

### Your Global Automation Partner

# CP40 and CK40 Ultrasonic Sensors with New Housing

Turck updated the housing on its CP40 sensors to include highly-visible LEDs and sealed programming buttons. The housing maintains its limit-switch style mounting with a two-piece design that features a sensing head that can be moved and oriented as needed. The sensor is ideal for wide areas of coverage, with a 60-degree cone angle and range of 2 meters. The CK40 is a new design for this line that builds on the CP40 technology with a more compact housing and an M12 connector.

Please see the following pages for the data sheets for the product included in this extension.

Part Number	ID Number	Stan- dard	High End	Teach By Wire	Teach by Button	Teach via IO- Link	Sensing Range	Housing	Output
RU200-CK40-2UP8X2T -H1151	M1610051	Х		Х	Х		200cm	CK40	PNP
RU200-CK40-LIU2P8X2 T-H1151	M1610053	Х		Х	х		200cm	CK40	PNP, Analog
RU200-CK40-2UN8X2T -H1151	M1610057	Х		Х	х		200cm	CK40	NPN
RU200-CK40-LIU2N8X2 T-H1151	M1610058	Х		Х	х		200cm	CK40	NPN, Analog
RU200-CP40-2UP8X2T	M1610052	Х			х		200cm	CP40	PNP
RU200-CP40-LIU2P8 X2T	M1610054	Х			х		200cm	CP40	PNP, Analog
RU200-CP40-2UP8X2T/ S10	M1610092	Х			х		200cm	CP40	PNP
RU200-CP40-LI- U2P8X2T/S10	M1610093	Х			х		200cm	CP40	PNP, Analog
RU200-CP40-2UN8X2T	M1610055	Х			х		200cm	CP40	NPN
RU200-CP40-LIU2N8 X2T	M1610056	Х			х		200cm	CP40	NPN, Analog
RU200-CP40-2UN- 8X2T/S10	M1610090	Х			х		200cm	CP40	NPN
RU200-CP40-LIU2N- P8X2T/S10	M1610091	Х			х		200cm	CP40	NPN, Analog



## Ultrasonic sensor diffuse mode sensor RU200-CK40-2UP8X2T-H1151

LED	Button 1 Button 2 40 40 5.3 x 7.3 62 67	
Type code	RU200-CK40-2UP8X2T-H1151	
Ident-No.	1610051	
Pass speed	≤ 2 m/s	
Repeatability	$\leq$ 0.25 % of full scale	
Edge lengths of the nominal actuator	100 mm	
Hysteresis	≤ 20 mm	

Dimensions	67 x 40 x 40 mm	
Construction	Rectangular, CK40	
	≤ 500 ms	
Peadiness delay	< 300 ms	
Output 1	Switching output	
Output function	5-wire, NO/NC , PNP	
Wire breakage / Reverse polarity protection	yes/ yes	
Voltage drop at I <sub>e</sub>	≤ 2.5 V	
Short-circuit protection	yes/ cyclic	
No-load current I <sub>o</sub>	≤ 50 mA	
DC rated operational current	≤ 150 mA	
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	
Operating voltage	15 30VDC	

Dimensions Housing material Electrical connection Protection class

Ambient temperature

Switching state

LED yellow

IP40

Plastic, PBT-GF30-V0

Flange connector, M12 x 1

0...+70 °C

- Separate transducers for transmitter and receiver
- Rectangular housing 40 x 40 mm
- Connection via M12 x 1 male
- Teach range adjustable via button
- Blind zone: 5 cm
- Range: 200 cm
- Resolution: 1 mm
- Sonic cone angle: 60°
- 2 x switching outputs, PNP
- NO/NC programmable

### Wiring Diagram



### **Functional principle**

Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

### Sonic Cone



## Ultrasonic sensor diffuse mode sensor RU200-CK40-2UP8X2T-H1151

### Setting the limits

The ultrasonic sensor features two switching outputs with teachable switching range. The range is either set via Easy-Teach or via the buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

#### Easy-Teach

•Connect teach adapter TX1-Q20L60 between sensor and connection cable

- •For the first limit value, place object accordingly
- Press and hold the select button for output 1 or 2 for 2 or 8 s against Gnd
- Press and hold the select button for 8 s against Gnd to teach the first limit value.
- •For the second limit value, place object accordingly
- •Press and hold button for at least 2 s against Gnd

### **Teach-Button**

- •For the first limit value, place object accordingly
- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5Hz.

