Ultrasonic Sensors
Innovation and Expertise Right from the Outset

The ultrasonic portfolio from Pepperl+Fuchs combines the advantages of decades of development expertise with a high degree of vertical integration in the field of ultrasonic sensors. The Pepperl+Fuchs technology center, in-house transducer production and comprehensive expert knowledge offer future-proof and application-oriented sensor solutions.

### Top Quality and Performance—Ultrasonic Sensors from the In-House Technology Center

Ultrasonic sensors from Pepperl+Fuchs are built in the company's own technology center with associated transducer development and manufacturing. For more than 30 years, our forward-thinking team of experts has been working continually on further developing ultrasound technology for the solutions of tomorrow. That means our customers always receive the most powerful products on the market.

This approach has led to the widest standard portfolio in the industry, supported by numerous patents and innovations for the highest level of flexibility in product selection, and an optimal application solution. In addition to the standard portfolio, Pepperl+Fuchs has the knowledge and infrastructure to respond to customer requirements with speed and flexibility and to implement individual solutions.

Ultrasound Technology for Any Industrial Application

Ultrasonic sensors are used in industry to detect objects and measure distance. Versatility and availability are key user requirements.

With its ultrasonic portfolio, Pepperl+Fuchs provides a variety of sensors that offer benefits such as minimized dead band, large measuring ranges of up to 10 m, adjustable sound beams, and much more—and all in a variety of housing designs and materials. This means we can always offer technically reliable and efficient solutions.
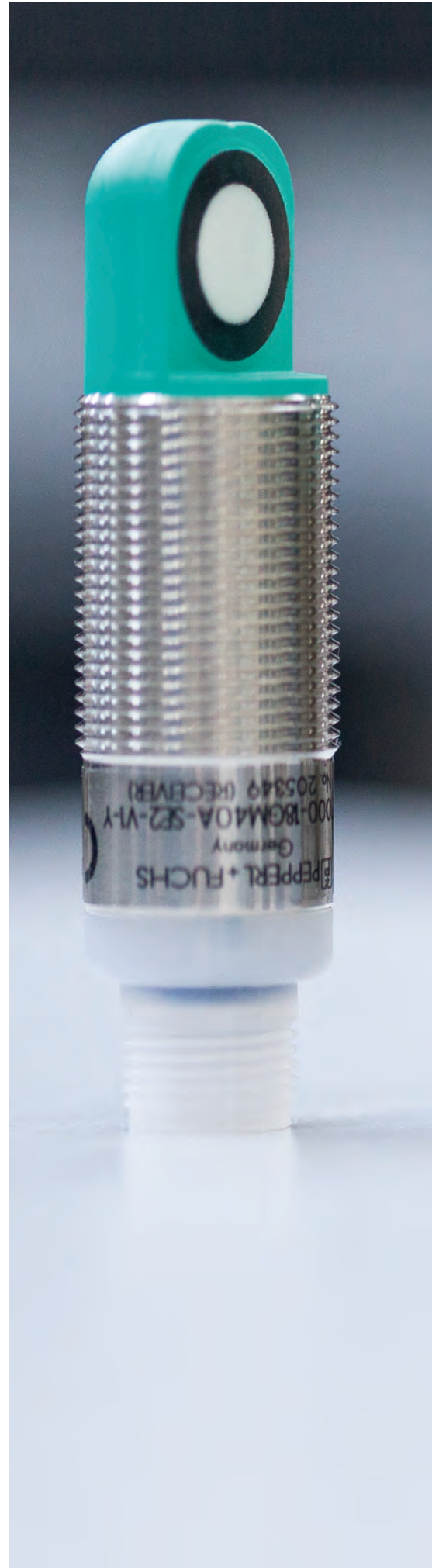
More information is available at
www.pepperl-fuchs.com/fa-ultrasonic

Ultrasonic Sensors for Standard Applications
Complete Portfolio for Industrial Applications

With unique features such as minimal dead band, outstanding detection ranges and particularly robust sensor solutions, the broad portfolio of standard ultrasonic sensors from Pepperl+Fuchs combines a wide variety of housing designs and offers the right sensor principle for every industrial application.

Typical Applications

The potential applications of ultrasonic technology are almost limitless. The wide range of applications is demonstrated by the technology's insensitivity to countless materials, surface structures, and colors.
Typical applications include:

- Level measurement and monitoring in containers, tanks, or silos
- Use on mobile vehicles such as aerial work platforms, forklift trucks, and agricultural or waste disposal vehicles
- Detection of a wide range of objects such as printed circuit boards, bottles, metal, granules, film, paints, and coatings

Your Benefits at a Glance

- Excellent flexibility in the application solution thanks to a comprehensive portfolio of cubic and cylindrical ultrasonic sensors
- Wide range of sizes and detection ranges, with especially compact and space-saving housing designs and detection ranges of up to 10 m.
- Intuitive operating concepts and adjustment options directly on the device or via an interface or parameterization software
- Special designs, various transducer versions and comprehensive accessories are available for optimum integration
- Features such as minimized dead band, the option for synchronization, interference suppression, and IO-Link for reliable processes
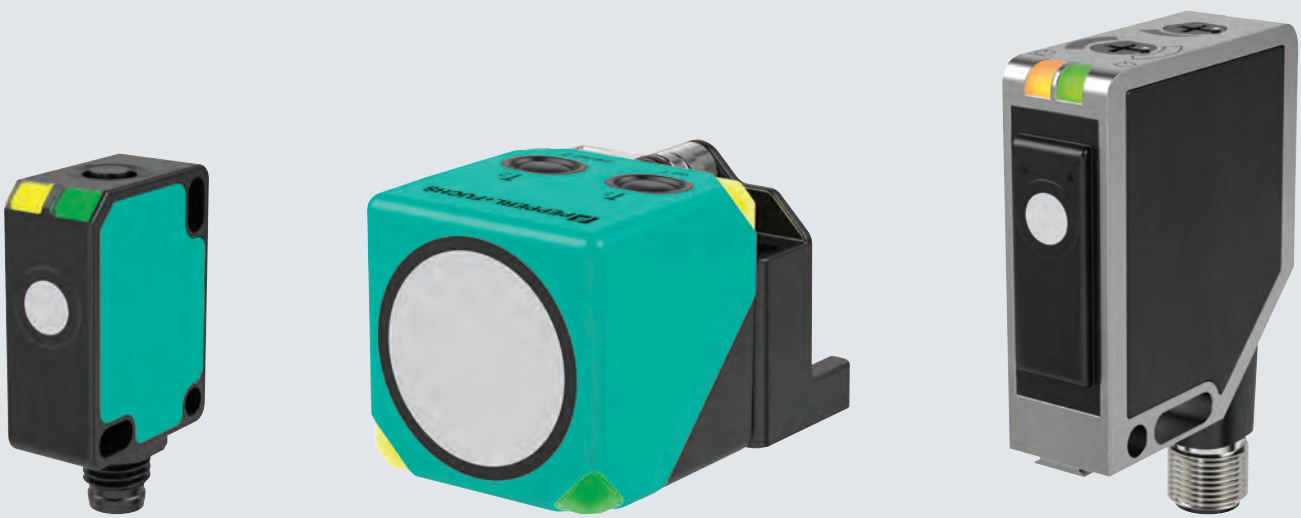
Technical Features

- Independent sensor synchronization: Multiplex or common mode for optimal functional safety during the operation of multiple neighboring sensors
- Individually adjustable sound beam for fault-free performance
- Wide range of output types for maximum flexibility in measured value output
- High degree of vibration resistance for use in harsh and mobile applications
- Maximum process reliability through direct access to process data and diagnostic data thanks to IO-Link

Cylindrical Ultrasonic Sensors
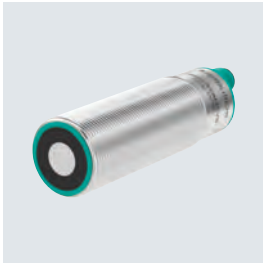## Contents

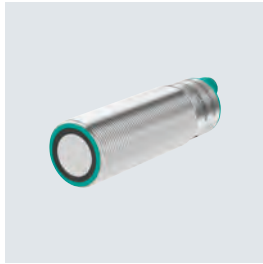**12GM Series**
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18GM40 Series
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18GM60 Series
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18GM75 Series
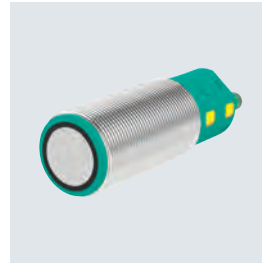Page 274

UB-30GM Series
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UC-30GM Series
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30GM-IO Series
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12GM Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing length L	70 mm
Housing diameter D	12 mm
UL	▪

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)
UB120-12GM-E4-V1	120	15	NPN	Normally open/close selectable	9	52	10
UB120-12GM-E5-V1	120	15	PNP	Normally open/close selectable	9	52	10
UB120-12GM-I-V1	120	15	Analog current output	Analog	27		10
UB120-12GM-U-V1	120	15	Analog voltage output	Analog	27		15
UB200-12GM-E4-V1	200	15	NPN	Normally open/close selectable	30	13	10
UB200-12GM-E5-V1	200	15	PNP	Normally open/close selectable	30	13	10
UB200-12GM-I-V1	200	15	Analog current output	Analog	30		10
UB200-12GM-U-V1	200	15	Analog voltage output	Analog	30		15
UB400-12GM-E4-V1	400	30	NPN	Normally open/close selectable	50	8	10
UB400-12GM-E5-V1	400	30	PNP	Normally open/close selectable	50	8	10
UB400-12GM-I-V1	400	30	Analog current output	Analog	50		10
UB400-12GM-U-V1	400	30	Analog voltage output	Analog	50		15

Highlights

- Little space required, small dead band, ideal for tight installation situations
- IP67 degree of protection for excellent availability in harsh environments
- Teach-in process for simple configuration
- Three detection ranges, switching or analog output— the right solution for every requirement

Brief Description

The highly compact cylindrical M12 housing in combination with the extra-small dead band make 12GM series ultrasonic sensors the ideal solution for tight installation situations, e.g., in the ink tanks of printing machines. For applications in harsh environments, the IP67 degree of protection guarantees the ultimate in robust construction and availability. The diffuse mode sensors—available either with switching or analog output—are impressively user-friendly as they can be configured via teach-in.
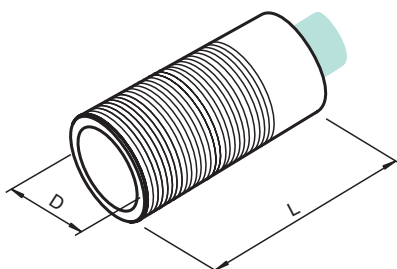
Accessories	
BF 12	Mounting adapter, 12 mm
BF 12-F	Plastic mounting adapter, 12 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 mm ... 30 mm
UB-PROG2	Programming unit
UVW90-M12	Ultrasonic deviation reflector
V1-G-2M-PVC	Single-ended female cordset, M12, 4-pin, PVC cable
V1-W-2M-PUR	Single-ended female cordset, M12, 4-pin, PUR cable

