



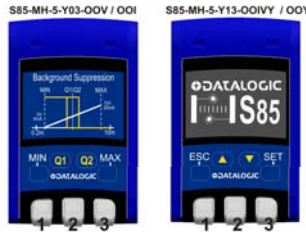
## S85-MH-5-Y

Distance sensor with laser emission and time of flight measurement

### INSTRUCTION MANUAL



#### CONTROLS

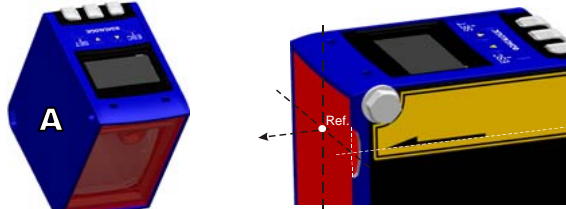


**OUTPUT LED (yellow)**  
Yellow led's 1 and 2 lit, show digital outputs Q1 and Q2 enabled.

**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

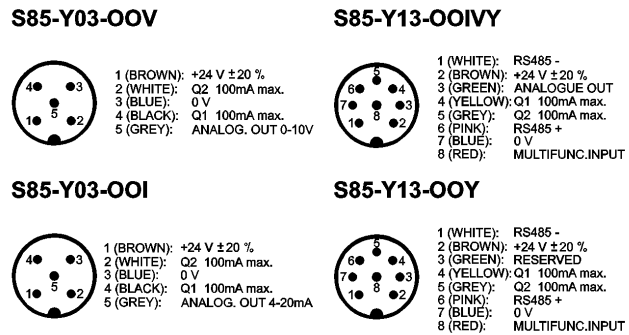
#### INSTALLATION

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  $\pm 1.5^\circ$ . The measurement refers to the front surface of the sensor as in 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  $\blacktriangle$   $\blacktriangledown$  buttons for S85-MH-5-Y13 (the unit automatically locks the settings at the end of configuration)

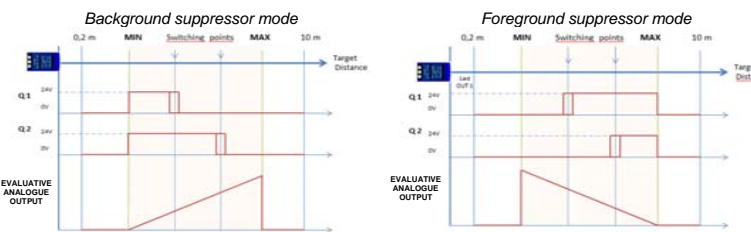
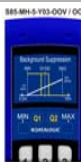
#### CONNECTIONS



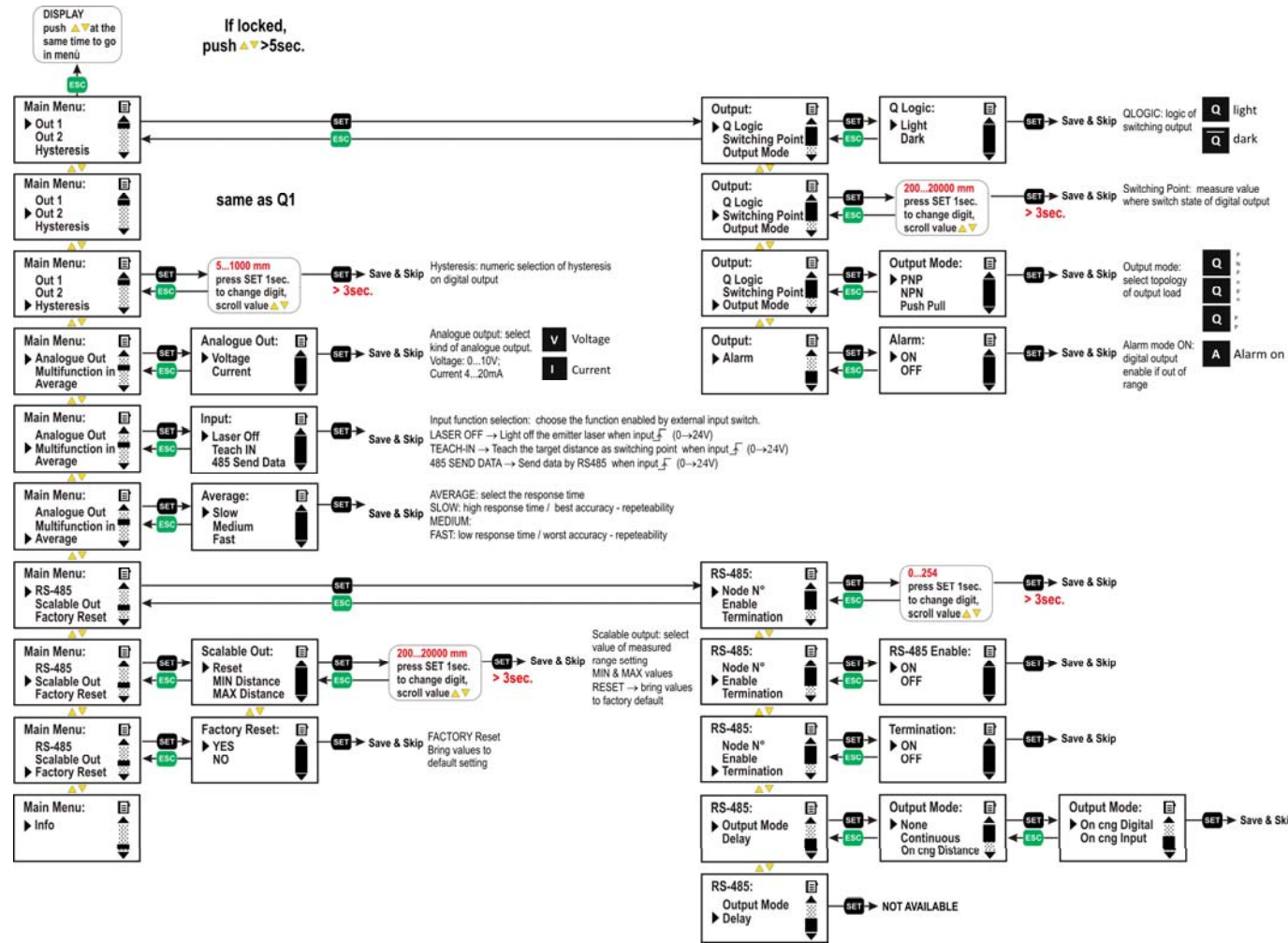
N.B.: Color of wires are referred to European standard.