#### LED response

- •green: object is in the detection range but not in the switching range
- yellow: object is in the switching range
- •off: object is outside the switching range

# Ultrasonic sensor diffuse mode sensor RU200-CP40-2UP8X2T



Type code	RU200-CP40-2UP8X2T	
Ident-No.	1610052	Wiring Diag
Pass speed	≤ 2 m/s	
Repeatability	$\leq$ 0.25 % of full scale	
Edge lengths of the nominal actuator	100 mm	
Hysteresis	≤ 20 mm	
Ambient temperature	0+70 °C	
Operating voltage	15 30VDC	_
Residual ripple	≤ 10 % U <sub>ss</sub>	Functional
DC rated operational current	≤ 150 mA	Functional
No-load current I	≤ 50 mA	Ultrasonic se
Short-circuit protection	yes/ cyclic	jects contact
Voltage drop at I	≤ 2.5 V	ic waves. It c
Wire breakage / Reverse polarity protection	yes/ yes	ject is transp
Output function	4-wire, NO/NC , PNP	metallic, firm
Output 1	Switching output	mental cond
Readiness delay	≤ 300 ms	hardly affect
Construction	Rectangular, CP40	
Dimensions	166 x 40 x 40 mm	Some Cone
Housing material	Plastic, PBT-GF30-V0	150
Electrical connection	terminal chamber, Terminal box with cable gland	100
Protection class	IP40	50

Switching state

LED yellow

- Separate transducers for transmitter ÷. and receiver
- Rectangular housing 40 x 40 x 166 mm
- Connection via screw terminals
- Terminal chamber for M20 x 1.5 cable gland
- Teach range adjustable via button ÷.
- Blind zone: 5 cm
- Range: 200 cm
- **Resolution: 1 mm** ÷.
- Sonic cone angle: 60° ÷.
- 2 x switching outputs, PNP
- NO/NC programmable

#### gram



#### principle

ensors capture a multitude of obtless and wear-free with ultrasondoes not matter whether the obparent or opaque, metallic or non-, liquid or powdery. Even environitions such as spray, dust or rain their function.



## Ultrasonic sensor diffuse mode sensor RU200-CP40-2UP8X2T

### Setting the limits

The ultrasonic sensor features two switching outputs with teachable switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object. Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

- For the first limit value, place object accordingly
  Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5Hz.

### LED response

- •green: object is in the detection range but not in the switching range
- yellow: object is in the switching range
- •off: object is outside the switching range

## Ultrasonic sensor diffuse mode sensor RU200-CK40-LIU2P8X2T-H1151



Type code	RU200-CK40-LIU2P8X2T-H1151	Wir	
Ident-No.	1610053		
Pass speed	≤ 2 m/s		
Repeatability	$\leq$ 0.25 % of full scale		
Edge lengths of the nominal actuator	100 mm		
Hysteresis	≤ 20 mm		
Ambient temperature	0+70 °C		
Operating voltage	15 30VDC	Fur	
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	1 114-	
DC rated operational current	≤ 150 mA	Ultr	
No-load current I <sub>0</sub>	≤ 50 mA	ject	
Short-circuit protection	yes/ cyclic	ic w	
Voltage drop at I <sub>e</sub>	≤ 2.5 V	ject	
Wire breakage / Reverse polarity protection	yes/ yes	met	
Output function	5-wire, NO/NC , PNP	mer	
Output 1	Switching output	har	
Voltage output	010VDC		
Current output	420mA	Sar	
Readiness delay	≤ 300 ms	Sor	
		15	
Construction	Rectangular, CK40	10	
Dimensions	67 x 40 x 40 mm	5	
Housing material	Plastic, PB1-GF30-V0		
Electrical connection	Flange connector, M12 x 1	-5	
Protection class	IP40	10	