18GM40 Series
Thru-Beam Sensor and Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing diameter D	18 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Version	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)	Length L	EAC
UB300-18GM40-E4-V1	Straight head	300	35	NPN	Normally open/close selectable	50	13	10	40	■
UB300-18GM40-E5-V1	Straight head	300	35	PNP	Normally open/close selectable	50	13	10	40	
UB300-18GM40-I-V1	Straight head	300	35	Analog current output	Analog	50		10	40	
UB300-18GM40-U-V1	Straight head	300	35	Analog voltage output	Analog	50		15	40	
UB300-18GM40A-E4-V1	Angled head	300	35	NPN	Normally open/close selectable	50	13	10	57	
UB300-18GM40A-E5-V1	Angled head	300	35	PNP	Normally open/close selectable	50	13	10	57	
UB300-18GM40A-I-V1	Angled head	300	35	Analog current output	Analog	50		10	40	
UB300-18GM40A-U-V1	Angled head	300	35	Analog voltage output	Analog	50		15	40	
UB800-18GM40-E4-V1	Straight head	800	50	NPN	Normally open/close selectable	100	4	10	40	
UB800-18GM40-E5-V1	Straight head	800	50	PNP	Normally open/close selectable	100	4	10	40	■
UB800-18GM40-I-V1	Straight head	800	50	Analog current output	Analog	100		10	40	■
UB800-18GM40-U-V1	Straight head	800	50	Analog voltage output	Analog	100		15	40	
UB800-18GM40A-E4-V1	Angled head	800	50	NPN	Normally open/close selectable	100	4	10	57	
UB800-18GM40A-E5-V1	Angled head	800	50	PNP	Normally open/close selectable	100	4	10	57	
UB800-18GM40A-I-V1	Angled head	800	50	Analog current output	Analog	100		10	57	
UB800-18GM40A-U-V1	Angled head	800	50	Analog voltage output	Analog	100		15	57	
UBE1000-18GM40-SE2-V1	Straight head	1000		PNP	Normally-open (NO)		100	10	40	
UBE1000-18GM40A-SE2-V1	Angled head	1000		PNP	Normally-open (NO)		100	10	40	

Highlights

- Wide variety of integration options through special design and graduated detection areas
- Different output versions offer flexible solutions for measuring or switching applications
- IP67 degree of protection for maximum reliability and availability under tough operational conditions

Brief Description

The 18GM40 series of thru-beam sensors and diffuse mode sensors are the ideal solution for tough installation conditions. Their extremely short design saves space, while the versions with right-angled ultrasonic transducers offer an additional level of freedom during integration, such as in profiles or angled machine structures. Their application areas are just as demanding and varied: They can count bottles in filling lines, detect containers on waste collection vehicles, and much more besides.

Accessories	
BF 18	Mounting adapter, 18 mm
BF 18-F	Plastic mounting adapter, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors
M18K-VE	Plastic nuts with centering ring
OMH-04	Mounting aid for circular profile ø 12 mm or flat profile
UB-PROG2	Programming unit
UVW90-K18	Ultrasonic deviation reflector
V1-G-2M-PVC	Single-ended female cordset, M12, 4-pin, PVC cable
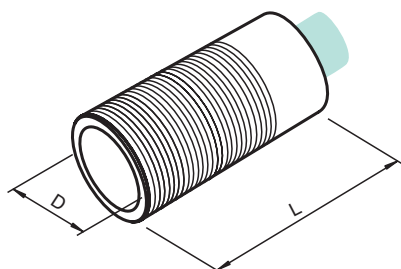
18GM60 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Output type	PNP
Switching function	Normally open/close selectable
Voltage type	DC
Operating voltage (min)	10 V
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing diameter D	18 mm
CSA	■
UL	■
E1 type approval	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Version	Detection range [mm]	Dead band	Response delay [ms]	Switching frequency [Hz]	Length L
UB300-18GM60-E5-V1-M	Straight head	300	35	50	13	51
UB300-18GM60A-E5-V1-M	Angled head	300	35	50	13	69
UB800-18GM60-E5-V1-M	Straight head	800	50	100	4	51
UB800-18GM60A-E5-V1-M	Angled head	800	50	100	4	69

Highlights

■ Different sensing ranges for different object distances

Brief Description

The 18GM60 ultrasonic diffuse mode sensor has proven itself in a number of applications. The five different output stages mean that it can be used for a wide variety of purposes. The teach-in input and temperature compensation are added bonuses. E1 type approval means that the sensor is also suitable for automotive engineering.
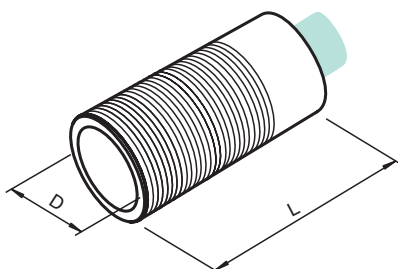
Accessories	
BF 18	Mounting adapter, 18 mm
BF 18-F	Plastic mounting adapter, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors
OMH-04	Mounting aid for circular profile ø 12 mm or flat profile
UB-PROG2	Programming unit
V1-G-2M-PVC	Single-ended female cordset, M12, 4-pin, PVC cable
V1-W-2M-PUR	Single-ended female cordset, M12, 4-pin, PUR cable

18GM75 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing diameter D	18 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Version	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)	Length L	EAC
UB500-18GM75-E01-V15	Straight head	500	30	2 * NPN, NPN	Normally open/close selectable	50	8	10	85	
UB500-18GM75-E23-V15	Straight head	500	30	2 * PNP, PNP	Normally open/close selectable	50	8	10	85	
UB500-18GM75-E4-V15	Straight head	500	30	NPN	Normally open/close selectable	50	8	10	85	
UB500-18GM75-E5-V15	Straight head	500	30	PNP	Normally open/close selectable	50	8	10	85	■
UB500-18GM75-E6-V15	Straight head	500	30	2 * PNP, PNP	Normally open/close selectable	50	8	10	85	
UB500-18GM75-E7-V15	Straight head	500	30	2 * NPN, NPN	Normally open/close selectable	50	8	10	85	
UB500-18GM75-I-V15	Straight head	500	30	Analog current output	Analog	50		10	85	
UB500-18GM75-U-V15	Straight head	500	30	Analog voltage output	Analog	50		15	85	
UB1000-18GM75-E01-V15	Straight head	1000	70	2 * NPN, NPN	Normally open/close selectable	125	3	10	75	
UB1000-18GM75-E23-V15	Straight head	1000	70	2 * PNP, PNP	Normally open/close selectable	125	3	10	75	
UB1000-18GM75-E4-V15	Straight head	1000	70	NPN	Normally open/close selectable	125	3	10	75	
UB1000-18GM75-E5-V15	Straight head	1000	70	PNP	Normally open/close selectable	125	3	10	75	
UB1000-18GM75-E6-V15	Straight head	1000	70	2 * PNP, PNP	Normally open/close selectable	125	3	10	75	
UB1000-18GM75-E7-V15	Straight head	1000	70	2 * NPN, NPN	Normally open/close selectable	125	3	10	75	
UB1000-18GM75-F-V15	Straight head	1000	80	Frequency output		150		10	75	
UB1000-18GM75-I-V15	Straight head	1000	70	Analog current output	Analog	125		10	75	
UB1000-18GM75-U-V15	Straight head	1000	70	Analog voltage output	Analog	125		15	75	
UB1000-18GM75A-E5-V15	Angled head	1000	70	PNP	Normally open/close selectable	125	3	10	102.5	
UB1000-18GM75A-I-V15	Angled head	1000	70	Analog current output	Analog	125		10	102.5	

Highlights

- Different sensing ranges for different object distances
- Adjustable sound beam increases range of possible sensor applications
- Output variability in the series enables a wide variety of automation solutions

Brief Description

The 18GM75 ultrasonic diffuse mode sensor has proven itself in a multitude of applications. The width of the sound beam can be easily adapted to any detection situation. In addition, the synchronization option avoids cross-talk between sensors that are installed close together, guaranteeing a reliable measurement function.

Accessories	
BF 18	Mounting adapter, 18 mm
BF 18-F	Plastic mounting adapter, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors
M18K-VE	Plastic nuts with centering ring
MHW 11	Mounting bracket for sensors
OMH-04	Mounting aid for circular profile ø 12 mm or flat profile
UB-PROG2	Programming unit
UB-PROG3	Programming unit
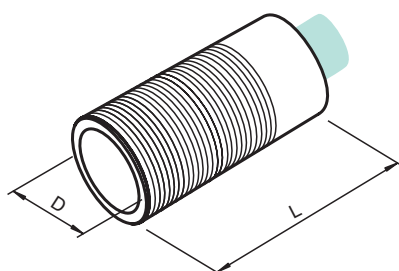
UB-30GM Series
Thru-Beam Sensor and Diffuse Mode Sensor
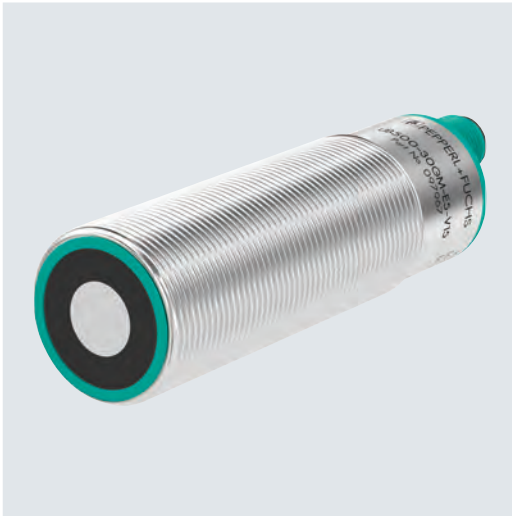