#### 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).



#### CONFIGURATION SETTING FOR S85-MH-5-Y13



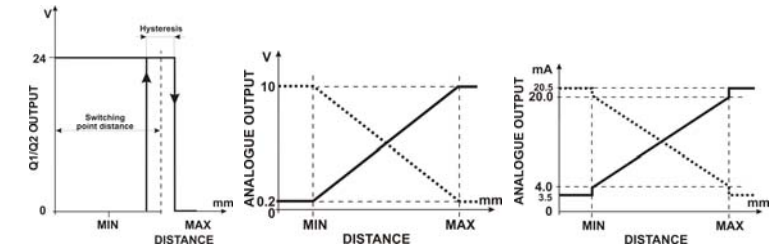
#### TECHNICAL DATA

	S85-MH-5-Y03-OOV	S85-MH-5-Y03-OOI	S85-MH-5-Y13-OOIVY	S85-MH-5-Y13-OOY																		
Power supply:	24 VDC $\pm 20\%$																					
Consumption:	$< 2.8$ 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)																			
Repeatability (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 $\pm 0.03\%$ FS <sub>v</sub> , $\pm 0.02\%$ FS <sub>i</sub> )	0.2-10 V scalable (1200 V $\pm$ min) short-circuit protection	4-20 mA scalable (100 $\Omega$ 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	Not available			output stream: <table border="1"><thead><tr><th>Byte count</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th></tr></thead><tbody><tr><td>RS-485 Cmd</td><td>1" byte</td><td>2" byte</td><td>3" byte</td><td>4" byte</td><td>5" byte</td></tr><tr><td>Get Measure</td><td>"0x40" hex</td><td>"0x43" hex</td><td>"Node N" hex</td><td>"0x00" hex</td><td>"0x01" hex</td></tr></tbody></table>	Byte count	1	2	3	4	5	RS-485 Cmd	1" byte	2" byte	3" byte	4" byte	5" byte	Get Measure	"0x40" hex	"0x43" hex	"Node N" hex	"0x00" hex	"0x01" hex
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Switching output / Alarm:	Configurable (PNP NPN Push Pull Q Qneg)																					
Multifunction input:	not available																					
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:	$-15 \dots 50^\circ\text{C}$ (with powered devices) - reduce the min temp. to $-5^\circ\text{C}$ in case of cold power on																					
Storage temperature:	$-25 \dots 70^\circ\text{C}$																					
Dielectric strength:	500 VAC, 1 min between electronics and housing																					
Insulating resistance:	$> 20$ M $\Omega$ , 500 VDC between electronics and housing																					
Typical spot dimension (T = 25°C)	typ 15mm @ 8m	typ 15mm @ 8m	typ 15mm @ 10m	typ 15mm @ 10m																		
Laser power emission / Pulse duration:	1 mW / 4 nsec																					
Wavelength :	658 nm																					
Laser class emission:	CLASS 2 According to IEC 60825-1 (2007)																					
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																					

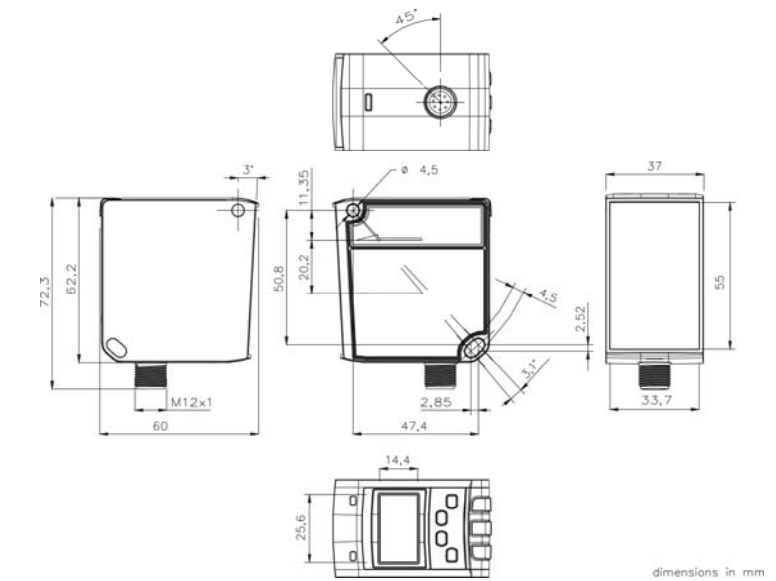
#### DEFAULT CONFIGURATION

	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	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



#### 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.*

#### DECLARATION OF CONFORMITY

We Datalogic Automation declare under our sole responsibility that these products are conform to the 2004/108/EC 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.

#### DATALOGIC AUTOMATION srl

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