Reflex Sensor

U1KT002
Part Number

- **2 mutually independent switching outputs**
- **Miniature design**
- **Ready for Industrie 4.0 with IO-Link version 1.1**
- **Reflex and through-beam operation mode are possible**

These ultrasonic sensors evaluate the sound reflected by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. The IO-Link interface can be used to configure the reflex sensors (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and distance values.
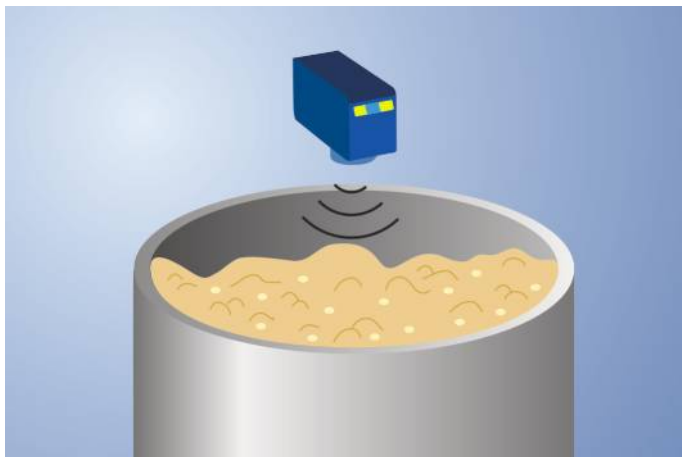
Technical Data

| Ultrasonic Data	
Working range, reflex sensor	30...400 mm
Working range, through-beam sensor	1...800 mm
Resolution	0,5 mm
Ultrasonic Frequency	325 kHz
Opening Angle	< 12 °
Service Life (T = +25 °C)	100000 h
Switching Hysteresis	1 % *
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (Ub = 24 V)	< 20 mA
Switching frequency, reflex sensor	30 Hz
Switching frequency, through-beam sensor	70 Hz
Response time, reflex sensor	17 ms
Response time, through-beam sensor	8 ms
Temperature Range	-30...60 °C
Number of Switching Outputs	2
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	100 mA
Synchronous Mode	up to 40 sensors
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link V1.1
Data Storage	yes
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Degree of Protection	IP68
Connection	M8 × 1; 4-pin
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1106,71 a
NPN NO	●
Programmable error output	●
IO-Link	●
Connection Diagram No.	260
Control Panel No.	A23
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

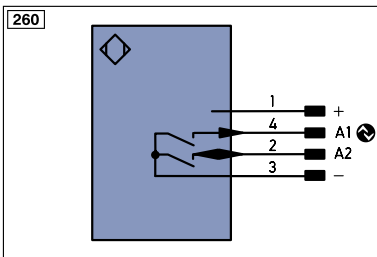* Referring to the switching distance, at least 2 mm.

Complementary Products

IO-Link Master	
Software	

1 = Sensing Face
Screw M3 = 0,5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

A 23
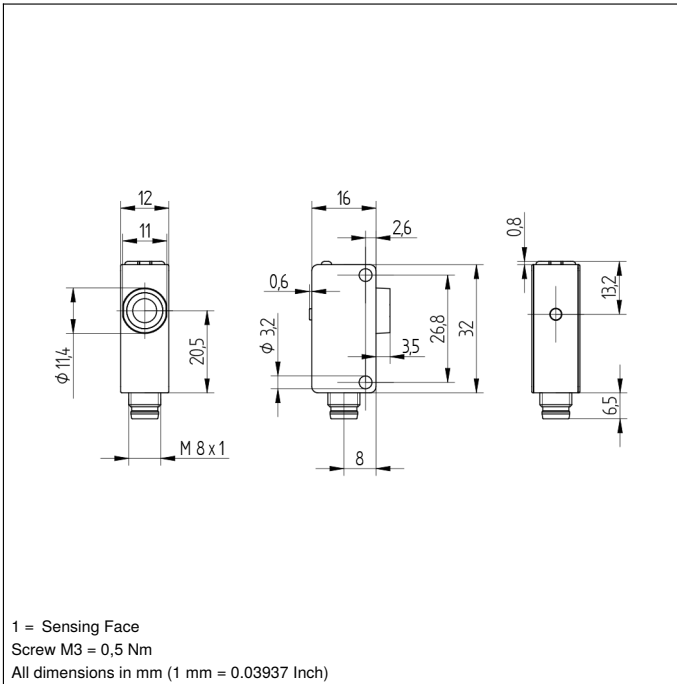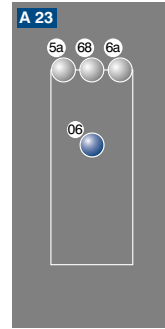
06 = Teach Button
5a = Switching Status Display, O1
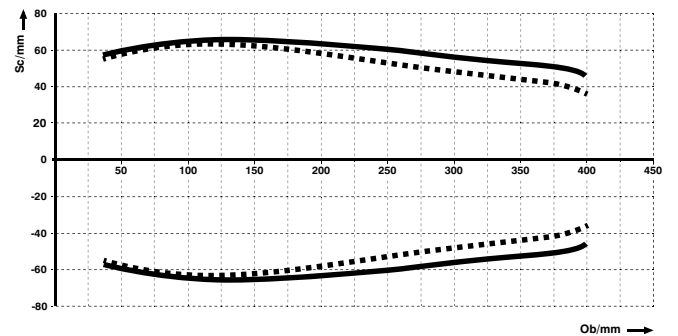68 = Supply Voltage Indicator
6a = Switching Status Display, O2

260

Legend

+	Supply Voltage +	PT	Platinum measuring resistor	EN_{ARS422}	Encoder A/Ā (TTL)	
−	Supply Voltage 0 V	nc	not connected	EN_{BRS422}	Encoder B/B̄ (TTL)	
~	Supply Voltage (AC Voltage)	U	Test Input	ENA	Encoder A	
A	Switching Output (NO)	Ū	Test Input inverted	ENB	Encoder B	
Ā	Switching Output (NC)	W	Trigger Input	AMIN	Digital output MIN	
V	Contamination/Error Output (NO)	W−	Ground for the Trigger Input	AMAX	Digital output MAX	
V̄	Contamination/Error Output (NC)	O	Analog Output	AOK	Digital output OK	
E	Input (analog or digital)	O−	Ground for the Analog Output	SY In	Synchronization In	
T	Teach Input	BZ	Block Discharge	SY OUT	Synchronization OUT	
Z	Time Delay (activation)	AMV	Valve Output	OLT	Brightness output	
S	Shielding	a	Valve Control Output +	M	Maintenance	
RxD	Interface Receive Path	b	Valve Control Output 0 V	rsv	reserved	
TxD	Interface Send Path	SY	Synchronization			
RDY	Ready	SY−	Ground for the Synchronization			
GND	Ground	E+	Receiver-Line			
CL	Clock	S+	Emitter-Line			
E/A	Output/Input programmable	⏚	Grounding			
⊘	IO-Link	SnR	Switching Distance Reduction			
PoE	Power over Ethernet	Rx+/−	Ethernet Receive Path			
IN	Safety Input	Tx+/−	Ethernet Send Path			
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(−)			
Signal	Signal Output	La	Emitted Light disengageable			
BI_D+/−	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation			
EN0RS422	Encoder 0-pulse 0-0̄ (TTL)	RES	Input confirmation			
		EDM	Contactor Monitoring			

Wire Colors according to DIN IEC 757

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

Characteristic response curve

Measurement of the sonic cone on a 100 × 100 mm plate

U1KT001

Ob = Object — Standard
Sc = Sonic cone width — Narrow