

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	UA18ESD08AGM1TI
Housing style	UA18ESD08AGM1TI
Housing size	UA18ESD08AGM1TI
Housing material	UA18ESD08AGM1TI
Housing length	UA18ESD08AGM1TI
Detection principle	UA18ESD08AGM1TI
Sensing distance	UA18ESD08AGM1TI
Output type	UA18ESD08AGM1TI
Output configuration	UA18ESD08AGM1TI
Connection	UA18ESD08AGM1TI
Teach-in	UA18ESD08AGM1TI

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 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	≤ 40 mm ≤ 80 mm	Hysteresis (H)	Min. 1%
UA18ESD03... UA18ESD08...		Rated operational voltage (U_B)	10-30 VDC (ripple included)
Repeatability	1%	Ripple (U_{ripple})	≤ 5%
Linear Accuracy	1%	No-load supply current (I₀)	35 mA @ U _B max
Beam angle	7 ± 2° 8 ± 2°	Protection analogue output	Short-circuit and overvoltage
UA18ESD03... UA18ESD08...		Output analogue output	AG.. types AK.. types
Adjustment	P1 (farthest setpoint) P2 (nearest setpoint)	Load	4 to 20 mA 0 to 10 VDC
Teach by wire			max. 500 Ω min. 3 kΩ
Resolution	3 mm		

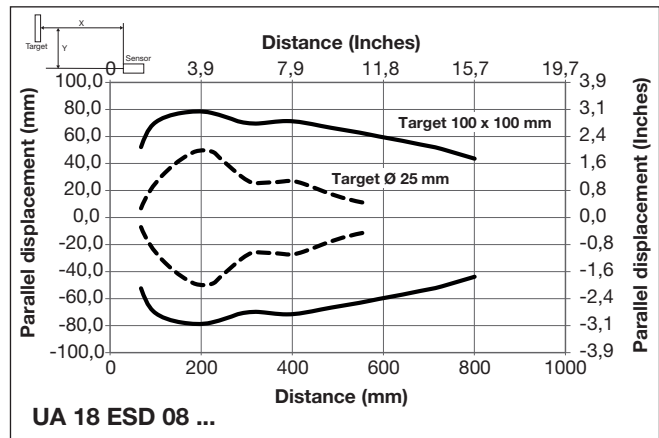
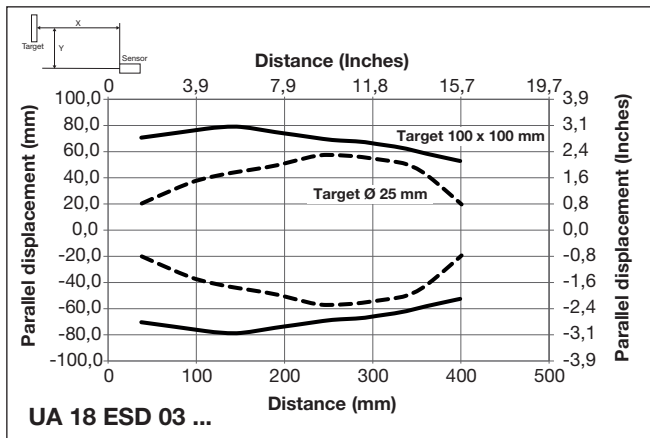


Specifications (cont.)

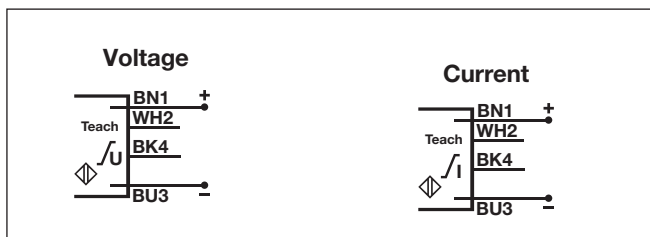
Carrier frequency	300 kHz
Response time analogue output	≤ 400 mS
Power ON delay	≤ 900 mS
Output switching function	Analogue output with positive or negative slope
Indication	
Output ON	Yellow LED
Echo ON	Green LED
Environment	
Installation category	III (IEC 60664/60664A; 60947-1)
Pollution degree	3 (IEC 60664/60664A; 60947-1)
Degree of protection	IP67 (IEC 60529; 60947-1)
Ambient temperature	
Operating	-20° to +60°C (-4° to +140°F)
Storage	-35° to +70°C (-31° to +158°F)
Vibration	10 to 55 Hz, 1.0 mm/6g (IEC/EN 60068-2-6)

Shock	30 g / 11 mS, 3 directions (IEC/EN 60068-2-27)
Rated insulation voltage	< 500 VAC (rms)
Housing	
Material body	AISI 316L stainless steel
Material front	Epoxy-glass resin
Material back, plug	Grilamid
Material back, cable	Grilamid
Material sealing front	TPE
Connection	
Cable	PVC, grey, 2 m, 4 x 0.32 mm ² , Ø = 4.7 mm
Plug	M12, 4-pin (CON. 14-series)
Tightening torque	≤ 50 Nm
Weight	
Cable version	160 g
Plug version	85 g
CE-marking	Yes
Approvals	cULus (UL508)

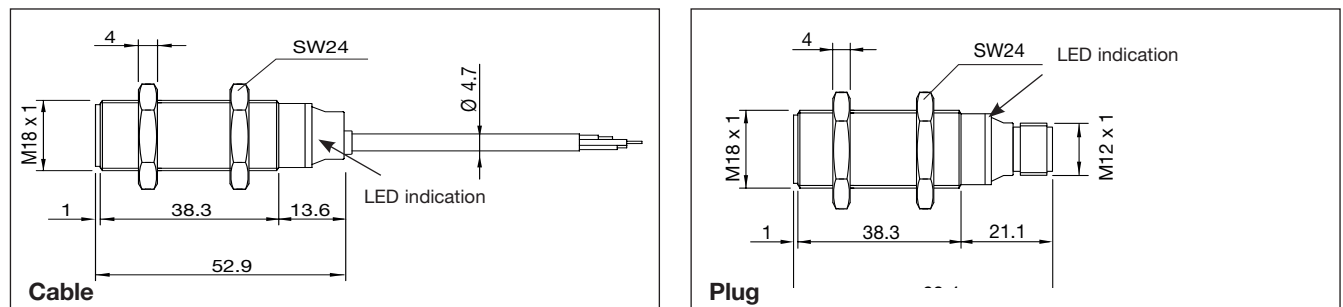
Detection Range



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