wenglor
the innovative family

InoxSens **Catalog**

InoxSens

InoxSens is wenglor's hygienic design for demanding cleaning requirements in the food & beverage and pharmaceuticals industries.
The housing is made of noncorrosive stainless steel and offers IP 69K protection as a standard feature. The InoxSens system is EHEDG and FDA compliant.
Inox (French): stainless steel

Content

Page

Introduction 2 - 3

Index 4 - 5

Technical Glossary 6 - 7

System Solution 8 - 11

Photoelectronic Sensors 12 - 39

Reflex Sensors 12-15

Range	Light Source	Housing	Housing Material	
800 mm	Infrared Light	Ø 20 mm; InoxSens	Stainless Steel 316L	12 - 15

Reflex Sensors with Background Suppression 16-21

Range	Light Source	Housing	Housing Material	
100 mm	Red Light	Ø 20 mm; InoxSens	Stainless Steel 316L	16 - 19
120 mm	Red Light	Ø 20 mm; InoxSens	Stainless Steel 316L	20 - 21

Retro-Reflex Sensors for Clear Glass Recognition 22-27

Range	Light Source	Housing	Housing Material	
4000 mm	Red Light	Ø 20 mm; InoxSens	Stainless Steel 316L	22 - 27

Through-Beam Sensors 28-33

Range	Light Source	Housing	Housing Material	
4000 mm	Red Light	Ø 20 mm; InoxSens	Stainless Steel 316L	28 - 33

Fork Sensors 34-39

Range	Light Source	Housing	Housing Material	
50 mm	Laser (red)	Fork Width 50 mm	Stainless Steel 316L	34 - 35
120 mm	Laser (red)	Fork Width 120 mm	Stainless Steel 316L	36 - 37
220 mm	Laser (red)	Fork Width 220 mm	Stainless Steel 316L	38 - 39

Inductive Sensors 40 - 45

Inductive Sensors with Full-Metal Housing 40-45

Range	Mounting	Housing	Housing Material	
4 mm	flush	M12 × 1	Stainless Steel 316L	40
6 mm	non-flush	M12 × 1	Stainless Steel 316L	41
8 mm	flush	M18 × 1	Stainless Steel 316L	42
12 mm	non-flush	M18 × 1	Stainless Steel 316L	43
15 mm	flush	M30 × 1,5	Stainless Steel 316L	44
25 mm	non-flush	M30 × 1,5	Stainless Steel 316L	45

Page

Fluid Sensors 46 - 67

Pressure Sensors 46-47

Range	Process Connection	Housing	Housing Material	
0...40 bar	G 1/2" CIP-capable	Ø 60 mm; 49 mm	1.4404; PC; EPDM	46 - 47

Flow Sensors 48-59

Range	Process Connection	Housing	Housing Material	
10...300 cm/s	G 1/2" CIP-capable	Ø 60 mm; 49 mm	1.4404; PC; EPDM	48 - 49
10...400 cm/s	Clamp diameter: 50,5 mm Cutting/locking ring Sealing cone M18 × 1,5	Ø 27 mm	1.4404	50 - 59

Temperature Sensors 60-67

Range	Process Connection	Housing	Housing Material	
0...140 °C	G 1/2" CIP-capable	Ø 60 mm; 49 mm	1.4404; PC; EPDM	60 - 61
-50...150 °C	Cutting/locking ring Sealing cone M18 × 1,5	Ø 27 mm	1.4404	62 - 67

System Components and Software 68 - 91

Mounting Tubes with InoxLock 68-73

Mounting Consoles for Ø 20 mm 74-77

Mounting Clamps for Ø 20 mm 78-79

Reflectors in Stainless Steel Protection Housing 80-83

Protection Housings 84-87

Mounting Technology 88-89

Complementary Accessories 90-91

Connection Diagrams 92 - 93

Index alphabetical 94

Technical Glossary

3

3-A SSI:
3-A SSI is an organization which sets standards in the field of food and beverages in close cooperation with the FDA. It's comparable with the EHEDG in Europe. Components in closed processes (e. g. piping) can be certified by 3A. Certified components bear the 3A logo. Components in open processes (e. g. conveyor belts) cannot be certified.

C

CE Mark:
Represents the manufacturer's declaration that any product bearing such a mark is in compliance with applicable European standards and directives. The CE mark is neither a seal of quality nor a mark of conformity, but rather serves to facilitate free commercial trade within the EU.

CIP:
Clean in place: CIP is an automated process for cleaning systems. The surfaces of the system which come into contact with the product are cleaned without any significant dismantling. A reproducible process is made possible by precisely specifying cleaning agents, pressures, temperatures and times. The advantages of CIP include process reliability, as well as documentation and validation of cleaning.

D

Degree of Protection:
The specified degree of protection indicates whether or not the device is protected against contact, penetration by solid particles of a specified size and moisture.

IP20 (DIN EN 60529): Protection against penetration by solid particles with diameters larger than 12 mm. No special protection against penetration by water.

IP40 (DIN EN 60529): Protection against penetration by solid particles with diameters larger than 1 mm. No special protection against penetration by water.

IP42 (DIN EN 60529): Protection against penetration by solid particles with diameters larger than 1 mm. Protection against dripping water falling at an inclined angle.

IP54 (DIN EN 60529): Protection against dust deposits, full contact protection, protection against splash-water from all directions.

IP65 (DIN EN 60529): Full contact protection for voltage conducting components, protection against penetration by dust, protection against water jet streams.

IP67 (DIN EN 60529): Full contact protection for voltage conducting components, protection against penetration by dust, protection against submersion in water under specified conditions: at a depth of 1 metre for a duration of 30 minutes.

IP68 (wenglor specification): Full contact protection for voltage conducting components, protection against penetration by dust, protection against submersion in water under specified conditions: 1 metre for a duration of 7 days.

IP69K (ISO 20653): Full contact protection for voltage conducting components, protection against penetration by dust, protection against water high pressure/steam jet cleaning (80-100 bar, 80 °C).

The degree of protection depends upon the utilised plug for devices with plug connectors.

In rare cases, extreme temperature fluctuations/temperature shock, even within the admissible range, may result in a reduced degree of protection due to different thermal expansion coefficients of the housing materials used. Direct exposure to sunlight may also result in damage to the housing.

E

Ecolab:
Ecolab is the company name of a cleaning agent manufacturer. Ecolab tests materials for compatibility with their own cleaning agents.

EHEDG:
European Hygienic Engineering & Design Group. The EHEDG provides design guidelines in accordance with which systems used in the food zone should be designed and laid out. The EHEDG was founded in 1989, and is a non-governmental organization. By means of its guidelines, the EHEDG provides a basis for the CEN (European Committee for Standardization). These guidelines are incorporated into various standards, for example the DIN EN 1672-2 standard. The EHEDG has a legitimate claim to compliance within the international market as well. It works together with the -> NSF and -> 3A in the USA. The goal is international harmonization of standards and guidelines. The EHEDG evaluates the design and cleanability of systems and equipment used in closed processes, for example piping. Installation, care and maintenance are taken into consideration. Testing and certification of sensors in an open process (e. g. conveyor belt) is not conducted (http://www.ehedg.org).

F

FDA:
Food and Drug Administration. American public authority for the safety of food and drugs. US public authority which enforces law with the objective of protecting public health in the USA. The FDA controls the safety and the effectiveness of human and veterinary drugs, biological products, medical products, foodstuffs and devices which emit radiation. This applies to products manufactured in the USA, as well as imported products. The improvement of public health is also one of the FDA's tasks. There are FDA approved materials and chemicals, which are listed by the -> CFR.

G

GMP:
Good Manufacturing Practice. GMP is a collection of guidelines for assuring the quality of production sequences and the production environment for manufacturing drugs, food and fodder. Quality assurance plays a central role in pharmaceuticals manufacturing, because deviations from specified quality characteristics may have direct effects on the health of the consumer. A GMP compliant quality management system assures product quality and fulfills requirements stipulated by the health authorities which are binding for product marketing.

I

IFS:
International Food Standard. The IFS is a private organization. IFS auditors approve food production facilities. The product quality of the food, as well as the production process, is examined on the basis of the -> HACCP concept.

InoxSens:
InoxSens is wenglor's hygienic design for demanding cleaning requirements in the food & beverage and pharmaceuticals industries.
The housing is made of noncorrosive stainless steel and offers IP 69K protection as a standard feature. The InoxSens system is -> EHEDG and -> FDA compliant.

Inox (French): stainless steel

InoxSens

ISO 14159:
Standard regarding: "Safety of machinery – Hygiene requirements for the design of machinery". Comparable with -> DIN EN 1672-2.

J

Johnson Diversey:
Johnson Diversey is the company name of a cleaning agent manufacturer. Johnson Diversey tests materials for compatibility with their own cleaning agents.

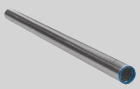
L

LMHV:
Food hygiene ordinance (German federal ordinance entitled Lebensmittelhygiene-Verordnung). German federal ordinance specifying hygiene requirements for the production, handling and marketing of food. The LMHV adopts EU directives into German law and must be adhered to by food producers in Germany.

N

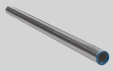
NSF:
NSF International is The Public Health and Safety Company. The NSF is not a government health authority. It establishes standards for the food and beverage industry. Founded in 1944 in Michigan, USA (http://www.nsf.org).

InoxSens
System Solution for Photoelectronic Sensors

Through Beam Sensor	Reflex Sensor	Reflex Sensor with Background Suppression	Retro-Reflex Sensor for Clear Glass Recognition	Fork Sensors
Transmitter: **OSII403Z0103** (PMMA) **OSII403Z0203** (Glass) **P1GE002** (PMMA) **Receiver:** **OEII403C0103** (PMMA) **OEII403C0203** (Glass) **P1GE001** (PMMA)	**OTII802C0103** (PMMA) **OTII802C0203** (Glass) **OTII802C0303** (PMMA)	**OHI122C0103** (PMMA) **OHI122C0203** (Glass) **OHII102C0103** (PMMA) **OHII102C0203** (Glass) **OHII102C0303** (PMMA)	**OKI403C0103** (PMMA) **OKI403C0203** (Glass) **OKII403C0103** (PMMA) **OKII403C0203** (Glass) **OKII403C0303** (PMMA)	**P1HJ001** (120 mm, Glass) **P1HJ002** (220 mm, Glass) **P1HJ004** (120 mm, PMMA) **P1HJ005** (220 mm, PMMA) **P1HJ006** (50 mm, Glass) **P1HJ007** (50 mm, PMMA)
			 Hygienic Design Reflectors in stainless steel Protection Housing **ZRMS02I01** (with InoxLock) OR **Hygienic Design Reflectors in stainless steel Protection Housing** **ZRDS01R01** (with InoxLock) OR **Hygienic Design Reflectors in stainless steel Protection Housing** **ZRMS02S01** (Glass) **Z90R001** (PMMA)	
 InoxLock Set Z0011 Easy to install with Mounting Tool Z0012	 **Mounting Tube with InoxLock ZMRII0401 and ZMRII0102** (straight)	 **Mounting Tube with InoxLock ZMRII0101** (with cable gland)	 **Mounting Tube with InoxLock ZMRII0402** (angled)	 **Mounting Tube** Z1HT001 (with cable gland)
	 Mounting Console for Ø 20 mm ZMKII0002 (with angle compensation)	 **Mounting Console for Ø 20 mm ZMKII0001**	 **Mounting Clamp for Ø 20 mm ZMSII0002**	

InoxSens

System Solution with Protection Housing

40×45×60 mm (illumination)	45×45×22 mm (5P-housing)	50×50×20 mm (1P-housing)	55×26×16 mm (1M-housing)	45×52×87 mm (50-housing)	50×50×30 mm (1P-housing)	29×52×74,3 mm (5N-housing)
ZMWBV0001	**ZMWFI0001**	**ZMW0P0001**	**ZMW0M0001**	**ZNNX001**	**ZNNX002**	**ZNNX003**
ZSV-02-01 (PMMA) **ZSV-03-01** (Glass)				**ZNNS001** (PMMA) **ZNNS002** (Glass)		**ZNNM002**
						
Mounting Tube with InoxLock ZMRII0401 and ZMRII0102 (straight)		**Mounting Tube with InoxLock ZMRII0101** (with cable gland)		**Mounting Tube with InoxLock ZMRII0402** (angled)		
Mounting Console for Ø 20 mm ZMKII0002 (with angle compensation)		**Mounting Console for Ø 20 mm ZMKII0001**		**Mounting Clamp for Ø 20 mm ZMSII0002**		

wenglor Fluid Hygiene Adapters

System Solution for G½" CIP-Compatible Process Fittings

FFXFxxx
Flow Sensor

FFXTxxx
Temperature Sensor

FFXPxxx
Pressure Sensor

ZH7C004
Varivent
F(DN32/25)

ZH7C005
Varivent
N(DN50/40)

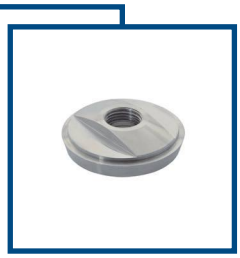
ZH7001
Clamp Connector
Tri-Clamp
34 mm dia.

ZH7C002
Clamp Connector
Tri-Clamp
50.5 mm dia.

ZH7C003
Clamp Connector
Tri-Clamp
64 mm dia.

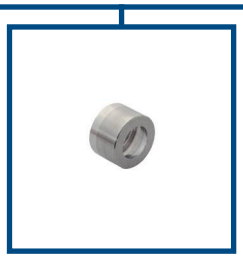
ZH7C006
Dairy Pipe Fitting
DN25

ZH7C007
Dairy Pipe Fitting
DN40



ZH7C008
Dairy Pipe Fitting
DN50

ZH4C003
Welding Fitting



ZH4C006
Welding Fitting
Optimized for
DN25 T Fitting

ZH3C003
T Fitting
DN25

ZH3C004
T Fitting
DN50

Reflex Sensor

800 mm

Range

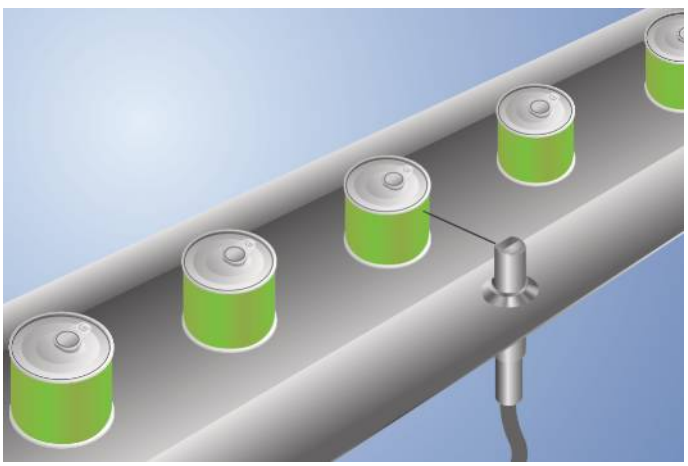
InoxSens

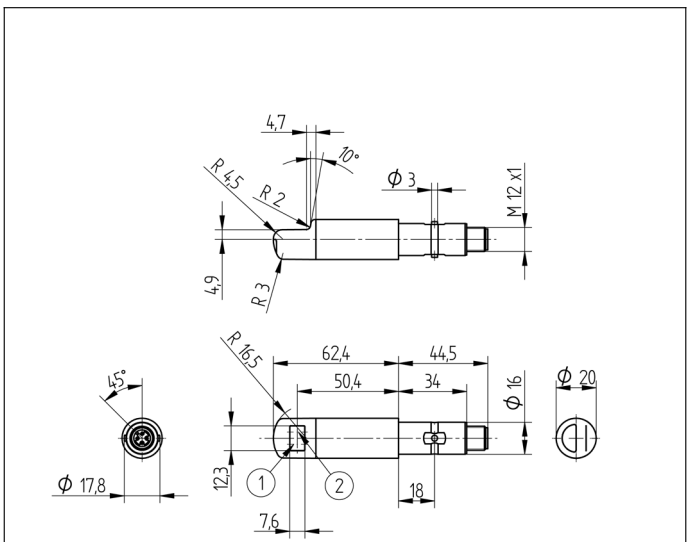
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Touch teach-in, external teach-in**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	800 mm
Switching Hysteresis	< 15 %
Light Source	Infrared Light
Wave Length	880 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V
Current Consumption (Ub = 24 V)	< 40 mA
Switching Frequency	1600 Hz
Response Time	313 µs
On-/Off-Delay (RS-232)	0...5 s
Temperature Drift	< 5 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Material Control Panel	PC (FDA)
Ecolab	yes

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments. The InoxSens sensors are set up with the help of touch teach-in and is made possible by the hermetically sealed housing.

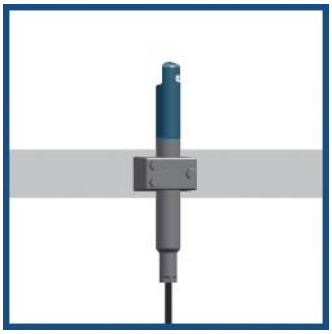
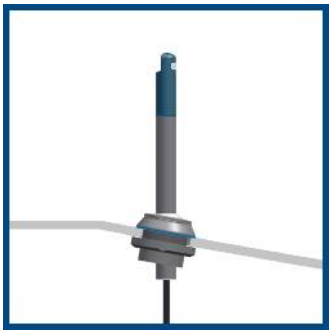




1 = Emitter
2 = Receiver
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	OTII802C0103	OTII802C0203
PNP NO/NC switchable	●	●
RS-232 with Adapterbox	●	●
Optic Cover	PMMA (FDA)	Glass
Connection Diagram No.	152	152
Control Panel No.	II1	II1
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

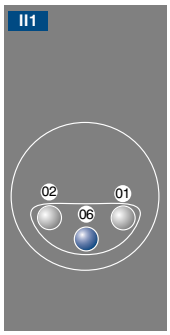
Connection Diagrams page 92 / System Components page 68 / System Solution page 8

Complementary Products

Adapterbox A232
PNP-NPN Converter BG2V1P-N-2M
wTeach2 software DNNF005

Ctrl. Panel



01 = Switching Status Indicator
02 = Contamination Warning
06 = Teach Button

Table 1

Detection Range	100 mm	500 mm	800 mm
Spot Diameter	19 mm	40 mm	55 mm

Reflex Sensor

800 mm

Range

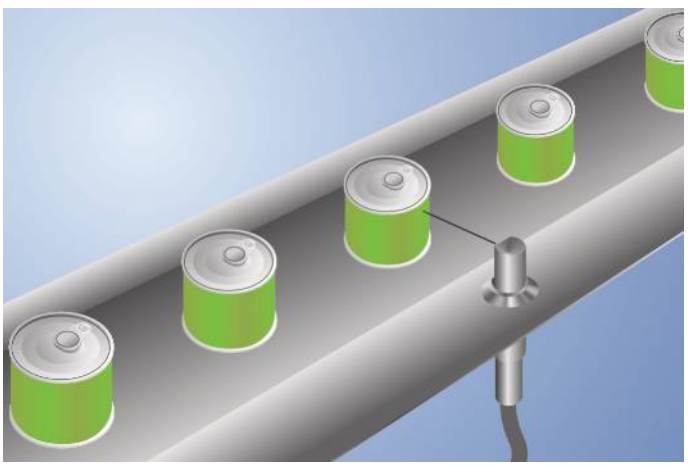
InoxSens

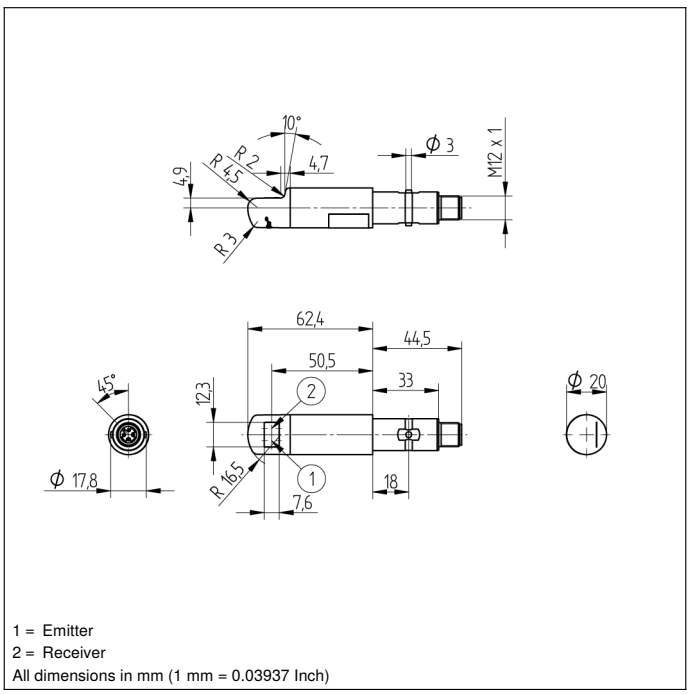
- **External teach-in, RS-232 interface**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	800 mm
Switching Hysteresis	< 15 %
Light Source	Infrared Light
Wave Length	880 nm
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V
Current Consumption (Ub = 24 V)	< 40 mA
Switching Frequency	1600 Hz
Response Time	313 µs
On-/Off-Delay (RS-232)	0...5 s
Temperature Drift	< 5 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Optic Cover	PMMA (FDA)
Ecolab	yes

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments.

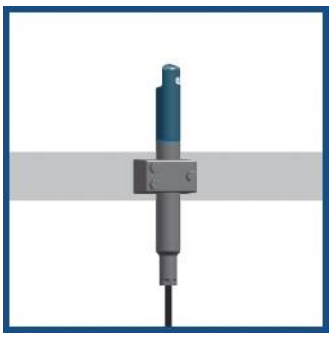
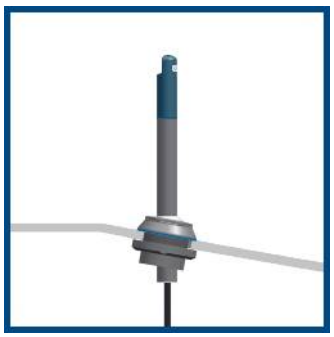




1 = Emitter
2 = Receiver
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version
Part Number	OTII802C0303
PNP NO/NC switchable	●
RS-232 with Adapterbox	●
Connection Diagram No.	152
Control Panel No.	IIo1
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	140 490

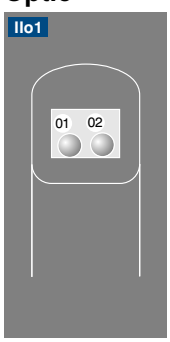
Connection Diagrams page 92 / System Components page 68 / System Solution page 8

Complementary Products

Adapterbox A232
PNP-NPN Converter BG2V1P-N-2M
wTeach2 software DNNF005

Optic



01 = Switching Status Indicator
02 = Contamination Warning

Table 1

Detection Range	100 mm	500 mm	800 mm
Spot Diameter	19 mm	40 mm	55 mm

Reflex Sensor
with Background Suppression

100 mm
Range

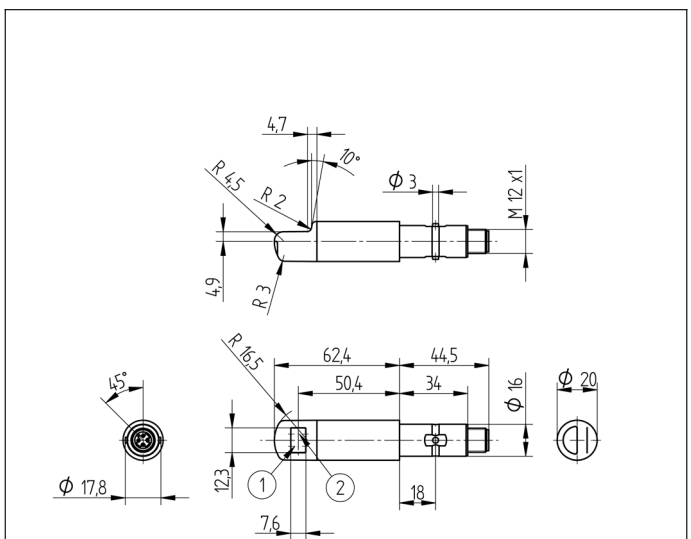
InoxSens

- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Touch teach-in, external teach-in**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	100 mm
Adjustable Range	10...100 mm
Switching Hysteresis	< 5 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V
Current Consumption (Ub = 24 V)	< 30 mA
Switching Frequency	600 Hz
Response Time	800 µs
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	HT, VT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Material Control Panel	PC (FDA)
Ecolab	yes

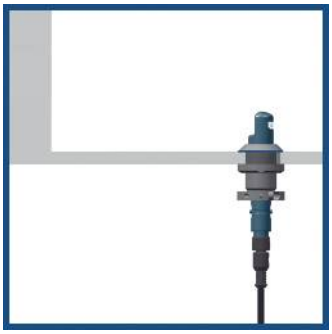
InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments. The InoxSens sensors are set up with the help of touch teach-in and is made possible by the hermetically sealed housing.

