BANNER R130C 8-Port 2-Channel PNP IO-Link Hub

BANNER R130C 8-Port 2-Channel PNP IO-Link Hub Instruction Manual

Contents

BANNER R130C 8-Port 2-Channel PNP IO-Link Hub

Product Information

Specifications

- **Model:** R130C-8P22-KQ
- **Type:** Function Converter
- **Ports:** 8 ports
- IO-Link System
- **Inputs/Outputs:** 2 per port
- **Control:** IO-Link
- **Connector:** Integral 4-pin M12 quick-disconnect connectors

Product Usage Instructions

- **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.
- **Configuration**
  Refer to the logic flow diagram in Figure 1 for each of the eight ports. Tables define the configuration for each pin.
- **Mechanical Installation**
  Install the R130C to allow access for functional checks, maintenance, and service or replacement. Use fasteners of sufficient strength to prevent breakage. The mounting hole accepts M4 (#8) hardware. Avoid overtightening the mounting screw to prevent affecting performance.

Wiring

Connect according to the following pinout:

Port	Female Pin	Male Pin	Description
1	1	11	18 V DC to 30 V DC
2	2	2	Discrete 2 (IN/OUT)
3	3	3	Banner-specific Ground
4	4	4	IO-Link

Frequently Asked Questions

- **Q: Where can I find the latest IODD files?**
  A: For the latest IODD files, please refer to the Banner Engineering Corp website at: www.bannerengineering.com.
- **Q: What is the purpose of host mirroring?**
  A: Host mirroring enables a selected port input/output discrete signal to be routed to Pin 2 (male) on the PLC/Host connection.

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 over-moulded 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

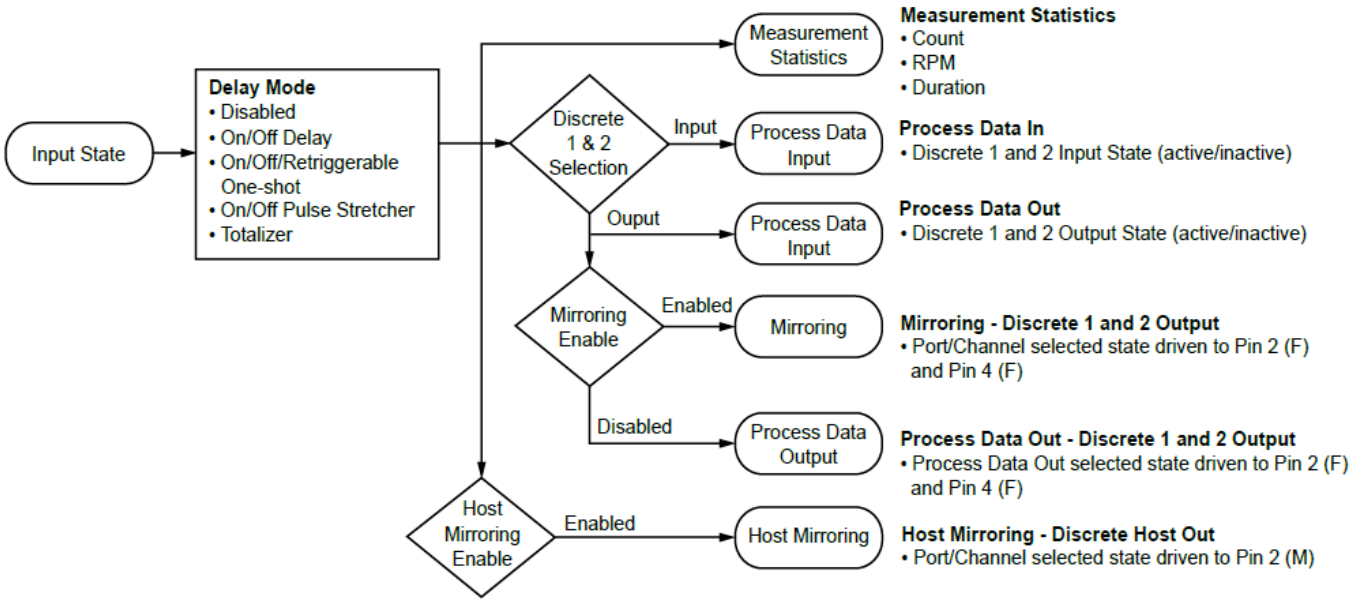
Overview

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.