Standard Technical Data	
Version	Straight head
Design	Cylindrical
Voltage type	DC
Operating voltage (max)	30 V
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)	Connection type	Length L	Diameter D	EAC
UB500-30GM-E4-V15	500	30	NPN	Normally open/close selectable	50	10	10	M12 connector plug	94	30	
UB500-30GM-E5-V15	500	30	PNP	Normally open/close selectable	50	10	10	M12 connector plug	94	30	■
UB500-30GM-H3-V1	500	30	Pulse output, PNP				10	M12 connector plug	80	30	
UB2000-30GM-E4-V15	2000	80	NPN	Normally open/close selectable	150	3	10	M12 connector plug	94	30	
UB2000-30GM-E5-V15	2000	80	PNP	Normally open/close selectable	150	3	10	M12 connector plug	94	30	■
UB2000-30GM-H3	2000	80	Pulse output, PNP				10	Fixed cable	80	30	
UB2000-30GM-H3-V1	2000	80	Pulse output, PNP				10	M12 connector plug	80	30	
UB4000-30GM-E4-V15	4000	200	NPN	Normally open/close selectable	325	2	10	M12 connector plug	108	40	
UB4000-30GM-E5-V15	4000	200	PNP	Normally open/close selectable	325	2	10	M12 connector plug	108	40	■
UB4000-30GM-H3-V1	4000	200	Pulse output, PNP				10	M12 connector plug	93	40	
UB6000-30GM-E4-V15	6000	350	NPN	Normally open/close selectable	650	1	10	M12 connector plug	112	73	
UB6000-30GM-E5-V15	6000	350	PNP	Normally open/close selectable	650	1	10	M12 connector plug	112	73	
UB6000-30GM-H3-V1	6000	350	Pulse output, PNP				10	M12 connector plug	102	74	
UBE4000-30GM-SA2-V15	4000		2 * PNP, PNP	Normally open/close selectable		15	18	M12 connector plug	90	40	

Highlights

■ Sensing ranges in practical graduation for a variety of detection applications

■ Synchronization and IP65 degree of protection for outstanding operational reliability

■ High degree of vibration resistance for use in harsh and mobile applications
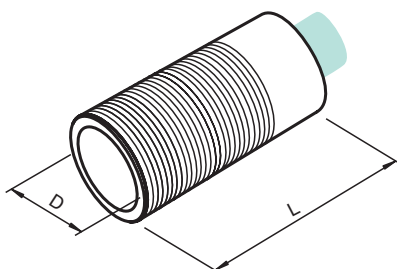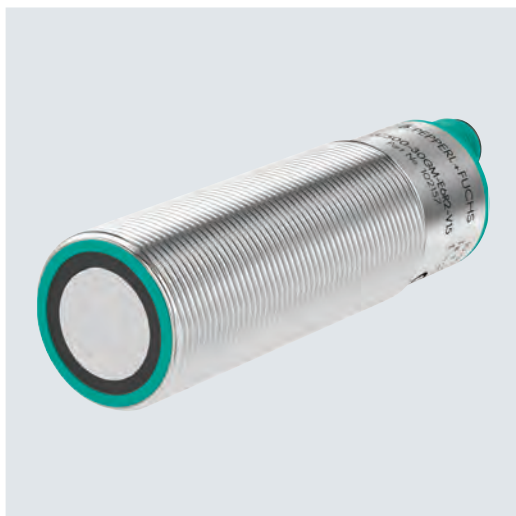
Brief Description

UB-30GM series diffuse mode sensors are easy to adjust via the teach-in input. They can be synchronized to guarantee impressive detection and switching reliability even in installation situations with multiple ultrasonic sensors. The sensors are extremely robust and vibration-resistant, and deliver reliable measurements at all times while resisting interference such as compressed air. The diversity of detection ranges makes this series the ideal solution for monitoring bulk goods in silos of varying sizes, for example.

Accessories	
BF 30	Mounting adapter, 30 mm
BF 30-F	Plastic mounting adapter, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors
M30K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
UB-PROG2	Programming unit
UVW90-K30	Ultrasonic deviation reflector
UVW90-M30	Ultrasonic deviation reflector
V1-G-2M-PVC	Single-ended female cordset, M12, 4-pin, PVC cable

UC-30GM Series
Diffuse Mode Sensor

Standard Technical Data

Design	Cylindrical
Voltage type	DC
Operating voltage (min)	10 V
Operating voltage (max)	30 V
Connection type	M12 connector plug
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www. pepperl-fuchs.com.

| Model number	Version	Detection range [mm]	Dead band	Output type	Switching function	Switching frequency [Hz]	Length L	Diameter D	EAC
UC300-30GM-E6R2-K-V15	Angled head	300	30	2 * PNP, PNP	Normally open/close selectable	7	25	18	
UC300-30GM-IUR2-K-V15	Angled head	300	30	Analog voltage output, analog current output	Analog		25	18	
UC300-30GM-IUR2-V15	Straight head	300	15	Analog voltage output, analog current output	Analog		114	30	■
UC500-30GM-E6R2-V15	Straight head	500	30	2 * PNP, PNP	Normally open/close selectable	7	94	30	
UC500-30GM-E7R2-V15	Straight head	500	30	2 * NPN, NPN	Normally open/close selectable	7	94	30	
UC500-30GM-IUR2-V15	Straight head	500	30	Analog voltage output, analog current output	Analog		114	30	
UC1000-30GM-E6R2-K-V15	Angled head	1000	80	2 * PNP, PNP	Normally open/close selectable	2	27	30	
UC1000-30GM-IUR2-K-V15	Angled head	1000	80	Analog voltage output, analog current output	Analog		27	30	
UC2000-30GM-E6R2-T-V15	Straight head	2000	80	2 * PNP, PNP	Normally open/close selectable	2	94	30	
UC2000-30GM-E6R2-V15	Straight head	2000	80	2 * PNP, PNP	Normally open/close selectable	2	94	30	■
UC2000-30GM-E7R2-V15	Straight head	2000	80	2 * NPN, NPN	Normally open/close selectable	2	94	30	
UC2000-30GM-IUR2-T-V15	Straight head	2000	80	Analog voltage output, analog current output	Analog		114	30	
UC2000-30GM-IUR2-V15	Straight head	2000	80	Analog voltage output, analog current output	Analog		114	30	■
UC4000-30GM-E6R2-V15	Straight head	4000	200	2 * PNP, PNP	Normally open/close selectable	1	108	40	
UC4000-30GM-E7R2-V15	Straight head	4000	200	2 * NPN, NPN	Normally open/close selectable	1	108	40	
UC4000-30GM-IUR2-V15	Straight head	4000	200	Analog voltage output, analog current output	Analog		128	40	
UC6000-30GM-E6R2-V15	Straight head	6000	350	2 * PNP, PNP	Normally open/close selectable	0	112	73	
UC6000-30GM-E7R2-V15	Straight head	6000	350	2 * NPN, NPN	Normally open/close selectable	0	112	73	
UC6000-30GM-IUR2-V15	Straight head	6000	350	Analog voltage output, analog current output	Analog		132	73	

Highlights

- Comprehensive parameterization for customized sensor adjustment
- Intuitive programming and configuration for easy commissioning
- Versions with offset transducers increase installation flexibility

Brief Description

With a variety of parameterization options, the diffuse mode sensors are versatile and can be deployed individually. They are easy to configure via the integrated programming plug. Sensor versions with offset transducers offer an additional level of freedom during machine integration in special installation situations. With these characteristics, they offer an impressive array of potential solutions, such as distance measurement in container spreaders.

Accessories

BF 18	Mounting adapter, 18 mm
BF 18-F	Plastic mounting adapter, 18 mm
BF 30	Mounting adapter, 30 mm
BF 30-F	Plastic mounting adapter, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors
M-105	Protective cap
M30K-VE	Plastic nuts with centering ring
OMH-04	Mounting aid for circular profiles ø 12 mm or flat profiles 1.5 mm ... 3 mm
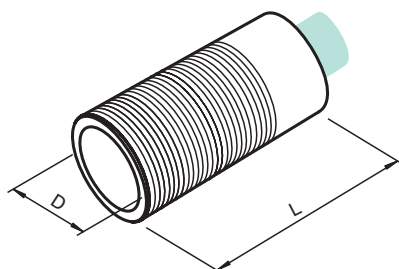
30GM70 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Switching function	Normally open/close selectable
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing diameter D	30 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Version	Detection range [mm]	Dead band	Output type	Response delay [ms]	UB (min)	Length L
UC500-30GM70-2E2R2-K-V15	Straight head	500	45	2 * PNP	60	12	111.3
UC500-30GM70-2E2R2-V15	Straight head	500	45	2 * PNP	60	12	99.3
UC500-30GM70-IE2R2-K-V15	Straight head	500	45	Analog current output, PNP	60	20	111.3
UC500-30GM70-IE2R2-V15	Straight head	500	45	Analog current output, PNP	60	20	99.3
UC500-30GM70-UE2R2-K-V15	Straight head	500	45	Analog voltage output, PNP	60	20	111.3
UC500-30GM70-UE2R2-V15	Straight head	500	45	Analog voltage output, PNP	60	20	99.3
UC500-30GM70S-2E2R2-V15	Angled head	500	45	2 * PNP	60	12	126
UC500-30GM70S-IE2R2-V15	Angled head	500	45	Analog current output, PNP	60	20	126
UC500-30GM70S-UE2R2-V15	Angled head	500	45	Analog voltage output, PNP	60	20	126
UC2000-30GM70-2E2R2-K-V15	Straight head	2000	100	2 * PNP	100	12	111.3
UC2000-30GM70-2E2R2-V15	Straight head	2000	100	2 * PNP	100	12	99.3
UC2000-30GM70-IE2R2-K-V15	Straight head	2000	100	Analog current output, PNP	100	20	111.3
UC2000-30GM70-IE2R2-V15	Straight head	2000	100	Analog current output, PNP	100	20	99.3
UC2000-30GM70-UE2R2-K-V15	Straight head	2000	100	Analog voltage output, PNP	100	20	111.3
UC2000-30GM70-UE2R2-V15	Straight head	2000	100	Analog voltage output, PNP	100	20	99.3
UC2000-30GM70S-2E2R2-V15	Angled head	2000	100	2 * PNP	100	12	126
UC2000-30GM70S-IE2R2-V15	Angled head	2000	100	Analog current output, PNP	100	20	126
UC2000-30GM70S-UE2R2-V15	Angled head	2000	100	Analog voltage output, PNP	100	20	126
UC3500-30GM70-2E2R2-V15	Straight head	3500	200	2 * PNP	150	12	99.3
UC3500-30GM70-IE2R2-V15	Straight head	3500	200	Analog current output, PNP	150	20	99.3
UC3500-30GM70-UE2R2-V15	Straight head	3500	200	Analog voltage output, PNP	150	20	99.3
UC3500-30GM70S-2E2R2-V15	Angled head	3500	200	2 * PNP	150	12	126
UC3500-30GM70S-IE2R2-V15	Angled head	3500	200	Analog current output, PNP	150	20	126
UC3500-30GM70S-UE2R2-V15	Angled head	3500	200	Analog voltage output, PNP	150	20	126
UC6000-30GM70-2E2R2-V15	Straight head	6000	350	2 * PNP	275	12	121.2
UC6000-30GM70-IE2R2-V15	Straight head	6000	350	Analog current output, PNP	275	20	121.2
UC6000-30GM70-UE2R2-V15	Straight head	6000	350	Analog voltage output, PNP	275	20	121.2
UC6000-30GM70S-2E2R2-V15	Angled head	6000	350	2 * PNP	275	12	143.5
UC6000-30GM70S-IE2R2-V15	Angled head	6000	350	Analog current output, PNP	275	20	143.5
UC6000-30GM70S-UE2R2-V15	Angled head	6000	350	Analog voltage output, PNP	275	20	143.5