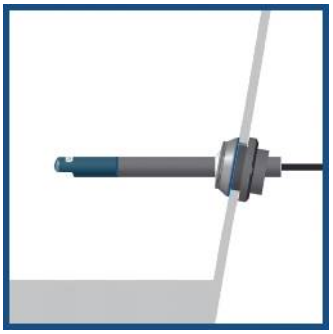
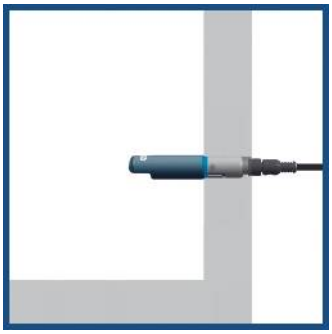


1 = Emitter
2 = Receiver
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	OHII102C0103	OHII102C0203
PNP NO/NC switchable	●	●
RS-232 with Adapterbox	●	●
Optic Cover	PMMA (FDA)	Glass
Connection Diagram No.	152	152
Control Panel No.	II1	II1
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

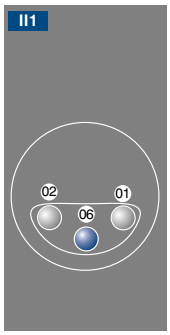


Complementary Products

Adapterbox A232
PNP-NPN Converter BG2V1P-N-2M
wTeach2 software DNNF005

Ctrl. Panel



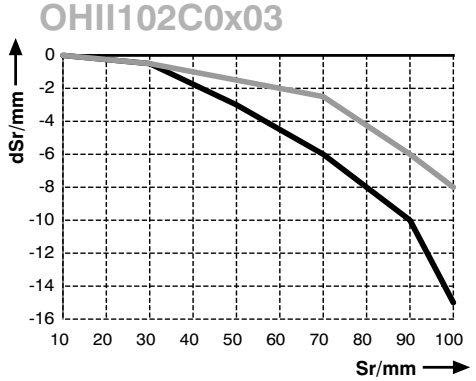
01 = Switching Status Indicator
02 = Contamination Warning
06 = Teach Button

Table 1

Detection Range	10 mm	40 mm	100 mm
Spot Diameter	2,5 × 7 mm	2,5 × 5 mm	2,5 × 2,5 mm

Switching Distance Deviation

Typical characteristic curve based on Kodak white (90 % remission)



Sr = Switching Distance
dSr = Switching Distance Change
black 6 % remission
grey 18 % remission

Reflex Sensor
with Background Suppression

100 mm
Range

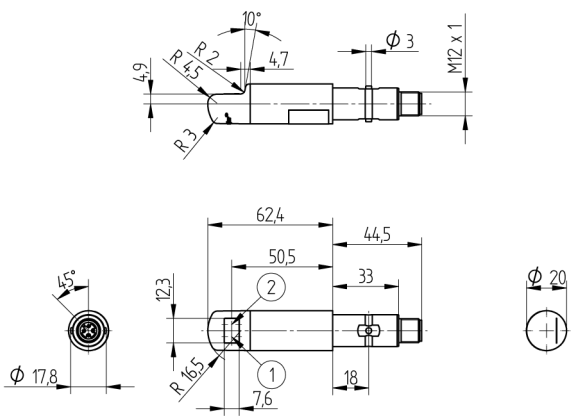
InoxSens

- **External teach-in, RS-232 interface**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	100 mm
Adjustable Range	10...100 mm
Switching Hysteresis	< 5 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V
Current Consumption (Ub = 24 V)	< 30 mA
Switching Frequency	600 Hz
Response Time	800 µs
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	HT, VT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Optic Cover	PMMA (FDA)
Ecolab	yes

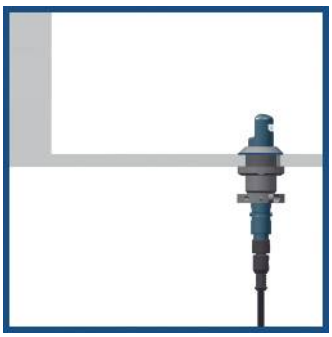
InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments.



1 = Emitter
2 = Receiver
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version
Part Number	OHII102C0303
PNP NO/NC switchable	●
RS-232 with Adapterbox	●
Connection Diagram No.	152
Control Panel No.	IIo1
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	140 490

Connection Diagrams page 92 / System Components page 68 / System Solution page 8



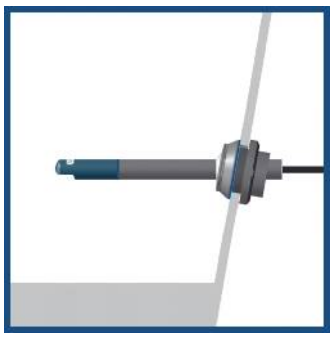
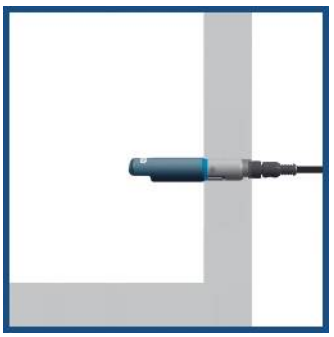



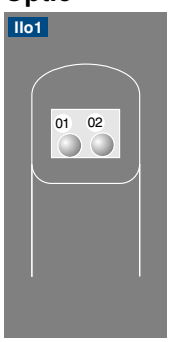
Table 1

Detection Range	10 mm	40 mm	100 mm
Spot Diameter	2,5 × 7 mm	2,5 × 5 mm	2,5 × 2,5 mm

Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- wTeach2 software DNNF005

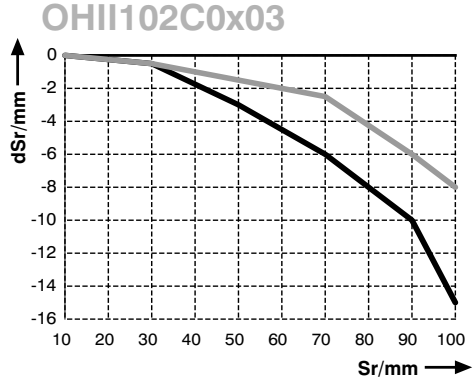
Optic



01 = Switching Status Indicator
02 = Contamination Warning

Switching Distance Deviation

Typical characteristic curve based on Kodak white (90 % remission)



Sr = Switching Distance
dSr = Switching Distance Change
black 6 % remission
grey 18 % remission

Reflex Sensor
with Background Suppression

120 mm
Range

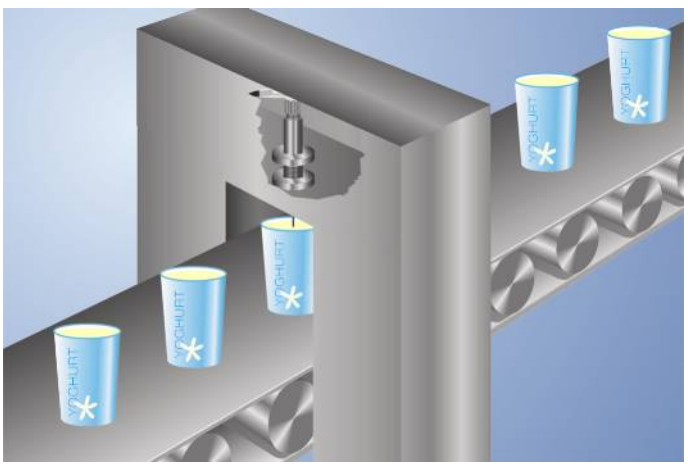
InoxSens

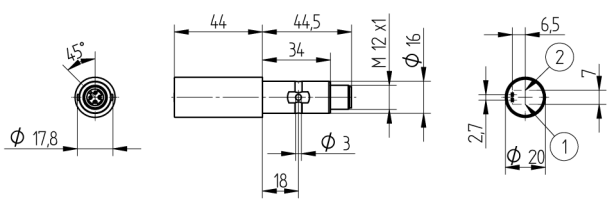
- **External teach-in**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	120 mm
Adjustable Range	30...120 mm
Switching Hysteresis	< 5 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V
Current Consumption (Ub = 24 V)	< 30 mA
Switching Frequency	600 Hz
Response Time	800 µs
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	HT, VT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments.The configuration of the InoxSens sensors are made through external teach-in.





1 = Emitter
2 = Receiver
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	OHI122C0103	OHI122C0203
PNP NO/NC switchable	●	●
RS-232 with Adapterbox	●	●
Optic Cover	PMMA (FDA)	Glass
Connection Diagram No.	152	152
Control Panel No.	II4	II4
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

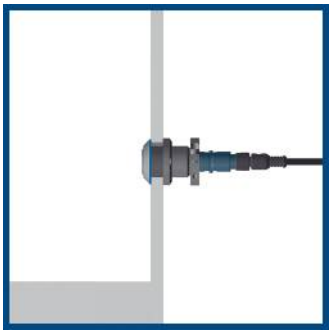
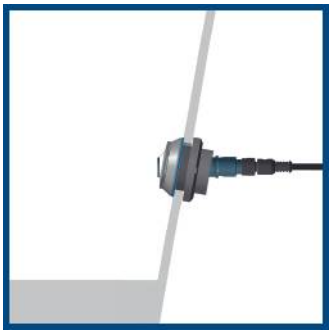



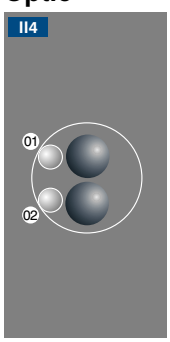
Table 1

Detection Range	30 mm	100 mm	120 mm
Spot Diameter	2,5 × 7 mm	2,5 × 2,5 mm	3 × 3 mm

Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- wTeach2 software DNNF005

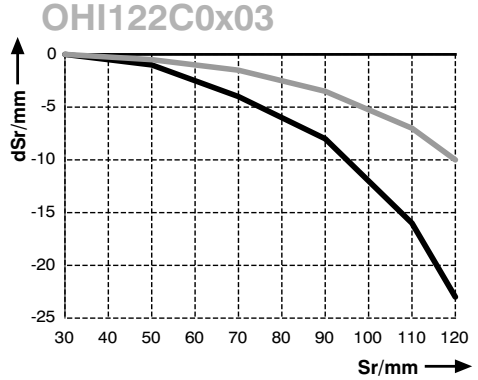
Optic



01 = Switching Status Indicator
02 = Contamination Warning

Switching Distance Deviation

Typical characteristic curve based on Kodak white (90 % remission)



Sr = Switching Distance
dSr = Switching Distance Change
black 6 % remission
grey 18 % remission

Retro-Reflex Sensor
for Clear Glass Recognition

4000 mm
Range

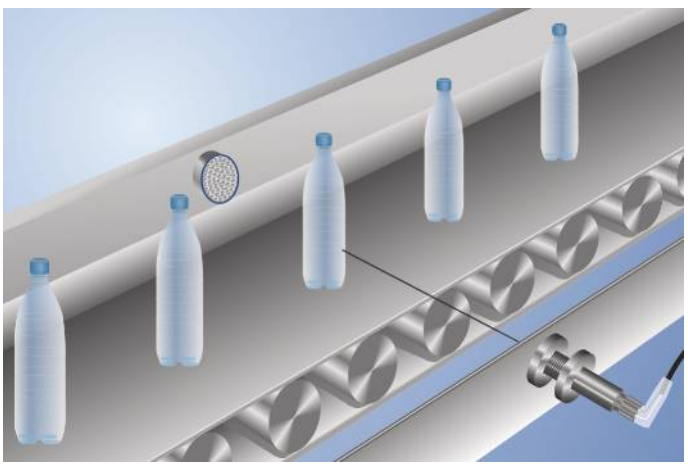
InoxSens

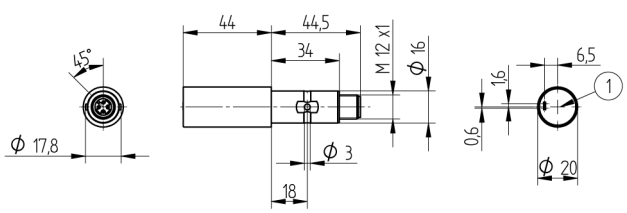
- **External teach-in**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	4000 mm
Reference Reflector/Reflex Foil	RQ100BA
Clear Glass Recognition	yes
Switching Hysteresis	< 5 %
Light Source	Red Light
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	3 °
Single-Lens Optic	yes
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Frequency	1600 Hz
Response Time	313 µs
On-/Off-Delay (RS-232)	0...5 s
Temperature Drift	< 5 %
Temperature Range	-10...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Residual Current Switching Output	< 50 µA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT, XT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments.The configuration of the InoxSens sensors are made through external teach-in.





1 = optical axle
All dimensions in mm (1 mm = 0.03937 Inch)

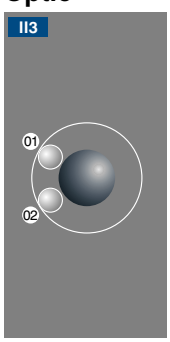
	Plug Version	
Part Number	OKI403C0103	OKI403C0203
PNP NO/NC switchable	●	●
RS-232 with Adapterbox	●	●
Optic Cover	PMMA (FDA)	Glass
Connection Diagram No.	152	152
Control Panel No.	II3	II3
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- Reflector in Stainless Steel Protection Housing
- Reflector, Reflex Foil
- wTeach2 software DNNF005

Optic



01 = Switching Status Indicator
02 = Contamination Warning

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0...4 m	**RE6210BM**	0...0,7 m
RE18040BA	0...2,5 m	**RR25_M**	0...1 m
RQ84BA	0...3,5 m	**RR25KP**	0...0,55 m
RR84BA	0...4 m	**RR21_M**	0...0,9 m
RE9538BA	0...1,5 m	**ZRAE02B01**	0...1,6 m
RE6151BM	0...3,4 m	**ZRDS01R01**	0...0,7 m
RR50_A	0...2,6 m	**ZRME01B01**	0...0,4 m
RE6040BA	0...3,2 m	**ZRME03B01**	0...1,6 m
RE8222BA	0...1,9 m	**ZRMR02K01**	0...0,5 m
RR34_M	0...1,6 m	**ZRMS02_01**	0...0,7 m
RE3220BM	0...0,8 m	**Z90R001**	0...0,7 m

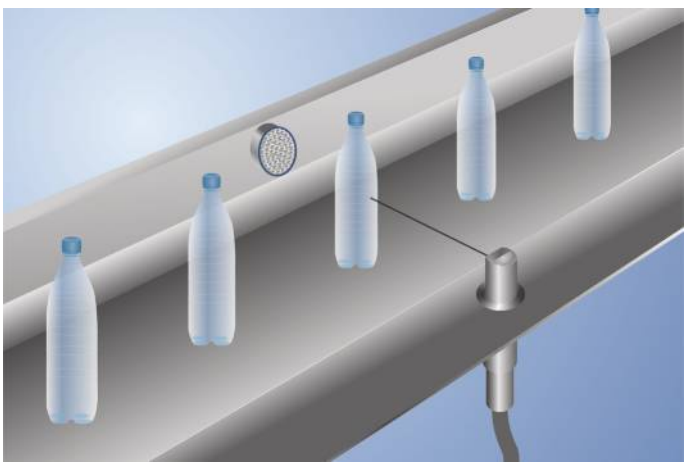
Retro-Reflex Sensor
for Clear Glass Recognition

4000 mm
Range

InoxSens

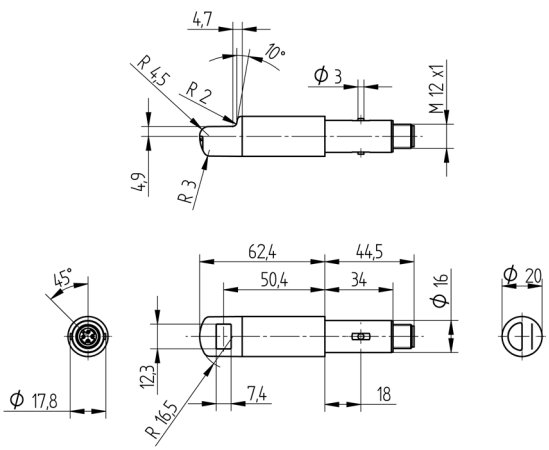
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Touch teach-in, external teach-in**
- **Waterproof (IP68/IP69K)**

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments. The InoxSens sensors are set up with the help of touch teach-in and is made possible by the hermetically sealed housing.



Technical Data

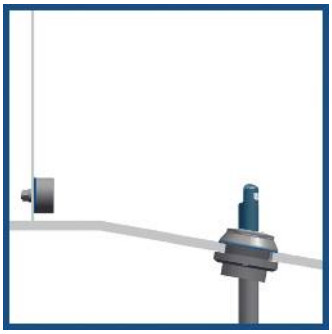
Optical Data	
Range	4000 mm
Reference Reflector/Reflex Foil	RQ100BA
Clear Glass Recognition	yes
Switching Hysteresis	< 5 %
Light Source	Red Light
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	3 °
Single-Lens Optic	yes
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Frequency	1600 Hz
Response Time	313 µs
On-/Off-Delay (RS-232)	0...5 s
Temperature Drift	< 5 %
Temperature Range	-10...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Residual Current Switching Output	< 50 µA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT, XT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Material Control Panel	PC (FDA)
Ecolab	yes



All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	OKII403C0103	OKII403C0203
PNP NO/NC switchable	●	●
RS-232 with Adapterbox	●	●
Optic Cover	PMMA (FDA)	Glass
Connection Diagram No.	152	152
Control Panel No.	II1	II1
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

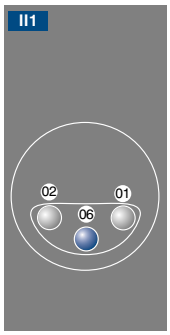
Connection Diagrams page 92 / System Components page 68 / System Solution page 8



Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- Reflector in Stainless Steel Protection Housing
- Reflector, Reflex Foil
- wTeach2 software DNNF005

Ctrl. Panel



01 = Switching Status Indicator
02 = Contamination Warning
06 = Teach Button

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0...4 m	**RE6210BM**	0...0,7 m
RE18040BA	0...2,5 m	**RR25_M**	0...1 m
RQ84BA	0...3,5 m	**RR25KP**	0...0,55 m
RR84BA	0...4 m	**RR21_M**	0...0,9 m
RE9538BA	0...1,5 m	**ZRAE02B01**	0...1,6 m
RE6151BM	0...3,4 m	**ZRDS01R01**	0...0,7 m
RR50_A	0...2,6 m	**ZRME01B01**	0...0,4 m
RE6040BA	0...3,2 m	**ZRME03B01**	0...1,6 m
RE8222BA	0...1,9 m	**ZRMR02K01**	0...0,5 m
RR34_M	0...1,6 m	**ZRMS02_01**	0...0,7 m
RE3220BM	0...0,8 m	**Z90R001**	0...0,7 m

Retro-Reflex Sensor
for Clear Glass Recognition

4000 mm
Range

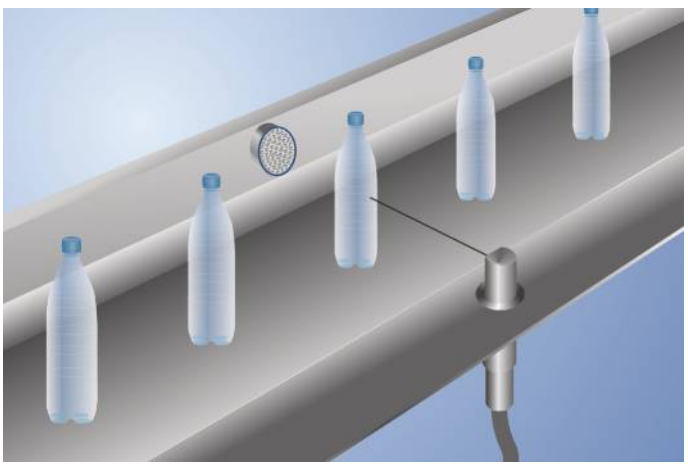
InoxSens

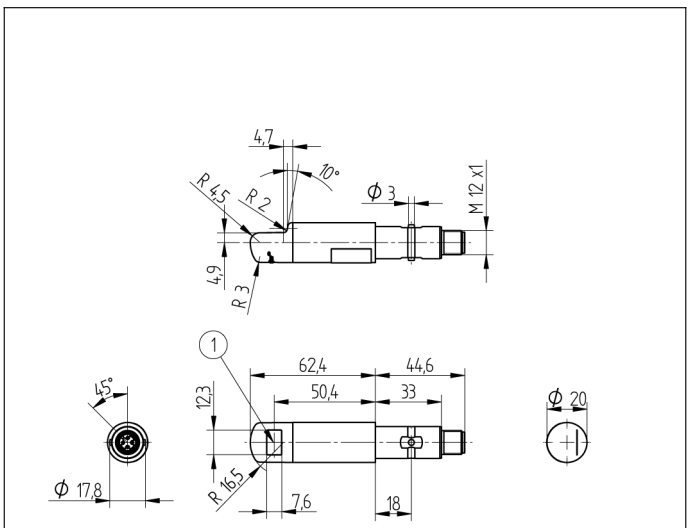
- **External teach-in, RS-232 interface**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	4000 mm
Reference Reflector/Reflex Foil	RQ100BA
Clear Glass Recognition	yes
Switching Hysteresis	< 5 %
Light Source	Red Light
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Opening Angle	3 °
Single-Lens Optic	yes
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Frequency	1600 Hz
Response Time	313 µs
On-/Off-Delay (RS-232)	0...5 s
Temperature Drift	< 5 %
Temperature Range	-10...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	200 mA
Residual Current Switching Output	< 50 µA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT, XT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Optic Cover	PMMA (FDA)
Ecolab	yes

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments.

