

## PowerProx

THE NEW HOME OF SENSING RANGE

MultiTask photoelectric sensors

**SICK**  
Sensor Intelligence.

# PowerProx: THE NEW STANDARD FOR RELIABLE DETECTION WITH AN EXTENDED SENSING RANGE

The new standard for reliable detection with an extended sensing range can't be measured with a conventional yard stick. With sensing ranges from 5 cm to 3.8 m, no object goes undetected by the PowerProx MultiTask photoelectric sensor. To achieve this, not only have SICK packed all the advantages of time-of-flight technology in the world's smallest housing – they have also increased the detection speed. Thanks to PowerProx, now even objects being conveyed at high speed, small and flat objects, and jet black and shiny objects can be reliably detected over a longer distance. The photoelectric sensor also provides stable detection results over a large detection angle and is immune to ambient light. The ideal solution for your detection needs: PowerProx combines sensing range, speed, precision, and reliability in one product family.

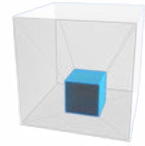
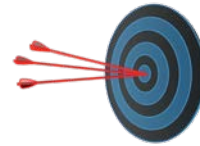
















PowerProx: Video and  
more information from  
[www.sick.de/PowerProx](http://www.sick.de/PowerProx)





# PowerProx: FOUR VERSIONS IN ONE PRODUCT FAMILY

PowerProx MultiTask photoelectric sensors set standards, including when it comes to choice and commissioning – not only do they offer the best solution, they always provide the right solution. The four versions “Distance”, “Speed”, “Precision”, and “Small” are designed for different detection tasks.






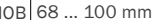
Product	PowerProx Distance: With unrivaled range	PowerProx Speed: For high speed detection	PowerProx Precision: For detecting the smallest of objects and object properties	PowerProx Small: Great sensing range in a small housing
				
Occupied bay and clearance detection				
Rapid counting and precise edge detection				
Quality control by detecting the smallest of objects and object properties				
Checking the pick-up point and collision awareness				
Protection for doors and gates				
Monitoring level, slack, stack height, or roll thickness				

SF: Switching frequency  
S: Sensing range  
MOB: Minimum distance object  
to background

SF   
S   
MOB 17 ... 35 mm

SF   
S   
MOB 27 ... 36 mm

SF   
S   
MOB 15 ... 17 mm

SF   
S   
MOB 68 ... 100 mm

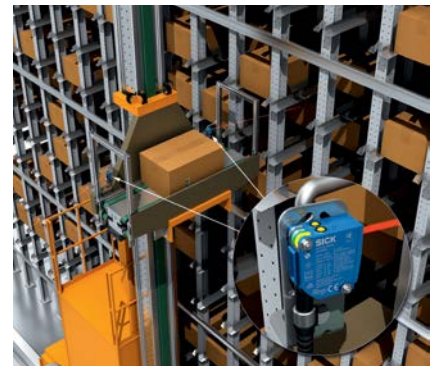


## THE NEW STANDARD: TAILOR-MADE FOR YOUR APPLICATION

Depending on the application, there are also specific requirements placed on the sensors. PowerProx offers tailor-made solutions for all requirements:

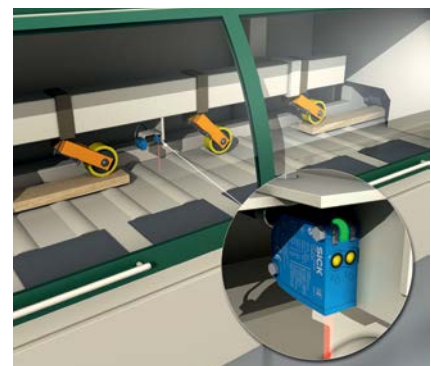
### Extended sensing range: Occupied bay and clearance detection

Thanks to its extended sensing range of up to 3.8 m and two separate, adjustable switching points, the PowerProx Distance is the ideal solution for occupied bay and clearance detection, for palletization, and collision protection. Up to eight switching points can be set using IO-Link, which means that the occupation status of up to eight bays can be checked. PowerProx is immune to background reflections, e.g., from steel shelf beams. Even mutual interference between two sensors is eliminated. PowerProx Small is suitable for use in the tightest of spaces – and operates reliably for sensing ranges up to 2.5 m.



### High speed: Rapid counting and precise edge detection

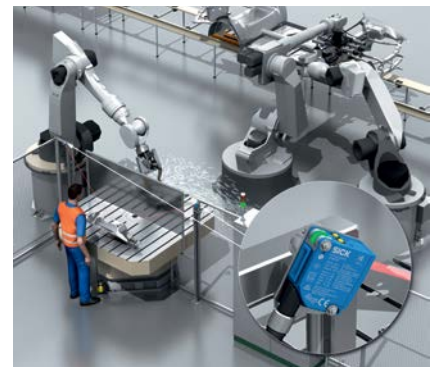
When it comes to processes, such as counting at high speed in the packaging industry or precise edge detection in the wood industry, PowerProx Speed is the right choice. The short response time, high switching frequency and the high-precision laser beam enable precise edge detection on wooden boards, for example. What's more, PowerProx Speed also offers smart sensor functions, such as a time stamp. PowerProx also provides reliable detection over a large detection angle. If the background is not in close proximity to the object, then the PowerProx Small is ideal and, as it is even smaller, it offers more flexibility in terms of machine design.





### Maximum precision: Quality control by detecting the smallest of objects and object properties

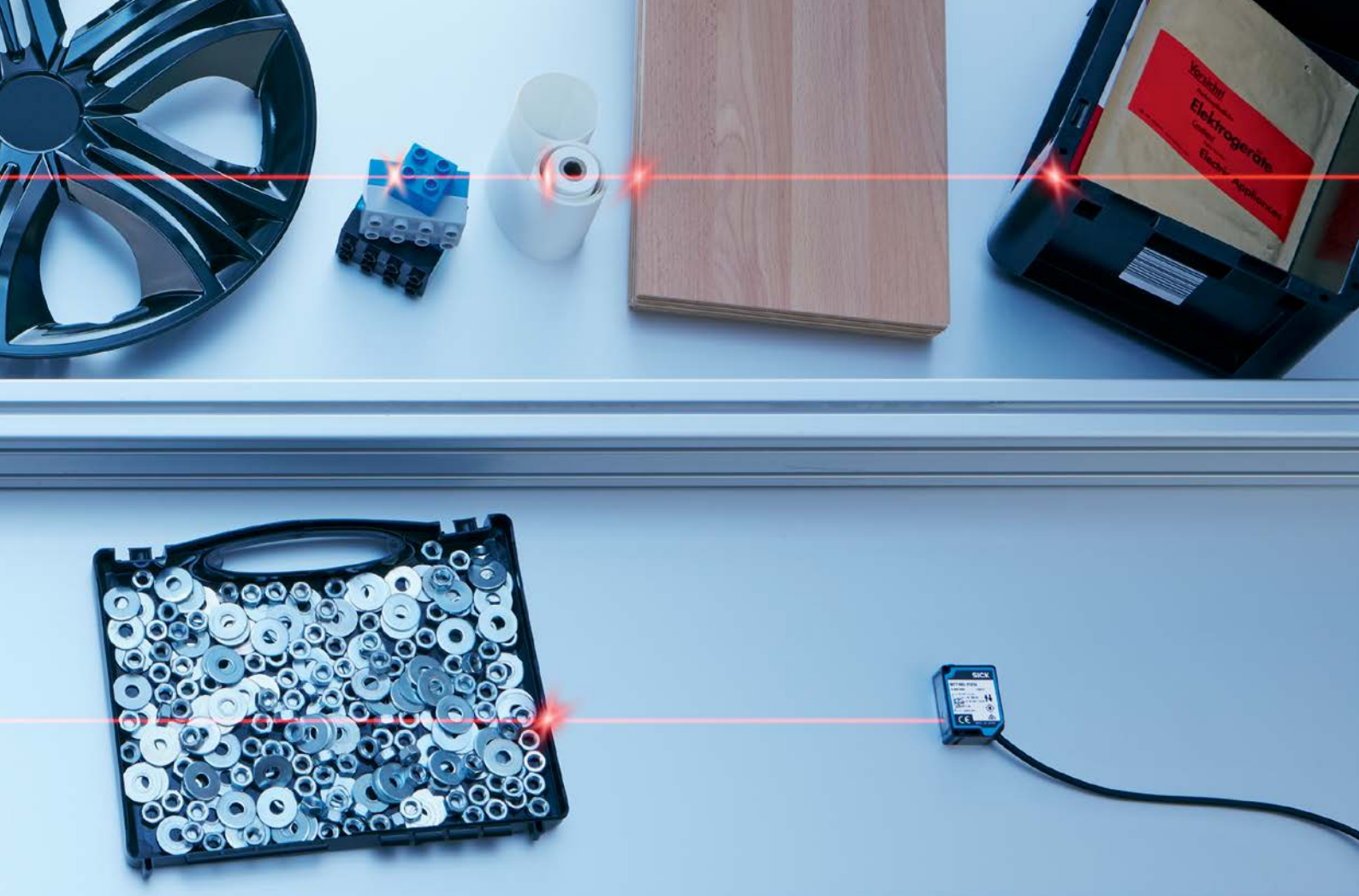
Top results when detecting the smallest of objects thanks to small hysteresis and minimum black/white shift: PowerProx Precision really comes into its own during quality control, in the automotive and part supplier industries, for example. The photoelectric sensor reliably detects even the smallest objects, gaps, and recesses from far away. It handles changing targets with ease, even in front of shiny and reflective background materials.



### Maximum precision: Checking the pick-up point and collision awareness

PowerProx Precision reliably detects small and flat objects as well, no matter what the surface finish: A crucial requirement for use in industrial handling and assembly. With up to two adjustable switching points or up to eight adjustable switching points in the IO-Link version, several robot pick-up points, for example, can be reliably checked. PowerProx Precision provides precise detection at sensing ranges from 5 cm to 1.8 m and can be installed wherever desired.





### Extended sensing range: Protection for doors and gates

When you need to protect doors and gates, an extended sensing range is a must. Photoelectric retro-reflective sensors and through-beam photoelectric sensors always require a reflector or a receiver system. In contrast, PowerProx works by monitoring the returned light from the target: Reflectors and receiver systems are not required. With its extended sensing range of up to 3.8 m and high ambient light immunity, PowerProx Distance is ideal for protecting doors and gates.



### Two switching points: Monitoring level, slack, stack height, or roll thickness

All members of the PowerProx product family are available with two adjustable switching points. This means that tasks, such as slack control in the printing industry, the tire industry, or during sheet steel processing can be carried out efficiently and easily. Depending on additional requirements relating to speed, precision, sensing range, or size, all four PowerProx photoelectric sensor versions are ideal for this.

If a finer application resolution is required, up to eight switching points can be set and controlled with the IO-Link versions (applies to the "Distance", "Speed", and "Precision" versions).

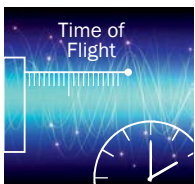




# INSTALLED AS STANDARD: THE INNOVATIVE POWER OF SICK

It simply can't get any more powerful than this: Not only does the PowerProx pack time-of-flight technology in the world's smallest housing for the first time, it's improved optics and electronics, high level of ruggedness, and smart sensor functions also offer a range of advantages.

Outstanding detection properties over a longer sensing range, high switching frequencies, and the minimum distance object to background thanks to:



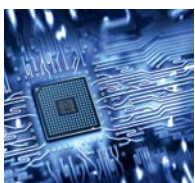
Time-of-flight technology in the smallest housing.



Improved optics and beam paths deliver greater performance and precision.



The latest laser technology for a precise, highly visible light spot. No risk to the eyes thanks to laser class 1.



Greater precision due to highly accurate receiver element and rapid signal processing.







① High level of robustness and maximum flexibility in the machine design thanks to:

- VISTAL® housing (“Distance”, “Speed”, and “Precision” versions)
- smallest housing with this performance level (“Small” version)

② Easy commissioning, easy replacement thanks to:

- no complicated sensor programming required
- a setting element and an LED is assigned to each switching threshold
- highly visible light spot simplifies alignment

③ Intelligent additional functions, which provide extra options thanks to:

- smart sensor functions via IO-Link
- the distance value can also be read out in mm via IO-Link
- up to eight separate switching points can be defined via IO-Link

(Applies to the “Distance”, “Speed”, and “Precision” versions).

