

UQ1 CUBIC ULTRASONIC SENSOR

Installation Manual - CAT8EUQ1996401- ENG - Created: 18/06/2019

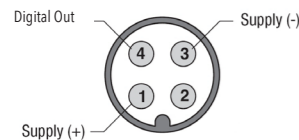
SUPPLIED MATERIAL

- Installation manual
- 1 plastic nut SW22, h 8.3 mm (for plastic housing)

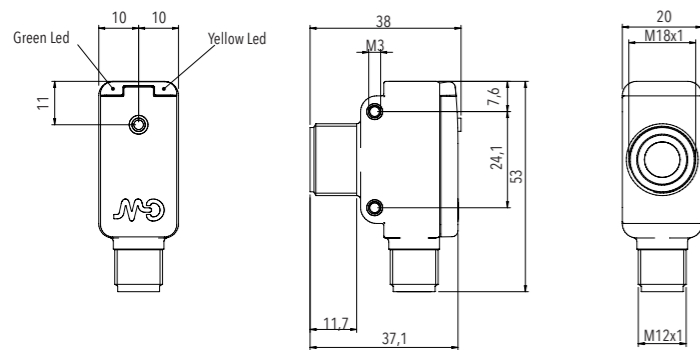
GENERAL DESCRIPTION

- Cubic ultrasonic sensor + M18 head
- Models with single digital output
- Operating distance adjustment (button)
- Complete protection against electrical damages
- Double multifunction LED indicator
 - Orange LED: output state, Teach-in function
 - Green LED: echo
- Plastic housing

PLUGS



DIMENSIONS (mm)



INSTALLATION CONDITION

The standard fixation of the sensor has to be done using nut and flexible washer supplied with ultrasonic sensor (see Supplied Material). In case of non standard installation condition, as for example in case the sensor is fixed directly into metal block through hole or threaded, it is necessary to use always flexible washer and plastic nut to fix the sensor. Anyway both nuts and metal block have to be minimum 5 mm from the edge of the active face and it is necessary that the first 5 mm of the threaded housing are not screwed. Both metal blocks and nuts have to be connected to ground.

STATES PRESERVATION

The sensor preserves the last adjustment made, therefore removing the voltage supply and restoring it, the sensor works in according to last value of P1 and P2 point.

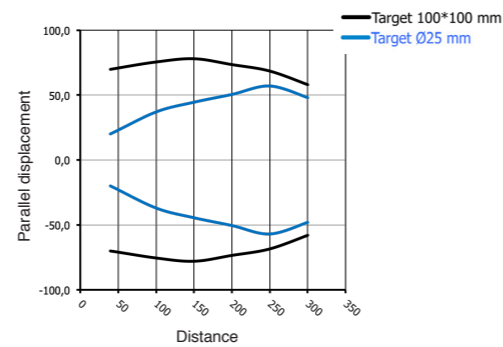
ATTENTION

Make sure that the supply voltage is correctly set with a ripple corresponding to the values indicated on the catalogue. In case the noise produced by the power lines exceeds the values foreseen by the CE norm (in-terference immunity), separate the sensor cables from both the power and high tension lines and insert it in a grounding metal raceway. Moreover it is advisable to connect the sensor directly to the supply source and not to other devices. To extend the supply and output cables, it is necessary to use a cable having conductors with a minimum size of 1 mm². The maximum length of extension is 100 m (this value is referred to a minimum tension and power supply at the load of 100 mA). In industrial environments, we recommend to use shielded cables in order to prevent possible disturbances on the devices caused by electromagnetic fields induced. Do not expose sensor head to hot water > 50 °C, water steam, acids or solvents. Clean the active face of the sensor with a wet cloth and then dry it.

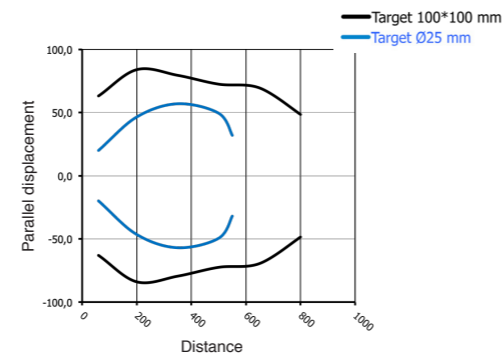
If the sensor is measuring across a temperature gradient, the compensation will be less effective. The temperature warm up drift upon power-up influence the measurement of the sensing distance. After 25 minutes, the sensing distance will be stable.

