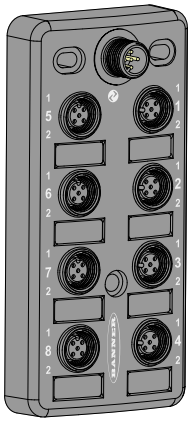
Chapter 1 Features



- Compact IO-Link hub that connects discrete inputs as Process Data In, and outputs a discrete value as received as Process Data Out
- Enabled Delay Modes: ON/OFF Delay, ON/OFF One-shot, ON/OFF/Retriggerable One-shot, ON/OFF Pulse-stretcher and Totalizer
- Measurement Metrics: Count, Events Per Minute (EPM), and Duration
- Discrete Mirroring: Discrete signals (In/Out) from all eight ports can be mirrored to any of the eight ports, Discrete Out, or the host white wire output
- Discrete input/output are configured as PNP only
- Rugged overmolded design meets IP65, IP66, and IP67
- Connects directly to a sensor or anywhere in-line for ease of use
- R130C IO-Link hubs are a quick, easy, and economical way to integrate non-IO-Link devices into an IO-Link system

Models

Model	Function	Type	Control	Connector
R130C-8P22-KQ	Converter	8 ports, PNP, with 2 inputs/outputs per port	IO-Link	Integral 4-pin M12 quick-disconnect connectors

Overview

The R130C-8P22-KQ hub connects two discrete Input/Output channels to each of the eight unique ports, providing access to monitoring and configuring those ports with an IO-Link master. Host mirroring is available where a selected port input/output discrete signal can be routed to Pin 2 (male) on the PLC/Host connection.

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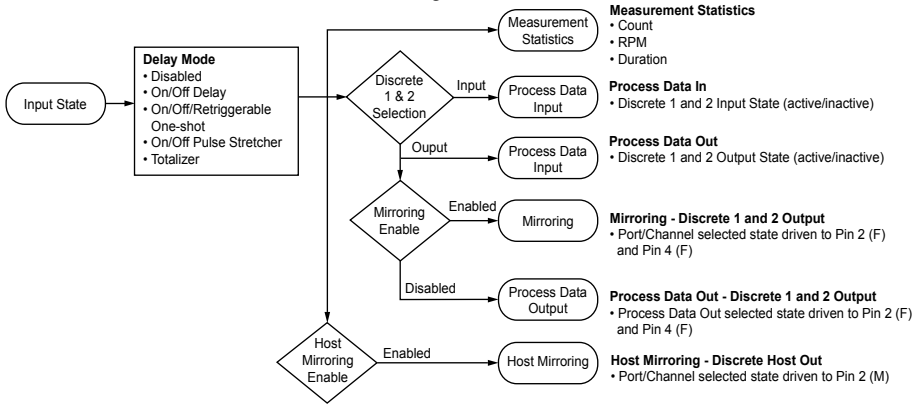
Chapter 2 Configuration

The figure below details the logic flow for each of the eight ports, while the tables define the configuration for each pin.

For more information, see *R130C-8P22-KQ IO-Link Data Reference Guide* (p/n 236036) and *R130C-8P22-KQ IODD Files* (p/n 236037).

Logic Flow



Measurements – Female Pins

Port 1-Port 8 Pin Number: Description	IO Metric	Description
Pin 4 – Discrete 1 **Pin 2 – Discrete 2**	Count Value	Running count of the received input pulses
	Duration Value	Duration of the last input pulse in µs with 500 µs granularity
	Events per Minute Value	Running count of the number of pulses received averaged over one minute Range: 1 to 37,500
	Reset Metrics	• Do Not Reset • Reset

Pin Configuration – Female Input

Port 1-Port 8 Pin Number: Description	Name	Values
Pin 4 – Discrete 1 **Pin 2 – Discrete 2**	Discrete I/O Selection	• PNP Input • PNP Output with Pull Down
	Discrete Delay Mode	• Disabled • On/Off Delay • On One-shot • Off One-shot • On Pulse-stretcher • Off Pulse-stretcher • Totalizer • Retriggerable On One-shot • Retriggerable Off One-shot
	Discrete Delay Timer 1	Discrete On Delay, One-shot, Pulse-Stretcher Time, or Totalizer Count

