SR23

DATALOGIC

HIGH EFFICIENCY FORK SENSOR FOR BOOKLET AND MULTILAYER LABELS DETECTION

- Multilayer labels detection
- Up to 0,5 mm of minimum size labels/gap
- 5 mm slot width
- 50 mm slot depth
- Dynamic or static setting through single push-button
- 12 kHz switching frequency
- Compact and robust housing, IP65
- M8 connector or 2 m cable models
- PNP or NPN models

APPLICATIONS

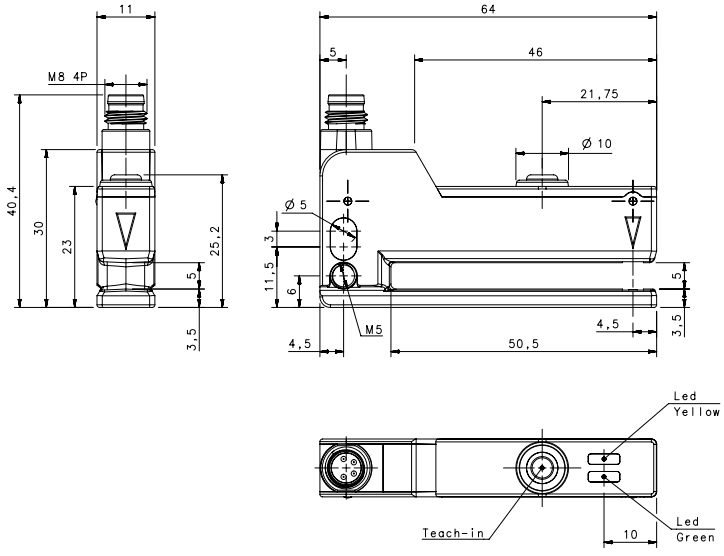
- Processing and Packaging machinery
- Automatic labelers

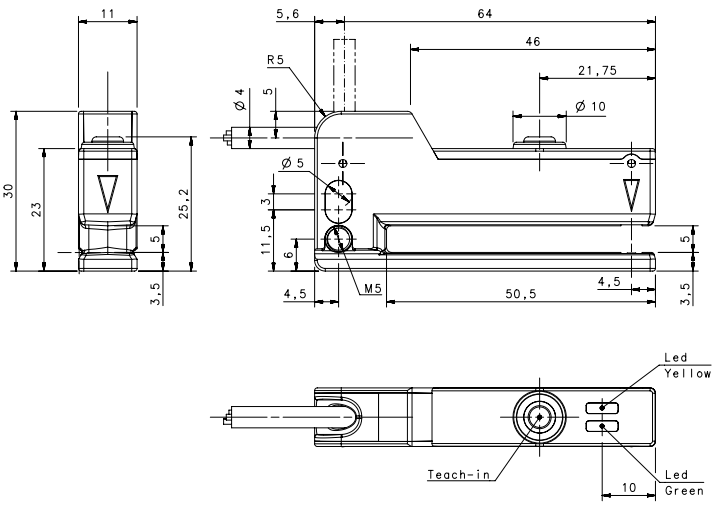
		SR23
Slot width		5 mm
Slot depth		50 mm
Switching frequency		12 kHz
Light emission		IR LED
Setting		push button
Power supply	Vdc	10...30 Vdc
	Vac	
	Vac/dc	
Output	PNP	•
	NPN	•
	NPN/PNP	
	relay	
	other	
Connection	cable	•
	connector	•
	pig-tail	
Approximate dimensions (mm)		30x63x10
Housing material		Alluminum (Zama), Plastic (PBT)
Mechanical protection		IP65

