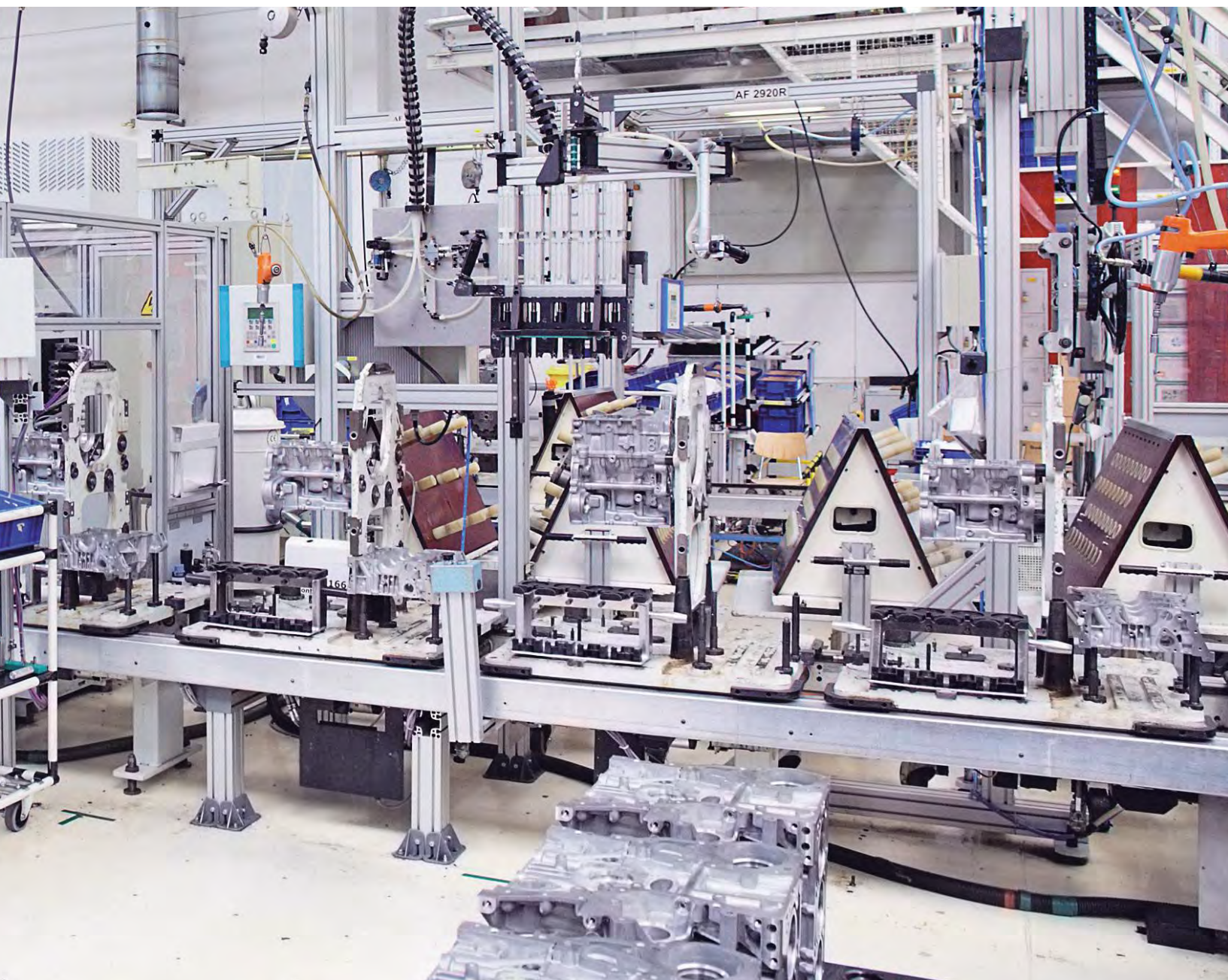


IO-Link Catalog





IO-Link

IO-Link is a standardized communication system for connecting intelligent sensors and actuators to an automation system. wenglor views this point-to-point connection as a solution which is fit for the future and makes it possible to fulfill the more and more complex demands placed upon sensors with regard to diagnostic capabilities and configurability. wenglor's already comprehensive range of intelligent sensors which are compatible with IO-Link is being continuously expanded, and the system concept is being further pursued with suitable IO-Link masters.

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Range	Light Source	Housing	Housing Material	
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Reflex Sensors				10 - 11
Range	Light Source	Housing	Housing Material	
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500 mm	Infrared Light	54,5 × 27 × 16 mm	Plastic	16 - 17
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6500 mm	Red Light	54,5 × 27 × 16 mm	Plastic	18 - 19
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Range	Light Source	Housing	Housing Material	
2000 mm	Infrared Light	40,2 × 47,1 mm	Aluminum	20 - 23
3000 mm	Infrared Light	17,6 × 31,7 mm	Aluminum	24 - 31
Ultrasonic Sensors				32 - 37
High-Performance Distance Sensors				32 - 33
Range		Housing	Housing Material	
100...6000 mm		81 × 55 × 30 mm 81 × 55 × 47 mm	Plastic	32 - 33
Reflex Sensors with Analog Output				34 - 37
Range		Housing	Housing Material	
50...1200 mm		M18 × 1	Stainless Steel	34 - 35
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Technical Glossary

I

IODD:

The IO Device Description is an electronic data sheet for IO-Link products. IODD's contain specific unit setting parameters. The IODD's for IO-Link products are available at www.wenglor.com.

IO-Link Master:

IO-Link products are connected with the IO-Link Master. It provides the interface for the heterodyned controller and controls the communication with the connected IO-Link products.

IO-Link Parameter:

Via the IO-Link parameter, settings (e. g. NO/NC, On/Off delay) can be sent from the IO-Link Master to the connected IO-Link products and be read out. The first 12 parameters can be set via the software of the IO-Link Master.

IO-link port:

A hardware interface for IO link capable components.

IO-Link Process Data:

Via the IO-Link Process Data (view documentation), data (e. g. switching status, received signals) is transferred from the IO-Link products cyclic to the IO-Link Master.

IO-Link:

IO-Link is a standardized communication system for the connection of intelligent sensors and actuators with an automation system. An IO-Link System consists of one -> IO-Link Master and one or several IO-Link products.



The definitions of all included technical terminology are device-specific.

High-Performance Distance Sensor

0,05...3,05 m

Range

LASER

WinTec

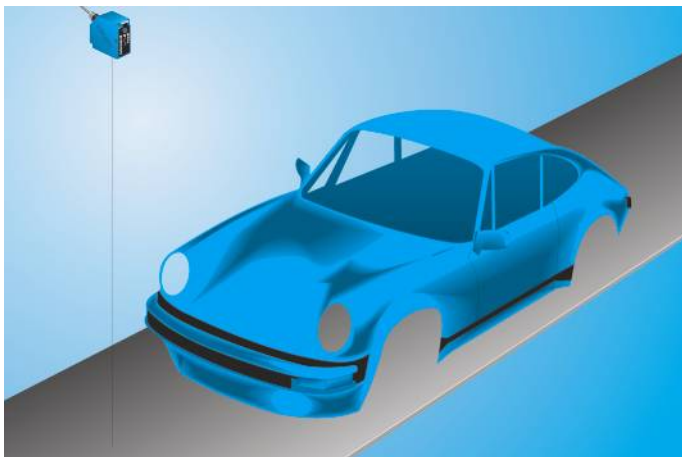


- Analog output (0...10 V/4...20 mA)
- Graphical display for easy operation
- Reliable in case of glossy objects with WinTec
- Secure detection of black objects also in extremely inclined positions with WinTec
- Two mutually independent switching outputs

These sensors have scratch-resistant optics and the emitted light can be switched off. They use the transit time measurement principle to measure the distance between the sensor and the object.

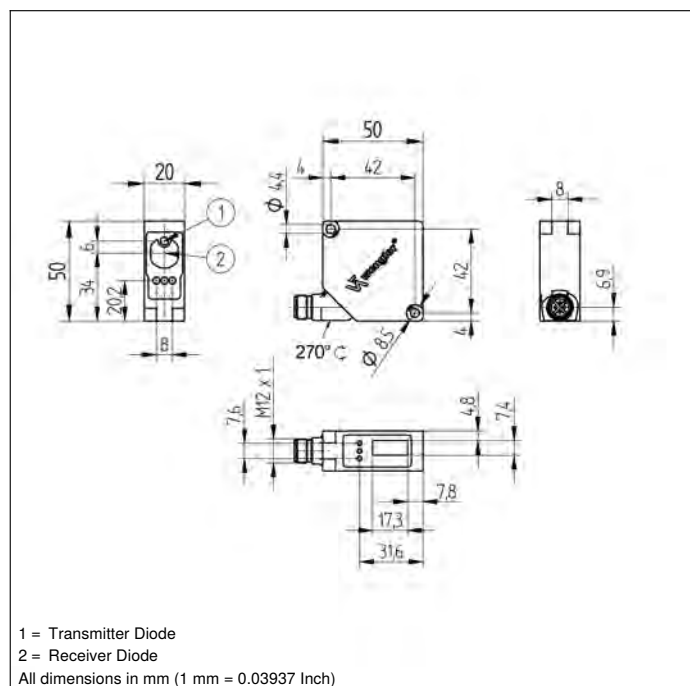
wenglor interference-free technology (WinTec) has revolutionized sensor technology:


It makes it possible to mount several sensors directly next to, or opposite each other without the sensors influencing each other. The sensors reach a very high switching frequency and use laser class 1, which is safe for the human eye.