## RELIABLE DETECTION WITH UNRIVALED RANGE



### Product description

PowerProx Distance provides reliable detection up to a sensing range of 3.8 m. This enables PowerProx Distance to measure large areas, e.g., multi-deep bays in storage and conveyor systems. The small PowerProx Distance housing combines time-of-flight technology, laser class 1 (i.e., no danger to eyes), outstanding optics, and fast signal processing. The MultiTask photoelectric sensor

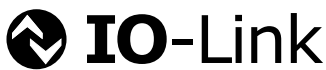
is adjusted via potentiometer or teach-in button. There are versions available with either one or two separately adjustable switching thresholds, depending on the application. IO-Link can be used to define up to eight switching points and to make use of the smart sensor functions. The VISTAL™ housing ensures the device is sufficiently rugged.

### At a glance

- Time-of-flight technology
- Laser class 1
- Sensing range for object detection: 5 cm to 3.8 m
- Switching frequency: 100 Hz
- Minimum distance between the object and background: 17 ... 35 mm
- VISTAL™ housing
- 1 or 2 switching points which can be adjusted separately
- IO-Link available as an option (distance value, 8 switching points, smart sensor functions)

### Your benefits

- Measures large areas up to a sensing range of 3.8 m, e.g., multi-deep bays in storage and conveyor systems
- Reliable object detection, e.g., even with shiny or jet-black surfaces and background reflections
- Highly visible light spot simplifies alignment of the photoelectric proximity sensor
- Precise, simple adjustment with potentiometer or teach-in button
- Eye-safe thanks to laser class 1
- High levels of availability and durability. Rugged even when subjected to high mechanical loads thanks to VISTAL™ housing.
- Small housing offers great flexibility in terms of machine design
- IO-Link extends functionality



### Additional information

Detailed technical data .....	11
Ordering information .....	13
Dimensional drawings .....	14
Connection diagram .....	15
Light spot size .....	15
Sensing range .....	15

→ [www.mysick.com/en/PowerProx\\_Distance](http://www.mysick.com/en/PowerProx_Distance)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

## Features

<b>Sensor principle</b>	Photoelectric proximity sensor
<b>Detection principle</b>	Background suppression
<b>Dimensions (W x H x D)</b>	20 mm x 49.6 mm x 44.2 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max. <sup>1)</sup></b>	50 mm ... 3,800 mm
<b>Sensing range <sup>2)</sup></b>	100 mm ... 3,800 mm
<b>Type of light</b>	Visible red light
<b>Light source <sup>3)</sup></b>	Laser
<b>Light spot size (distance)</b>	Ø 18 mm (3,800 mm)
<b>Wave length</b>	658 nm
<b>Laser class</b>	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)
<b>Adjustment</b>	Single teach-in button / potentiometer (depending on type)

<sup>1)</sup> Object with 6 ... 90 % remission (based on standard white to DIN 5033)

<sup>2)</sup> Adjustable.

<sup>3)</sup> Average service life 50,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage <sup>1) 2)</sup></b>	10 V DC ... 30 V DC
<b>Ripple <sup>3)</sup></b>	≤ 5 V <sub>pp</sub>
<b>Power consumption <sup>4)</sup></b>	≤ 70 mA
<b>Output type <sup>5)</sup></b>	PUSH/PULL: PNP/NPN
<b>Number of switching outputs</b>	2 (Q1, Q2) <sup>6)</sup> 2 (Q, /Q) <sup>7)</sup> (depending on type)
<b>Input</b>	L/D = Light/dark switching Test = test input/sender off (depending on type)
<b>Switching mode</b>	Light switching <sup>6)</sup> Light/dark switching <sup>7)</sup> (depending on type)
<b>Output current I<sub>max.</sub></b>	≤ 100 mA
<b>Response time <sup>8)</sup></b>	≤ 5 ms
<b>Switching frequency <sup>9)</sup></b>	± 100 Hz
<b>Connection type</b>	Cable with male connector, 0.3 m <sup>10)</sup> Male connector Cable, 2 m <sup>10)</sup> (depending on type)
<b>Circuit protection</b>	A <sup>11)</sup> B <sup>12)</sup> C <sup>13)</sup>
<b>Protection class</b>	III
<b>Weight</b>	
Cable with male connector M12, 5-pin	80 g
Male connector M12, 5-pin	48 g
Cable, 5-wire	111 g
<b>Housing material</b>	VISTAL
<b>Optics material</b>	PMMA
<b>Enclosure rating</b>	IP 67



<b>Ambient operating temperature</b> <sup>14)</sup>	-35 °C ... +50 °C
<b>Ambient storage temperature</b>	-40 °C ... +70 °C
<b>Warm-up time</b> <sup>14)</sup>	< 15 min
<b>Initialization time</b>	< 300 ms

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup>  $V_S$  min at IO-Link operation = 18 V.

<sup>3)</sup> May not exceed or fall below  $V_S$  tolerances.

<sup>4)</sup> Without load. At  $V_S = 24$  V

<sup>5)</sup> Off-state current at load towards  $V_S = 0.8$  mA

<sup>6)</sup> Q1, Q2 = 2 switching thresholds, light switching.

<sup>7)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary)

<sup>8)</sup> Signal transit time with resistive load.

<sup>9)</sup> With light/dark ratio 1:1.

<sup>10)</sup> Do not bend below 0 °C.

<sup>11)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>12)</sup> B = inputs and output reverse-polarity protected.

<sup>13)</sup> C = interference suppression.

<sup>14)</sup> As of  $T_a = 45$  °C, a max.load current  $I_{max} = 50$  mA is permitted. Below  $T_a = -10$  °C a warm-up time is required.

## IO-Link

	WTT12LC-Bxx6x
<b>IO-Link version</b>	1.1
<b>Communication mode</b>	COM2
<b>Distance value-measuring range</b>	50 mm ... 3,800 mm
<b>Distance value-resolution</b>	1 mm
<b>Distance value-repeatability</b> <sup>1)</sup>	8 mm
<b>Distance value-accuracy</b>	$\pm 20$ mm <sup>2)</sup> , $\pm 15$ mm <sup>3)</sup>
<b>Cycle time</b>	5 ms
<b>Additional features</b>	8 switching points for distance to object, of which 2 can be inverted, 1 switching point as switching window or configurable with hysteresis. Multifunctional output: sender off, external teach, inactive

<sup>1)</sup> Equivalent to 1  $\sigma$ .

<sup>2)</sup> 50 ... 1000 mm.

<sup>3)</sup> 1000 ... 3800 mm.

## Ordering information

## PowerProx Distance

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 50 mm ... 3,800 mm (Object with 6 ... 90 % remission (based on standard white to DIN 5033))
- **Light spot size (distance):** Ø 18 mm (3,800 mm)
- **Output type:** PUSH/PULL: PNP/NPN

Number of switching outputs	Switching mode	Adjustment	Input	Connection	Connection diagram	Type	Part no.
2 (Q, /Q) <sup>1)</sup>	Light/dark switching <sup>1)</sup>	Single teach-in button (1 x)	Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-282	WTT12L-B3562	1072640
				Cable, 5-wire, 2 m, PVC	Cd-283	WTT12L-B1562	1072634
				Male connector M12, 5-pin	Cd-282	WTT12L-B2562	1072637
		Potentiometer (1 x)	Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-282	WTT12L-B3561	1072614
				Cable, 5-wire, 2 m, PVC	Cd-283	WTT12L-B1561	1072608
				Male connector M12, 5-pin	Cd-282	WTT12L-B2561	1072611
2 (Q1, Q2) <sup>2)</sup>	Light switching <sup>2)</sup>	Single teach-in button (2 x)	L/D = Light/dark switching	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-286	WTT12L-B3567	1072657
				Cable, 5-wire, 2 m, PVC	Cd-287	WTT12L-B1567	1072651
				Male connector M12, 5-pin	Cd-286	WTT12L-B2567	1072654
			Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-284	WTT12L-B3563	1072648
				Cable, 5-wire, 2 m, PVC	Cd-285	WTT12L-B1563	1072643
				Male connector M12, 5-pin	Cd-284	WTT12L-B2563	1072645
		Potentiometer (2 x)	L/D = Light/dark switching	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-286	WTT12L-B3568	1072631
				Cable, 5-wire, 2 m, PVC	Cd-287	WTT12L-B1568	1072625
				Male connector M12, 5-pin	Cd-286	WTT12L-B2568	1072628
			Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-284	WTT12L-B3566	1072622
				Cable, 5-wire, 2 m, PVC	Cd-285	WTT12L-B1566	1072617
				Male connector M12, 5-pin	Cd-284	WTT12L-B2566	1072619

<sup>1)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary)

<sup>2)</sup> Q1, Q2 = 2 switching thresholds, light switching.

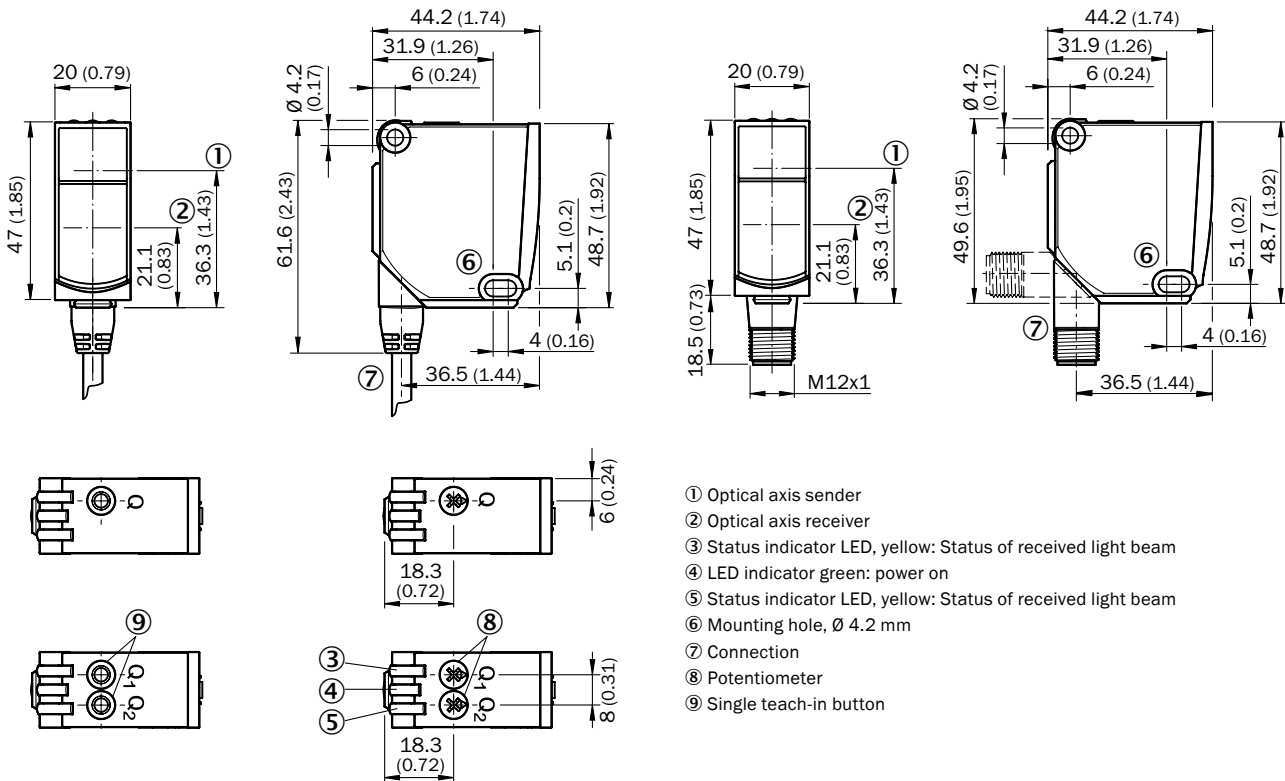
## PowerProx Distance, IO-Link

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 50 mm ... 3,800 mm (Object with 6 ... 90 % remission (based on standard white to DIN 5033))
- **Light spot size (distance):** Ø 18 mm (3,800 mm)
- **Output type:** PUSH/PULL: PNP/NPN

Number of switching outputs	Switching mode	Adjustment	Connection	Connection diagram	Type	Part no.
2 (Q1, Q2) <sup>1)</sup>	Light switching <sup>1)</sup>	Single teach-in button (2 x)	Male connector M12, 5-pin	Cd-290	WTT12LC-B2563	1072532

<sup>1)</sup> Q1, Q2 = 2 switching thresholds, light switching.

