Ultrasonic sensor

UCC1000-18GH90-E2-IO-V1

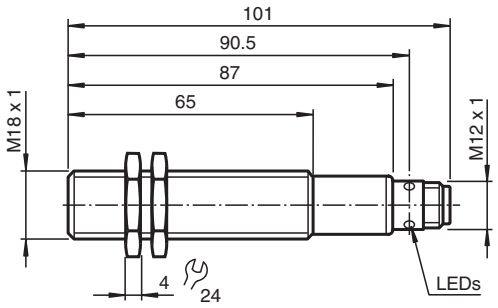
- IO-Link interface for service and process data
- Switching output
- Temperature compensation
- Stainless steel version

Single head system

Function

This ultrasonic sensor is a contactless distance sensor based on the echo run time principle. It is suitable for the detection of solid, liquid or powder sound-reflecting objects.
The IO-Link interface makes it ideally suited to applications in which the consistent communication of process, parameter and diagnostic data through to sensor level plays an important role.

Dimensions



Technical Data

General specifications		
Sensing range		100 ... 1000 mm
Adjustment range		110 ... 1000 mm
Dead band		0 ... 100 mm
Standard target plate		20 mm x 20 mm

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Technical Data

Transducer frequency		approx. 200 kHz
Response delay		approx. 100 ms
Resolution		1 mm
Linearity		frontal
Nominal ratings		
Linearity error		≤ ± 2 mm
Temperature drift		≤ ± 2.5 %
Time delay before availability	t_v	≤ 120 ms
Limit data		
Permissible cable length		max. 20 m
Indicators/operating means		
LED green		solid green: Power on flashes: IO-Link ON
LED yellow		on: object within measuring range
Electrical specifications		
Rated operating voltage	U_e	24 V DC
Operating voltage	U_B	12 ... 30 V DC (including ripple)
Ripple		≤ 10 %
No-load supply current	I_0	≤ 50 mA
Interface		
Interface type		IO-Link
Switching output		
Output type		1 switch output PNP, NO (SIO mode)
Operating current	I_L	≤ 200 mA , short-circuit/overload protected
Switching frequency		5 Hz
Voltage drop		≤ 2 V
Off-state current		≤ 0.01 mA
Switch-on delay		≤ 100 ms
Compliance with standards and directives		
Standard conformity		
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019
Approvals and certificates		
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Shock resistance		30 g , 11 ms period
Vibration resistance		10 ... 55 Hz , Amplitude ± 1 mm
Mechanical specifications		
Connection type		Connector plug M12 x 1 , 4-pin
Housing diameter		18 mm
Degree of protection		IP67
Material		
Housing		High grade stainless steel
Transducer		PTFE coated; epoxy resin/hollow glass sphere mixture; polyurethane foam
Installation position		any position
Mass		90 g
Mounting		max. tightening torque: : 60 Nm

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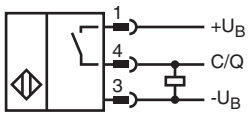
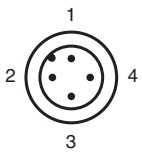
Connection



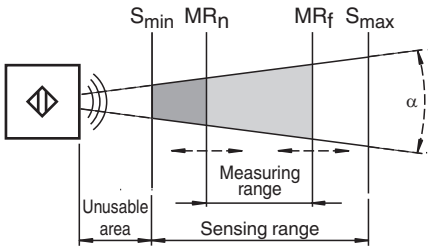
Connection Assignment



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Area definitions



Accessories

	**OMH-04**	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	**BF 18**	Mounting flange, 18 mm
	**BF 18-F**	Plastic mounting adapter, 18 mm
	**BF 5-30**	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

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Accessories

	**UVW90-K18**	Ultrasonic -deflector
	**V1-G-2M-PVC**	Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey
	**V1-G-2M-PUR**	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	**V1-W-2M-PUR**	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey
	**ICE2-8IOL-G65L-V1D**	EtherNet/IP IO-Link master with 8 inputs/outputs
	**ICE3-8IOL-G65L-V1D**	PROFINET IO IO-Link master with 8 inputs/outputs
	**ICE1-8IOL-G30L-V1D**	Ethernet IO-Link module with 8 inputs/outputs
	**ICE1-8IOL-G60L-V1D**	Ethernet IO-Link module with 8 inputs/outputs
	**ICE2-8IOL-K45P-RJ45**	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors
	**ICE2-8IOL-K45S-RJ45**	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	**ICE3-8IOL-K45P-RJ45**	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	**ICE3-8IOL-K45S-RJ45**	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	**IO-Link-Master02-USB**	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

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Additional Information

Description of the sensor functions

The C/Q connection of this sensor provides double function. If the sensor recognizes a connected IO-Link master and receives a communication protocol directly after power on, the sensor turns into IO-Link communication mode. If the communication protocol is missing after power on, the sensor turns into SIO mode. In this case at this pin a conventional switching signal is provided.

SIO Mode (standard switching output)

Object position	Output state
Object in unusable area	undefined
Object in sensing range but not in programmed measuring range	off
Object in programmed measuring range	on

Communication in IO-Link mode
Example parametrization for variable parameters

Process data	Object position [mm]
undefined	0 ≤ object distance< 100
-1	100 ≤ object distance < 110
-2	110 ≤ object distance < MR_n
Object distance [mm]	MR_n ≤ object distance < MR_f
-3	MR_f ≤ object distance < 1000
-4	unknown object distance

Device ID	**M18**	**30 02 00 hex**	
Informational data (read only)	**Value range**	**Sub-index**	
Interne Temperatur:	-25 °C ... 105 °C	1	
Parameter data (read / write)	**Value range**	**Sub-index**	**Default value**
Start of measuring range MB_n	110 mm ... MR_f	7/8	110 mm
end of measuring range MB_f	> MR_n ... 1000 mm	9/10	1000 mm
Filter depth for averaging	0 ... 255	2	3

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