Technical Data

Optical Data	
Working Range	50...3050 mm
Measuring Range	3000 mm
Linearity Deviation (200...3050 mm)	7 mm
Linearity Deviation (50...200 mm)	15 mm
Switching Hysteresis	3...20 mm
Light Source	Laser (red)
Wave Length	660 nm
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	1
Max. Ambient Light	10000 Lux
Beam Divergence	< 2 mrad
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 70 mA
Switching Frequency	250 Hz
Measurement Rate	1...500 /s
On-/Off-Delay	0...10000 ms
Temperature Drift	< 0,4 mm/K
Temperature Range	-40...50 °C
Switching Outputs	2
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	100 mA
Analog Output	0...10 V/4...20 mA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Teach Mode	HT, VT, FT, TP
Interface	IO-Link
IO-Link Version	1.0
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Optic Cover	PMMA
Degree of Protection	IP68
Connection	M12 × 1; 4-pin



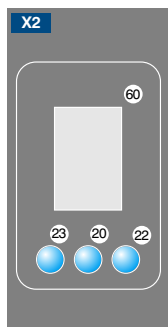
Plug Version	
	Part Number OY1P303P0102
Error Output	●
Contamination Output	●
Configurable as PNP/NPN/Push-Pull	●
Analog Output	●
IO-Link	●
Connection Diagram No.	782
Control Panel No.	X2
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	380

Connection Diagrams page 40

Complementary Products

IO-Link Master
Protection Housing Set ZSP-NN-02
Protection Housing ZSV-0x-01

Ctrl. Panel



20 = Enter Button
 22 = UP Button
 23 = Down Button
 60 = Display

Table 1

Working Distance	0 m	3 m
Light Spot Diameter	5 mm	9 mm

Reflex Sensor

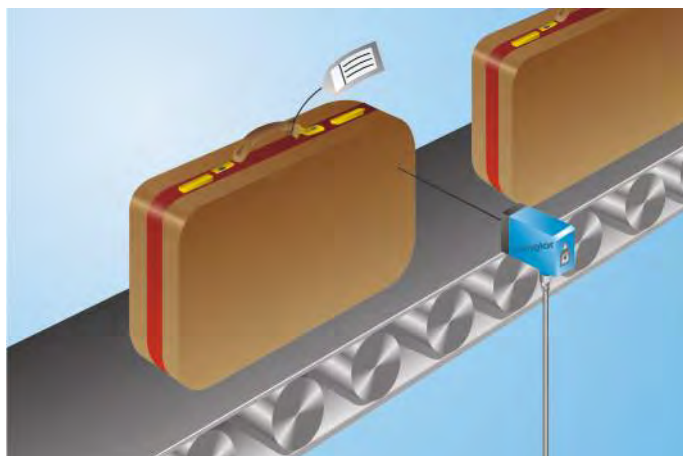
500 mm

Range



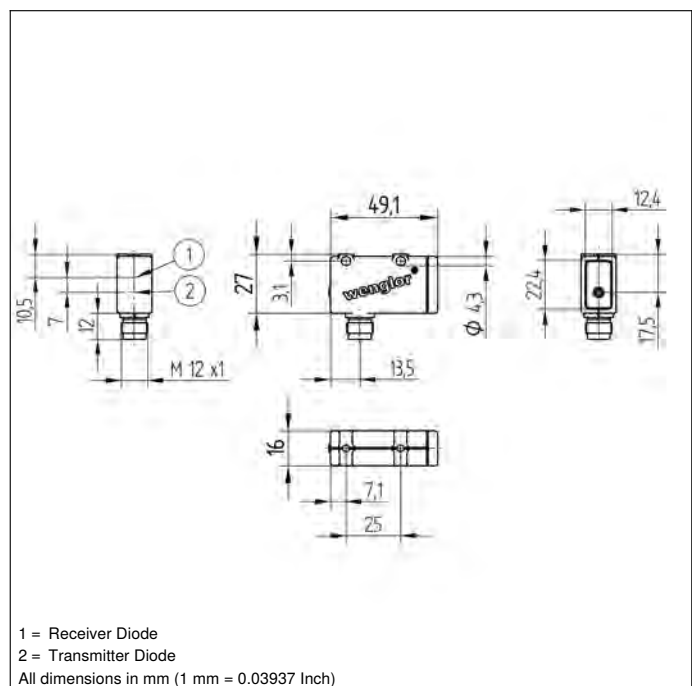
- Compact housing
- IO-Link
- Large detection range
- Teach-in, external teach-in






The transmitter and receiver in these sensors are located in a single housing. The sensor evaluates transmitted light reflected back from the object. The output is switched as soon as an object passes the selected range. Bright objects reflect more light than dark objects, and can thus be recognized from greater distances.



Technical Data

Optical Data	
Range	500 mm
Switching Hysteresis	< 10 %
Light Source	Infrared Light
Wave Length	875 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	12 °
Electrical Data	
Supply Voltage	18...30 V
Current Consumption (U _b = 24 V)	< 30 mA
Switching Frequency	2500 Hz
Response Time	200 μs
On-/Off-Delay	0..60 s
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 μA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT
Interface	IO-Link
IO-Link Version	1.0
IO-Link Parameter	12
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M12 × 1; 4-pin



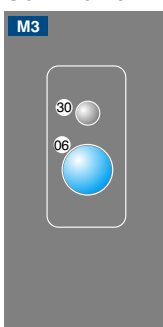
Plug Version	
    	Part Number OTMS02C0002
IO-Link	●
PNP NO/NC switchable	●
Connection Diagram No.	179
Control Panel No.	M3
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	360

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel



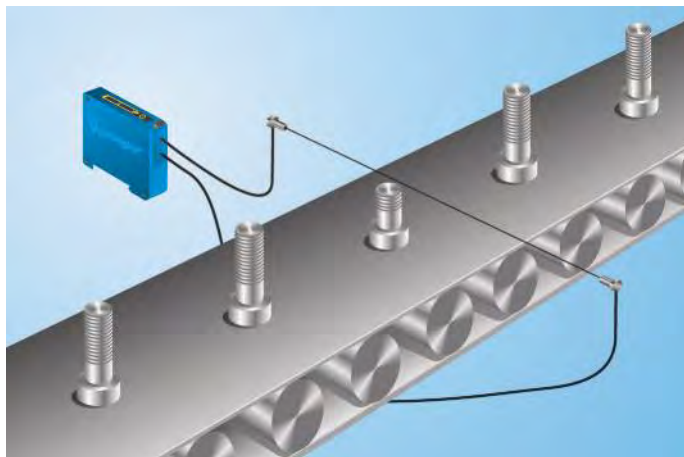
06 = Teach Button
 30 = Switching Status/Contamination Warning

Fiber Optic Cable Sensor



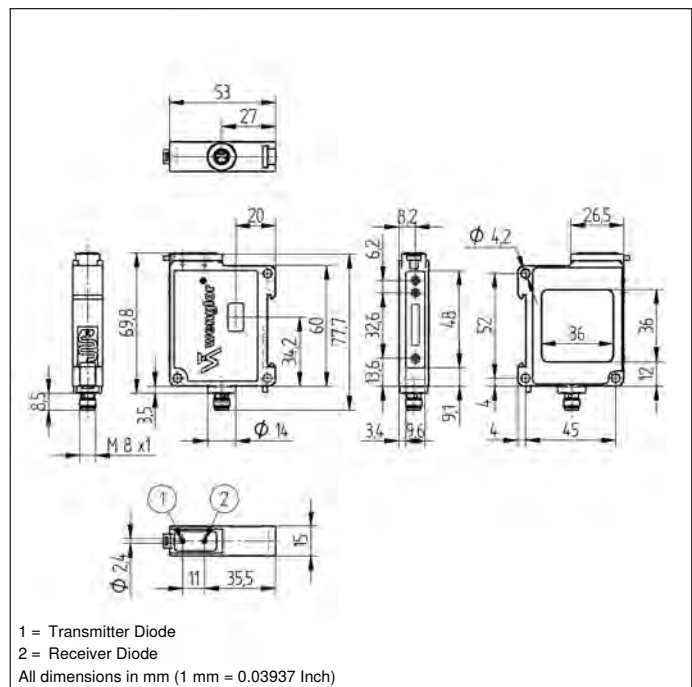
- External teach-in
- Menu-driven settings
- Recognition of transparent objects
- Reflex and barrier operation mode are possible
- Teach-in


wenglor fiber optic cables are connected to these sensors. The graphic display assures easy, menu-driven sensor setup. Signal strengths and the switching threshold can be read from the display as numeric values or as a bar graph. Convenient programming and quick diagnosis is possible via the IO-Link interface.



Technical Data

Optical Data	
Switching Hysteresis	< 15 %
Light Source	Red Light
Wave Length	660 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 40 mA
Switching Frequency	4 kHz
Response Time	125 μs
On-/Off-Delay	0...10000 ms
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	NT, MT, ZT, DT, FT, HT, TP
Interface	IO-Link
IO-Link Version	1.0
IO-Link Parameter	> 12
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Degree of Protection	IP65
Connection	M8 × 1; 4-pin
DIN-Rail mounting	35 mm



Plug Version	
	Part Number ODX402P0007
Selectable menu language	●
Password Protection	●
Configurable as PNP/Push-Pull	●
NO/NC switchable	●
IO-Link	●
Connection Diagram No.	774
Control Panel No.	X4
Suitable Connection Technology No.	7
Suitable Fiber Optic Cable Adapter No.	03

Connection Diagrams page 40

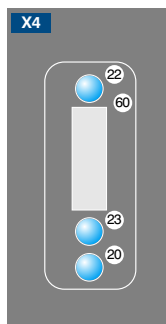
Complementary Products

Glass Fiber Optic Cable

IO-Link Master

Plastic Fiber Optic Cable

Ctrl. Panel



20 = Enter Button
 22 = UP Button
 23 = Down Button
 60 = Display

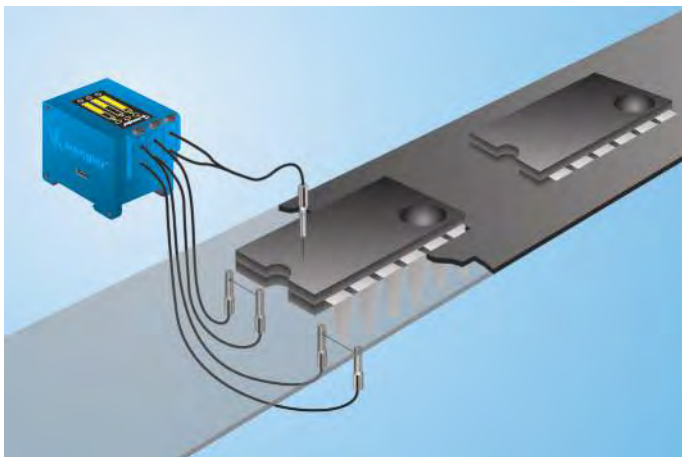
Fiber Optic Cable Sensor



- Basic module
- Menu-driven settings
- Modular system: 12 add-on modules can be connected
- Recognition of transparent objects
- Reflex and barrier operation mode are possible