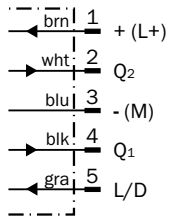
## Dimensional drawings (Dimensions in mm (inch))



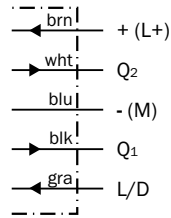


## Connection diagram

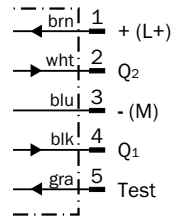
Cd-286



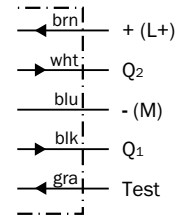
Cd-287



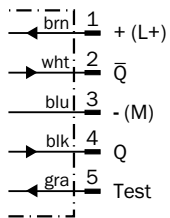
Cd-284



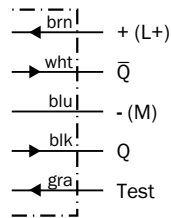
Cd-285



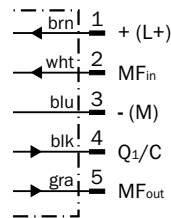
Cd-282



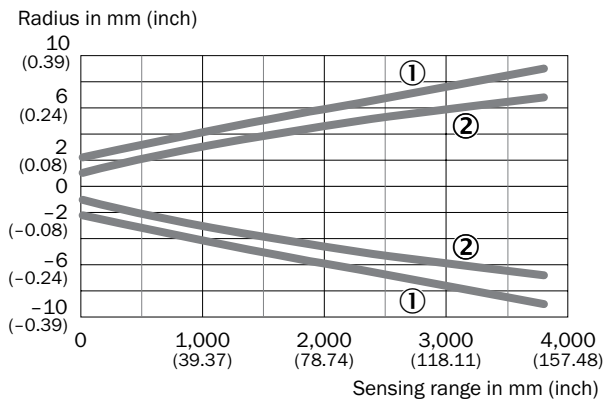
Cd-283



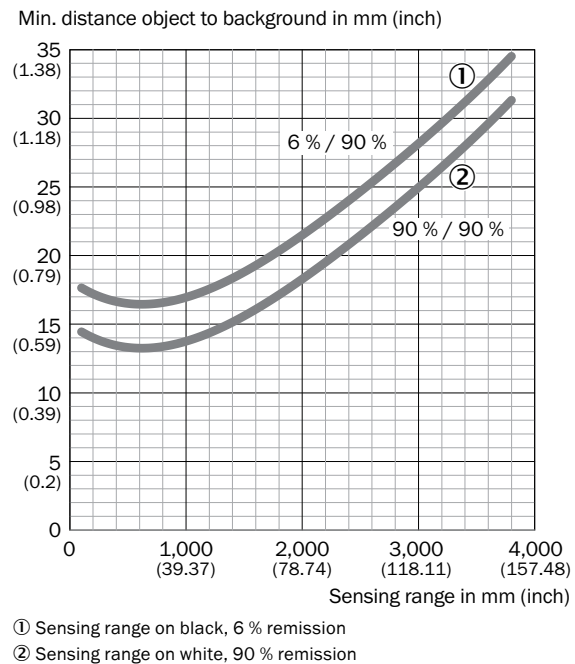
Cd-290



## Light spot size



## Sensing range



## FOR HIGH SPEED DETECTION



### Additional information

Detailed technical data .....	17
Ordering information .....	19
Dimensional drawings .....	20
Connection diagram .....	21
Light spot size .....	21
Sensing range .....	21

### Product description

Quick response times, high switching frequencies: PowerProx Speed offers all of this as well as reliable object detection at sensing ranges up to 2.5 m. It is ideal for use in the packaging industry or in any application that relies on detection at top speed. The small PowerProx Speed housing combines time-of-flight technology, laser class 1 (i.e., no danger to eyes), outstanding optics, and fast signal processing. The MultiTask

photoelectric sensor is adjusted via potentiometer or teach-in button. There are versions available with either one or two separately adjustable switching thresholds, depending on the application. IO-Link can be used to define up to eight switching points and to make use of the smart sensor functions. The VISTAL™ housing ensures the device is sufficiently rugged.

### At a glance

- Time-of-flight technology
- Laser class 1
- Sensing range for object detection: 5 cm to 2.5 m
- Switching frequency: 1,000 Hz
- Minimum distance between the object and background: 27 ... 36 mm
- VISTAL™ housing
- 1 or 2 switching points which can be adjusted separately
- IO-Link available as an option (distance value, 8 switching points, smart sensor functions)

### Your benefits

- Rapid counting and detection of object edges at sensing ranges between 5 cm and 2.5 m
- Reliable object detection, e.g., even with shiny or jet-black surfaces and background reflections
- Highly visible light spot simplifies alignment of the photoelectric proximity sensor
- Precise, simple adjustment with potentiometer or teach-in button
- Eye-safe thanks to laser class 1
- High levels of availability and durability. Rugged even when subjected to high mechanical loads thanks to VISTAL™ housing.
- Small housing offers great flexibility in terms of machine design
- IO-Link extends functionality

→ [www.mysick.com/en/PowerProx\\_Speed](http://www.mysick.com/en/PowerProx_Speed)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

## Features

<b>Sensor principle</b>	Photoelectric proximity sensor
<b>Detection principle</b>	Background suppression
<b>Dimensions (W x H x D)</b>	20 mm x 49.6 mm x 44.2 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max. <sup>1)</sup></b>	50 mm ... 2,500 mm
<b>Sensing range <sup>2)</sup></b>	100 mm ... 2,500 mm
<b>Type of light</b>	Visible red light
<b>Light source <sup>3)</sup></b>	Laser
<b>Light spot size (distance)</b>	Ø 14 mm (2,500 mm)
<b>Wave length</b>	658 nm
<b>Laser class</b>	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)
<b>Adjustment</b>	Single teach-in button / Potentiometer (depending on type)

<sup>1)</sup> Object with 6 ... 90 % remission (based on standard white to DIN 5033)

<sup>2)</sup> Adjustable.

<sup>3)</sup> Average service life 50,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage <sup>1) 2)</sup></b>	10 V DC ... 30 V DC
<b>Ripple <sup>3)</sup></b>	≤ 5 V <sub>pp</sub>
<b>Power consumption <sup>4)</sup></b>	≤ 70 mA
<b>Output type <sup>5)</sup></b>	PUSH/PULL: PNP/NPN
<b>Number of switching outputs</b>	2 (Q1, Q2) <sup>6)</sup> 2 (Q, /Q) <sup>7)</sup> (depending on type)
<b>Input</b>	L/D = Light/dark switching Test = test input/sender off (depending on type)
<b>Switching mode</b>	Light switching <sup>6)</sup> Light/dark switching <sup>7)</sup> (depending on type)
<b>Output current I<sub>max.</sub></b>	≤ 100 mA
<b>Response time <sup>8)</sup></b>	≤ 0.5 ms
<b>Switching frequency <sup>9)</sup></b>	± 1,000 Hz
<b>Connection type</b>	Cable with male connector, 0.3 m <sup>10)</sup> Male connector Cable, 2 m <sup>10)</sup> (depending on type)
<b>Circuit protection</b>	A <sup>11)</sup> B <sup>12)</sup> C <sup>13)</sup>
<b>Protection class</b>	III
<b>Weight</b>	
Cable with male connector M12, 5-pin	80 g
Male connector M12, 5-pin	48 g
Cable, 5-wire	111 g
<b>Housing material</b>	VISTAL
<b>Optics material</b>	PMMA
<b>Enclosure rating</b>	IP 67



<b>Ambient operating temperature</b> <sup>14)</sup>	-35 °C ... +50 °C
<b>Ambient storage temperature</b>	-40 °C ... +70 °C
<b>Warm-up time</b> <sup>14)</sup>	< 15 min
<b>Initialization time</b>	< 300 ms

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup>  $V_S$  min at IO-Link operation = 18 V.

<sup>3)</sup> May not exceed or fall below  $V_S$  tolerances.

<sup>4)</sup> Without load. At  $V_S = 24$  V

<sup>5)</sup> Off-state current at load towards  $V_S = 0.8$  mA

<sup>6)</sup> Q1, Q2 = 2 switching thresholds, light switching.

<sup>7)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary)

<sup>8)</sup> Signal transit time with resistive load.

<sup>9)</sup> With light/dark ratio 1:1.

<sup>10)</sup> Do not bend below 0 °C.

<sup>11)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>12)</sup> B = inputs and output reverse-polarity protected.

<sup>13)</sup> C = interference suppression.

<sup>14)</sup> As of  $T_a = 45$  °C, a max.load current  $I_{max} = 50$  mA is permitted. Below  $T_a = -10$  °C a warm-up time is required.

## IO-Link

	WTT12LC-Bxx3x
<b>IO-Link version</b>	1.1
<b>Communication mode</b>	COM2
<b>Distance value-measuring range</b>	50 mm ... 2,500 mm
<b>Distance value-resolution</b>	1 mm
<b>Distance value-repeatability</b> <sup>1)</sup>	7 mm
<b>Distance value-accuracy</b>	$\pm 20$ mm <sup>2)</sup> , $\pm 15$ mm <sup>3)</sup>
<b>Cycle time</b>	5 ms
<b>Additional features</b>	8 switching points for distance to object, of which 2 can be inverted, 1 switching point as switching window or configurable with hysteresis. Multifunctional output: sender off, external teach, inactive

<sup>1)</sup> Equivalent to 1  $\sigma$ .

<sup>2)</sup> 50 ... 1000 mm.

<sup>3)</sup> 1000 ... 2500 mm.

## Ordering information

## PowerProx Speed

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 50 mm ... 2,500 mm (Object with 6 ... 90 % remission (based on standard white to DIN 5033))
- **Light spot size (distance):** Ø 14 mm (2,500 mm)
- **Output type:** PUSH/PULL: PNP/NPN

Number of switching outputs	Switching mode	Adjustment	Input	Connection	Connection diagram	Type	Part no.
2 (Q, /Q) <sup>1)</sup>	Light/dark switching <sup>1)</sup>	Single teach-in button (1 x)	Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-282	WTT12L-B3532	1072638
				Cable, 5-wire, 2 m, PVC	Cd-283	WTT12L-B1532	1072632
				Male connector M12, 5-pin	Cd-282	WTT12L-B2532	1072635
		Potentiometer (1 x)	Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-282	WTT12L-B3531	1072612
				Cable, 5-wire, 2 m, PVC	Cd-283	WTT12L-B1531	1072606
				Male connector M12, 5-pin	Cd-282	WTT12L-B2531	1072609
2 (Q1, Q2) <sup>2)</sup>	Light switching <sup>2)</sup>	Single teach-in button (2 x)	L/D = Light/dark switching	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-286	WTT12L-B3537	1072655
				Cable, 5-wire, 2 m, PVC	Cd-287	WTT12L-B1537	1072649
				Male connector M12, 5-pin	Cd-286	WTT12L-B2537	1072652
			Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-284	WTT12L-B3533	1072646
				Cable, 5-wire, 2 m, PVC	Cd-285	WTT12L-B1533	1072641
				Male connector M12, 5-pin	Cd-284	WTT12L-B2533	1072531
		Potentiometer (2 x)	L/D = Light/dark switching	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-286	WTT12L-B3538	1072629
				Cable, 5-wire, 2 m, PVC	Cd-287	WTT12L-B1538	1072623
				Male connector M12, 5-pin	Cd-286	WTT12L-B2538	1072626
			Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-284	WTT12L-B3536	1072620
				Cable, 5-wire, 2 m, PVC	Cd-285	WTT12L-B1536	1072615
				Male connector M12, 5-pin	Cd-284	WTT12L-B2536	1072618

<sup>1)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary)

<sup>2)</sup> Q1, Q2 = 2 switching thresholds, light switching.

