

## S65-M

DATALOGIC



IO-Link

TIME OF FLIGHT LONG  
RANGE BACKGROUND  
SUPPRESSOR SERIES

- Long Range background suppression detection up to 5m
- Black 6% detection up to 3,5mt
- Model for stable detection on glossy surface
- Cost effective solution for precise and reliable detection
- Risk-free Infrared LED emission and embedded green LED pointer
- Two independent fully programmable outputs
- NPN/PNP or IO-Link connection models
- Current and Voltage Analog out models
- Rugged plastic housing in compact 50x50x24 mm format

## APPLICATIONS

- Presence of all medium and large sized objects on conveyors
- Critical object detection in front of problematic background
- Critical shiny surface object detection
- Positioning tasks in palletizing
- Position limiter for deck and robot in automotive manufacturing
- Collision prevention limit switch for AGV applications
- Checking filling level for liquid and objects

## S65-M

## Operating Distance

0.3..5 m (90% white) / 0.3..4.5 m (18% grey) / 0.3..3.5 m (6 % black)  
(Models S65...00, ...00Z, ...00I, ...00V)  
0,3..4 m (90% white) / 0,3..2,6 m (18% grey) / 0,3..2 m (6% black)  
(Model S65..M53)

## Difference White 90%/Grey 18% and White 90%/Black 6%

see chart (value Typ, 1σ, T=25°C, ambient light &lt;1Klux)

## Repeatability error

30mm for distance &gt; 750mm / 40mm for distance ≤ 750mm (1σ, T=25°C)

## Response time

8.5 msec max.; 30 msec max.(S65...M53)

## Operating Frequency

&lt;65Hz max; 16Hz max.

## Setting

Teach-in buttons SET1, SET2

## Teach-in Input

Active High ( +24V ) 1 sec &lt; t &lt; 3 sec = teach Q1 / &gt; 3 sec = teach Q2

## Supply voltage

Vdc

24 VDC ± 20%

Vac

Vac/dc

## Switching output

PNP

NPN

NPN/PNP

relay

Can be set up (PNP NPN / Light Dark) 100mA max.

other

IO-Link V1.1, dual channel IO-Link output with and dual digital output  
Current analog output 4...20mA with digital output  
Voltage analog output 0...10V with digital output

## Connections

cable

connector

pig-tail

M12 - 5 poles

## Exposed material

Body ABS / Display POLYESTER

## Front side material

PMMA

## Dimensions

50 x 50 x 25 mm

## Mechanical protection

IP67

## Weight

50 g.max.

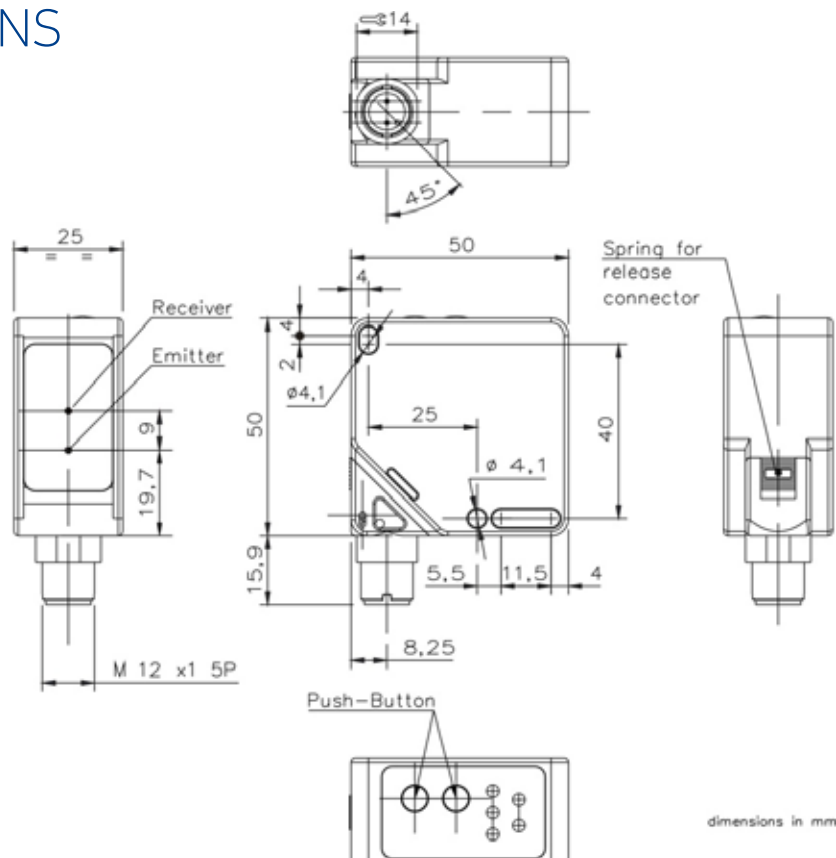
## UL (requirements)