TECHNICAL DATA

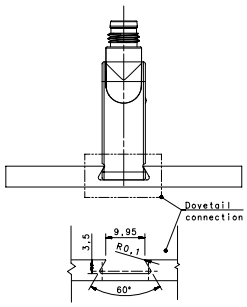
Power supply	10 ... 30 Vdc (reverse polarity protection)
Ripple	2 Vpp max.
Consumption (output current excluded)	30 mA max.
Light emission	IR LED 850 nm
Setting	SET push-button
Indicators	yellow OUTPUT LED green READY LED
Output	PNP or NPN
Output current	100 mA max.
Saturation voltage	2 V max.
Slot width	5 mm
Slot depth	50 mm
Minimum label width	0,5...2 mm
Minimum space between labels	0,5...2 mm
Speed of the conveyor during setting procedure	20 m/min (30 cm/s) max.
Response time	40 µs max.
Switching frequency	12 kHz max.
Connection	M8 4-pole connector, 2 m cable
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	> 20 MΩ, 500 Vdc between electronics and housing
Mechanical protection	IP65
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 shock for every axis (EN60068-2-27)
Housing material	Aluminum (Zama)
Cover material	PBT
Lens material	PC
Operating temperature	-20 ... 55°C
Storage temperature	-20 ... 70°C
Weight	85 g cable vers., 46 g M8 conn. vers.

DIMENSIONS

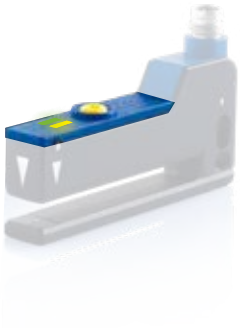


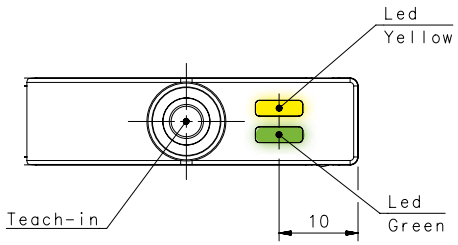


DOVETAIL GUIDE MOUNTING



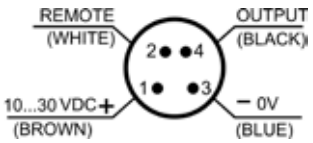
INDICATORS AND SETTINGS



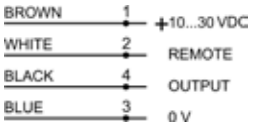


CONNECTIONS

M8 CONNECTOR



CABLE



MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	CONNECTION	OUTPUT	MODEL	ORDER No.
Fork Sensor	2m Cable	PNP	SR23-2-IR-PH	953161000
		NPN	SR23-2-IR-NH	953161020
	M8 Connector	PNP	SR23-5-IR-PH	953161010
		NPN	SR23-5-IR-NH	953161030

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M8 Connector	4-pole, grey, P.V.C.	3 m	CS-B1-02-G-03	95A251420
		5 m	CS-B1-02-G-05	95A251430
		7 m	CS-B1-02-G-07	95A251440
		10 m	CS-B1-02-G-10	95A251480
	4-pole, P.U.R.	2 m	CS-B1-02-R-02	95A251620
		5 m	CS-B1-02-R-05	95A251640
Radial M8 Connector	4-pole, grey, P.V.C.	3 m	CS-B2-02-G-03	95A251450
		5 m	CS-B2-02-G-05	95A251460
		7 m	CS-B2-02-G-07	95A251470
		10 m	CS-B2-02-G-10	95A251530
	4-pole, P.U.R.	2 m	CS-B2-02-R-02	95A251630
		5 m	CS-B2-02-R-05	95A251650

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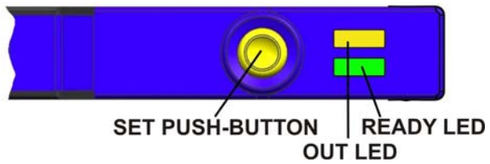
SR23
INSTRUCTION MANUAL