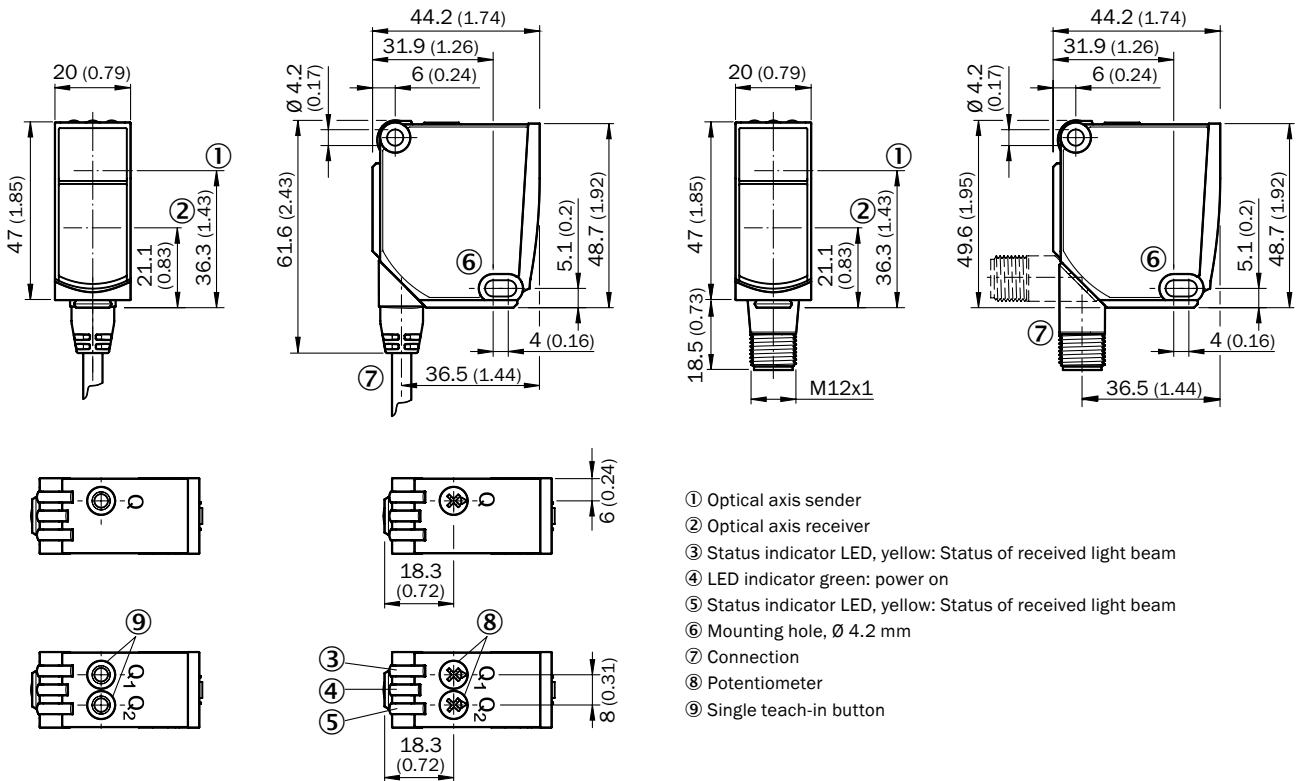
## PowerProx Speed, IO-Link

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 50 mm ... 2,500 mm (Object with 6 ... 90 % remission (based on standard white to DIN 5033))
- **Light spot size (distance):** Ø 14 mm (2,500 mm)
- **Output type:** PUSH/PULL: PNP/NPN

Number of switching outputs	Switching mode	Adjustment	Connection	Connection diagram	Type	Part no.
2 (Q1, Q2) <sup>1)</sup>	Light switching <sup>1)</sup>	Single teach-in button (2 x)	Male connector M12, 5-pin	Cd-290	WTT12LC-B2533	1072658

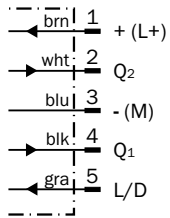
<sup>1)</sup> Q1, Q2 = 2 switching thresholds, light switching.

## Dimensional drawings (Dimensions in mm (inch))

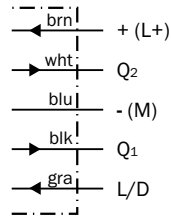


## Connection diagram

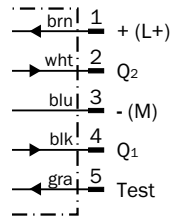
Cd-286



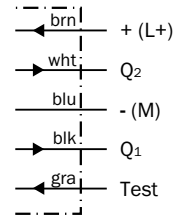
Cd-287



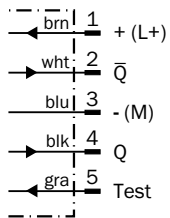
Cd-284



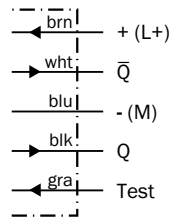
Cd-285



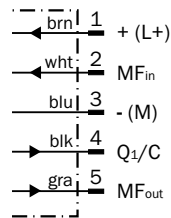
Cd-282



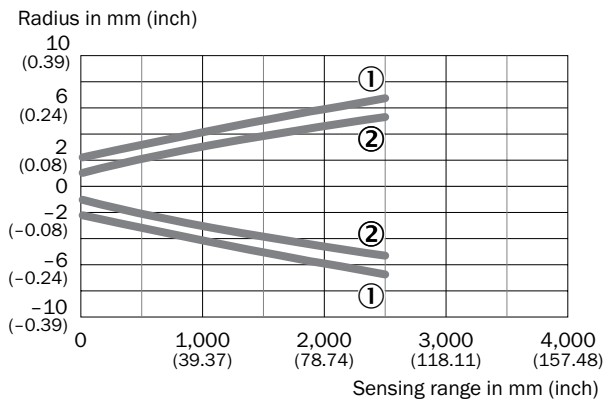
Cd-283



Cd-290

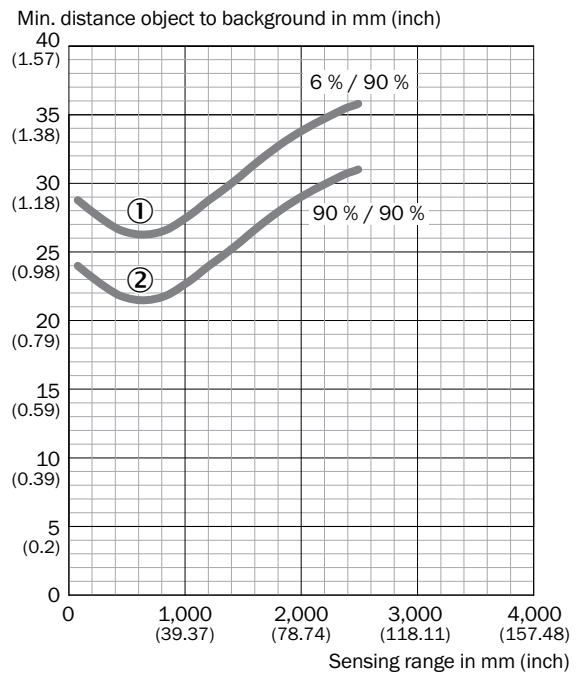


## Light spot size



- ① Light spot horizontal
- ② Light spot vertical

## Sensing range



- ① Sensing range on black, 6 % remission
- ② Sensing range on white, 90 % remission



## FOR DETECTING THE SMALLEST OF OBJECTS AND OBJECT FEATURES



### Additional information

Detailed technical data .....	23
Ordering information .....	25
Dimensional drawings .....	26
Connection diagram .....	27
Light spot size .....	27
Sensing range .....	27

### Product description

With a sensing range of up to 1.8 m, PowerProx Precision detects even the smallest of objects. Ideal for quality control for the automotive industry and its suppliers, or for checking the pick-up point on a robot. The small PowerProx Precision housing combines time-of-flight technology, laser class 1 (i.e., no danger to eyes), outstanding optics, and fast signal processing. The MultiTask

photoelectric sensor is adjusted via potentiometer or teach-in button. There are versions available with either one or two separately adjustable switching thresholds, depending on the application. IO-Link can be used to define up to eight switching points and to make use of the smart sensor functions. The VISTAL™ housing ensures the device is sufficiently rugged.

### At a glance

- Time-of-flight technology
- Laser class 1
- Sensing range for object detection: 5 cm to 1.8 m
- Switching frequency: 30 Hz
- Minimum distance between the object and background: 15 ... 17 mm
- VISTAL™ housing
- 1 or 2 switching points which can be adjusted separately
- IO-Link available as an option (distance value, 8 switching points, smart sensor functions)

### Your benefits

- Precise detection of small and flat objects at sensing ranges between 5 cm and 1.8 m
- Reliable object detection, e.g., even with shiny or jet-black surfaces and background reflections
- Highly visible light spot simplifies alignment of the photoelectric proximity sensor
- Precise, simple adjustment with potentiometer or teach-in button
- Eye-safe thanks to laser class 1
- High levels of availability and durability. Rugged even when subjected to high mechanical loads thanks to VISTAL™ housing.
- Small housing offers great flexibility in terms of machine design
- IO-Link extends functionality

→ [www.mysick.com/en/PowerProx\\_Precision](http://www.mysick.com/en/PowerProx_Precision)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

### Features

<b>Sensor principle</b>	Photoelectric proximity sensor
<b>Detection principle</b>	Background suppression
<b>Dimensions (W x H x D)</b>	20 mm x 49.6 mm x 44.2 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max. <sup>1)</sup></b>	50 mm ... 1,800 mm
<b>Sensing range <sup>2)</sup></b>	100 mm ... 1,800 mm
<b>Type of light</b>	Visible red light
<b>Light source <sup>3)</sup></b>	Laser
<b>Light spot size (distance)</b>	Ø 12 mm (1,800 mm)
<b>Wave length</b>	658 nm
<b>Laser class</b>	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)
<b>Adjustment</b>	Single teach-in button / Potentiometer (depending on type)

<sup>1)</sup> Object with 6 ... 90 % remission (based on standard white to DIN 5033)

<sup>2)</sup> Adjustable.

<sup>3)</sup> Average service life 50,000 h at T<sub>A</sub> = +25 °C.

### Mechanics/electronics

<b>Supply voltage <sup>1) 2)</sup></b>	10 V DC ... 30 V DC
<b>Ripple <sup>3)</sup></b>	≤ 5 V <sub>pp</sub>
<b>Power consumption <sup>4)</sup></b>	≤ 70 mA
<b>Output type <sup>5)</sup></b>	PUSH/PULL: PNP/NPN
<b>Number of switching outputs</b>	2 (Q1, Q2) <sup>6)</sup> 2 (Q, /Q) <sup>7)</sup> (depending on type)
<b>Input</b>	L/D = Light/dark switching Test = test input/sender off (depending on type)
<b>Switching mode</b>	Light switching <sup>6)</sup> Light/dark switching <sup>7)</sup> (depending on type)
<b>Output current I<sub>max.</sub></b>	≤ 100 mA
<b>Response time <sup>8)</sup></b>	≤ 16.7 ms
<b>Switching frequency <sup>9)</sup></b>	± 30 Hz
<b>Connection type</b>	Cable with male connector, 0.3 m <sup>10)</sup> Male connector Cable, 2 m <sup>10)</sup> (depending on type)
<b>Circuit protection</b>	A <sup>11)</sup> B <sup>12)</sup> C <sup>13)</sup>
<b>Protection class</b>	III
<b>Weight</b>	
Cable with male connector M12, 5-pin	80 g
Male connector M12, 5-pin	48 g
Cable, 5-wire	111 g
<b>Housing material</b>	VISTAL
<b>Optics material</b>	PMMA
<b>Enclosure rating</b>	IP 67

<b>Ambient operating temperature</b> <sup>14)</sup>	-35 °C ... +50 °C
<b>Ambient storage temperature</b>	-40 °C ... +70 °C
<b>Warm-up time</b> <sup>14)</sup>	< 15 min
<b>Initialization time</b>	< 300 ms

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup>  $V_S$  min at IO-Link operation = 18 V.

