USi-industry evaluation unit

USIM-F264-IU3E5-V19



- Evaluation unit for ultrasonic transducers with eliptic sound field
- Object detection in the near range
- Multiple device installation possible, no mutual interference (no cross-talk)
- Adjustable sound cone
- Temperature compensation
- Parameterizable input, e.g. for switching between two parameter sets

Evaluation unit for the ultrasonic sensor system USi-industry with analog and switching outputs (stand-alone device/main device)

Function

The USi-industry ultrasonic sensor system is used in applications for object detection, area monitoring and distance measurement, for example on machines and systems. It is also used as an assistance system on mobile machines such as robots and driverless transport systems (AGVs) for collision avoidance both indoors and outdoors. The evaluation unit and the ultrasonic transducers to be connected to it are separate units. This enables a high degree of flexibility and a wide range of applications, so that even the smallest installation spaces can be used for ultrasonic sensor technology.
Up to 2 ultrasonic transducers with an elliptical sound field can be connected to the evaluation unit and freely positioned. Each ultrasonic transducer is assigned 2 outputs. The evaluation unit has a total of 4 outputs as well as 1 digital input and 1 synchronization line, all of which can be parameterized individually and independently of each other and integrated into a wide variety of applications. All types of USi-industry evaluation units are delivered as stand-alone devices and are therefore equivalent, regardless of whether they are main devices or secondary devices. Even without an electrical connection, several individual devices can be operated together without interference by means of special parameterization.

The digital input can be defined for one of the following functions, either

- to switch off the outputs or
- to switch to another parameter set without interruption or
- for teaching in a changing environment during operation.

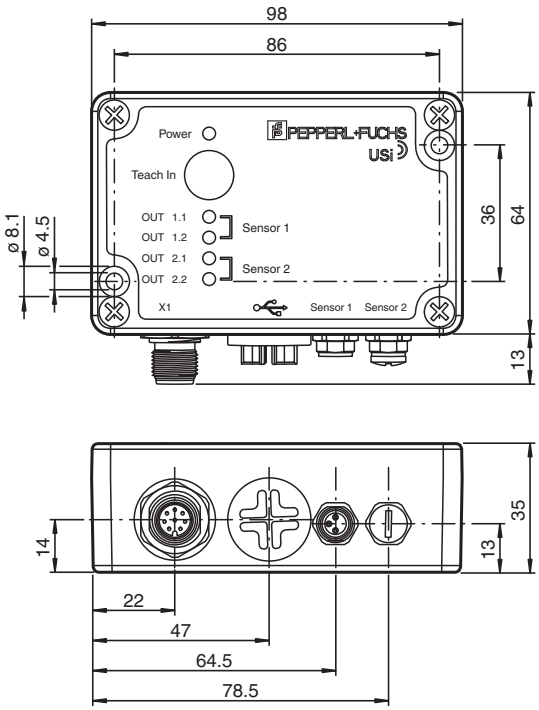
The teach-in button can be used to

- teach in the environment of the detection area,
- set the switching points,
- log the second ultrasonic transducer on or off and
- reset the evaluation unit to the factory settings.

Complete parameterization is conveniently carried out using the Device Type Manager (DTM) under PACTware via the integrated USB interface. These parameters define the inputs and outputs, switching points and operating modes, sensor and ultrasound-specific values as well as synchronization options and temperature compensation. as well as synchronization options and temperature compensation.

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Dimensions



Technical Data

General specifications		
Type		USi-industry evaluation unit
Sensing range		10 ... 2500 mm factory setting: 2000 mm
Adjustment range		150 ... 2500 mm
Dead band		0 ... 10 mm
Object size		typ. Ø 10 mm
Transducer frequency		approx. 103 kHz
Response delay		10 ... 20000 ms factory setting: 150 ms
Sensor cycle time		10 ... 200 ms factory setting: 50 ms
Resolution		1 mm
Target velocity		axial (max.): typ. 2 m/s (up to 2.5 m/s)
Repeat accuracy		± 0.1 % of full-scale value
Temperature influence		automatic or manual temperature compensation available , without temperature compensation: 0.17 %/K
Indicators/operating means		
LED green		supply voltage/device status
LED yellow		output states
Button		Teach-in
Electrical specifications		
Operating voltage	U_B	9 ... 30 V DC
No-load supply current	I_0	≤ 160 mA
Power consumption	P_0	< 2.5 W
Time delay before availability	t_v	≤ 300 ms
Interface		
Interface type		USB 2.0
Inputs		