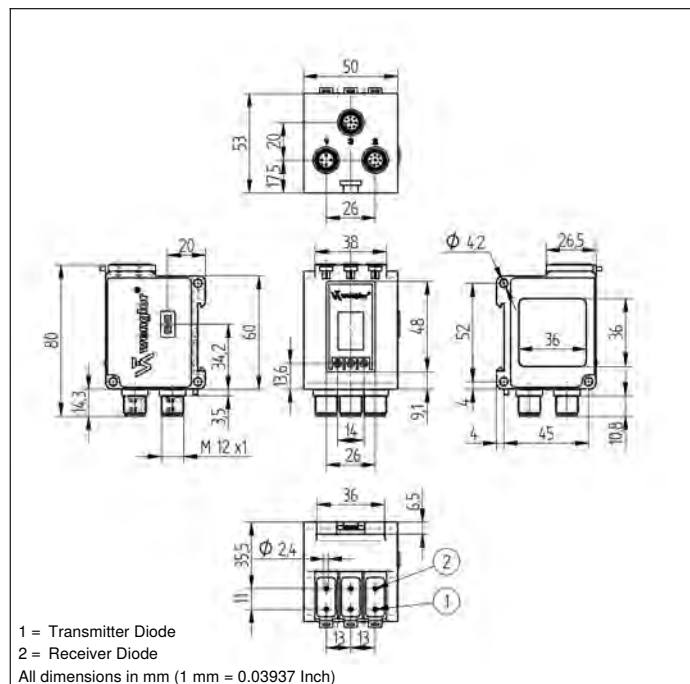
Three wenglor fiber optic cables are connected to these sensors. Up to 12 add-on modules can be connected to this basic module, making 15 fiber optic cables available.


The graphic display guarantees easy, menu-driven sensor setup. Signal strengths and the switching threshold can be read from the display as numeric values or as a bar graph. Convenient programming and quick diagnosis is possible via the IO-Link interface.



Technical Data

Optical Data	
Switching Hysteresis	< 15 %
Light Source	Red Light
Wave Length	660 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 70 mA
Switching Frequency	2 kHz
Response Time	250 μs
On-/Off-Delay	0...10000 ms
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	NT, MT, ZT, DT, FT, HT, TP
Interface	IO-Link
IO-Link Version	1.0
IO-Link Parameter	> 12
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Degree of Protection	IP50
Connection	M12 × 1; 4+8-pin
DIN-Rail mounting	35 mm



		Plug Version	
		Part Number	
		ODX402P0088	
Speed Measurement		●	
Sensors can be linked with logic operations		●	
Selectable menu language		●	
Password Protection		●	
Contamination Output		●	
Configurable as PNP/NPN/Push-Pull		●	
NO/NC switchable		●	
IO-Link		●	
Connection Diagram No.		773	
Control Panel No.		X2	
Suitable Connection Technology No.		2	89
Suitable Fiber Optic Cable Adapter No.		03	

Connection Diagrams page 40

Complementary Products

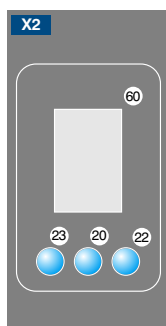
Extension Module ODX402P0099

Glass Fiber Optic Cable

IO-Link Master

Plastic Fiber Optic Cable

Ctrl. Panel



20 = Enter Button

22 = UP Button

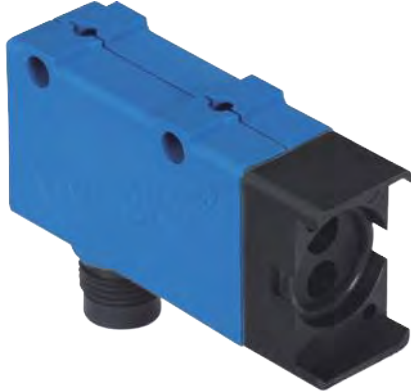
23 = Down Button

60 = Display

Fiber Optic Cable Sensor

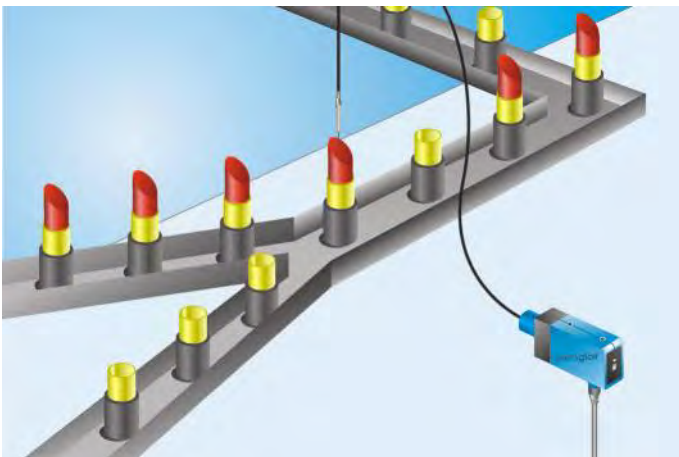
500 mm

Range



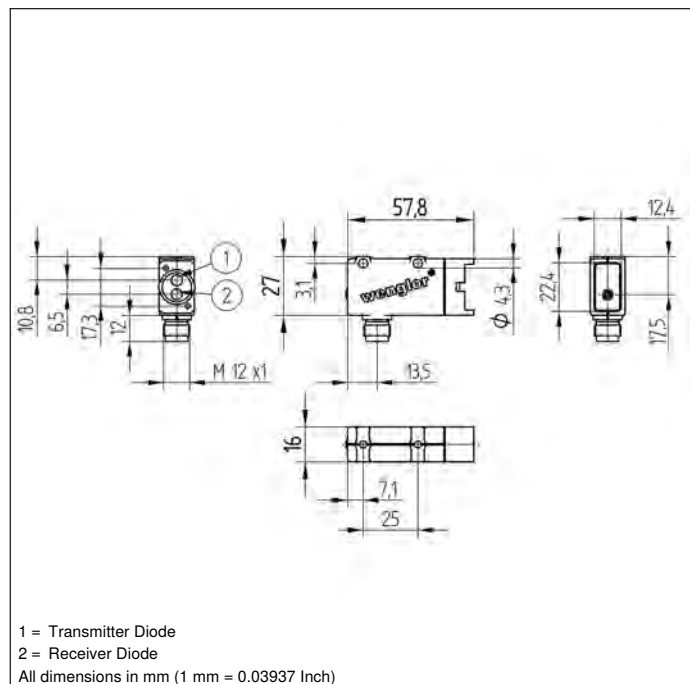
- Compact housing
- IO-Link
- Teach-in, external teach-in






These sensors are equipped for use with glass fiber optic cables but can be used with or without one. The transmitter and receiver are located in a single housing. The sensor evaluates transmitted light reflected back from the object and the output is switched as soon as an object passes the selected range. Bright objects reflect more light than dark objects, and can thus be recognized from greater distances.



Technical Data

Optical Data	
Range	500 mm
Switching Hysteresis	< 10 %
Light Source	Infrared Light
Wave Length	875 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	12 °
Electrical Data	
Supply Voltage	18...30 V
Current Consumption (U _b = 24 V)	< 30 mA
Switching Frequency	2500 Hz
Response Time	200 μs
On-/Off-Delay	0..60 s
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 μA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	NT, MT
Interface	IO-Link
IO-Link Version	1.0
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M12 × 1; 4-pin



Plug Version	
    	Part Number OUM502C0002
PNP NO/NC switchable	●
Connection Diagram No.	179
Control Panel No.	M3
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	360
Suitable Fiber Optic Cable Adapter No.	02

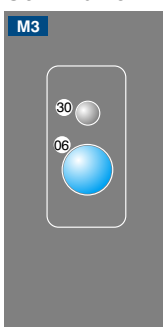
Connection Diagrams page 40

Complementary Products

Glass Fiber Optic Cable

IO-Link Master

Ctrl. Panel



06 = Teach Button

30 = Switching Status/Contamination Warning

Retro-Reflex Sensor

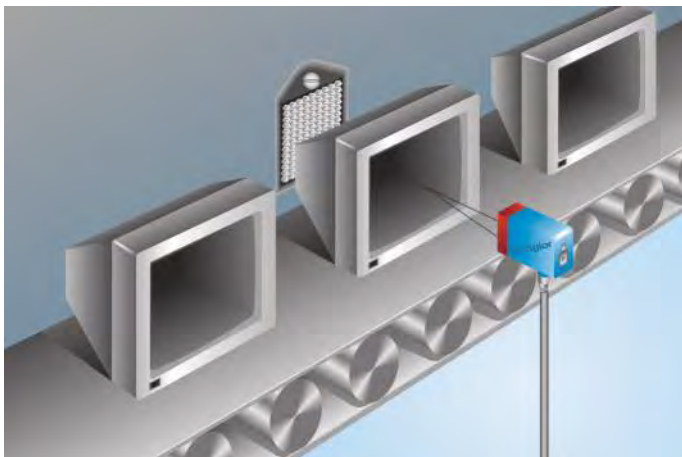
6500 mm

Range



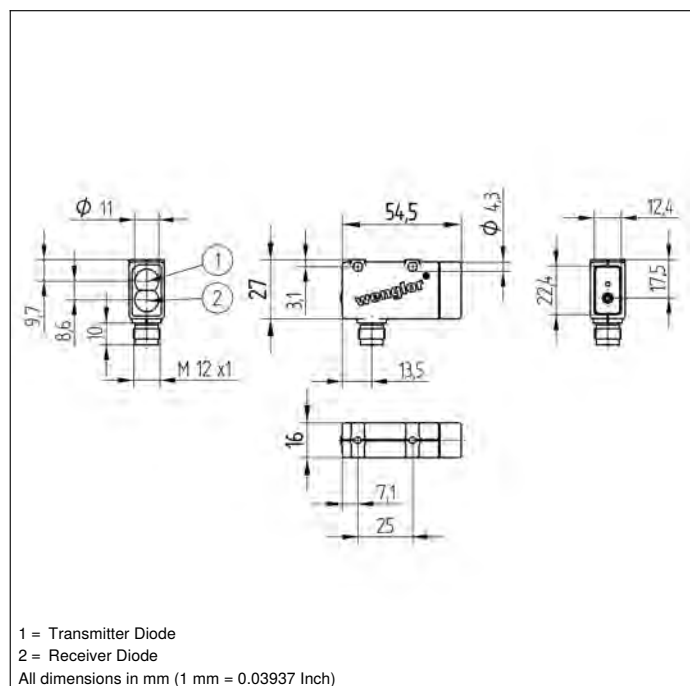
- IO-Link
- Low-cost
- Teach-in, external teach-in






A reflector must be used in combination with these sensors. They can be installed in all kinds of industrial environments thanks to ample functional reserve. Even reflective objects can be reliably recognized through the use of polarized light.