Switching state

LED yellow

- Separate transducers for transmitter and receiver
- Rectangular housing 40 x 40 mm
- Connection via M12 x 1 male
- Teach range adjustable via button
- Blind zone: 5 cm
- Range: 200 cm
- Resolution: 1 mm
- Sonic cone angle: 60°
- 1 x switching output, PNP
- NO/NC programmable
- 1 x analog output, 4..20mA/ 0..10 V

### Wiring Diagram



#### Functional principle

Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

### Sonic Cone



## Ultrasonic sensor diffuse mode sensor RU200-CK40-LIU2P8X2T-H1151

#### Setting the limits

The ultrasonic sensor has an analog and a switching output with teachable measuring and switching range. Teaching is possible via Easy-Teach adapter or with the buttons at the sensor. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

### Easy-Teach

- •Connect teach adapter TX1-Q20L60 between sensor and connection cable
- •For the first limit value, place object accordingly
- Press and hold the select button for output 1 or 2 for 2 or 8 s against Gnd
- Press and hold the select button for 8 s against Gnd to teach the first limit value.
- •For the second limit value, place object accordingly
- •Press and hold button for at least 2 s against Gnd

#### Teach-Button

- •For the first limit value, place object accordingly
- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

### LED response

Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated by the LED flashing alternately green and yellow. In normal operating mode both LEDs signal the switching state of output 1.

- yellow: object is in the switching range
- •off: object is outside the detection range or signal loss

# Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2P8X2T

ø 5.3 30 M20 x 1.5	LED Button 1 Button 2 40 48.6 34 117.3	
Type code	RI 1200-CP40-L II 12P8X2T	
Ident-No.	1610054	
Pass speed	≤ 2 m/s	W
Repeatability	$\leq$ 0.25 % of full scale	
Edge lengths of the nominal actuator	100 mm	
Ambient temperature	≤ 20 mm 0+70 °C	
Operating voltage	15 30VDC	
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	
DC rated operational current	≤ 150 mA	-
No-load current I <sub>0</sub>	$\leq$ 50 mA	FL
Short-circuit protection	yes/ cyclic	UI
Voltage drop at I.	≤ 2.5 V	je
Wire breakage / Reverse polarity protection	yes/ yes	ic
Output function	4-wire, NO/NC , PNP	je
		m
	010VDC	m
Readiness delay	4…20mA ≤ 300 ms	ha
Construction	Rectangular, CP40	Sc
Dimensions	166 x 40 x 40 mm	1
Housing material	Plastic, PBT-GF30-V0	1

Electrical connection Protection class

Switching state

LED yellow

IP40

- Separate transducers for transmitter and receiver
- Rectangular housing 40 x 40 x 166 mm
- Connection via screw terminals
- Terminal chamber for M20 x 1.5 cable gland
- Teach range adjustable via button
- Blind zone: 5 cm
- Range: 200 cm
- Resolution: 1 mm
- Sonic cone angle: 60°
- 1 x switching output, PNP
- NO/NC programmable
- 1 x analog output, 4..20mA/ 0..10 V

### Wiring Diagram



### **Functional principle**

Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

### Sonic Cone



terminal chamber, Terminal box with cable gland

## Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2P8X2T

### Setting the limits

The ultrasonic sensor has an analog and a switching output with teachable measuring and switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

 $\bullet \mathsf{For}$  the first limit value, place object accordingly

- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

#### LED response

Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated by the LED flashing alternately green and yellow. In normal operating mode both LEDs signal the switching state of output 1.

