

Ultrasonic Diffuse, Analogue Output Type M18 and M30

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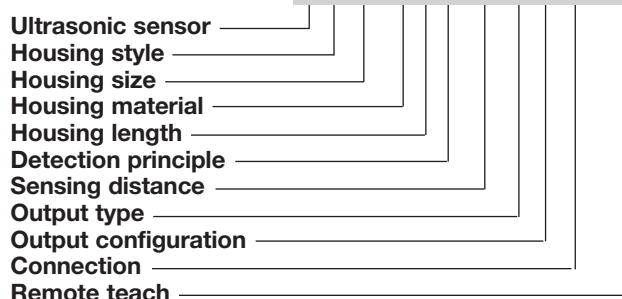
- M18 and M30 PBTP housing
- Sensing distance: 60 - 3500 mm
- Remote Teach by wire
- Outputs: Analog 0-10 V or 4-20 mA
- Setup of positive or negative slope
- Power supply: 15 to 30 VDC
- 8° beam angle
- Protection: Short-circuit, reverse polarity, transients
- Protection degree IP 67
- M12 plug, 5 pin

Product Description

A family of multi function diffuse ultrasonic sensors with a sensing range of 60 to 3500 mm. The analog output is easily set up in 2 setpoints (pos./neg. slope) and adjusted by teach-in - makes it ideal for level control tasks in a wide variety of vessels. A sturdy one-piece ABS 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 based on true distance measurement.

Ordering Key **UA18CLD20AKM1TR**



Type Selection

Housing dimensions	Connection	Rated operating dist. (S _n)	Outputs	Ordering no.
M18 x 93 mm	Plug M12, 5 pin	200-2000 mm	0-10 V	UA18CLD20AKM1TR
M18 x 93 mm	Cable	200-2000 mm	0-10 V	UA18CLD20AKTR
M18 x 93 mm	Plug M12, 5 pin	200-2000 mm	4-20 mA	UA18CLD20AGM1TR
M18 x 93 mm	Cable	200-2000 mm	4-20 mA	UA18CLD20AGTR
M18 x 93 mm	Plug M12, 5 pin	100-800 mm	0-10 V	UA18CLD08AKM1TR
M18 x 93 mm	Cable	100-800 mm	0-10 V	UA18CLD08AKTR
M18 x 93 mm	Plug M12, 5 pin	100-800 mm	4-20 mA	UA18CLD08AGM1TR
M18 x 93 mm	Cable	100-800 mm	4-20 mA	UA18CLD08AGTR
M18 x 93 mm	Plug M12, 5 pin	60-500 mm	0-10 V	UA18CLD05AKM1TR
M18 x 93 mm	Cable	60-500 mm	0-10 V	UA18CLD05AKTR
M18 x 93 mm	Plug M12, 5 pin	60-500 mm	4-20 mA	UA18CLD05AGM1TR
M18 x 93 mm	Cable	60-500 mm	4-20 mA	UA18CLD05AGTR
M30 x 125 mm	Plug M12, 5 pin	300-3500 mm	0-10 V	UA30CLD35AKM1TR
M30 x 123.5 mm	Cable	300-3500 mm	0-10 V	UA30CLD35AKTR
M30 x 125 mm	Plug M12, 5 pin	300-3500 mm	4-20 mA	UA30CLD35AGM1TR
M30 x 123.5 mm	Cable	300-3500 mm	4-20 mA	UA30CLD35AGTR

Technical Data

Rated operational volt. (U _e)	15 to 30 VDC (ripple included)
Ripple	≤ 10%
No-load supply current (I _o)	≤ 40 mA
Protection	Short-circuit, transients and reverse polarity
Rated insulation voltage	> 1 kV
Power-on delay*	< 10 ms
Voltage drop (U _d)	4.5 V

Output	UA..CLD..AK..	0-10 VDC
	UA..CLD..AG..	4-20 mA
Output slope		Positive or negative Setup via teach-in

* Preliminary

Specifications are subject to change without notice (22.08.2005)



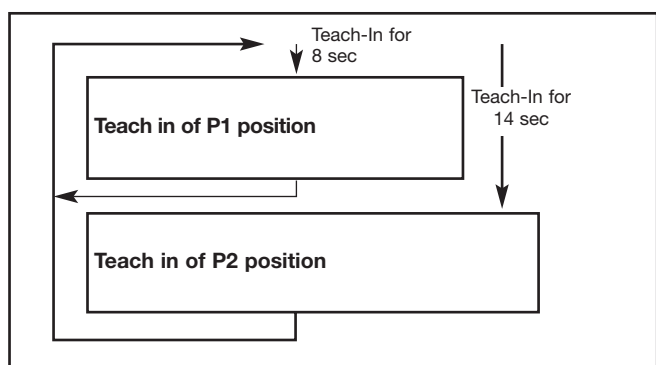
Technical Data (cont.)