Configuration

- Figure 1 details the logic flow for each of the eight ports, while the tables define the configuration for each pin.
- For more information, see P/N 236036 R130C-8P22-KQ IO-Link Data Reference Guide and P/N 236037 R130C-8P22-KQ IODD Files.

Logic Flow



Measurements – Female Pins

Port 1-Port 8 Pin Number: Description	IO Metric	Description
Pin 4 – Discrete 1	Count Value	Running count of the received input pulses
Pin 2 – Discrete 2	Duration Value	Duration of the last input pulse in µs with 500 µs granularity

Continued from page 1

Port 1-Port 8 Pin Number: Description	IO Metric	Description
	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
	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
Pin 4 – Discrete 1	Discrete Delay Timer 2	Discrete Off Delay or Totalizer Time
Pin 2 – Discrete 2	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
	Host Mirroring Enable	• Disabled • Enabled
		• Port 1
		• Port 2
		• Port 3
Pin 2 – Discrete Host Out	Host Mirroring Port Selection	• 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

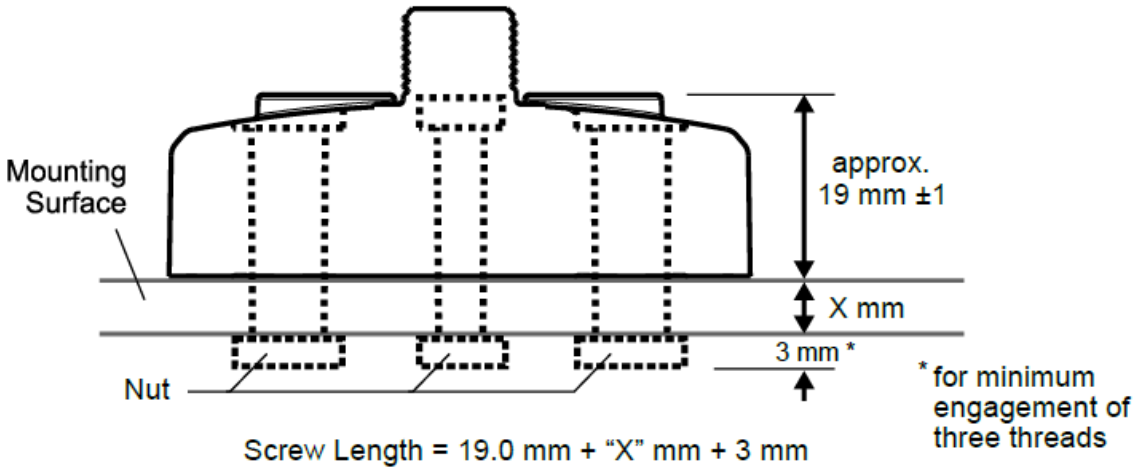
IO-Link

- 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.

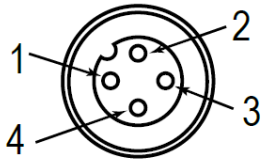
Mechanical Installation

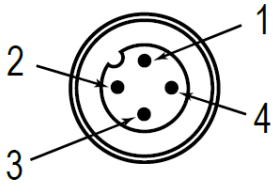
- Install the R130C to allow access for functional checks, maintenance, and service or replacement. Do not install the R130C in such a way as to allow for intentional defeat.
- Fasteners must be of sufficient strength to guard against breakage. The use of permanent fasteners or locking hardware is recommended 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.

