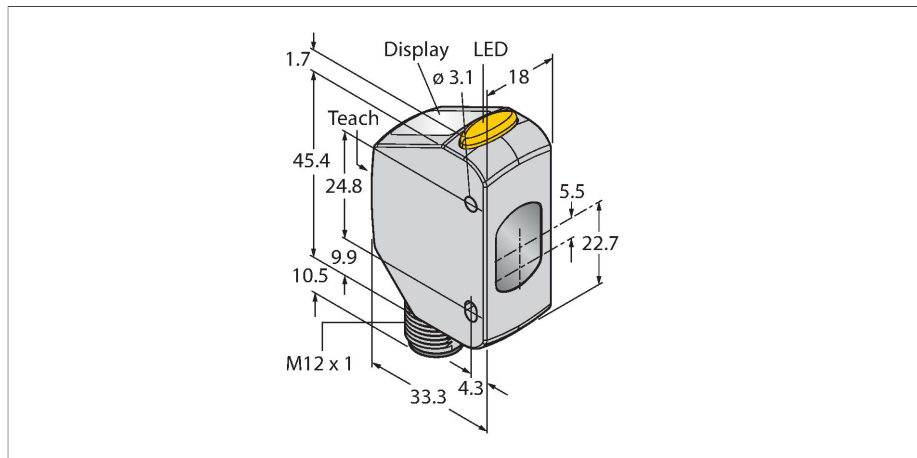


Q4XFKLAF310-Q8

Photoelectric Sensor – Laser Distance Sensor (Triangulation)



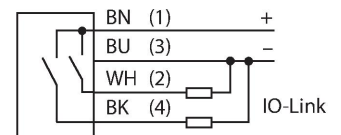
Technical data

Type	Q4XFKLAF310-Q8
ID	3097341
Optical data	
Function	Proximity switch
Operating mode	Background/foreground suppression
Light type	Red
Wavelength	655 nm
Laser class	▲ 1
Optical resolution	1 mm
Repeatability	0.5 mm
Range	35...310 mm
Ambient light immunity	5000 lux
Electrical data	
Operating voltage	10...30 VDC
DC rated operational current	≤ 28 mA
Short-circuit protection	yes
Reverse polarity protection	yes
Communication protocol	IO-Link
Output function	NO/NC, PNP
Output 2	Switching output or frequency output
Readiness delay	≤ 750 ms
Response time typical	< 1.5 ms
IO-Link	
IO-Link specification	V 1.1
IO-Link port type	Class A
Communication mode	COM 2 (38.4 kBaud)
Process data width	16 bit

Features

- 4-digit 7-segment LED display
- 3 buttons
- Output indicator (yellow)
- IP67/69K
- ECOLAB-certified
- Range: 35...310 mm
- Laser class 1, red, 655 nm, acc. to IEC 60825-1:2007
- Operating voltage: 12...30 VDC
- Output 1: PNP switching output with IO-Link communication
- Output 2: PNP switching output, teach-in input, laser control, synchronization or pulse frequency modulation (PFM)
- Rectangular design
- Stainless steel housing (1.4404)
- Transmission of process value and parameterization via IO-link

Wiring diagram



Functional principle

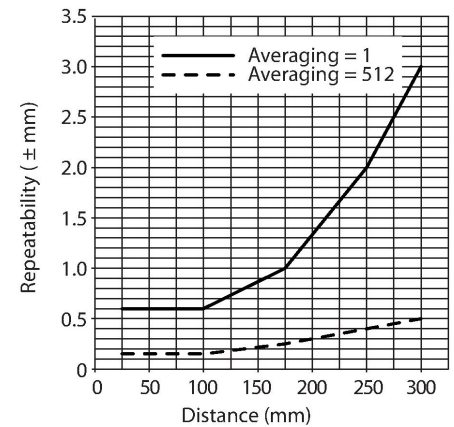
The Q4X is a laser-distance sensor working on the principle of laser triangulation. It has a range of 310 mm and bipolar laser class 1 switching outputs (1 PNP and 1 NPN). With the dual mode functionality, the Q4X captures not only distances but also the light intensity that is reflected by an object. This unique feature allows lasers to be used for applications that would have been inconceivable before this. In RUN mode, you can change the switchpoint, adjust light and dark-switching