<sup>3)</sup> May not exceed or fall below  $V_S$  tolerances.

<sup>4)</sup> Without load. At  $V_S = 24$  V

<sup>5)</sup> Off-state current at load towards  $V_S = 0.8$  mA

<sup>6)</sup> Q1, Q2 = 2 switching thresholds, light switching.

<sup>7)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary)

<sup>8)</sup> Signal transit time with resistive load.

<sup>9)</sup> With light/dark ratio 1:1.

<sup>10)</sup> Do not bend below 0 °C.

<sup>11)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>12)</sup> B = inputs and output reverse-polarity protected.

<sup>13)</sup> C = interference suppression.

<sup>14)</sup> As of  $T_a = 45$  °C, a max.load current  $I_{max} = 50$  mA is permitted. Below  $T_a = -10$  °C a warm-up time is required.

## IO-Link

	WTT12LC-Bxx4x
<b>IO-Link version</b>	1.1
<b>Communication mode</b>	COM2
<b>Distance value-measuring range</b>	50 mm ... 1,800 mm
<b>Distance value-resolution</b>	1 mm
<b>Distance value-repeatability</b> <sup>1)</sup>	2 mm
<b>Distance value-accuracy</b>	$\pm 20$ mm <sup>2)</sup> , $\pm 15$ mm <sup>3)</sup>
<b>Cycle time</b>	5 ms
<b>Additional features</b>	8 switching points for distance to object, of which 2 can be inverted, 1 switching point as switching window or configurable with hysteresis. Multifunctional output: sender off, external teach, inactive

<sup>1)</sup> Equivalent to 1  $\sigma$ .

<sup>2)</sup> 50 ... 1000 mm.

<sup>3)</sup> 1000 ... 1800 mm.

## Ordering information

### PowerProx Precision

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 50 mm ... 1,800 mm (Object with 6 ... 90 % remission (based on standard white to DIN 5033))
- **Light spot size (distance):** Ø 12 mm (1,800 mm)
- **Output type:** PUSH/PULL: PNP/NPN

Number of switching outputs	Switching mode	Adjustment	Input	Connection	Connection diagram	Type	Part no.
2 (Q, /Q) <sup>1)</sup>	Light/dark switching <sup>1)</sup>	Single teach-in button (1 x)	Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-282	WTT12L-B3542	1072639
				Cable, 5-wire, 2 m, PVC	Cd-283	WTT12L-B1542	1072633
				Male connector M12, 5-pin	Cd-282	WTT12L-B2542	1072636
		Potentiometer (1 x)	Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-282	WTT12L-B3541	1072613
				Cable, 5-wire, 2 m, PVC	Cd-283	WTT12L-B1541	1072607
				Male connector M12, 5-pin	Cd-282	WTT12L-B2541	1072610
2 (Q1, Q2) <sup>2)</sup>	Light switching <sup>2)</sup>	Single teach-in button (2 x)	L/D = Light/dark switching	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-286	WTT12L-B3547	1072656
				Cable, 5-wire, 2 m, PVC	Cd-287	WTT12L-B1547	1072650
				Male connector M12, 5-pin	Cd-286	WTT12L-B2547	1072653
			Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-284	WTT12L-B3543	1072647
				Cable, 5-wire, 2 m, PVC	Cd-285	WTT12L-B1543	1072642
				Male connector M12, 5-pin	Cd-284	WTT12L-B2543	1072644
		Potentiometer (2 x)	L/D = Light/dark switching	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-286	WTT12L-B3548	1072630
				Cable, 5-wire, 2 m, PVC	Cd-287	WTT12L-B1548	1072624
				Male connector M12, 5-pin	Cd-286	WTT12L-B2548	1072627
			Test = test input/sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	Cd-284	WTT12L-B3546	1072621
				Cable, 5-wire, 2 m, PVC	Cd-285	WTT12L-B1546	1072616
				Male connector M12, 5-pin	Cd-284	WTT12L-B2546	1072530

<sup>1)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary)

<sup>2)</sup> Q1, Q2 = 2 switching thresholds, light switching.

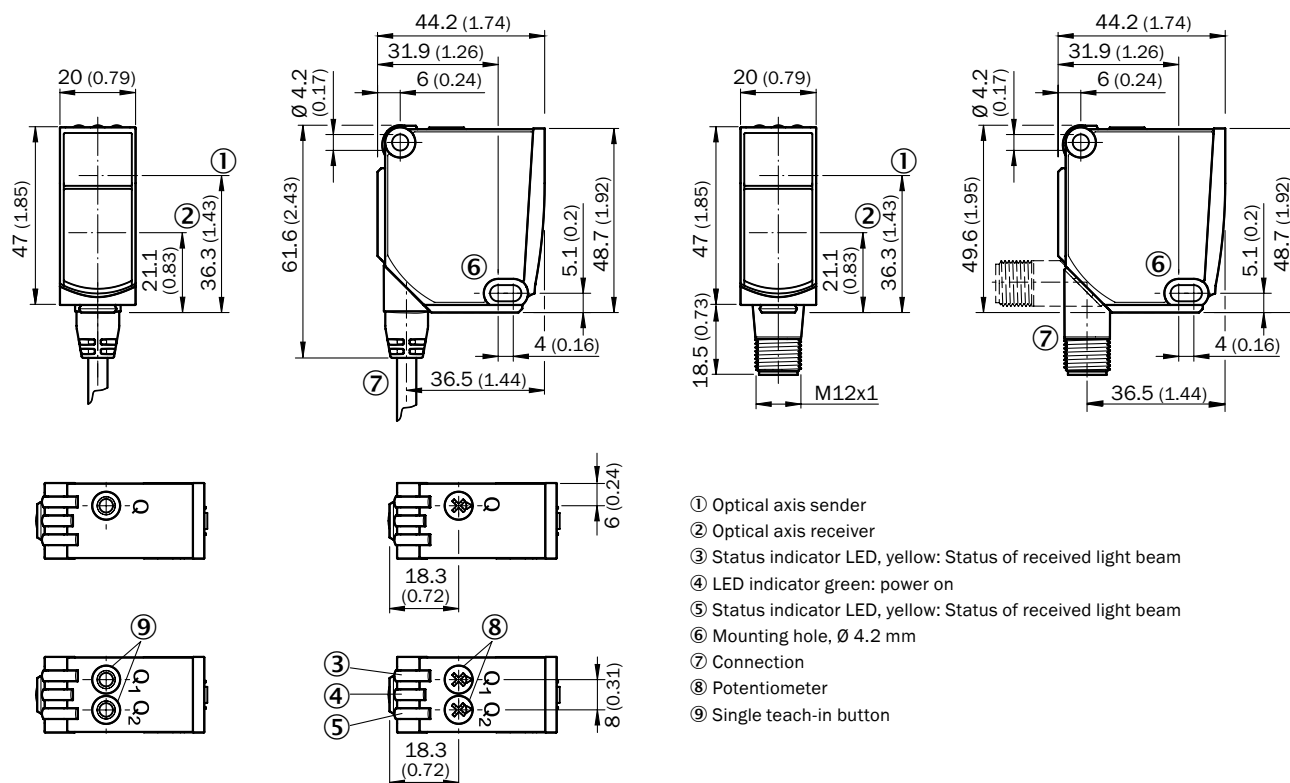
## PowerProx Precision, IO-Link

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 50 mm ... 1,800 mm (Object with 90 % reflectance (referred to standard white, DIN 5033))
- **Light spot size (distance):** Ø 12 mm (1,800 mm)
- **Output type:** PUSH/PULL: PNP/NPN

Number of switching outputs	Switching mode	Adjustment	Connection	Connection diagram	Type	Part no.
2 (Q1, Q2) <sup>1)</sup>	Light switching <sup>1)</sup>	Single teach-in button (2 x)	Male connector M12, 5-pin	Cd-290	WTT12LC-B2543	1072659

<sup>1)</sup> Q1, Q2 = 2 switching thresholds, light switching.

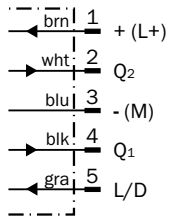
## Dimensional drawings (Dimensions in mm (inch))



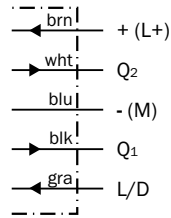


## Connection diagram

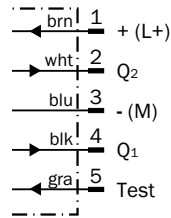
Cd-286



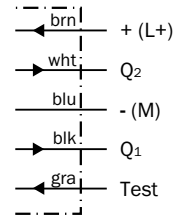
Cd-287



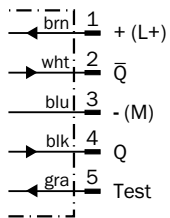
Cd-284



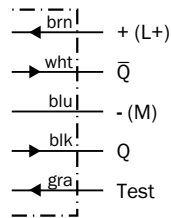
Cd-285



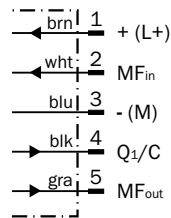
Cd-282



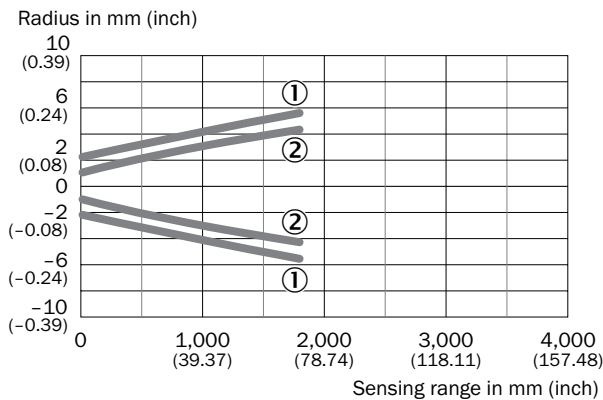
Cd-283



Cd-290

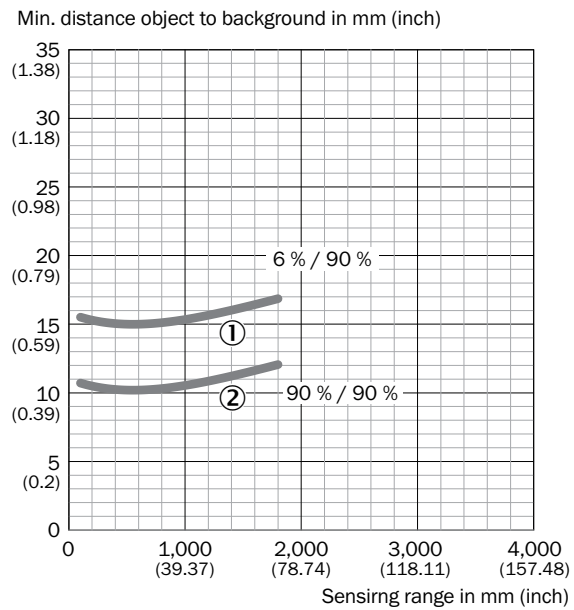


## Light spot size



- ① Light spot horizontal
- ② Light spot vertical

## Sensing range



- ① Sensing range on black, 6 % remission
- ② Sensing range on white, 90 % remission

# GREAT SENSING RANGE IN A SMALL PACKAGE



## Product description

The PowerProx Small combines time-of-flight technology, sensing ranges up to 2.5 m, and high switching frequencies up to 1,000 Hz in the world's smallest housing. The laser technology is classified as laser class 1, ensuring that there is no danger to eyes during operation. The MultiTask photoelectric sensor is

adjusted via potentiometer. There are versions available with either one or two separately adjustable switching thresholds, depending on the application. Thanks to its versatile connection options, the PowerProx Small is extremely flexible and can be used in a wide range of different fields.

