Ultrasonic
Diffuse, Digital Output
Types UA30EAD.....TI

CARLO GAVAZZI



- **Cylindrical M30 Stainless Steel INOX AISI 316L housing**
- **Sensing distance: 350-3500 mm**
- **Power supply: 12 to 30 VDC**
- **Outputs: Two multi function switching outputs. PNP or NPN**
- **Setup: Normal switching or adjustable hysteresis**
- **Repeatability 1%**
- **Beam angle. ±7°**
- **Protection: Short-circuit, reverse polarity and overvoltage**
- **Protection degree IP 67**
- **2 m cable or M12 plug**

Product Description

A self-contained multi function diffuse ultrasonic sensor in Stainless steel housing and with a sensing range of 350 to 3500 mm. 2 switching outputs - easely set up for two different output modes and adjusted by teach-in - makes it ideal for level control tasks in a wide variety of vessels.

A sturdy one-piece Stainless steel 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

UA30EAD35NPM1TI

- **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 dist. (S_n)	Digital output NPN/PNP	Ordering no.
M30	Plug M12	350-3500 mm	2 x NPN	**UA 30 EAD 35 NP M1 TI**
M30	Cable	350-3500 mm	2 x NPN	**UA 30 EAD 35 NP TI**
M30	Plug M12	350-3500 mm	2 x PNP	**UA 30 EAD 35 PP M1 TI**
M30	Cable	350-3500 mm	2 x PNP	**UA 30 EAD 35 PP TI**

Specifications

Rated operating distance (S_n)	Reference target: 1 mm metal rolled finish, size 400 x 400 mm. 350 - 3500 mm
Blind zone	≤ 350 mm
Repeatability	1%
Beam angle	±7°
Adjustment Push-button	P1 (farthest setpoint) P2 (nearest setpoint)
Temperature drift	≤ 0.1%/°C @ -20° to +70° C
Temperature compensation	Yes
Hysteresis (H)	Min. 1%
Rated operational voltage (U_B)	12 to 30 VDC (ripple included)
Ripple (U_{rpp})	≤ 5%
No-load supply current (I_o)	≤ 50 mA @ U_B max

Output current continuous (I_e)	
Max. load capacity 100 nF	≤ 300 mA
UL508 specification	≤ 100 mA
Output current short-time (I)	
Max. load capacity 100 nF	≤ 300 mA
UL508 specification	≤ 100 mA
Minimum operational current (I_m)	≤ 0.5 mA
OFF-state current (I_r)	≤ 10 µA
Voltage drop (U_d)	≤ 2.2 VDC @ 100 mA
Protection	Short-circuit, overvoltage and reverse polarity
Carrier frequency	112 kHz
Operating frequency (f)	≤ 2 Hz
Response time OFF-ON (t_{ON})	≤ 250 mS
Response time ON-OFF (t_{OFF})	≤ 250 mS
Power ON delay	≤ 1500 mS

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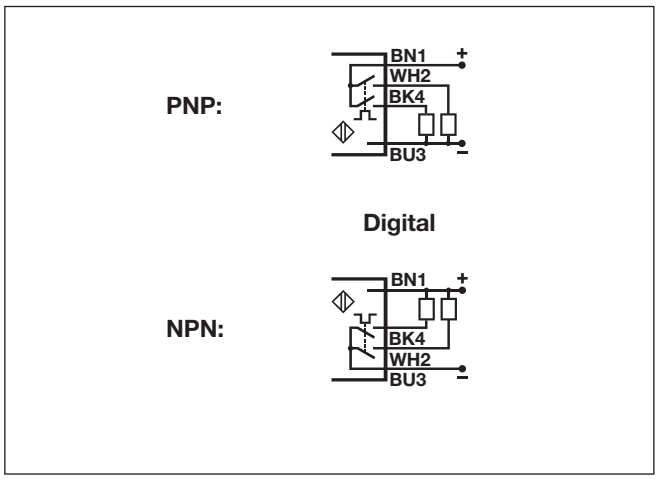
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Specifications (cont.)

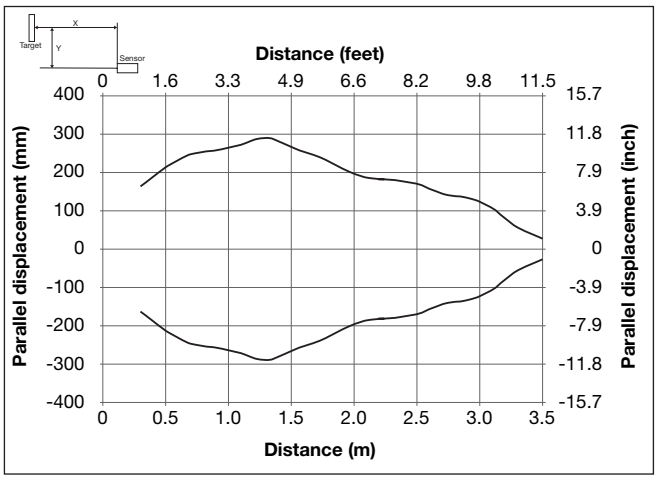
Output function, open collector	
By sensor type	NPN or PNP
Output switching function	Two open collector transistor outputs to be configured as:. - Normal Switching function with N.O and N.C. output. - Adjustable hysteresis Filling or emptying control
Indication	
Output ON	Yellow LED
Echo received	Green 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) Nema 4X
Ambient temperature	
Operating	-20° to +70°C (-4° to +158°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
Material front	Epoxy-glass resin
Material back, plug	Grilamid
Material back, cable	Grilamid
Material push-button	TPE
Sealing around push-button	TPE
Material sealing front	TPE
Connection	
Cable	PVC, grey, 2 m, 4 x 0.34 mm^2, Ø = 4.7 mm
Plug	M12, 4-pin (CON. 14-series)
Tightening torque	≤ 100 Nm
Weight	
Cable version	220 g
Plug version	150 g
CE-marking	Yes
Approvals	cULus (UL508)