Technical data

Frame type	Type_2_2
Minimum cycle time	2 ms
Function Pin 4	IO-Link
Function Pin 2	DI
Maximum cable length	20 m
Profile support	Smart Sensor Profil
Included in the SIDI GSDML	Yes
Mechanical data	
Design	Rectangular, Q4X
Dimensions	33.5 x 18 x 57.5 mm
Housing material	Metal, Stainless steel
Lens	acrylic, PMMA
Electrical connection	Connector, M12 × 1, PVC
Number of cores	4
Ambient temperature	-10...+50 °C
Storage temperature	-25...+75 °C
Relative humidity	35...95 %
Protection class	IP67 IP68 IP69
Special features	Chemical-resistant Clear object detection keep/defer Wash down Resistant to chemicals
Switching state	LED, Yellow
Display	4-digit 7-segment LED display
Tests/approvals	
Vibration resistance	MIL-STD-202G, Method 201A (10 to 60 Hz, 1.52 mm peak to peak amplitude, for 2 hours along the x, y and z-axis), sensor operating
Shock test	MIL-STD-202G, Method 213B Condition I (100G 6x along the XYZ-axis, 18 impacts), sensor in operation
Approvals	CE, cULus, ECOLAB

and teach the sensor accordingly. In SETUP mode, you can select teach, all standard operating parameters and also return to the factory defaults.

Excess Gain Curve



Accessories

SMBQ4XFAM10

3091513

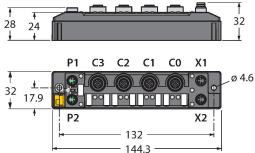
Mounting bracket, rotatable, stainless steel, for sensors of the Q4X/Q3X series, M10 x 1.5 thread

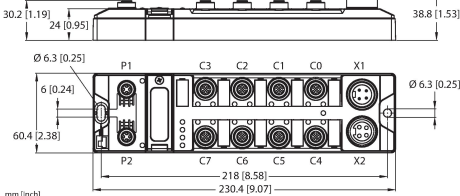
Accessories

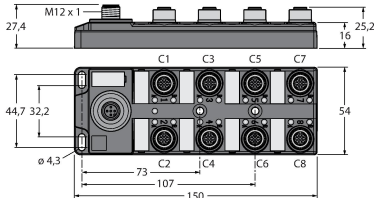
Dimension drawing	Type	ID	
	RKC4.5T-2/TEL	6625016	Connection cable, female M12, straight, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com
	RKH4.5-2/TFG	6933455	Connection cable, M12 female, straight, 5-pin, stainless steel coupling nut, cable length: 2 m, jacket material: TPE, gray, temperature range -40...+105 °C; other cable lengths and designs available, see www.turck.com
	RKS4.5T-2/TEL	6626361	Connection cable, M12 female connector, straight, 5-pin, cable length: 2 m, sheath material: PVC, black; shielded; cULus approval; other cable lengths and qualities available, see www.turck.com
	WKS4.5T-2/TEL	6626364	Connection cable, M12 female connector, angled, 5-pin, cable length: 2 m, sheath material: PVC, black; shielded; cULus approval; other cable lengths and qualities available, see www.turck.com
	RKC4.4T-2/TEL	6625013	Connection cable, female M12, straight, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com

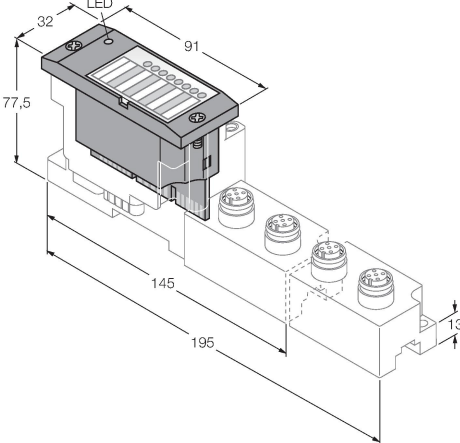
Dimension drawing	Type	ID	
	WKC4.4T-2/TEL	6625025	Connection cable, female M12, angled, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com

Accessories

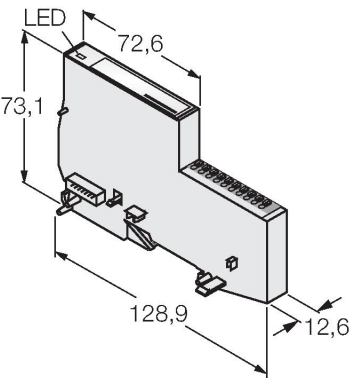
Dimension drawing	Type	ID	
	TBEN-S2-4IOL	6814024	Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A