CONTROLS

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

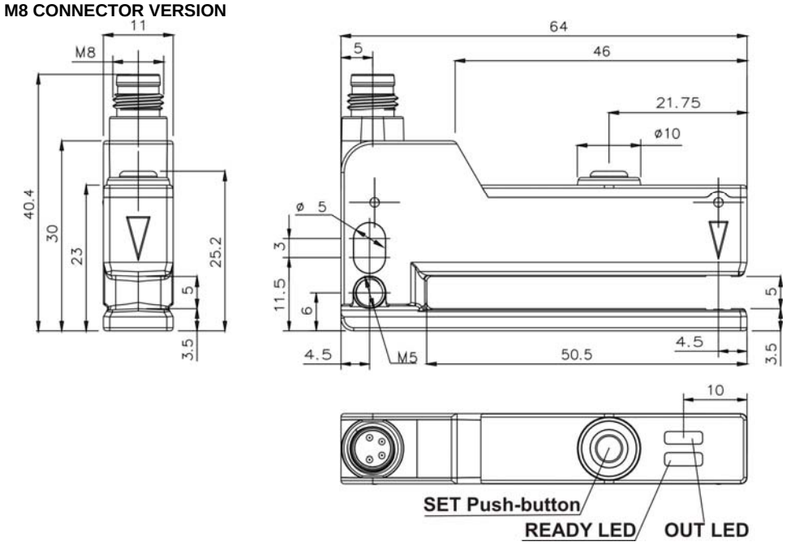
READY LED (green)
The green LED continuously ON indicates a normal operating condition. Refer to the “SETTING” paragraph for the correct setting phase indications.

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

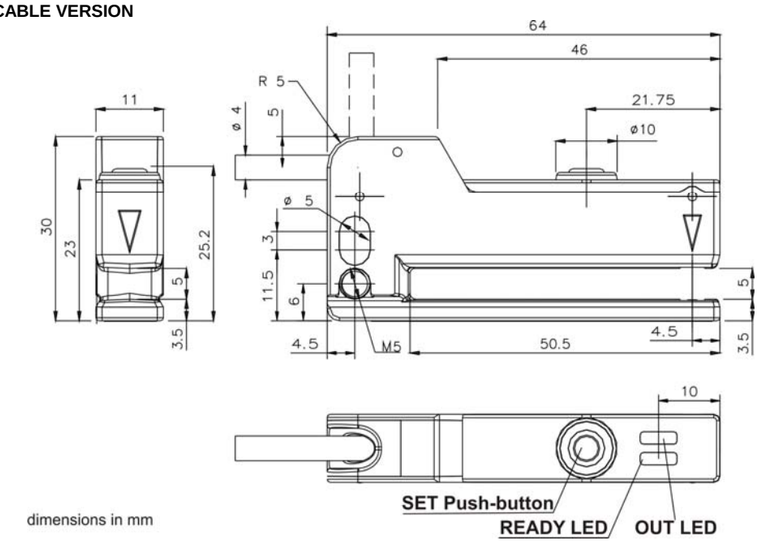


DIMENSIONS

M8 CONNECTOR VERSION

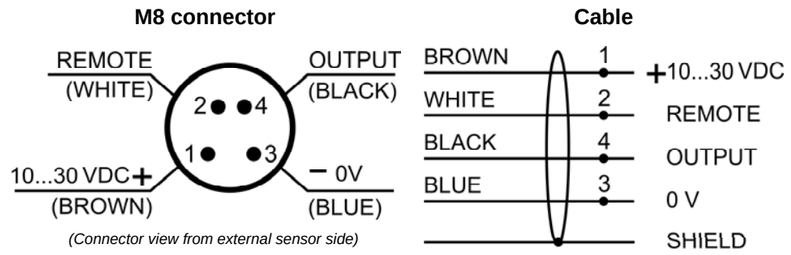


CABLE VERSION



dimensions in mm

CONNECTIONS



(Connector view from external sensor side)

The thread allows connection to earth

TECHNICAL DATA

Power supply:	10 … 30 VDC; reverse polarity protection
Ripple:	2 Vpp max.
Consumption (output current excluded):	30 mA max.
Outputs:	NPN and PNP according to the model; pull up/down resistance= 33 KΩ
Input / Remote:	10… 30 VDC
Current output:	100 mA max. short-circuit protection
Capacitive load:	≤ 0.2µF
Output saturation voltage:	2 V max. (values at maximum output current)
Response time:	40 µs max.
Switching frequency:	12 kHz max.
Tape speed during acquisition:	≤ 20m/min (30cm/s)
Humidity:	35 … 85% rH non condensing
Indicators:	READY LED (GREEN) OUT LED (YELLOW)
Setting:	SET push-button
Data retention:	EEPROM non volatile memory
Operating temperature:	-20 … 55°C
Storage temperature:	-20 … 70°C
Dielectric strength:	500 VAC, 1 min between electronic parts and housing
Insulating resistance:	>20 MΩ, 500 VDC between electronic parts and housing
UL requirements:	Class 2 power supply according to UL 508-Type 1 Enclosure minimum distance between the “Proximity Switch Metal Enclosure” and any “External uninsulated live part” shall be at least 12.7 mm
Emission frequency:	50 kHz frequency modulated light
Emission type:	INFRARED 850 nm
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)
Slot width:	5 mm
Slot depth:	50 mm
Limits of detectable object:	Label width: ≥ 2 mm Gap width: ≥ 2 mm
Housing material:	Zinc alloy
Lens material:	PBT
Mechanical protection:	PC
Connections:	IP65
Weight:	2m cable / M8 4-pole connector
Housing material:	85 g. cable vers. / 46 g. M8 connector vers.