Linearity error	< 0.3%
Repeat accuracy (R)	≤ 0.2%
Rated operating distance/ Resolution*	
UA18CLD05/08	100-600 mm: 0.5 mm
UA18CLD20	200-1500 mm: 0.5 mm
UA18CLD30	300-2500 mm: 0.5 mm
Load	
4-20 mA	max. 500 Ω
0-10 V	min. 1 kΩ
Carrier frequency*	180 KHz
Response time*	
UA18CLD05/08	50 ms
UA18CLD20	100 ms
UA18CLD30	150 ms
Indication	Set points, 2 LEDs yellow Echo, 1 LED green
Rated operating distance	60 - 3500 mm

Temperature compensation	Yes
Beam angle	8°
Ambient temperature Operating and Storage	-15° to +70°C (5° to +158°F)
Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Housing material	Polyester, PBTB
Connection Cables for plug (M1)	Plug M12, 5-pin CONM15 series
Weight	
UA 18 ...A.	96 g
UA 18 ...A.M1	57 g
UA 30 ...A.	199 g
UA 30 ...A.M1	140 g
Tightening torque	
M18	2.6 Nm
M30	7.5 Nm
CE-marking	Yes

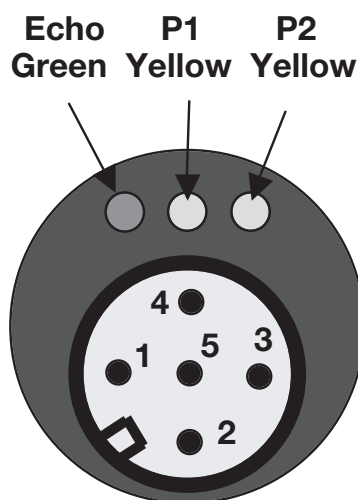
* Preliminary

Analogue Output Adjustment

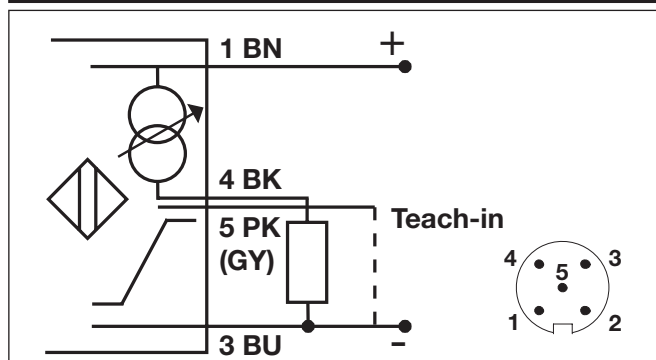


Normal function:

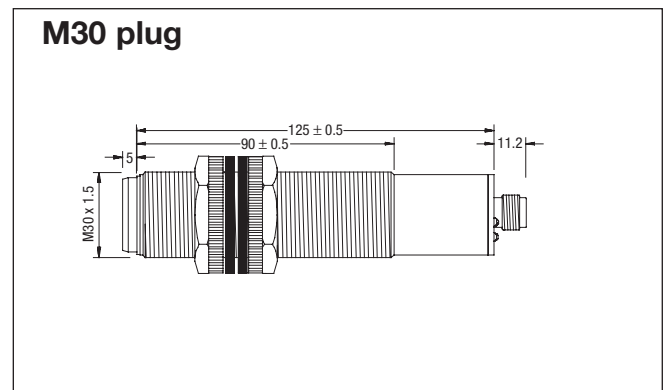
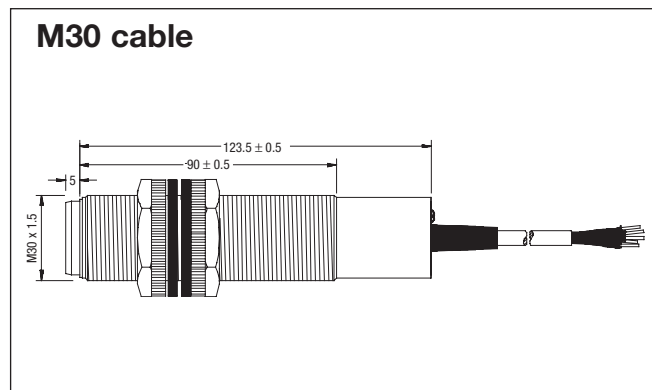
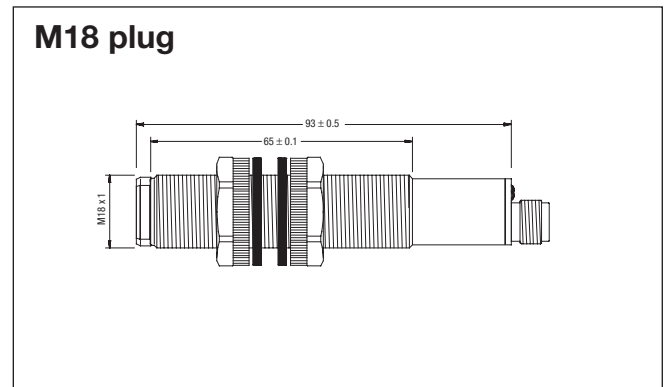
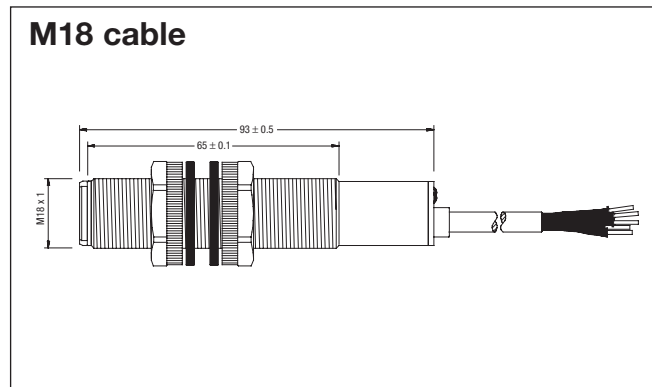
The Echo LED is ON when the echo is received (this is the alignment LED confirming that the target is properly aligned). The LED P1 is ON, when the target is between the sensor face and P1. The LED P2 is ON when Target is farther than P2.



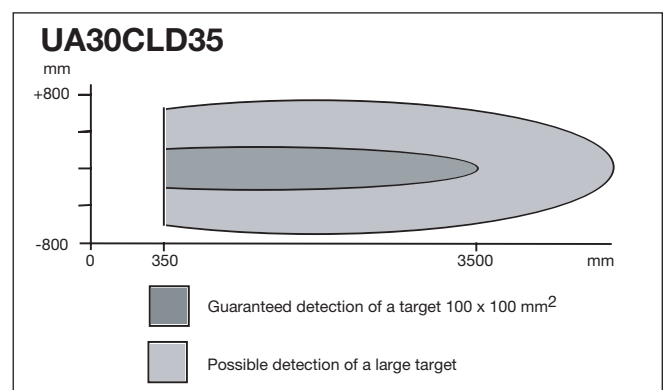
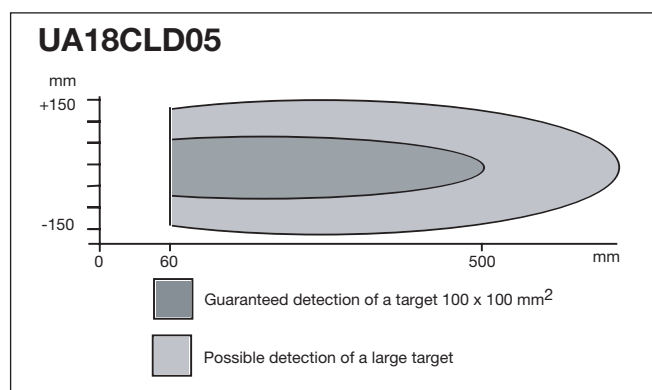
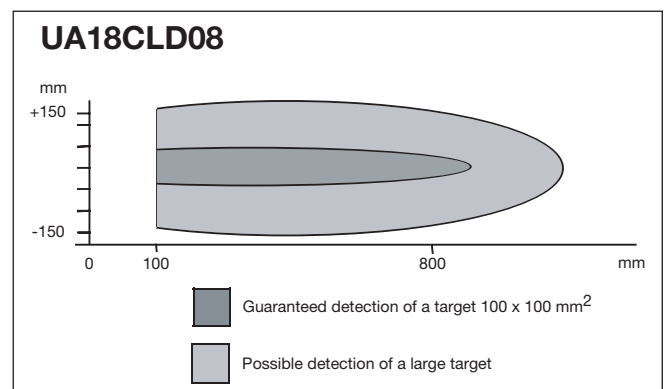
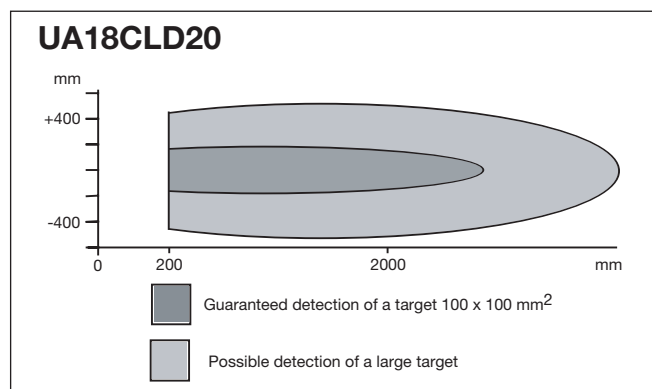
Wiring Diagram



