SRX3

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

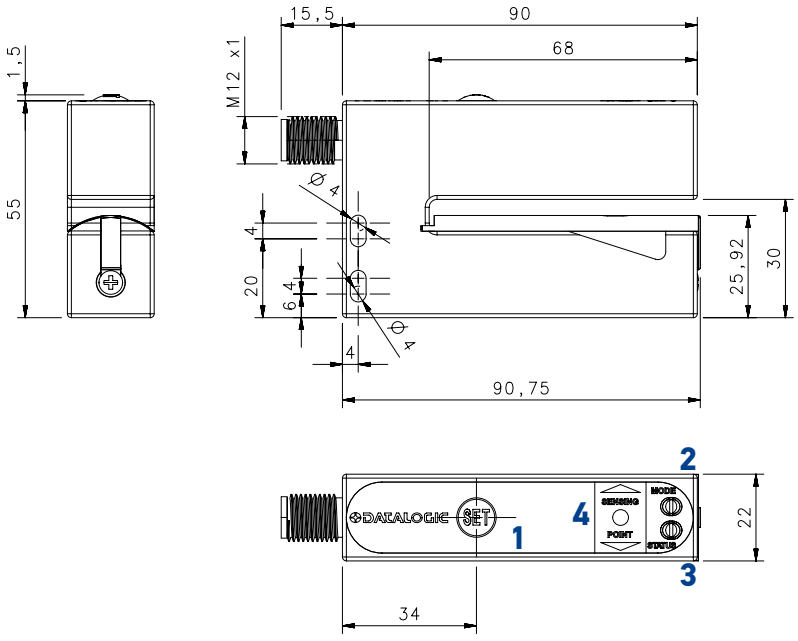
SRX3		
Slot width		3 mm
Slot depth		68 mm
Switching frequency		500 hz
Emission type		Ultrasonic 300 Khz
Setting		300 mm
Power supply	Vdc	12...30 Vdc ●
Output	PNP	●
	NPN	●
Connection	Connector	M12 5-pin
	Connector	M8 4-pin
Approximate dimensions (mm)		90 x 55 x 22
Housing material		Aluminium
Mechanical protection		IP54

TECHNICAL DATA

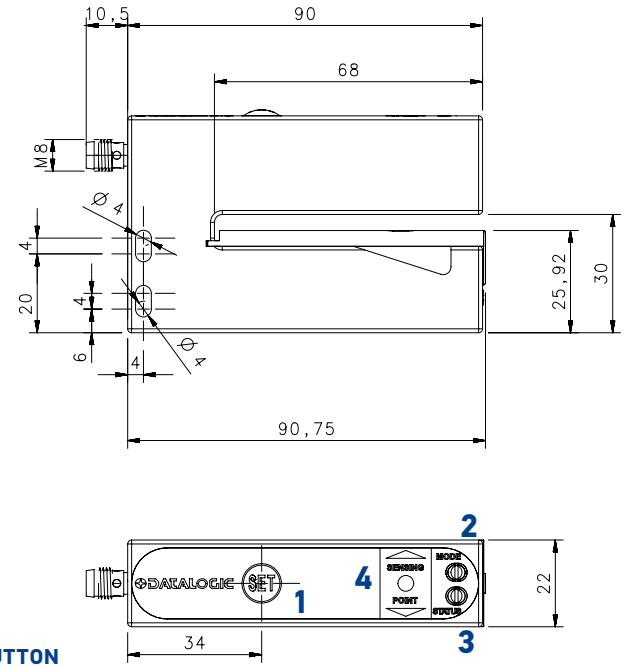
SPECIFICATION	
Minimum pulse time	1ms
Detectable size	> 2mm
Max. tape speed	60m/min
Tape size	> 16mm
Ultrasonic frequency	300 Khz
ELECTRICAL DATA	
Power supply	12...30 Vdc
Current consumption	< 55mA
Ripple	10%
Output current	250 mA max.
Output saturation voltage	< 1,5V @ 100mA
Rising time	0,8 us max
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