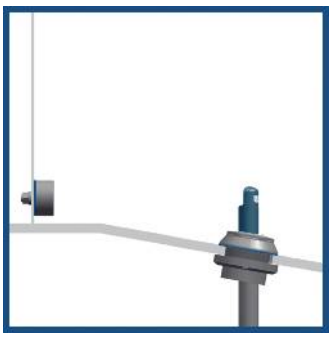




1 = optical axle
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version
Part Number	OKII403C0303
PNP NO/NC switchable	●
RS-232 with Adapterbox	●
Connection Diagram No.	152
Control Panel No.	IIo1
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	140 490

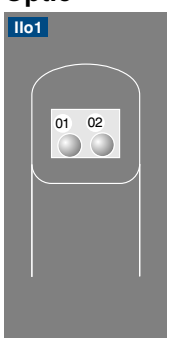
Connection Diagrams page 92 / System Components page 68 / System Solution page 8



Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- Reflector in Stainless Steel Protection Housing
- Reflector, Reflex Foil
- wTeach2 software DNNF005

Optic



01 = Switching Status Indicator
02 = Contamination Warning

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0...4 m	**RE6210BM**	0...0,7 m
RE18040BA	0...2,5 m	**RR25_M**	0...1 m
RQ84BA	0...3,5 m	**RR25KP**	0...0,55 m
RR84BA	0...4 m	**RR21_M**	0...0,9 m
RE9538BA	0...1,5 m	**ZRAE02B01**	0...1,6 m
RE6151BM	0...3,4 m	**ZRDS01R01**	0...0,7 m
RR50_A	0...2,6 m	**ZRME01B01**	0...0,4 m
RE6040BA	0...3,2 m	**ZRME03B01**	0...1,6 m
RE8222BA	0...1,9 m	**ZRMR02K01**	0...0,5 m
RR34_M	0...1,6 m	**ZRMS02_01**	0...0,7 m
RE3220BM	0...0,8 m	**Z90R001**	0...0,7 m

Through-Beam Sensor

4000 mm

Range

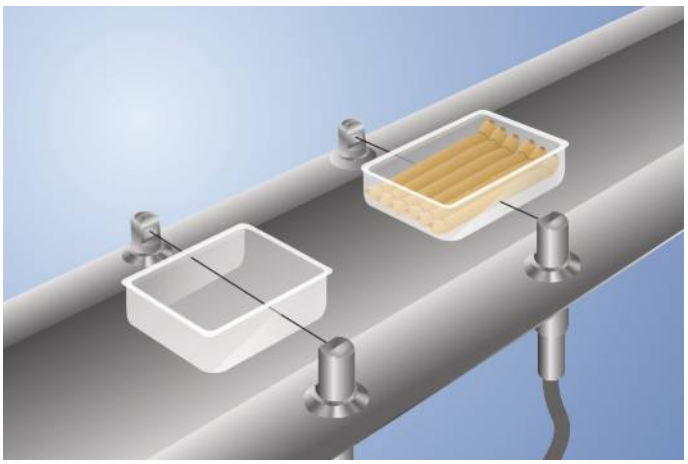
InoxSens

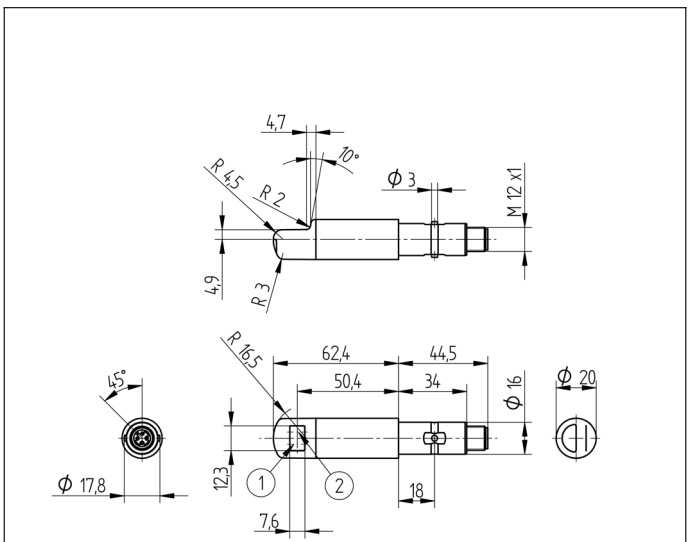
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Touch teach-in, external teach-in**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	4000 mm
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Opening Angle	3 °
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Teach Mode	NT, MT, XT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Optic Cover	PMMA (FDA)
Material Control Panel	PC (FDA)

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments. The InoxSens sensors are set up with the help of touch teach-in and is made possible by the hermetically sealed housing.

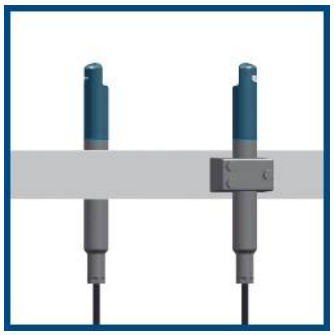




1 = Emitter
2 = no function
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	OSII403Z0103	OEII403C0103
PNP NO/NC switchable		●
RS-232 with Adapterbox		●
Switching Hysteresis		< 15 %
Max. Ambient Light		10000 Lux
Sensor Type	Emitter	Receiver
Switching Frequency		500 Hz
Response Time		1 ms
Switching Output Voltage Drop		< 2,5 V
PNP Switching Output/Switching Current		200 mA
Residual Current Switching Output		< 50 µA
Short Circuit and Overload Protection		yes
Overload Protection	yes	
Test input	yes	
Connection Diagram No.	1018	152
Control Panel No.	II2	II1
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

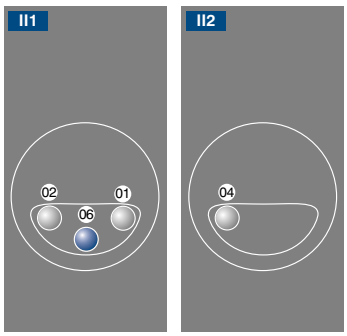
Connection Diagrams page 92 / System Components page 68 / System Solution page 8



Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- wTeach2 software DNNF005

Ctrl. Panel



01 = Switching Status Indicator
02 = Contamination Warning
04 = Function Indicator
06 = Teach Button

Through-Beam Sensor

4000 mm

Range

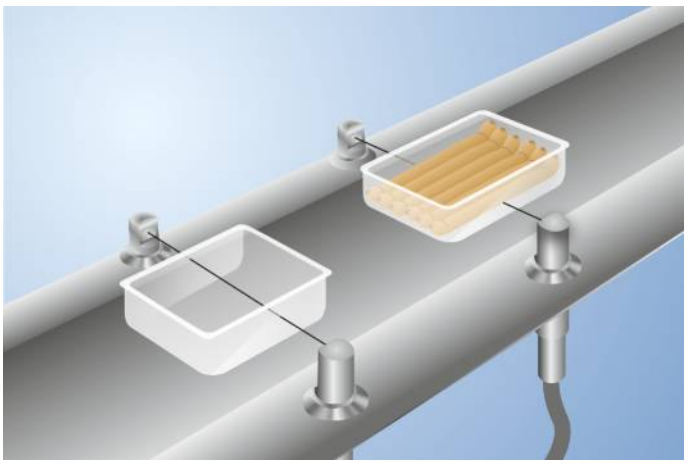
InoxSens

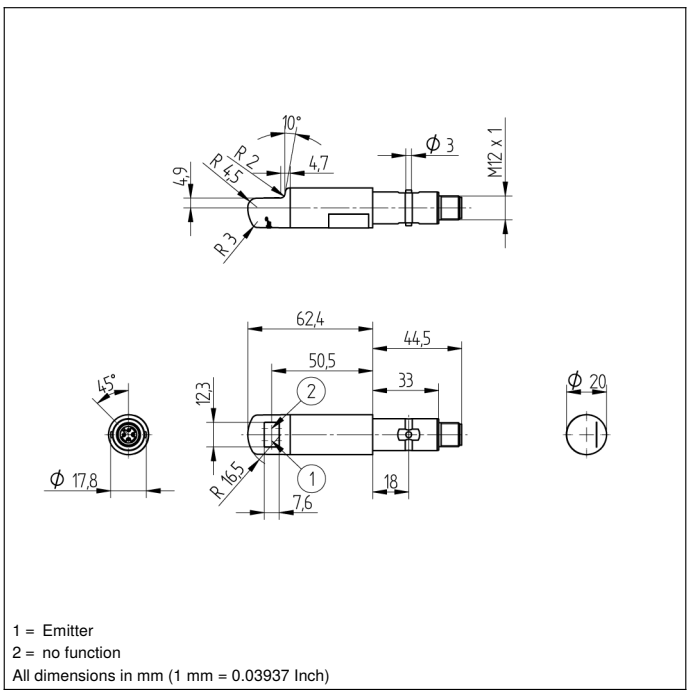
- **External teach-in**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	4000 mm
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Opening Angle	3 °
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Teach Mode	NT, MT, XT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Optic Cover	PMMA (FDA)
Ecolab	yes

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments.The configuration of the InoxSens sensors are made through external teach-in.

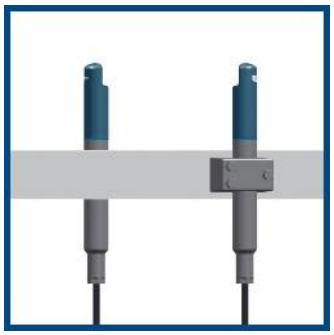




1 = Emitter
2 = no function
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	P1GE002	P1GE001
PNP NO/NC switchable		●
RS-232 with Adapterbox		●
Switching Hysteresis		< 15 %
Max. Ambient Light		10000 Lux
Sensor Type	Emitter	Receiver
Switching Frequency		500 Hz
Response Time		1 ms
Switching Output Voltage Drop		< 2,5 V
PNP Switching Output/Switching Current		200 mA
Residual Current Switching Output		< 50 µA
Short Circuit and Overload Protection		yes
Overload Protection	yes	
Test input	yes	
Connection Diagram No.	1018	152
Control Panel No.		IIo1
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

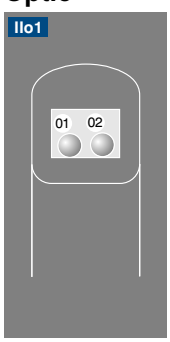
Connection Diagrams page 92 / System Components page 68 / System Solution page 8



Complementary Products

Adapterbox A232
PNP-NPN Converter BG2V1P-N-2M
wTeach2 software DNNF005

Optic



01 = Switching Status Indicator
02 = Contamination Warning

Through-Beam Sensor

4000 mm

Range

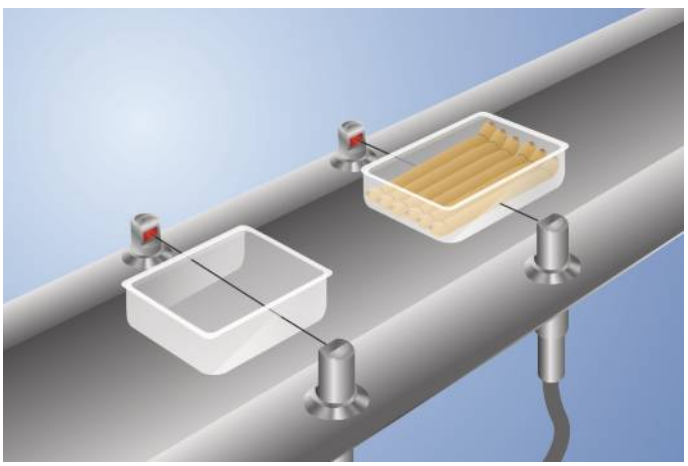
InoxSens

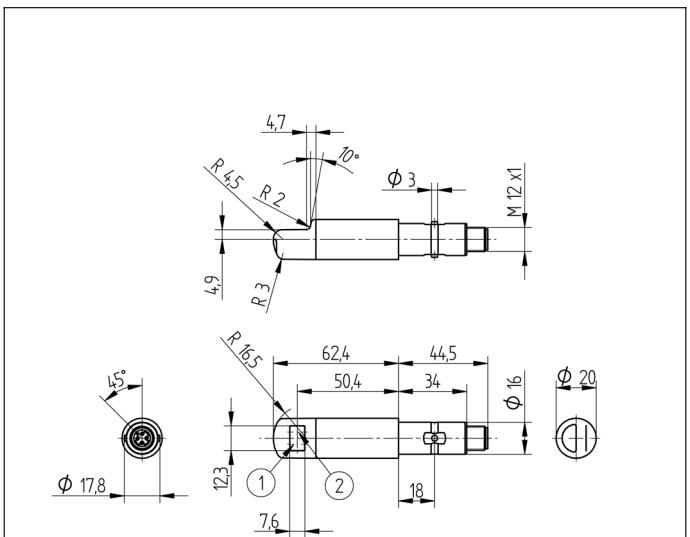
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Touch teach-in, external teach-in**
- **Waterproof (IP68/IP69K)**

Technical Data

Optical Data	
Range	4000 mm
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Opening Angle	3 °
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Reverse Polarity Protection	yes
Teach Mode	NT, MT, XT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Optic Cover	Glass
Material Control Panel	PC (FDA)

InoxSens is the hygiene series from wenglor. The innovative design of InoxSens sensors allows contamination and cleaning agents to flow off by themselves. A variety of components form a complete system which integrates seamlessly into the machine. The laser welded stainless steel housing made of V4A (1.4404/316L) is corrosion-free and resistant to cleaning agents. Gap-free mounting with InoxLock and the captive optics further contribute to these sensors' optimal suitability for cleaning-heavy environments. The InoxSens sensors are set up with the help of touch teach-in and is made possible by the hermetically sealed housing.

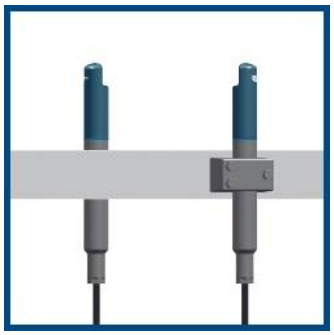




1 = Emitter
2 = no function
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	OSII403Z0203	OEII403C0203
PNP NO/NC switchable		●
RS-232 with Adapterbox		●
Switching Hysteresis		< 15 %
Max. Ambient Light		10000 Lux
Sensor Type	Emitter	Receiver
Switching Frequency		500 Hz
Response Time		1 ms
Switching Output Voltage Drop		< 2,5 V
PNP Switching Output/Switching Current		200 mA
Residual Current Switching Output		< 50 µA
Short Circuit and Overload Protection		yes
Overload Protection	yes	
Test input	yes	
Connection Diagram No.	1018	152
Control Panel No.	II2	II1
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	140 490	140 490

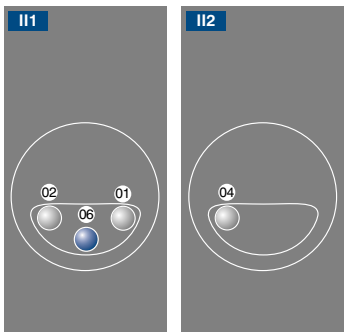
Connection Diagrams page 92 / System Components page 68 / System Solution page 8



Complementary Products

- Adapterbox A232
- PNP-NPN Converter BG2V1P-N-2M
- wTeach2 software DNNF005

Ctrl. Panel



01 = Switching Status Indicator
02 = Contamination Warning
04 = Function Indicator
06 = Teach Button

Fork Sensor

50 mm LASER

Range

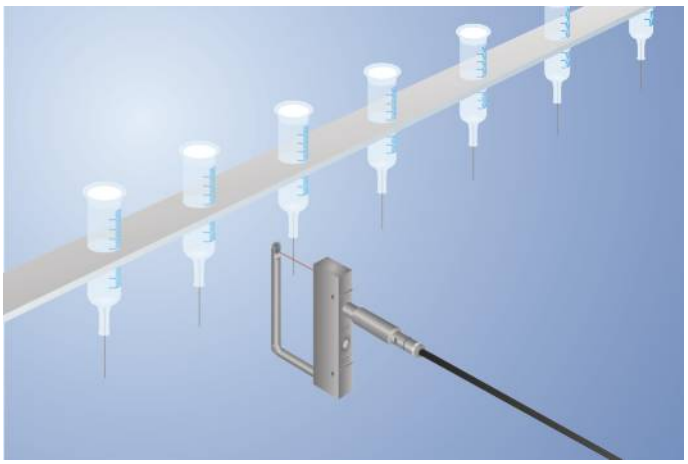
InoxSens

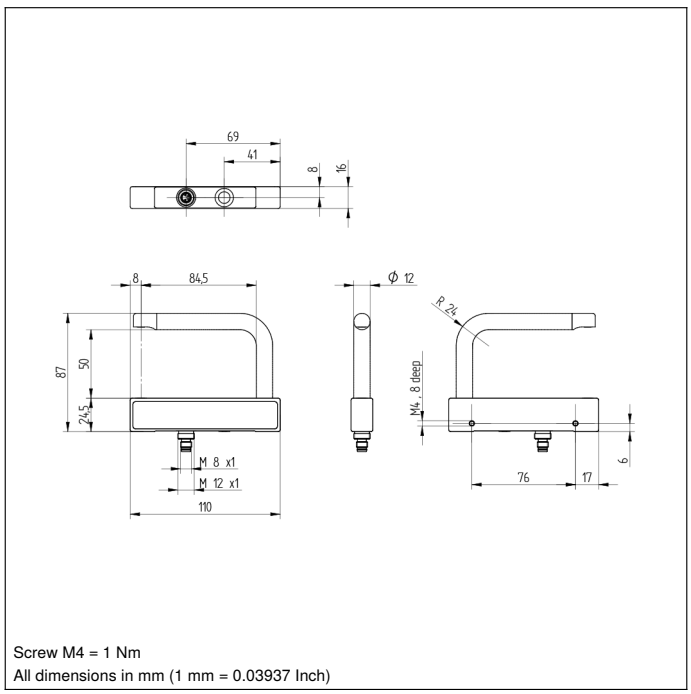
- **Collimated laser beam (0.6 mm diameter over the entire fork width)**
- **Recognition of transparent objects**
- **Rugged, corrosion-free V4A stainless steel housing in hygienic design**
- **Teach-in key and external teach-in**

Technical Data

Optical Data	
Fork Width	50 mm
Smallest Recognizable Part	40 µm
Smallest Detectable Gap	50 µm
Switching Hysteresis	< 10 %
Light Source	Laser (red)
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	2
Max. Ambient Light	10000 Lux
Spot Diameter	0,6 mm
Repeat Accuracy	< 5 µm
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 20 mA
Switching Frequency	10 kHz
Response Time	50 µs
Off-Delay	0...100 ms
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	NT, MT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP69K
Connection	M8 × 1; 4-pin
Ecolab	yes

Fork sensors have a collimated laser beam with a very small diameter of 0.6 mm over the entire fork width. As a result, they're capable of detecting extremely small parts down to a size of just 40 µm and even transparent objects at high speeds of up to 10 kHz. The innovative layout of the fork sensors in hygienic design permits various fork widths within a range of 50 to 220 mm, and allows contamination and cleaning agents to flow off of the surface in an ideal manner.



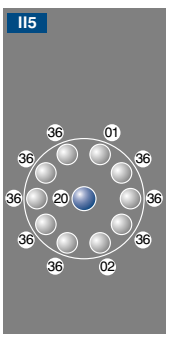


Screw M4 = 1 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	P1HJ006	P1HJ007
PNP NO/NC switchable	●	●
Optic Cover	Glass	Plastic
Connection Diagram No.	152	152
Control Panel No.	II5	II5
Suitable Connection Technology No.	7	7
Suitable Mounting Technology No.	570	570

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

Ctrl. Panel



01 = Switching Status Indicator
02 = Contamination Warning
20 = Enter Button
36 = Mode Indicator

Fork Sensor

120 mm LASER

Range

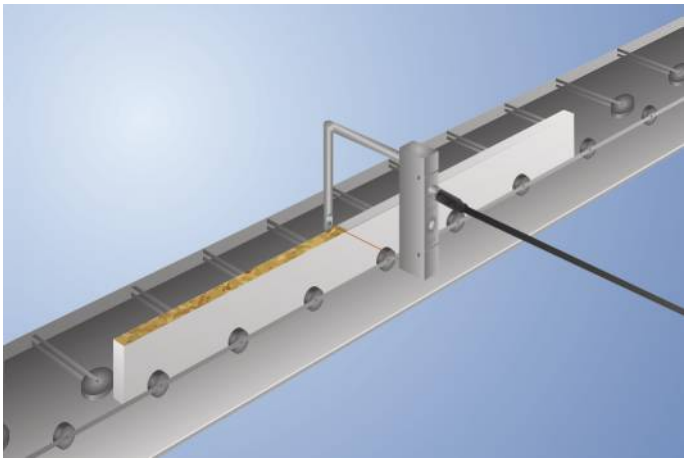
InoxSens

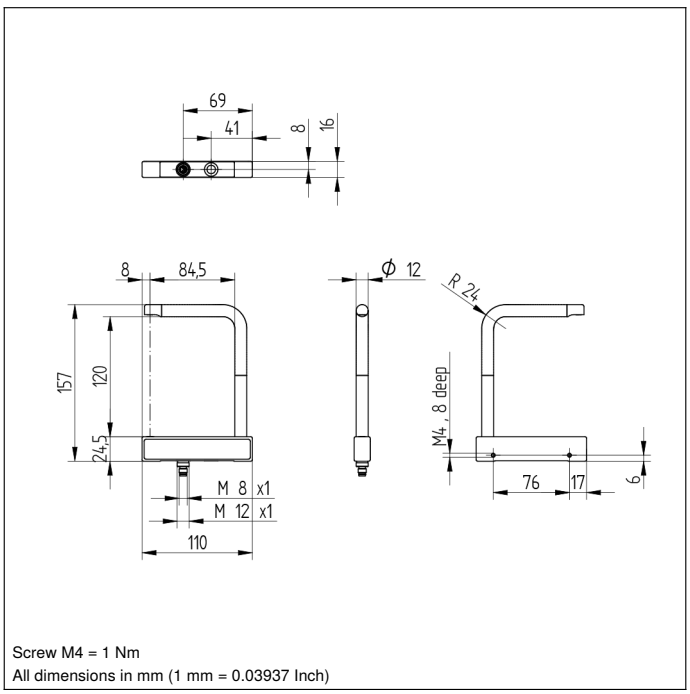
- **Collimated laser beam (0.6 mm diameter over the entire fork width)**
- **Recognition of transparent objects**
- **Rugged, corrosion-free V4A stainless steel housing in hygienic design**
- **Teach-in key and external teach-in**

Technical Data

Optical Data	
Fork Width	120 mm
Smallest Recognizable Part	40 µm
Smallest Detectable Gap	50 µm
Switching Hysteresis	< 10 %
Light Source	Laser (red)
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	2
Max. Ambient Light	10000 Lux
Spot Diameter	0,6 mm
Repeat Accuracy	< 5 µm
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 20 mA
Switching Frequency	10 kHz
Response Time	50 µs
Off-Delay	0...100 ms
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	NT, MT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP69K
Connection	M8 × 1; 4-pin
Ecolab	yes

Fork sensors have a collimated laser beam with a very small diameter of 0.6 mm over the entire fork width. As a result, they're capable of detecting extremely small parts down to a size of just 40 µm and even transparent objects at high speeds of up to 10 kHz. The innovative layout of the fork sensors in hygienic design permits various fork widths within a range of 50 to 220 mm, and allows contamination and cleaning agents to flow off of the surface in an ideal manner.