- yellow: object is in the switching range
- •off: object is outside the detection range or signal loss

# Ultrasonic sensor diffuse mode sensor RU200-CP40-2UN8X2T



Type code	RU200-CP40-2UN8X2T	
Ident-No.	1610055	Wiring Di
Pass speed	< 2 m/s	
Repeatability	$\leq$ 0.25 % of full scale	
Edge lengths of the nominal actuator	100 mm	
Hysteresis	≤ 20 mm	
Ambient temperature	0+70 °C	
Operating voltage	15 30VDC	_
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	Eunction
DC rated operational current	≤ 150 mA	Ultrasonic jects conta
No-load current I <sub>0</sub>	≤ 50 mA	
Short-circuit protection	yes/ cyclic	
Voltage drop at I	≤ 2.5 V	ic waves.
Wire breakage / Reverse polarity protection	yes/ yes	ject is trar
Output function	4-wire, NO/NC , NPN	metallic, fi
Output 1	Switching output	mental co
Readiness delay	≤ 300 ms	hardly affe
Construction	Rectangular, CP40	
Dimensions	166 x 40 x 40 mm	Some Co
Housing material	Plastic, PBT-GF30-V0	150
Electrical connection	terminal chamber, Terminal box with cable gland	100
Protection class	IP40	50

Switching state

LED yellow

- Separate transducers for transmitter ÷. and receiver
- Rectangular housing 40 x 40 x 166 mm
- Connection via screw terminals
- Terminal chamber for M20 x 1.5 cable gland
- Teach range adjustable via button ÷.
- Blind zone: 5 cm
- Range: 200 cm
- **Resolution: 1 mm** ÷.
- Sonic cone angle: 60° ÷.
- 2 x switching outputs, NPN
- NO/NC programmable

### iagram



### al principle

sensors capture a multitude of obactless and wear-free with ultrason-It does not matter whether the obnsparent or opaque, metallic or nonrm, liquid or powdery. Even environnditions such as spray, dust or rain ect their function.

#### ne



## Ultrasonic sensor diffuse mode sensor RU200-CP40-2UN8X2T

### Setting the limits

The ultrasonic sensor features two switching outputs with teachable switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object. Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

- For the first limit value, place object accordingly
  Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5Hz.

### LED response

- •green: object is in the detection range but not in the switching range
- yellow: object is in the switching range
- •off: object is outside the switching range

# Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2N8X2T



Type code	RU200-CP40-LIU2N8X2T			
Ident-No.	1610056			
Pass speed	< 2 m/s			
Repeatability	$\leq$ 0.25 % of full scale			
Edge lengths of the nominal actuator	100 mm			
Hysteresis	≤ 20 mm			
Ambient temperature	0+70 °C			
Operating voltage	15 30VDC			
Residual ripple	$\leq$ 10 % U <sub>ss</sub>			
DC rated operational current	≤ 150 mA			
No-load current I <sub>0</sub>	≤ 50 mA			
Short-circuit protection	yes/ cyclic			
Voltage drop at I <sub>e</sub>	≤ 2.5 V			
Wire breakage / Reverse polarity protection	yes/ yes			
Output function	4-wire, NO/NC , NPN			
Output 1	Switching output			
Voltage output	010VDC			
Current output	420mA			
Readiness delay	≤ 300 ms			
Construction	Rectangular, CP40			
Dimensions	166 x 40 x 40 mm			
Housing material	Plastic, PBT-GF30-V0			
Electrical connection	terminal chamber, Terminal box with cable gland			

IP40

LED yellow

- Separate transducers for transmitter and receiver
- Rectangular housing 40 x 40 x 166 mm
- Connection via screw terminals
- Terminal chamber for M20 x 1.5 cable gland
- Teach range adjustable via button
- Blind zone: 5 cm
- Range: 200 cm
- Resolution: 1 mm
- Sonic cone angle: 60°
- 1 x switching output, NPN
- NO/NC programmable
- 1 x analog output, 4..20mA/ 0..10 V

### Wiring Diagram



### **Functional principle**

Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

### Sonic Cone



Protection class

Switching state

## Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2N8X2T

### Setting the limits

The ultrasonic sensor has an analog and a switching output with teachable measuring and switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

 $\bullet \mathsf{For}$  the first limit value, place object accordingly

- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

#### LED response

Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated by the LED flashing alternately green and yellow. In normal operating mode both LEDs signal the switching state of output 1.