CHARACTERISTIC CURVES

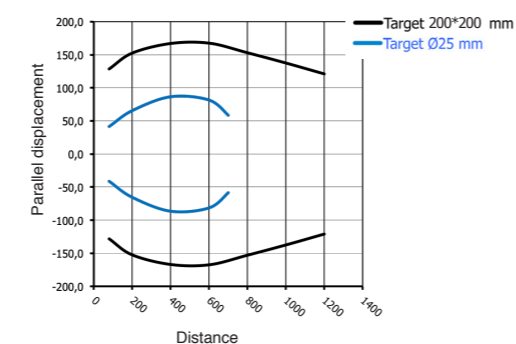
Parallel displacement UQ1A



Parallel displacement UQ1C



Parallel displacement UQ1D

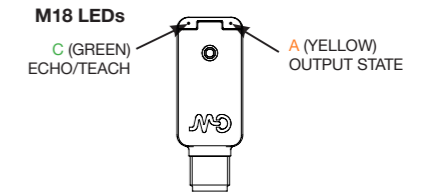


TECHNICAL SPECIFICATIONS

Models	UQ1A	UQ1C	UQ1D
Maximum sensing distance	300 mm ⁽¹⁾	800 mm ⁽¹⁾	1,200 mm ⁽²⁾
Minimum operating distance (blind zone)	40 mm	60 mm	80 mm
Sensing range	40-300 mm	60 - 800 mm	80 - 1,200 mm
Beam angle	7° ± 2°	8° ± 2°	8° ± 2°
Switching frequency	8 Hz	5 Hz	3 Hz
Hysteresis		1%	
Repeat accuracy		1%	
Linearity error		< 1 %	
Temperature range		-20°...+70° C	
Temperature compensation		Si	
Thermal drift		± 5%	
Operating voltage		+10...30 Vdc	
Ripple		5%	
Leakage current		≤ 10 µA @ 30 Vcc	
Output voltage drop		2,2 V max. @ (IL=100 mA)	
No-Load supply		≤ 35 mA	
Maximum load current (digital output)		100 mA	
Response time analog output		≤ 400 ms	
Time delay before availability (digital output)		≤ 400 ms	
Supply electrical protections		Polarity reversal, transient	
Digital output electrical protections		Short circuit (auto reset), overvoltage pulses	
EMC		Conforming to the EMC Directive requirements according to EN 60947-5-2	
Electrical protection (analogue output)		Overvoltage pulses	
Protection degree		IP67 ⁽³⁾	
Housing material		PBT	
Front end material		Epoxy-glass resin	
Weight		30 g	
Storage temperature		-30°...+80° C without freezing	

- (1) Metallic target 100x100 mm
- (2) Metallic target 200x200 mm
- (3) Protection granted only by plug mounted in a correct way

ADJUSTMENT



Teach options:

TEACH P1



P1 = FAR POINT
P2 = CLOSE POINT

TEACH P2



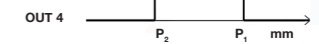
Restore factory calibration data:

TEACH WITHOUT TARGET

TEACH WITHOUT TARGET



NO OUTPUT STATE



NC OUTPUT STATE



CONFIGURATION STATE



PRESS TEACH-BUTTON FOR 8 SECONDS TO SWITCH FROM NO TO NC CONFIGURATION
A START BLINKING UNTIL RELEASE

TEACH BLOCK



PRESS FOR 1-12 SECONDS
LD1, LD2 ON BLINKING ALTERNATING @ 10 Hz
TO ENABLE/DISABLE THE TEACH BUTTON
LD1, LD2 BLINK x 3 @ 3.5 Hz TO CONFIRM



WARNING These products are NOT safety sensors and are NOT suitable for use in personal safety application

Declaration of conformity

M.D. Micro Detectors S.p.A. con Unico Socio declares under its sole responsibility that these products are in conformity with the EMC directive.



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