## At a glance

- Time-of-flight technology
- Laser class 1
- Sensing range for object detection: 20 cm to 2.5 m
- Switching frequency: 1,000 Hz
- Minimum distance between the object and background: 68 ... 100 mm
- Adjustment via potentiometer
- 1 or 2 switching points which can be adjusted separately
- Wide range of connection options

## Your benefits

- The world's smallest housing offers great flexibility in terms of machine design
- Flexible: Sensing ranges from 20 cm to 2.5 m
- Reliable object detection, e.g., even with shiny or jet-black surfaces and background reflections
- Highly visible light spot simplifies alignment of the photoelectric proximity sensor
- Precise, simple adjustment with potentiometer
- Eye-safe thanks to laser class 1



## Additional information

Detailed technical data .....	29
Ordering information .....	30
Dimensional drawings .....	31
Connection diagram .....	32
Light spot size .....	32
Sensing range .....	32

→ [www.mysick.com/en/PowerProx\\_Small](http://www.mysick.com/en/PowerProx_Small)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

## Features

<b>Sensor principle</b>	Photoelectric proximity sensor
<b>Detection principle</b>	Background suppression
<b>Dimensions (W x H x D)</b>	17.6 mm x 46.5 mm x 34.1 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max. <sup>1)</sup></b>	200mm ... 2,500 mm
<b>Sensing range <sup>2)</sup></b>	200 mm ... 2,500 mm
<b>Type of light</b>	Visible red light
<b>Light source <sup>3)</sup></b>	Laser
<b>Light spot size (distance)</b>	Ø 10 mm (2,500 mm)
<b>Wave length</b>	658 nm
<b>Laser class</b>	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)
<b>Adjustment</b>	Potentiometer

<sup>1)</sup> Object with 6 ... 90 % remission (based on standard white to DIN 5033)

<sup>2)</sup> Adjustable.

<sup>3)</sup> Average service life 50,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC
<b>Ripple <sup>2)</sup></b>	≤ 5 V <sub>pp</sub>
<b>Power consumption <sup>3)</sup></b>	≤ 75 mA
<b>Output type</b>	NPN PNP (depending on type)
<b>Number of switching outputs</b>	2 (Q1, Q2) <sup>4)</sup> 1 (Q1) <sup>5)</sup> (depending on type)
<b>Input</b>	Test = test input/sender off (depending on type)
<b>Switching mode</b>	Light/dark switching <sup>4)</sup> <sup>5)</sup>
<b>Switching mode selector</b>	Selectable via light/dark selector
<b>Output current I<sub>max.</sub></b>	≤ 100 mA
<b>Response time <sup>6)</sup></b>	≤ 0.5 ms
<b>Switching frequency <sup>7)</sup></b>	± 1,000 Hz
<b>Connection type</b>	Cable with male connector, 0.3 m <sup>8)</sup> Male connector Cable, 2 m <sup>8)</sup> (depending on type)
<b>Circuit protection</b>	A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup>
<b>Protection class</b>	III
<b>Weight</b>	
Cable with male connector M12, 5-pin	45 g
Male connector M8, 4-pin	25 g
Cable, 4-wire	80 g
Cable, 5-wire	85 g
<b>Housing material</b>	ABS
<b>Optics material</b>	PMMA

Enclosure rating	IP 67
Ambient operating temperature <sup>12)</sup>	-10 °C ... +50 °C
Ambient storage temperature	-40 °C ... +70 °C
Warm-up time <sup>13)</sup>	< 5 min
Initialization time	< 300 ms

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup> May not exceed or fall below  $V_S$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Q1, Q2 = 2 switching thresholds, light/dark switching, selectable via light/dark selector

<sup>5)</sup> Q1 = 1 switching threshold, light/dark switching, selectable via light/dark selector

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> For operating temperatures below -10 °C please contact us.

<sup>13)</sup> For best performance consider warm up time ≤ 5 minutes.

## Ordering information

### PowerProx Small

- **Sensor principle:** Photoelectric proximity sensor
- **Voltage type:** DC
- **Sensing range max.:** 200 mm ... 2,500 mm (Object with 6 ... 90 % remission (based on standard white to DIN 5033))
- **Light spot size (distance):** 10 mm (2,500 mm)

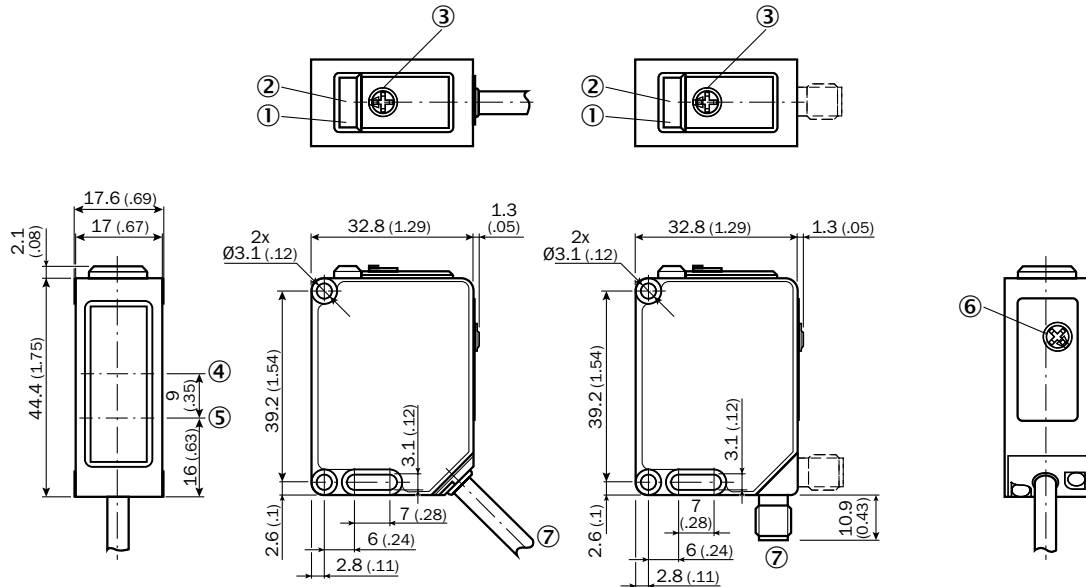
Number of switching outputs	Switching mode	Adjustment	Input	Connection	Output type	Connection diagram	Type	Part no.
1 (Q1) <sup>1)</sup>	Light/dark switching <sup>1) 2)</sup>	Potentiometer (1 x)	Test = test input/ sender off	Cable with male connector M12, 5-pin, 0.3 m, PVC	NPN	Cd-294	WTT190L-N3531	6055961
					PNP	Cd-294	WTT190L-P3531	6055955
				Cable, 4-wire, 2 m, PVC	NPN	Cd-293	WTT190L-N1131	6055960
					PNP	Cd-293	WTT190L-P1131	6055954
				Male connector M8, 4-pin	NPN	Cd-292	WTT190L-N2231	6055959
					PNP	Cd-292	WTT190L-P2231	6055953
2 (Q1, Q2) <sup>2)</sup>		Potentiometer (2 x)		Cable with male connector M12, 5-pin, 0.3 m, PVC	NPN	Cd-284	WTT190L-N3536	6055964
					PNP	Cd-284	WTT190L-P3536	6055958
				Cable, 5-wire, 2 m, PVC	NPN	Cd-285	WTT190L-N1536	6055963
					PNP	Cd-285	WTT190L-P1536	6055957
				Male connector M8, 4-pin	NPN	Cd-296	WTT190L-N2236	6055962
					PNP	Cd-296	WTT190L-P2236	6055956

<sup>1)</sup> Q1, Q2 = 2 switching thresholds, light/dark switching, selectable via light/dark selector

<sup>2)</sup> Q1 = 1 switching threshold, light/dark switching, selectable via light/dark selector

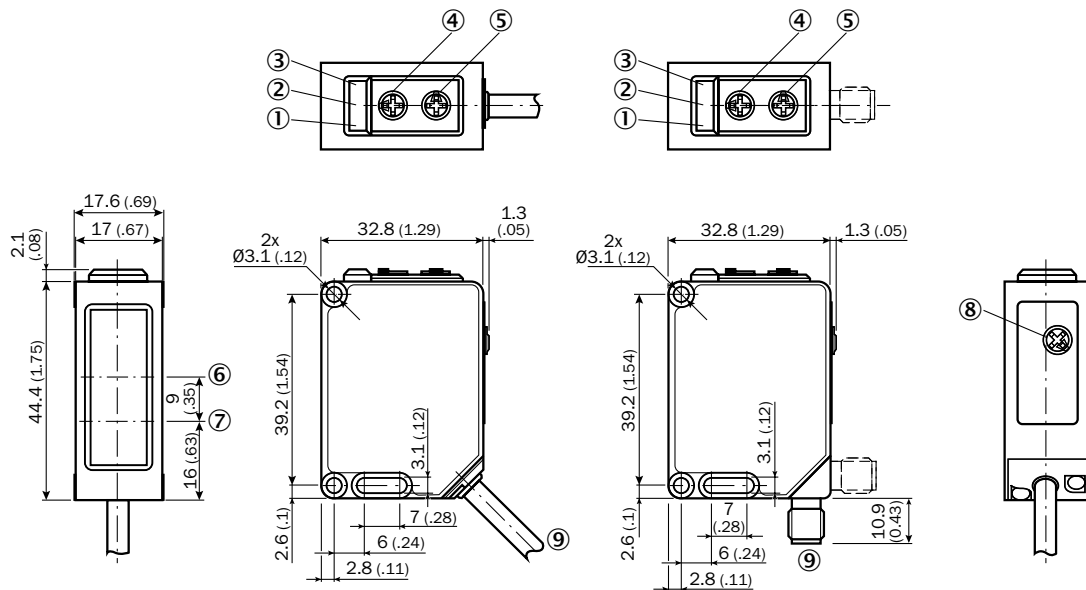
**Dimensional drawings** (Dimensions in mm (inch))

WTT190L-XXXX1



- ① Status indicator LED, yellow: Status of output Q1
- ② Status indicator LED, green/red: power on / stability indicator
- ③ Potentiometer
- ④ Optical axis receiver
- ⑤ Optical axis sender
- ⑥ Light/dark selector
- ⑦ Connection

WTT190L-XXXX6

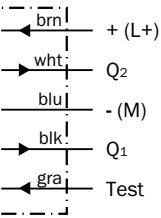


- ① Status indicator LED, yellow: Status of output Q1
- ② Status indicator LED, green/red: power on / stability indicator
- ③ Status indicator LED, yellow: Status of output Q2
- ④ Potentiometer
- ⑤ Potentiometer
- ⑥ Optical axis receiver
- ⑦ Optical axis sender
- ⑧ Light/dark selector
- ⑨ Connection

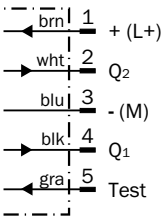


Connection diagram

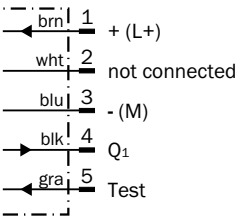
Cd-285



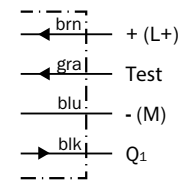
Cd-284



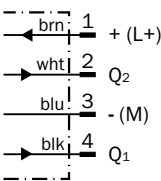
Cd-294



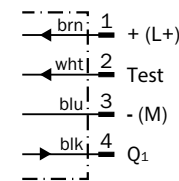
Cd-293



Cd-296

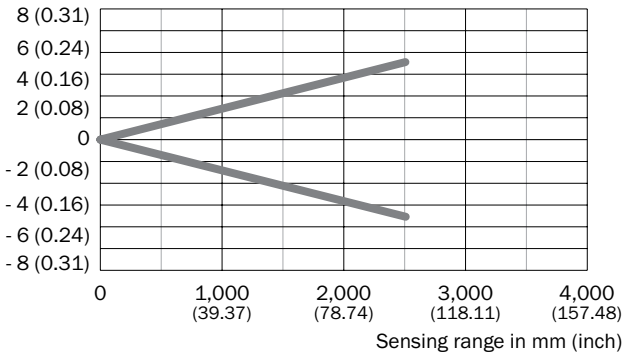


Cd-292



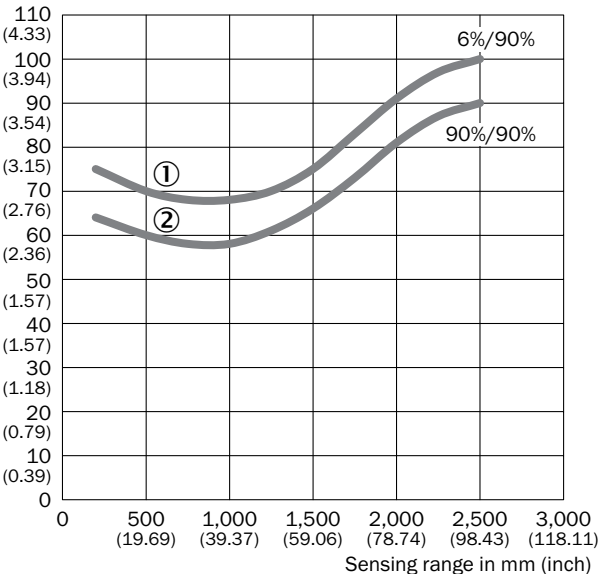
Light spot size

Radius mm (inch)



