

Ultrasonic Diffuse, Analogue Output Types UA18CSD.....TI

CARLO GAVAZZI



- Cylindrical M18 PBT housing
- Sensing distance: 40-800 mm
- Power supply: 10-30 VDC
- Outputs: 0-10 VDC or 4-20 mA
- Linearity error 1%
- Repeatability 1%
- Beam angle. $\pm 7^\circ$ or $\pm 8^\circ$
- Protection: short-circuit and overvoltage
- Protection degree IP 67
- 2 m cable or M12 plug

Product Description

A family of diffuse ultrasonic sensors with a sensing range from 40-300 mm and 80-800 mm with a resolution as low as 3.0 mm. The sensor contains an analogue output that is either 0-10 V or 4-20 mA. This sensor is the ideal choice

for distance measurement, level measurement, diameter measurement or loop control. Due to the use of micro-processor control the digital filtering makes the sensor immune to most electromagnetic interferences.

Ordering Key

UA18CSD08AGM1TI

Ultrasonic sensor	UA
Housing style	18
Housing size	C
Housing material	S
Housing length	D
Detection principle	0
Sensing distance	8
Output type	A
Output configuration	G
Connection	M
Teach-in	T
	I

Type Selection

Housing diameter	Connec-tion	Rated operating dist. (S _n)	Analogue Output	Ordering no.
M18	Plug M12	40-300 mm	4-20 mA	UA 18 CSD 03 AG M1 TI
M18	Cable	40-300 mm	4-20 mA	UA 18 CSD 03 AG TI
M18	Plug M12	40-300 mm	0-10 V	UA 18 CSD 03 AK M1 TI
M18	Cable	40-300 mm	0-10 V	UA 18 CSD 03 AK TI
M18	Plug M12	80-800 mm	4-20 mA	UA 18 CSD 08 AG M1 TI
M18	Cable	80-800 mm	4-20 mA	UA 18 CSD 08 AG TI
M18	Plug M12	80-800 mm	0-10 V	UA 18 CSD 08 AK M1 TI
M18	Cable	80-800 mm	0-10 V	UA 18 CSD 08 AK TI

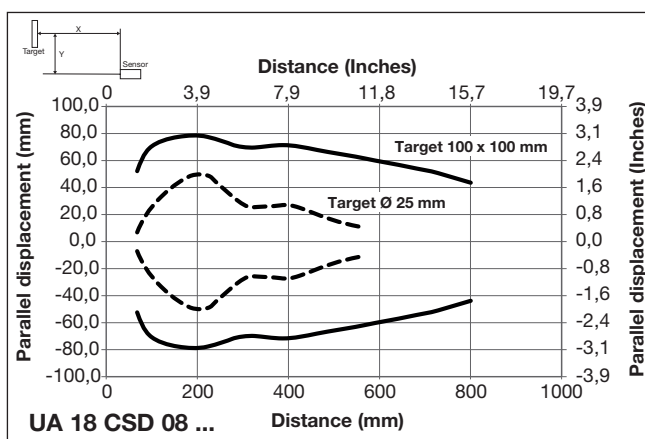
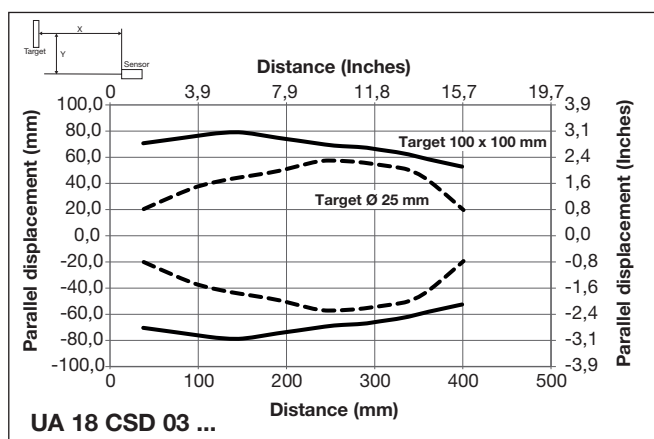
Specifications