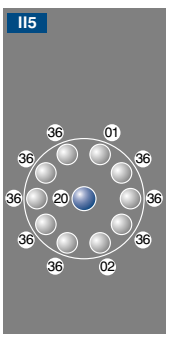


Screw M4 = 1 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	P1HJ001	P1HJ004
PNP NO/NC switchable	●	●
Optic Cover	Glass	Plastic
Connection Diagram No.	152	152
Control Panel No.	II5	II5
Suitable Connection Technology No.	7	7
Suitable Mounting Technology No.	570	570

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

Ctrl. Panel



01 = Switching Status Indicator
02 = Contamination Warning
20 = Enter Button
36 = Mode Indicator

Fork Sensor

220 mm LASER

Range

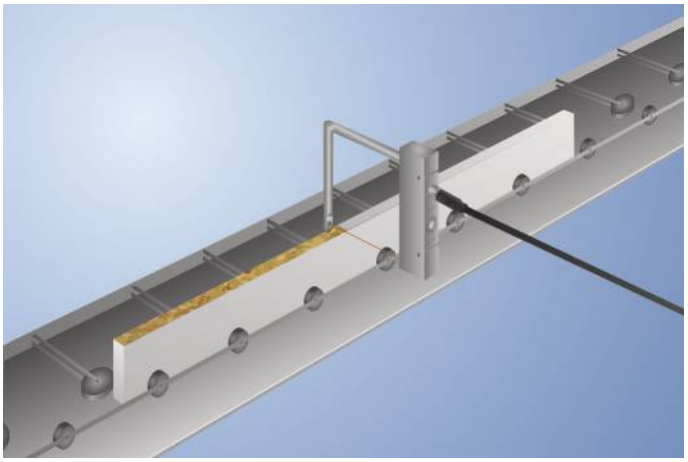
InoxSens

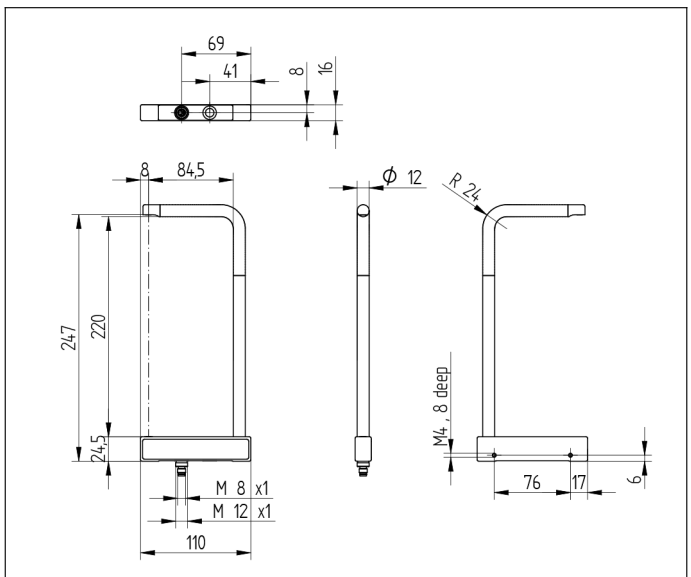
- **Collimated laser beam (0.6 mm diameter over the entire fork width)**
- **Recognition of transparent objects**
- **Rugged, corrosion-free V4A stainless steel housing in hygienic design**
- **Teach-in key and external teach-in**

Technical Data

Optical Data	
Fork Width	220 mm
Smallest Recognizable Part	40 µm
Smallest Detectable Gap	50 µm
Switching Hysteresis	< 10 %
Light Source	Laser (red)
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	2
Max. Ambient Light	10000 Lux
Spot Diameter	0,6 mm
Repeat Accuracy	< 5 µm
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 20 mA
Switching Frequency	10 kHz
Response Time	50 µs
Off-Delay	0...100 ms
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	NT, MT
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel 316L
Degree of Protection	IP69K
Connection	M8 × 1; 4-pin
Ecolab	yes

Fork sensors have a collimated laser beam with a very small diameter of 0.6 mm over the entire fork width. As a result, they're capable of detecting extremely small parts down to a size of just 40 µm and even transparent objects at high speeds of up to 10 kHz. The innovative layout of the fork sensors in hygienic design permits various fork widths within a range of 50 to 220 mm, and allows contamination and cleaning agents to flow off of the surface in an ideal manner.



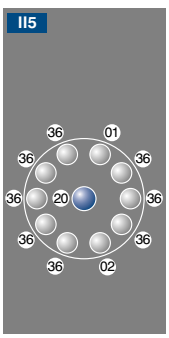


Screw M4 = 1 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

	Plug Version	
Part Number	P1HJ002	P1HJ005
PNP NO/NC switchable	●	●
Optic Cover	Glass	Plastic
Connection Diagram No.	152	152
Control Panel No.	II5	II5
Suitable Connection Technology No.	7	7
Suitable Mounting Technology No.	570	570

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

Ctrl. Panel



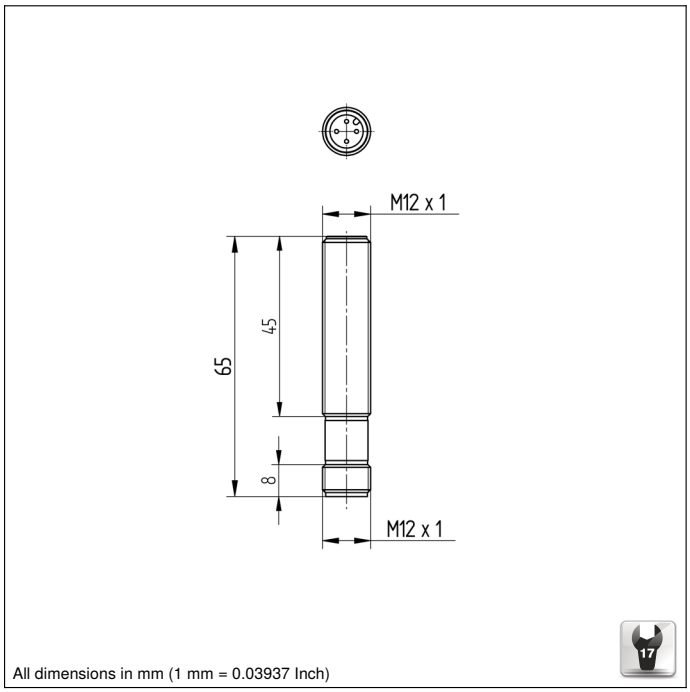
01 = Switching Status Indicator
02 = Contamination Warning
20 = Enter Button
36 = Mode Indicator

Inductive Sensor
with Full-Metal Housing

4 mm
M12 × 1

Range
flush

InoxSens



All dimensions in mm (1 mm = 0.03937 Inch)

Housing: Stainless Steel V4A 1.4404, 316L

Technical Data

Inductive Data	
Switching Distance	4 mm
Correction Factors V2A/CuZn/Al	0,82/0,35/0,32
Mounting	flush
Mounting A/B/C/D in mm	0/8/12/0
Mounting A/B/C/D (V2A) in mm	0/8/12/0
Switching Hysteresis	< 15 %
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	500 Hz
Temperature Drift	< 10 %
Temperature Range	-25...80 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	400 mA
Residual Current Switching Output	< 100 µA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Stainless Steel 316L
Full Encapsulation	yes
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Mechanical Strength Sensor Area	60 bar
Ex II 3G Ex nA IIC T5 Gc X	yes
Ex II 3D Ex tc IIIC T90°C Dc IP6X X	yes

	Plug Version	
Part Number	IB040DE65UB3	IB040DE65UD3
PNP NO	●	
PNP NC		●
Connection Diagram No.	1021	106
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	170	170

Connection Diagrams page 92 / System Components page 68

Complementary Products

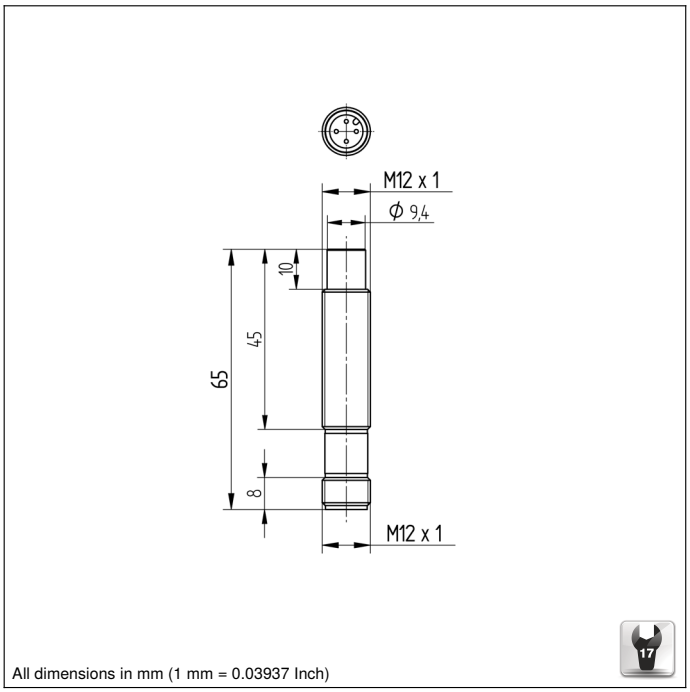
PNP-NPN Converter BG2V1P-N-2M

Protection Clip Z0007

Inductive Sensor
with Full-Metal Housing

6 mm
M12 × 1

Range
non-flush



All dimensions in mm (1 mm = 0.03937 Inch)

Housing: Stainless Steel V4A 1.4404, 316L

wenglor
the innovative family

InoxSens

Technical Data

Inductive Data	
Switching Distance	6 mm
Correction Factors V2A/CuZn/Al	0,97/0,30/0,27
Mounting	non-flush
Mounting A/B/C/D in mm	12/18/18/10
Mounting A/B/C/D (V2A) in mm	12/18/18/10
Switching Hysteresis	< 15 %
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	500 Hz
Temperature Drift	< 10 %
Temperature Range	-25...80 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	400 mA
Residual Current Switching Output	< 100 µA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Stainless Steel 316L
Full Encapsulation	yes
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Mechanical Strength Sensor Area	60 bar
Ex II 3G Ex nA IIC T5 Gc X	yes
Ex II 3D Ex tc IIIC T90°C Dc IP6X X	yes

	Plug Version	
Part Number	IB060SE65UB3	IB060SE65UD3
PNP NO	●	
PNP NC		●
Connection Diagram No.	1021	106
Suitable Connection Technology No.	2	2
Suitable Mounting Technology No.	170	170

Connection Diagrams page 92 / System Components page 68

Complementary Products

PNP-NPN Converter BG2V1P-N-2M

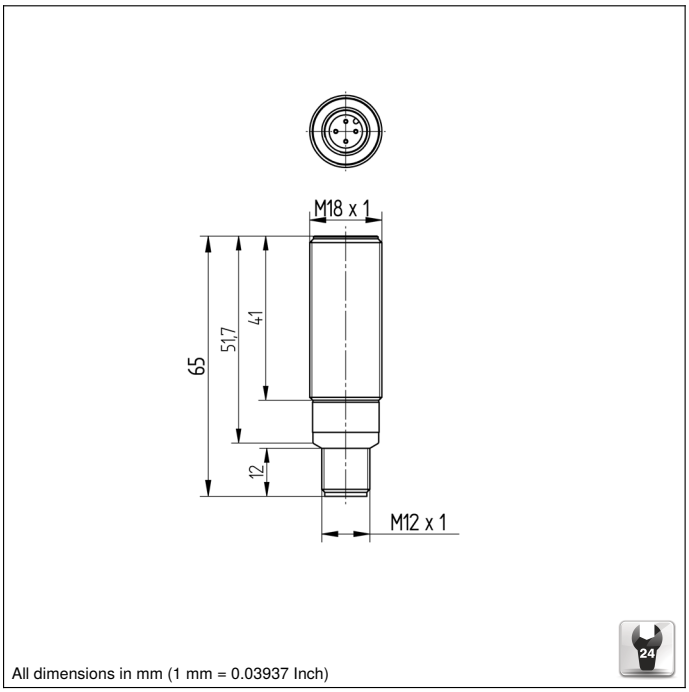
Protection Clip Z0007

Inductive Sensor
with Full-Metal Housing

8 mm
M18 × 1

Range
flush

InoxSens



All dimensions in mm (1 mm = 0.03937 Inch)

Housing: Stainless Steel V4A 1.4404, 316L

Technical Data

Inductive Data	
Switching Distance	8 mm
Correction Factors V2A/CuZn/Al	0,89/0,38/0,33
Mounting	flush
Mounting A/B/C/D in mm	0/22/24/0
Mounting A/B/C/D (V2A) in mm	0/22/24/0
Switching Hysteresis	< 15 %
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	400 Hz
Temperature Drift	< 10 %
Temperature Range	-25...80 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	400 mA
Residual Current Switching Output	< 100 µA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Stainless Steel 316L
Full Encapsulation	yes
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Mechanical Strength Sensor Area	10 bar
Ex II 3G Ex nA IIC T5 Gc X	yes
Ex II 3D Ex tc IIIC T90°C Dc IP6X X	yes

	Plug Version
Part Number	IW080DE65UA3
PNP NO/NC antivalent	●
Connection Diagram No.	101
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	150

Connection Diagrams page 92 / System Components page 68

Complementary Products

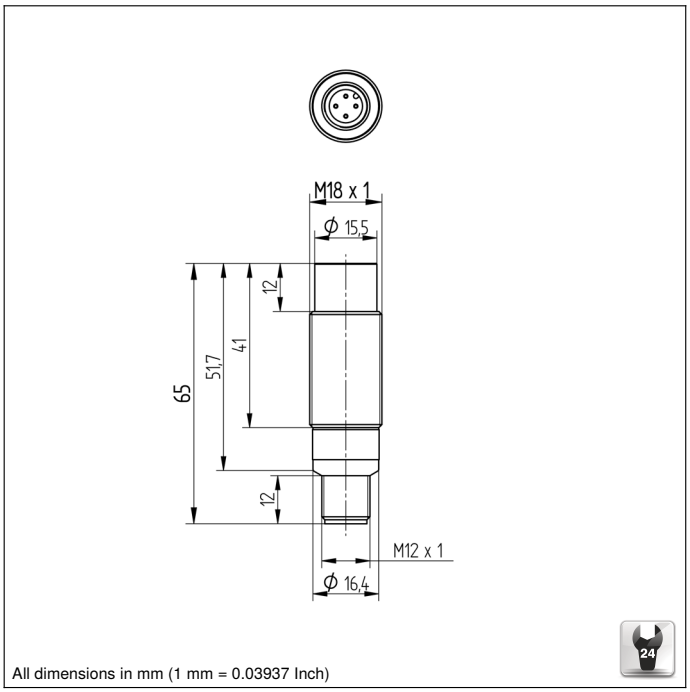
PNP-NPN Converter BG2V1P-N-2M

Protection Clip Z0007

Inductive Sensor
with Full-Metal Housing

12 mm
M18 × 1

Range
non-flush



All dimensions in mm (1 mm = 0.03937 Inch)

Housing: Stainless Steel V4A 1.4404, 316L

Technical Data

Inductive Data	
Switching Distance	12 mm
Correction Factors V2A/CuZn/Al	1,13/0,65/0,55
Mounting	non-flush
Mounting A/B/C/D in mm	18/52/36/16
Mounting A/B/C/D (V2A) in mm	18/52/36/12
Switching Hysteresis	< 15 %
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	400 Hz
Temperature Drift	< 10 %
Temperature Range	-25...80 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	400 mA
Residual Current Switching Output	< 100 µA
Short Circuit Protection	yes
Overload Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Stainless Steel 316L
Full Encapsulation	yes
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Mechanical Strength Sensor Area	45 bar
Ex II 3G Ex nA IIC T5 Gc X	yes
Ex II 3D Ex tc IIIC T90°C Dc IP6X X	yes

	Plug Version
Part Number	IW120SE65UA3
PNP NO/NC antivalent	●
Connection Diagram No.	101
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	150

Connection Diagrams page 92 / System Components page 68

Complementary Products

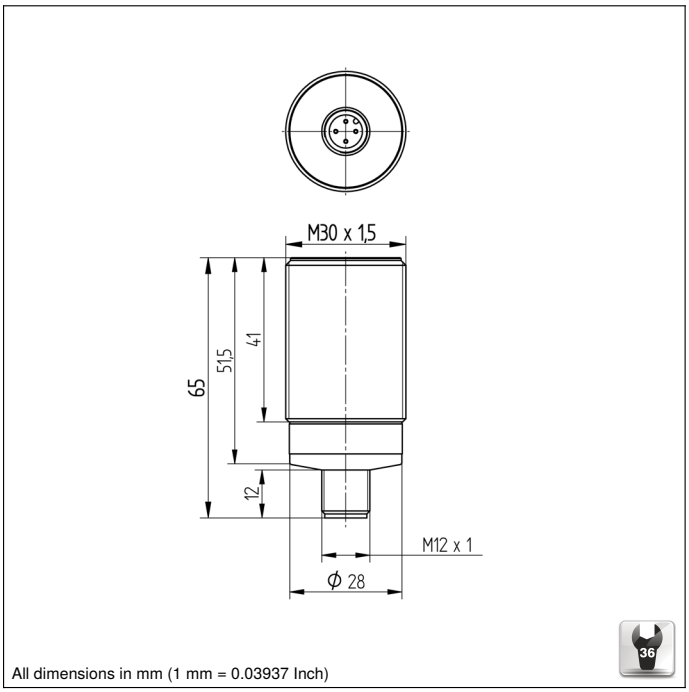
PNP-NPN Converter BG2V1P-N-2M
Protection Clip Z0007

Inductive Sensor
with Full-Metal Housing

15 mm
M30 × 1,5

Range
flush

InoxSens



All dimensions in mm (1 mm = 0.03937 Inch)

Housing: Stainless Steel V4A 1.4404, 316L

Technical Data

Inductive Data	
Switching Distance	15 mm
Correction Factors V2A/CuZn/Al	0,74/0,59/0,52
Mounting	flush
Mounting A/B/C/D in mm	0/30/45/0
Mounting A/B/C/D (V2A) in mm	0/30/45/0
Switching Hysteresis	< 15 %
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	200 Hz
Temperature Drift	< 10 %
Temperature Range	-25...80 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	400 mA
Residual Current Switching Output	< 100 µA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Stainless Steel 316L
Full Encapsulation	yes
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Mechanical Strength Sensor Area	25 bar
Ex II 3G Ex nA IIC T5 Gc X	yes
Ex II 3D Ex tc IIIC T90°C Dc IP6X X	yes

	Plug Version
Part Number	IX150DE65UA3
PNP NO/NC antivalent	●
Connection Diagram No.	101
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	130

Connection Diagrams page 92 / System Components page 68

Complementary Products

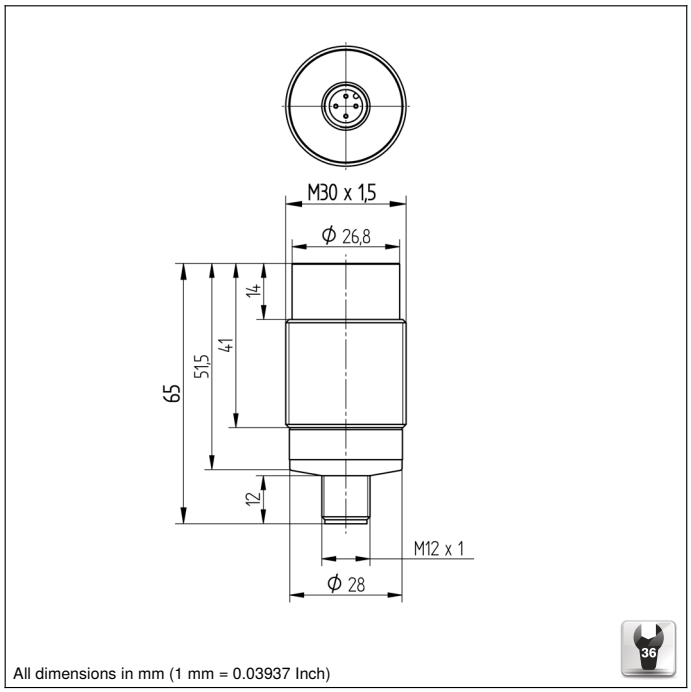
PNP-NPN Converter BG2V1P-N-2M

Protection Clip Z0007

Inductive Sensor
with Full-Metal Housing

25 mm M30 × 1,5

Range
non-flush



All dimensions in mm (1 mm = 0.03937 Inch)

Housing: Stainless Steel V4A 1.4404, 316L

Technical Data

Inductive Data	
Switching Distance	25 mm
Correction Factors V2A/CuZn/Al	1,09/0,65/0,58
Mounting	non-flush
Mounting A/B/C/D in mm	45/80/75/35
Mounting A/B/C/D (V2A) in mm	30/80/75/35
Switching Hysteresis	< 15 %
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	200 Hz
Temperature Drift	< 10 %
Temperature Range	-25...80 °C
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	400 mA
Residual Current Switching Output	< 100 µA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	Stainless Steel 316L
Full Encapsulation	yes
Degree of Protection	IP68/IP69K
Connection	M12 × 1; 4-pin
Mechanical Strength Sensor Area	25 bar
Ex II 3G Ex nA IIC T5 Gc X	yes
Ex II 3D Ex tc IIIC T90°C Dc IP6X X	yes

	Plug Version
Part Number	IX250SE65UA3
PNP NO/NC antivalent	●
Connection Diagram No.	101
Suitable Connection Technology No.	2
Suitable Mounting Technology No.	130

Connection Diagrams page 92 / System Components page 68

Complementary Products

PNP-NPN Converter BG2V1P-N-2M
Protection Clip Z0007

Pressure Sensor

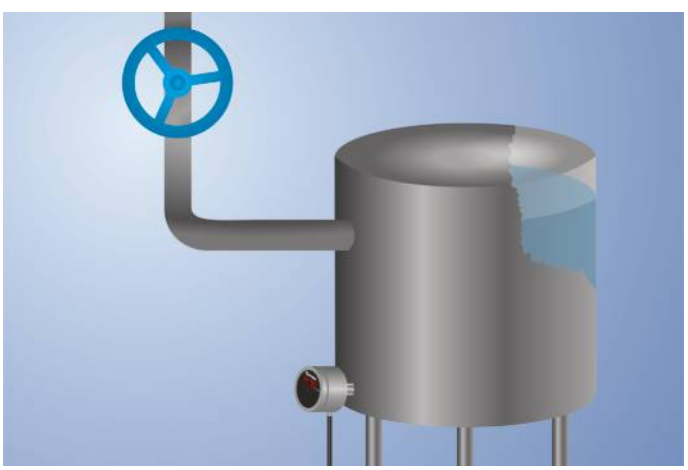
0...40 bar

Range

InoxSens UniBar

- **FDA compliant**
- **Hygienic design makes it easy to clean**
- **Piggable with flush mounting**
- **Robust stainless steel housing with IP69K**
- **Space-saving process connection thanks to small pressure membrane**

UniBar pressure sensors measure the relative pressure in closed systems of any medium in the range -1...600 bar.
UniBar pressure sensors are very easy to use thanks to the removable cover on the integrated display. The highly visible switching status display enables the rapid localization of affected sensors for maintenance processes.
Thanks to the metallic sealing edge on the process connection, no further seals are required.



