

## S15 SERIES INSTRUCTION MANUAL

### CONTROLS

#### OUTPUT LED (S15...A0x/B0x/Cxx/T01/F0x/D50/M01)

The yellow LED permanently ON or OFF indicates the output status.  
The yellow LED blinking indicates the short circuit protection is turned on the output.

#### STABILITY LED (S15...A0x/B0x/Cxx/F0x)

The green LED permanently ON indicates that the signal received has an acceptable safety margin respect the output switching value and the sensor is ready to function in a stable operating condition.

#### POWER ON LED (S15...G0x/M01)

The green LED ON indicates that the sensor is operating.

#### SENSITIVITY TRIMMER-ADJ.

Mono-turn trimmer to adjust the operating distance of the sensor (S15...A01/B01/Cx1/T01/F01).

Multi-turn trimmer to adjust the background suppression distance of the sensor (S15...M01)

See the "SETTING" paragraph for the functioning mode.

#### EMISSION POWER REGULATION TRIMMER (S15...G01)

Mono-turn trimmer to adjust the power of the LED emitter and change the operating distance and the beam between emitter (S15...G01) and receiver (S15...F01)

**WARNING:** in S15...A01/B01/Cx1/T01/F01/G01 models, the trimmer rotation is limited to 270° by a mechanical stop. Do not apply excessive torque when adjusting (max 40 Nmm).

### INSTALLATION

The sensor can be fixed by means of the M18x1 threaded body using CH.24 nuts (1.5Nm maximum tightening torque) or low-profile flared nut provided specifically supplied (plastic version).

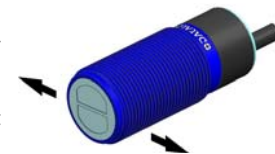
Various orientable fixing brackets are available to ease sensor positioning (please refer to the accessories listed in the general catalogue).

The operating distance is measured from the front surface of the sensor lens.

#### Proximity models (S15...Cxx/D50/M01):

the object has to be moved closer or further away from the front surface of the sensor lens to improve detection.

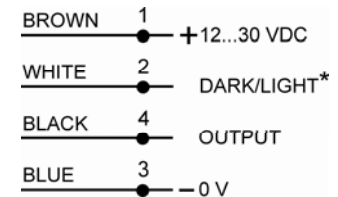
In case of lateral translation, the object must move as indicated in the figure.