	TBEN-L4-8IOL	6814082	Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A
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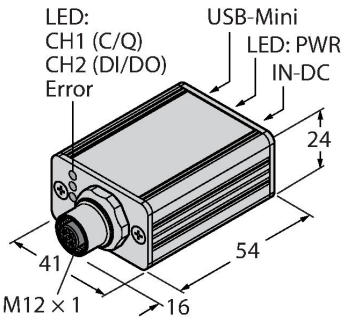
	TBIL-M1-16DXP	6814102	16-channel I/O-hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)
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	BL67-4IOL	6827386	4-channel IO-Link Master module for the modular BL67 I/O-system
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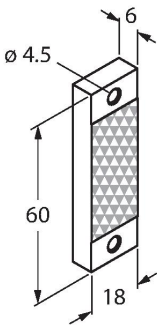
Dimension drawing	Type	ID	
	BL20-E-4IOL	6827385	IO-Link master module for the modular BL20 I/O system, 4-channel



USB-2-IOL-0002	6825482	IO-Link Master with integrated USB port
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BRT-Q4X-60X18	3095776	Reflector for Q4X laser sensors for clear object detection or dual-mode applications, rectangular housing: 60 mm x 18 mm
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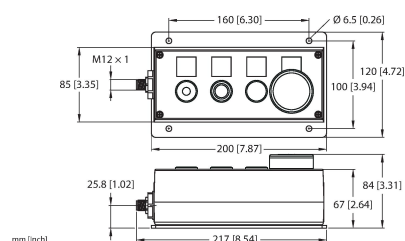
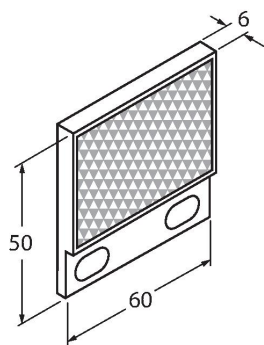


Dimension drawing	Type	ID	
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BRT-Q4X-60X50

3095777

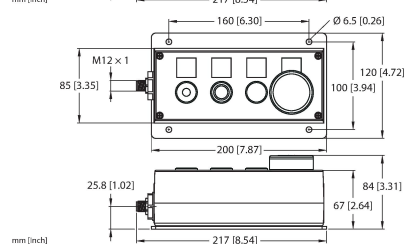
Reflector for Q4X laser sensors, for clear object detection or dual-mode applications, rectangular housing: 60 mm x 50 mm



OPIL-E4-IO2-FE01(DE)

100029326

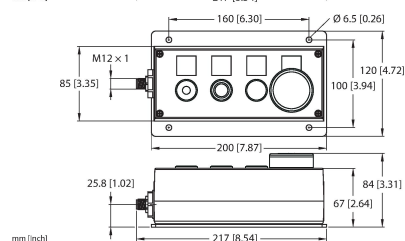
16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)



OPIL-E4-IO2-FE02

100029327

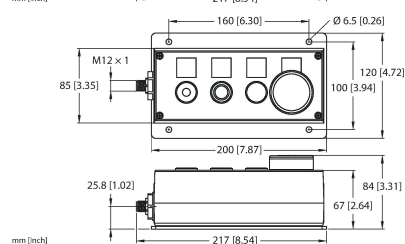
16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)



OPIL-E4-IO2-FE03

100029328

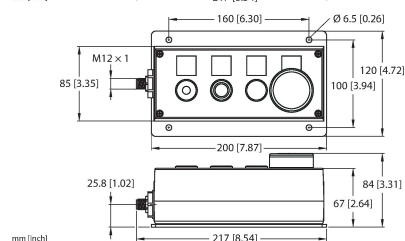
16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)



OPIL-E4-IO3-FE04

100036394

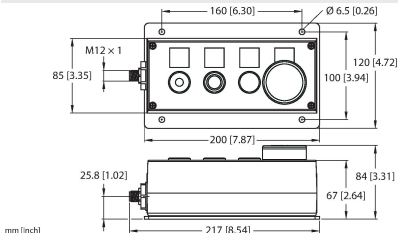
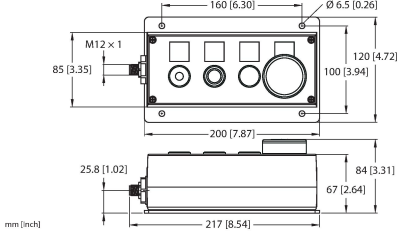
16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)



OPIL-E4-IO3-FE01

100036505

16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)

Dimension drawing	Type	ID	
 mm [inch]	OPIL-E4-IO3-FE02	100036506	16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)
 mm [inch]	OPIL-E4-IO3-FE03	100036507	16-channel I/O hub for the connection of 16 digital PNP signals to an IO-Link master (input/output freely selectable per channel)