Technical Data

Sensor-specific data	
Adjustable Range	4...100 %
Medium	Liquids, gases
Switching Hysteresis	2 %
Measuring error	< ± 0,5 %
Temperature Drift	0,025 %/K
Environmental conditions	
Temperature of medium	-25...60 °C
Ambient temperature	-25...80 °C
EMC	DIN EN 61326-2-3
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	20 g (10...2000 Hz)
Electrical Data	
Supply Voltage	16...32 V DC
Current Consumption (Ub = 24 V)	< 60 mA
Switching Outputs	1
Response Time	1,2 s
Switching Output/Switching Current	< 250 mA
Switching Output Voltage Drop	< 2 V
Analog Output	4...20 mA Press
Resolution	10 bit
Current Output Load Resistance	< 500 Ohm
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Setting Method	Menu
Housing Material	1.4404; PC; EPDM
Material Control Panel	Polyester
Material in contact with media	1.4435; 1.4404
Connection	M12 × 1; 4-pin
Process Connection	G 1/2" CIP-capable
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1201,51 a

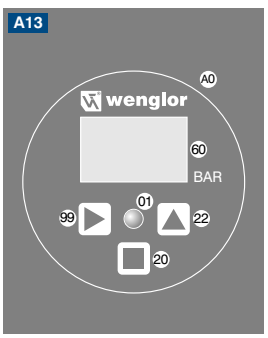
* Tested by wenglor

	Part Number	Plug Version		
		FFXP001	FFXP002	FFXP003
Analog Output		●	●	●
Final value, analog output: scalable 2:1		●	●	●
PNP NO/NC switchable		●	●	●
Measuring Range		0...10 bar	0...25 bar	0...40 bar
Maximum overload pressure		20 bar	50 bar	80 bar
Bursting pressure		40 bar	100 bar	160 bar
Degree of Protection		IP65/IP69K *	IP67/IP69K *	IP67/IP69K *
Connection Diagram No.		533	533	533
Control Panel No.		A13	A13	A13
Suitable Connection Technology No.		21	21	21
Suitable Mounting Technology No.		905 906	905 906	905 906

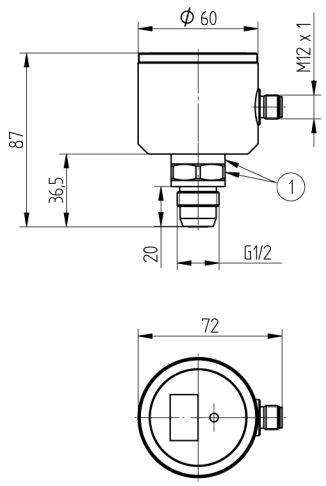
Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of pressure sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**

Ctrl. Panel



01 = Switching Status Indicator
0A = Detachable lid
20 = Enter Button
22 = UP Button
60 = Display
99 = Right button



1 = Rotatable relative to housing at 340°
All dimensions in mm (1 mm = 0.03937 Inch)

Flow Sensor

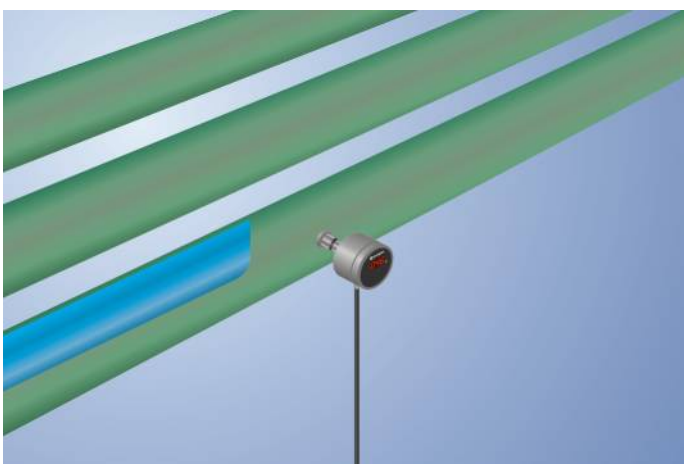
10...300 cm/s

Range

InoxSens UniFlow

- **CIP-capable**
- **FDA compliant**
- **Highest precision of its class**
- **Hygienic design makes it easy to clean**
- **Measurement independent of flow direction**
- **Temperature of the medium: 0 ... 100° C (140° C for 24 hours without current measurement)**

wenglor UniFlow flow sensors measure the flow rate of aqueous and oily media in closed piping systems.
UniFlow flow sensors are very easy to operate thanks to the removable cover on the integrated display. The highly visible switching status display enables the rapid localization of affected sensors for maintenance processes.
Thanks to the metallic sealing edge on the process connection, no further seals are required.



Technical Data

Sensor-specific data	
Selectable measuring range	10...300 cm/s
Measuring range 1	10...150 cm/s
Adjustable range 1	15...150 cm/s
Measuring range 2	20...300 cm/s
Adjustable range 2	30...300 cm/s
Medium	Water
Measuring error	2 %
Switching Hysteresis	5 %
Temperature gradient	30 K
Response time in case of temperature jump	10 s
Environmental conditions	
Temperature of medium	0...100 °C
Temperature of the medium, short-term	140 °C
Ambient temperature	-20...70 °C
Mechanical Strength	60 bar
EMC	DIN EN 60947-5-9
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	20 g (10...2000 Hz)
Electrical Data	
Supply Voltage	16...32 V DC
Current Consumption (Ub = 24 V)	60 mA
Switching Outputs	1
Response Time	1...5 s
Switching Output/Switching Current	< 250 mA
Switching Output Voltage Drop	< 2 V
Current Output Load Resistance	< 500 Ohm
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Setting Method	Menu
Housing Material	1.4404; PC; EPDM
Material Control Panel	Polyester
Material in contact with media	1.4435; 1.4404
Degree of Protection	IP67/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	G 1/2" CIP-capable
Process Connection Length (PCL)	48 mm
Probe Length (PL)	10 mm
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1194,55 a

* Tested by wenglor

	Part Number	Plug Version	
		FFXF001	FFXF002
Analog output flow		●	
Analog output temperature			●
PNP NO/NC switchable		●	●
Analog Output		4...20 mA Flow	4...20 mA Temp
Connection Diagram No.		533	533
Control Panel No.		A12	A12
Suitable Connection Technology No.		21	21
Suitable Mounting Technology No.		906	906

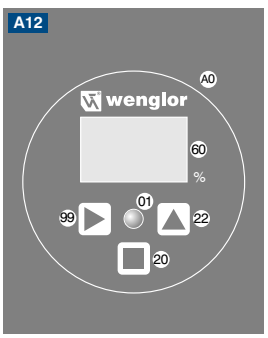
Connection Diagrams page 92 / System Components page 68 / System Solution page 8

The complete product range of flow sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.

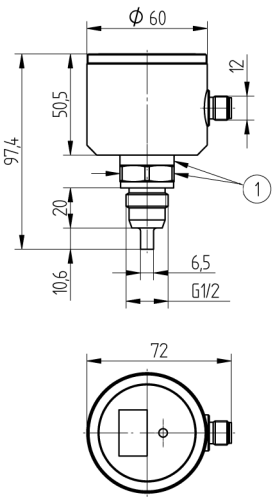
Complementary Products

Flow calculator software DNNF008

Ctrl. Panel



01 = Switching Status Indicator
0A = Detachable lid
20 = Enter Button
22 = UP Button
60 = Display
99 = Right button



1 = Rotatable relative to housing at 340°
All dimensions in mm (1 mm = 0.03937 Inch)

Flow Sensor

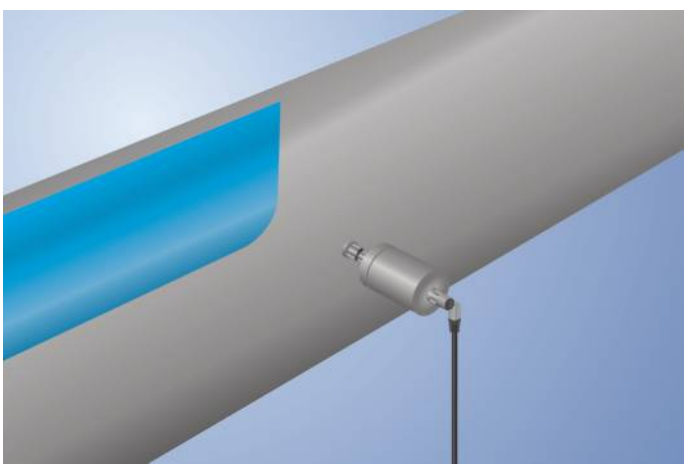
10...400 cm/s

Range

weFlux² InoxSens

- **A single sensor for flow and temperature**
- **FDA compliant**
- **Measurement independent of flow direction and instillation position**
- **Ready for Industry 4.0 with IO-Link 1.1**

weFlux² Flow Sensors simultaneously measure flow velocity and the temperature of aqueous liquids regardless of position and direction of flow. Advantage: The number of measuring points and the diversity of sensor variants are cut in half, and greatest possible flexibility is assured for installation in closed piping systems. Either 2 switching outputs or 1 switching output and 1 analog output are available depending on application requirements. The outputs can be configured as desired via IO-Link in order to flexibly adapt the sensors to the respective application.



Technical Data

Sensor-specific data	
Measuring Range	10...400 cm/s
Temperature of the medium, flow measurement	-25...125 °C
Temperature of the medium, temperature measurement	-25...150 °C
Adjustable Range	10...400 cm/s
Medium	Water
Measuring error	2 %
Response time in case of temperature jump	10 s
Environmental conditions	
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
EMC	DIN EN 61326-1
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	5 g (10...2000 Hz)
Electrical Data	
Supply Voltage	12...32 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Outputs	2
Analog Outputs	1
Analog Output	0...10 V/4...20 mA
Response Time	1...5 s
Switching Output/Switching Current	± 100 mA
Switching Output Voltage Drop	< 2 V
Current Output Load Resistance	(Ub-Ubmin)/0,02A
Current Load Voltage Output	≤ 20 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Interface	IO-Link
IO-Link Version	1.1
Mechanical Data	
Setting Method	IO-Link
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Cutting/locking ring
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1210,41 a

* Tested by wenglor

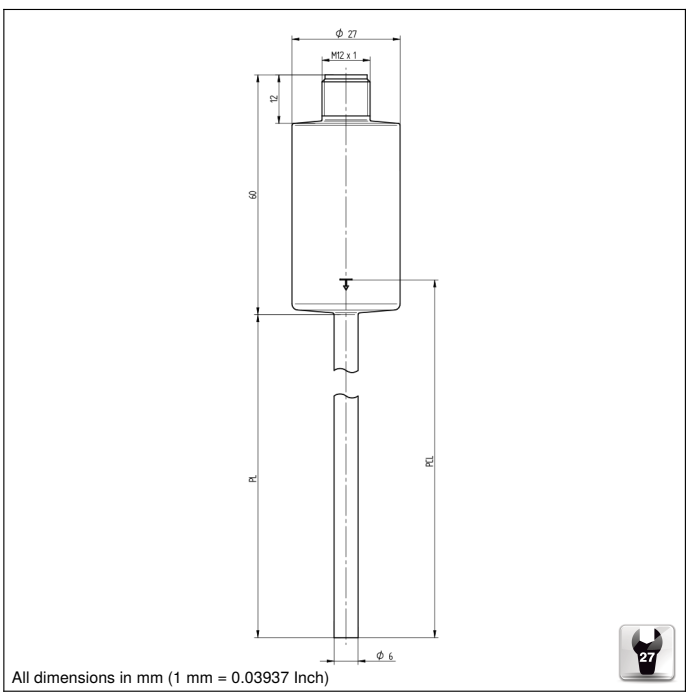
	Part Number	Plug Version	
		FXFF001	FXFF002
Analog output switchable to flow or temperature		●	●
Switching output switchable to flow or temperature		●	●
Switchable to NC/NO		●	●
Configurable as PNP/NPN/Push-Pull		●	●
IO-Link		●	●
Process Connection Length (PCL)		59 mm	109 mm
Probe Length (PL)		50 mm	100 mm
Connection Diagram No.		139	139
Suitable Connection Technology No.		21	21
Suitable Mounting Technology No.		907 908	907 908

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of flow sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**

Complementary Products

Flow calculator software DNNF008
IO-Link Master
wTeach2 software DNNF005
ZH6C00x adapter to G1/4"



All dimensions in mm (1 mm = 0.03937 Inch)

Flow Sensor

10...400 cm/s

Range

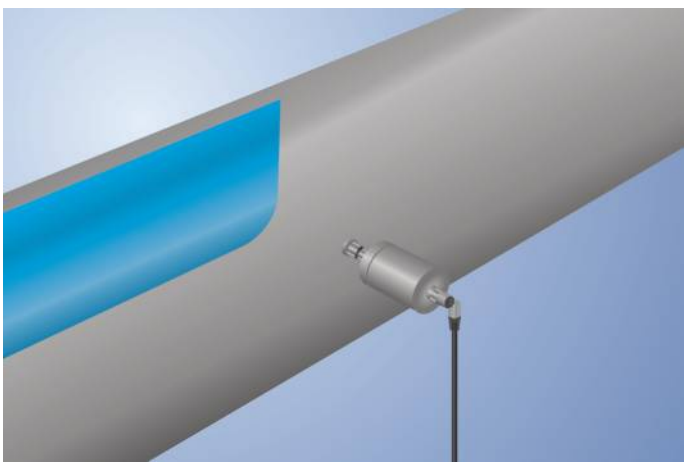
weFlux² InoxSens

- **2 analog outputs: 4 ... 20 mA**
- **A single sensor for flow and temperature**
- **FDA compliant**
- **Measurement independent of flow direction and instillation position**

Technical Data

Sensor-specific data	
Measuring Range	10...400 cm/s
Temperature of the medium, flow measurement	-25...125 °C
Temperature of the medium, temperature measurement	-25...150 °C
Adjustable Range	10...400 cm/s
Medium	Water
Measuring error	2 %
Response time in case of temperature jump	10 s
Environmental conditions	
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
EMC	DIN EN 61326-1
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	5 g (10...2000 Hz)
Electrical Data	
Supply Voltage	12...32 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Analog Outputs	2
Analog Output	4...20 mA Flow O2 / Temp O1
Response Time	1...5 s
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Cutting/locking ring
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1210,41 a

weFlux² Flow Sensors with two analog outputs simultaneously measure flow velocity and the temperature of aqueous liquids regardless of position and direction of flow. Advantage: The number of measuring points and the diversity of sensor variants are cut in half, and greatest possible flexibility is assured for installation in closed piping systems. The analysis module is integrated into the compact housing.

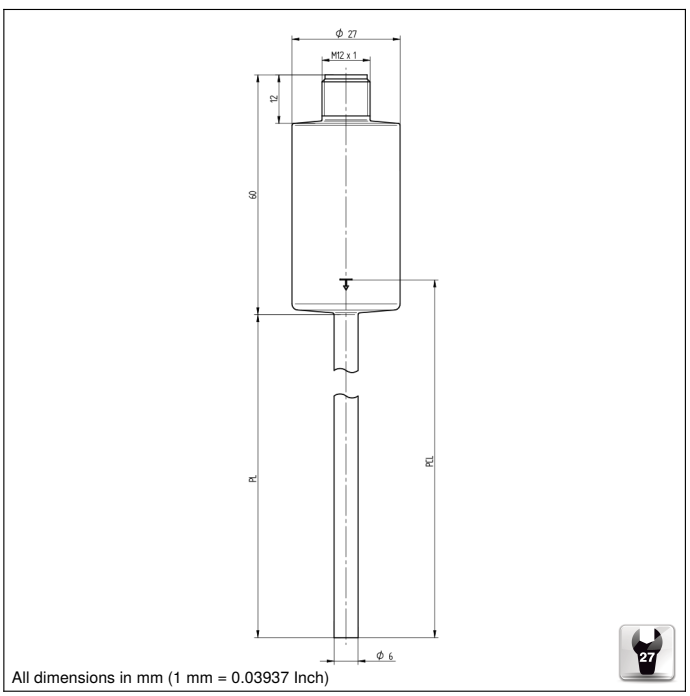


* Tested by wenglor

	Part Number	Plug Version	
		FXFF101	FXFF102
Analog output flow		●	●
Analog output temperature		●	●
Process Connection Length (PCL)		59 mm	109 mm
Probe Length (PL)		50 mm	100 mm
Connection Diagram No.		141	141
Suitable Connection Technology No.		21	21
Suitable Mounting Technology No.		907 908	907 908

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of flow sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**



All dimensions in mm (1 mm = 0.03937 Inch)

Complementary Products

Flow calculator software DNNF008

ZH6C00x adapter to G1/4"

Flow Sensor

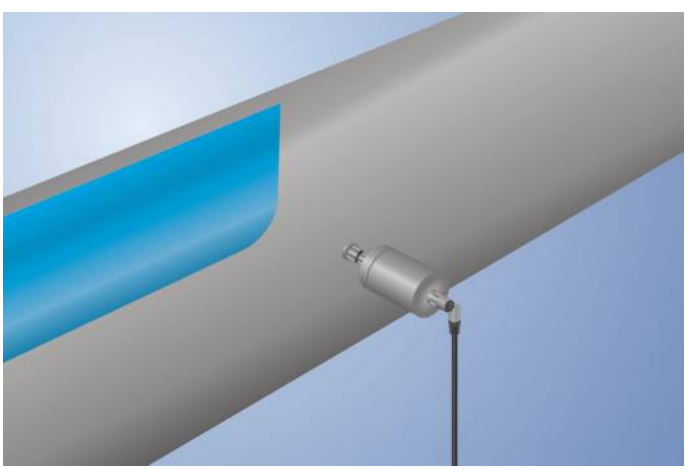
10...400 cm/s

Range

weFlux² InoxSens

- **A single sensor for flow and temperature**
- **FDA compliant**
- **Measurement independent of flow direction and instillation position**
- **Ready for Industry 4.0 with IO-Link 1.1**

weFlux² Flow Sensors simultaneously measure flow velocity and the temperature of aqueous liquids regardless of position and direction of flow. Advantage: The number of measuring points and the diversity of sensor variants are cut in half, and greatest possible flexibility is assured for installation in closed piping systems. Either 2 switching outputs or 1 switching output and 1 analog output are available depending on application requirements. The outputs can be configured as desired via IO-Link in order to flexibly adapt the sensors to the respective application.



Technical Data

Sensor-specific data	
Measuring Range	10...400 cm/s
Temperature of the medium, flow measurement	-25...125 °C
Temperature of the medium, temperature measurement	-25...150 °C
Adjustable Range	10...400 cm/s
Medium	Water
Measuring error	2 %
Response time in case of temperature jump	10 s
Environmental conditions	
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	25 bar
EMC	DIN EN 61326-1
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	5 g (10...2000 Hz)
Electrical Data	
Supply Voltage	12...32 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Outputs	2
Analog Outputs	1
Analog Output	0...10 V/4...20 mA
Response Time	1...5 s
Switching Output/Switching Current	± 100 mA
Switching Output Voltage Drop	< 2 V
Current Output Load Resistance	(Ub-Ubmin)/0,02A
Current Load Voltage Output	≤ 20 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Interface	IO-Link
IO-Link Version	1.1
Mechanical Data	
Setting Method	IO-Link
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Clamp diameter: 50,5 mm
Process Connection Length (PCL)	49 mm
Probe Length (PL)	32 mm

	Plug Version
Part Number	FXFF005
Analog output switchable to flow or temperature	●
Switching output switchable to flow or temperature	●
Switchable to NC/NO	●
Configurable as PNP/NPN/Push-Pull	●
IO-Link	●
Connection Diagram No.	139
Suitable Connection Technology No.	21

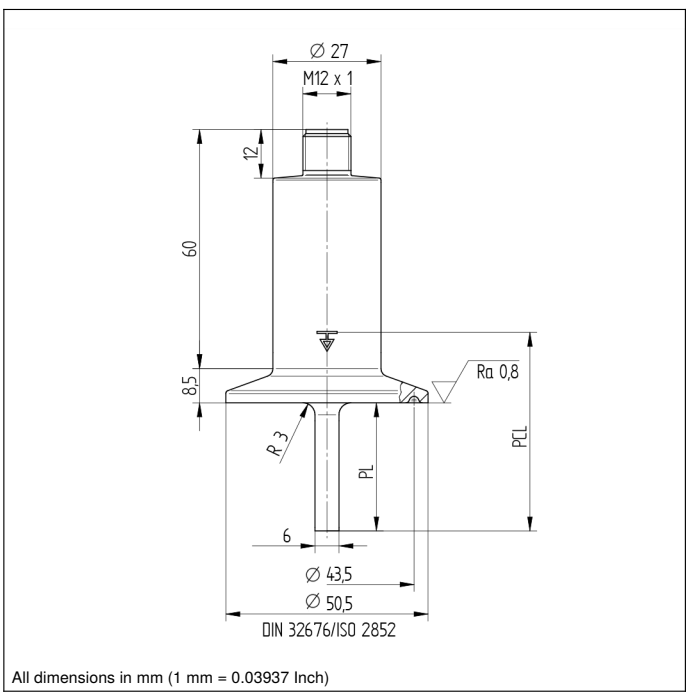
* Tested by wenglor

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

The complete product range of flow sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.

Complementary Products

Flow calculator software DNNF008
IO-Link Master
wTeach2 software DNNF005



All dimensions in mm (1 mm = 0.03937 Inch)

Flow Sensor

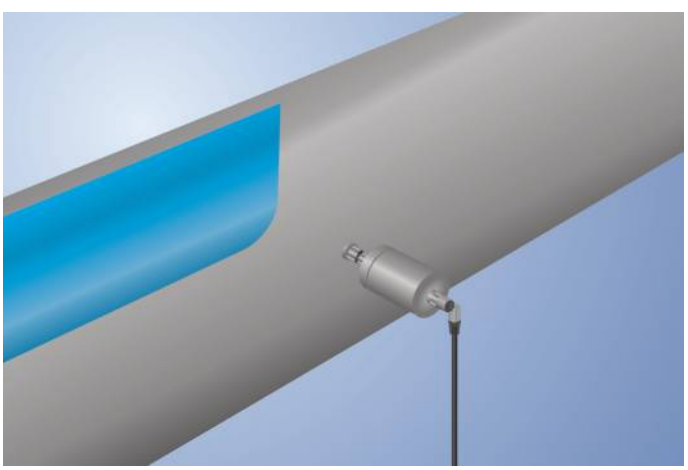
10...400 cm/s

Range

weFlux² InoxSens

- **A single sensor for flow and temperature**
- **FDA compliant**
- **Measurement independent of flow direction and instillation position**
- **Ready for Industry 4.0 with IO-Link 1.1**

weFlux² Flow Sensors simultaneously measure flow velocity and the temperature of aqueous liquids regardless of position and direction of flow. Advantage: The number of measuring points and the diversity of sensor variants are cut in half, and greatest possible flexibility is assured for installation in closed piping systems. Either 2 switching outputs or 1 switching output and 1 analog output are available depending on application requirements. The outputs can be configured as desired via IO-Link in order to flexibly adapt the sensors to the respective application.



