DATALOGIC

This product is covered by one or more of the following patents.
DE202014007924.2U9; IT280386; EP1148346B1
(see www.patents.datalogic.com for patent list)

S65-PA-5-M13

Time-of-flight infrared background suppression sensor

INSTRUCTION MANUAL

IO-Link

SIGNALS

OUTPUT LED (yellow)
Yellow LEDs on, numbered as 1 and 2, indicate activation of Q1 and Q2 outputs.
LEDs blink at the same time if measurement is out of range or not available due to the presence of environmental contamination.

POWER LED (green)
Green PWR LED on indicates that the device is switched on and operating.

ACTIVE SETUP LED (green)
Green PNP/NPN LEDs on indicate that the device is in the selected setup.

OUTPUT and POWER LEDS also indicate setup settings (see "Setup" chapter).

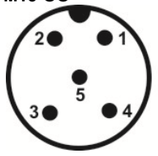
INSTALLATION

Sensor can be installed by means of the two through holes present on the body, using screws (M4x35 or longer; max. tightening torque: 1Nm) with washers and nuts.
If mating surface is not perfectly flat, a bracket is recommended.
Various adjustable brackets are available to help sensor positioning (see accessories on the catalogue). Operating distance is measured from the front surface of the sensor optics.
M12 connector can be aimed in two different ways, by working the relevant retaining spring and turning the unit by 90° until it stops.

1) Connect and fasten M12 connector when power is off.
2) Connect power cable and/or I/O as indicated for every model.
3) Fasten sensor to suitable support, making sure to first align the green pointer at the centre of the target
4) Sensor function will be available in a few seconds from switch-on.
5) Allow warm-up time before starting normal operations.

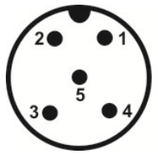
CONNECTIONS

S65-PA-5-M13-OO



1 (BROWN) : +24 V ±20%
2 (WHITE) : Q2 100mA max.
3 (BLUE) : 0 V
4 (BLACK) : Q1 100mA max.
5 (GREY) : REMOTE TEACH-IN

S65-PA-5-M13-OOZ

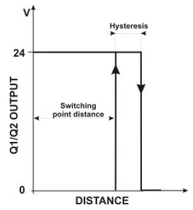


1 (BROWN) : +24 V ±20%
2 (WHITE) : Q2 100mA max.
3 (BLUE) : 0 V
4 (BLACK) : C/Q1 (I/O LINK)
5 (GREY) : REMOTE TEACH-IN

NOTE: Wire colour refers to European standard.

S65-PA-5-M13-OO ADJUSTMENT

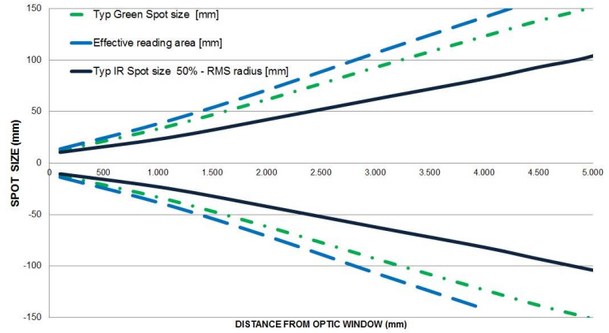
1. Set up the device as needed. Press SET1+SET2 > 3 sec until the 3 green LEDs blink to enter the setup menu.
   - Press SET 2 to navigate within the menu until output ❶ →❷ →❸
   - Press SET 1 to select setup.
   - Press SET1 and SET2 > 6 sec to go back to default setup. The new configuration will be saved only when exit to the menu. The sensor system will automatically reset to the original configuration if a new configuration is not detected within 10 seconds.
2. Select hysteresis according to the application, considering the environmental and the more critical operating conditions.
3. Identify the target reading point using the green visible pointer by pressing SET1 (or SET2) for 1 sec < t < 3 sec (the pointer will remain active for 5 sec).
4. Make sure that the spot is inside the target surface to be acquired.
5. **Target Acquisition:** Press SET1 (or SET2) > 3sec to teach-in switching point 1 or 2 until the yellow LED Q1 (or Q2) flashes.



NOTE: a spot partialization could change detection performances.

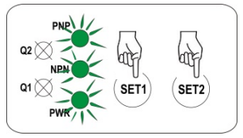
READING AREA DIMENSIONS

Typical spot size – squared section



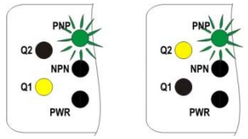
SETUP

MODE menu



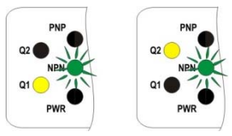
Press SET1+SET2 for t > 3 sec, until all 3 green LEDs are flashing. Releasing the buttons, the sensor enters MODE menu. Press SET2 to navigate within the menu (❶→❷→❸), press SET1 to select setup.

❶ PNP/NPN



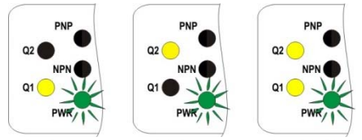
Q1 ON = Setup PNP
Q2 ON = Setup NPN
for both outputs (NPN is not available during I/O Link communication)

❷ LIGHT/DARK



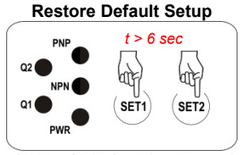
Q1 ON = setup LIGHT
Q2 ON = setup DARK
for both outputs

❸ HYSTERESIS



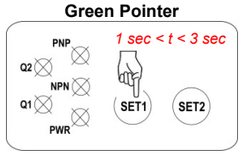
Q1 ON = 80 mm hysteresis
Q2 ON = 50 mm hysteresis
Q1+Q2 ON = 20 mm hysteresis
for both outputs

Restore Default Setup



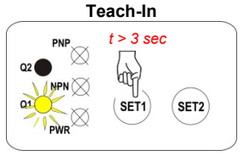
Press SET1 + SET2 for at least 6 sec; before default setup there is a temporary darkening of all LEDs, after which it is possible to release the buttons.