REMOTE FUNCTION AND PUSH-BUTTON BLOCKING

Using the REMOTE input, it is possible to perform the same SET check outside the sensor.
When the REMOTE wire is connected to +Vdc, it is as if the SET push-button was pressed.

Upon sensor switch-on, if the REMOTE wire is connected to +VDC, the block function is activated so the SET push-button is no longer active.
To disable push-button block, switch sensor off and back on with the REMOTE wire disconnected or connected to 0 V.

After push-button block, it is possible to program the device using the REMOTE input.

EARTH CONNECTION

You can connect to the earth in the following ways:

1. **SR23 M8 conn. & Cable:** by the M5 threaded hole on the body (preferential).
2. **SR23 M8 conn.:** by the use of a shielded cable with the shield connected to earth; use a shielded cable with the shield connected to the threaded nut on the cable.
3. **SR23 cable:** by the connection of the cable shield itself.

SETTING

The device is factory-set with output active on support-label (background).
This setting can be changed as described below.

DYNAMIC acquisition:

A) Insert labels into sensor slot.
B) Press SET push-button for 1 second until the READY green LED switches OFF.
If the OUT yellow LED is ON, it will turn off together with the READY green LED.
C) Release SET push-button.
At this stage, switching output is frozen on the last valid status before acquisition.
D) The READY green LED blinks slowly, thereby indicating acquisition in progress.
E) Slide the labels through the sensor, at a maximum speed of 20 m/min (30 cm/s), until at least 3...8 labels get through the sensor.
F) Briefly press SET push-button to end acquisition stage: 3 blinks of the READY green LED indicate correct acquisition.

In case of unsuccessful acquisition, the READY green LED blinks quickly.
If this is the case, briefly press SET push-button to go back to the beginning of acquisition stage and repeat the process.
If error persists, label-to-background contrast might be not sufficient to obtain a correct acquisition result.

STATIC acquisition:

A) Place the object to detect (the support or the label) into the sensor slot.
If necessary, remove one or more labels to help positioning on the support.
B) Press SET push-button for 3 seconds until the OUT yellow LED blinks.
When you press SET, if the OUT yellow LED is on, it will turn off in 1 second.
At this stage, switching output is frozen on the last valid status before acquisition.
C) Release SET push-button; the sensor acquires the target.
The OUT yellow LED blinks slowly.
D) Place the object to ignore (the support or the label) into the sensor slot.
E) Briefly press SET push-button; the sensor acquires the target: 3 blinks of the READY green LED indicate correct acquisition.

In case of unsuccessful acquisition, the READY green LED blinks quickly.
If this is the case, briefly press SET push-button to go back to the beginning of acquisition stage and repeat the process.
If error persists, label-to-background contrast might be not sufficient to obtain a correct acquisition result.

Reversing Output status:

A) Press SET push-button for 7 seconds until both READY green LED and OUT yellow LED blink at the same time.
B) Release SET push-button.
Output status is now reversed compared to previous conditions.
This setting is saved to the device.

Restoring the device factory settings:

A) Press SET push-button for 12 seconds until both READY green LED and OUT yellow LED blink quickly.
B) Release SET push-button.
The device factory settings are now restored.

Output short-circuit warning:

In case of short-circuit of the PNP or NPN output, the READY green LED and OUT yellow LED blink quickly and alternatively.

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

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