

Ultrasonic Diffuse, Analogue Output Type M18 and M30

CARLO GAVAZZI



- M18 and M30 PBT 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 PBT 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

Ultrasonic sensor	_____
Housing style	_____
Housing size	_____
Housing material	_____
Housing length	_____
Detection principle	_____
Sensing distance	_____
Output type	_____
Output configuration	_____
Connection	_____
Remote teach	_____

Type Selection

Housing dimensions	Connection	Rated operating dist. (S _n)	Outputs	Ordering no.
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
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	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
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

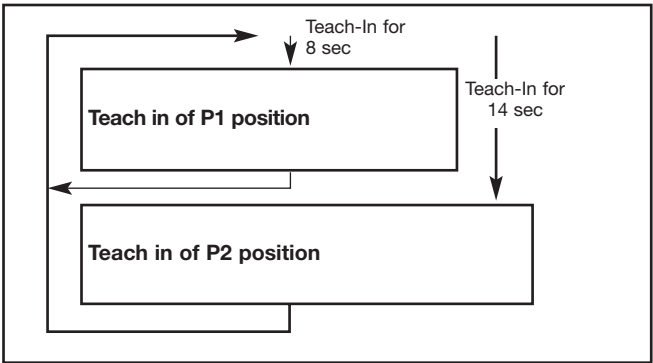
Rated operational volt. (U _e)	15 to 30 VDC (ripple included)	Output	0-10 VDC
Ripple	≤ 10%	UA..CLD..AK..	4-20 mA
No-load supply current (I _o)	≤ 40 mA	UA..CLD..AG..	
Protection	Short-circuit, transients and reverse polarity	Output slope	Positive or negative Setup via teach-in
Rated insulation voltage	> 1 kV		
Power-on delay			
UA18..D05/D08	60 ms		
UA18..D20	90 ms		
UA18..D35	220 ms		



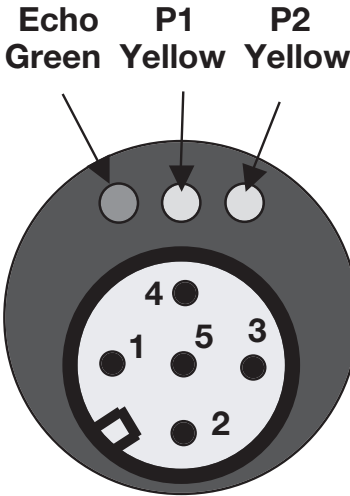
Technical Data (cont.)

Linearity error	< 0.5%		Indication	Set points, 2 LEDs yellow Echo, 1 LED green	
Repeat accuracy (R)			Rated operating distance	60 - 3500 mm	
UA....D05/08	0.2%; 1 mm		Temperature compensation	Yes	
UA....D20/35	0.2%; 2 mm		Beam angle	8°	
Rated operating distance/ Resolution*			Ambient temperature		
UA18CLD05	60-500 mm:	0.25 mm	Operating and Storage	-15° to +70°C (5° to +158°F)	
UA18CLD08	100-800 mm:	0.25 mm	Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)	
UA18CLD20	200-2000 mm:	1.0 mm	Housing material	Polyester, PBTP	
UA30CLD35	300-3500 mm:	1.0 mm	Connection		
Load			Cable	2 m, 5 x 0.25 mm²	
4-20 mA	max. 500 Ω		Plug	M12, 5-pin	
0-10 V	min. 1 kΩ		Cables for plug (M1)	CONM15 series	
Carrier frequency			WeightWeight		
UA....D05	330 KHz		UA 18 ...A.	96 g	
UA....D08	300 KHz		UA 18 ...A.M1	57 g	
UA....D20	180 KHz		UA 30 ...A.	199 g	
UA....D35	130 KHz		UA 30 ...A.M1	140 g	
Response time			Tightening torque	M18	2.6 Nm
UA18CLD05/08	100 ms		M30	7.5 Nm	
UA18CLD20	200 ms		CE-marking	Yes	
UA30CLD35	400 ms				

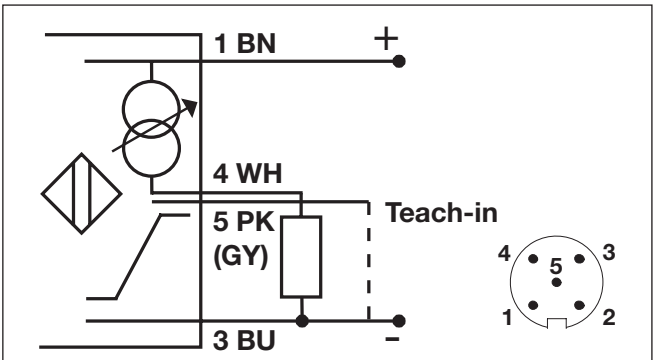
Analogue Output Adjustment



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.

