

Ultrasonic Diffuse, Analogue Output Types UA18ESD.....TI

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- Cylindrical M18 Stainless Steel housing INOX AISI 316L
- 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 in stainless steel housing and with a sensing range of 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

UA18ESD08AGM1TI

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

Specifications

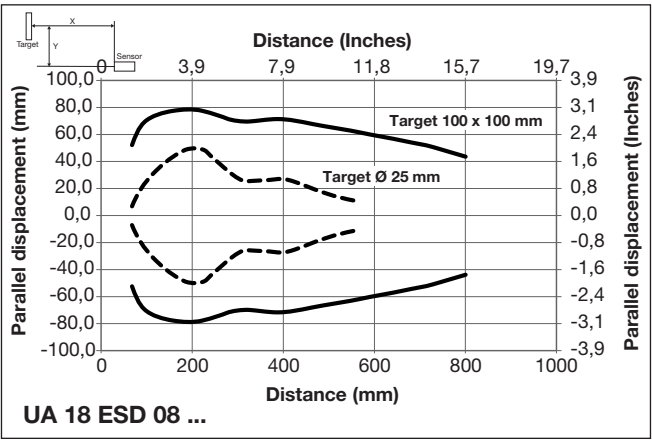
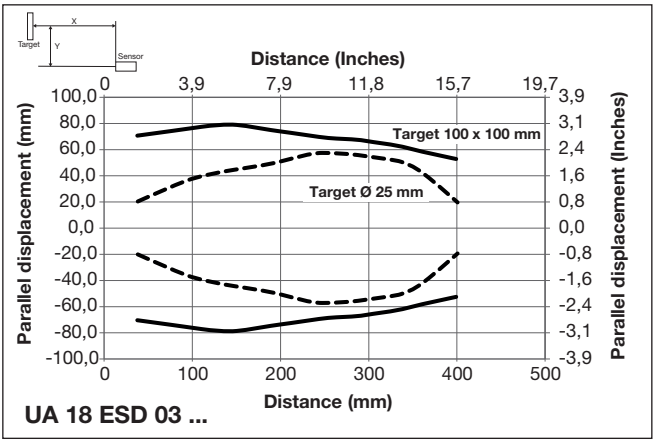
Rated operating distance (S_n)	Reference target: 1 mm metal rolled finish 100 x 100 mm 40 - 300 mm 80 - 800 mm	Temperature drift	0.1%/°C @ -20° to +60° C
UA18ESD03 UA18ESD08		Temperature compensation	Yes
Blind zone		Hysteresis (H)	Min. 1%
UA18ESD03...	≤ 40 mm	Rated operational voltage (U_B)	10-30 VDC (ripple included)
UA18ESD08...	≤ 80 mm	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		Output analogue output	
UA18ESD03...	7 ± 2°	AG.. types	4 to 20 mA
UA18ESD08...	8 ± 2°	AK.. types	0 to 10 VDC
Adjustment		Load	
Teach by wire	P1 (farthest setpoint) P2 (nearest setpoint)	4 to 20 mA 0 to 10 VDC	max. 500 Ω min. 3 kΩ
Resolution	3 mm		



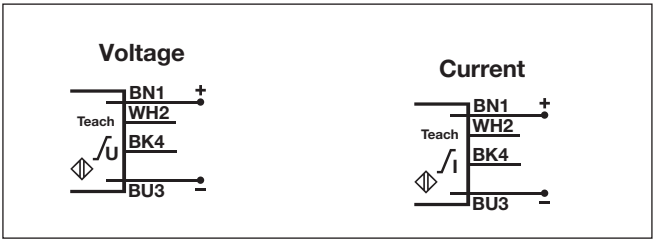
Specifications (cont.)