Highlights

- Graduated detection ranges for different object distances
- Infrared interface allows direct sensor access for parameterization or diagnosis
- Reaction-free parameterization during operation avoids process interruptions
- Various transducer versions to handle any installation situation

Accessories	
BF 18	Mounting adapter, 18 mm
BF 30	Mounting adapter, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 mm ... 30 mm
UC-30GM-R2	Connection: sub-D socket, 9-pin
UC-PROG-IR-USB	Interface cable
V15-G-2M-PUR	Single-ended female cordset, M12, 5-pin, PUR cable

30GM-IO Series
Diffuse Mode Sensor
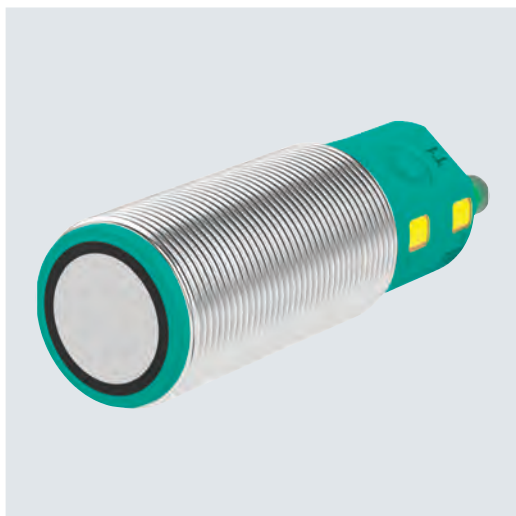
Standard Technical Data	
Version	Straight head
Design	Cylindrical
Switching function	Push-pull output
Voltage type	DC
Operating voltage (min)	10 V
Operating voltage (max)	30 V
Connection type	M12 connector plug
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Detection range [mm]	Dead band	Output type	Response delay [ms]	Switching frequency [Hz]	Length L	Diameter D
UC500-30GM-2EP-IO-V15	500	30	IO-Link, PNP/NPN	25	11	93	30
UC500-30GM-IUEP-IO-V15	500	30	Analog current output, IO-Link, PNP/NPN	25	11	93	30
UC2000-30GM-2EP-IO-V15	2000	90	IO-Link, PNP/NPN	65	4	93	30
UC2000-30GM-IUEP-IO-V15	2000	90	Analog current output, IO-Link, PNP/NPN	65	4	93	30
UC4000-30GM-2EP-IO-V15	4000	200	IO-Link, PNP/NPN	115	2	108	40
UC4000-30GM-IUEP-IO-V15	4000	200	Analog current output, IO-Link, PNP/NPN	115	2	100	40
UC6000-30GM-2EP-IO-V15	6000	350	IO-Link, PNP/NPN	140	2	112	73
UC6000-30GM-IUEP-IO-V15	6000	350	Analog current output, IO-Link, PNP/NPN	140	2	106	73

Highlights

- Simple integration in the control panel via IO-Link
- Integrated diagnostics and flexible parameterization
- Outstanding process reliability through direct access to process data and diagnostic data
- Wide array of graduated detection ranges

Brief Description

The 30GM-IO series diffuse mode sensors are the multifunctional solutions for a range of application scenarios, from fill level measurement and presence detection to object counting and distance measurement. They are incredibly simple to parameterize, either using the buttons on the sensor or via the IO-Link interface. The sensors can be integrated easily into the control environment via this communication channel to exchange both process and service data. Various sound beam widths can be set via teach-in to suit the respective detection application. The IP67 degree of protection ensures optimal availability at all times.

Accessories	
BF 30	Mounting adapter, 30 mm
BF 30-F	Plastic mounting adapter, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 mm ... 30 mm
IO-Link-Master02-USB	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
M30K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
UC-30GM-R2	Connection: sub-D socket, 9-pin
UVW90-K30	Ultrasonic deviation reflector
UVW90-M30	Ultrasonic deviation reflector
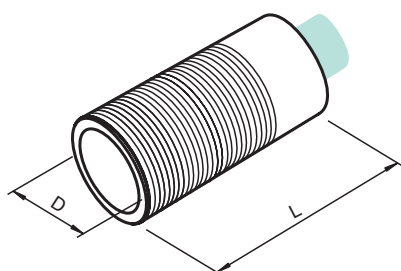
Cubic Ultrasonic Sensors
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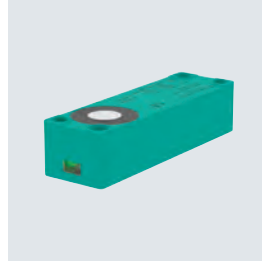
F77 Series
Thru-Beam Sensor and Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Voltage type	DC
Operating voltage (max)	30 V
Housing length L	23 mm
Housing height H	31 mm
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Version	Detection range [mm]	Dead band	Output type	Switching function	UB (min)	Connection type	Width W
UB100-F77-E0-V31	Frontlooker	100	10	NPN	Normally-open (NO)	20	M8 connector plug	12
UB100-F77-E1-V31	Frontlooker	100	10	NPN	Normally-closed (NC)	20	M8 connector plug	12
UB100-F77-E2-V31	Frontlooker	100	10	PNP	Normally-open (NO)	20	M8 connector plug	12
UB100-F77-E3-V31	Frontlooker	100	10	PNP	Normally-closed (NC)	20	M8 connector plug	12
UB250-F77-E0-V31	Frontlooker	250	20	NPN	Normally-open (NO)	20	M8 connector plug	12
UB250-F77-E1-V31	Frontlooker	250	20	NPN	Normally-closed (NC)	20	M8 connector plug	12
UB250-F77-E2-V31	Frontlooker	250	20	PNP	Normally-open (NO)	20	M8 connector plug	12
UB250-F77-E3-V31	Frontlooker	250	20	PNP	Normally-closed (NC)	20	M8 connector plug	12
UB250-F77-F-V31	Frontlooker	250	35	Frequency output, PNP		20	M8 connector plug	12
UBR250-F77-E0-V31	Frontlooker	250		NPN	Normally-open (NO)	20	M8 connector plug	12
UBR250-F77-E2-V31	Frontlooker	250		PNP	Normally-open (NO)	20	M8 connector plug	12
UBR250-F77-E3-V31	Frontlooker	250		PNP	Normally-closed (NC)	20	M8 connector plug	12
UC250-F77-EP-IO-V31	Frontlooker	250	20	IO-Link, PNP/NPN	Push-pull output	10	M8 connector plug	12
UC250-F77-IU-IO-2M	Frontlooker	250	20	Analog voltage output, analog current output, IO-Link	Analog	18	Fixed cable	12
UC250-F77-IU-IO-5M	Frontlooker	250	20	Analog voltage output, analog current output, IO-Link	Analog	18	Fixed cable	12
UC250-F77-IU-IO-V31	Frontlooker	250	20	Analog voltage output, analog current output, IO-Link	Analog	18	M8 connector plug	12
UB400-F77-E0-V31	Frontlooker	400	25	NPN	Normally-open (NO)	20	M8 connector plug	12
UB400-F77-E1-V31	Frontlooker	400	25	NPN	Normally-closed (NC)	20	M8 connector plug	12
UB400-F77-E2-V31	Frontlooker	400	25	PNP	Normally-open (NO)	20	M8 connector plug	12
UB400-F77-E3-V31	Frontlooker	400	25	PNP	Normally-closed (NC)	20	M8 connector plug	12
UB400-F77-F-V31	Frontlooker	400	40	Frequency output, PNP		20	M8 connector plug	12
UBR400-F77-E0-V31	Frontlooker	400		NPN	Normally-open (NO)	20	M8 connector plug	12
UBR400-F77-E2-V31	Frontlooker	400		PNP	Normally-open (NO)	20	M8 connector plug	12
UBR400-F77-E3-V31	Frontlooker	400		PNP	Normally-closed (NC)	20	M8 connector plug	12
UC400-F77-EP-IO-V31	Frontlooker	400	30	IO-Link, PNP/NPN	Push-pull output	10	M8 connector plug	12
UC400-F77-IU-IO-0,2M-V1	Frontlooker	400	30	Analog voltage output, analog current output, IO-Link	Analog	18	Fixed cable with M12 plug	12
UC400-F77-IU-IO-V31	Frontlooker	400	30	Analog voltage output, analog current output, IO-Link	Analog	18	M8 connector plug	12
UBE800-F77-SE2-V31	Frontlooker	800		PNP	Normally-open (NO)	20	M8 connector plug	12
UBE800-F77-SE3-V31	Frontlooker	800		PNP	Normally-closed (NC)	20	M8 connector plug	12
UC800-F77S-EP-IO-V31	Sidelooker	800	60	IO-Link, PNP/NPN	Push-pull output	10	M8 connector plug	21
UC800-F77S-IU-IO-V31	Sidelooker	800	60	Analog voltage output, analog current output, IO-Link	Analog	18	M8 connector plug	21

Highlights

- An optimal application solution using a single sensor due to a wide range of customization options
- Sensor-based synchronization and interference suppression for excellent detection reliability
- Compact, space-saving housing design in standard and sidelooker versions
- Communication down to sensor level with IO-Link

Accessories	
IO-Link-Master02-USB	IO-Link master, power supply via USB port
UB-PROG4-V31	Programming unit for ultrasonic sensors
V1-G-1M-PVC-V1-G	Cordset, M12 to M12, PVC cable, 4-pin
V15-G-2M-PVC	Single-ended female cordset, M12, 5-pin, PVC cable
V15-G-PG9	Single-ended female cordset, M12, 5-pin, field-attachable
V31-GM-1M-PVC-V1-G	Cordset, M8 to M12
V31-GM-2M-PVC	Single-ended female cordset, M8, 4-pin, PVC cable
V31-WM-2M-PVC	Single-ended female cordset, M8, 4-pin, PVC cable