Sensing range

Min. distance object to background in mm (inch)







- ① Sensing range on black, 6 % remission
- ② Sensing range on white, 90 % remission



## PowerProx



Connecting cables with female connector

- **Locking nut material:** CuZn, nickel-plated brass
- **Cable material:** PVC
- **Application:** chemical resistant

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	Female connector, M8, 4-pin, straight	Cable	2 m, 4-wire	DOL-0804-G02M	6009870	-	-	-	●
			5 m, 4-wire	DOL-0804-G05M	6009872	-	-	-	●
	Female connector, M8, 4-pin, angled	Cable	2 m, 4-wire	DOL-0804-W02M	6009871	-	-	-	●
			5 m, 4-wire	DOL-0804-W05M	6009873	-	-	-	●
 Illustration may differ	Female connector, M12, 5-pin, straight	Cable	2 m, 5-wire	DOL-1205-G02M	6008899	●	●	●	●
			5 m, 5-wire	DOL-1205-G05M	6009868	●	●	●	●
 Illustration may differ	Female connector, M12, 5-pin, angled	Cable	2 m, 5-wire	DOL-1205-W02M	6008900	●	●	●	●
			5 m, 5-wire	DOL-1205-W05M	6009869	●	●	●	●





Connection cables with female connector and male connector

- **Locking nut material:** zinc die-cast, nickel-plated
- **Cable material:** PUR, halogen-free
- **Special feature:** drag chain use
- **Application:** Oil / grease resistant
- **Authorizations:** UL

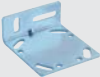

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	Female connector, M8, 4-pin, straight	Male connector, M8, 4-pin, straight	2 m, 4-wire	DSL-0804-G02MC	6036335	-	-	-	●
			5 m, 4-wire	DSL-0804-G05MC	6039090	-	-	-	●
	Female connector, M12, 5-pin, straight	Male connector, M12, 5-pin, straight	2 m, 5-wire	DSL-1205-G02MC	6025931	●	●	●	●
			5 m, 5-wire	DSL-1205-G05MC	6029282	●	●	●	●

## Female connectors (ready to assemble)

- **Locking nut material:** CuZn

Figure	Connection type head A	Connection type head B	Authorizations	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	Female connector, M8, 4-pin, straight	-	-	DOS-0804-G	6009974	-	-	-	●
	Female connector, M8, 4-pin, angled	-	-	DOS-0804-W	6009975	-	-	-	●
	Female connector, M12, 5-pin, straight	-	UL	DOS-1205-G	6009719	●	●	●	●
	Female connector, M12, 5-pin, angled	-	UL	DOS-1205-W	6009720	●	●	●	●

## Mounting brackets

Figure	Description	Material	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	Mounting bracket	Steel, zinc coated	BEF-WTT12L	2078538	●	●	●	-
	Mounting bracket	Steel, zinc coated	BEF-W190	5311362	-	-	-	●

## Terminal brackets











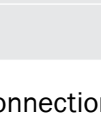


Figure	Description	Material	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	Plate N02 for universal clamp bracket	Zinc plated steel (sheet), Diecast zinc (clamp)	BEF-KHS-N02	2051608	●	●	●	●
	Plate N03 for universal clamp bracket, zinc coated	Zinc plated steel (sheet), Diecast zinc (clamp)	BEF-KHS-N03	2051609	●	●	●	-

Figure	Description	Material	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	Plate N04 for universal clamp bracket, steel	Zinc plated steel (sheet), Diecast zinc (clamp)	BEF-KHS-N04	2051610	●	●	●	-
	Mounting bar, straight, 200 mm, steel	Steel, zinc coated	BEF-MS12G-A	4056054	●	●	●	●
	Mounting bar, straight, 300 mm, steel	Steel, zinc coated	BEF-MS12G-B	4056055	●	●	●	●
	Mounting bar, L-shaped, 150 mm x 150 mm, steel	Steel, zinc coated	BEF-MS12L-A	4056052	●	●	●	●
	Mounting bar, L-shaped, 250 x 250 mm, steel	Steel, zinc coated	BEF-MS12L-B	4056053	●	●	●	●
	Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm, steel	Steel, zinc coated	BEF-MS12Z-A	4056056	●	●	●	●
	Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm, steel	Steel, zinc coated	BEF-MS12Z-B	4056057	●	●	●	●
	Bar clamp for bar diameter of 12 mm (fixing the mounting rod)	Aluminum	BEF-RMC-D12	5321878	●	●	●	●
	Clamping block for dovetail mounting	Aluminum (anodised)	BEF-KH-WTT12L	2080772	●	●	●	-

## Connection modules

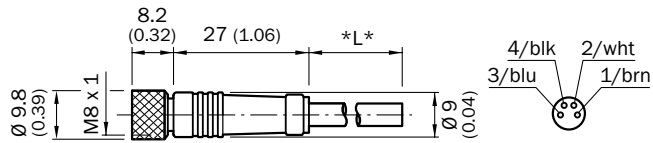
Figure	Description	Type	Part no.	PowerProx Distance	PowerProx Speed	PowerProx Precision	PowerProx Small
	IO-Link version V1.1, Port class 2, PIN 2, 4, 5 galvanically connected, Supply voltage 18 V DC ... 32 V DC (limit values, operation in short-circuit protected network max. 8 A)	SICK Memory Stick	1064290	●	●	●	-
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	SiLink2 Master	1061790	●	●	●	-