Technical Data

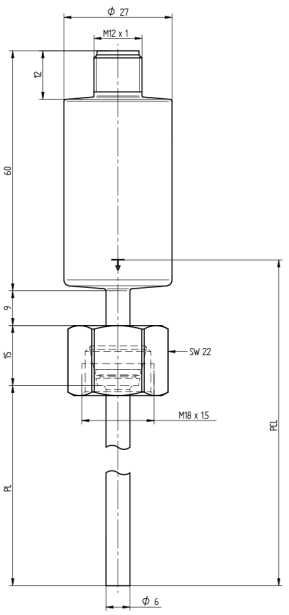
Sensor-specific data	
Measuring Range	10...400 cm/s
Temperature of the medium, flow measurement	-25...125 °C
Temperature of the medium, temperature measurement	-25...150 °C
Adjustable Range	10...400 cm/s
Medium	Water
Measuring error	2 %
Response time in case of temperature jump	10 s
Environmental conditions	
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
EMC	DIN EN 61326-1
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	5 g (10...2000 Hz)
Electrical Data	
Supply Voltage	12...32 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Switching Outputs	2
Analog Outputs	1
Analog Output	0...10 V/4...20 mA
Response Time	1...5 s
Switching Output/Switching Current	± 100 mA
Switching Output Voltage Drop	< 2 V
Current Output Load Resistance	(Ub-Ubmin)/0,02A
Current Load Voltage Output	≤ 20 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Interface	IO-Link
IO-Link Version	1.1
Mechanical Data	
Setting Method	IO-Link
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Sealing cone M18 × 1.5
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1210,41 a

* Tested by wenglor

	Plug Version	
Part Number	FXFF003	FXFF004
Analog output switchable to flow or temperature	●	●
Switching output switchable to flow or temperature	●	●
Switchable to NC/NO	●	●
Configurable as PNP/NPN/Push-Pull	●	●
IO-Link	●	●
Process Connection Length (PCL)	82 mm	132 mm
Probe Length (PL)	50 mm	100 mm
Connection Diagram No.	139	139
Suitable Connection Technology No.	21	21
Suitable Mounting Technology No.	900 901	900 901

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of flow sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**



All dimensions in mm (1 mm = 0.03937 Inch)

Complementary Products

Flow calculator software DNNF008
IO-Link Master
wTeach2 software DNNF005

Flow Sensor

10...400 cm/s

Range

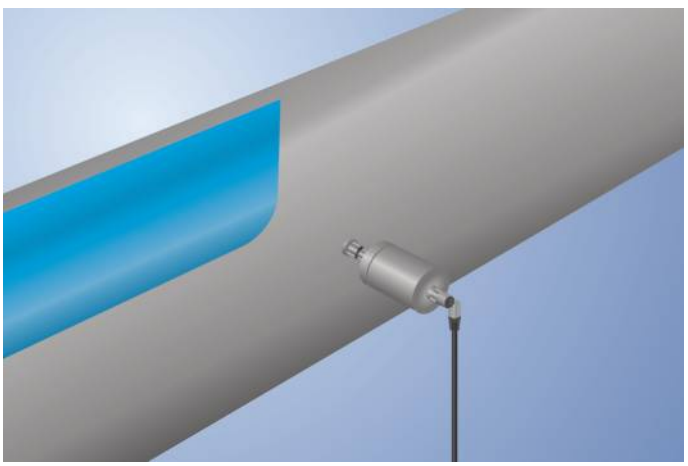
weFlux² InoxSens

- **2 analog outputs: 4 ... 20 mA**
- **A single sensor for flow and temperature**
- **FDA compliant**
- **Measurement independent of flow direction and instillation position**

Technical Data

Sensor-specific data	
Measuring Range	10...400 cm/s
Temperature of the medium, flow measurement	-25...125 °C
Temperature of the medium, temperature measurement	-25...150 °C
Adjustable Range	10...400 cm/s
Medium	Water
Measuring error	2 %
Response time in case of temperature jump	10 s
Environmental conditions	
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
EMC	DIN EN 61326-1
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	5 g (10...2000 Hz)
Electrical Data	
Supply Voltage	12...32 V DC
Current Consumption (Ub = 24 V)	< 40 mA
Analog Outputs	2
Analog Output	4...20 mA Flow O2 / Temp O1
Response Time	1...5 s
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Sealing cone M18 × 1.5
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1210,41 a

weFlux² Flow Sensors with two analog outputs simultaneously measure flow velocity and the temperature of aqueous liquids regardless of position and direction of flow. Advantage: The number of measuring points and the diversity of sensor variants are cut in half, and greatest possible flexibility is assured for installation in closed piping systems. The analysis module is integrated into the compact housing.

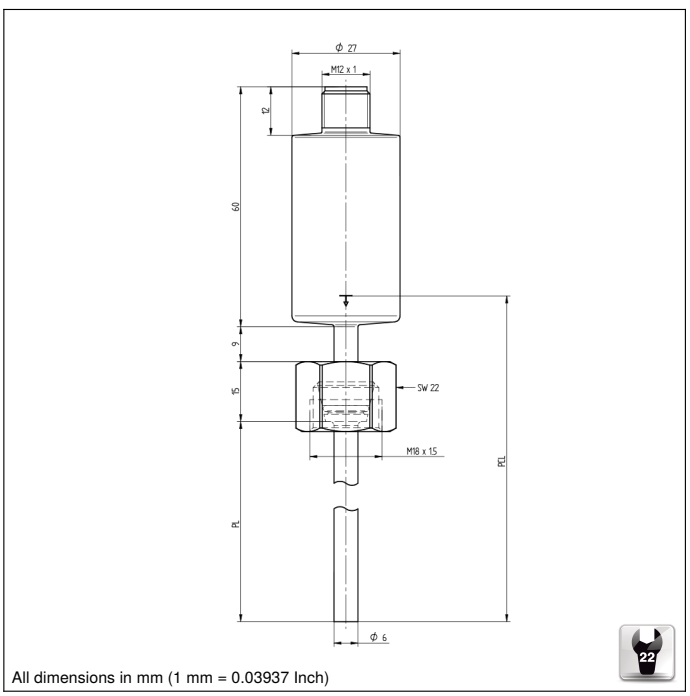


* Tested by wenglor

	Part Number	Plug Version	
		FXFF103	FXFF104
Analog output flow		●	●
Analog output temperature		●	●
Process Connection Length (PCL)		82 mm	132 mm
Probe Length (PL)		50 mm	100 mm
Connection Diagram No.		141	141
Suitable Connection Technology No.		21	21
Suitable Mounting Technology No.		900 901	900 901

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of flow sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**



All dimensions in mm (1 mm = 0.03937 Inch)

Complementary Products

Flow calculator software DNNF008

Temperature Sensor

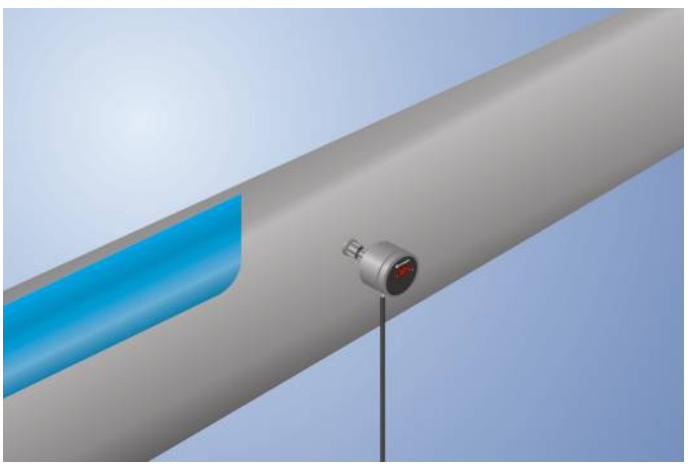
0...140 °C

Range

InoxSens UniTemp

- **FDA compliant**
- **Hygienic design makes it easy to clean**
- **Robust stainless steel housing with IP69K**
- **Simple operation via the display**
- **Temperature range: 0...200 °C available**

UniTemp temperature sensors measure the temperature of liquid or gaseous media and facilitate the temperature monitoring of processes.
UniTemp temperature sensors are very easy to operate thanks to the removable cover on the integrated display. The highly visible switching status display enables the rapid localization of affected sensors for maintenance processes.
Thanks to the metallic sealing edge on the process connection, no further seals are required.



Technical Data

Sensor-specific data	
Temperature Measurement Range	0...140 °C
Adjustable Range	2...139 °C
Medium	Liquids, gases
Measuring error	± 1 °C
Resolution	1 °C
Switching Hysteresis	2 °C
Response Time	2...4 s
Environmental conditions	
Temperature of medium	0...140 °C
Ambient temperature	-20...80 °C
Mechanical Strength	60 bar
EMC	DIN EN 61326-2-3
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	20 g (10...2000 Hz)
Electrical Data	
Supply Voltage	16...32 V DC
Current Consumption (Ub = 24 V)	60 mA
Switching Outputs	1
Switching Output/Switching Current	< 250 mA
Switching Output Voltage Drop	< 2 V
Analog Output	4...20 mA Temp
Current Output Load Resistance	< 500 Ohm
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Setting Method	Menu
Housing Material	1.4404; PC; EPDM
Material Control Panel	Polyester
Material in contact with media	1.4435; 1.4404
Degree of Protection	IP67/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	G 1/2" CIP-capable
Process Connection Length (PCL)	48 mm
Probe Length (PL)	10 mm
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1194,55 a

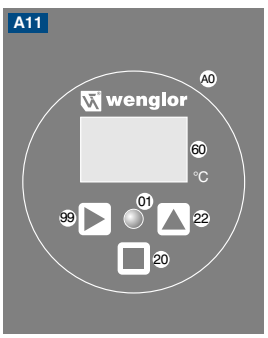
* Tested by wenglor

	Plug Version
Part Number	FFXT001
Analog Output	●
PNP NO/NC switchable	●
Connection Diagram No.	533
Control Panel No.	A11
Suitable Connection Technology No.	21
Suitable Mounting Technology No.	906

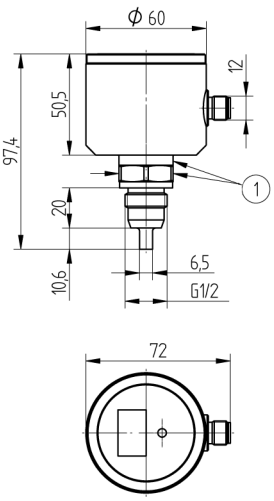
Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of temperature sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**

Ctrl. Panel



01 = Switching Status Indicator
0A = Detachable lid
20 = Enter Button
22 = UP Button
60 = Display
99 = Right button



1 = Rotatable relative to housing at 340°
All dimensions in mm (1 mm = 0.03937 Inch)

Temperature Sensor

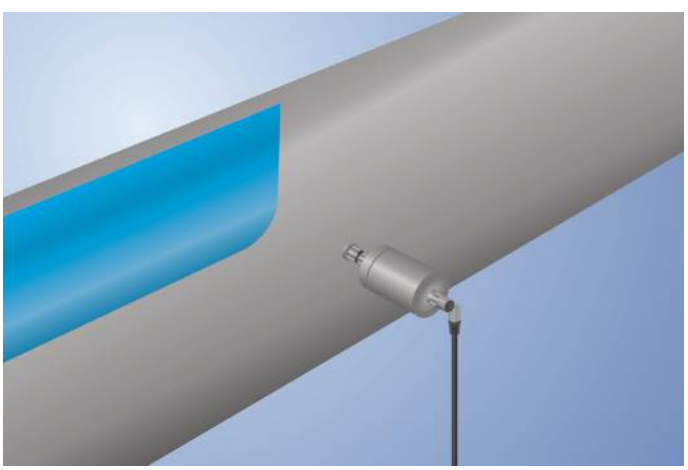
-50...150 °C

Range

weFlux² **Inox**Sens

- **FDA compliant**
- **Ready for Industry 4.0 with IO-Link 1.1**
- **Response time T90: < 2 seconds**
- **Temperature measuring range: -50 ... +150° C**

weFlux² Temperature Sensors ensure precise temperature measurement of liquids and gases in closed piping systems. Either 2 switching outputs, 1 switching output and 1 analog output or one 2-wire analog output is available depending on settings and connection configuration. The outputs can be configured as desired via IO-Link in order to flexibly adapt the sensors to the respective application.



Technical Data

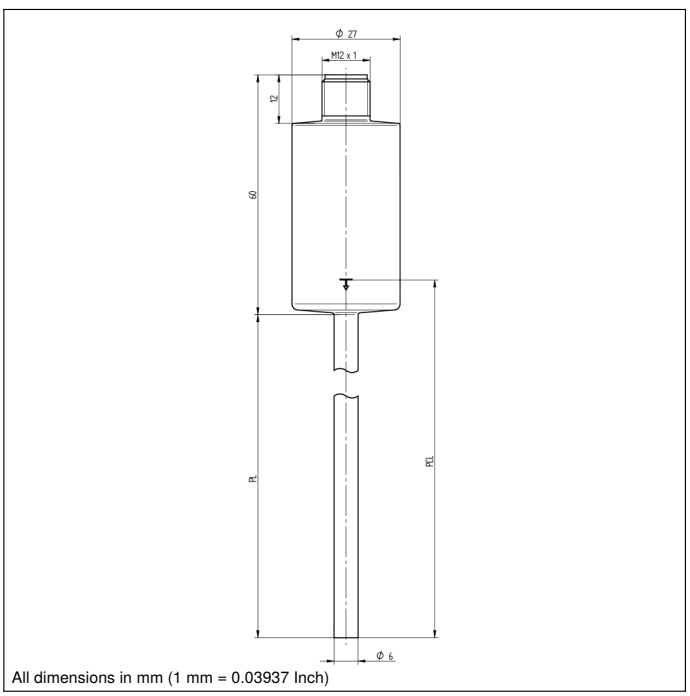
Sensor-specific data	
Temperature Measurement Range	-50...150 °C
Adjustable Range	-50...150 °C
Medium	Liquids, gases
Measuring error	± 0,5 °C
Resolution	0,01 °C
Response Time	< 2 s
Environmental conditions	
Temperature of medium	-50...150 °C
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
EMC	DIN EN 61326-1
Shock Resistance	IEC 60751
Vibration resistance	IEC 60751
Electrical Data	
2-wire supply power	12...32 V DC
3-wire supply power	12...32 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Outputs	2
Switching Output/Switching Current	± 100 mA
Switching Output Voltage Drop	< 1,5 V DC
Analog Output	0...10 V/4...20 mA
Current Output Load Resistance	(Ub-Ubmin)/0,02A
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Interface	IO-Link
IO-Link Version	1.1
Mechanical Data	
Setting Method	IO-Link
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Cutting/locking ring
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1198,4 a

* Tested by wenglor

Part Number	Plug Version	
	FXTT001	FXTT002
Analog Output	●	●
Configurable as PNP/NPN/Push-Pull	●	●
Switchable to NC/NO	●	●
IO-Link	●	●
Process Connection Length (PCL)	109 mm	209 mm
Probe Length (PL)	100 mm	200 mm
Connection Diagram No.	139	139
Suitable Connection Technology No.	21	21
Suitable Mounting Technology No.	907 908	907 908

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

The complete product range of temperature sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.



All dimensions in mm (1 mm = 0.03937 Inch)

Complementary Products

IO-Link Master

wTeach2 software DNNF005

Temperature Sensor

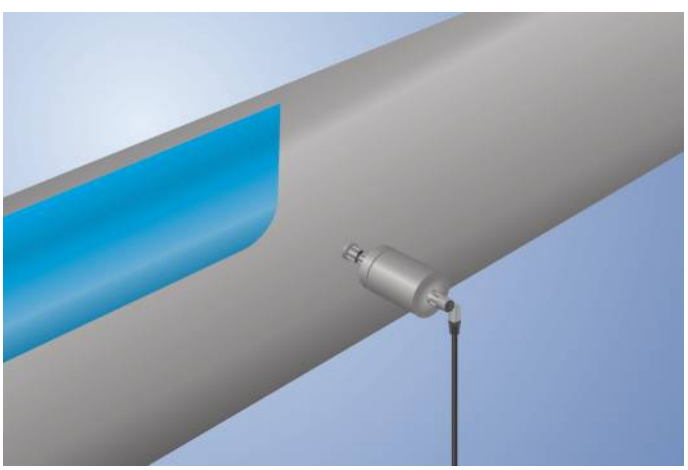
-50...150 °C

Range

weFlux² InoxSens

- **FDA compliant**
- **Ready for Industry 4.0 with IO-Link 1.1**
- **Response time T90: < 2 seconds**
- **Temperature measuring range: -50 ... +150° C**

weFlux² Temperature Sensors ensure precise temperature measurement of liquids and gases in closed piping systems. Either 2 switching outputs, 1 switching output and 1 analog output or one 2-wire analog output is available depending on settings and connection configuration. The outputs can be configured as desired via IO-Link in order to flexibly adapt the sensors to the respective application.



Technical Data

Sensor-specific data	
Temperature Measurement Range	-50...150 °C
Adjustable Range	-50...150 °C
Medium	Liquids, gases
Measuring error	± 0,5 °C
Resolution	0,01 °C
Response Time	< 2 s
Environmental conditions	
Temperature of medium	-50...150 °C
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
EMC	DIN EN 61326-1
Shock Resistance	IEC 60751
Vibration resistance	IEC 60751
Electrical Data	
2-wire supply power	12...32 V DC
3-wire supply power	12...32 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Outputs	2
Switching Output/Switching Current	± 100 mA
Switching Output Voltage Drop	< 1,5 V DC
Analog Output	0...10 V/4...20 mA
Current Output Load Resistance	(Ub-Ubmin)/0,02A
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Interface	IO-Link
IO-Link Version	1.1
Mechanical Data	
Setting Method	IO-Link
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Sealing cone M18 × 1.5
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1198,4 a

* Tested by wenglor

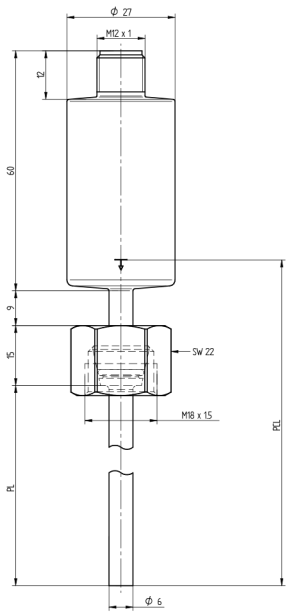
	Part Number	Plug Version	
		FXTT003	FXTT004
Analog Output		●	●
Configurable as PNP/NPN/Push-Pull		●	●
Switchable to NC/NO		●	●
IO-Link		●	●
Process Connection Length (PCL)		132 mm	232 mm
Probe Length (PL)		100 mm	200 mm
Connection Diagram No.		139	139
Suitable Connection Technology No.		21	21
Suitable Mounting Technology No.		900 901	900 901

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

The complete product range of temperature sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.

Complementary Products

IO-Link Master
wTeach2 software DNNF005



All dimensions in mm (1 mm = 0.03937 Inch)

Temperature Sensor

-50...150 °C

Range

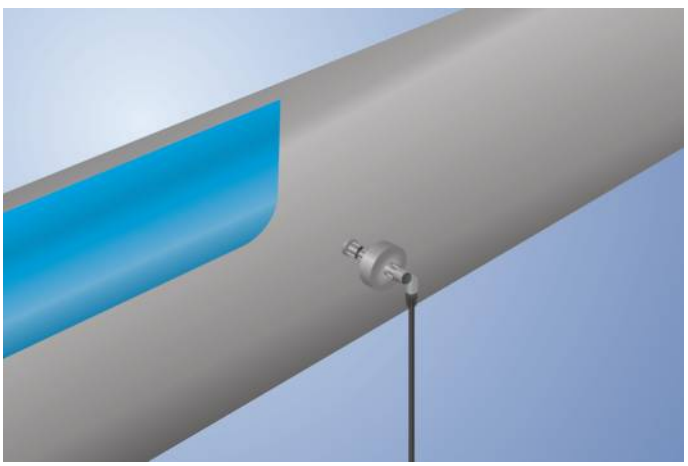
weFlux² **Inox**Sens

Technical Data

Sensor-specific data	
Temperature Measurement Range	-50...200 °C
Medium	Liquids, gases
Response Time	< 2 s
Environmental conditions	
Temperature of medium	-50...200 °C
Ambient temperature	-25...80 °C
Storage temperature	-25...80 °C
Mechanical Strength	100 bar
Shock Resistance	IEC 60751
Vibration resistance	IEC 60751
Mechanical Data	
Housing Material	1.4404
Material in contact with media	1.4404
Degree of Protection	IP68/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	Cutting/locking ring
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	31062,7 a

- **FDA compliant**
- **Response time T90: < 2 seconds**
- **Robust stainless steel housing with IP69K**
- **Temperature measuring range: -50 ... +200° C**

weFlux² Temperature Sensors ensure precise temperature measurement of liquids and gases in closed piping systems. It's easy to incorporate the standardized PT100/PT1000 resistance value into the controller. The compact housing with a diameter of just 27 mm is made of V4A stainless steel and features an easy-to-clean surface. Thanks to their rugged housing and functional design, the Temperature Sensors are FDA compliant.

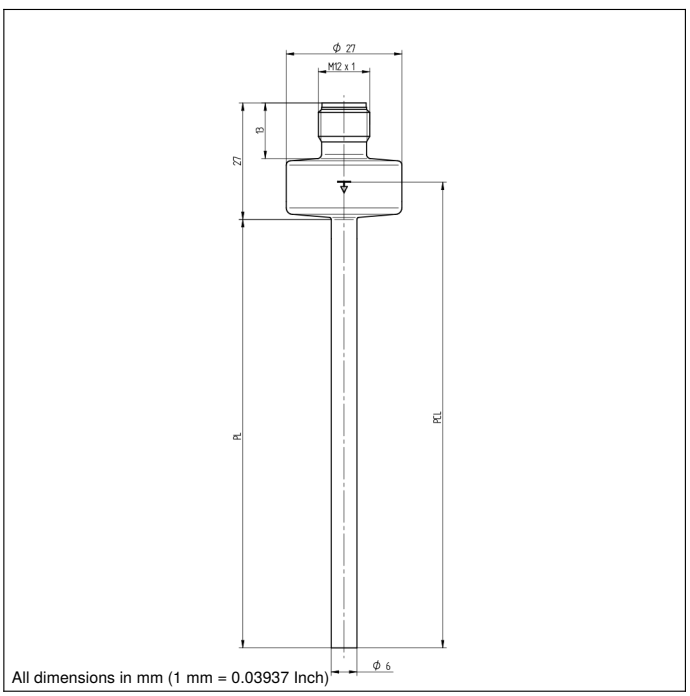


* Tested by wenglor

	Plug Version				
Part Number	FXDD001	FXDD002	FXDD101	FXDD102	FXDD103
PT100	●	●			
PT1000			●	●	●
Sensor element	PT100, Class B	PT100, Class B	PT1000, Class B	PT1000, Class B	PT1000, Class B
Process Connection Length (PCL)	59 mm	109 mm	59 mm	109 mm	209 mm
Probe Length (PL)	50 mm	100 mm	50 mm	100 mm	200 mm
Connection Diagram No.	140	140	140	140	140
Suitable Connection Technology No.	21	21	21	21	21
Suitable Mounting Technology No.	907 908	907 908	907 908	907 908	907 908

Connection Diagrams page 92 / System Components page 68 / System Solution page 8

**The complete product range of temperature sensors can be found at www.wenglor.com.
An overview of this can be found in the table of contents.**



All dimensions in mm (1 mm = 0.03937 Inch)

Complementary Products

ZH6C00x adapter to G1/4"

Mounting Tube
with InoxLock

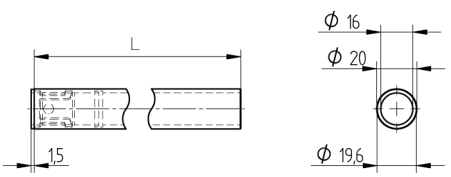
InoxSens

Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Material Sealing	Silicone (FDA)
Degree of Protection	IP68/IP69K
with threaded cable gland IP68/IP69K	no

- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**
- **Waterproof (IP68/IP69K)**

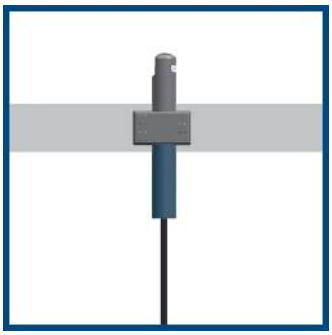
InoxSens is the hygiene series from wenglor. The InoxSens mounting tubes are also part of this complete system, which is seamlessly integrated into the machine. The stainless steel tubes made of V4A (1.4404/316L) are corrosion-free and resistant to cleaning agents, and they provide IP68/IP69K protection for all standard connector cables. The mounting tubes are available in straight and angled versions, as well as with threaded cable gland IP69K. The InoxLock set is also available separately for assembly by the customer.