F12 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing length L	41.5 mm
Housing width W	15 mm
Housing height H	49 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)
UB120-F12P-EP-V15	150	15	PNP/NPN	Push-pull output	10	50	10
UB250-F12-EP-V15	250	20	PNP/NPN	Push-pull output	20	20	10
UB250-F12-I-V15	250	20	Analog current output	Analog	20		10
UB250-F12-U-V15	250	20	Analog voltage output	Analog	20		12
UB250-F12P-EP-V15	250	20	PNP/NPN	Push-pull output	20	20	10
UB800-F12-EP-V15	800	30	PNP/NPN	Push-pull output	100	6	10
UB800-F12-I-V15	800	30	Analog current output	Analog	100		10
UB800-F12-U-V15	800	30	Analog voltage output	Analog	100		12
UB800-F12P-EP-V15	800	30	PNP/NPN	Push-pull output	100	4	10

Highlights

- Choice of switching output or analog output
- Configuration and operation via potentiometer (F12P) and button on the device
- Sound beam switching for rapid, individual adjustment to the detection application
- Synchronization prevents cross-talk

Brief Description

The ultrasonic diffuse mode sensors in the F12 series are suitable for a wide range of applications and offer special sensor functions. They are available with either a switching output or analog output. The potentiometer and button on the device are used for configuration and operation. The sound beam can be quickly and easily switched between three widths. This also allows measurement in especially narrow feeds such as in bottling machines and vibrating conveyors. Sensors mounted close together can be synchronized autonomously so they do not interrupted by cross-talk. This ensures excellent detection reliability in these applications.
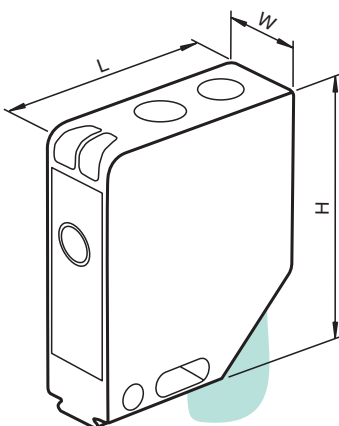
Accessories	
OMH-01	Mounting aid for circular profiles ø 12 mm or flat profiles 1.5 mm ... 3 mm
OMH-06	Mounting aid for circular profiles ø 12 mm or flat profiles 1.5 mm ... 3 mm
OMH-K01	Mounting clamp for sensors with dovetail groove
OMH-K02	Mounting clamp for sensors with dovetail groove
OMH-K03	Mounting clamp for sensors with dovetail groove
OMH-MLV12-HWG	Mounting bracket for MLV12 series sensors
OMH-MLV12-HWK	Mounting bracket for MLV12 series sensors
V15-G-2M-PVC	Single-ended female cordset, M12, 5-pin, PVC cable

L2 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Voltage type	DC
Operating voltage (max)	30 V
Housing length L	40 mm
Housing width W	40 mm
Housing height H	40 mm
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)	Connection type	EAC	UL
UC500-L2-E4-V15	500	35	NPN	Normally open/close selectable	20	14	10	M12 connector plug		■
UC500-L2-E5-V15	500	35	PNP	Normally open/close selectable	20	14	10	M12 connector plug		■
UC500-L2-E6-V15	500	35	2 * PNP, PNP	Normally open/close selectable	20	14	10	M12 connector plug		■
UC500-L2-E7-V15	500	35	2 * NPN, NPN	Normally open/close selectable	20	14	10	M12 connector plug		■
UC500-L2-I-V15	500	35	Analog current output	Analog	20		10	M12 connector plug		■
UC500-L2-U-V15	500	35	Analog voltage output	Analog	20		12	M12 connector plug		■
UC500-L2M-E6-T-2M	500	35	2 * PNP, PNP	Normally open/close selectable	20	14	10	Fixed cable	■	■
UC500-L2M-E7-T-2M	500	35	2 * NPN, NPN	Normally open/close selectable	20	14	10	Fixed cable	■	■
UC500-L2M-I-T-2M	500	35	Analog current output	Analog	20		10	Fixed cable	■	■
UC500-L2M-U-T-2M	500	35	Analog voltage output	Analog	20		12	Fixed cable	■	■
UC2000-L2-E4-V15	2000	60	NPN	Normally open/close selectable	60	5	10	M12 connector plug		■
UC2000-L2-E5-V15	2000	60	PNP	Normally open/close selectable	60	5	10	M12 connector plug		■
UC2000-L2-E6-V15	2000	60	2 * PNP, PNP	Normally open/close selectable	60	5	10	M12 connector plug	■	■
UC2000-L2-E7-V15	2000	60	2 * NPN, NPN	Normally open/close selectable	60	5	10	M12 connector plug		■
UC2000-L2-I-V15	2000	60	Analog current output	Analog	60		10	M12 connector plug		■
UC2000-L2-U-V15	2000	60	Analog voltage output	Analog	60		12	M12 connector plug		■
UC2000-L2M-E6-T-2M	2000	60	2 * PNP, PNP	Normally open/close selectable	60	5	10	Fixed cable	■	■
UC2000-L2M-E7-T-2M	2000	60	2 * NPN, NPN	Normally open/close selectable	60	5	10	Fixed cable	■	■
UC2000-L2M-I-T-2M	2000	60	Analog current output	Analog	60		10	Fixed cable	■	■
UC2000-L2M-U-T-2M	2000	60	Analog voltage output	Analog	60		12	Fixed cable	■	■
UC2000-L2M-E5-V15	2000	60	PNP	Normally open/close selectable	60	5	10	M12 connector plug		■
UC4000-L2-E4-V15	4000	200	NPN	Normally open/close selectable	110	3	10	M12 connector plug		■
UC4000-L2-E5-V15	4000	200	PNP	Normally open/close selectable	110	3	10	M12 connector plug		■
UC4000-L2-E6-V15	4000	200	2 * PNP, PNP	Normally open/close selectable	110	3	10	M12 connector plug		■
UC4000-L2-I-V15	4000	200	Analog current output	Analog	110		10	M12 connector plug		■
UC4000-L2-U-V15	4000	200	Analog voltage output	Analog	110		12	M12 connector plug		■
UC4000-L2M-E6-T-2M	4000	200	2 * PNP, PNP	Normally open/close selectable	110	3	10	Fixed cable	■	■
UC4000-L2M-E7-T-2M	4000	200	2 * NPN, NPN	Normally open/close selectable	110	3	10	Fixed cable	■	■
UC4000-L2M-I-T-2M	4000	200	Analog current output	Analog	110		10	Fixed cable	■	■
UC4000-L2M-U-T-2M	4000	200	Analog voltage output	Analog	110		12	Fixed cable	■	■

Highlights

- A wide spectrum of detection ranges also enables use in wide-range applications
- Variable, rotating sensor head for installation in special conditions
- Mounting and connections are compatible with the equivalent inductive proximity switches in the VariKont L series
- -T models have an extended temperature range

Accessories	
UB-PROG2	Programming unit
UC-PROG1-USB	Programming device
V15-G-2M-PVC	Single-ended female cordset, M12, 5-pin, PVC cable
V15S-G-0,3M-PUR-WAGO	Single-ended male cordset, M12, 5-pin, PUR cable with WAGO terminals

F54 Series
Thru-Beam Sensor and Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing length L	25 mm
Housing width W	105 mm
Housing height H	31 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	UB (min)	EAC
UB500-F54-E4-V15	500	30	NPN	Normally open/close selectable	50	10	10	
UB500-F54-E5-V15	500	30	PNP	Normally open/close selectable	50	10	10	
UB500-F54-I-V15	500	30	Analog current output	Analog	50		10	
UB500-F54-U-V15	500	30	Analog voltage output	Analog	50		15	■
UB2000-F54-E4-V15	2000	80	NPN	Normally open/close selectable	150	3	10	
UB2000-F54-E5-V15	2000	80	PNP	Normally open/close selectable	150	3	10	
UB2000-F54-I-V15	2000	80	Analog current output	Analog	150		10	
UB2000-F54-U-V15	2000	80	Analog voltage output	Analog	150		15	
UBE15M-F54-H1-V1	15000		Pulse output, NPN				16	
UBE15M-F54-H2-V1	15000		Pulse output, NPN				10	

Highlights

- High measurement density with a detection range of up to 2 m in an especially space-saving housing design
- User-friendly teach-in input
- Highly robust with IP65 degree of protection for excellent availability
- Autonomous sensor synchronization prevents cross-talk between multiple sensors

Brief Description

The F54 diffuse mode sensor really shows its strengths in narrow mounting spaces, while offering synchronization capabilities and a long detection range of up to two meters. The teach-in input makes configuration especially user friendly. The F54 can be used in applications such as bottle return machines and in the detection of roll diameters, for example when handling continuous roll materials such as aluminum, film, and nonwoven fabrics. The sensor continuously detects the diameter and gives the user early warning when the roller falls below the minimum diameter and must be changed.
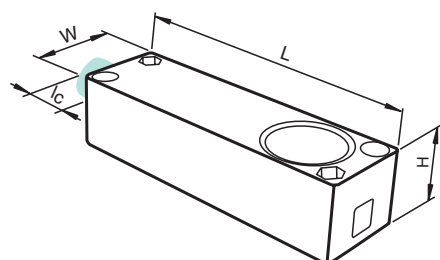
Accessories	
UB-PROG2	Programming unit
V15-G-2M-PVC	Single-ended female cordset, M12, 5-pin, PVC cable