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Port 1-Port 8 Pin Number: Description	Name	Values
	Discrete Delay Timer 2	Discrete Off Delay or Totalizer Time
	Mirroring Enable	• Disabled • Enabled
	Mirroring Port Selection	• Port 1 • Port 2 • Port 3 • Port 4 • Port 5 • Port 6 • Port 7 • Port 8
	Mirroring Channel Selection	• Pin 4 – Discrete 1 • Pin 2 – Discrete 2
	Mirroring Inversion	• Not Inverted • Inverted

Pin Configuration – Male Output

Pin Number: Description	Name	Values
Pin 2 – Discrete Host Out	Host Mirroring Enable	• Disabled • Enabled
	Host Mirroring Port Selection	• Port 1 • Port 2 • Port 3 • Port 4 • Port 5 • Port 6 • Port 7 • Port 8
	Host Mirroring Channel Selection	• Pin 4 – Discrete 1 • Pin 2 – Discrete 2
	Host Mirroring Inversion	• Not Inverted • Inverted
	Host Mirroring Polarity	• PNP • NPN
	Host Mirroring Output Type	• Open Collector • Push/Pull

IO-Link®

IO-Link® is a point-to-point communication link between a master device and a sensor and/or light. It can be used to automatically parameterize sensors or lights and to transmit process data. For the latest IO-Link protocol and specifications, please visit www.io-link.com.

For the latest IODD files, please refer to the Banner Engineering Corp website at: www.bannerengineering.com.

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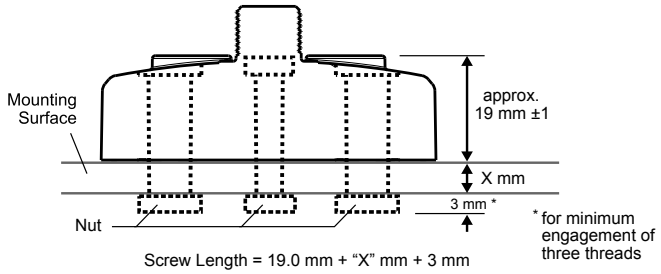
Chapter 3 Mechanical Installation

Install the R130C to allow access for functional checks, maintenance, and service or replacement. Do not install the R130C in such a way to allow for intentional defeat.

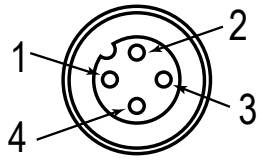
Fasteners must be of sufficient strength to guard against breakage. The use of permanent fasteners or locking hardware is recommended to prevent the loosening or displacement of the device. The mounting hole (4.5 mm) in the R130C accepts M4 (#8) hardware.

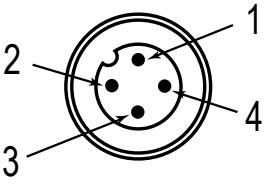
See the figure below to help in determining the minimum screw length.



CAUTION: Do not overtighten the R130C's mounting screw during installation. Overtightening can affect the performance of the R130C.

Wiring

Port 1-Port 8 — Female	Pin	Signal Description
	1	18 V DC to 30 V DC
	2	Discrete 2 (IN/OUT)
	3	Ground
	4	Discrete 1 (IN/OUT)

Male	Pin	Signal Description
	1	18 V DC to 30 V DC
	2	Banner-specific
	3	Ground
	4	IO-Link

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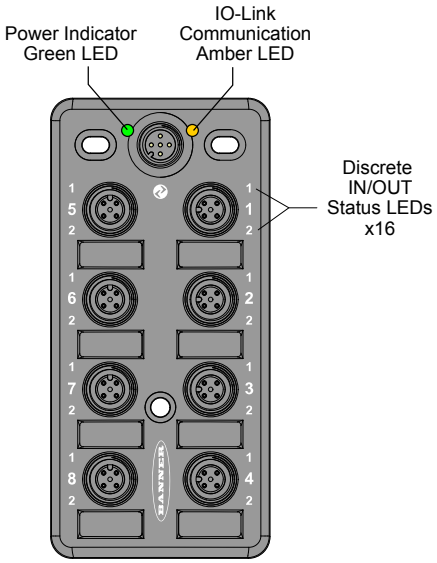
Chapter 4 Status Indicators

The R130C 8-Port 2-Channel PNP IO-Link Hub has two matching amber LED indicators. There is also an additional amber LED specific to the IO-Link communications and a green power indication LED.