Carrier frequency	300 kHz	Shock	30 g / 11 mS, 3 directions (IEC/EN 60068-2-27)
Response time analogue output	≤ 400 mS	Rated insulation voltage	< 500 VAC (rms)
Power ON delay	≤ 900 mS	Housing	Material body Material front Material back, plug Material back, cable Material sealing front
Output switching function	Analogue output with positive or negative slope		AISI 316L stainless steel Epoxy-glass resin Grilamid Grilamid TPE
Indication		Connection	
Output ON	Yellow LED	Cable	PVC, grey, 2 m, 4 x 0.32 mm ² , Ø = 4.7 mm
Echo ON	Green LED	Plug	M12, 4-pin (CON. 14-series)
Environment		Tightening torque	≤ 50 Nm
Installation category	III (IEC 60664/60664A; 60947-1)	Weight	
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Cable version	160 g
Degree of protection	IP67 (IEC 60529; 60947-1)	Plug version	85 g
Ambient temperature		CE-marking	Yes
Operating	-20° to +60°C (-4° to +140°F)	Approvals	cULus (UL508)
Storage	-35° to +70°C (-31° to +158°F)		
Vibration	10 to 55 Hz, 1.0 mm/6g (IEC/EN 60068-2-6)		

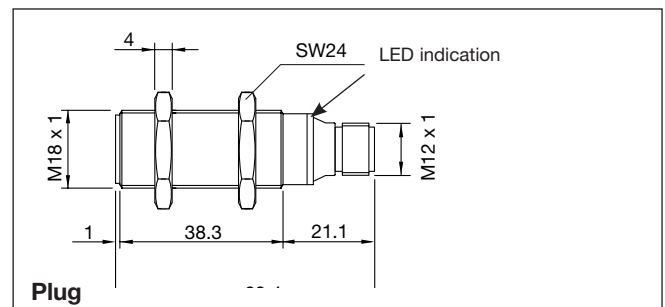
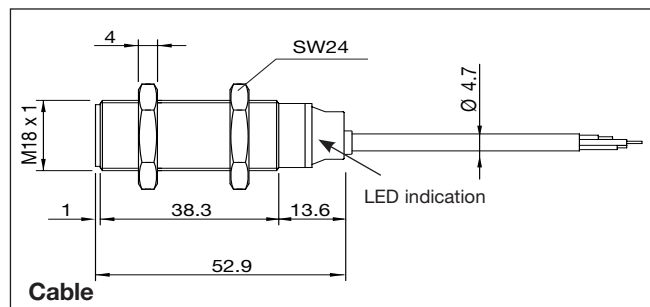
Detection Range



Wiring Diagram



Dimensions



Programming set-up

Teach-in by wire adjustment options

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

Two 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 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.)

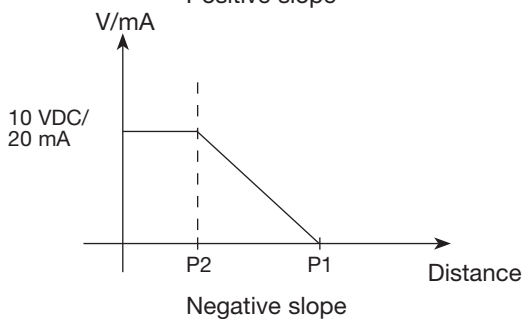
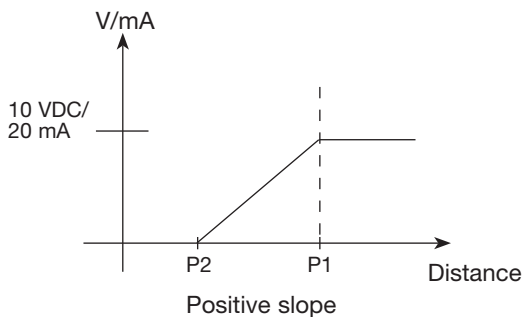
Configuration of the slope of the analogue output

The analogue version's default setting is positive slope.

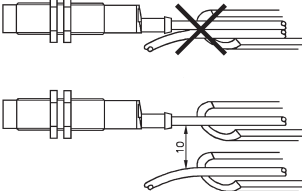
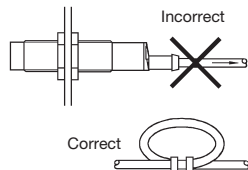
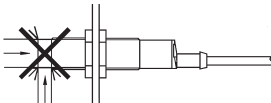
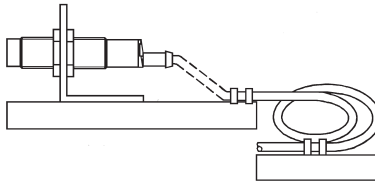
Change configuration from positive to negative slope:

- "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



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  Incorrect Correct 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: UA18ESD....
- Installation instruction
- Mounting: 2 x M18 Nuts
- **Packaging:** Carton box 35 x 107 x 173 mm