Technical Data

Optical Data	
Range	6500 mm
Reference Reflector/Reflex Foil	RQ100BA
Switching Hysteresis	< 5 %
Light Source	Red Light
Wave Length	660 nm
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	5 °
Two-Lens Optic	yes
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 30 mA
Switching Frequency	2500 Hz
Response Time	200 μs
Temperature Drift	< 5 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 μA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT
Interface	IO-Link
IO-Link Version	1.0
IO-Link Parameter	12
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M12 × 1; 4-pin



Plug Version	
    	Part Number OLM653C0102
IO-Link	●
PNP NO/NC switchable	●
Connection Diagram No.	179
Control Panel No.	M3
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	360

Connection Diagrams page 40

Complementary Products

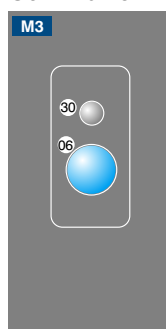
IO-Link Master

Protection Housing Set ZSM-NN-02

Protection Housing ZSV-0x-01

Reflector, Reflex Foil

Ctrl. Panel



06 = Teach Button

30 = Switching Status/Contamination Warning

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0,02...6,5 m	RR25KP	0,01...1,2 m
RE18040BA	0,02...5 m	RR21_M	0,04...1,9 m
RQ84BA	0,02...5,5 m	ZRAE02B01	0,02...2,9 m
RR84BA	0,02...6,5 m	ZRME01B01	0,04...0,9 m
RE9538BA	0,03...3 m	ZRME03B01	0,02...3 m
RE6151BM	0,04...5 m	ZRMR02K01	0,04...1,3 m
RR50_A	0,02...4,3 m	ZRMS02_01	0,03...1,5 m
RE6040BA	0,02...4,8 m	RF505	0,05...2,3 m
RE8222BA	0,03...3,2 m	RF508	0,21...1,4 m
RR34_M	0,06...2,6 m	RF258	0,06...1,7 m
RE3220BM	0,05...2 m	ZRDF03K01	0,05...4 m
RE6210BM	0,05...1,7 m	ZRDF10K01	0,05...5,5 m
RR25_M	0,05...1,8 m		

Light Curtain for Measuring Tasks

2000 mm

Range

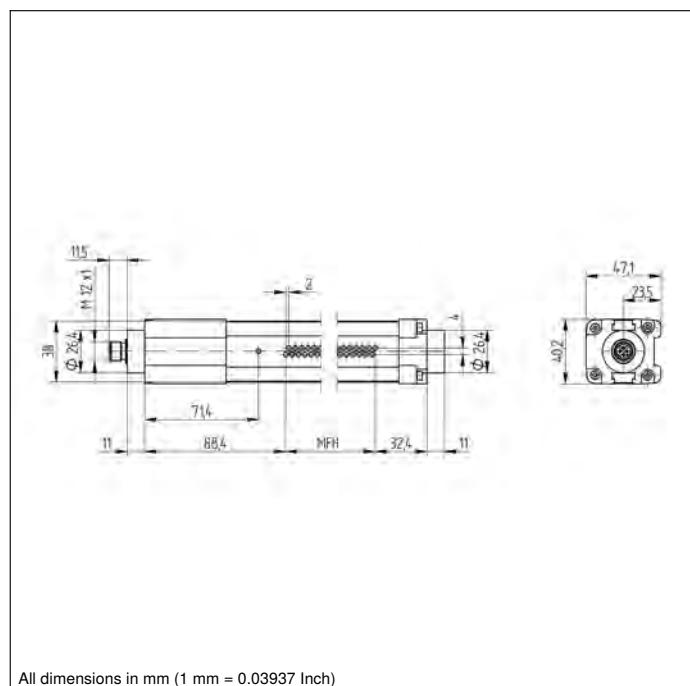
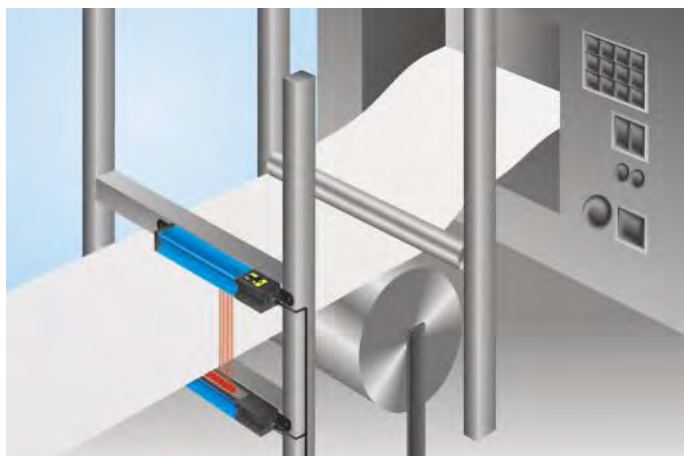


Technical Data

Optical Data	
Range	2000 mm
Beam Distance	2 mm
Light Source	Infrared Light
Service Life (T = +25 °C)	100000 h
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 60 mA
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Aluminum
Degree of Protection	IP65

- Graphical display for easy operation
- Integrated evaluation unit
- Object detection and measurement
- Recognition of small parts
- Test input

As these light curtains for measurement task are equipped with an integrated evaluation unit, external connection units are not needed. Objects are both recognized (via the digital output) and measured (via the analog output). The light curtains can be set up easily using the menu-controlled graphic display. Convenient parametrization and quick diagnosis is possible via the IO-Link interface. The adequate mounting angle BEF-SET-33 is included in the delivery.



Plug Version

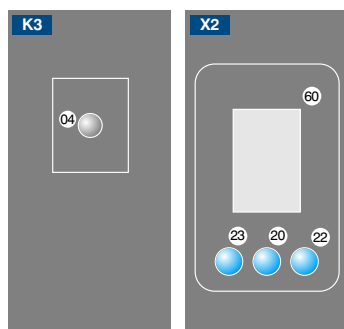


Part Number	Plug Version					
	OSEI501Z0103	OEEI501U0135	OSEI102Z0103	OEEI102U0135	OSEI152Z0103	OEEI152U0135
NO/NC switchable		●		●		●
Configurable as PNP/Push-Pull		●		●		●
Error Output		●		●		●
IO-Link		●		●		●
Measurement Field Height (MFH)	50 mm	50 mm	100 mm	100 mm	150 mm	150 mm
Max. Ambient Light		10000 Lux		10000 Lux		10000 Lux
Opening Angle		10 °		10 °		10 °
Sensor Type	Emitter	Receiver	Emitter	Receiver	Emitter	Receiver
Switching Frequency		150 Hz		85 Hz		60 Hz
Response Time		3 ms		6 ms		8 ms
On-/Off-Delay		0...10 s		0...10 s		0...10 s
Switching Outputs		2		2		2
Switching Output Voltage Drop		< 2,5 V		< 2,5 V		< 2,5 V
Switching Output/Switching Current		100 mA		100 mA		100 mA
Residual Current Switching Output		< 50 μA		< 50 μA		< 50 μA
Analog Output		0...10 V/4...20 mA		0...10 V/4...20 mA		0...10 V/4...20 mA
Short Circuit and Overload Protection		yes		yes		yes
Lockable		yes		yes		yes
Interface		IO-Link		IO-Link		IO-Link
IO-Link Version		1.0		1.0		1.0
Test input	yes		yes		yes	
Adjustment		Menu (OLED)		Menu (OLED)		Menu (OLED)
Connection	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin
Connection Diagram No.	703	188	703	188	703	188
Control Panel No.	K3	X2	K3	X2	K3	X2
Suitable Connection Technology No.	2	2 35	2	2 35	2	2 35
Suitable Mounting Technology No.	700	700	700	700	700	700

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel

 04 = Function Indicator 60 = Display
 20 = Enter Button
 22 = UP Button
 23 = Down Button

Light Curtain for Measuring Tasks

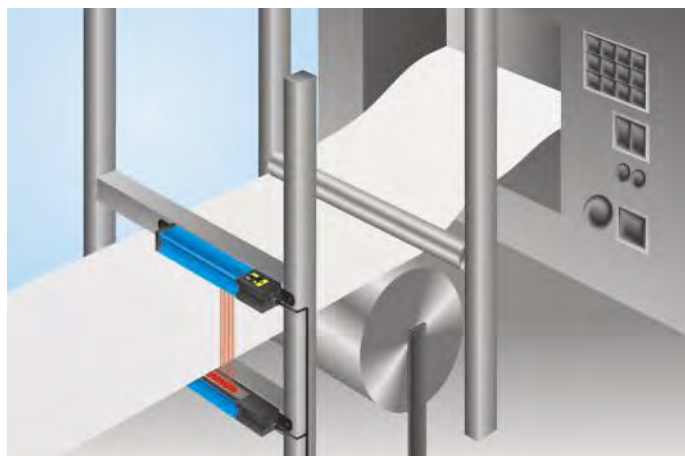
2000 mm

Range



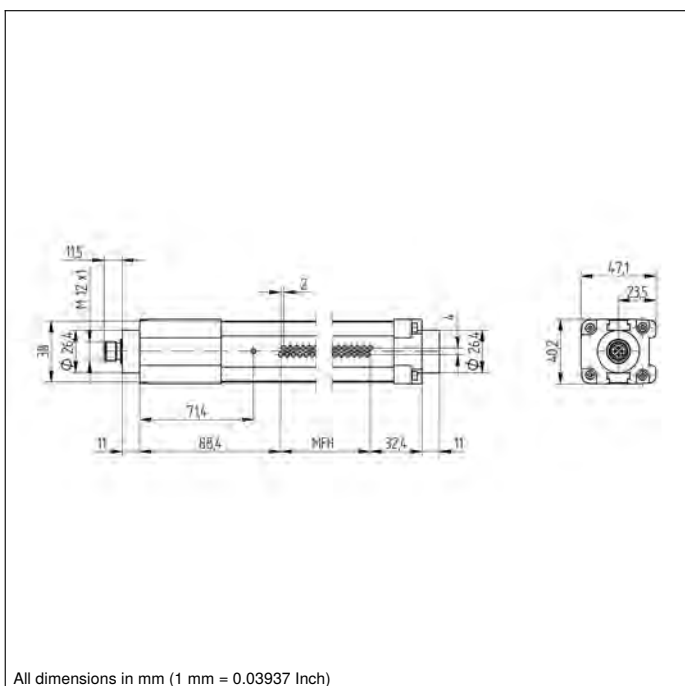
- Graphical display for easy operation
- Integrated evaluation unit
- Object detection and measurement
- Recognition of small parts
- Test input


As these light curtains for measurement task are equipped with an integrated evaluation unit, external connection units are not needed. Objects are both recognized (via the digital output) and measured (via the analog output). The light curtains can be set up easily using the menu-controlled graphic display. Convenient parametrization and quick diagnosis is possible via the IO-Link interface. The adequate mounting angle BEF-SET-33 is included in the delivery.