LED	Indication	Status
Discrete Device Amber LEDs	Off	Discrete In and Out are inactive
	Solid Amber	Discrete In or Out is active
IO-Link Communication Amber LED	Off	IO-Link communications are not present
	Flashing Amber (900 ms On, 100 ms Off)	IO-Link communications are active
Power Indicator Green LED	Off	Power off
	Solid Green	Power on

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Chapter 5 Specifications

Supply Voltage

18 V DC to 30 V DC at 400 mA maximum (exclusive of load)

Use only with a suitable Class 2 power supply (UL) or Limited Power Supply (CE)

Power Pass-Through Current

4 amps maximum total for up to 24 V DC

3.3 amps maximum total for up to 30 V DC

Discrete Output Load Rating

200 mA maximum at 40 °C

Derating of 2 mA per degree Celsius above 40 °C

140 mA maximum at 70 °C

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 µA

Indicators

Green: Power

Amber: IO-Link communications

Amber: 2x Discrete In/Out statuses per 8 ports

Connections

(8) Integral 4-pin M12 female quick-disconnect connectors

(1) Integral 4-pin M12 male quick-disconnect connector

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)

Environmental Rating

IP65, IP66, IP67

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 (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

Certifications

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Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

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

IND. CONT. EQ. E316212

Product Identification

FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

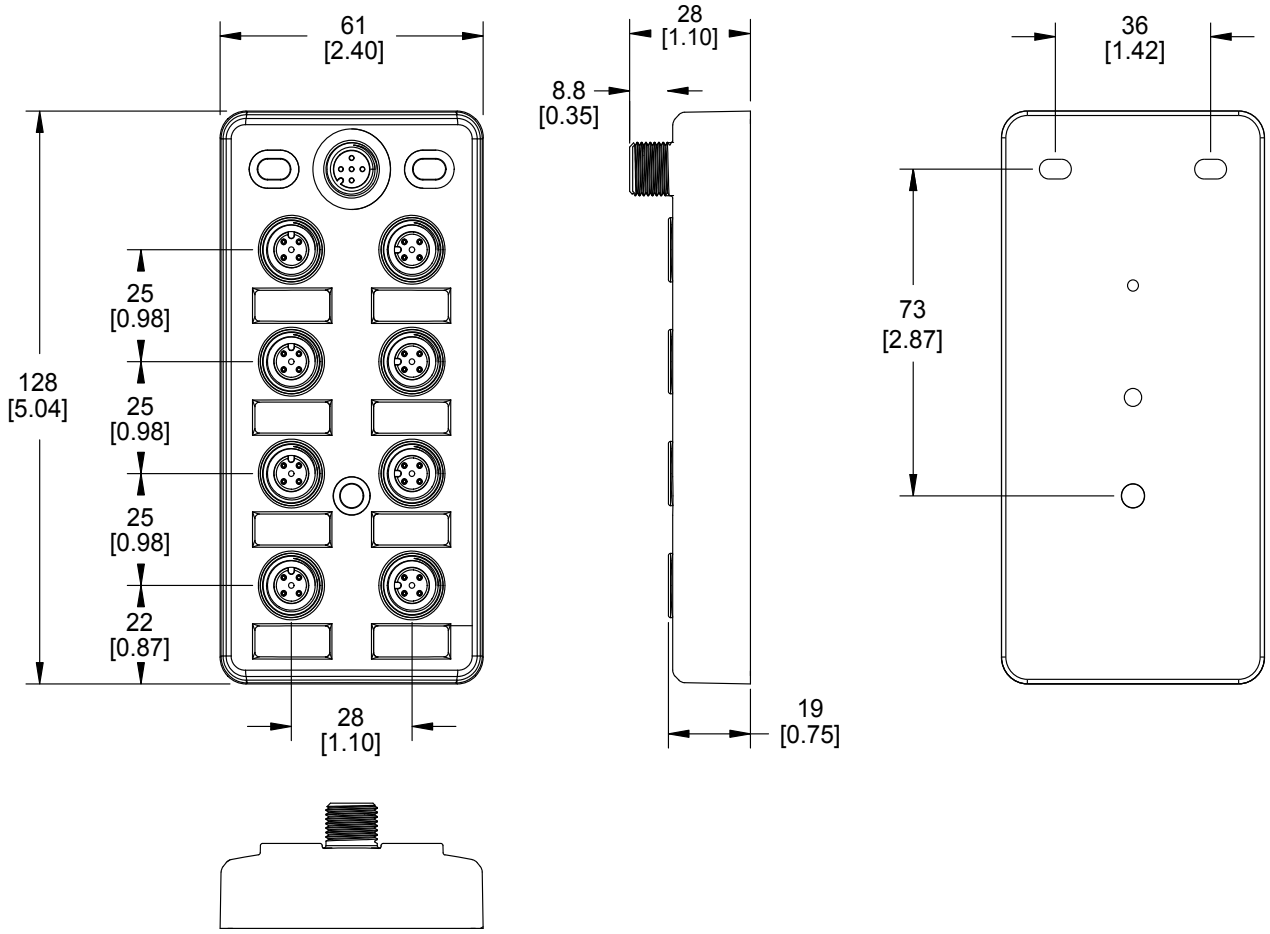
Industry Canada ICES-003(B)