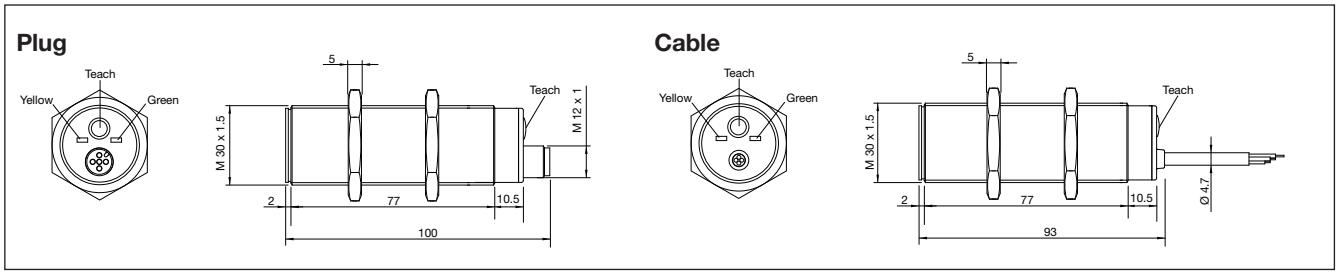
Wiring Diagram



Detection Range



Dimensions



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Programming setup

General set up of sensing point P1 (longest distance) and P2 (shortest distance) independently of the sensor type or function.

1) Mount the sensor in the selected application.
2) Place a target in front of the sensor at the maximum required distance (P1), then press shortly on the teach-button, the Yellow LED switch Off and then On and start flashing. The distance (P1) is now saved in the sensor, and the target can be moved. I)
3) Place the target at the minimum distance requested (P2), then press shortly on the teach-button. The yellow LED turns Off and then flashes 5 times. Now, the distance (P2) is saved in the sensor and the target can be moved. II)

   I) P1 can be set to maximum exceeding the family specification for the sensor by removing the target in front of the sensor. Push and hold the teach-button for more than one second and the sensing distance is set at a unique distance for this sensor only.

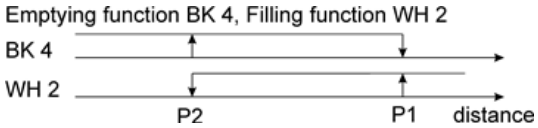
   II) The second switch point can be set to minimum by setting the target within the blind zone close to the sensor head or by covering the sensor head with your hand while teaching P2.

Sensors with 2 digital outputs: UA..EAD..PP/NP types, Normal sensing function or Adjustable Hysteresis

1) The factory settings are normal sensing function.

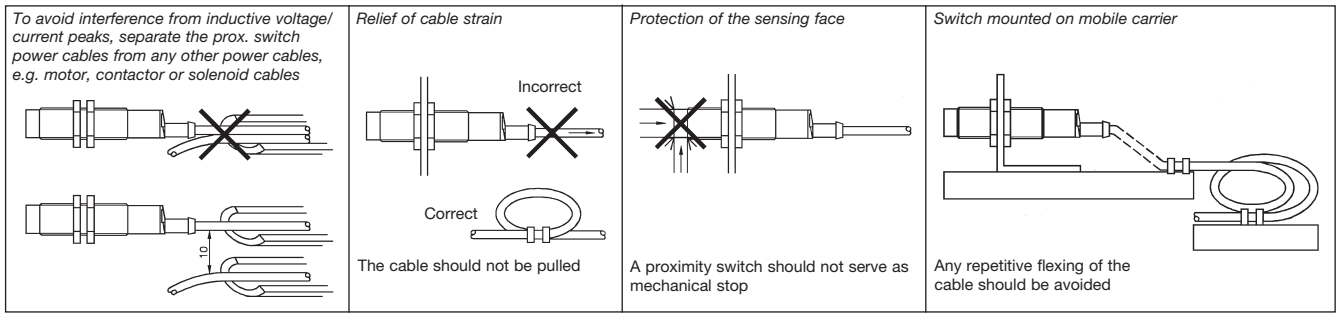


2) Push and hold the teach-button for 12 seconds until the yellow LED flashes fast, then release the teach-button and the LED will flash 5 times to acknowledge the change in function.
Now, the sensor is in adjustable hysteresis mode.



3) To switch back to normal function, repeat step 2.

Installation Hints



Delivery Contents

- Ultrasonic sensor: UA30EAD....
- Installation instruction
- Mounting: 2 x M30 Nuts
- **Packaging:** Carton box 35 x 107 x 173 mm

Accessories

- Connector type CONB14NF.. series

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