DIMENSIONS

M12 CONNECTOR

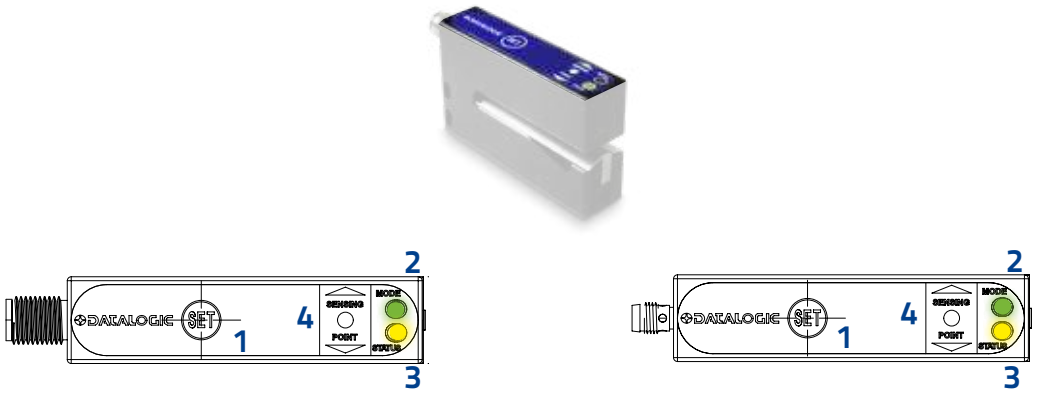


M8 CONNECTOR



1 - TEACH-IN PUSH BUTTON
2 - MODE LED
3 - STATUS LED
4 – SENSING POINT REFERENCE

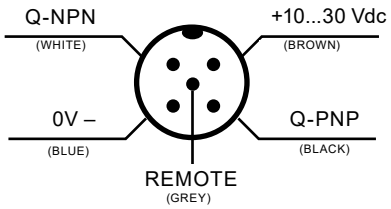
INDICATORS AND SETTINGS

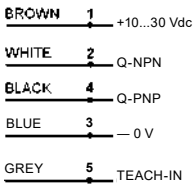


1 - TEACH-IN PUSH BUTTON
2 - MODE LED
3 - STATUS LED (OUTPUT LED)
4 – SENSING POINT REFERENCE

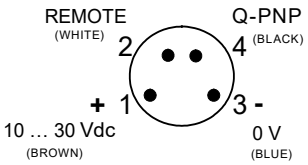
CONNECTIONS

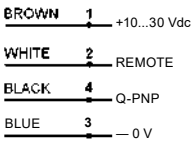
M12 CONNECTOR – 5 PIN

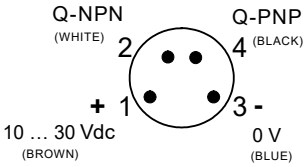


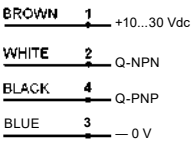


M8 CONNECTOR –8 PIN









MODEL SELECTION AND ORDER INFORMATION

ADJUSTMENT	OUTPUT	CONNECTION	MODEL	ORDER No.
Dynamic Teach-in	PNP/NPN +EXT	M12 5 pin	SRX3-5-US-M12-PNH	953171000
Static Teach-in	PNP/NPN +EXT	M12 5 pin	SRX3-5-US-3-M12-PNH	953171010
Dynamic Teach-in	PNP+EXT	M8 4 pin	SRX3-6-US-M8-PH	953171020
Static Teach-in	PNP+EXT	M8 4 pin	SRX3-6-US-3-M8-PH	953171030
Dynamic Teach-in	PNP/NPN	M8 4 pin	SRX3-6-US-M8-PN	953171040
Static Teach-in	PNP/NPN	M8 4 pin	SRX3-6-US-3-M8-PN	953171050

CABLES

TYPE	No. Of POLES	SHEAT	LENGTH	DESCRIPTION	ORDER No.
Female M12 Connector (Axial)	5-poles	Grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
			5 m	CS-A1-03-G-05	95ACC2120
			10 m	CS-A1-03-G-10	95ACC2140
		Black, P.V.C. UL	3	CS-A1-03-U-03	95ASE1170
			5	CS-A1-03-U-05	95ASE1180
			10	CS-A1-03-U-10	95ASE1190
M8 Connector (Axial)	4-poles	Grey, P.V.C.	3 m	CS-B-1-02-G-03	95A251420
			5 m	CS-B-1-02-G-05	95A251430
			7 m	CS-B-1-02-G-07	95A251440
			10 m	CS-B-1-02-G-10	95A251480
		P.U.R.	2 m	CS-B-1-02-R-02	95A251500
			5 m	CS-B-1-02-R-05	95A251520
M8 Connector (radial 90°)	4-poles	Grey, P.V.C.	3 m	CS-B2-02-G-03	95A251450
			5 m	CS-B2-02-G-05	95A251480
			7 m	CS-B2-02-G-07	95A251470
		P.U.R.	5 m	CS-B2-02-R-05	95ACC2110

Rev. 03, 04/2019

SRX3

Ultrasonic Fork Clear Label
Static or Dynamic teach with Remote in

INSTRUCTION MANUAL

The forked ultrasonic sensor for label detection works by the difference of material width inside the sensible area.
The sensor is able to detect paper, plastic (transparent type too) and metallic label on paper, plastic and metallic support tapes.