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Technical Data

Input type	2 inputs for ultrasonic transducers 1 digital input
Output 1	
Designation	OUT 1.1
Output type	1 analog output 4 ... 20 mA or 1 analog output 0 ... 10 V
Deviation of the characteristic curve	± 1 % of the full-scale value
Load resistor	current output: ≤ 500 Ω voltage output: ≥ 1000 Ω
Output 2	
Designation	OUT 1.2
Output type	switching output: PNP Normally open/closed (NO/NC) parameterizable
Voltage drop	≤ 2.5 V
Switching frequency	0.05 Hz ... 100 Hz
Off-state current	≤ 100 µA
Switching voltage	max. U_B
Switching current	100 mA
Output 3	
Designation	OUT 2.1
Output type	switching output: PNP Normally open/closed (NO/NC) parameterizable
Voltage drop	≤ 2.5 V
Switching frequency	0.05 Hz ... 100 Hz
Off-state current	≤ 100 µA
Switching voltage	max. U_B
Switching current	100 mA
Output 4	
Designation	OUT 2.2
Output type	switching output: PNP Normally open/closed (NO/NC) parameterizable
Voltage drop	≤ 2.5 V
Switching frequency	0.05 Hz ... 100 Hz
Off-state current	≤ 100 µA
Switching voltage	max. U_B
Switching current	100 mA
Compliance with standards and directives	
Standard conformity	
Standards	EN IEC 60947-5-2:2020 IEC 60947-5-2:2019 EN 60947-5-7:2003 IEC 60947-5-7:2003 EN 55011:2016-04
Approvals and certificates	
CCC approval	CCC approval / marking not required for products rated ≤36 V
Ambient conditions	
Ambient temperature	-30 ... 70 °C (-22 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications	
Connection type	Connector plug
Degree of protection	IP65
Connection	for power supply and outputs: connector plug M12, 8-pin, connection line max. 30 m for ultrasonic transducer: for each socket M8, 3-pin for parameterization: socket Mini USB
Material	
Housing	diecast aluminum
Mass	250 g
Dimensions	

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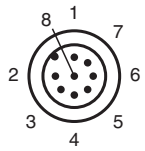
Technical Data

Height	35 mm
Width	77 mm
Length	98 mm

Connection

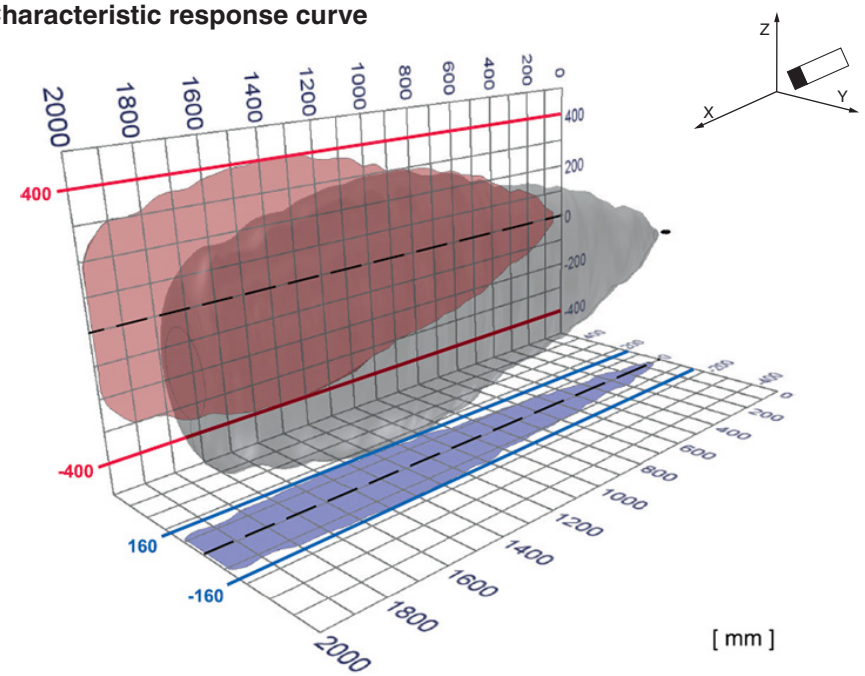
Connector X1	Signal	Pin
Power supply	$+U_S$, $-U_S$	2, 7
Output 1.1	OUT 1.1	1
Output 1.2	OUT 1.2	3
Output 2.1	OUT 2.1	4
Output 2.2	OUT 2.2	5
Digital input	IN	6
Synchronization	SYNC	8

Connection Assignment



Characteristic Curve

Characteristic response curve



Additional Information

Further Documentation
There is a manual for commissioning, parameterization and use of the device which you can download from the product page at www.pepperl-fuchs.com.

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Accessories

The ultrasonic sensor system USi-industry consists of several components. At least 1 ultrasonic transducer is required to operate an evaluation unit. These are available in versions with different cable lengths. Various mounting brackets, connection and USB cables are also available. Accessories for this product can be found on the internet at www.pepperl-fuchs.com.

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