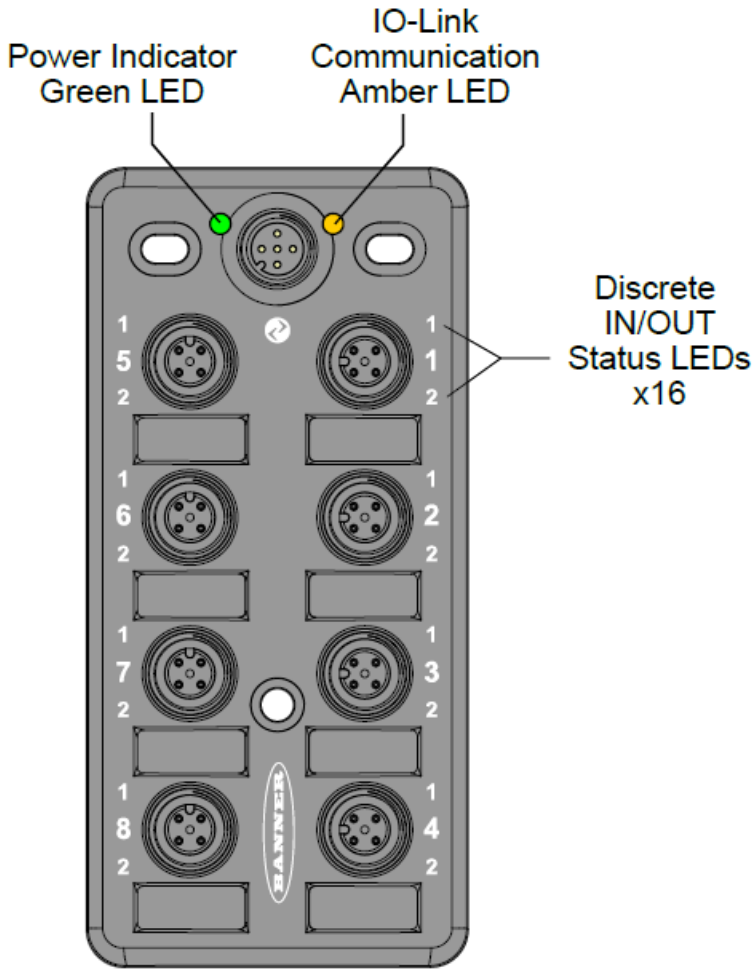
Wiring

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

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

Specifications

- **Supply Voltage**

  18 V DC to 30 V DC at 400 mA maximum (exclusive of load)
- **Power Pass-Through Current**

  Not to exceed 4 amps total
- **Discrete Output Load Rating**

  200 mA
- **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 according to 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

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

Product Identification

FCC STATEMENT

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, under 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 by 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:

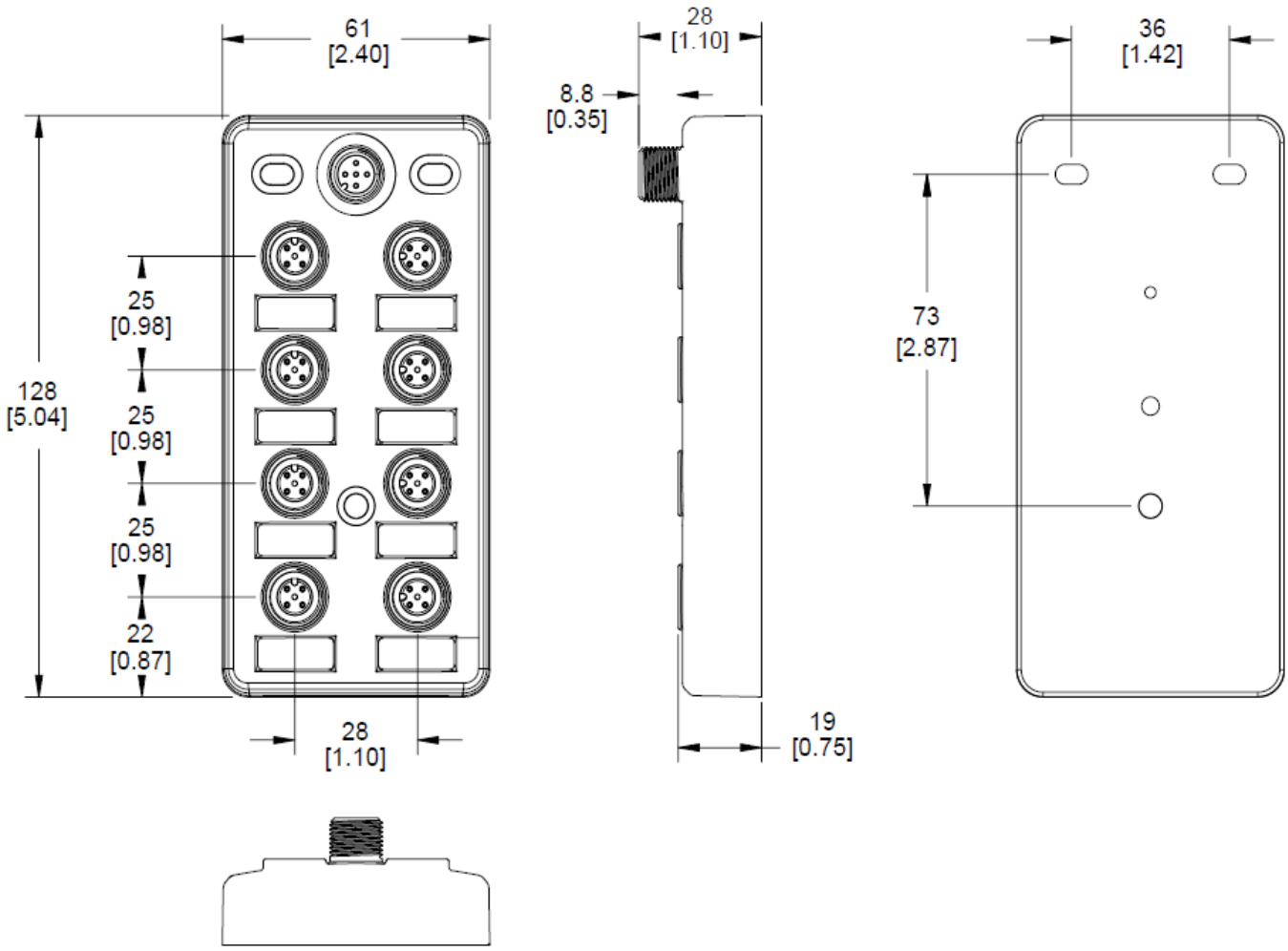
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(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.