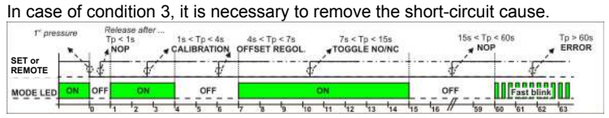
CONTROLS

STATUS LED (YELLOW)
The yellow LED ON indicates output activation.

MODE LED (GREEN)
In working mode, the green LED MODE is on.
The MODE LED shows the phases of the calibration and NO/NC toggling procedures (see the following chart).
The MODE LED is quickly blinks in three conditions:
1- if the sensor is not able to do a calibration,
2- if the SET push-button or the REMOTE input are activated more than 60 sec,
3- if the sensor detects a short-circuit condition on the outputs.

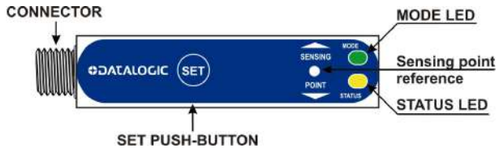
To skip from the conditions 1 and 2, it is necessary to press SET or activate REMOTE briefly, then the sensor restores the last valid calibration.

In case of condition 3, it is necessary to remove the short-circuit cause.



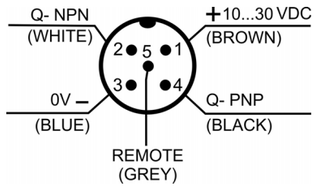
To start the LABEL calibration procedure press SET or activate REMOTE and deactivate them when the MODE LED is on for the first time (1s < Tp< 4s).
To start the OFFSET regulation procedure press SET or activate REMOTE and deactivate them when the MODE LED is off for the second time (4s < Tp < 7s).
To toggle the NO/NC output function press SET or activate REMOTE and deactivate them when the green LED is on for the second time (7s < Tp< 15s).
To skip any operations, release SET or deactivate REMOTE when the green LED is off, after 15s.

SET PUSH-BUTTON
Press SET push-button to activate acquisition.



CONNECTIONS

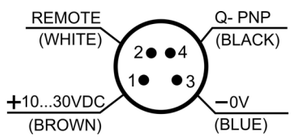
M12 CONNECTOR *(SRX3-5-US-M12-PNH / SRX3-5-US-3-M12-PNH)*



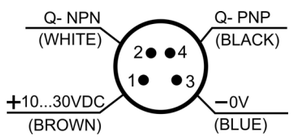
When the REMOTE wire is connected to 0V, it is as if the SET push-button was pressed.

M8 CONNECTOR

(SRX3-6-US-M8-PH / SRX3-6-US-3-M8-PH)



(SRX3-6-US-M8-PN / SRX3-6-US-3-M8-PN)



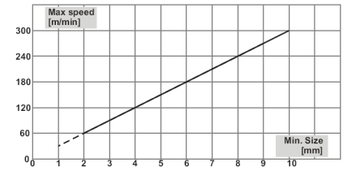
TECHNICAL DATA

Power supply:	12 … 30 VDC reverse polarity protection
Ripple:	10 %
Consumption:	< 80 mA
Output type:	PNP + NPN
Output current:	250 mA max. (short-circuit protection)
Voltage:	<1.5 V @ 100 mA