Green Pointer



Press SET1 (or SET2) for 1 sec. < t < 3 sec to switch on the green pointer

Teach-In



Point the target. Press SET1 (or SET2) > 3 sec until Q1 (or Q2) blinks, then release button to acquire the target

Key

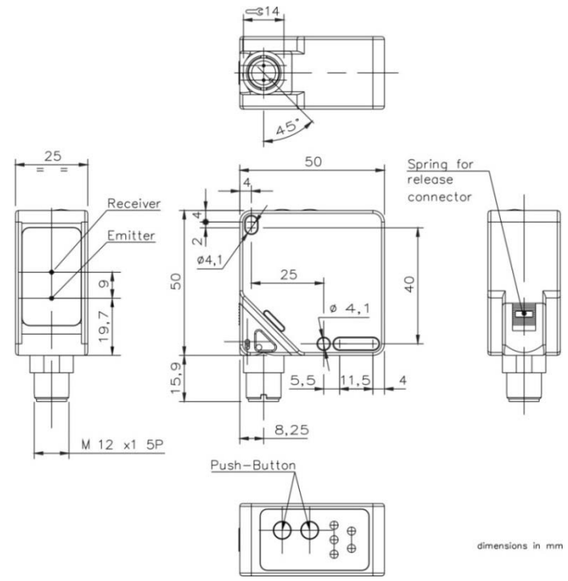
- *Status LED negligible*
- *LED OFF*
- *Steady LED*
- *LED ON and flashing*

TECHNICAL DATA

	S65-PA-5-M13-OO	S65-PA-5-M13-OOZ
Supply voltage:	24 VDC ± 20%	
Consumption:	< 2.2 W (excluding any loads)	
Operating Distance:	0.3..5 m (90% white) / 0.3..4 m (18% grey) / 0.3..2.5 m (6 % black)	
Hysteresis:	20mm / 50mm / 80mm	
Response time:	8.5 msec max.	
Difference White 90%/Grey 18% and White 90%/Black 6%:	see chart *(value Typ, 1σ, T=25°C, ambient light <1Klux)*	
Repeatability error:	20mm for distance > 750mm / 40mm for distance <= 750mm (1σ, T=25°C)	
Thermal compensation error:	1.5 mm /°C (T ≠ 25°C)	
Switching output:	Can be set up (PNP NPN / Light Dark) 100mA max.	
Teach-in Input:	Active High (+24V) 1 sec < t < 3 sec → teach Q1 / > 3 sec → teach Q2	
Warming-up time:	20 min typ	
Warnings:	Q1 (YELLOW) / Q2 (YELLOW) / ON PWR (GREEN) - PNP / NPN (GREEN)	
Operating temperature:	-15°… +55 °C (with device ON)	
Storage temperature:	-25 … +70 °C	
Electrical strength:	500 VAC, 1 min between electronics and case	
Insulation resistance:	> 20 MΩ, 500 VDC between electronics and case	
Reading spot size:	typ 200x200 mm @ 4m	
Pointer spot size (green):	typ 250x250 mm @ 4m	
Max. deviation of pointer/reading spot axes origin:	+/- 40 mm	
Emission and Wavelength:	LED / 850 nm	
Ambient light rejection:	according to EN 60947-5-2,	
Vibrations:	width 0.5 mm, frequency 10 … 55Hz, per axis (EN60068-2-6)	
Shock resistance:	11 ms (30 G) 6 shocks for each axis (EN60068-2-27)	
Humidity:	< 90% no condensation	
Exposed material:	Body: ABS / Display: POLYESTER	
Front side material:	PMMA	
Mechanical protection:	IP67	
Connections:	M12 - 5 poles	
(Overall) Dimensions:	50 x 50 x 25 mm	
Weight:	50 g.max.	
I/O LINK Connection:	NO	IO-Link *(See parameter table on www.datalogic.com)*
UL (requirements):	Class 2 power supply according to UL 508	

Factory settings and default settings are (for both Q1 and Q2): PNP OUT, LIGHT mode, Switching distance 2 m, hysteresis = 80mm

OVERALL DIMENSIONS



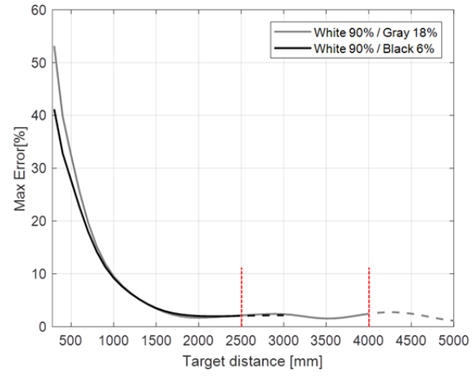
SAFETY WARNINGS

All the regulations and rules concerning electric and mechanical safety must be complied with during sensor operation.
The sensor must be protected against mechanical damage.
This product is only for indoor use.

MAINTENANCE

This device requires no special maintenance operations.
At any rate, take care to clean the optics surface with a compatible detergent in order to avoid degraded performance.
Use protections for the plastic parts in case of dangerous environment.

DIFFERENCE WHITE/GREY – WHITE/BLACK



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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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.

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