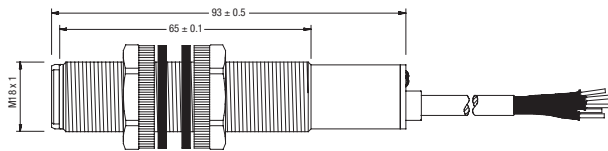


Wiring Diagram

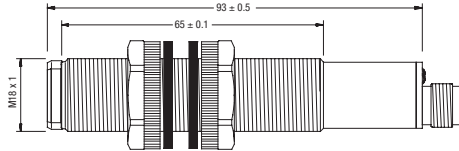


Dimensions

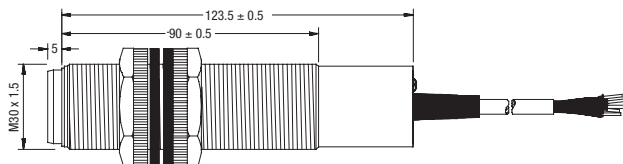
M18 cable



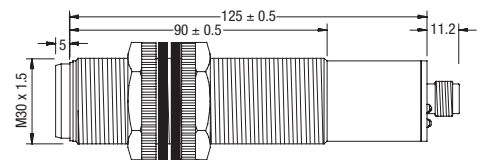
M18 plug



M30 cable

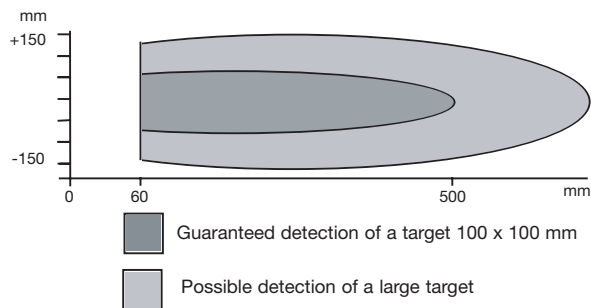


M30 plug

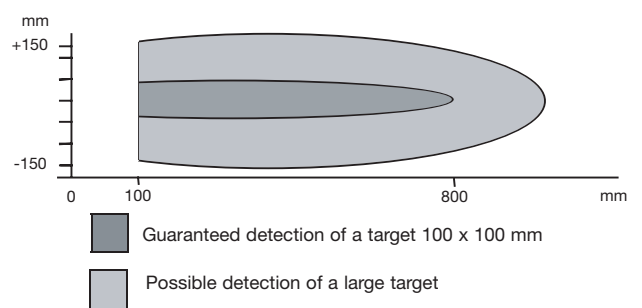


Detection Range

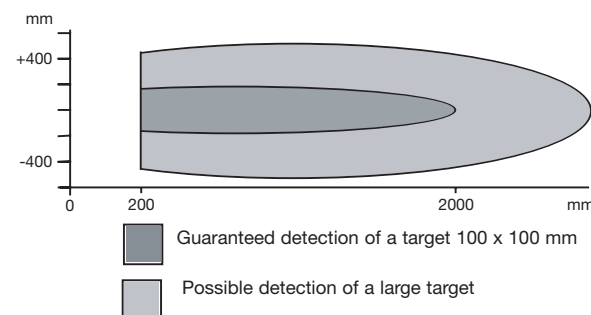
UA18CLD05



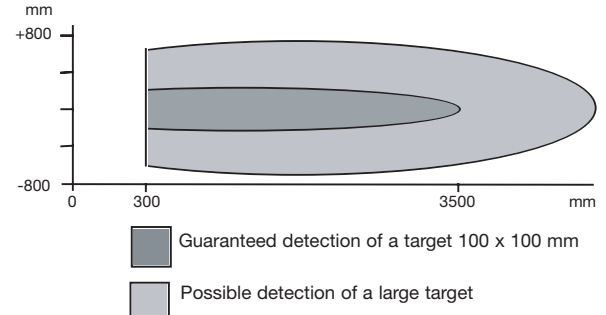
UA18CLD08



UA18CLD20



UA30CLD35





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

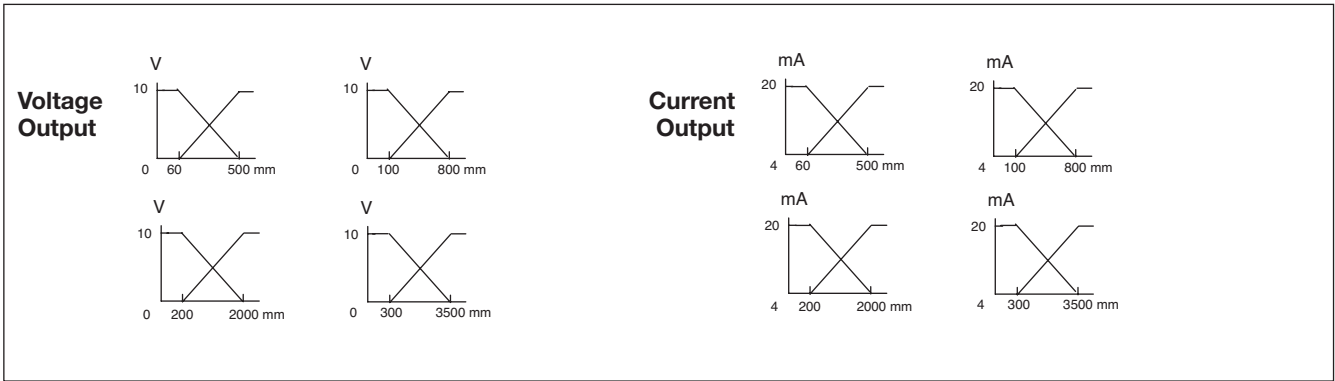
Teach-In of P1 position (4 mA output)

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:
P2 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 P2.
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

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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