- yellow: object is in the switching range
- •off: object is outside the detection range or signal loss

## Ultrasonic sensor diffuse mode sensor RU200-CK40-2UN8X2T-H1151



RU200-CK40-2UN8X2T-H1151	
1610057	
≤ 2 m/s	
$\leq$ 0.25 % of full scale	
100 mm	
≤ 20 mm	
0+70 °C	
15 30VDC	
$\leq$ 10 % U <sub>ss</sub>	
≤ 150 mA	
≤ 50 mA	
yes/ cyclic	
≤ 2.5 V	
yes/ yes	
5-wire, NO/NC , NPN	
Switching output	
≤ 300 ms	
Rectangular, CK40	
67 x 40 x 40 mm	
Plastic, PBT-GF30-V0	
Flange connector, M12 x 1	
IP40	

Switching state

LED yellow

- Separate transducers for transmitter and receiver
- Rectangular housing 40 x 40 mm
- Connection via M12 x 1 male
- Teach range adjustable via button
- Blind zone: 5 cm
- Range: 200 cm
- Resolution: 1 mm
- Sonic cone angle: 60°
- 2 x switching outputs, NPN
- NO/NC programmable

### Wiring Diagram



### **Functional principle**

Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

### Sonic Cone



## Ultrasonic sensor diffuse mode sensor RU200-CK40-2UN8X2T-H1151

#### Setting the limits

The ultrasonic sensor features two switching outputs with teachable switching range. The range is either set via Easy-Teach or via the buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

#### Easy-Teach

•Connect teach adapter TX1-Q20L60 between sensor and connection cable

- •For the first limit value, place object accordingly
- Press and hold the select button for output 1 or 2 for 2 or 8 s against Gnd
- Press and hold the select button for 8 s against Gnd to teach the first limit value.
- •For the second limit value, place object accordingly
- •Press and hold button for at least 2 s against Gnd

### **Teach-Button**

- •For the first limit value, place object accordingly
- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5Hz.

#### LED response

- •green: object is in the detection range but not in the switching range
- yellow: object is in the switching range
- •off: object is outside the switching range

## Ultrasonic sensor diffuse mode sensor RU200-CK40-LIU2N8X2T-H1151



Type code	RU200-CK40-LIU2N8X2T-H1151	N N
Ident-No.	1610058	
Pass speed	< 2 m/s	
Repeatability	$\leq 0.25$ % of full scale	
Edge lengths of the nominal actuator	100 mm	
Hysteresis	≤ 20 mm	
Ambient temperature	0+70 °C	
Operating voltage	15 30VDC	F
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	
DC rated operational current	≤ 150 mA	Ĺ
No-load current I <sub>o</sub>	≤ 50 mA	je
Short-circuit protection	yes/ cyclic	io
Voltage drop at I	≤ 2.5 V	je
Wire breakage / Reverse polarity protection	yes/ yes	r
Output function	5-wire, NO/NC , NPN	r
Output 1	Switching output	ł
Voltage output	010VDC	
Current output	420mA	
Readiness delay	≤ 300 ms	
Construction	Rectangular, CK40	
Dimensions	67 x 40 x 40 mm	
Housing material	Plastic, PBT-GF30-V0	
Electrical connection	Flange connector, M12 x 1	
Protection class	IP40	

Switching state

LED yellow

- Separate transducers for transmitter and receiver
- Rectangular housing 40 x 40 mm
- Connection via M12 x 1 male
- Teach range adjustable via button
- Blind zone: 5 cm
- Range: 200 cm
- Resolution: 1 mm
- Sonic cone angle: 60°
- 1 x switching output, NPN
- NO/NC programmable
- 1 x analog output, 4..20mA/ 0..10 V

