

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

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- Cylindrical M18 PBT housing
- Sensing distance: 40-800 mm
- Power supply: 10-30 VDC
- Outputs: PNP or NPN, NO or NC
- Repeatability 0.5%
- Beam angle. $\pm 7^\circ$ or $\pm 8^\circ$
- Protection: Short-circuit, reverse polarity and overvoltage
- Protection degree IP 67
- 2 m cable or M12 plug

Product Description

A self-contained multifunctional diffuse ultrasonic sensor with a sensing range from 40-300 mm and 80-800 mm. One switching output - easily set up for "windows" detection with two setpoints. NO or NC output is selectable. A sturdy one-piece polyester housing provides the perfect

packaging for the sophisticated microprocessor controlled and digitally filtered sensor electronics. Excellent EMC performance and precision are typical features of this sensor on true distance measurement.

Ordering Key

UA18CSD08NPM1TI

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 distance (S_n)	Digital output NPN/PNP	Ordering no.
M18	Plug M12	40-300 mm	NPN	UA 18 CSD 03 NP M1 TI
M18	Cable	40-300 mm	NPN	UA 18 CSD 03 NP TI
M18	Plug M12	40-300 mm	PNP	UA 18 CSD 03 PP M1 TI
M18	Cable	40-300 mm	PNP	UA 18 CSD 03 PP TI
M18	Plug M12	80-800 mm	NPN	UA 18 CSD 08 NP M1 TI
M18	Cable	80-800 mm	NPN	UA 18 CSD 08 NP TI
M18	Plug M12	80-800 mm	PNP	UA 18 CSD 08 PP M1 TI
M18	Cable	80-800 mm	PNP	UA 18 CSD 08 PP TI

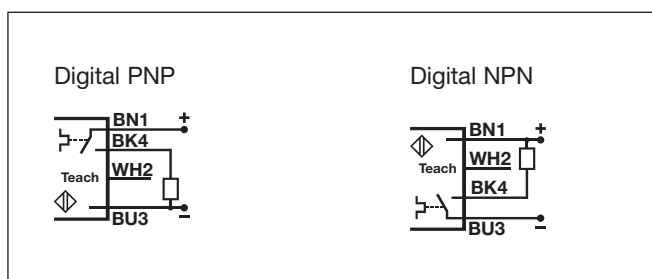
Specifications

Rated operating distance (S_n)	Reference target: 1 mm metal rolled finish 100 x 100 mm 40 - 300 mm 80 - 800 mm	Adjustment Teach by wire	P1 (farthest setpoint) P2 (farthest setpoint)
UA18CSD03 UA18CSD08		Temperature drift	$\leq 0,1\%/^\circ\text{C}$ @ -20° to $+60^\circ\text{C}$
Blind zone		Temperature compensation	Yes
UA18CSD03... UA18CSD08...	≤ 40 mm ≤ 80 mm	Hysteresis(H)	Min. 1%
Repeatability	0,5%	Rated operational voltage(U_B)	10-30 VDC (incl. ripple)
Beam angle		Ripple (U_{rpp})	$\leq 5\%$
UA18CSD03... UA18CSD08...	$7^\circ \pm 2^\circ$ $8^\circ \pm 2^\circ$	No-load supply current (I_o)	≤ 35 mA @ U_B maks.

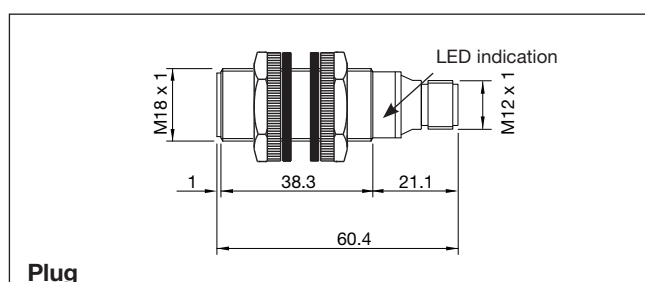
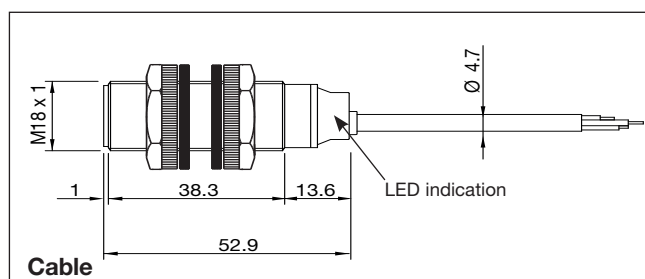
Specifications (cont.)

