



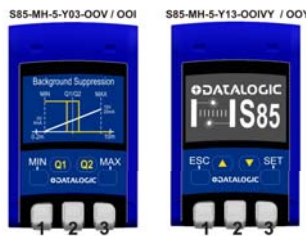
S85-MH-5-Y

Distance sensor with laser emission and time of flight measurement

INSTRUCTION MANUAL



CONTROLS



OUTPUT LED (yellow)
Yellow led's 1 and 2 light on, show digital outputs Q1 e Q2 enable

OUT OF RANGE / POWER ON LED (red/green)
Led 3 light on RED shows the out of range measures.
Led 3 light on GREEN shows the sensor power on and the laser emission activations

INSTALLATION

The installation of the sensor can be carried out thanks to the two through 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.
There are orientable fixing brackets to ease the sensor positioning (see Accessories catalog).
With direct fixing it has a range of angular adjustment of the laser emission of $\pm 1.5^\circ$. The measure is referred to the front surface of the sensor as in Fig.2.



Fig.1

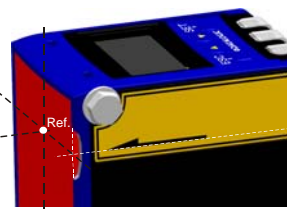
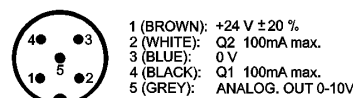


Fig.2

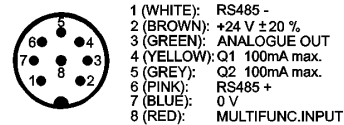
- 1) Connect and secure the M12 connector power free.
- 2) Connect the cable to power supply and/or I/O as for indicated for each model.
- 3) Fix the sensor to suitable support, taking care to align the laser spot on the center of target before.
- 4) Measure will be available within few seconds from power on.
- 5) Wait for warm up time before to start operation.
- 6) Configure device unlocking by contemporarily push of \blacktriangle and \blacktriangledown for S85-MH-5-Y13 (device automatically lock configuration at the end of configuration)

CONNECTIONS

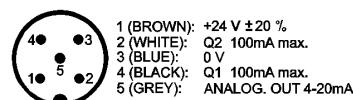
S85-Y03-OOV



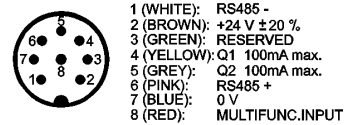
S85-Y13-OOIVY



S85-Y03-OOI



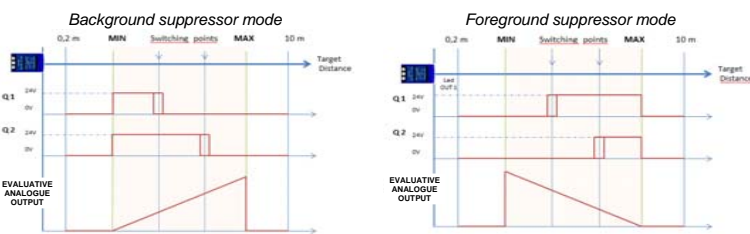
S85-Y13-OOY



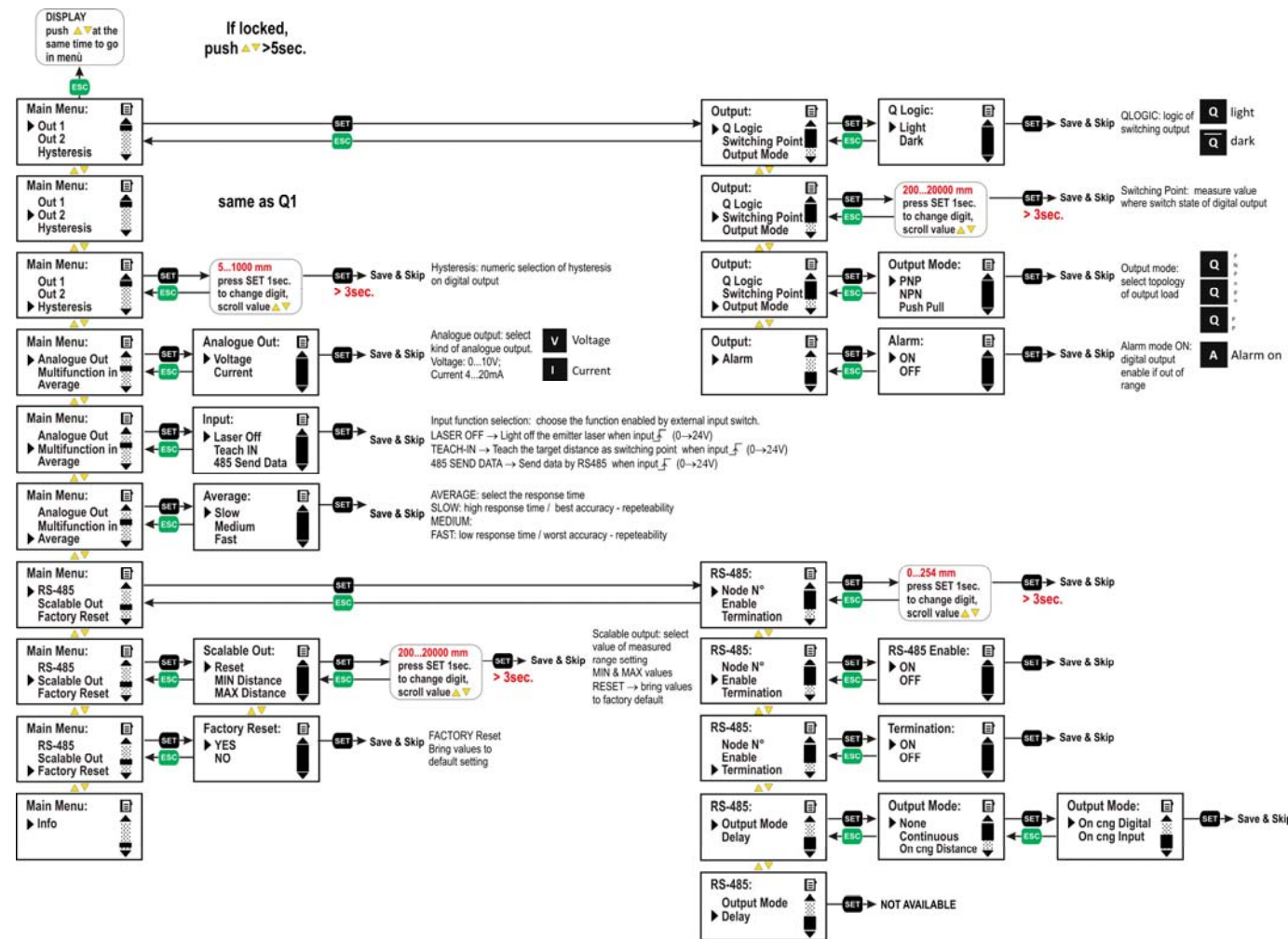
N.B.: Color of wires are referred to european standard.