Class 2 power supply according to UL 508

# TECHNICAL DATA

<b>Supply voltage</b>	24 VDC $\pm$ 20%
<b>Consumption</b>	< 2.2 W (excluding any loads)
<b>Operating Distance</b>	0.3..5 m (90% white) / 0.3..4.5 m (18% grey) / 0.3..3.5 m (6 % black) (Models S65...00, ...00Z, ...00I, ...00V) 0,3..4 m (90% white) / 0,3..2,6 m (18% grey) / 0,3..2 m (6% black) (Model S65...M53)
<b>Hysteresis</b>	30mm / 50mm / 80mm
<b>Response time</b>	8.5 msec max. 30 msec max. (S65...M53)
<b>Difference White 90%/Grey 18% and White 90%/Black 6%</b>	see chart (value Typ, 1 $\sigma$ , T=25°C, ambient light <1Klux)
<b>Repeatability error</b>	20mm for distance > 750mm / 40mm for distance $\leq$ 750mm (1 $\sigma$ , T=25°C)
<b>Thermal compensation error</b>	1.5 mm /°C (T $\neq$ 25°C)
<b>Switching output</b>	Can be set up (PNP NPN / Light Dark) 100mA max.
<b>Voltage output</b>	0...10V (S65...00V)
<b>Current output</b>	4...20mA (S65...00I)
<b>Teach-in Input</b>	Active High (+24V) 1 sec < t < 3 sec: teach Q1 / > 3 sec: teach Q2
<b>Warming-up time</b>	20 min typ
<b>Warnings</b>	Q1 (YELLOW) / Q2 (YELLOW) / ON PWR (GREEN) - PNP / NPN (GREEN)
<b>Operating temperature</b>	-15°... +55 °C (with device ON)
<b>Storage temperature</b>	-25 ... +70 °C
<b>Electrical strength</b>	500 VAC, 1 min between electronics and case
<b>Insulation resistance</b>	> 20 M $\Omega$ , 500 VDC between electronics and case
<b>Reading spot size</b>	typ 200x200 mm @ 4m
<b>Pointer spot size (green)</b>	typ 250x250 mm @ 4m
<b>Max. deviation of pointer/reading spot axes origin</b>	+/- 40 mm
<b>Emission and Wavelength</b>	LED IR / 850 nm
<b>Ambient light rejection</b>	according to EN 60947-5-2,
<b>Vibrations</b>	width 0.5 mm, frequency 10 ... 55Hz, per axis (EN60068-2-6)
<b>Shock resistance</b>	11 ms (30 G) 6 shocks for each axis (EN60068-2-27)
<b>Humidity</b>	< 90% no condensation
<b>Exposed material</b>	Body ABS / Display POLYESTER
<b>Front side material</b>	PMMA
<b>Mechanical protection</b>	IP67
<b>Connections</b>	M12 - 5 poles
<b>(Overall) Dimensions</b>	50 x 50 x 25 mm
<b>Weight</b>	50 g.max.
<b>I/O LINK Connection</b>	NO (See parameter table on <a href="http://www.datalogic.com">www.datalogic.com</a> )
<b>UL (requirements)</b>	Class 2 power supply according to UL 508

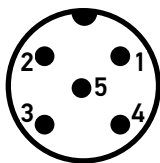
## DIMENSIONS



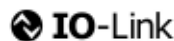
# CONNECTIONS

## M12 CONNECTOR

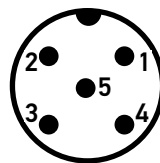
S65-PA-5-M13-00



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



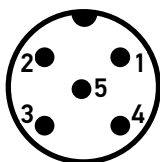
S65-PA-5-M13-00Z  
 S65-PA-5-M53-00Z



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

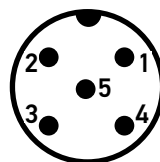
NOTE: Wire colour refers to European standard.