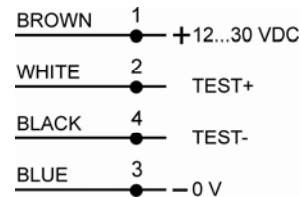
### CONNECTIONS

#### Cable and Pig Tail

S15...A00/B00/C00/C10/F00/D50

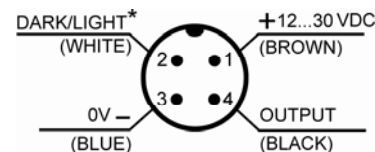


S15...G00

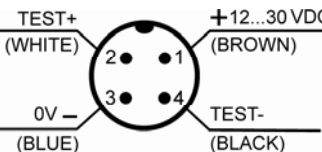


#### M12 Connector

S15...A01/B01/C11/C31/T01/F01/M01



S15...G01

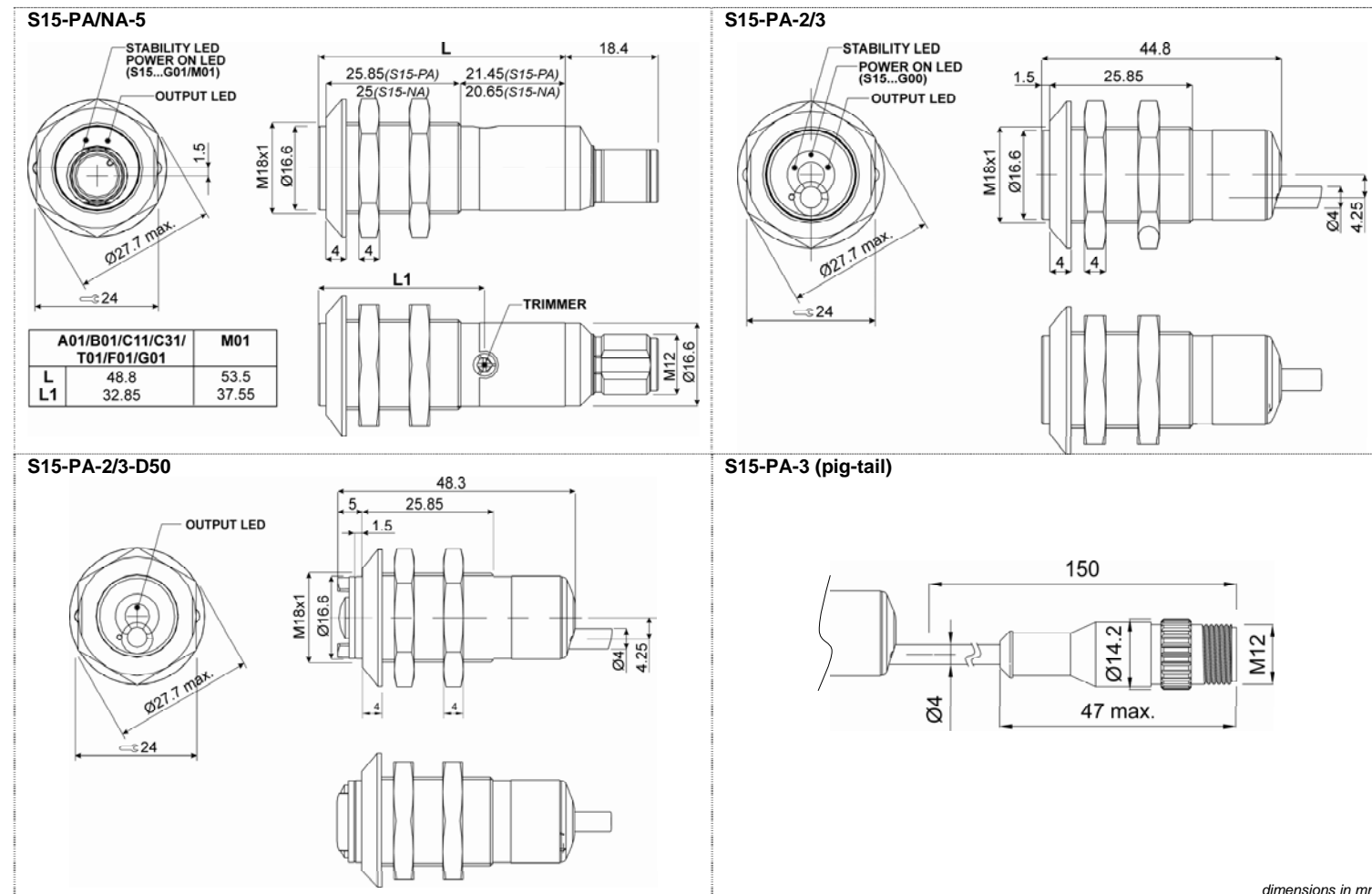


\* in case of white wire or pin 2 not connected the sensor operates in LIGHT mode for the proximity models (S15...Cxx/D50/M01) and in DARK mode for the retroreflex (S15...A0x/B0x/T01) and receiver models (S15...F0x).