Dimensions

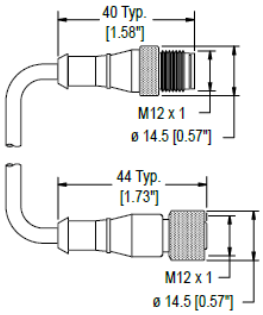
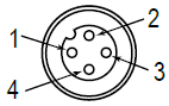
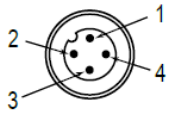
All measurements are listed in millimetres [inches] unless noted otherwise.



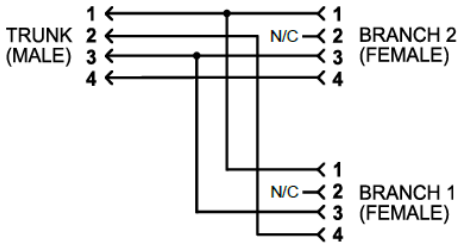
Accessories

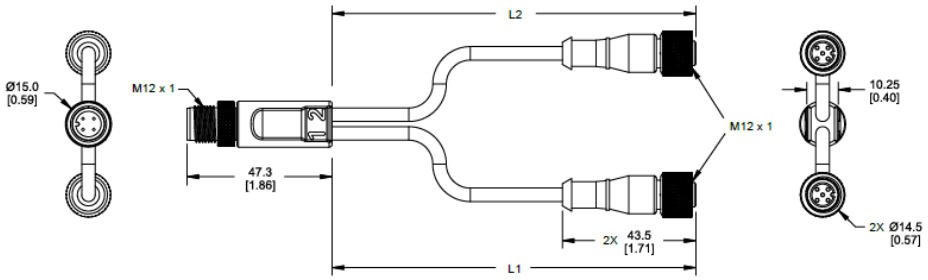
Cordsets

4-Pin Threaded M12 Cordsets—Double Ended

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 Threaded M12 Male to 5-Pin Threaded 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

Limited Warranty

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 improper application or installation of the Banner product.

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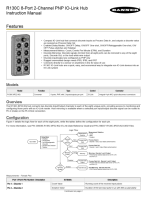
For patent information, see www.bannerengineering.com/patents.

Documents / Resources

	BANNER R130C 8-Port 2-Channel PNP IO-Link Hub [pdf] Instruction Manual R130C, R130C 8-Port 2-Channel PNP IO-Link Hub, 8-Port 2-Channel PNP IO-Link Hub, 2-Channel PNP IO-Link Hub, IO-Link Hub, Hub

References

- Patents
- IO-Link
- User Manual