Technical Data

Optical Data	
Range	2000 mm
Measurement Field Height (MFH)	200 mm
Beam Distance	2 mm
Light Source	Infrared Light
Service Life (T = +25 °C)	100000 h
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 60 mA
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Aluminum
Degree of Protection	IP65



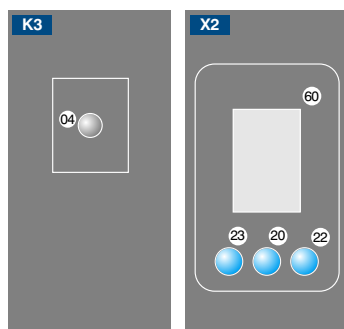
	Plug Version	
	OSEI20Z0103	OEEI20U0135
		
Part Number	OSEI20Z0103	OEEI20U0135
NO/NC switchable		●
Configurable as PNP/Push-Pull		●
Error Output		●
IO-Link		●
Max. Ambient Light		10000 Lux
Opening Angle		10 °
Sensor Type	Emitter	Receiver
Switching Frequency		45 Hz
Response Time		11 ms
On-/Off-Delay		0...10 s
Switching Outputs		2
Switching Output Voltage Drop		< 2,5 V
Switching Output/Switching Current		100 mA
Residual Current Switching Output		< 50 μA
Analog Output		0...10 V/4...20 mA
Short Circuit and Overload Protection		yes
Lockable		yes
Interface		IO-Link
IO-Link Version		1.0
Test input	yes	
Adjustment		Menu (OLED)
Connection	M12 × 1; 4-pin	M12 × 1; 4/5-pin
Connection Diagram No.	703	188
Control Panel No.	K3	X2
Suitable Connection Technology No.	2	2 35
Suitable Mounting Technology No.	700	700

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel



04 = Function Indicator 60 = Display

20 = Enter Button

22 = UP Button

23 = Down Button

Plug Version



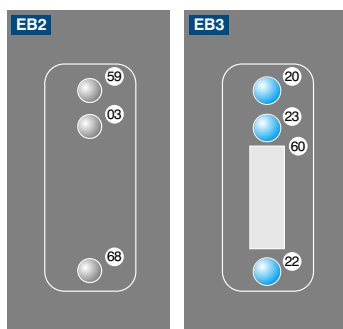
Part Number	Plug Version					
	OSEB152Z0103	OEEB152U0135	OSEB302Z0103	OEEB302U0135	OSEB452Z0103	OEEB452U0135
NO/NC switchable		●		●		●
Configurable as PNP/Push-Pull		●		●		●
Error Output		●		●		●
IO-Link		●		●		●
Measurement Field Height (MFH)	150 mm	150 mm	300 mm	300 mm	450 mm	450 mm
Max. Ambient Light		10000 Lux		10000 Lux		10000 Lux
Opening Angle		10 °		10 °		10 °
Sensor Type	Emitter	Receiver	Emitter	Receiver	Emitter	Receiver
Current Consumption (U _b = 24 V)		< 40 mA		< 40 mA		< 40 mA
Switching Frequency		69 Hz		41 Hz		29 Hz
Response Time		7 ms		12 ms		17 ms
On-/Off-Delay		0...10 s		0...10 s		0...10 s
Switching Outputs		2		2		2
Switching Output Voltage Drop		< 2,5 V		< 2,5 V		< 2,5 V
Switching Output/Switching Current		100 mA		100 mA		100 mA
Residual Current Switching Output		< 50 μA		< 50 μA		< 50 μA
Analog Output		0...10 V/4...20 mA		0...10 V/4...20 mA		0...10 V/4...20 mA
Short Circuit and Overload Protection		yes		yes		yes
Lockable		yes		yes		yes
Interface		IO-Link		IO-Link		IO-Link
IO-Link Version		1.0		1.0		1.0
Test input	yes		yes		yes	
Adjustment		Menu (OLED)		Menu (OLED)		Menu (OLED)
Connection	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin
Connection Diagram No.	703	188	703	188	703	188
Control Panel No.	EB2	EB3	EB2	EB3	EB2	EB3
Suitable Connection Technology No.	2	2 35	2	2 35	2	2 35

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel



03 = Error Indicator 59 = Calibration
 20 = Enter Button 60 = Display
 22 = UP Button 68 = Supply Voltage Indicator
 23 = Down Button

Light Curtain for Measuring Tasks

3000 mm

Range



Technical Data

Optical Data

Range	3000 mm
Beam Distance	30 mm
Light Source	Infrared Light
Service Life (T = +25 °C)	100000 h

Electrical Data

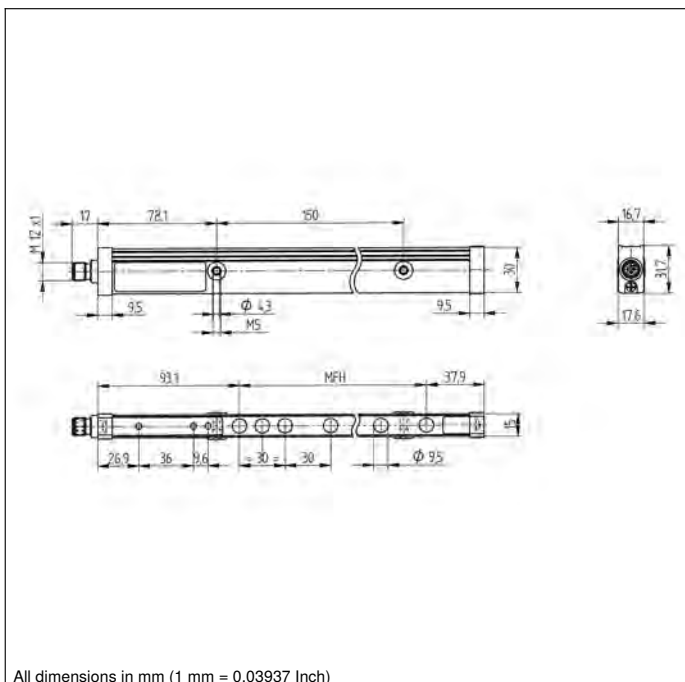
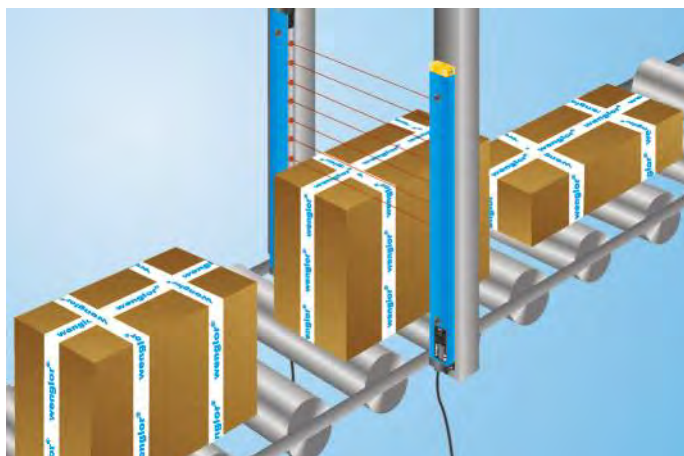
Supply Voltage	18...30 V DC
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Protection Class	III

Mechanical Data

Housing Material	Aluminum
Degree of Protection	IP65

- 360° visible switching status display
- Graphical display for easy operation
- Integrated evaluation unit
- Object detection and measurement
- Test input

As these light curtains for measurement tasks are equipped with an integrated evaluation unit, external connection units are not needed. Objects are both recognized (via the digital output) and measured (via the analog output). The light curtains can be set up easily using the menu-controlled graphic display. Convenient parametrization and quick diagnosis is possible via the IO-Link interface.