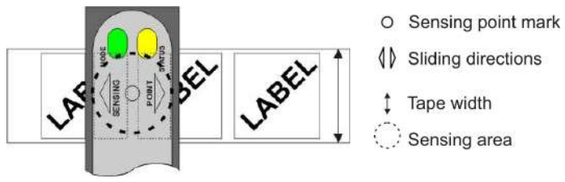
Minimum pulse time:	1 ms
Detectable sizes:	> 2 mm
Max. Tape speed (see note 1):	60 m/min
Tape size (see note 2):	> 16 mm
Rising time:	0.8 us max
Falling time:	1.6 us max
Switching frequency:	500 Hz
Power on delay:	325 ms
Ultrasonic frequency:	300 kHz
Slot width:	3 mm
Setting:	SET push-button / REMOTE input
Indicators:	STATUS LED (yellow) / MODE LED (green)
Operating temperature:	0 to 50 °C
Storage temperature:	-25 to 75 °C
Humidity:	35 … 85% rH non condensing
Dielectric strength:	500 VAC, 1 min between electronic parts and housing
Insulating resistance:	>20 MΩ, 500 VDC between electronic parts and housing
Ambient light rejection:	according to EN 60947-5-2
Vibrations:	0.5 mm amplitude, 10 … 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) 6 shocks per every axis (EN60068-2-27)
Housing material:	Aluminium
Mechanical protection:	IP54
Connections:	M12 or M8 connector
Dimensions:	90 x 55 x 22 mm
Weight:	300 g

NOTE 1:
The maximum sliding speed is proportional to the size of the short target to detect.

Example:
Speed = label gap / min. detection time = 2 mm / (2 x 1 ms) = 1 m/s = 60 m/min



NOTE 2:
The width and the placement of the tape in the fork, must to cover always all the dashed area drawn around the sensing point.



DYNAMIC CALIBRATION (SRX3-5-US)

The setting procedure is shown in the following table.
The calibration parameters are saved for restoring at next power-on.

STEP	USER ACTION	MODE LED	SENSOR ACTION
1	Place the **label** in the fork	ON	In working mode
2	Press SET or activate REMOTE > 1s, release SET or deactivate REMOTE < 4s.	OFF - ON	Measure the SET or REMOTE activation times
3	Wait blinking on the LED.	ON - Midd Blink	Do the calibration on the label
4	Run the tape for some labels.	Midd Blink	Search the best working condition
5	**To end and store** the calibration, press SET or activate REMOTE briefly	Midd Blink	Measure the SET or REMOTE activation times. Store the new values
	To end but NOT store the calibration, press SET or activate REMOTE up to the LED switch off	Midd Blink - OFF	Measure the SET or REMOTE activation times. Restore the previous values.
6	Release the button	ON	Return to working mode

STATIC CALIBRATION (SRX3-5-US-3)

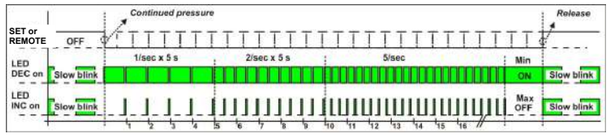
The setting procedure is shown in the following table.
The calibration parameters are stored, so they are pick up at next power-on.

STEP	USER ACTION	MODE LED	SENSOR ACTION
1	Place the label in the fork.	ON	In working mode
2	Press SET or activate REMOTE > 1s, release SET or deactivate REMOTE < 4s	OFF - ON	Measures the press and release times
3	Wait blinking on the LED	ON – Midd Blink	Do the calibration on the label
4	**To end and store** the calibration, wait the end of the blinking on the LED	Midd Blink - ON	Wait 3 s, it stores the new values and return in working mode
	To end but NOT store the calibration, press SET or activate REMOTE briefly within 3s	OFF - ON	When the button is released, restore the previous values

OFFSET REGULATION (SRX3-5-US-3)

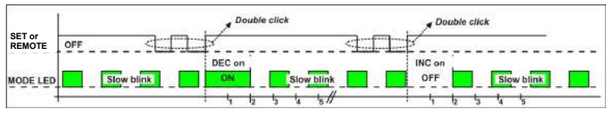
At the SET release or REMOTE deactivation, during the second switch off LED MODE phase, the device enters in the manual OFFSET regulation mode, shown by a slow blink on the MODE LED.
The OFFSET regulation is the adjustment of the threshold value used to discriminate the signal.
In the OFFSET regulation mode the outputs and the status LED work like in the working mode.
After 10 s of no operations on SET or REMOTE, the OFFSET manual regulation mode is stopped.
The variations are saved, for restoring at the next power-on.

The OFFSET manual regulation mode is executed by pressing SET or activating REMOTE. The sensor will do the first five variations at the speed of 1/sec, the second five variations at the speed of 2/sec and the next variations at the speed of 5/sec, up to the SET or REMOTE deactivation or up to the reaching of minimum or maximum OFFSET value.
Each OFFSET variation is shown by a blink on the green LED.