CONFIGURATION SETTING FOR S85-MH-5-Y03

Push buttons 3sec at least and release them when dedicated LED blinks
Push MIN to teach scalable range "min" until blinking of LED yellow 1
Push MAX to teach scalable range "max" until blinking of LED yellow 2
Push Q1 to teach switching point 1 until blinking of LED yellow 1
Push Q2 to teach switching point 2 until blinking of LED yellow 2
Push MIN + MAX to restore range default values until blinking of LED green 3
Push MAX + Q1 / MIN + Q2 to restore default switching point 1/2 until blinking of LED green 3 (= 500 mm)



CONFIGURATION SETTING FOR S85-MH-5-Y13



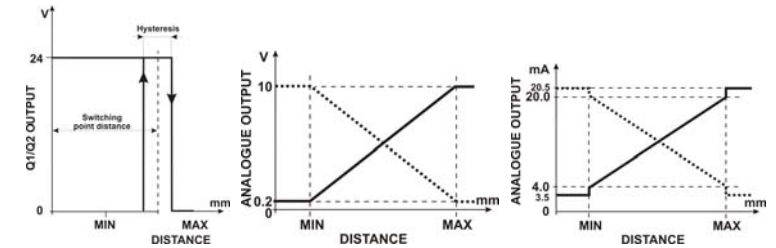
TECHNICAL DATA

| | 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 | | < 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) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 $\pm 0.03\% FS_V$, $\pm 0.02\% FS$) | 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 | Not available | | <table border="1"> <tr> <td>output stream:</td> <td>0 1 * * 0 0 1 0 1 0 1 0 1 1 0 1 0 0 1 </td> <td>Bin To Dig 11229 mm</td> </tr> <tr> <td>Byte count</td> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> <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><td colspan="11"></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><td colspan="11"></td> </tr> </table> | | output stream: | 0 1 * * 0 0 1 0 1 0 1 0 1 1 0 1 0 0 1 | Bin To Dig 11229 mm | Byte count | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 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 | | | | | | | | | | | |
| output stream: | 0 1 * * 0 0 1 0 1 0 1 0 1 1 0 1 0 0 1 | Bin To Dig 11229 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Byte count | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 M Ω , 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

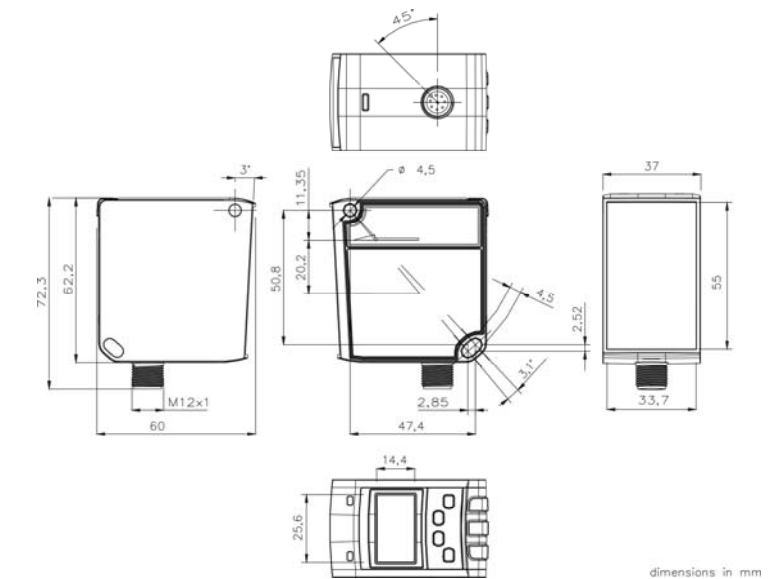
DEFAULT CONFIGURATION

| | 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/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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