### Wiring Diagram



#### Functional principle

Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

### Sonic Cone



## Ultrasonic sensor diffuse mode sensor RU200-CK40-LIU2N8X2T-H1151

### Setting the limits

The ultrasonic sensor has an analog and a switching output with teachable measuring and switching range. Teaching is possible via Easy-Teach adapter or with the buttons at the sensor. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

### Easy-Teach

- •Connect teach adapter TX1-Q20L60 between sensor and connection cable
- •For the first limit value, place object accordingly
- Press and hold the select button for output 1 or 2 for 2 or 8 s against Gnd
- Press and hold the select button for 8 s against Gnd to teach the first limit value.
- •For the second limit value, place object accordingly
- •Press and hold button for at least 2 s against Gnd

#### Teach-Button

- •For the first limit value, place object accordingly
- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

### LED response

Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated by the LED flashing alternately green and yellow. In normal operating mode both LEDs signal the switching state of output 1.

- yellow: object is in the switching range
- •off: object is outside the detection range or signal loss

# Ultrasonic sensor diffuse mode sensor RU200-CP40-2UN8X2T/S10

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ø 5.3 30 1/2-14NPT	LED Button 1 Button 2 040 48.6 34 117.3	<ul> <li>Separate transducers for transmitter and receiver</li> <li>Rectangular housing 40 x 40 x 166 mm</li> <li>Connection via screw terminals</li> <li>Terminal chamber for cable gland NPT</li> <li>Teach range adjustable via button</li> <li>Blind zone: 5 cm</li> <li>Range: 200 cm</li> <li>Resolution: 1 mm</li> <li>Sonic cone angle: 60°</li> <li>2 x switching outputs, NPN</li> <li>NO/NC programmable</li> </ul>
Type code Ident-No.	RU200-CP40-2UN8X2T/S10 1610090	Wiring Diagram
Pass speed Repeatability Edge lengths of the nominal actuator Hysteresis Ambient temperature	<ul> <li>≤ 2 m/s</li> <li>≤ 0.25 % of full scale</li> <li>100 mm</li> <li>≤ 20 mm</li> <li>0+70 °C</li> </ul>	$- \qquad \bigcirc 1 \qquad + \\ \bigcirc 3 \qquad - \\ \bigcirc 2 \qquad \bigcirc 4 \qquad 0 \qquad$
Operating voltage         Residual ripple         DC rated operational current         No-load current I₀         Short-circuit protection         Voltage drop at I₅         Wire breakage / Reverse polarity protection         Output function         Output 1         Readiness delay	15 30VDC ≤ 10 % U <sub>ss</sub> ≤ 150 mA ≤ 50 mA yes/ cyclic ≤ 2.5 V yes/ yes 4-wire, NO/NC , NPN Switching output ≤ 300 ms	<b>Functional principle</b> Ultrasonic sensors capture a multitude of objects contactless and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or nonmetallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.
Construction Dimensions Housing material Electrical connection Protection class Switching state	Rectangular, CP40 166 x 40 x 40 mm Plastic, PBT-GF30-V0 terminal chamber, Terminal box with cable gland IP40 LED yellow	- Sonic Cone

-150

cm 0 20 40 60 80 100 110 120 140 160 200

## Ultrasonic sensor diffuse mode sensor RU200-CP40-2UN8X2T/S10

### Setting the limits

The ultrasonic sensor features two switching outputs with teachable switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object. Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

- For the first limit value, place object accordingly
  Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5Hz.

### LED response

- •green: object is in the detection range but not in the switching range
- yellow: object is in the switching range
- •off: object is outside the switching range

# Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2N8X2T/S10

ø 5.3 30 1/2-14NPT	Button 1 Button 2 40 48.6 34 117.3	<ul> <li>Separate transducers for transmitter and receiver</li> <li>Rectangular housing 40 x 40 x 166 m</li> <li>Connection via screw terminals</li> <li>Terminal chamber for cable gland NP</li> <li>Teach range adjustable via button</li> <li>Blind zone: 5 cm</li> <li>Range: 200 cm</li> <li>Resolution: 1 mm</li> <li>Sonic cone angle: 60°</li> <li>1 x switching output, NPN</li> <li>NO/NC programmable</li> <li>1 x analog output, 420mA/ 010 V</li> </ul>
Type code		_
Ident-No.	1610091	
		Wiring Diagram
Pass speed	≤ 2 m/s	
Repeatability	$\leq$ 0.25 % of full scale	$\left  \bigoplus \right  \left  \bigcirc \frac{1}{2} \right  = \frac{1}{2}$
Edge lengths of the nominal actuator	100 mm	
Hysteresis	≤ 20 mm	$\sqrt{-0^3}$
Ambient temperature	0+70 °C	
Operating voltage	15 30VDC	_
Residual ripple	≤ 10 % U <sub>**</sub>	
DC rated operational current	≤ 150 mA	Functional principle
No-load current I	≤ 50 mA	Ultrasonic sensors capture a multitude of o
Short-circuit protection	yes/ cyclic	jects contactless and wear-free with ultrasc
Voltage drop at I	≤ 2.5 V	ic waves. It does not matter whether the ob
Wire breakage / Reverse polarity protection	yes/ yes	ject is transparent or opaque, metallic or no
Output function	4-wire, NO/NC , NPN	metallic firm liquid or powdery. Even envir
Output 1	Switching output	mental conditions such as spray, dust or ra
Voltage output	010VDC	hardly affect their function
Current output	420mA	
Readiness delay	≤ 300 ms	Carrie Cone
Construction	Rectangular, CP40	150
Dimensions	166 x 40 x 40 mm	100
Housing material	Mastic, MBT-GF30-VU	50 0 27 mm
	terminal chamber, Terminal box with cable gland	0
Protection class	IP40	

Switching state

LED yellow



- w terminals
- or cable gland NPT
- able via button
- 60°
- it, NPN
- ole
- ...20mA/ 0..10 V



are a multitude of obar-free with ultrasontter whether the obaque, metallic or nonowdery. Even environas spray, dust or rain on.



## Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2N8X2T/S10

### Setting the limits

The ultrasonic sensor has an analog and a switching output with teachable measuring and switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

 $\bullet \mathsf{For}$  the first limit value, place object accordingly

- Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

#### LED response

Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated by the LED flashing alternately green and yellow. In normal operating mode both LEDs signal the switching state of output 1.

- yellow: object is in the switching range
- •off: object is outside the detection range or signal loss

# Ultrasonic sensor diffuse mode sensor RU200-CP40-2UP8X2T/S10

Ø 5.3 0		<ul> <li>Separate transducers for transmitter and receiver</li> <li>Rectangular housing 40 x 40 x 166 mm</li> <li>Connection via screw terminals</li> <li>Terminal chamber for cable gland NPT</li> <li>Teach range adjustable via button</li> <li>Blind zone: 5 cm</li> <li>Range: 200 cm</li> <li>Resolution: 1 mm</li> <li>Sonic cone angle: 60°</li> <li>2 x switching outputs, PNP</li> <li>NO/NC programmable</li> </ul>
Type code	RU200-CP40-2UP8X2T/S10	Wiring Diagram
laent-no.	1610092	
Pass speed	< 2 m/s	- $  +$
Repeatability	< 0.25 % of full scale	$  \langle   \rangle   - \frac{3}{2} + \frac{-}{2}$
Edge lengths of the nominal actuator	100 mm	
Hysteresis	< 20 mm	
Ambient temperature	0+70 °C	
Operating voltage	15 30VDC	Functional principle
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	Liltrasonic sonsors canturo a multitudo of ob
DC rated operational current	≤ 150 mA	ieste contectione and wear free with ultreeon
No-load current I <sub>0</sub>	$\leq$ 50 mA	jects contactiess and wear-nee with utrason-
Short-circuit protection	yes/ cyclic	ic waves. It does not matter whether the ob-
Voltage drop at I <sub>e</sub>	≤ 2.5 V	ject is transparent or opaque, metallic or non-
Wire breakage / Reverse polarity protection	yes/ yes	metallic, firm, liquid or powdery. Even environ-
Output function	4-wire, NO/NC , PNP	mental conditions such as spray, dust or rain
Output 1	Switching output	hardly affect their function.
Readiness delay	≤ 300 ms	
Construction	Rectangular, CP40	_ Sonic Cone
Dimensions	166 x 40 x 40 mm	150
Housing material	Plastic, PBT-GF30-V0	100
Electrical connection	terminal chamber, Terminal box with cable gland	50 0 27 mm
Protection class	IP40	
Switching state	LED yellow	50