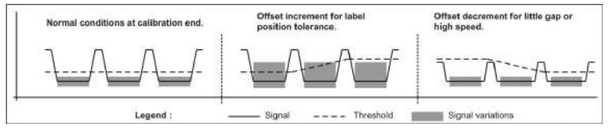


To choose the variation mode between increment or decrement of the OFFSET value, press SET or activate REMOTE twice rapidly (double click), in this way the sensor toggles between the two modes at each double click.
At the end of the double click the chosen mode is shown by 2 s of LED OFF in increment mode and 2 s of LED ON in decrement mode.

At each OFFSET manual regulation startup the sensor activates the increment mode, while the chosen mode remains activated up to the exit of the OFFSET manual regulation procedure.
With increment mode and SET or REMOTE activation, the MODE LED is OFF and the pulse variations are ON.
With decrement mode and SET or REMOTE activation, the MODE LED is ON and the pulse variations are OFF.

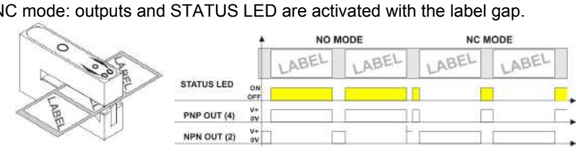


At the end of the label calibration, the sensor has an operative threshold.
It is suggested to do:
- an OFFSET increment to increase the label position variations tolerance in the sensing area,
- an OFFSET decrement to improve the gap detection with little sizes and high speed tape movement.



NO – NC WORKING MODE

At the SET or REMOTE deactivation, after the second time MODE LED light on phase, the device toggles the NO/NC function of the output and the STATUS LED.
The NO/NC output function is saved, for the restoring at the next power on.
NO mode: outputs and STATUS LED are activated on the label.
NC mode: outputs and STATUS LED are activated with the label gap.

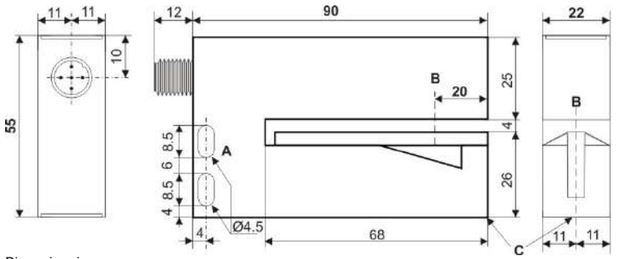


WORKING MODE NOTE

For the correct label detections, the tape must be taut and on the carriage, in calibration and working mode.

Press SET or activate REMOTE at the power on for more than 3 s to restore the default working condition (calibration for transparent tape and label and NO output mode), release SET or deactivate REMOTE during the double blink phase on the MODE LED.

DIMENSIONS



Dimensions in mm

A	Fixing Slot Ø 4.5 mm
B	Working point reference
C	Allen screw Ø 3 for labels carriage

AVAILABLE MODELS

Model	Description	Order No.
SRX3-5-US-M12-PNH	Ultrasonic Fork Clear Label - Dynamic teach with remote in PNP+NPN NO M12 connector	953171000
SRX3-6-US-M8-PH	Ultrasonic Fork Clear Label - Dynamic teach with remote in PNP M8 connector	953171020
SRX3-6-US-M8-PN	Ultrasonic Fork Clear Label - Dynamic teach PNP+NPN NO M8 connector	953171040
SRX3-5-US-3-M12-PNH	Ultrasonic Fork Clear Label - Static teach with remote in PNP+NPN NO M12 connector	953171010
SRX3-6-US-3-M8-PH	Ultrasonic Fork Clear Label - Static teach with remote in PNP M8 connector	953171030
SRX3-6-US-3-M8-PN	Ultrasonic Fork Clear Label - Static teach PNP+NPN NO M8 connector	953171050

The sensors are NOT safety devices, and so MUST NOT be used in the safety control of the machines where installed.

Datalogic S.r.l.
Via S. Vitalino 13 - 40012 Calderara di Reno - Italy
Tel: +39 051 3147011 - Fax: +39 051 3147205 - www.datalogic.com

Helpful links at www.datalogic.com: **Contact Us, Terms and Conditions, Support**.

The warranty period for this product is 36 months. See General Terms and Conditions of Sales for further details.

Under current Italian and European laws, Datalogic is not obliged to take care of product disposal at the end of its life. Datalogic recommends disposing of the product in compliance with local laws or contacting authorised waste collection centres.

821003464 (Rev. E)