Dimensions



Detection Range



Teach-in procedure

Analogue output adjustment

P1 and P2 define the analogue output slope.
 P1 determines the 4 mA position and P2 the 20 mA position.
 Positive slope: $P1 < P2$
 Negative slope: $P2 < P1$

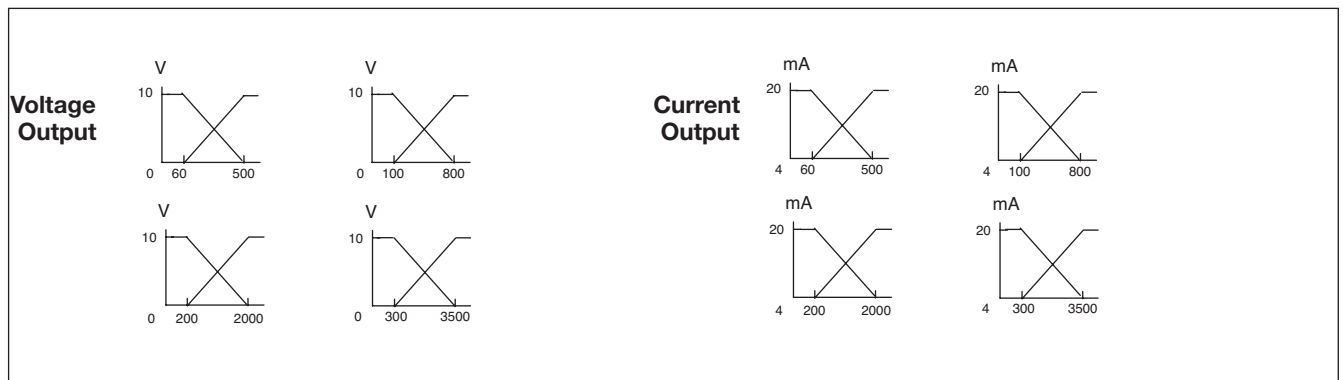
Teach-In of P1 position (4 mA output)

Hold Teach-In for 8 seconds until P1 and Echo LED's start flashing 2 times per second.
 The sensor is now in teach mode for P1:
 P1 LED will now flash once per second and the Echo LED returns to normal function (alignment LED).
 The Teach-In function is now open for 1 minute to do the programming of P1.
 Place the target at the new position P1.
 Activate Teach-in: P1 is now programmed.
 Sensor returns to normal function with new value for P1.

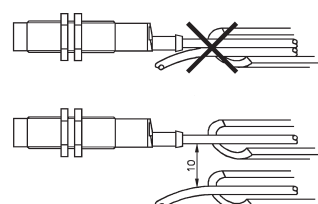
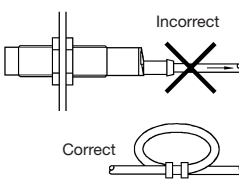
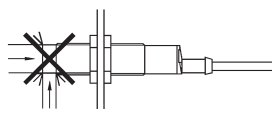
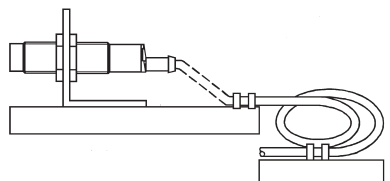
Teach-In of P2 position (20 mA output)

Hold Teach-In for 14 seconds until the P2 and Echo LEDs start flashing 2 times per second. After 8 seconds, the P1 and Echo LEDs will start flashing, but this must be ignored and after an additional 5 seconds the P2 is reached.
 The sensor is now in teach mode for P2:
 P1 LED is flashing once per second. The Echo LED returns to normal function (alignment LED).
 Teach-mode is now open for 1 minute to do the programming of P1.
 Move the target to the new position P2.
 Activate Teach-in: P2 is now programmed.
 Sensor returns to normal function with new value for P2.

Output Functions



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>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>
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