DATALOGIC

This product is covered by one or more of the following patents.
European Patent: 1,324,072 B1; 1,148,346 B1

S85-MH-5-Y

Distance sensor with laser emission and time of flight measurement

INSTRUCTION MANUAL

CLASS 2 EN 60825-1
(2014)
LASER PRODUCT

CONTROLS

S85-MH-5-Y03-OOV / OOI

S85-MH-5-Y13-OOIVY / OOY

OUTPUT LED (yellow)
Yellow led's 1 and 2 lit, show digital outputs Q1 and Q2 enabled.

OUT OF RANGE / POWER ON LED (red/green)
LED 3 lit RED shows an out of range measurement.
LED 3 lit GREEN shows the sensor power on and the laser emission activated

INSTALLATION

The installation of the sensor can be carried out thanks to the two fixing holes on the body, by means of screws (eg M4x45 UNI5739) with nuts and washers.
To install the product *only* and *always* refer to the reference surface (A) shown in Fig.1.
Adjustable fixing brackets are available in order to facilitate the sensor positioning (see Accessories catalog).
With direct fixing the unit has an angular adjustment range of the laser emission of ± 1.5 °.
The measurement refers to the front surface of the sensor as in Fig.2.

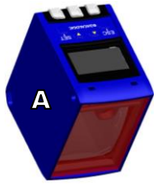


Fig.1

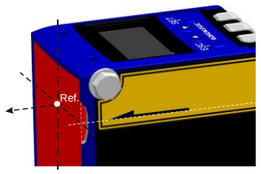


Fig.2

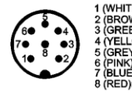
1) Connect and secure the M12 connector with unit power off.
2) Connect the cable to the power supply and/or I/O as indicated for each model.
3) Fix the sensor to a suitable support, taking care to align the laser spot on the center of target before fixing.
4) Measurement will be available within a few seconds from power on.
5) Allow the unit to warm up before starting normal operation.
6) Configure device unlocking by simultaneously pushing the ▲▼ buttons for S85-MH-5-Y13 (the unit automatically locks the settings at the end of configuration)

CONNECTIONS

S85-Y03-OOV

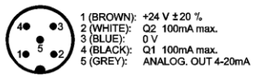
1 (BROWN): +24 V ±20 %
2 (WHITE): Q2 100mA max.
3 (BLUE): 0 V
4 (BLACK): Q1 100mA max.
5 (GREY): ANALOG. OUT 0-10V

S85-Y13-OOIVY



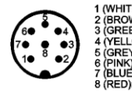
1 (WHITE): RS485 -
2 (BROWN): +24 V ±20 %
3 (GREEN): ANALOGUE OUT
4 (YELLOW): Q1 100mA max.
5 (GREY): Q2 100mA max.
6 (PINK): RS485 +
7 (BLUE): 0 V
8 (RED): MULTIFUNC.INPUT

S85-Y03-OOI



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

S85-Y13-OOY



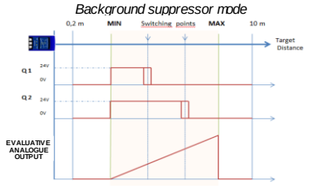
1 (WHITE): RS485 -
2 (BROWN): +24 V ±20 %
3 (GREEN): RESERVED
4 (YELLOW): Q1 100mA max.
5 (GREY): Q2 100mA max.
6 (PINK): RS485 +
7 (BLUE): 0 V
8 (RED): MULTIFUNC.INPUT

N.B.: Color of wires are referred to European standard.

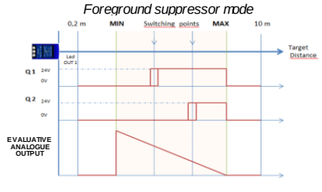
CONFIGURATION SETTINGS FOR S85-MH-5-Y03

Push buttons for at least 3secs and release when the appropriate LED flashes
Push **MIN** until LED yellow 1 flashes to read "min" value.
Push **MAX** until LED yellow 2 flashes to read "max" value.
Push **Q1** until LED yellow 1 flashes to read switching point 1.
Push **Q2** until LED yellow 2 flashes to read switching point 2.
Push **MIN + MAX** until LED green 3 flashes to restore range default values.
Push **MAX + Q1 / MIN + Q2** until LED green 3 flashes to restore default switching point 1/2 (= 500 mm).