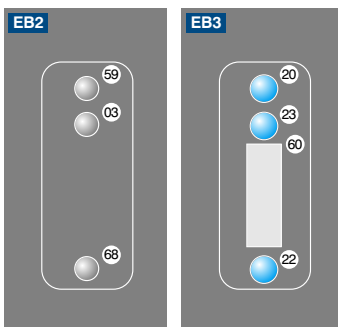
Plug Version


Part Number	Plug Version					
	OSEB602Z0103	OEEB602U0135	OSEB752Z0103	OEEB752U0135	OSEB902Z0103	OEEB902U0135
NO/NC switchable		●		●		●
Configurable as PNP/Push-Pull		●		●		●
Error Output		●		●		●
IO-Link		●		●		●
Measurement Field Height (MFH)	600 mm	600 mm	750 mm	750 mm	900 mm	900 mm
Max. Ambient Light		10000 Lux		10000 Lux		10000 Lux
Opening Angle		10 °		10 °		10 °
Sensor Type	Emitter	Receiver	Emitter	Receiver	Emitter	Receiver
Current Consumption (U _b = 24 V)		< 40 mA		< 40 mA		< 40 mA
Switching Frequency		22 Hz		18 Hz		16 Hz
Response Time		22 ms		27 ms		32 ms
On-/Off-Delay		0...10 s		0...10 s		0...10 s
Switching Outputs		2		2		2
Switching Output Voltage Drop		< 2,5 V		< 2,5 V		< 2,5 V
Switching Output/Switching Current		100 mA		100 mA		100 mA
Residual Current Switching Output		< 50 μA		< 50 μA		< 50 μA
Analog Output		0...10 V/4...20 mA		0...10 V/4...20 mA		0...10 V/4...20 mA
Short Circuit and Overload Protection		yes		yes		yes
Lockable		yes		yes		yes
Interface		IO-Link		IO-Link		IO-Link
IO-Link Version		1.0		1.0		1.0
Test input	yes		yes		yes	
Adjustment		Menu (OLED)		Menu (OLED)		Menu (OLED)
Connection	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin
Connection Diagram No.	703	188	703	188	703	188
Control Panel No.	EB2	EB3	EB2	EB3	EB2	EB3
Suitable Connection Technology No.	2	2 35	2	2 35	2	2 35

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel


03 = Error Indicator 59 = Calibration
20 = Enter Button 60 = Display
22 = UP Button 68 = Supply Voltage Indicator
23 = Down Button

Light Curtain for Measuring Tasks

3000 mm

Range

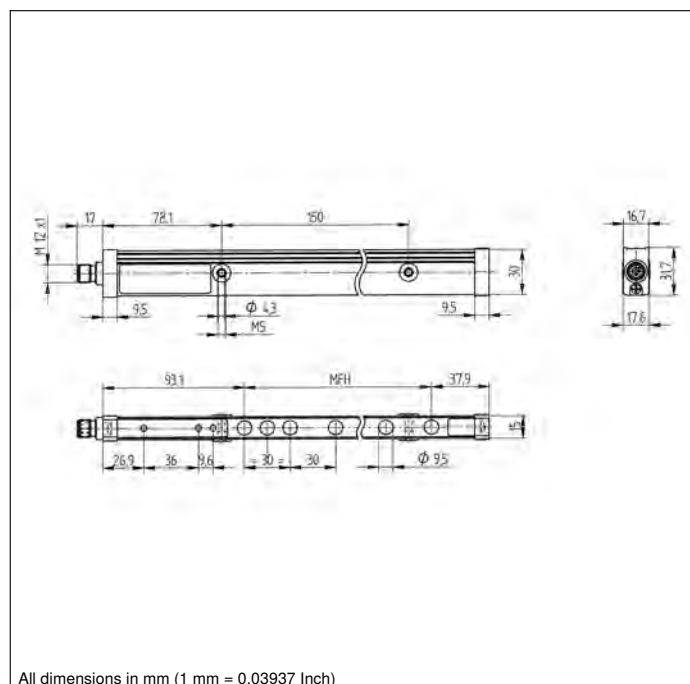
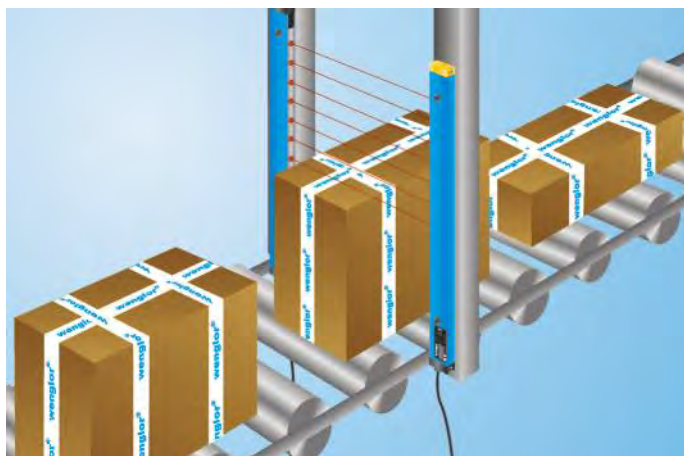


Technical Data

Optical Data	
Range	3000 mm
Beam Distance	30 mm
Light Source	Infrared Light
Service Life (T = +25 °C)	100000 h
Electrical Data	
Supply Voltage	18...30 V DC
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Aluminum
Degree of Protection	IP65

- 360° visible switching status display
- Graphical display for easy operation
- Integrated evaluation unit
- Object detection and measurement
- Test input

As these light curtains for measurement tasks are equipped with an integrated evaluation unit, external connection units are not needed. Objects are both recognized (via the digital output) and measured (via the analog output). The light curtains can be set up easily using the menu-controlled graphic display. Convenient parametrization and quick diagnosis is possible via the IO-Link interface.



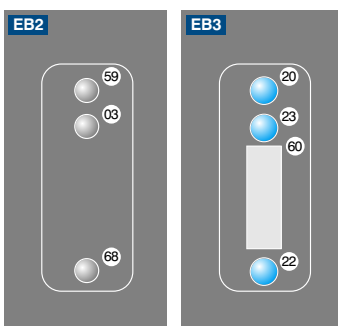
Plug Version


Part Number	Plug Version					
	OSEB103Z0103	OEEB103JU0135	OSEB123Z0103	OEEB123JU0135	OSEB133Z0103	OEEB133JU0135
NO/NC switchable		●		●		●
Configurable as PNP/Push-Pull		●		●		●
Error Output		●		●		●
IO-Link		●		●		●
Measurement Field Height (MFH)	1050 mm	1050 mm	1200 mm	1200 mm	1350 mm	1350 mm
Max. Ambient Light		10000 Lux		10000 Lux		10000 Lux
Opening Angle		10 °		10 °		10 °
Sensor Type	Emitter	Receiver	Emitter	Receiver	Emitter	Receiver
Current Consumption (U _b = 24 V)		< 40 mA		< 40 mA		< 40 mA
Switching Frequency		13 Hz		12 Hz		11 Hz
Response Time		37 ms		42 ms		47 ms
On-/Off-Delay		0...10 s		0...10 s		0...10 s
Switching Outputs		2		2		2
Switching Output Voltage Drop		< 2,5 V		< 2,5 V		< 2,5 V
Switching Output/Switching Current		100 mA		100 mA		100 mA
Residual Current Switching Output		< 50 μA		< 50 μA		< 50 μA
Analog Output		0...10 V/4...20 mA		0...10 V/4...20 mA		0...10 V/4...20 mA
Short Circuit and Overload Protection		yes		yes		yes
Lockable		yes		yes		yes
Interface		IO-Link		IO-Link		IO-Link
IO-Link Version		1.0		1.0		1.0
Test input	yes		yes		yes	
Adjustment		Menu (OLED)		Menu (OLED)		Menu (OLED)
Connection	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin
Connection Diagram No.	703	188	703	188	703	188
Control Panel No.	EB2	EB3	EB2	EB3	EB2	EB3
Suitable Connection Technology No.	2	2 35	2	2 35	2	2 35

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel


03 = Error Indicator 59 = Calibration
 20 = Enter Button 60 = Display
 22 = UP Button 68 = Supply Voltage Indicator
 23 = Down Button

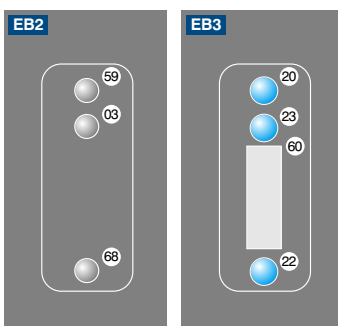
Plug Version


Part Number	Plug Version					
	OSEB153Z0103	OEEB153JU0135	OSEB163Z0103	OEEB163JU0135	OSEB183Z0103	OEEB183JU0135
NO/NC switchable		●		●		●
Configurable as PNP/Push-Pull		●		●		●
Error Output		●		●		●
IO-Link		●		●		●
Measurement Field Height (MFH)	1500 mm	1500 mm	1650 mm	1650 mm	1800 mm	1800 mm
Max. Ambient Light		10000 Lux		10000 Lux		10000 Lux
Opening Angle		10 °		10 °		10 °
Sensor Type	Emitter	Receiver	Emitter	Receiver	Emitter	Receiver
Current Consumption (U _b = 24 V)		< 40 mA		< 40 mA		< 40 mA
Switching Frequency		10 Hz		9 Hz		8 Hz
Response Time		52 ms		57 ms		62 ms
On-/Off-Delay		0...10 s		0...10 s		0...10 s
Switching Outputs		2		2		2
Switching Output Voltage Drop		< 2,5 V		< 2,5 V		< 2,5 V
Switching Output/Switching Current		100 mA		100 mA		100 mA
Residual Current Switching Output		< 50 μA		< 50 μA		< 50 μA
Analog Output		0...10 V/4...20 mA		0...10 V/4...20 mA		0...10 V/4...20 mA
Short Circuit and Overload Protection		yes		yes		yes
Lockable		yes		yes		yes
Interface		IO-Link		IO-Link		IO-Link
IO-Link Version		1.0		1.0		1.0
Test input	yes		yes		yes	
Adjustment		Menu (OLED)		Menu (OLED)		Menu (OLED)
Connection	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin	M12 × 1; 4-pin	M12 × 1; 4/5-pin
Connection Diagram No.	703	188	703	188	703	188
Control Panel No.	EB2	EB3	EB2	EB3	EB2	EB3
Suitable Connection Technology No.	2	2 35	2	2 35	2	2 35

Connection Diagrams page 40

Complementary Products

IO-Link Master

Ctrl. Panel


03 = Error Indicator 59 = Calibration
 20 = Enter Button 60 = Display
 22 = UP Button 68 = Supply Voltage Indicator
 23 = Down Button