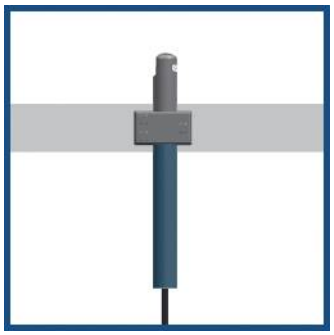
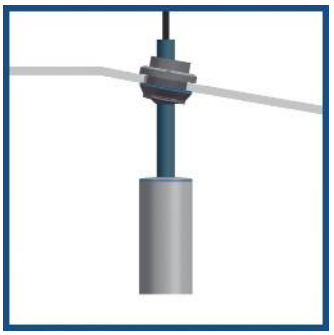


All dimensions in mm (1 mm = 0.03937 Inch)

RoHS	Part Number	ZMRII0401	ZMRII0102
Packaging unit		1 Piece	1 Piece
Hygienic Design		●	●
Detergent resistant		●	●
Tube Length (L)		350 mm	70 mm
Mounting Number		490 500	490 500
Suitable Mounting Technology No.		140	140

Connection Diagrams page 92



Mounting Tube
with InoxLock

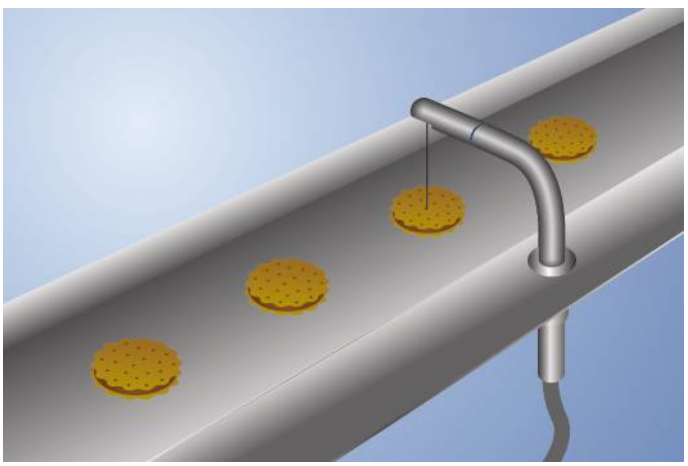
InoxSens

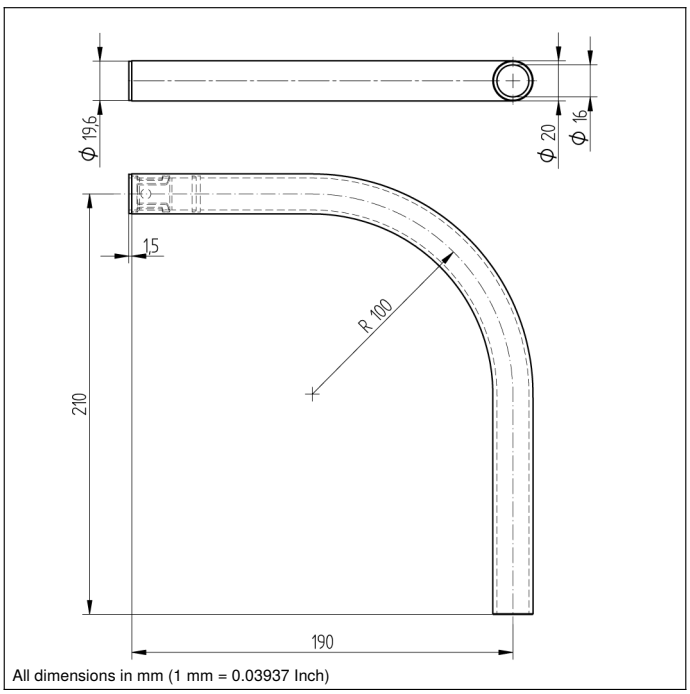
Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Material Sealing	Silicone (FDA)
Tube Length (L)	350 mm
Degree of Protection	IP68/IP69K
with threaded cable gland IP68/IP69K	no

- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**
- **Waterproof (IP68/IP69K)**

InoxSens is the hygiene series from wenglor. The InoxSens mounting tubes are also part of this complete system, which is seamlessly integrated into the machine. The stainless steel tubes made of V4A (1.4404/316L) are corrosion-free and resistant to cleaning agents, and they provide IP68/IP69K protection for all standard connector cables. The mounting tubes are available in straight and angled versions, as well as with threaded cable gland IP69K. The InoxLock set is also available separately for assembly by the customer.





All dimensions in mm (1 mm = 0.03937 Inch)

RoHS	Part Number	ZMRII0402
Packaging unit		1 Piece
Hygienic Design		●
Detergent resistant		●
Mounting Number		490 500
Suitable Mounting Technology No.		140

Connection Diagrams page 92

Mounting Tube
with InoxLock

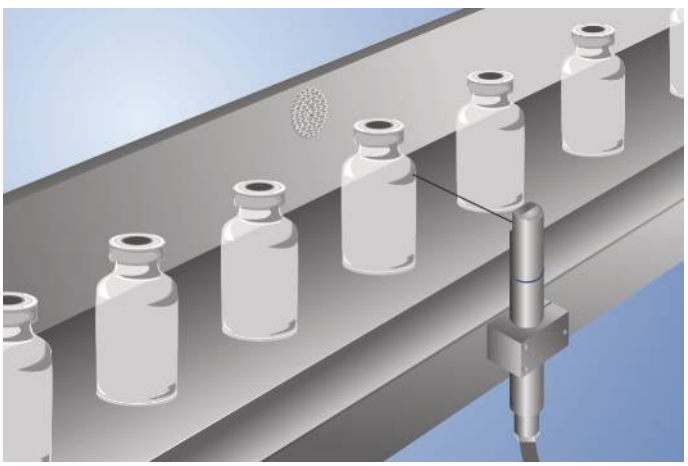
InoxSens

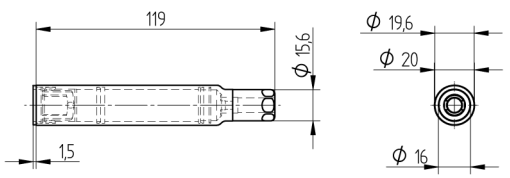
Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Material Sealing	Silicone (FDA)
Tube Length (L)	119 mm
Degree of Protection	IP68/IP69K
with threaded cable gland IP68/IP69K	yes
For cable diameter	3...6,5 mm

- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**
- **Waterproof (IP68/IP69K)**

InoxSens is the hygiene series from wenglor. The InoxSens mounting tubes are also part of this complete system, which is seamlessly integrated into the machine. The stainless steel tubes made of V4A (1.4404/316L) are corrosion-free and resistant to cleaning agents, and they provide IP68/IP69K protection for all standard connector cables. The mounting tubes are available in straight and angled versions, as well as with threaded cable gland IP69K. The InoxLock set is also available separately for assembly by the customer.



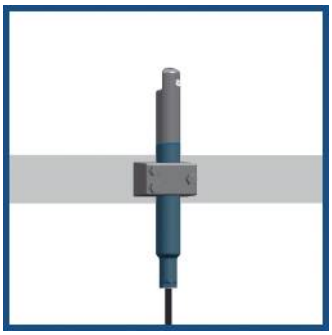


All dimensions in mm (1 mm = 0.03937 Inch)

Suitable for straight cables.

RoHS	Part Number	ZMRII0101
Packaging unit		1 Piece
Hygienic Design		●
Detergent resistant		●
Mounting Number		490 500
Suitable Mounting Technology No.		140

Connection Diagrams page 92



Mounting Console
for Ø 20 mm

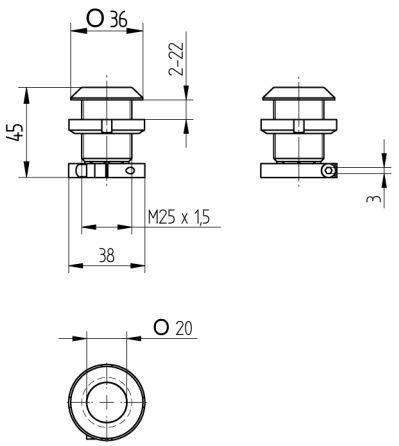
InoxSens

Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Material Sealing	Silicone (FDA)
Material O-Ring	FPM (FDA)
Degree of Protection	IP68/IP69K

- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is the hygiene series from wenglor. In addition to numerous other components, the InoxSens mounting console is also part of this complete system, which is seamlessly integrated into the machine. InoxSens sensors and mounting tubes can be fed through the system's side panel and mounted in a gap-free fashion with the help of the mounting console.



All dimensions in mm (1 mm = 0.03937 Inch)

RoHS	Part Number	ZMKII0001
Packaging unit		1 Piece
Hygienic Design		●
Detergent resistant		●
Mounting Number		140

Connection Diagrams page 92

Mounting Console
for Ø 20 mm

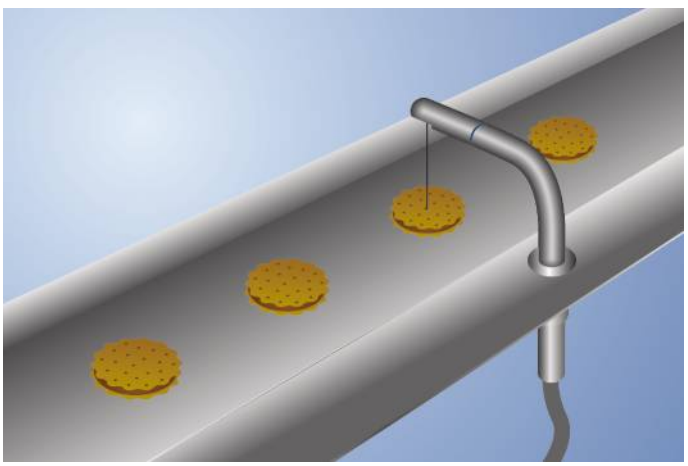
InoxSens

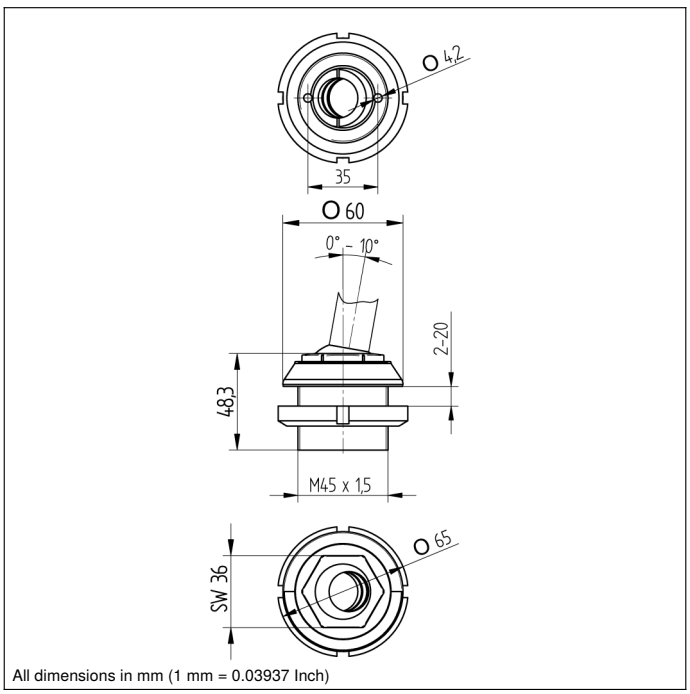
Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Material Sealing	Silicone (FDA)
Material O-Ring	FPM (FDA)
Material Ball	PTFE (FDA)
Angle compensation	10 °
Degree of Protection	IP68/IP69K

- **For angle compensation**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is the hygiene series from wenglor. In addition to numerous other components, the InoxSens mounting console is also part of this complete system, which is seamlessly integrated into the machine. InoxSens sensors and mounting tubes can be fed through the system's side panel and mounted in a gap-free fashion with the help of the mounting console. Sensors can even be mounted to inclined surfaces, and can be quickly and easily adjusted thanks to angle compensation of up to 10°.

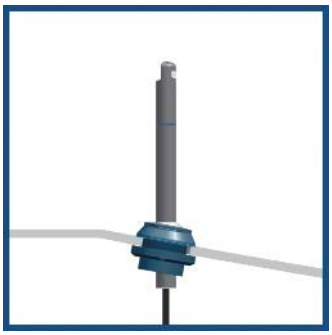


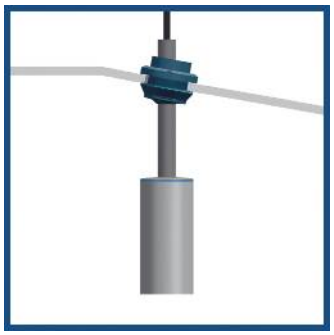


All dimensions in mm (1 mm = 0.03937 Inch)

RoHS	Part Number	ZMKII0002
Packaging unit		1 Piece
Hygienic Design		●
Detergent resistant		●
Mounting Number		140

Connection Diagrams page 92





Mounting Clamp
for Ø 20 mm

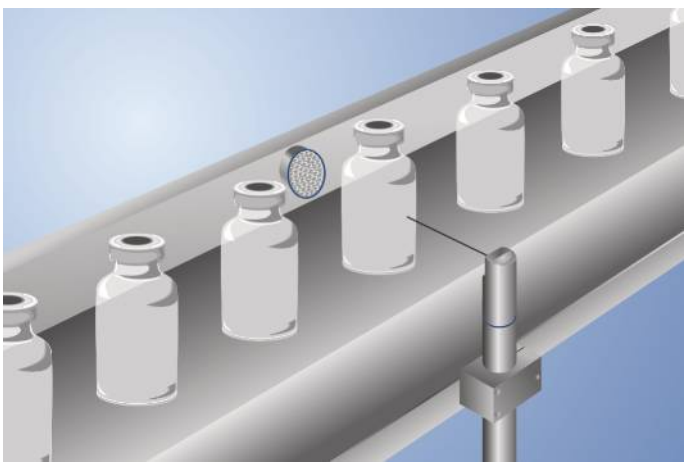
InoxSens

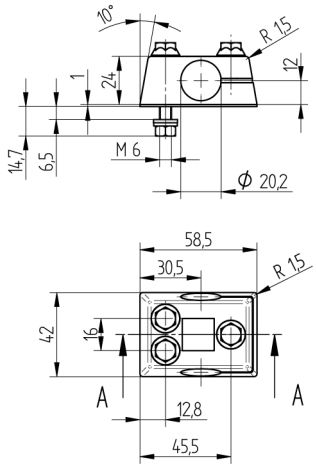
Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Material Sealing	EPDM (FDA)

- **Hygiene-compatible screws included in delivery**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is the hygiene series from wenglor. The InoxSens mounting clamp is also part of this complete system, which is seamlessly integrated into the machine. The clamp allows you to install the InoxSens sensors and mounting tubes in your installation using hygiene-compatible materials.

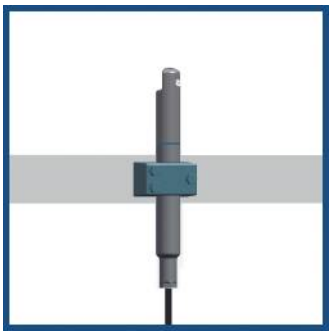


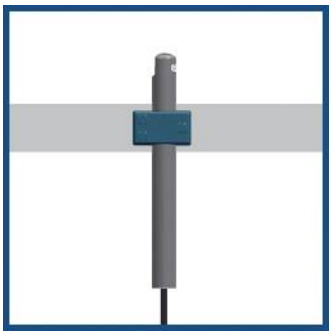


All dimensions in mm (1 mm = 0.03937 Inch)

RoHS	Part Number	ZMSII0002
Scope of delivery		3 screws
Packaging unit		1 Piece
Hygienic Design		●
Detergent resistant		●
Mounting Number		140

Connection Diagrams page 92





Reflector
in Stainless Steel Protection Housing

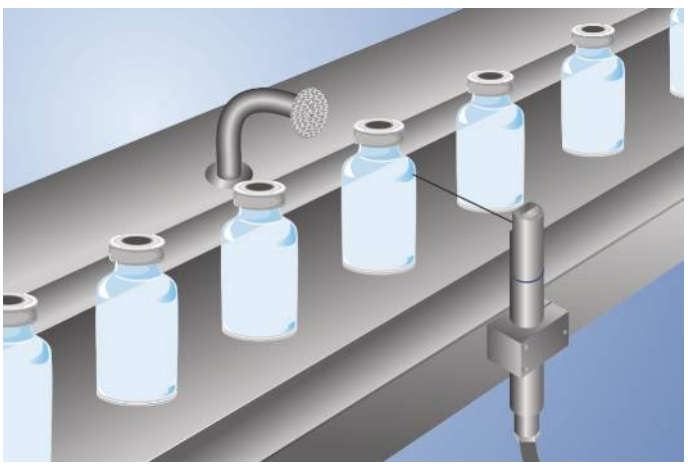
InoxSens

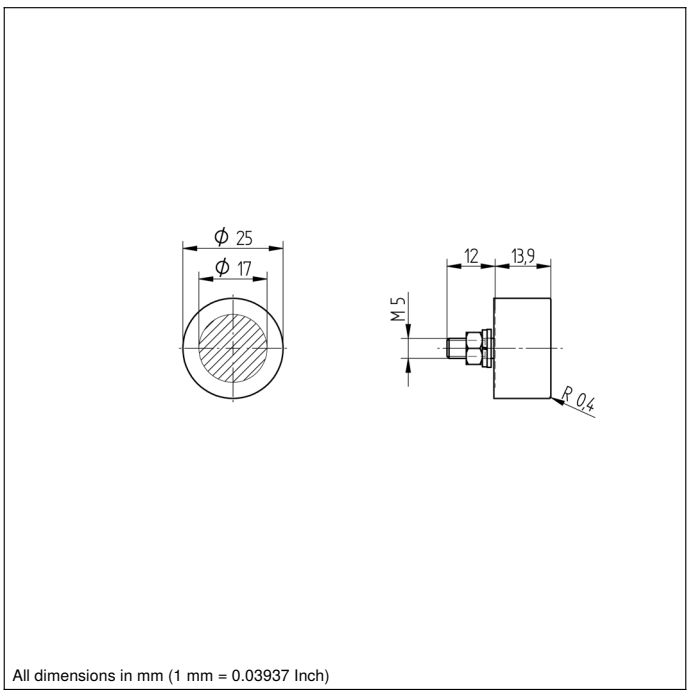
Technical Data

Mechanical Data	
Structure	Microstructure
Material	Stainless Steel 316L
Material Sealing	Silicone (FDA)
Degree of Protection	IP68/IP69K
Temperature Range	-20...60 °C

- **Cost-saving mounting**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is the hygiene series from wenglor. Together with other components, wenglor's InoxSens reflectors in stainless steel protection housing are part of this complete system which is seamlessly integrated into the machine. The reflectors are furnished with IP68 and IP69K protection and are attached using either InoxLock or fixing screws.

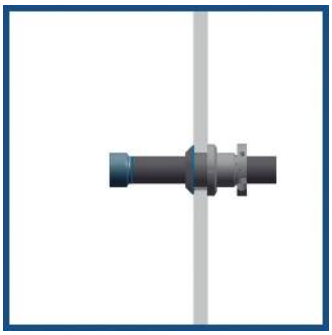
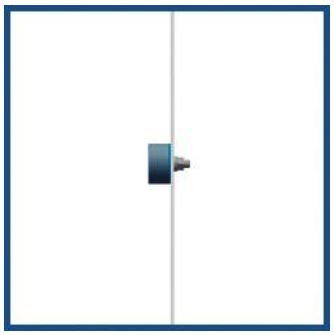
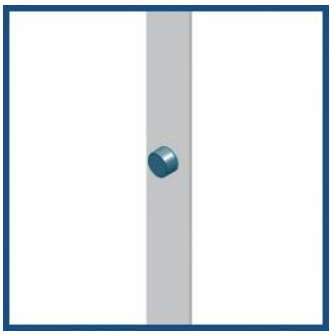




All dimensions in mm (1 mm = 0.03937 Inch)

Part Number	Z90R001	ZRMS02S01	ZRMS02I01
Packaging unit	1 Piece	1 Piece	1 Piece
Hygienic Design	●	●	●
Detergent resistant	●	●	●
Mounting Type	Fixing Screw	Fixing Screw	InoxLock
Disk Material	PMMA (FDA)	Glass	Glass
Suitable Mounting Technology No.			490

Connection Diagrams page 92

Reflector
in Stainless Steel Protection Housing

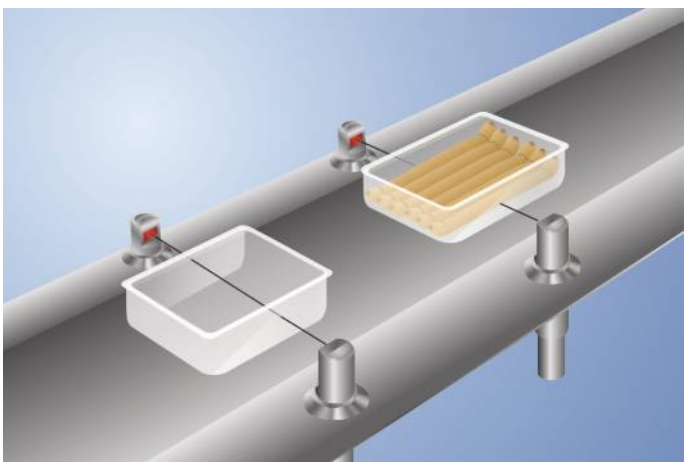
InoxSens

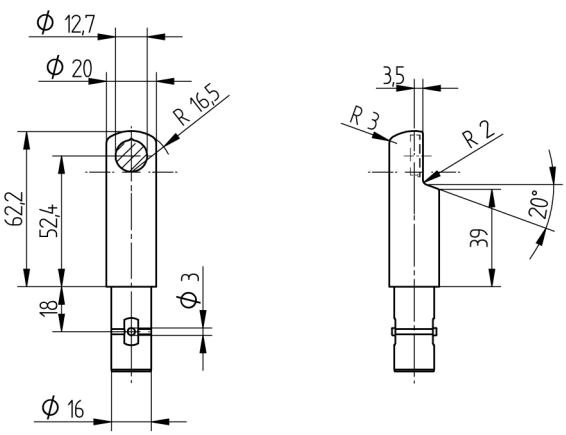
Technical Data

Mechanical Data	
Structure	Continuous Structure
Mounting Type	InoxLock
Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Temperature Range	-25...70 °C
Disk Material	PMMA (FDA)

- **Cost-saving mounting**
- **Hygienic design makes it easy to clean**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is the hygiene series from wenglor. Together with other components, wenglor's InoxSens reflectors in stainless steel protection housing are part of this complete system which is seamlessly integrated into the machine. The reflectors are furnished with IP68 and IP69K protection and are attached using either InoxLock or a mounting console for 20 mm.