F42 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Housing height H	80 mm

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	Switching function	Voltage type	UB (min)	UB (max)	Connection type	Length L	Width W	CSA	EAC	UL
UB400-F42-UK-V95	400	40	Relay	Normally-open (NO)	AC/DC	22	253	7/8 inch connector plug	34	80		■	
UB400-F42S-UK-V95	400	40	Relay	Normally-open (NO)	AC/DC	22	253	7/8 inch connector plug	80	34		■	
UB500-F42-E4-V15	500	30	NPN	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB500-F42-E5-V15	500	30	PNP	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB500-F42-E6-V15	500	30	2 * PNP, PNP	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB500-F42-E7-V15	500	30	2 * NPN, NPN	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB500-F42-I-V15	500	30	Analog current output	Analog	DC	10	30	M12 connector plug	34	80	■		■
UB500-F42-U-V15	500	30	Analog voltage output	Analog	DC	17	30	M12 connector plug	34	80	■		■
UB500-F42S-E4-V15	500	30	NPN	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB500-F42S-E5-V15	500	30	PNP	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB500-F42S-E6-V15	500	30	2 * PNP, PNP	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB500-F42S-E7-V15	500	30	2 * NPN, NPN	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB500-F42S-I-V15	500	30	Analog current output	Analog	DC	10	30	M12 connector plug	80	34	■		■
UB500-F42S-U-V15	500	30	Analog voltage output	Analog	DC	17	30	M12 connector plug	80	34	■		■
UB1500-F42-UK-V95	1500	70	Relay	Normally-open (NO)	AC/DC	22	253	7/8 inch connector plug	34	80		■	
UB1500-F42S-UK-V95	1500	70	Relay	Normally-open (NO)	AC/DC	22	253	7/8 inch connector plug	80	34		■	
UB2000-F42-E4-V15	2000	60	NPN	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB2000-F42-E5-V15	2000	60	PNP	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB2000-F42-E6-V15	2000	60	2 * PNP, PNP	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■	■	■
UB2000-F42-E7-V15	2000	60	2 * NPN, NPN	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB2000-F42-I-V15	2000	60	Analog current output	Analog	DC	10	30	M12 connector plug	34	80	■	■	■
UB2000-F42-U-V15	2000	60	Analog voltage output	Analog	DC	17	30	M12 connector plug	34	80	■		■
UB2000-F42S-E4-V15	2000	60	NPN	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB2000-F42S-E5-V15	2000	60	PNP	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB2000-F42S-E6-V15	2000	60	2 * PNP, PNP	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB2000-F42S-E7-V15	2000	60	2 * NPN, NPN	Normally open/close selectable	DC	10	30	M12 connector plug	80	34	■		■
UB2000-F42S-I-V15	2000	60	Analog current output	Analog	DC	10	30	M12 connector plug	80	34	■		■
UB2000-F42S-U-V15	2000	60	Analog voltage output	Analog	DC	17	30	M12 connector plug	80	34	■		■
UB3000-F42-UK-V95	3000	200	Relay	Normally-open (NO)	AC/DC	22	253	7/8 inch connector plug	34	80		■	
UB4000-F42-E4-V15	4000	200	NPN	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB4000-F42-E5-V15	4000	200	PNP	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB4000-F42-E6-V15	4000	200	2 * PNP, PNP	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB4000-F42-E7-V15	4000	200	2 * NPN, NPN	Normally open/close selectable	DC	10	30	M12 connector plug	34	80	■		■
UB4000-F42-I-V15	4000	200	Analog current output	Analog	DC	10	30	M12 connector plug	34	80	■		■
UB4000-F42-U-V15	4000	200	Analog voltage output	Analog	DC	17	30	M12 connector plug	34	80	■		■
UB5000-F42-UK-V95	5000	350	Relay	Normally-open (NO)	AC/DC	22	253	7/8 inch connector plug	50	80		■	
UB6000-F42-E4-V15	6000	350	NPN	Normally open/close selectable	DC	10	30	M12 connector plug	50	80	■		■
UB6000-F42-E5-V15	6000	350	PNP	Normally open/close selectable	DC	10	30	M12 connector plug	50	80	■		■
UB6000-F42-E6-V15	6000	350	2 * PNP, PNP	Normally open/close selectable	DC	10	30	M12 connector plug	50	80	■		■
UB6000-F42-E7-V15	6000	350	2 * NPN, NPN	Normally open/close selectable	DC	10	30	M12 connector plug	50	80	■		■
UB6000-F42-I-V15	6000	350	Analog current output	Analog	DC	10	30	M12 connector plug	50	80	■		■
UB6000-F42-U-V15	6000	350	Analog voltage output	Analog	DC	17	30	M12 connector plug	50	80	■		■

F65 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Switching function	Normally-open (NO)
Voltage type	DC
Operating voltage (max)	30 V
Connection type	M12 connector plug
Housing length L	64.4 mm
Housing width W	125 mm
Housing height H	30 mm
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Detection range [mm]	Dead band	Output type	UB (min)
UC500-F65-E8R2-V15	500	60	2 * PNP, PNP	12
UC500-F65-UE2R2-V15	500	60	Analog voltage output, PNP	15
UC500-F65-IE2R2-V15	500	60	Analog current output, PNP	15
UC1500-F65-E8R2-V15	1500	200	2 * PNP, PNP	12
UC1500-F65-IE2R2-V15	1500	200	Analog current output, PNP	15
UC1500-F65-UE2R2-V15	1500	200	Analog voltage output, PNP	15
UC2500-F65-E8R2-V15	2500	250	2 * PNP, PNP	12
UC2500-F65-IE2R2-V15	2500	250	Analog current output, PNP	15
UC2500-F65-UE2R2-V15	2500	250	Analog voltage output, PNP	15

Highlights

- Special sensor design seals the measurement opening in the tank to prevent water and odor leakage
- Variety of potential applications with a range of up to 2.5 m
- Teach-in at the sensor or via parameterization software for rapid configuration
- Analog and switching output in one device for impressive flexibility in the measured value output
- Highly robust with IP65 degree of protection

Brief Description

From the housing design to the mounting technology and measured value output, the sophisticated, application-specific concept of the F65 series ultrasonic diffuse mode sensors makes them the ideal solution for fill level detection in containers. The rounded housing design has no protruding elements, allowing it to be installed near the container side wall. The sensor seals the tank opening with its integrated O-ring, preventing water and odor leakage from the container. One single device provides the user with both a digital and an analog output, meaning the fill level can be continually measured in the container and limit levels can be detected.
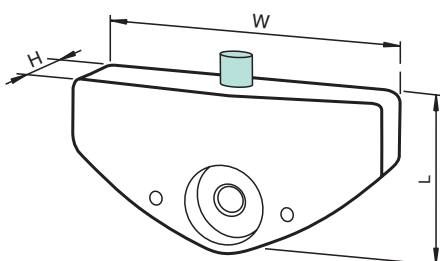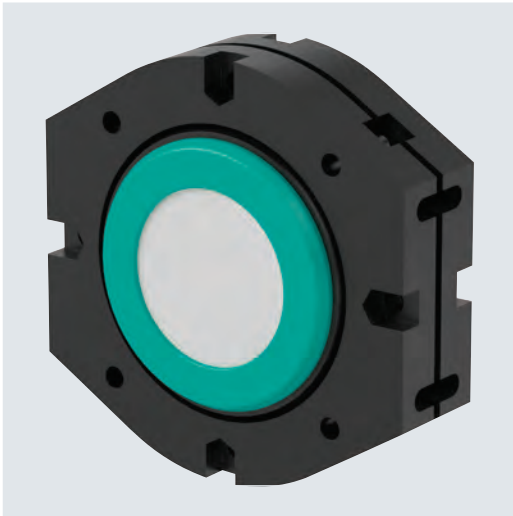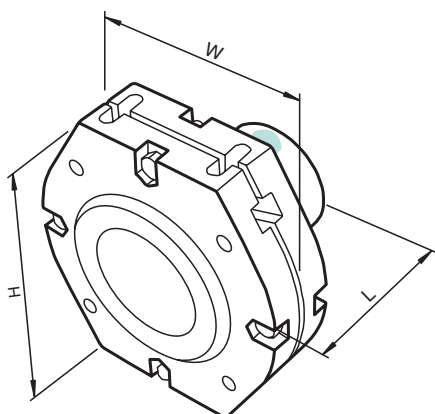
Accessories	
3RX4000-PF	PC interface
V15-G-2M-PUR	Single-ended female cordset, M12, 5-pin, PUR cable
V15-G-2M-PVC	Single-ended female cordset, M12, 5-pin, PVC cable
V15-W-2M-PVC	Single-ended female cordset, M12, 5-pin, PVC cable

F260 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cuboid shape
Detection range	10000 mm
Dead band	800 mm
Voltage type	DC
Operating voltage (min)	15 V
Operating voltage (max)	30 V
Connection type	Terminal compartment
Housing length L	112 mm
Housing diameter D	160 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Output type	Switching function
UC10000-F260-IE8R2	2 * PNP, analog current output	Normally-open (NO)
UC10000-F260-IE9R2	2 * PNP, analog current output	Normally-closed (NC)
UC10000-F260-UE8R2	2 * PNP, analog voltage output	Normally-open (NO)
UC10000-F260-UE9R2	2 * PNP, analog voltage output	Normally-closed (NC)

Highlights

- Rugged design ensures highest level of availability in heavy-duty applications
- Detection range of up to 10 m enables reliable long-range detection
- Simple adjustment via potentiometer and user-friendly software
- One analog output and two switching outputs in the sensor allow application-specific measured value output

Brief Description

Heavy-duty applications push many sensors past their limits—but not the F260 series. Whether facing shocks and vibrations, like those in construction machinery applications, excavators, and cranes, or the dust of a gravel works or cement silo, these challenges are no problem for this extra-robust ultrasonic diffuse mode sensor. The sensor can be parameterized via the software, and the switching points can be configured using the potentiometer. The extra-long detection range of up to 10 m is ideal for outdoor use in bunkers and silos, and the F260 is perfect for collision protection of crane booms.

Accessories	
3RX4000-PF	PC interface
V1-M20-80	Receptacle, M12/M20; plastic version
V15S-G-2M-PVC	Single-ended male cordset, M12, 5-pin, PVC cable

Ultrasonic Sensors for Special Applications
Robust Design for Extreme Conditions

In addition to solutions for standard industrial applications, the ultrasonic portfolio stands out with its application-specific solutions, offering the user excellent flexibility for an optimal application solution—including in wet or hygienic applications, in chemically aggressive environments or in double-material detection.

Hygienic Ultrasonic Sensors

With its fully stainless steel design, hermetically sealed construction, and food-safe materials in accordance with FDA, ECOLAB, and EHEDG regulations, the hygienic ultrasonic sensors are ideal for the food and pharmaceutical industry.

Typical Applications
- Food industry: performing presence and content checks on thermoformed trays for foods such as meat, fish, and vegetables
- Pharmaceutical industry: level monitoring during the manufacture and packaging of medical products

Your Benefits at a Glance
- Fully encapsulated stainless steel housing AISI 316L (1.4404) withstands steam jets and permanently high temperatures up to +85 °C (IP68/IP69K degree of protection)
- EHEDG certificate for sensor and bracket in hygienic design for use in product-contact zones
- Split-free construction and chemical resistance to aggressive substances and cleaning agents (ECOLAB certified)

Chemically Resistant Ultrasonic Sensors

The chemically resistant ultrasonic sensors offer outstanding material resistance for ultimate availability even in the toughest operational conditions. They are hermetically sealed against the ingress of aggressive media and are exceptionally easy to parameterize.

