

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

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- 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 electro-magnetic interferences.

Ordering Key

UA18CSD08AGM1TI

Ultrasonic sensor	_____
Housing style	_____
Housing size	_____
Housing material	_____
Housing length	_____
Detection principle	_____
Sensing distance	_____
Output type	_____
Output configuration	_____
Connection	_____
Teach-in	_____

Type Selection

Housing diameter	Connection	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

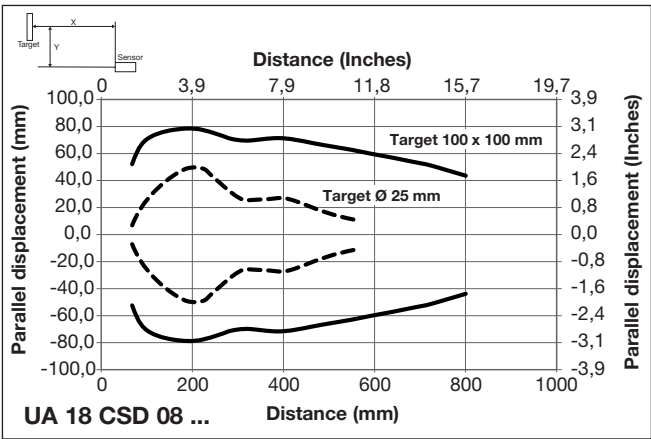
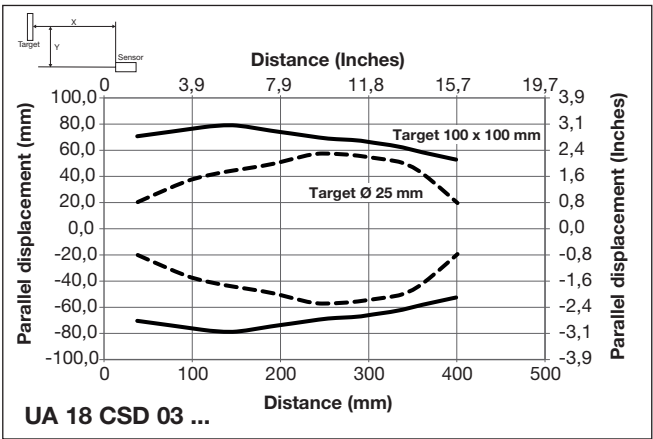
Rated operating distance (S_n)	Reference target: 1 mm metal rolled finish 100 x 100 mm 40 - 300 mm 80 - 800 mm	Temperature compensation	Yes
UA18CSD03 UA18CSD08		Hysteresis (H)	Min. 1%
Blind zone		Rated operational voltage (U_B)	10 to 30 VDC (ripple included)
UA18CSD03...	≤ 40 mm	Ripple (U_{rip})	≤ 5%
UA18CSD08...	≤ 80 mm	No-load supply current (I_o)	35 mA @ U _B max
Repeatability	1%	Protection analogue output	Short-circuit and overvoltage
Linear Accuracy	1%	Output analogue output	
Beam angle		AG.. types	4 to 20 mA
UA18CSD03...	7° ± 2°	AK.. types	0 to 10 VDC
UA18CSD08...	8° ± 2°	Load	
Adjustment		4 to 20 mA	max. 500 Ω
Teach by wire	P1 (farthest setpoint) P2 (nearest setpoint)	0 to 10 VDC	min. 3 kΩ
Resolution	3 mm	Carrier frequency	300 kHz
Temperature drift	0.1%/°C @ -20° to +60° C	Response time analogue output	≤ 400 mS



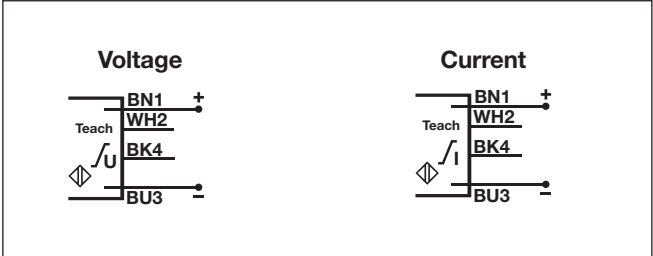
Specifications (cont.)