S65-PA-5-M13-00I



1 (BROWN): +24 V  $\pm$   
 2 (WHITE): Q2 100mA max.  
 3 (BLUE): 0 V  
 4 (BLACK): Q1 100mA max.  
 5 (GREY): Current Analog Output 4-20mA

S65-PA-5-M13-00I



1 (BROWN): +24 V  $\pm$   
 2 (WHITE): Q2 100mA max.  
 3 (BLUE): 0 V  
 4 (BLACK): Q1 100mA max.  
 5 (GREY): Current Voltage Output 0-10V

# INDICATORS AND SETTINGS



## 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.

## SET1 Push Button

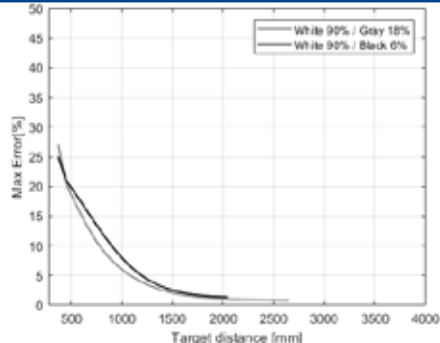
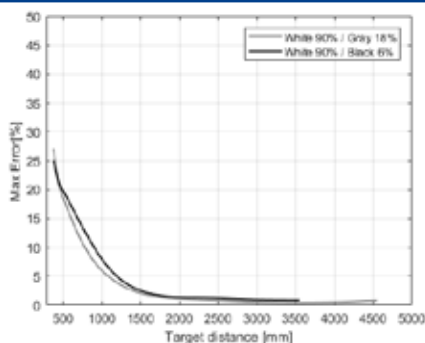
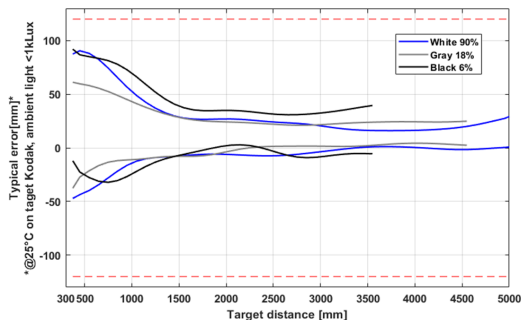
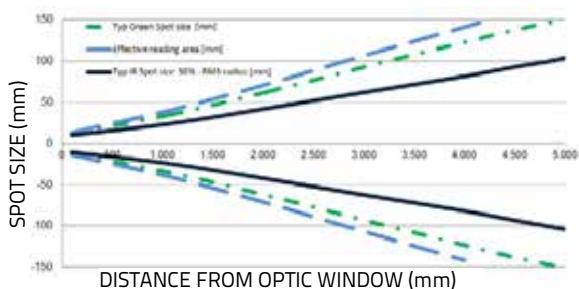
Teach-in push button for Q1 and setting parameter menu

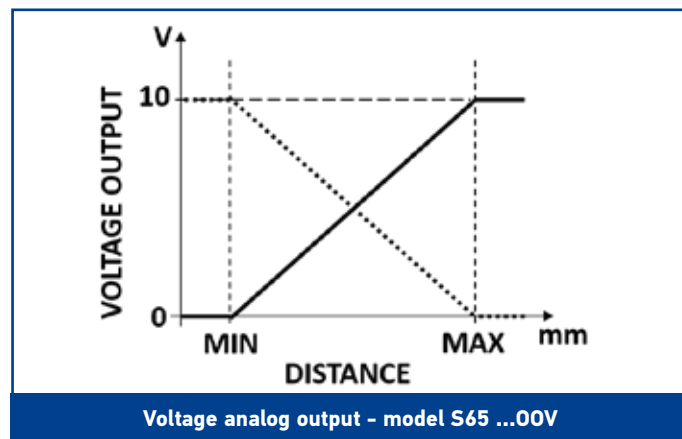
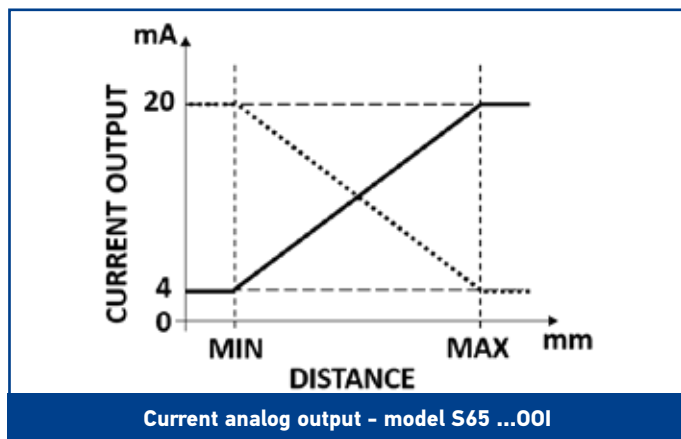
## SET2 Push Button