Typical Applications
- Level measurement of chemicals such as acids and alkalis
- Presence check in processes with corrosive fumes/aggressive vapors, e.g., in tire production

Your Benefits at a Glance
- High level of chemical resistance for excellent availability and durability
- Housing made of high-quality stainless steel (V2A or V4A) and coated ultrasonic transducer
- Very high degree of protection; IP68/IP69K for the harshest applications
- Also suitable for long-range applications of up to 6 m
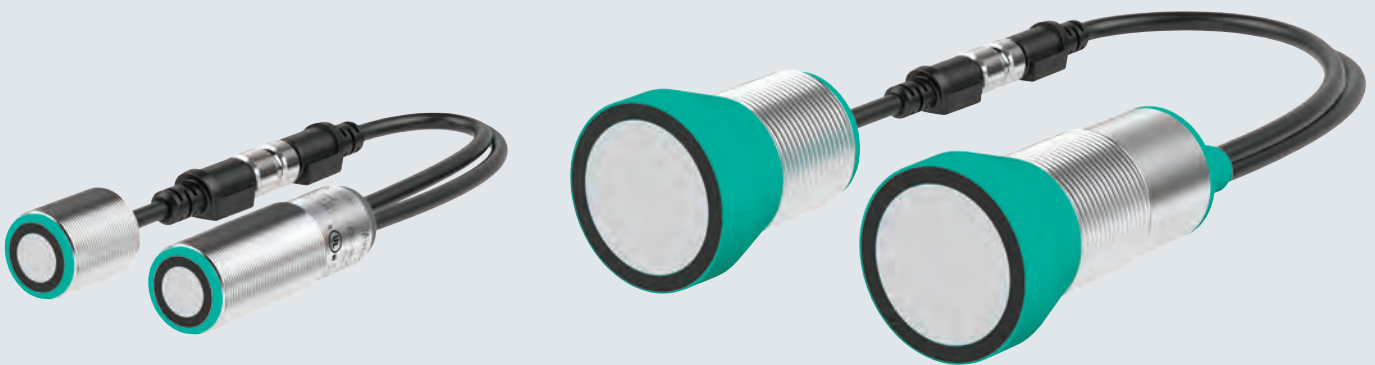
Double Material Detection

Ultrasonic sensors for double material detection protect against a faulty material feed and ensure reliable processes and a high level of plant availability. This technology can be used in the detection of double sheets, labels, and splices.

Typical Applications
- Double sheet control: on printing machines, in sheet metal processing, and when applying veneer to chipboard to prevent the infeed of double sheets or incorrect sheets
- Splice control: detection of material transitions in paper, sheet metal, or textile rolls
- Label control: detection and counting of labels in labeling systems

Your Benefits at a Glance
- Flexible deployment due to wide range of materials and thicknesses
- Extremely short response delay for excellent detection reliability even at high process speeds
- Specially adapted splice detection available for especially inhomogeneous materials

Download the Ultrasound Technology Guide

Detailed information on how ultrasound technology works, its advantages, and a wide range of sample applications can be found in the comprehensive Technology Guide by Pepperl+Fuchs.

**www.pepperl-fuchs.com/
fa-technology-guide**

Ultrasonic Sensors for Special Applications
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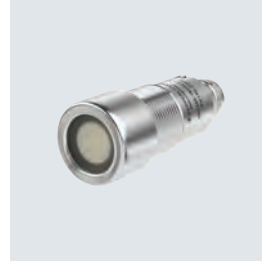
UMC3000 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Detection range	3000 mm
Dead band	200 mm
Response delay	200 ms
Voltage type	DC
Operating voltage (min)	10 V
Operating voltage (max)	30 V
Connection type	Fixed cable
Housing length L	100 mm
Housing diameter D	30 mm

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Output type	Switching function	Switching frequency [Hz]	ATEX
UMC3000-30H-E5-5M-3G-3D	PNP	Normally open/close selectable	3	■
UMC3000-30H-E5-5M-FA	PNP	Normally open/close selectable	3	
UMC3000-30H-I-5M-3G-3D	Analog current output	Analog		■
UMC3000-30H-I-5M-FA	Analog current output	Analog		

Highlights

- Product and process reliability through hygienic design and FDA-compliant materials
- Flexible parameterization via teach-in input or serial interface for easy commissioning
- EHEDG certificate for sensor and bracket (hygienic design), ideal for use in product-contact zones
- Chemically resistant to aggressive substances and cleaning agents (ECOLAB certified)
- Very high degree of protection IP68/IP69K

Brief Description

Like the compact UMB800, the UMC3000 series impresses with its fully stainless steel design, hermetically sealed construction, and food-safe materials in accordance with FDA, ECOLAB, and EHEDG regulations. In addition, this series can be used for measuring ranges of up to three meters and offers extensive parameterization options. The sensor is especially simple and flexible to commission via the teach-in input or serial interface. These properties ensure perfect adaptation to a wide variety of detection and measuring applications, for example in content control for thermoformed trays in the food industry, or fill level monitoring when packaging medical products.

Accessories	
MH-30H-01-FA	Mounting aid, 30 mm in accordance with EHEDG
UC-PROG1-USB	Programming device
V15S-G-0,3M-PUR-WAGO	Single-ended male cordset, M12, 5-pin, PUR cable with WAGO terminals
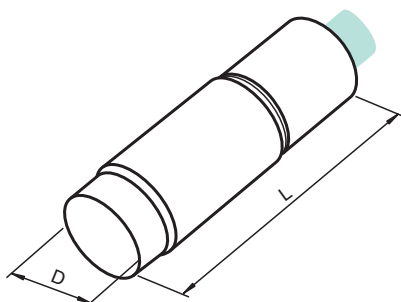
UMB800 Series
Diffuse Mode Sensor

Standard Technical Data	
Design	Cylindrical
Detection range	800 mm
Dead band	70 mm
Response delay	100 ms
Voltage type	DC
Operating voltage (max)	30 V
Connection type	Fixed cable
Housing length L	55 mm
Housing diameter D	18 mm

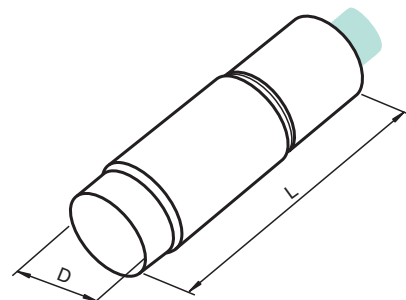For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Output type	Switching function	Switching frequency [Hz]	UB (min)
UMB800-18H40-E4-2M-FA	NPN	Normally open/close selectable	4	10
UMB800-18H40-E5-2M-FA	PNP	Normally open/close selectable	4	10
UMB800-18H40-I-2M-FA	Analog current output	Analog		10
UMB800-18H40-U-2M-FA	Analog voltage output	Analog		15

Highlights

- Compact ultrasonic sensor in fully encapsulated stainless steel housing AISI 316L (1.4404)
- EHEDG certificate for sensor and bracket (hygienic design), ideal for use in product-contact zones
- Chemically resistant to aggressive substances and cleaning agents (ECOLAB certified)
- IP68/IP69K degree of protection to withstand jets of steam and continuous high temperatures of up to +85 °C

Brief Description

As proven by certification from EHEDG and ECOLAB, the UMB800 meets the highest standards of hygienic design and easy cleaning. The sensor is made exclusively of FDA-compliant materials, such as high-grade stainless steel. The sensor head and all housing parts are laser-welded and thus hermetically sealed against the ingress of steam or fluids. The gap-free design ensures that no traces of cleaning media remain on the component and that there is nowhere for bacteria to build up. With this design, the UMB800 series satisfies the highest standards of product and process safety for food and medication filling and packaging applications. The highly resistant materials also make it ideal for the chemical industry and process engineering.

Accessories	
MH-18H-01-FA	Mounting aid, 18 mm in accordance with EHEDG

UCC Series
Diffuse Mode Sensor

| Standard Technical Data	
Design	Cylindrical
Voltage type	DC

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Version	Detection range [mm]	Dead band	Output type	Switching function	UB (min)	UB (max)	Connection type	Length L	Diameter D	CSA	UL
UCC500-30GH70-IE2R2-K-V15	Straight head	500	45	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	111.3	30	■	■
UCC500-30GH70-IE2R2-V15	Straight head	500	45	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	99.3	30	■	■
UCC500-30GH70S-IE2R2-V15	Angled head	500	45	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	126	30	■	■
UCC1000-18GH90-E2-IO-V1		1000	100	IO-Link, PNP	Normally-open (NO)	12	30	M12 connector plug	90	18		
UCC1000-30GM-E6R2-V15	Straight head	1000	80	2 * PNP, PNP	Normally open/close selectable	10	30	M12 connector plug	96	30	■	■
UCC1000-30GM-IUR2-V15	Straight head	1000	80	Analog voltage output, analog current output	Analog	10	30	M12 connector plug	115	30	■	■
UCC2000-30GH70-IE2R2-K-V15	Straight head	2000	100	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	111.3	30	■	■
UCC2000-30GH70-IE2R2-V15	Straight head	2000	100	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	99.3	30	■	■
UCC2000-30GH70S-IE2R2-V15	Angled head	2000	100	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	126	30	■	■
UCC3500-30GH70-IE2R2-V15	Straight head	3500	200	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	99.3	30	■	■
UCC3500-30GH70S-IE2R2-V15	Angled head	3500	200	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	126	30	■	■
UCC6000-30GH70-IE2R2-V15	Straight head	6000	350	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	121.2	30	■	■
UCC6000-30GH70S-IE2R2-V15	Angled head	6000	350	Analog current output, PNP	Normally open/close selectable	20	30	M12 connector plug	143.5	30	■	■

Highlights

- Detection ranges of up to 6 m open up a wide range of application options
- Simple parameterization allows optimal adaptation to detection and measuring applications
- High chemical resistance for highest availability and durability thanks to housing made of high-quality stainless steel (V2A or V4A) and coated ultrasonic transducer
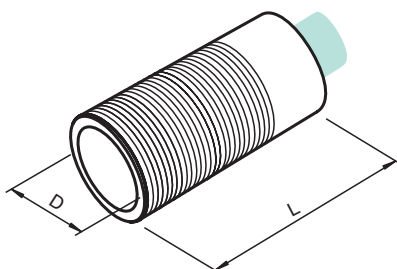
Brief Description

Complementing the UBC series, these sensors offer impressive adaptability to a wide range of applications. All surfaces that are exposed to aggressive media and atmospheres exhibit a high degree of resistance to chemical agents. Comprehensive, easy-to-use parameterization functions allow the sensors to be adapted to any application, and synchronized if necessary. The diffuse mode sensors are available with graduated detection ranges of up to six meters.