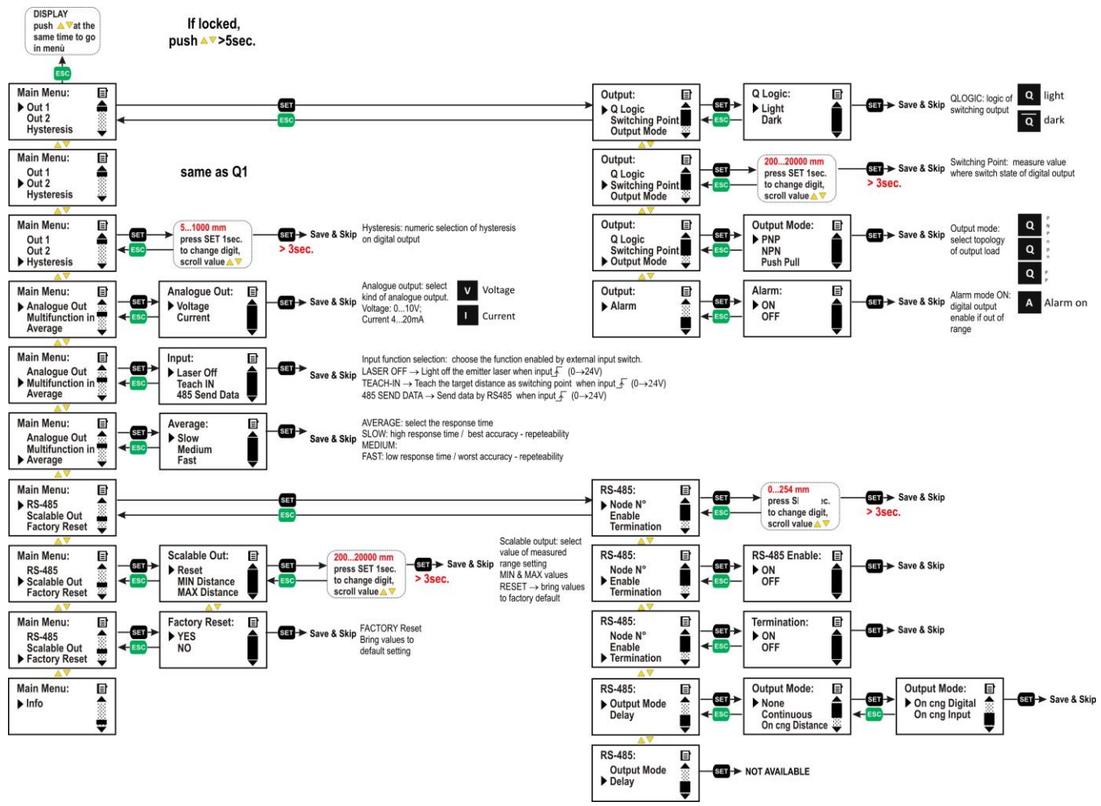
Background suppressor mode



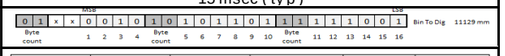
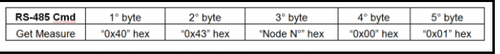
Foreground suppressor mode



