

Ультразвуковые датчики SRX3, US30, US50

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SRX3

OVERVIEW

HIGH PERFORMANCE ULTRASONIC FORK SENSORS FOR TRANSPARENT LABEL DETECTION

- ✓ Dynamic or static teach models
- ✓ Slot size 3mm
- ✓ High resolution up to 2 mm label gap
- ✓ M8 connector with PNP or NPN output
- ✓ M12 connector with PNP/NPN output and external teach-in
- ✓ Rugged and sturdy aluminium housing



APPLICATIONS

Detection of transparent, opaque, or metallic ink labels

Double sheet detection

Adhesive surface detection

TECHNICAL SPECIFICATION

SPECIFICATION	
Minimum pulse time	1ms
Detectable size	> 2mm
Max. tape speed	60m/min
Tape size	> 16mm
Ultrasonic frequency	300 KHz
ELECTRICAL DATA	
Power supply	12...30 Vdc
Current consumption	< 55mA

Ripple	10%
Output current	250 mA max.
Output saturation voltage	< 1,5V @ 100mA
Rising time	0,8 us max
Falling time	1,6 us max
Power On delay	325 ms
Response time	1ms
Switching frequency	500 hz
Output	PNP / NPN
MECHANICAL DATA	
Connection	M12 5 pin
Operating temperature	0 °C ... +50 °C
Storage temperature	-25 °C ... +75 °C
Humidity	35...85% rH non condensing
Vibration	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	Aluminium
Protection class	IP54
Weight	300g

US30

```
mirror mod.use x = false
mirror mod.use y = true

```

OVERVIEW

The range of measurement and inspection devices is enriched thanks to the introduction of tubular standard M30x1 sensors of the US30 series. Models with operating distances reaching 200 cm are available either with bipolar digital output (NPN/PNP NO/NC) or with 4–20 mA or 0–10 V analogue output. The sensors can be easily configured using the Teach-in function, while the operating status is visibly signalled by 3 LEDs.

The temperature compensation function corrects the sound speed changes due to temperature variations, so the sensor precision remains unchanged in all situations and guarantees a resolution reaching 0.5 mm. The electrical connection is accomplished through standard M12 4-pole connectors.

The US30 ultrasonic sensors detect all objects independent from the non sound-absorbent material, reflectivity, transparency and colour, thus perfectly suiting applications in the automotive, packaging, machine tool fields and material transformation processes.



APPLICATIONS

Ceramics

Beverage & Bottling

Transportation lines

Packaging lines

TECHNICAL SPECIFICATION

		US30-PR-5-N13-IH	US30-PR-5-N23-IH	US30-PR-5-N13-V	US30-PR-5-N23-V	US30-PR-5-N13-O	US30-PR-5-N23-O
Operating distance:	100 ... 1000 mm	•		•		•	
	200 ... 2000 mm		•		•		•
Power supply:	10 ... 30 Vdc (limit values),	•	•	•	•	•	•
	polarity inversion protection	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•
Consumption:	40 mA max. (output current excluded)	•	•	•	•	•	•
Output type:	bipolar digital NPN and PNP					•	•
	analogue 0...10 Vdc			•	•		
	analogue 4...20 mA	•	•				
Output current:	100 mA max., short-circuit protection					•	•
Saturation voltage:	PNP < 3 V @ 100 mA; NPN < 1.6 V @ 100 mA					•	•
Load resistance:	voltage output: 2,5 kΩmin.			•	•		
	current output: 1 kΩ @ 24 V	•	•				
Response time:	45 ... 92 ms selectable					•	•

	45 ... 105 ms selectable	•		•			
92 ... 222 ms selectable	100 ... 1000 mm		•		•		
Switching frequency:	11 ... 5.4 Hz			•	•		
	11 ... 4.7 Hz	•		•			
	5.4 ... 2.2 Hz		•		•		
Delay at powering:	500 ms	•	•	•	•	•	•
Indicators:	yellow OUT LED	•	•	•	•	•	•
	green POWER ON LED	•	•	•	•	•	•
	red SIGNAL LED	•	•	•	•	•	•
Setting:	DISCRETE push-button					•	•
	ANALOG push-button	•	•	•	•		
	MODE push-button	•	•	•	•	•	•
Ultrasonic emission frequency:	174 kHz		•		•		•
	224 kHz	•		•		•	
Temperature drift:	< 0.02 % reading distance/°C	•	•	•	•	•	•
Repeatability:	0.1% reading distance					•	•
Resolution:	0.1% reading distance	•	•	•	•		
Linearity:	0.25% reading distance	•	•	•	•		
Minimum detection window:	10 mm					•	•
	100 mm	•	•	•	•		
Hysteresis:	2 mm					•	
	3 mm						•
Operating temperature:	-40 ... 70 °C	•	•	•	•	•	•
Storage temperature:	-40 ... 70 °C	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•
Connections:	M12 4-pole connector	•					
Weight:	68 g	•	•	•	•	•	•
Standard reference:	EN 60947-5-2	•	•	•	•	•	•