Accessories	
BF 18	Mounting adapter, 18 mm
BF 18-F	Plastic mounting adapter, 18 mm
BF 30	Mounting adapter, 30 mm
BF 30-F	Plastic mounting adapter, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 mm ... 30 mm
M30K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
OMH-04	Mounting aid for circular profiles ø 12 mm or flat profiles 1.5 mm ... 3 mm
UC-30GM-R2	Connection: sub-D socket, 9-pin

UBC Series
Thru-Beam Sensors and Diffuse Mode Sensors

Standard Technical Data	
Design	Cylindrical
Voltage type	DC
Operating voltage (min)	10 V
Operating voltage (max)	30 V
Connection type	M12 connector plug
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Detection range [mm]	Dead band	Output type	Switching function	Response delay [ms]	Switching frequency [Hz]	Length L	Diameter D	CSA
UBC250-12GM-E5-V1	250	30	PNP	Normally open/close selectable	50	8	70	12	
UBC250-12GM-I-V1	250	30	Analog current output	Analog	50		70	12	
UBEC300-18GH40-SE2-V1	300		PNP	Normally-open (NO)		100	40	18	■
UBC400-18GH40-I-V1	400	40	Analog current output	Analog	100		40	18	■

Highlights

- High level of chemical resistance for excellent availability and durability
- Housing made of high-quality stainless steel (V4A)
- PTFE-coated ultrasonic transducer
- Very high degree of protection IP68/IP69K
- Easy to configure via teach-in input

Brief Description

The UBC series ultrasonic sensors offer outstanding material resistance for excellent availability even in the toughest operational conditions. The thru-beam sensor and diffuse mode sensor come with the highest degree of protection and are hermetically sealed against aggressive atmospheres, for example when measuring the fill level of acids and alkaline solutions. The different detection ranges and output configurations make these durable sensors very versatile. Configuration via the teach-in input is especially quick and easy.

Accessories	
BF 12	Mounting adapter, 12 mm
BF 18	Mounting adapter, 18 mm
BF 18-F	Plastic mounting adapter, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 mm ... 30 mm
M12K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
OMH-04	Mounting aid for circular profile ø 12 mm or flat profile
UB-PROG2	Programming unit
UVW90-M12	Ultrasonic deviation reflector
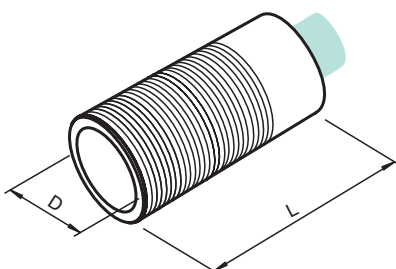
UDC-18GM50 Series Thru-Beam Sensor

Standard Technical Data	
Design	Cylindrical
Voltage type	DC
Operating voltage (min)	18 V
Operating voltage (max)	30 V
Connection type	Fixed cable
Housing diameter D	18 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

| Model number	Detection range [mm]	Output type	Switching function	Length L
UDC-18GM50-255-3E0	60	NPN	Normally-open (NO)	50
UDC-18GM50-255-3E1	60	NPN	Normally-closed (NC)	50
UDC-18GM50-255-3E3	60	PNP	Normally-closed (NC)	50
UDC-18GM50-255S-3E0	100	NPN	Normally-open (NO)	50
UDC-18GM50-255S-3E1	100	NPN	Normally-closed (NC)	50
UDC-18GM50-255S-3E3	100	PNP	Normally-closed (NC)	50
UDC-18GM50-400-3E0	60	NPN	Normally-open (NO)	50
UDC-18GM50-400-3E1	60	NPN	Normally-closed (NC)	50
UDC-18GM50-400-3E2	60	PNP	Normally-open (NO)	50
UDC-18GM50-400-3E3	60	PNP	Normally-closed (NC)	50
UDC-18GMA-400-3E1	60	NPN	Normally-closed (NC)	74
UDC-18GMA-400-3E3	60	PNP	Normally-closed (NC)	74

Highlights

- Flexible deployment due to wide range of materials and thicknesses
- Two different transmission frequencies (400 kHz and 255 kHz) for the best possible coverage of the respective material spectrum in the application
- Immediately ready for use with no teach-in required
- Easily visible LED for quick indication of status

Brief Description

The UDC-18GM50 series double sheet sensors are ideal for monitoring the material feed on printing and paper machines. Whether it is thin tissue paper or thick cardboard, the sensors can handle a wide variety of material thicknesses thanks to their selectable transducer frequency. With their short housing design and a choice of straight or angled ultrasonic transducers, they are suitable for a variety of mounting options. If necessary, the devices can be adapted to the application via the programming input or, with the help of software, via the serial interface. For extra-fast applications, the sensors are also available with a response time of just 1.5 ms.

Accessories	
M18K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
MH-UDB01	Mounting bracket for ultrasonic double sheet detection
UC-PROG1-USB	Programming device
UDB-Cable-1M	Connection: M8 x 1 plug, M8 x 1 single-ended female cordset, 3-pin
UDB-Cable-2M	Connection: M8 x 1 plug, M8 x 1 single-ended female cordset, 3-pin
UVW90-K18	Ultrasonic deviation reflector
V15S-G-0,3M-PUR-WAGO	Single-ended male cordset, M12, 5-pin, PUR cable with WAGO terminals
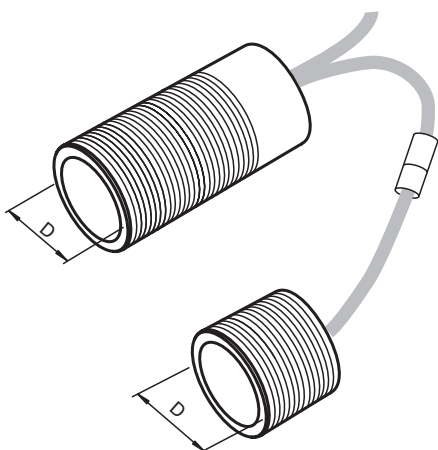
UDC(M)-30GM Series Thru-Beam Sensor

Standard Technical Data	
Version	Straight head
Design	Cylindrical
Detection range	150 mm
Output type	PNP
Switching function	Normally-closed (NC)
Voltage type	DC
Operating voltage (min)	18 V
Operating voltage (max)	30 V
Connection type	Fixed cable
Housing length L	90 mm
Housing diameter D	40 mm
CSA	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	
UDC-30GM-085-3E3	Ultrasonic system for the reliable detection of no, one, or two surface materials lying on top of each other
UDCM-30GM-085-3E3	Ultrasonic system for the reliable detection of no, one or two surface materials lying on top of each other, especially sheet metal

Highlights

- Ideally suited for thick materials: single sheets, duplex corrugated paper, parquet, wooden boards, or oriented strand board
- Easy operation with no teach-in required
- User-friendly adjustment via programming input or serial interface

Brief Description

Double sheet sensors in the UDC(M)-30GM series ensure process reliability when feeding especially thick materials. For example, double sheet detection allows individual sheets up to a thickness of 3.5 mm to be appropriately prepared for metal-forming presses. When processing solid and multi-layer parquet in a sawmill, these sensors reliably detect incorrect or double sheets, avoiding machine downtime and material waste. The devices have a short response delay of just 30 ms, which means that they can also be used in applications with high infeed rates.
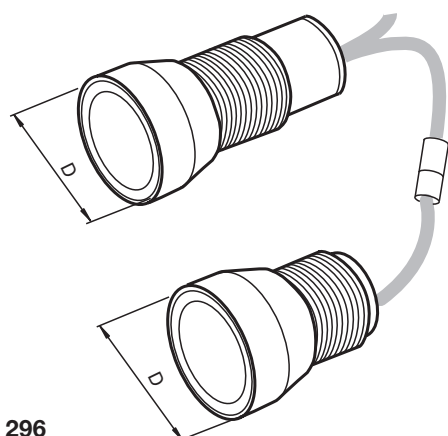
Accessories	
M30K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
MH-UDB02	Mounting bracket for ultrasonic double sheet detection
UC-PROG1-USB	Programming device
UDB-Cable-1M	Connection: M8 x 1 plug, M8 x 1 single-ended female cordset, 3-pin
UDB-Cable-2M	Connection: M8 x 1 plug, M8 x 1 single-ended female cordset, 3-pin
UVW90-K30	Ultrasonic deviation reflector
UVW90-M30	Ultrasonic deviation reflector
V15S-G-0,3M-PUR-WAGO	Single-ended male cordset, M12, 5-pin, PUR cable with WAGO terminals

ULB/UGB-18GM50 Series Thru-Beam Sensor

Standard Technical Data	
Design	Cylindrical
Detection range	60 mm
Switching function	Normally-closed (NC)
Voltage type	DC
Operating voltage (min)	18 V
Operating voltage (max)	30 V
Connection type	Fixed cable
Housing length L	53 mm
Housing diameter D	18 mm
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.

Model number	Output type	CSA
UGB-18GM50-255-2E1	2 * NPN, NPN	■
UGB-18GM50-255-2E3	2 * PNP, PNP	■
ULB-18GM50-255-2E1	2 * NPN, NPN	
ULB-18GM50-255-2E3	2 * PNP, PNP	

Highlights

- Compact design, ideal for confined installation situations
- Extremely short response delay for excellent detection reliability even at high process speeds
- Easy operation through teach-in of the roll material
- Ideal for transparent materials
- Specially adapted splice detection available for especially inhomogeneous materials

Brief Description

The sensor solutions in the ULB-18GM50 and ULG-18GM50 series have been specially developed to reliably detect materials that have been glued together. The label sensors can very precisely determine the transition points between the carrier material and the label and detect, position, or count these reliably. The roll material should be fed to the packaging and roll printing machines without interruption. For this reason, when changing a roll, the roll that is running out and the initial material on the new roll are glued together. In the subsequent process, the ULG-18GM50 splice detection sensors detect this transition point and enable the targeted removal of this double layer.
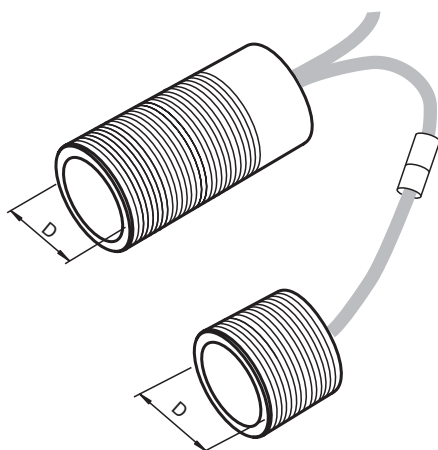
Accessories	
M18K-VE	Plastic nuts with centering ring for vibration-decoupled mounting of cylindrical sensors
MH-UDB01	Mounting bracket for ultrasonic double sheet detection
UVW90-K18	Ultrasonic deviation reflector