

# Ultrasonic Diffuse, Digital Output Types UA18CAD.....TI

CARLO GAVAZZI



- Cylindrical M18 PBT housing
- Sensing distance: 50-2200 mm
- Power supply: 15 to 30 VDC
- Outputs: Two multi function switching outputs. PNP or NPN
- Setup: Normal switching or adjustable hysteresis
- Repeatability 0.5%
- Beam angle.  $\pm 7^\circ$  or  $\pm 8^\circ$
- 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 with a sensing range of 50 to 2200 mm in three ranges. 2 switching outputs - easily 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 polyester 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

UA18CAD04NPM1TI

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 <sub>n</sub> )	Digital output NPN/PNP	Ordering no.
M18	Plug M12	50-400 mm	2 x NPN	UA 18 CAD 04 NP M1 TI
M18	Cable	50-400 mm	2 x NPN	UA 18 CAD 04 NP TI
M18	Plug M12	50-400 mm	2 x PNP	UA 18 CAD 04 PP M1 TI
M18	Cable	50-400 mm	2 x PNP	UA 18 CAD 04 PP TI
M18	Plug M12	100-900 mm	2 x NPN	UA 18 CAD 09 NP M1 TI
M18	Cable	100-900 mm	2 x NPN	UA 18 CAD 09 NP TI
M18	Plug M12	100-900 mm	2 x PNP	UA 18 CAD 09 PP M1 TI
M18	Cable	100-900 mm	2 x PNP	UA 18 CAD 09 PP TI
M18	Plug M12	200-2200 mm	2 x NPN	UA 18 CAD 22 NP M1 TI
M18	Cable	200-2200 mm	2 x NPN	UA 18 CAD 22 NP TI
M18	Plug M12	200-2200 mm	2 x PNP	UA 18 CAD 22 PP M1 TI
M18	Cable	200-2200 mm	2 x PNP	UA 18 CAD 22 PP TI

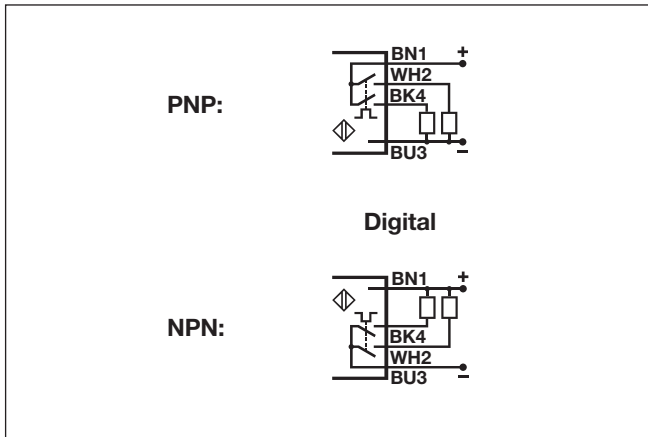
## Specifications

Rated operating distance (S <sub>n</sub> )	Reference target: 1 mm metal rolled finish. CAD04: 100 x 100 mm CAD09 and CAD22: 200 x 200 mm 50 - 400 mm 100 - 900 mm 200 - 2200 mm	Repeatability	0.5%
UA18CAD04 UA18CAD09 UA18CAD22		Beam angle	
		UA18CAD04...	$\pm 8^\circ$
		UA18CAD09...	$\pm 7^\circ$
		UA18CAD22...	$\pm 7^\circ$
Blind zone		Adjustment	
UA18CAD04...	$\leq 50$ mm	Push-button	P1 (farthest setpoint) P2 (nearest setpoint)
UA18CAD09...	$\leq 100$ mm	Temperature drift	$\leq 0.1\%/^\circ\text{C}$ @ $-20^\circ$ to $+60^\circ\text{C}$
UA18CAD22...	$\leq 200$ mm	Temperature compensation	Yes