High-Performance Distance Sensor

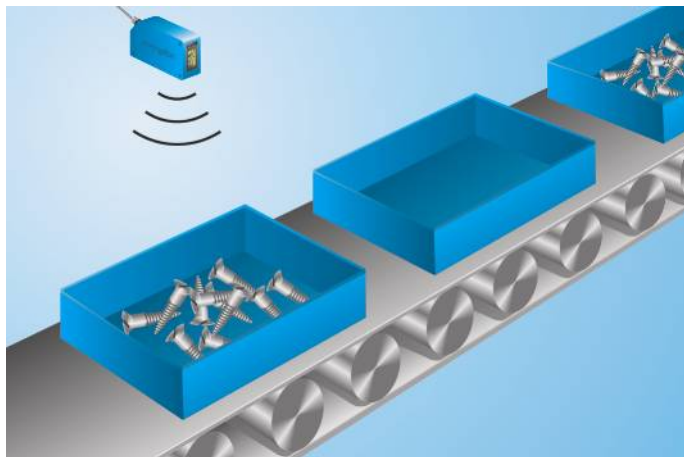
100...6000 mm

Range



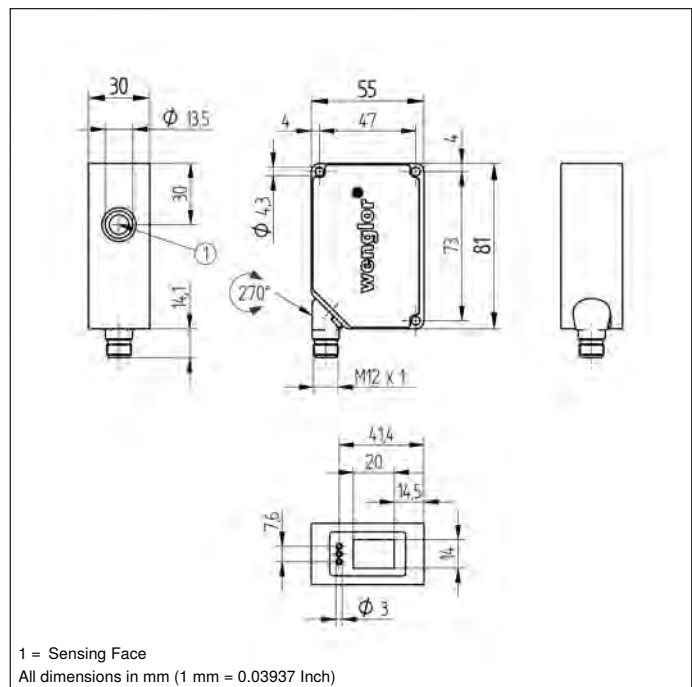
- Digital and analog output
- Menu-driven settings
- Synchronous and multiplex mode
- Temperature drift eliminable






These ultrasonic sensors evaluate the sound reflected by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. The graphic display enables easy, menu-driven sensor setup. Convenient programming and quick diagnosis is possible via the IO-Link interface.



Technical Data

Ultrasonic Data	
Service Life (T = +25 °C)	100000 h
Electrical Data	
Supply Voltage	18...30 V DC
Temperature Range	-25...60 °C
Switching Outputs	2
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Analog Output	0...10 V/4...20 mA
Synchronization	yes
Multiplex	yes
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Interface	IO-Link
IO-Link Version	1.0
Protection Class	III
Mechanical Data	
Adjustment	Teach-In
Housing Material	Plastic
Degree of Protection	IP67
Connection	M12 × 1; 4/5-pin



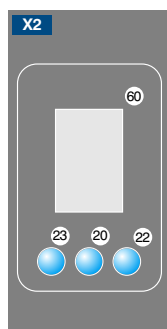
	Plug Version			
	Part Number	UMS123U035	UMS303U035	UMS603U035
    				
Error Output	●	●	●	●
PNP NO/NC switchable	●	●	●	●
IO-Link	●	●	●	●
Analog Output	●	●	●	●
Working Range	100...1200 mm	200...3000 mm	300...6000 mm	
Measuring Range	1100 mm	2800 mm	5700 mm	
Reproducibility maximum	1 mm	2 mm	5 mm	
Linearity Deviation	4 mm	4 mm	20 mm	
Resolution	0,2 mm	0,3 mm	1 mm	
Ultrasonic Frequency	225 kHz	120 kHz	75 kHz	
Opening Angle	< 12 °	< 14 °	< 14 °	
Switching Hysteresis	5 mm	15 mm	30 mm	
Current Consumption (U _b = 24 V)	< 30 mA	< 50 mA	< 50 mA	
Switching Frequency	7 Hz	3 Hz	1,5 Hz	
Response Time	< 72 ms	< 167 ms	< 334 ms	
Connection Diagram No.	183	183	183	
Control Panel No.	X2	X2	X2	
Suitable Connection Technology No.	2 35	2 35	2 35	
Suitable Mounting Technology No.	340	340	340	
Selectable menu language	yes	yes	yes	
Password Protection	yes	yes	yes	

Connection Diagrams page 40

Complementary Products

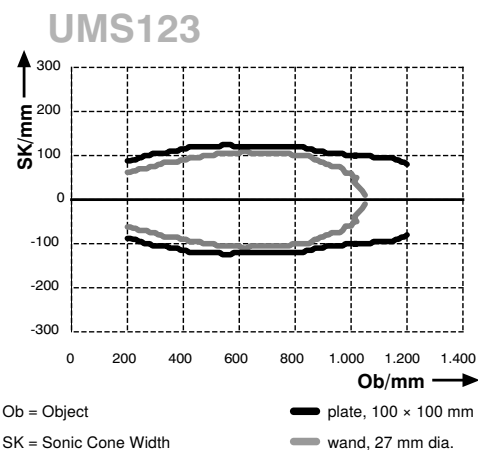
IO-Link Master

Ctrl. Panel



20 = Enter Button
 22 = UP Button
 23 = Down Button
 60 = Display

Characteristic response curve



Reflex Sensor with Analog Output

50...1200 mm

Range



- Digital and analog output
- Stainless steel housing
- Synchronous mode
- Temperature drift eliminable

These ultrasonic sensors evaluate the sound reflected by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. Convenient programming and quick diagnosis is possible via the IO-Link interface.



Technical Data

Ultrasonic Data

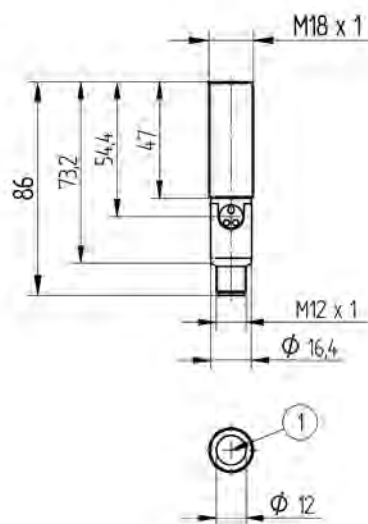
Opening Angle	< 12 °
Service Life (T = +25 °C)	100000 h

Electrical Data

Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 30 mA
Temperature Range	-25...60 °C
Switching Outputs	1
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Analog Output	0...10 V
Synchronization	yes
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link
IO-Link Version	1.0
Protection Class	III

Mechanical Data

Adjustment	Teach-In
Housing Material	Stainless Steel
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M12 x 1; 4/5-pin



1 = Sensing Face
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version			
	Part Number	UMD402U035	UMD123U035	
CE				
RoHS				
UL LISTED				
PNP NO/NC switchable		●	●	●
IO-Link		●	●	●
Analog Output		●	●	●
Working Range		50...400 mm	100...1200 mm	
Measuring Range		350 mm	1100 mm	
Reproducibility maximum		1 mm	2 mm	
Linearity Deviation		5 mm	7 mm	
Resolution		0,1 mm	0,2 mm	
Ultrasonic Frequency		300 kHz	225 kHz	
Switching Hysteresis		2 mm	10 mm	
Switching Frequency		20 Hz	7 Hz	
Response Time		25 ms	72 ms	
Connection Diagram No.		182	182	
Control Panel No.		D12	D12	
Suitable Connection Technology No.		2 35	2 35	
Suitable Mounting Technology No.		150 160	150 160	

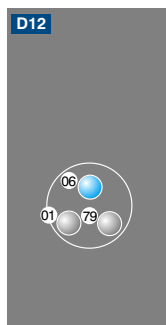
Connection Diagrams page 40

Complementary Products

Deflection plate Z0021, Z0022

IO-Link Master

Ctrl. Panel



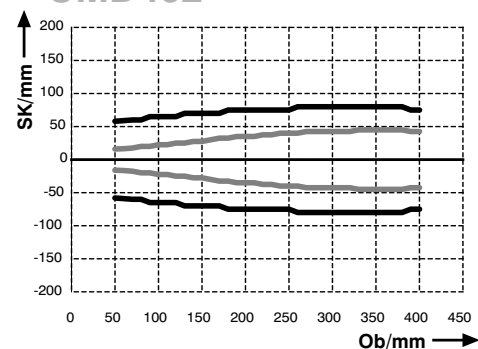
01 = Switching Status Indicator

06 = Teach Button

79 = Run/Error Indicator

Characteristic response curve

UMD402



Ob = Object

SK = Sonic Cone Width

— plate, 100 × 100 mm

— wand, 27 mm dia.

Reflex Sensor with Analog Output

50...3000 mm

Range



- Digital and analog output
- Stainless steel housing
- Synchronous and multiplex mode
- Temperature drift eliminable

These ultrasonic sensors evaluate the sound reflected by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. The sensors can be adjusted easily by the 4-digit 7-segment display. Convenient programming and quick diagnosis is possible via the IO-Link interface.