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.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.



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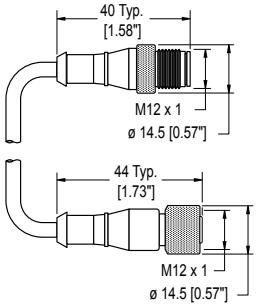
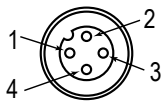
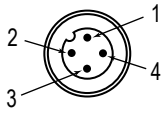
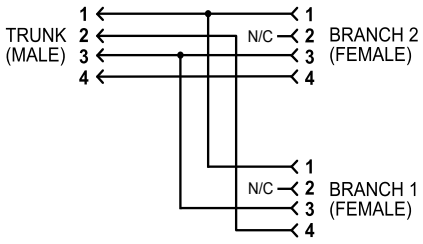
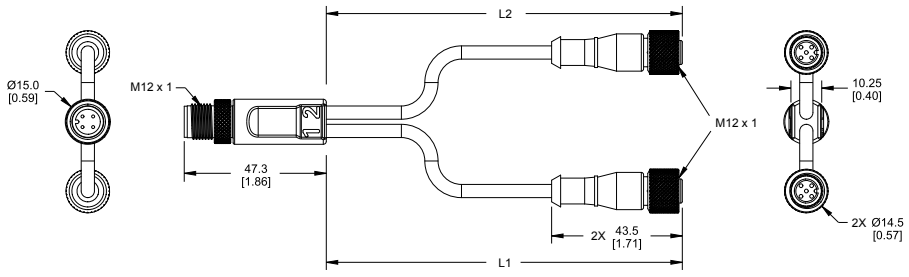
Chapter 6 Accessories

Cordsets

4-Pin Double-Ended M12 Female to M12 Male Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

4-Pin M12 Male to 5-Pin M12 Female Splitter Cordset		
Model	**Branches (Female)**	**Wiring**
S15YA4-M124-M124-0.2M	**L1, L2** 2 × 0.2 m (7.9 in)	



Quick-Disconnect Caps

ACC-CAP M12-10 • 10 Caps • Seal and protect exposed, unterminated cascade quick-disconnect connectors	

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Chapter 7 Product Support and Maintenance

Repairs

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

> **IMPORTANT:** If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

Contact Us

Banner Engineering Corp. headquarters is located at: 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

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