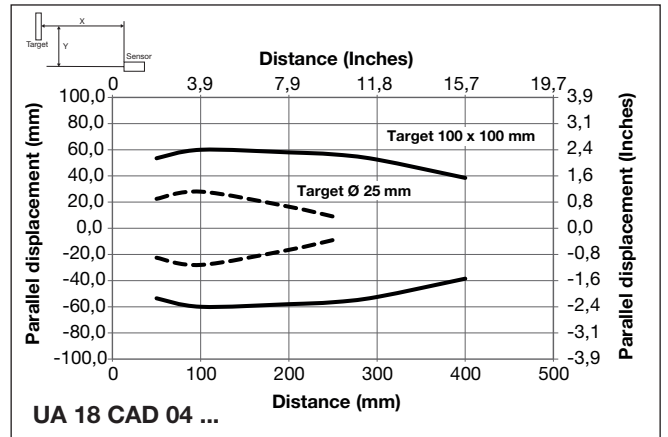
## Specifications (cont.)

<b>Hysteresis (H)</b>	Min. 1%		
<b>Rated operational voltage (<math>U_B</math>)</b>	15 to 30 VDC (ripple included)		Normal Switching function with N.O. output. Adjustable hysteresis Filling or emptying control
<b>Ripple (<math>U_{rip}</math>)</b>	≤ 5%		
<b>No-load supply current (<math>I_o</math>)</b>			<b>Indication Output ON</b> Yellow LED
UA18CAD04...	≤ 45 mA @ $U_B$ max		<b>Environment</b>
UA18CAD09...	≤ 45 mA @ $U_B$ max		Installation category
UA18CAD22...	≤ 50 mA @ $U_B$ max		Pollution degree
<b>Output current continuous (<math>I_o</math>)</b>			Degree of protection
Max. load capacity 100 nF	≤ 500 mA		<b>Ambient temperature</b>
UL508 specification	≤ 100 mA		Operating
<b>Output current short-time (I)</b>			Storage
Max. load capacity 100 nF	≤ 500 mA		<b>Vibration</b>
UL508 specification	≤ 100 mA		10 to 55 Hz, 1.0 mm/6g (IEC/EN 60068-2-6)
<b>Minimum operational current (<math>I_m</math>)</b>	≤ 0.5 mA		<b>Shock</b>
<b>OFF-state current (<math>I_r</math>)</b>	≤ 10 $\mu$ A		30 g / 11 mS, 3 directions (IEC/EN 60068-2-27)
<b>Voltage drop (<math>U_d</math>)</b>	≤ 2.2 VDC @ $I_o$ max.		<b>Rated insulation voltage</b>
<b>Protection</b>	Short-circuit, overvoltage and reverse polarity		< 500 VAC (rms)
<b>Carrier frequency</b>			<b>Housing</b>
UA18CAD04...	400 kHz		Material body
UA18CAD09...	300 kHz		Material front
UA18CAD22...	200 kHz		Material back, plug
<b>Operating frequency (f)</b>			Material back, cable
UA18CAD04...	≤ 10 Hz		Material push-button
UA18CAD09...	≤ 4 Hz		Sealing around push-button
UA18CAD22...	≤ 1 Hz		Material sealing front
<b>Response time OFF-ON (<math>t_{ON}</math>)</b>			UA18CAD04...
UA18CAD04...	≤ 50 mS		UA18CAD09...
UA18CAD09...	≤ 125 mS		UA18CAD22...
UA18CAD22...	≤ 500 mS		<b>Connection</b>
<b>Response time ON-OFF (<math>t_{OFF}</math>)</b>			Cable
UA18CAD04...	≤ 50 mS		PVC, grey, 2 m, 4 x 0.32 mm <sup>2</sup> , $\varnothing = 4.7$
UA18CAD09...	≤ 125 mS		mm
UA18CAD22...	≤ 500 mS		Plug
<b>Power ON delay</b>	≤ 900 mS		M12, 4-pin (CON. 14-series)
<b>Output function, open collector</b>			<b>Tightening torque</b>
By sensor type	NPN or PNP		≤ 1 Nm
<b>Output switching function</b>	Two open collector transistor outputs to be configured as:		<b>Weight</b>
			Cable version
			Plug version
			CE-marking
			Yes
			<b>Approvals</b>
			cULus (UL508)

## Wiring Diagram



## Detection Range



## Dimensions