CONFIGURATION SETTING FOR S85-MH-5-Y13



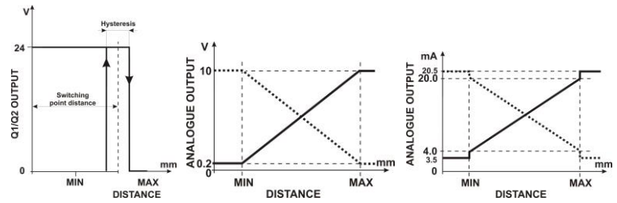
TECHNICAL DATA

	S85-MH-5-Y03-OOV	S85-MH-5-Y03-OOI	S85-MH-5-Y13-OOIVY	S85-MH-5-Y13-OOY
Power supply :	24 VDC ± 20%			
Consumption:	< 2.8 W		< 3 W	
Measurement range:	0,2..10 m (90% white) / 0,2..5 m (18% grey) / 0,2..3 m (6 % black)		0.2..20 m (90% white) / 0.2..8 m (18% grey) / 0.2..5 m (6 % black)	
Accuracy (1 sigma / 90% white XRite target):	10 mm		7 mm (slow response time)	
Repeatibility (1 sigma / 90% white XRite target):	1 mm		1 mm *up to 10 m* / < 2 mm *up to 20 m* (slow response time)	
Resolution:	1 mm / 16 bit			
Hysteresis:	10mm		configurable (5 … 1000 mm)	
Analogue output: (Linearity error ±0.03% FS$_V$, ±0.02% FS$_I$)	0.2-10 V scalable (1200 Ω min) short-circuit protection	4-20 mA scalable (100 Ω max.) short-circuit protection	Configurable (0.2-10V / 4-20 mA /scalable) short-circuit protection	Not available
Response time SLOW :	-		45 msec (typ)	
Response time MEDIUM:	30 msec (typ)			
Response time FAST:			15 msec (typ)	
RS 485 output stream:	Not available			
RS 485 Input command:	Not available			
Switching output / Alarm:	Push Pull / Q		Configurable (PNP NPN Push Pull Q Qneg)	
Multifunction input:	not available		See par. "Default Configuration"	
Warm up time:	20 min typ			
Indicators:	Q1 (YELLOW) / Q2 (YELLOW) / POWER ON (GREEN) - OUT OF RANGE (RED) 5-digit / multi display (only for S85-MH-5-Y13-OOIVY / OOY)			
Operating temperature:	-15 … 50 °C (with powered devices) - reduce the min temp. to -5°C in case of cold power on			
Storage temperature:	-25 … 70 °C			
Dielectric strength:	500 VAC, 1 min between electronics and housing			
Insulating resistance:	> 20 MΩ, 500 VDC between electronics and housing			
Typical spot dimension (T = 25°C)	Initial diameter: 2mm Diameter @ 8m: 15mm, divergence theta: 0.001625 rad		Initial diameter: 2mm Diameter @ 10m: 15mm, divergence theta: 0.0013 rad	
Laser power emission / Pulse duration:	Pp=100mW, PFR=1MHz, pulse duration 4ns			
Wavelenght :	658 nm			
Laser class emission:	CLASS 2 According to IEC 60825-1 (2014)			
Ambient light rejection:	According to EN 60947-5-2, >40 Klux DC ambient light			
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)			
Humidity:	< 90% not condensed			
Housing material:	ZINC ALLOY ZAMA 13 EN-1774 / Display: PC LEXAN 121R			
Lens material:	PMMA			
Mechanical protection:	IP67			
Connections:	M12 - 5 poles		M12 - 8 poles	
Dimension (max shape):	58 x 61 x 37 mm			
Peso	250 gr.max.			
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*			
CDRH requirements:	Complies with 21 CFR 1040.10 and 1040.11			

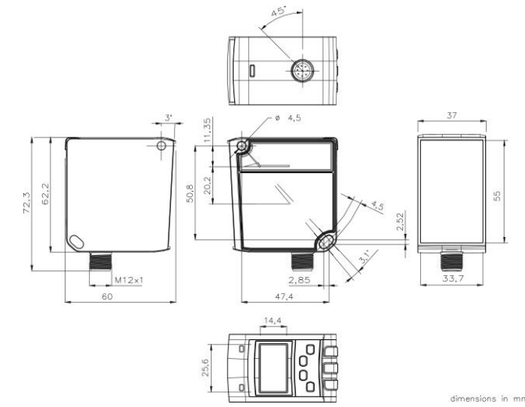
DEFAULT CONFIGURATION

	S85-MH-5-Y03-OOV	S85-MH-5-Y03-OOI	S85-MH-5-Y13-OOIVY	S85-MH-5-Y13-OOY
Average:	30 msec	30 msec	45 msec (Slow)	45 msec (Slow)
Analogue out:	0.2..10 V	4..20 mA	4..20 mA	
RS485 output mode:			None	None
RS485 termination:			Off	Off
Input function:			Teach in	Teach in
OUT1 logic:	Light	Light	Light	Light
OUT2 logic:	Light	Light	Light	Light
OUT1 mode:	Push Pull	Push Pull	Push Pull	Push Pull
OUT2 mode:	Push Pull	Push Pull	Push Pull	Push Pull
Switching point 1 (mm):	500	500	500	500
Switching point 2 (mm):	500	500	500	500
Hysteresis (mm):	10	10	10	10
Scalable range min (mm):	200	200	200	200
Scalable range max (mm):	10000	10000	20000	20000

DETECTION DIAGRAMS



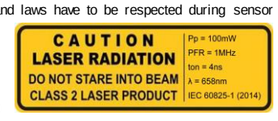
DIMENSIONS



dimensions in mm

SAFETY WARNINGS

All the safety electrical and mechanical regulations and laws have to be respected during sensor functioning. The sensor has to be protected against mechanical damages.
Do not look directly into the laser beam!
Do not point the laser beam towards people!



Eye irradiation for over 0.25 seconds is dangerous; refer to class 2 standard (EN60825-1).
This product is intended for indoor use only.
Use of controls or adjustments or performance or procedures other than those specified herein may result in hazardous radiation exposure.

MAINTENANCE

Device do not need for particular maintenance. Anycase, take care to clean optic surface with compliant cleanser in order to avoid decay of performance.
Use protection for plastic parts in case of hazardous environment.

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.

For information about the disposal of Waste Electrical and Electronic Equipment (WEEE), please refer to the website at www.datalogic.com.

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