### TECHNICAL DATA

Power supply:	12...30 Vcc Class 2 (Type 1 for S15-NA) UL508
Ripple:	2 Vpp max.
Current consumption (output current excluded):	30 mA max.
Outputs:	PNP or NPN open collector (overload and short circuit protection, indicate with led indicators and led emission blinking)
Output current:	100 mA max.
Output saturation voltage:	2 V max.
Response time:	500 us (S15...D50) / 1 ms (S15...A0x/B0x/Cxx/T01/M01) / 2 ms (S15...F0x/G0x)
Switching frequency:	1 KHz (D mod.) / 500 Hz (S15...A0x/B0x/Cxx/T01/M01) / 250 Hz (S15...F0x/G0x)
Settings:	Mono-turn distance adjustment trimmer (S15...A01/B01/Cx1/T01/F01) and 4 turns (S15...M01) Emission power regulation trimmer (S15...G01)
Indicators:	OUTPUT LED (yellow) (S15...A0x/B0x/Cxx/D50/T01/F0x/M01) STABILITY LED (green) (S15...A0x/B0x/Cxx/F0x) POWER ON LED (green) (S15...G0x/M01)
Operating temperature:	-25 ... 55 °C
Storage temperature:	-25 ... 70 °C
Insulating strength:	500 Vac 1 min between electronics and housing
Insulating resistance:	>20 MΩ 500 Vdc between electronics and housing
Operating distance (typical values):	A0x: 0.1...5 m on R2 (Ø 63mm reflector) B0x: 0.1...4 m on R2 (Ø 63mm reflector) T01: 0.1...0.8 m on R2 (Ø 63mm reflector) F0x/G0x: 0...20 m C10: 0...350 mm / C11: 0...350 mm / C00: 0...100 mm / C31: 0...1000 mm D50: 0...50 mm M01: 40...120 mm
Emission type:	RED (660 nm) (S15...B0x/T01/D50/M01) INFRARED (880 nm) (S15...A0x/Cxx/G0x)
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)
DARK/LIGHT selection:	white wire or pin 2 not connected: LIGHT mode (S15...Cxx/D50/M01) / DARK mode (S15...A0x/B0x/T01/F0x); white wire or pin 2 connected to: 0V DARK mode, +Vcc LIGHT mode
Housing material:	ABS TERLURAN (S15-PA) / INOX AISI 316L (S15-NA)
Lens material:	PMMA
Mechanical protection:	IP65, IP67, IP69K
Connections:	M12-4 pole connector (S15-PA/NA-5) / 2 m Ø 4 mm cable (S15-PA-2) 150 mm cable Ø 4 mm with M12-4 pole connector - pig-tail (S15-PA-3)
Weight:	40 g max M12 version / 55 g max cable version / 35 g max pig-tail version

### DIMENSIONS



### SETTING

The following procedures are valid for the LIGHT mode.

#### S15...A0x/B0x

Place the sensor and the reflector on opposite sides within the maximum operating distance. In the models with sensitivity adjustment, turn completely the trimmer in clockwise.

Moving the sensor both vertically and horizontally, define the points of switch-off and switch-on of the yellow LED (OUT). Mount the sensor in the middle of the defined points and check that the green LED (STABILITY) is ON.

#### S15...Cxx

Place the sensor in axis with the object to be detected within the maximum operating distance.

The models without sensitivity adjustment have a fixed operating distance: take attention to this in the positioning.

In the models with sensitivity adjustment, turn the trimmer in clockwise until the yellow LED (OUT) and the green LED (STABILITY) switch ON permanently.

#### S15...T01

Place the sensor and the reflector on opposite sides within the maximum operating distance. Turn completely the trimmer in clockwise.

Moving the sensor both vertically and horizontally, define the points of switch-off and switch-on of the yellow LED (OUT).

Mount the sensor in the middle of the defined points.

Turn the trimmer in anti-clockwise until the yellow LED (OUT) switch off, and then in clockwise until to switch-on: this is the best operating condition to detect the transparent objects.

#### S15...F0x/G0x

Place the sensors on opposite sides within the maximum operating distance.

In the models with sensitivity adjustment (S15...F01) and power-emission adjustment (S15...G01), turn completely the trimmers in clockwise.

Moving the emitter (S15...G0x) both vertically and horizontally, define the points of switch-off and switch-on of the yellow LED (OUT) on the receiver (S15...F0x).

Mount the sensor in the middle of the defined points and check that the green LED (STABILITY) on the receiver is ON.

#### S15...D50

Place the sensor in axis with the object to be detected, taking attention that the operating distance is fixed.

#### S15...M01

Place the object to be detected opposite the sensor at a slightly greater distance than desired, within the maximum operating distance. Turn the trimmer to the maximum position (clockwise) and check that the yellow LED (OUT) is ON, then turn the trimmer in anti-clockwise until the yellow LED switch OFF. Verify the adjustment moving the object closer and further the sensor; tune the adjustment if necessary.

### TEST FUNCTION (S15...G0x)

The TEST+ and TEST- inputs can be used to switch off the emitter light and verify that the system is correctly operating: the receiver output should switch when the test is activated while the beam is uninterrupted: the inputs activating voltage range is 12...30 VDC, respecting the polarity. The emission is switched OFF connecting TEST+ to VDC and TEST- to 0V.

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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