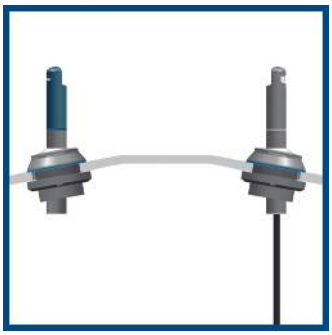




All dimensions in mm (1 mm = 0.03937 Inch)

Part Number	ZRDS01R01
Packaging unit	1 Piece
Hygienic Design	●
Detergent resistant	●
Suitable Mounting Technology No.	140 490

Connection Diagrams page 92



Protection Housing

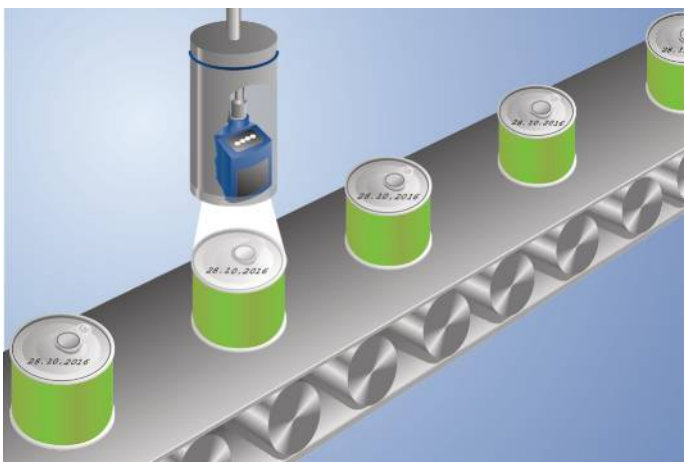
InoxSens

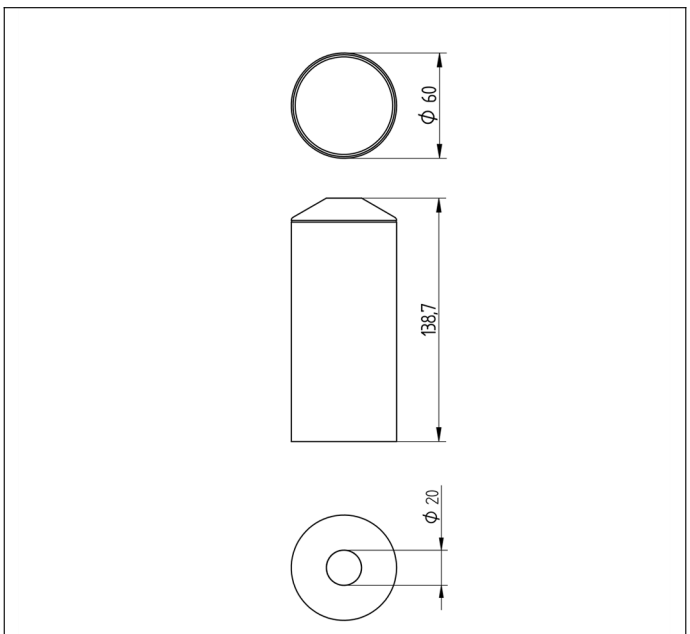
Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Degree of Protection	IP68/IP69K
Material Sealing	Silicone (FDA)
Mounting Type	Mounting Tube

- **Hygienic design makes it easy to clean**
- **Integrates time tested wenglor products**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is the hygiene series from wenglor. In conjunction with InoxSens protection housing, numerous wenglor products are also suitable for heavy-cleaning areas, such as: OCR readers, illumination, scanners, color sensors, luminescence sensors, print mark sensors, reflex sensors for measuring tasks and reflex sensors for contrast recognition. In addition to a high level of protection, the InoxSens protection housing also provides optimized heat dissipation.





All dimensions in mm (1 mm = 0.03937 Inch)

Temperature range depends on the installed sensor.
Suitable for straight cables.

RoHS	Part Number	ZSV-02-01	ZSV-03-01
Packaging unit		1 Piece	1 Piece
Optic Cover		PMMA (FDA)	Glass
Mounting Number		510	510
Suitable Mounting Technology No.		500	500

Connection Diagrams page 92

Complementary Products

Mounting Bracket ZMW0M0001
Mounting Bracket ZMW0P0001
Mounting Bracket ZMWBV0001
Mounting Bracket ZMWFI0001

Protection Housing

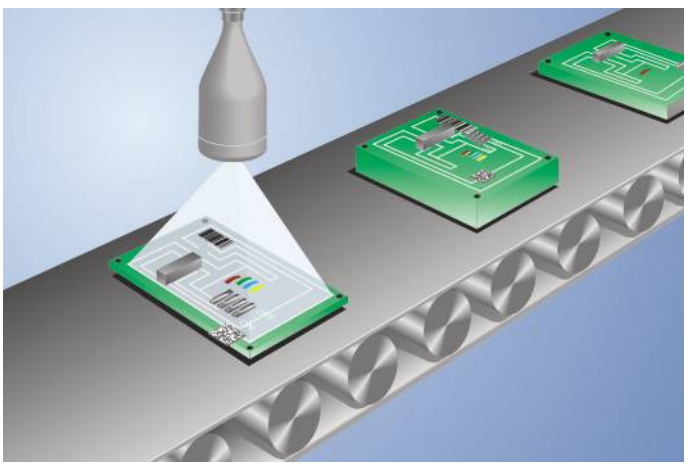
InoxSens

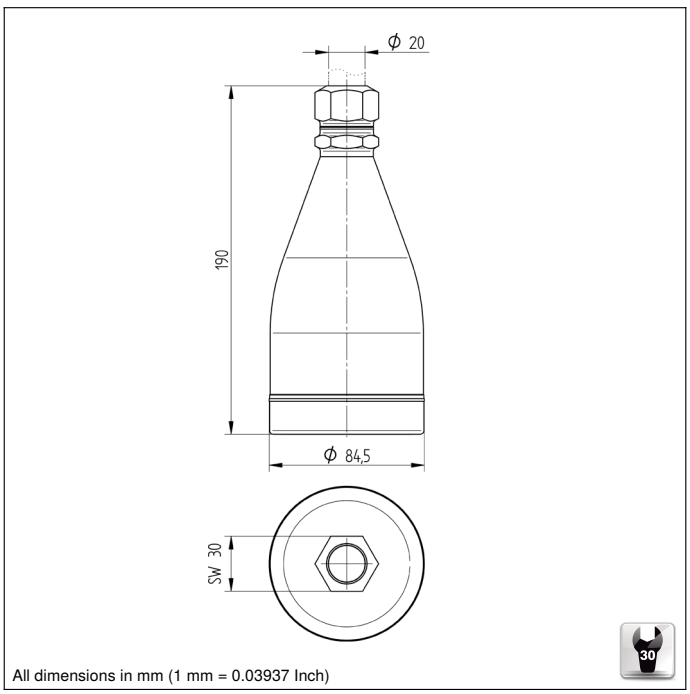
Technical Data

Mechanical Data	
Material	Stainless Steel 316L
Degree of Protection	IP69K
Material Sealing	Silicone (FDA)
Mounting Type	Mounting Tube

- **Hygienic design makes it easy to clean**
- **Integrates time tested wenglor products**
- **Made with food safe materials that are FDA approved**
- **Resistant to cleaning agents**

InoxSens is wenglor's hygienic product range. In combination with the InoxSens protective housing, numerous wenglor products are suitable for cleaning-intensive environments, e.g. Smart Cameras, Vision Sensors, Scanners and High-Performance Distance Sensors. In addition to high levels of protection, the InoxSens protective housing also assures optimized heat dissipation.





All dimensions in mm (1 mm = 0.03937 Inch)

Temperature range depends on the installed sensor.
Suitable for straight cables.

Part Number	ZNNS001	ZNNS002
Packaging unit	1 Piece	1 Piece
Hygienic Design	●	●
Detergent resistant	●	●
Optic Cover	PMMA (FDA)	Glass
Mounting Number	511	511
Suitable Mounting Technology No.	500 501	500 501

Connection Diagrams page 92

Complementary Products

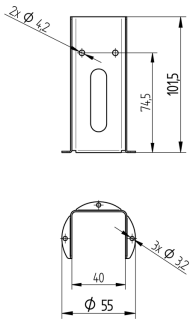
Mounting Bracket ZNNX001
Mounting Bracket ZNNX002
Mounting Bracket ZNNX003

Mounting Bracket

Mounting Bracket for Bx40 and ZFSx08 in Protection Housing

Part Number ZMWBV0001

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	510

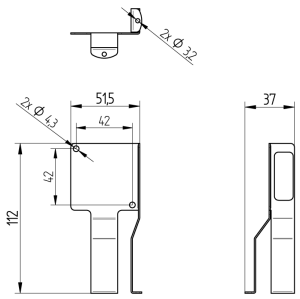


All dimensions in mm (1 mm = 0.03937 Inch)

Mounting Bracket for 50 × 50 × 20 mm in Protection Housing

Part Number ZMW0P0001

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	510

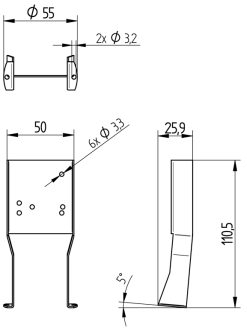


All dimensions in mm (1 mm = 0.03937 Inch)

Mounting Bracket for Scanner (<46 × 54 mm) in Protection Housing

Part Number ZMWFI0001

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	510

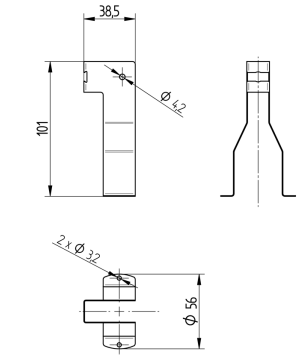


All dimensions in mm (1 mm = 0.03937 Inch)

Mounting Bracket for 54,5 × 27 × 16 mm in Protection Housing

Part Number ZMW0M0001

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	510

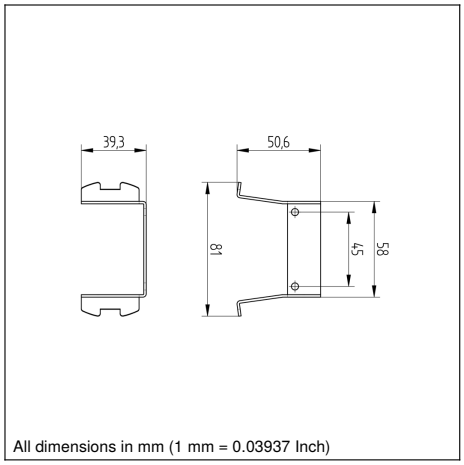


All dimensions in mm (1 mm = 0.03937 Inch)

Mounting Bracket for weQube in Protection Housing

Part Number ZNNX001

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	511

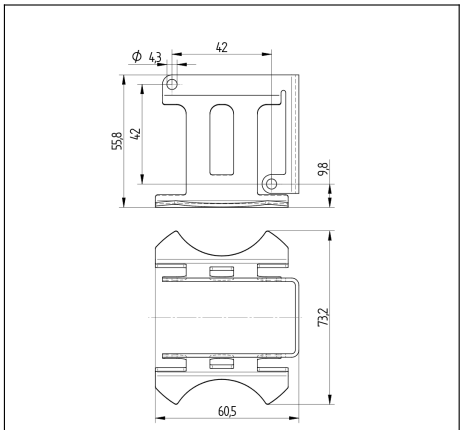


All dimensions in mm (1 mm = 0.03937 Inch)

Mounting Bracket for 50 × 50 × 30 mm in Protection Housing

Part Number ZNNX002

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	511

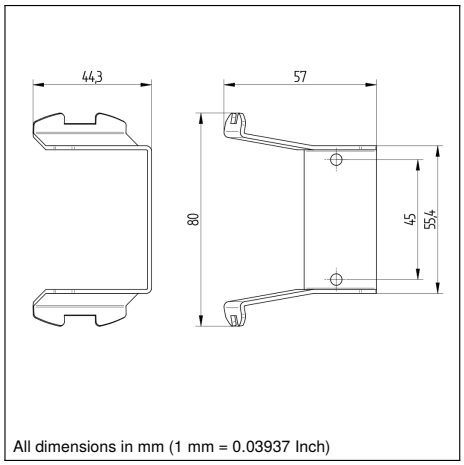


All dimensions in mm (1 mm = 0.03937 Inch)

Mounting Bracket for 29 × 60 × 52 mm in Protection Housing

Part Number ZNNX003

Mechanical Data	
Material	Aluminum
Packaging unit	1 Piece
Suitable Mounting Technology No.	511



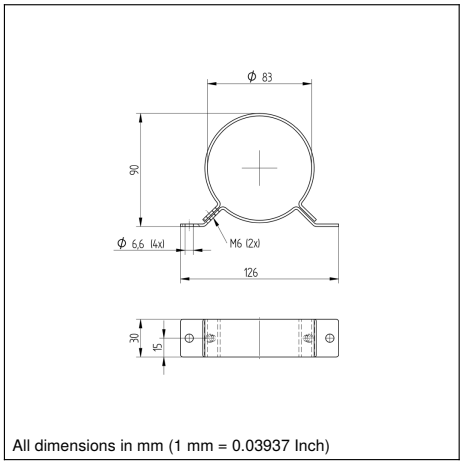
All dimensions in mm (1 mm = 0.03937 Inch)

Mounting for Protection Housing ZNNS00x

Part Number ZNNM002

Mechanical Data	
Material	Stainless Steel V2A
Packaging unit	1 Piece

501



All dimensions in mm (1 mm = 0.03937 Inch)

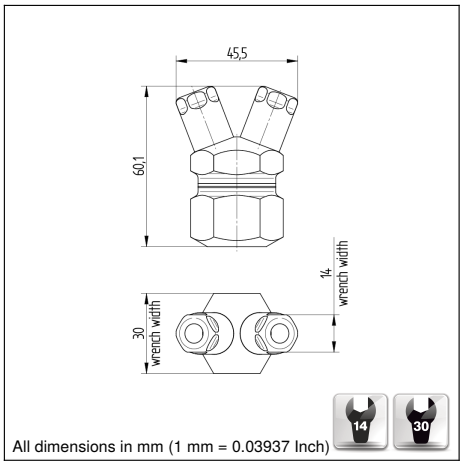
Cable gland
for Protection Housing ZNNS00x

Cable gland for Protection Housing ZNNS00x

Part Number ZNNG027

InoxSens

RoHS



All dimensions in mm (1 mm = 0.03937 Inch)

Mechanical Data	
Temperature Range	-20...100 °C
Material	Stainless Steel
Material Sealing	Silicone (FDA)
Degree of Protection	IP69K
with threaded cable gland IP69K	yes
For cable diameter	3...6,5 mm
Packaging unit	1 Piece
Hygienic Design	●
Detergent resistant	●

Suitable for straight cables.

Connection Diagrams

Legend

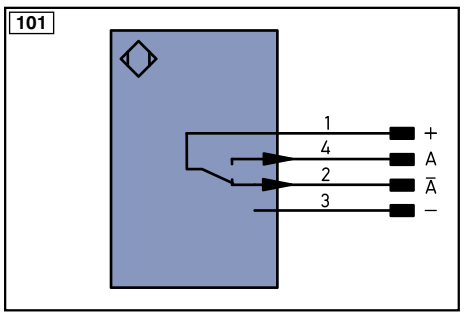
+	Supply Voltage +	
–	Supply Voltage 0 V	
~	Supply Voltage (AC Voltage)	
A	Switching Output	(NO)
Ā	Switching Output	(NC)
V	Contamination/Error Output	(NO)
V̄	Contamination/Error Output	(NC)
E	Input (analog or digital)	
T	Teach Input	
Z	Time Delay (activation)	
S	Shielding	
RxD	Interface Receive Path	
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	
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	
EN0 RS422	Encoder 0-pulse 0-0̄ (TTL)	

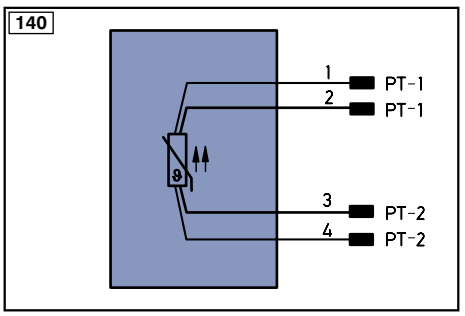
PT	Platinum measuring resistor
nc	not connected
U	Test Input
Ū	Test Input inverted
W	Trigger Input
O	Analog Output
O–	Ground for the Analog Output
BZ	Block Discharge
AMV	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
E+	Receiver-Line
S+	Emitter-Line
⏚	Grounding
SnR	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
ENA RS422	Encoder A/Ā (TTL)
ENB RS422	Encoder B/B̄ (TTL)

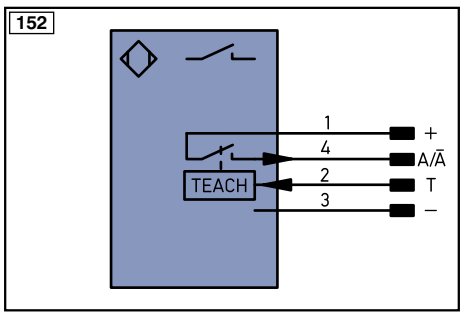
ENA	Encoder A
ENB	Encoder B
AMIN	Digital output MIN
AMAX	Digital output MAX
AOK	Digital output OK
SY In	Synchronization In
SY OUT	Synchronization OUT
OLT	Brightness output
M	Maintenance

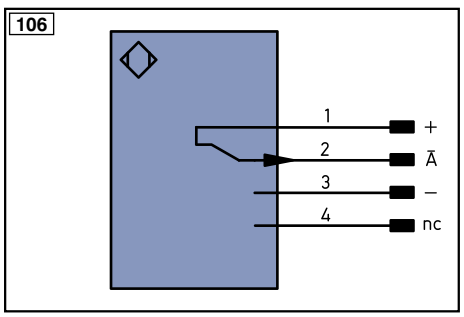
Wire Colors according to DIN IEC 757

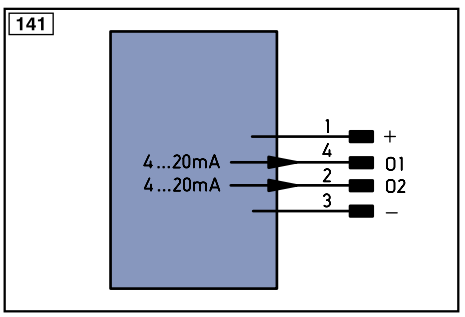
BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink
GNYE	Green/Yellow

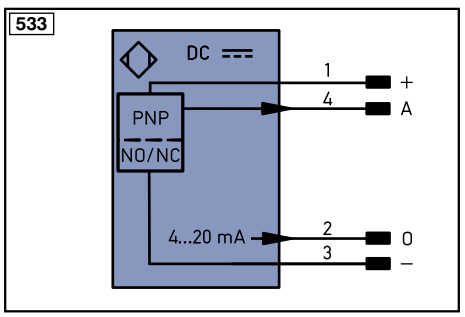


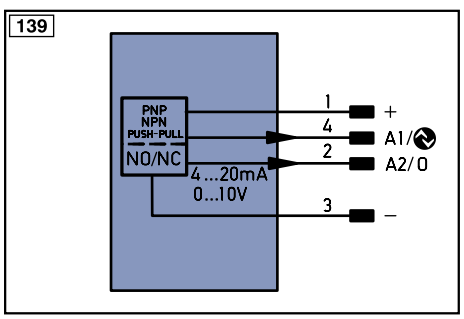


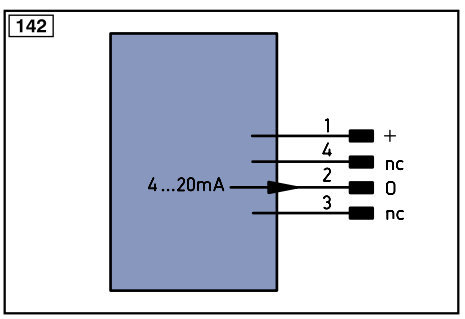


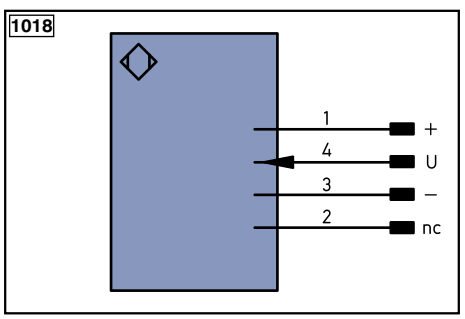


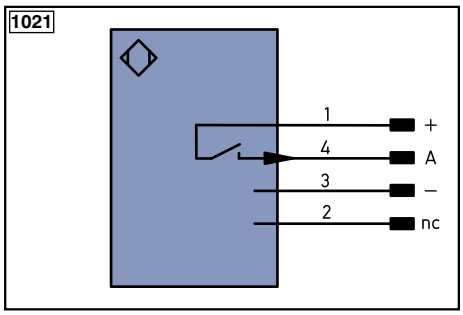











1021
1
+
4
A
3
–
2
nc

Index
alphabetical

Part Number		Page
FFXF001	Flow Sensor	**49**
FFXF002	Flow Sensor	**49**
FFXP001	Pressure Sensor	**47**
FFXP002	Pressure Sensor	**47**
FFXP003	Pressure Sensor	**47**
FFXT001	Temperature Sensor	**61**
FXDD001	Temperature Sensor	**67**
FXDD002	Temperature Sensor	**67**
FXDD101	Temperature Sensor	**67**
FXDD102	Temperature Sensor	**67**
FXDD103	Temperature Sensor	**67**
FXFF001	Flow Sensor	**51**
FXFF002	Flow Sensor	**51**
FXFF003	Flow Sensor	**57**
FXFF004	Flow Sensor	**57**
FXFF005	Flow Sensor	**55**
FXFF101	Flow Sensor	**53**
FXFF102	Flow Sensor	**53**
FXFF103	Flow Sensor	**59**
FXFF104	Flow Sensor	**59**
FXTT001	Temperature Sensor	**63**
FXTT002	Temperature Sensor	**63**
FXTT003	Temperature Sensor	**65**
FXTT004	Temperature Sensor	**65**
IB040DE65UB3	Inductive Sensor	**40**
IB040DE65UD3	Inductive Sensor	**40**
IB060SE65UB3	Inductive Sensor	**41**
IB060SE65UD3	Inductive Sensor	**41**
IW080DE65UA3	Inductive Sensor	**42**
IW120SE65UA3	Inductive Sensor	**43**
IX150DE65UA3	Inductive Sensor	**44**
IX250SE65UA3	Inductive Sensor	**45**
OEII403C0103	Through-Beam Sensor	**29**
OEII403C0203	Through-Beam Sensor	**33**
OHI122C0103	Reflex Sensor	**21**
OHI122C0203	Reflex Sensor	**21**
OHII102C0103	Reflex Sensor	**17**
OHII102C0203	Reflex Sensor	**17**
OHII102C0303	Reflex Sensor	**19**
OKI403C0103	Retro-Reflex Sensor	**23**
OKI403C0203	Retro-Reflex Sensor	**23**
OKII403C0103	Retro-Reflex Sensor	**25**
OKII403C0203	Retro-Reflex Sensor	**25**
OKII403C0303	Retro-Reflex Sensor	**27**
OSII403Z0103	Through-Beam Sensor	**29**
OSII403Z0203	Through-Beam Sensor	**33**
OTII802C0103	Reflex Sensor	**13**
OTII802C0203	Reflex Sensor	**13**

Part Number		Page
OTII802C0303	Reflex Sensor	**15**
P1GE001	Through-Beam Sensor	**31**
P1GE002	Through-Beam Sensor	**31**
P1HJ001	Fork Sensor	**37**
P1HJ002	Fork Sensor	**39**
P1HJ004	Fork Sensor	**37**
P1HJ005	Fork Sensor	**39**
P1HJ006	Fork Sensor	**35**
P1HJ007	Fork Sensor	**35**
Z90R001	Reflector	**81**
ZMKII0001	Mounting Console	**75**
ZMKII0002	Mounting Console	**77**
ZMRII0101	Mounting Tube	**73**
ZMRII0102	Mounting Tube	**69**
ZMRII0401	Mounting Tube	**69**
ZMRII0402	Mounting Tube	**71**
ZMSII0002	Mounting Clamp	**79**
ZMW0M0001	Mounting Bracket	**88**
ZMW0P0001	Mounting Bracket	**88**
ZMWBV0001	Mounting Bracket	**88**
ZMWFI0001	Mounting Bracket	**88**
ZNNG027	Cable gland	**90**
ZNNM002	Mounting	**89**
ZNNS001	Protection Housing	**87**
ZNNS002	Protection Housing	**87**
ZNNX001	Mounting Bracket	**89**
ZNNX002	Mounting Bracket	**89**
ZNNX003	Mounting Bracket	**89**
ZRDS01R01	Reflector	**83**
ZRMS02I01	Reflector	**81**
ZRMS02S01	Reflector	**81**
ZSV-02-01	Protection Housing	**85**
ZSV-03-01	Protection Housing	**85**