### Dimensional drawings connecting cables with female connector

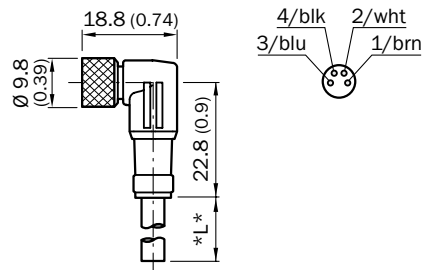
DOL-0804-G02M

DOL-0804-G05M



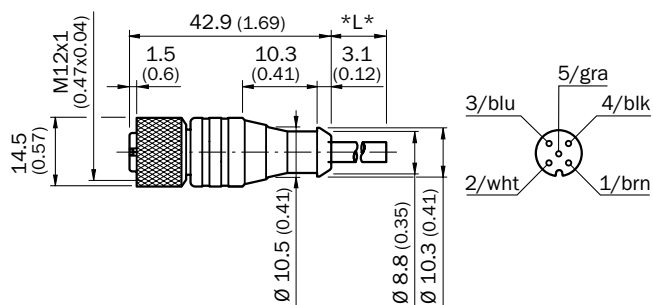
DOL-0804-W02M

DOL-0804-W05M



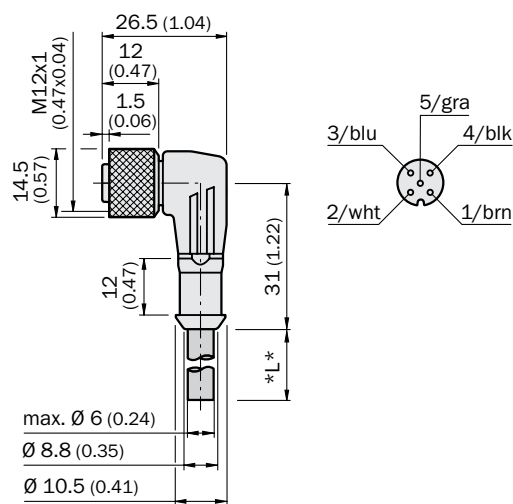
DOL-1205-G02M

DOL-1205-G05M



DOL-1205-W02M

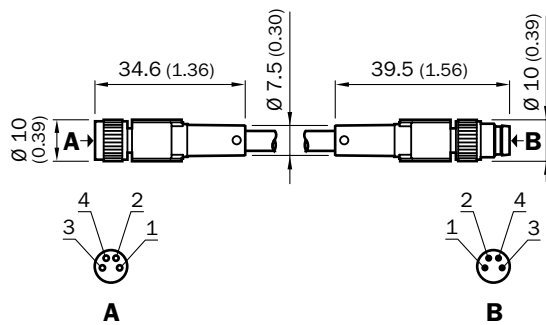
DOL-1205-W05M



### Dimensional drawings connection cables with female connector and male connector

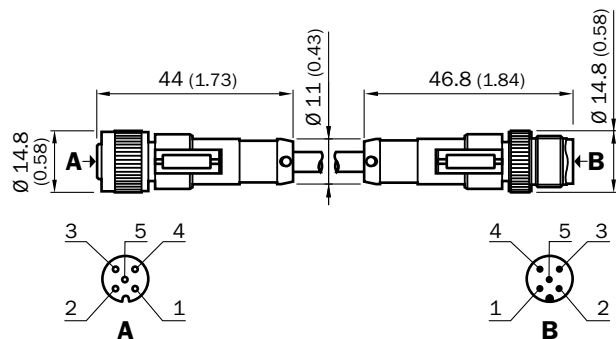
DSL-0804-G02MC

DSL-0804-G05MC



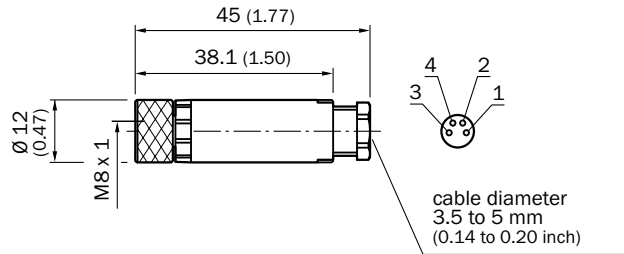
DSL-1205-G02MC

DSL-1205-G05MC

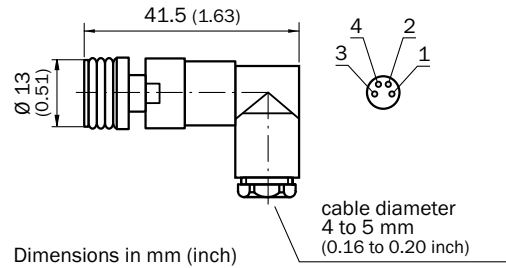


## Dimensional drawings Female connectors (ready to assemble)

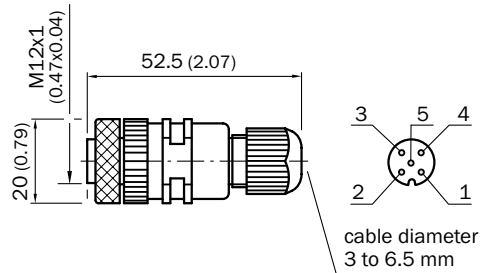
DOS-0804-G



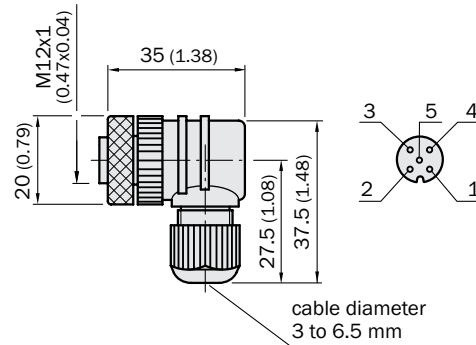
DOS-0804-W



DOS-1205-G

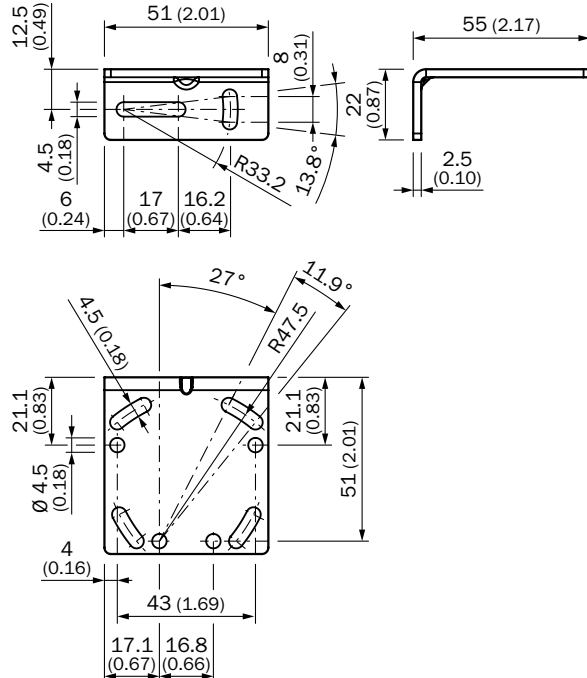


DOS-1205-W

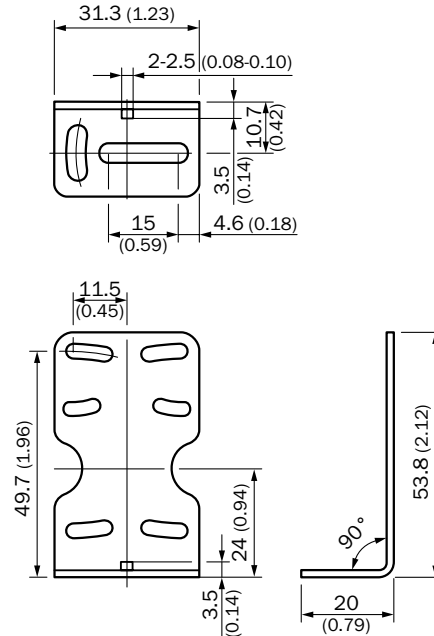


## Dimensional drawings Mounting brackets

BEF-WTT12L

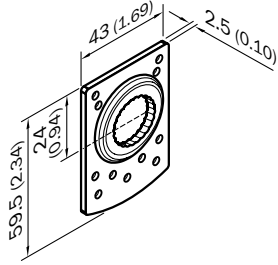


BEF-W190

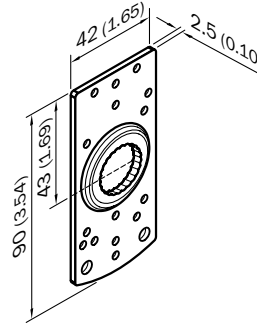


## Dimensional drawings Terminal brackets

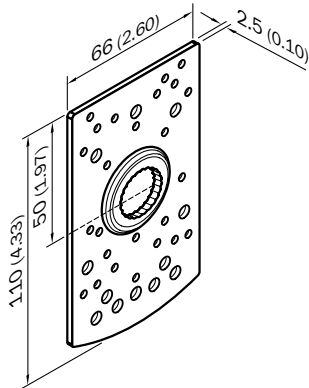
BEF-KHS-N02



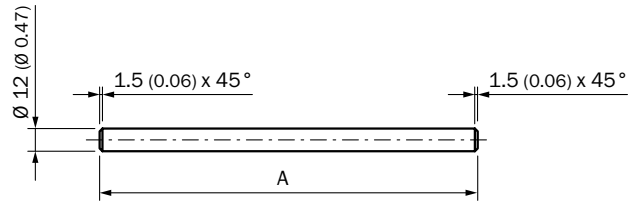
BEF-KHS-N03



BEF-KHS-N04

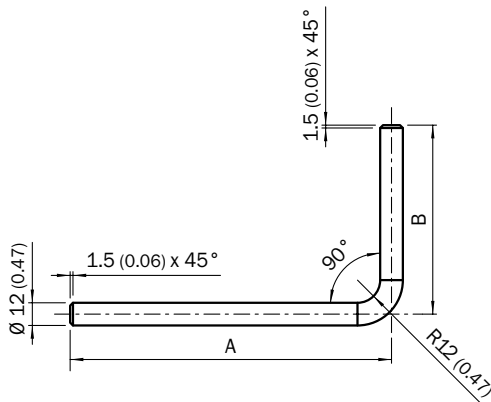


BEF-MS12G-A  
BEF-MS12G-B



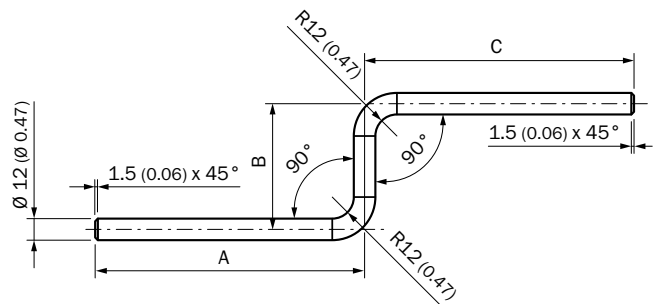
- ① BEF-MS12G-(N)A: A = 200 mm
- ② BEF-MS12G-(N)B: A = 300 mm

BEF-MS12L-A  
BEF-MS12L-B



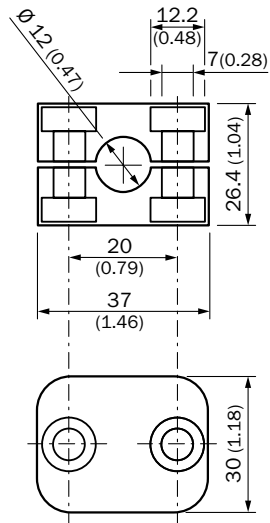
- ① BEF-MS12L-(N)A: A = 200 mm, B = 150 mm
- ② BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

BEF-MS12Z-A  
BEF-MS12Z-B

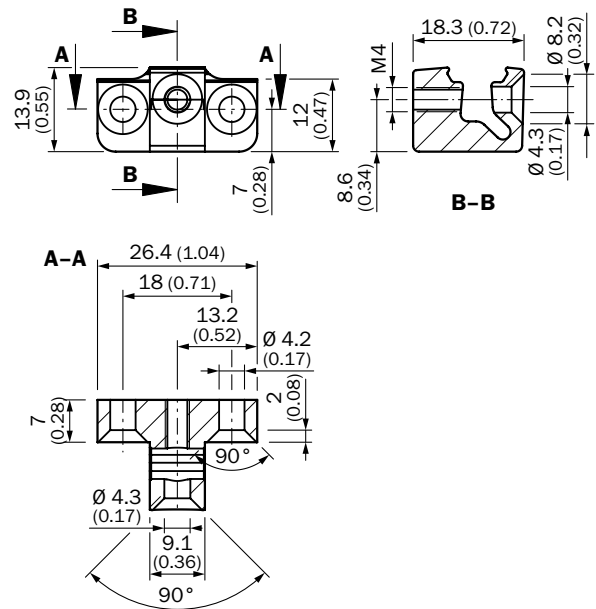


- ① BEF-MS12Z-(N)A: A = 150 mm, B = 70 mm, C = 150 mm
- ② BEF-MS12Z-(N)B: A = 150 mm, B = 70 mm, C = 250 mm

BEF-RMC-D12

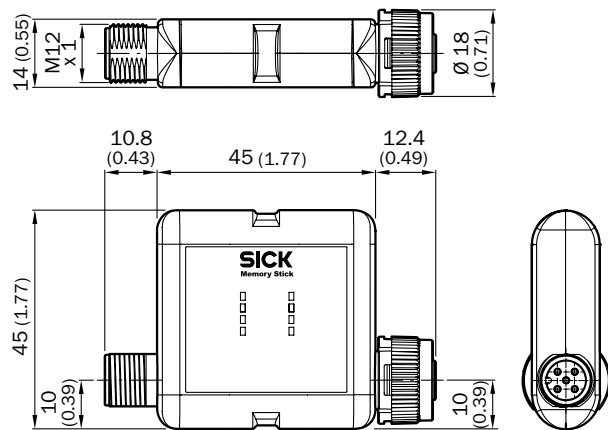


BEF-KH-WTT12L

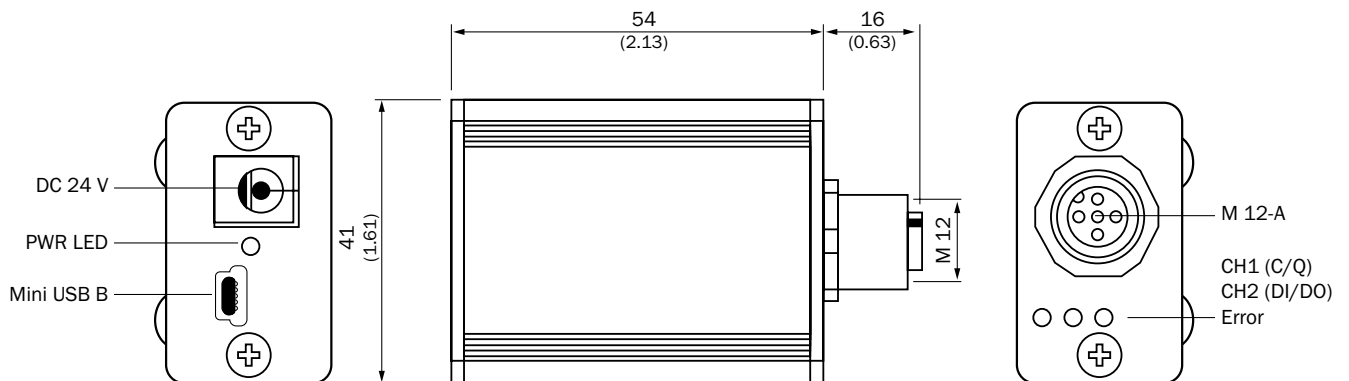


## Dimensional drawings Connection modules

### SICK Memory Stick



### SiLink2 Master



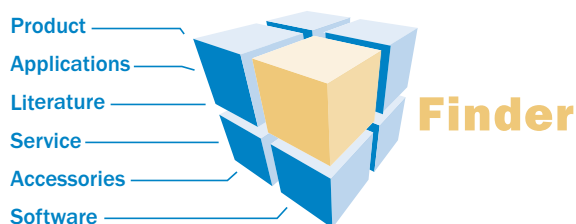






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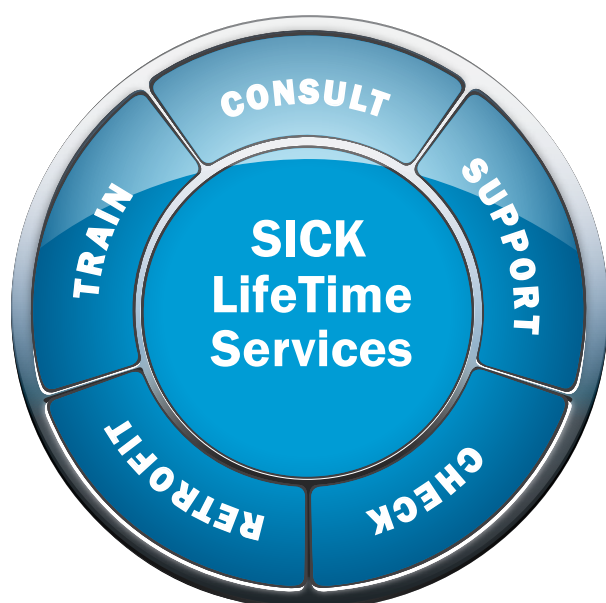
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