-150 cm 0 20 40 60 80 100 110 120 140 160 200

## Ultrasonic sensor diffuse mode sensor RU200-CP40-2UP8X2T/S10

#### Setting the limits

The ultrasonic sensor features two switching outputs with teachable switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object. Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

- For the first limit value, place object accordingly
  Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
- Press and hold button 1 for at least 8 s
- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5Hz.

### LED response

- •green: object is in the detection range but not in the switching range
- yellow: object is in the switching range
- •off: object is outside the switching range

# Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2P8X2T/S10

ſ

ø 5.3 0 5.3 0 5.3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		<ul> <li>Separate transducers f and receiver</li> <li>Rectangular housing 4</li> <li>Connection via screw f</li> <li>Terminal chamber for of</li> <li>Teach range adjustable</li> <li>Blind zone: 5 cm</li> <li>Range: 200 cm</li> <li>Resolution: 1 mm</li> <li>Sonic cone angle: 60°</li> <li>1 x switching output, P</li> <li>NO/NC programmable</li> <li>1 x analog output, 420</li> </ul>
lype code	RU200-CP40-LIU2P8X21/S10	
ident-no.	1010093	Wiring Diagram
Pass speed	≤ 2 m/s	1
Repeatability	$\leq$ 0.25 % of full scale	
Edge lengths of the nominal actuator	100 mm	
Hysteresis	≤ 20 mm	$\left  \right\rangle \left  -\frac{3}{4} \right $
Ambient temperature	0+70 °C	
Operating voltage	15 30VDC	
Residual ripple	$\leq$ 10 % U <sub>ss</sub>	
DC rated operational current	≤ 150 mA	Functional principle
No-load current I <sub>0</sub>	≤ 50 mA	Ultrasonic sensors capture
Short-circuit protection	yes/ cyclic	jects contactless and wear-
Voltage drop at I <sub>e</sub>	$\leq$ 2.5 V	ic waves. It does not matter
Wire breakage / Reverse polarity protection	yes/ yes	ject is transparent or opaqu
Output function	4-wire, NO/NC , PNP	metallic, firm, liquid or powo
Output 1	Switching output	mental conditions such as s
Voltage output	010VDC	hardly affect their function.
Current output	420MA	-
Readiness delay	≤ 300 ms	Sonic Cone
Construction	Rectangular, CP40	150
Dimensions	166 x 40 x 40 mm	100
Housing material	Plastic, PBT-GF30-V0	50
Electrical connection	terminal chamber, Terminal box with cable gland	
Protection class	IP40	
		-50

Switching state

LED yellow



- 40 x 40 x 166 mm
- terminals
- cable gland NPT
- le via button
- PNP
- 20mA/ 0..10 V



e a multitude of obr-free with ultrasoner whether the obue, metallic or nonvdery. Even environspray, dust or rain



## Ultrasonic sensor diffuse mode sensor RU200-CP40-LIU2P8X2T/S10

### Setting the limits

The ultrasonic sensor has an analog and a switching output with teachable measuring and switching range. Teaching via buttons on the housing. The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

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- •For the second limit value, place object accordingly
- Press and hold button 1 for at least 2 s

#### LED response

Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated by the LED flashing alternately green and yellow. In normal operating mode both LEDs signal the switching state of output 1.

- yellow: object is in the switching range
- •off: object is outside the detection range or signal loss