Output current continuous (I_o) Max. load capacity 100 nF	≤ 100mA	Ambient temperature Operating	-20° to +60°C (-4° to +140°F)
Output current short-time (I) Max. load capacity 100 nF	≤ 100 mA	Storage	-35° to +70°C (-31° to +158°F)
Minimum operational current (I_m)	≤ 0.5 mA	Vibration	10 to 55 Hz, 1.0 mm/6g (IEC/EN 60068-2-6)
OFF-state current (I_r)	≤ 10 µA @ U_g max.	Shock	30 g / 11 mS, 3 directions (IEC/EN 60068-2-27)
Voltage drop (U_d)	≤ 2.2 VDC @ I_o max.	Rated insulation voltage	< 500 VAC (rms)
Protection	Short-circuit, overvoltage and reverse polarity	Housing	
Carrier frequency	300 kHz	Material body	PBT
Operating frequency (f)		Material front	Epoxy-glass resin
UA18ESD03...	≤ 8 Hz	Material back, plug	Grilamid
UA18ESD08...	≤ 5 Hz	Material back, cable	Grilamid
Response time OFF-ON (t_{ON})		Material sealing front	TPE
UA18ESD03...	≤ 60 mS	Connection	
UA18ESD08...	≤ 100 mS	Cable	PVC, grey, 2 m, 4 x 0.32 mm ² , Ø = 4.7 mm
Response time ON-OFF (t_{OFF})		Plug	M12, 4-pin (CON. 14-series)
UA18ESD03...	≤ 60 mS	Tightening torque	≤ 1 Nm
UA18ESD08...	≤ 100 mS	Weight incl. packaging	
Power ON delay	≤ 100 mS	Cable version	135 g
Output function, open collector		Plug version	65 g
By sensor type	NPN or PNP	CE-marking	Yes
Output switching function	One open collector transistor output to be configured as NO or NC	Approvals	cULus (UL508)
Indication			
Output ON	Yellow LED		
Echo ON	Green LED		
Environment			
Installation category	III (IEC 60664/60664A; 60947-1)		
Pollution degree	3 (IEC 60664/60664A; 60947-1)		
Degree of protection	IP67 (IEC 60529; 60947-1)		

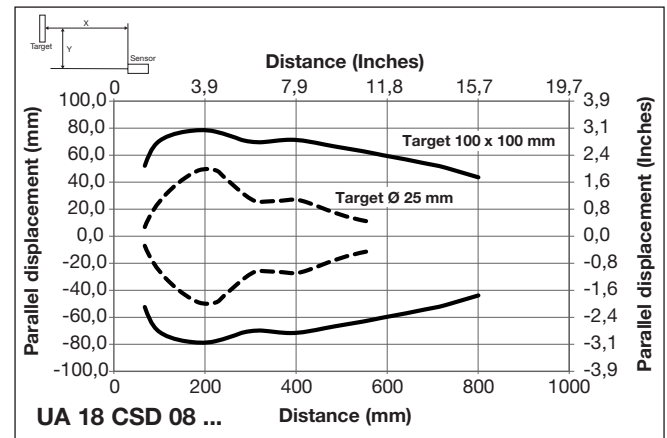
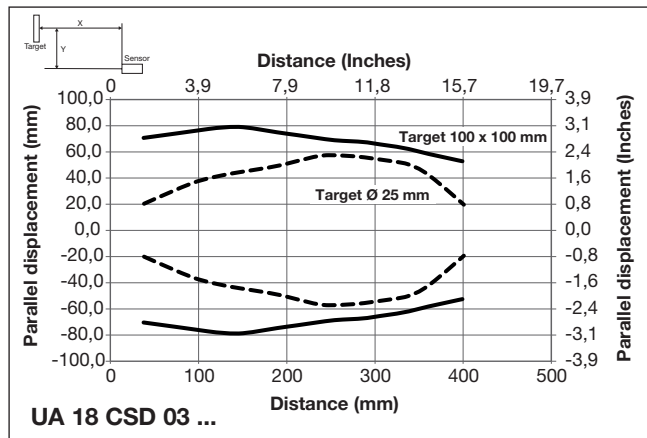
Wiring Diagram



Dimensions



Detection Range



Programming set-up

Teach-in by wire adjustment options

In the following, “**Activate Teach**” means:

- PNP – Connect the white wire to V+ (Brown wire)
- NPN – Connect the white wire to GND (Blue wire)

Three Teach-in adjustment options are available:

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 switches 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

3) Full range teach (NPN and PNP versions only)

- Remove the target in front of the sensor -the green Echo LED switches OFF
- “Activate Teach” shortly
- The orange LED will flash 5 times with a frequency of 2,5 Hz
- Setpoint P1 has been stored at the maximum distance and P2 at the minimum distance (this distance is not uniquely definite and repeatable throughout the different sensor types)