Teach-in push button for Q2 and setting parameter menu



# DETECTION DIAGRAMS

## Typical spot size - squared section



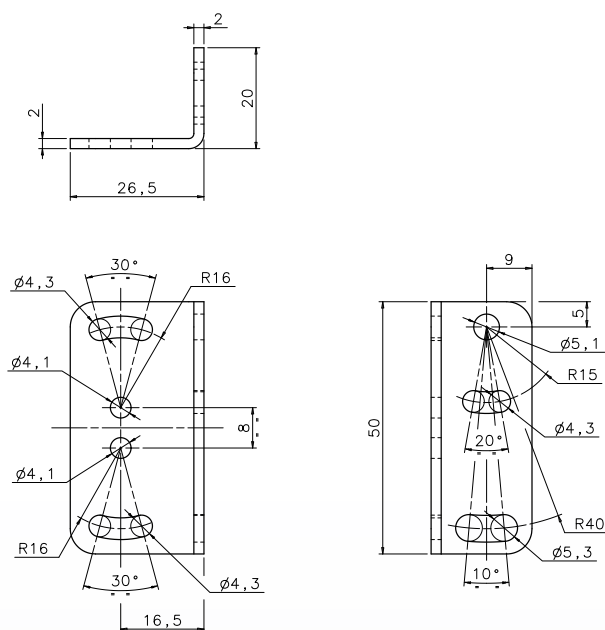


## MODEL SELECTION AND ORDER INFORMATION

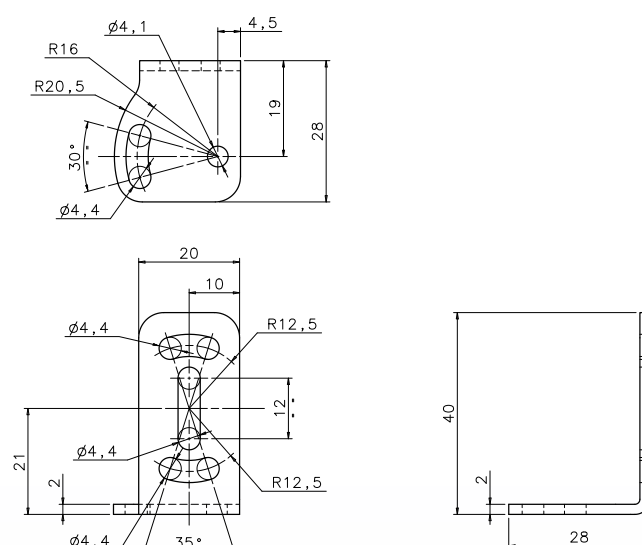
OPTIC FUNCTION	CONNECTION	OUTPUT	MODEL	ORDER No.
Background Suppression long range IR	M12 5 poles	NPN/PNP	S65-PA-5-M13-00	956251161
		NPN/PNP + I Out	S65-PA-5-M13-00I	956255001
		NPN/PNP + V Out	S65-PA-5-M13-00V	956251181
		 IO-Link NPN/PNP	S65-PA-5-M13-00Z	956251171
Background Suppression long range for shiny objects		 IO-Link NPN/PNP	S65-PA-5-M53-00Z	956250001

## ACCESSORIES

ST-5020



ST-5021



MODEL	DESCRIPTION	ORDER No.
ST-5020	mounting bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	mounting bracket 20 x 40 x 28 mm	95ACC5340

## CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	M12 5-pole conn. with 3 m unshielded cable	3 m	CS-A1-03-G-03	95ACC2110
	M12 5-pole conn. with 5 m unshielded cable	5 m	CS-A1-03-G-05	95ACC2120
	M12 5-pole conn. with 10 m unshielded cable	10 m	CS-A1-03-G-10	95ACC2140
	5-pole, L coded power cable	3 m	CS-M1-02-B-03	95ACC0007
Axial M12 F/M8 M Connector	4-pole, double headed	3 m	CS-H1-02-B-03	95ACC0008
Axial M12 F/M12 M Connector	4-pole, double headed	3 m	CS-I1-02-B-03	95ACC0009