US50

```
mirror_mod.use x = false  
mirror_mod.use y = true  
false
```

OVERVIEW

Datalogic Automation US50 is the new series of ultrasonic sensors with M50 plastic tubular housing. All models are provided with a radial emitting head and offer the following versions:

- ✔ Digital bipolar PNP/NPN NO/NC configurable output;
- ✔ Analogue 0-10V / 4-20mA configurable output.

Operating distance from 200mm to 8m makes US50 ideal solution for all industrial applications where the target must be detected or measured really far away from the sensor. The sensor functions are set using DIP-switches located on the rear side. Electrical connection is obtained through a standard M12 5-pole connector Euro Style. These new sensors can be easily configurable thanks to the T EACHIN procedure, performed through two PUSH -BUTTONS located on the rear side of the device or through the connector's R EMOT E input. New Datalogic Automation US50 ultrasonic sensors can detect all objects independently from the material, transparency and/or colour.



APPLICATIONS

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Ceramics

Beverage & Bottling

Transportation lines

Packaging lines

TECHNICAL SPECIFICATION

	DIGITAL VERSION	ANALOGUE VERSION
Power supply:	10 ... 30 VDC reverse polarity protection	10 ... 30 VDC reverse polarity protection
Ripple:	≤ 2 V	≤ 2 V
Consumption (load current excluded):	100mA max. at 10V 40mA max. at 30V	100mA max. at 10V 40mA max. at 30V

Ultrasonic frequency:	75 kHz burst, rep. rate 96 ms	75 kHz burst, rep. rate 96 ms
Output configuration:	NPN or PNP, selectable via DIP switch	Voltage sourcing: 0...10 VDC (Short-circuit protection) Current sourcing: 4...20mA
Output ratings:	150 mA max. OFF-state leakage current: < 5 µA Output saturation NPN: < 200 mV @ 10 mA and <650 mV @ 150 mA Output saturation PNP: < 1.2V @ 10 mA and <1.65V @ 150 mA	–
Response time:	100 ms to 1600 ms	100 ms to 2300 ms
Indicators:	Power ON LED (GREEN), Signal LED (RED), Output LED (bicolour YELLOW/RED)	Power ON LED (GREEN), Signal LED (RED), Output LED (bicolour YELLOW/RED)
Setting:	Teach-in push-button or remotely via TEACH input	ANALOG push-button, remote command input (remote teach). Minimum and maximum detection limits can be programmed using the ANALOG push-button or remote input
Remote Teach:	Connect grey wire to 0 to +2 VDC; impedance 12KΩ	–
Remote input levels:	–	Connect grey wire to 0 to +2 VDC; impedance 12KΩ
Delay at Power On:	1.5 sec	1.5 sec
Temperature effect:	Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C	Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C
Hysteresis:	5 mm	–
Linearity	–	± 0.2% of span from 200 to 8000 mm; ± 0.1% of span from 500 to 8000 mm (1mm min.)
Resolution:	–	1 mm
Repeatability:	1 mm	–
Minimum reading window size:	20 mm	20 mm
Operating temperature:	–20 ... 70 °C	–20 ... 70 °C
Storage temperature:	–20 ... 70 °C	–20 ... 70 °C
Maximum relative humidity:	100%	100%
Operating distance (typical values):	200...8000 mm	200...8000 mm
Vibrations:	0.5 mm amplitude, 10...55 Hz frequency, for every axis (EN60068-2-6)	0.5 mm amplitude, 10...55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) shock for every axis (EN60068-2-27)	11 ms (30 G) shock for every axis (EN60068-2-27)
Reference standard:	EN60947-5-2	EN60947-5-2
Housing material:	ABS polycarbonate	ABS polycarbonate
Push-button material:	Polyester	Polyester
Mechanical protection:	IP67	IP67
Connections:	M12 5-poles connector	M12 5-poles connector
Weight:	260 g	260 g

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