Technical Data

Ultrasonic Data

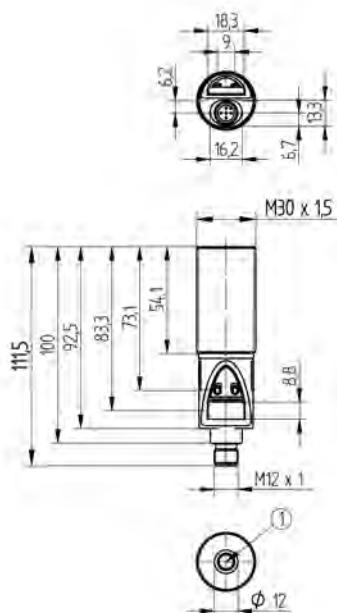
Service Life (T = +25 °C) 100000 h

Electrical Data






Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 40 mA
Temperature Range	-25...60 °C
Switching Outputs	1
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Analog Output	0...10 V/4...20 mA
Synchronization	yes
Multiplex	yes
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link
IO-Link Version	1.0
Protection Class	III

Mechanical Data

Adjustment	Teach-In
Housing Material	Stainless Steel
Degree of Protection	IP67
Connection	M12 × 1; 4/5-pin



1 = Sensing Face
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
	UMF402U035	UMF303U035
    		
Part Number	UMF402U035	UMF303U035
Error Output	●	●
PNP NO/NC switchable	●	●
IO-Link	●	●
Analog Output	●	●
Working Range	50...400 mm	200...3000 mm
Measuring Range	350 mm	2800 mm
Reproducibility maximum	1 mm	4 mm
Linearity Deviation	3 mm	4 mm
Resolution	0,1 mm	0,3 mm
Ultrasonic Frequency	300 kHz	120 kHz
Opening Angle	< 12 °	< 14 °
Switching Hysteresis	2 mm	30 mm
Switching Frequency	20 Hz	3 Hz
Response Time	25 ms	167 ms
Connection Diagram No.	184	184
Control Panel No.	U1	U1
Suitable Connection Technology No.	2 35	2 35
Suitable Mounting Technology No.	130	130

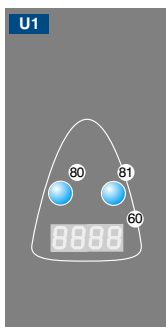
Connection Diagrams page 40

Complementary Products

Deflection plate Z0023, Z0024

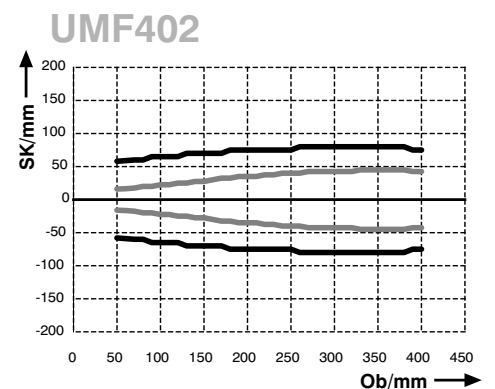
IO-Link Master

Ctrl. Panel



60 = Display
 80 = Mode Button/Switching Status Indicator
 81 = Plus Button/Error Warning

Characteristic response curve



Ob = Object

SK = Sonic Cone Width

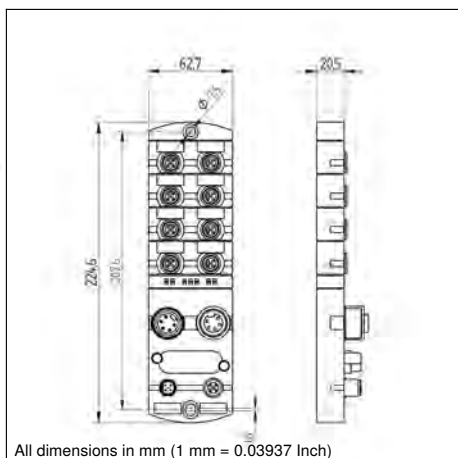
— plate, 100 × 100 mm

— wand, 27 mm dia.

IO-Link Master

IO-Link Master Profibus

Part Number ZAI72AN01



PROFIBUS



Electrical Data

Supply Voltage	18...30 V DC
max. total current of the digital I/O ports	1,6 A
Temperature Range	0...55 °C
Short Circuit Protection	yes
Overload Protection	yes
Number of IO-link ports	4
Number of digital I/O ports	4
Interface	PROFIBUS DP
Communication Mode IO-Link	SIO, COM2, COM3
IO-Link Version	1.0
IO-link port	Class A
Baud Rate	> 12 MBd
Feldbus Diagnosis	LED
IO-Link Parameter	> 12
Protection Class	III

Mechanical Data

Housing Material	Zinc diecasting
Weight	822 g
Degree of Protection	IP67
Connection Mode Supply Voltage	2 × 7/8", 5-pin
Connection Bus Side	M12 × 1; 4-pin
Type of connection digital I/O ports	M12 × 1; 4-pin

IO-Link

Suitable Connection Technology No.

78

IO-Link Master USB

Part Number ZAI72BN01



Electrical Data

Temperature Range	-5...55 °C
Number of IO-link ports	1
Interface	USB
Communication Mode IO-Link	SIO, COM2, COM3
IO-Link Version	1.1
IO-Link Parameter	12
Protection Class	III

Mechanical Data

Housing Material	Aluminum
Weight	96 g
Degree of Protection	IP54
Type of connection digital I/O ports	M12 × 1; 4-pin
Scope of delivery	Plug power pack

IO-Link

Suitable Connection Technology No.

2s

Connection Diagrams

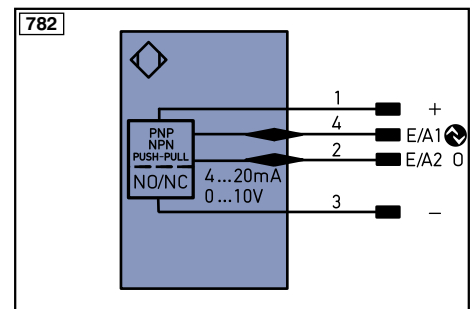
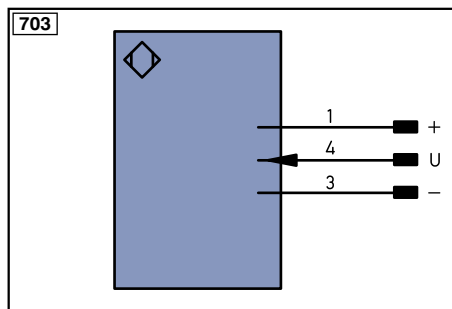
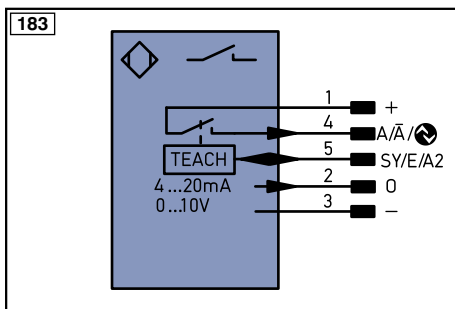
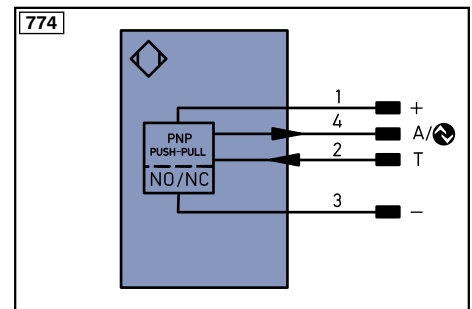
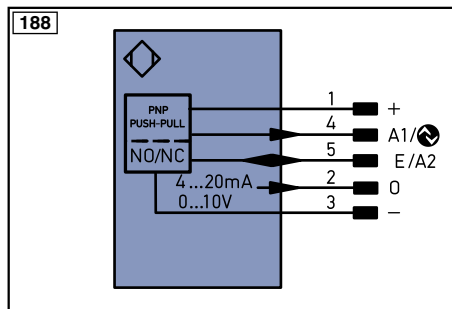
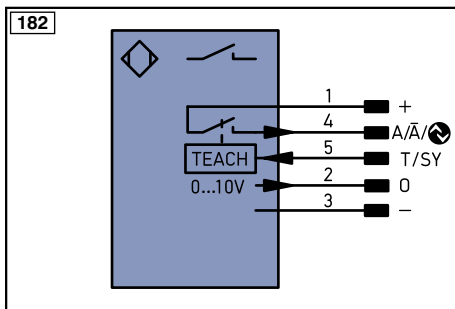
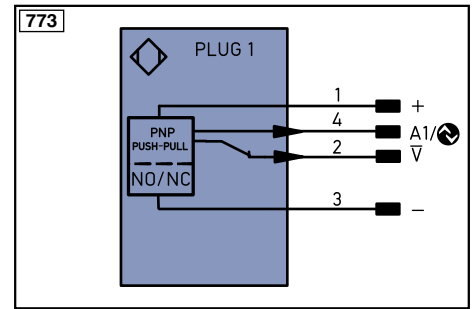
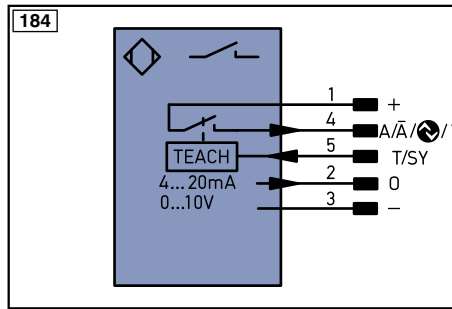
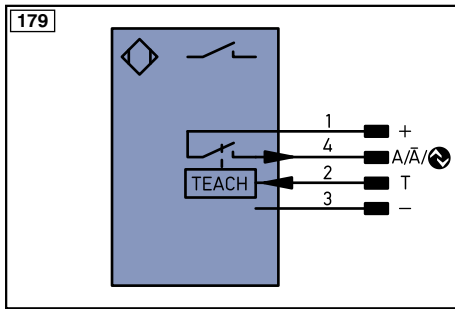
Legend

+	Supply Voltage +
-	Supply Voltage 0 V
~	Supply Voltage (AC Voltage)
A	Switching Output (NO)
\bar{A}	Switching Output (NC)
V	Contamination/Error Output (NO)
\bar{V}	Contamination/Error Output (NC)
E	Input (analog or digital)
T	Teach Input
Z	Time Delay (activation)
S	Shielding
RxD	Interface Receive Path
TxD	Interface Send Path
RDY	Ready
GND	Ground
CL	Clock
E/A	Output/Input programmable
	IO-Link
PoE	Power over Ethernet
IN	Safety Input
OSSD	Safety Output
Signal	Signal Output

nc	not connected
U	Test Input
\bar{U}	Test Input inverted
W	Trigger Input
O	Analog Output
O-	Ground for the Analog Output
BZ	Block Discharge
AWV	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
E+	Receiver-Line
S+	Emitter-Line
\pm	Grounding
SnR	Switching Distance Reduction
Rx +/-	Ethernet Receive Path
Tx +/-	Ethernet Send Path
Bus	Interfaces-Bus A(+)/B(-)
La	Emitted Light disengageable
Mag	Magnet activation
RES	Input confirmation
EDM	Contactor Monitoring

Wire Colors according to DIN IEC 757

BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink
GNYE	Green Yellow



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