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.

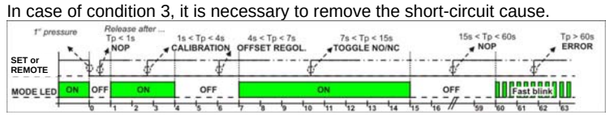
CONTROLS

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 PROG input are actived more than 60 sec,
3- if the sensor detects a short-circuit condition on the outputs.

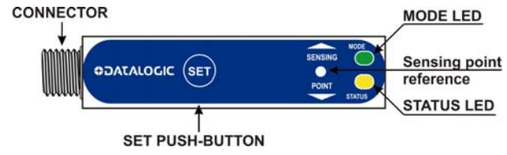
To skip from the conditions 1 and 2, it is necessary to press SET or activate PROG briefly, then the sensor restores the last valid calibration.

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



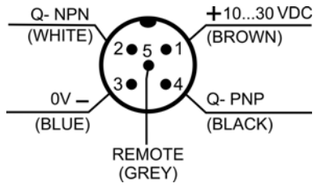
To start the LABEL calibration procedure press SET or active REMOTE and deactivate them when the MODE LED is on for the first time (1s < Tp< 4s).
To start the OFFSET regolation procedure press SET or active REMOTE and deactivate them when the MODE LED is off for the second time (4s < Tp < 7s).
To toggle the NO/NC output function press SET or active 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

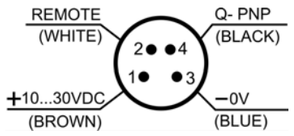
M12 CONNECTOR *(SRX3-5-US-M12-PNH / SRX3-5-US-3-M12-PNH)*



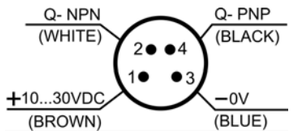
When the REMOTE wire is connected to 0V, it is as if the SET push-button was pressed.

M8 CONNECTOR

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



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



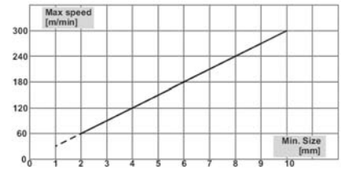
TECHNICAL DATA

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

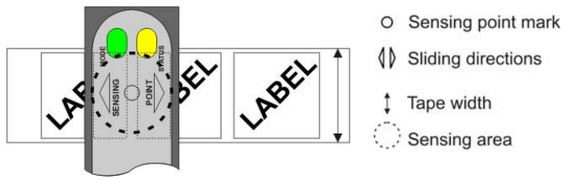
Minimum pulse time:	1 ms
Detectable sizes:	> 2 mm
Max. Tape speed (see note 1):	60 m/min
Tape size (see note 2):	> 16 mm
Rising time:	0.8 us max
Falling time:	1.6 us max
Switching frequency:	500 Hz
Power on delay:	325 ms
Ultrasonic frequency:	300 kHz
Slot width:	3 mm
Setting:	SET push-button / REMOTE
Indicators:	STATUS LED (yellow) / MODE LED (green)
Operating temperature:	0 ÷ 50 °C
Storage temperature:	-25 ÷ 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:	Alluminium
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 active REMOTE > 1s, release SET or disactive 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 active 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 active 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 in working mode

STATIC CALIBRATION (SRX3-5-US-3)

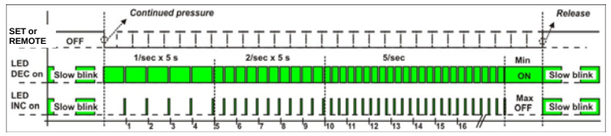
The setting procedure is shown in the following table.
The calibration parameters are stored, so they are pick up at next power-on.

STEP	USER ACTION	MODE LED	SENSOR ACTION
1	Place the label in the fork.	ON	In working mode
2	Press SET or active PROG > 1s, release SET or disactive PROG < 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 close 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 close WITHOUT store the calibration, press SET or active PROG briefly within 3s	OFF - ON	When the button is released, restore the previous values

OFFSET REGULATION (SRX3-5-US-3)

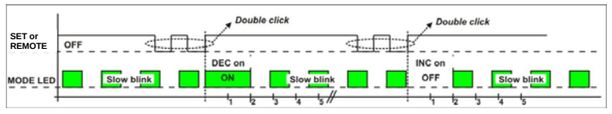
At the SET release or PROG deactivation, during the second switch off LED MODE phase, the device enters in the It is showed with a slow blink on the MODE LED.
The OFFSET regulation is the adjustment of the threshold value used to discriminate the signal.
In the OFFSET regulation mode the outputs and the status LED work like in the working mode.
After 10 s of no operations on SET or PROG, 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 PROG. 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 PROG deactivation or up to the reaching of minimum or maximum OFFSET value.
Each OFFSET variation is shown by a blink on the green LED.

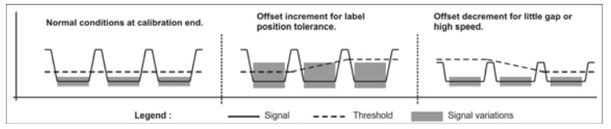


To choose the variation mode between increment or decrement of the OFFSET value, press SET or active PROG two time fast (double click), in this way the sensor toggles between the two modes at each double click.
At the end of the double click the choosed mode is shown by 2 s of LED OFF in increment mode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

At each OFFSET manual regulation startup the sensor actives the increment mode, while the choosed mode remains actived up to the exit of the OFFSET manual regulation procedure.
With increment mode and SET or PROG activation, the MODE LED is OFF and the variations pulses are ON.
With decrement mode and SET or PROG activation, the MODE LED is ON and the variations pulses are OFF.

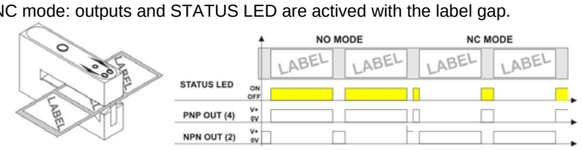


At the end of the label calibration, the sensor has an operative threshold.
It is suggested to do:
- an OFFSET increment to increase the label position variations tolerance in the sensing area,
- an OFFSET decrement to improve the gap detection with little sizes and high speed tape movement.



NO – NC WORKING MODE

At the SET or PROG 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 actived on the label.
NC mode: outputs and STATUS LED are actived with the label gap.

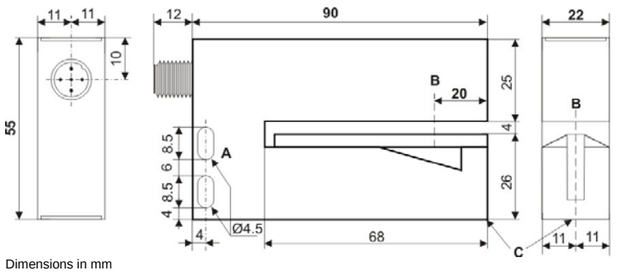


WORKING MODE NOTE

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

Press SET or active PROG 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 PROG 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.

DECLARATION OF CONFORMITY
We Datalogic Automation declare under our sole responsibility that these products are conform to the 2004/108/CE and successive amendments.

WARRANTY
Datalogic Automation warrants its products to be free from defects.
Datalogic Automation will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date.
This warranty does not cover damage or liability deriving from the improper application of Datalogic Automation products.

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