Rated operating distance (S_n)	Reference target: 1 mm metal rolled finish 100 x 100 mm 40 - 300 mm 80 - 800 mm	Temperature compensation	Yes
UA18CSD03 UA18CSD08		Hysteresis (H)	Min. 1%
Blind zone	≤ 40 mm ≤ 80 mm	Rated operational voltage (U_B)	10 to 30 VDC (ripple included)
UA18CSD03... UA18CSD08...		Ripple (U_{rip})	≤ 5%
Repeatability	1%	No-load supply current (I_o)	35 mA @ U _B max
Linear Accuracy	1%	Protection analogue output	Short-circuit and overvoltage
Beam angle	7° ± 2° 8° ± 2°	Output analogue output	AG.. types AK.. types
UA18CSD03... UA18CSD08...		Load	4 to 20 mA 0 to 10 VDC
Adjustment	P1 (farthest setpoint) P2 (nearest setpoint)	Carrier frequency	300 kHz
Teach by wire		Response time analogue output	≤ 400 mS
Resolution	3 mm		
Temperature drift	0.1%/°C @ -20° to +60° C		

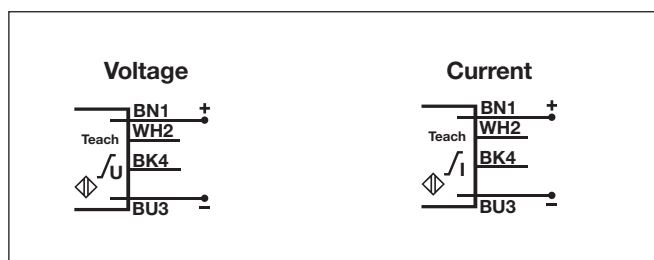
Specifications (cont.)

Power ON delay	≤ 900 mS	Rated insulation voltage	500 VAC (rms)
Output switching function	Analogue output with positive or negative slope.	Housing	
Indication		Material body	PBT
Output ON	Yellow LED	Material front	Epoxy-glass resin
Echo ON	Green LED	Material back, plug	Grilamid
Environment		Material back, cable	Grilamid
Installation category	III (IEC 60664/60664A; 60947-1)	Material sealing front	TPE
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Connection	
Degree of protection	IP67 (IEC 60529; 60947-1)	Cable	PVC, grey, 2 m, 4 x 0.32 mm ² , Ø = 4.7 mm M12, 4-pin (CON. 14-series)
Ambient temperature		Plug	
Operating	-20° to +60°C (-4° to +140°F)	Tightening torque	≤ 1 Nm
Storage	-35° to +70°C (-31° to +158°F)	Weight	
Vibration	10 to 55 Hz, 1.0 mm/6g (IEC/EN 60068-2-6)	Cable version	135 g
Shock	30 g / 11 mS, 3 directions (IEC/EN 60068-2-27)	Plug version	65 g
		CE-marking	Yes
		Approvals	cULus (UL508)

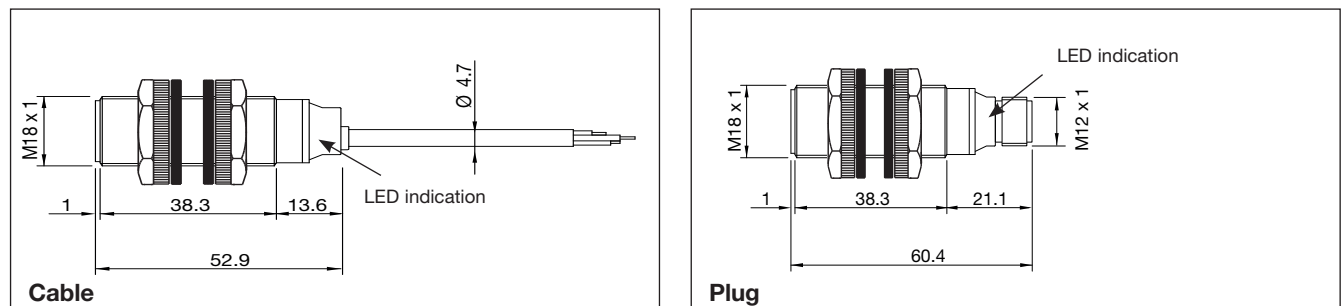
Detection Range



Wiring Diagram



Dimensions



Programming set-up

Teach-in by wire adjustment options

Two Teach-in adjustment options are available:

In the following, **“Activate Teach”** means:
Connect the white wire to GND (Blue wire)

1) Window Teach-in Option (adjustment of two points: P1 and P2)

Teach-in of set point P1:

- Place the target at the selected far distance P1 - the green Echo LED is ON
- “Activate Teach” shortly
- Setpoint P1 has been stored and the sensor is still in teach mode
- The orange LED will continue flashing rapidly with a frequency of 2 Hz until the setpoint P2 has been learned

Teach-in of set point P2:

- Place the target at the selected close distance P2 - the green Echo LED is still ON
- “Activate Teach” shortly
- The green LED switch OFF and the orange LED will flash 5 times with a frequency of 2,5 Hz
- Setpoint P2 has been stored.
- The sensor is in normal mode and the green and yellow LEDs are steady.

2) Target adjustment on P1 only (Minimum P2 distance)

Teach-in of set point P1:

- Place the target at the selected far distance P1 - the green Echo LED is ON
- “Activate Teach” shortly
- Setpoint P1 has been stored and the sensor is still in teach mode
- The orange LED will continue flashing rapidly with a frequency of 2 Hz until setpoint P2 has been learned
- Without moving the target
- “Activate Teach” shortly
- The green LED switches OFF and the orange LED will flash 5 times with a frequency of 2,5 Hz
- Setpoint P2 has been stored at the minimum distance
- The sensor is in normal mode and the green and yellow LEDs are steady

Programming set-up (cont.)

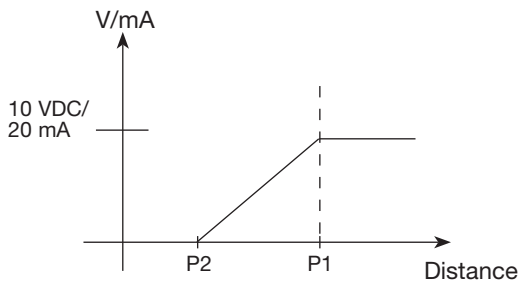
Configuration of the slope of the analogue output

The analogue version's default setting is positive slope.

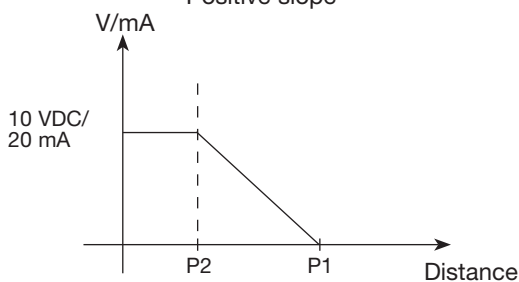
Change configuration from positive to negative slope:

- "Activate Teach" for more than 6 seconds until the orange LED flashes at a high rate/10 times per second.
- Deactivate Teach: The orange LED flashes 5 times, and the output stage is changed.

Analogue

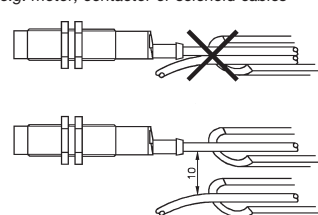
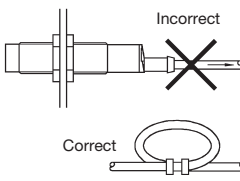
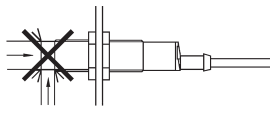
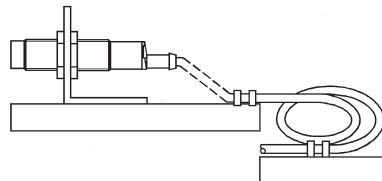


Positive slope



Negative slope

Installation Hints

<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p> 	<p>Relief of cable strain</p>  <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p>  <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
---	---	---	--

Delivery Contents

- Ultrasonic sensor: UA18CSD....
- Installation instruction
- Mounting:
 - 2 x M18 nuts
 - 2 x rubber washers
- **Packaging:** Carton box 35 x 107 x 173 mm