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 mm², 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)

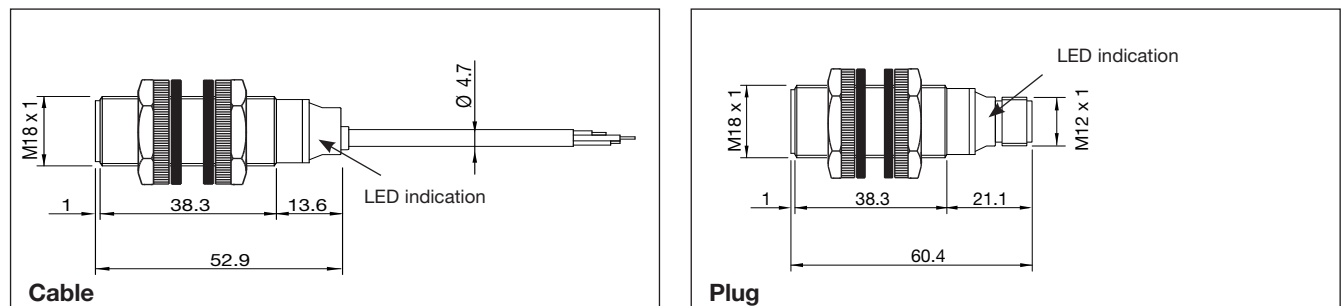
Detection Range



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.)

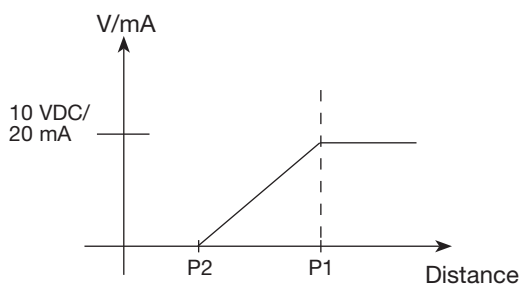
Configuration of the slope of the analogue output

The analogue version's default setting is positive slope.

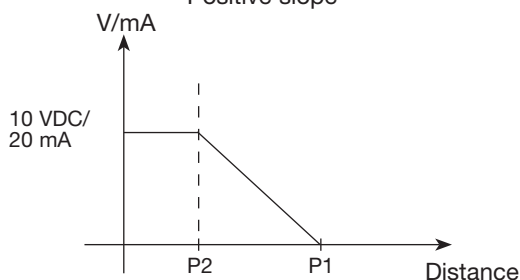
Change configuration from positive to negative slope:

- "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

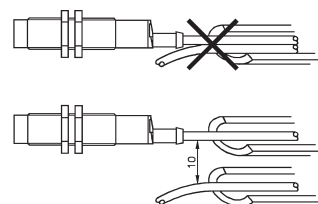
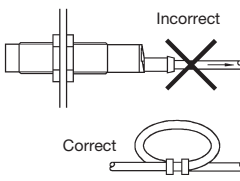
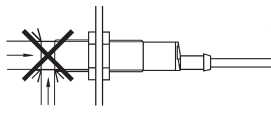
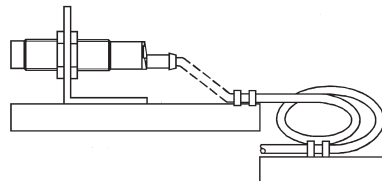


Positive slope



Negative slope

Installation Hints

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 	Relief of cable strain  The cable should not be pulled	Protection of the sensing face  A proximity switch should not serve as mechanical stop	Switch mounted on mobile carrier  Any repetitive flexing of the cable should be avoided
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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