

## HRTU 8

## Diffuse reflection ultrasonic scanner with background suppression



**50 ... 400mm**



- Colour and transmission independent detection of objects, even in wet and foggy environment
- Switching behaviour largely independent of surface properties
- Teach function for adjustment
- M12 turning connector

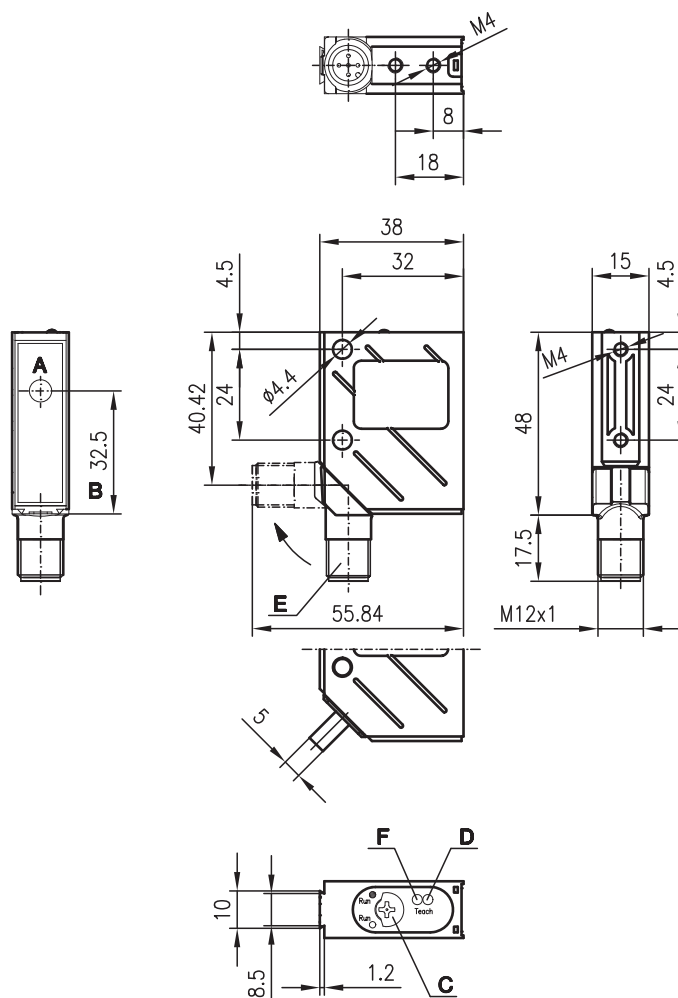


### Accessories:

(available separately)

- Mounting systems
- Cable with M12 connector (K-D ...)
- Control guard

### Dimensioned drawing



- A Converter
- B Ultrasonic axis
- C Operational control
- D Green LED
- E 90° turning connector
- F Yellow LED

### Electrical connection

20-30VDC+	1	br/BN
○ ● ▽	2	ws/WH
GND	3	bl/BU
○ ● ▽	4	sw/BK
Synch.	5	gr/GY

## Specifications

### Ultrasonic specifications

Operating range <sup>1)</sup>	50 ... 400mm
Adjustment range	60 ... 400mm
Ultrasonic frequency	300kHz
Typ. opening angle	see diagrams
Resolution	1mm
Reproducibility	± 1mm
Temperature drift	± 0.17%/K

### Timing

Switching frequency	8Hz
Delay before start-up	250ms

### Electrical data

Operating voltage $U_B$	20 ... 30V DC (incl. ± 10% residual ripple)
Residual ripple	± 10% of $U_B$
Bias current	≤ 25mA
Switching output	1 PNP and 1 NPN transistor
Function characteristics	reversible, object detected/not detected
Output current	max. 150mA

### Indicators

Green LED	ready
Flashing green LED	teaching in progress
Yellow LED	reversible, object detected/not detected
Flashing yellow LED	device or teach error

### Mechanical data

Housing	metal
Weight	70g
Connection type	M12 connector, 5-pin

### Environmental data

Ambient temp. (operation/storage)	-25°C ... +70°C/-40°C ... +85°C
Protective circuit <sup>2)</sup>	1, 2, 3
VDE safety class	III
Protection class	IP 67
Standards applied	IEC 60947-5-2
Fitting position	any

### Options

#### Synch. input

Sensor synchronisation	see remarks
Sensor active/not active	$U_B$ or not connected/0V
Activation delay	< 100ms

- 1) For the complete temperature range, measured object ≥ 20x20mm  
 2) 1=short-circuit and overload protection, 2=polarity reversal protection (not for analogue inputs), 3=wire break and inductive protection

## Teach process

	Operation	Green LED	Yellow LED
1.	Place object at desired distance	ON	ON/OFF
2.	Put step switch in position "Teach"	-	-
3.	Wait for acknowledge signal	-	-
	"Teach-in was successful"	1 Hz	ON
	"Teach-in was not successful"	ON	1 Hz
4.	Put step switch in position "Run"	-	-
	Run ○ Output and yellow LED are not active when object was detected	ON	OFF
	Run ● Output and yellow LED are active when object was detected	ON	ON

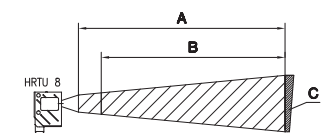
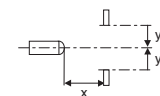
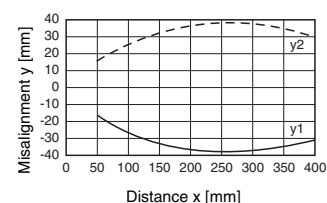
## Order guide

Designation	Part No.
HRTU 8/24-400-S12	500 38912

## Tables

## Diagrams

Typ. response behaviour (object 20x20mm)



- A Operating range
- B Adjustment range
- C Object

## Remarks

- **Approved purpose:**  
The diffuse reflection ultrasonic scanners are ultrasonic sensors for acoustic, contactless detection of objects.
- **Synchronisation:**  
Max. 10 sensors may be synchronised by connecting the Synch inputs. Thus, mutual interference can be avoided.
- **Temperature drift**  
± 0.17%/K