AX-CAP
Capacitance Level Sensor

Product overview

The AX-CAP is a range of Capacitance level sensor designed for level measurement in tanks or sumps and provides a 4-20mA output to the BMS system or alarm. There are two ranges, the CTR/CBR range for use in Conducting liquids, such as water, and the CTP/CBP range for use with non conducting liquids, such as oil. The media in a metallic vessel acts as a dielectric, and if an electrode is immersed in it, a capacitor is formed of a certain capacitance value as the level rises or falls this varies linearly and the depth output is converted to the 4-20mA output, proportional to the depth.

Features

- Easy range adjustment on site
- Unaffected by vacuum or pressure
- Zero and span adjustment in the head
- Suitable for a wide range of media

Product specifications

Power Supply:		12Vdc to 36Vdc
Power Consumption:		Max 800mW
Ranges:		0.5m min to max 3m
Accuracy:		0.02% of measuring range
Output:		4-20mA loop powered
Process Connection:		1" B.S.P.
Process Temperature:		-30 to +30˚C max (200˚C version available at additional cost
Ambient Temp. Range:		-25 to 70˚C
Maximum Pressure:		40Bar @ 25˚C
Electrode Type:	Conducting liquids	Fully insulated rod or cable
	Non Conducting liquids	Semi insulated rod or cable
Display:		Optional
Protection:		IP67
Electrode Insulation:		Polypropylene
Housing: (termination)		ABS (paint coated aluminium at additional cost)
Connections:		Screw terminal
Conformity:		CE marked, EMC, LVD
Country of Origin:		EU

Order codes

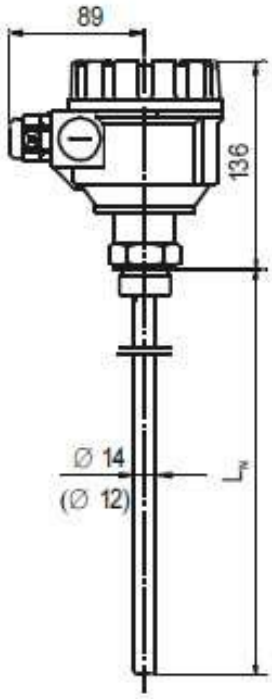
Capacitance level sensors for Conducting liquids	**No Display**	**C/W Display**
Capacitance level sensor 4-20mA o/p 1.0m probe	AX-CAP-CTR-310-2	AX-CAP-CBR-310-2
Capacitance level sensor 4-20mA o/p 1.5m probe	AX-CAP-CTR-315-2	AX-CAP-CBR-315-2
Capacitance level sensor 4-20mA o/p 2.0m probe	AX-CAP-CTR-320-2	AX-CAP-CBR-320-2
Capacitance level sensor 4-20mA o/p 2.5m probe	AX-CAP-CTR-325-2	AX-CAP-CBR-325-2
Capacitance level sensor 4-20mA o/p 3.0m probe	AX-CAP-CTR-330-2	AX-CAP-CBR-330-2
Capacitance level sensors for Non Conducting liquids	**No Display**	**C/W Display**
Capacitance level sensor 4-20mA o/p 1.0m probe	AX-CAP-CTP-310-2	AX-CAP-CBP-310-2
Capacitance level sensor 4-20mA o/p 1.5m probe	AX-CAP-CTP-315-2	AX-CAP-CBP-315-2
Capacitance level sensor 4-20mA o/p 2.0m probe	AX-CAP-CTP-320-2	AX-CAP-CBP-320-2
Capacitance level sensor 4-20mA o/p 2.5m probe	AX-CAP-CTP-325-2	AX-CAP-CBP-325-2
Capacitance level sensor 4-20mA o/p 3.0m probe	AX-CAP-CTP-330-2	AX-CAP-CBP-330-2

ANNICOM

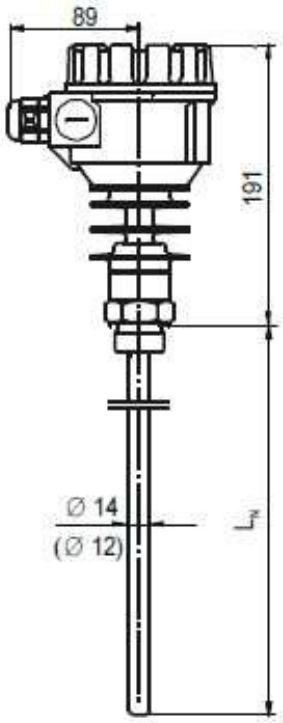
Annicom Ltd
Unit 21, Highview, Bordon, Hampshire. GU35 0AX
Tel: +44 (0)1420 487788 Fax: +44 (0)1420 487799
Email: sales@annicom.com Website: www.annicom.com

Dimensions

CTR
Standard versions



CHR
High temp 200˚C versions



Installation

The probes are supplied to specific lengths and must not be cut under any circumstances.
Ensure the probes are mounted vertically in the tank or sump. Where the mounting point is metal, there must be good electrical connection with the electrode mounting boss.

Non Conducting Liquids
For Non conducting vessels with contents such as fuel, oils, hydrocarbons etc. A concentric is normally supplied. This type of electrode can be mounted anywhere in the vessel avoiding incoming flow and excessive turbulence. The concentric electrode can be used in either metal or no metal vessels. Where the electrode is not of the concentric type, electrode position is important.

Conducting Liquids
For conducting liquids such as most water based liquids the electrode should be mounted clear of the vessel side and away from any incoming flow. A stainless steel bracket is available for fixing to a vertical surface and/holds the electrode 150mm from the side. The electrode mounting boss must have good electrical contact with the contents of the vessel in order to prove the earth reference necessary for capacitance operated systems.

Mounting the electrode directly to a metal vessel.

Connecting the “earth stud” of the mounting boss to existing metal in the vessel providing this extends down below the tip of the electrode (e.g. metal ladder or pipe).

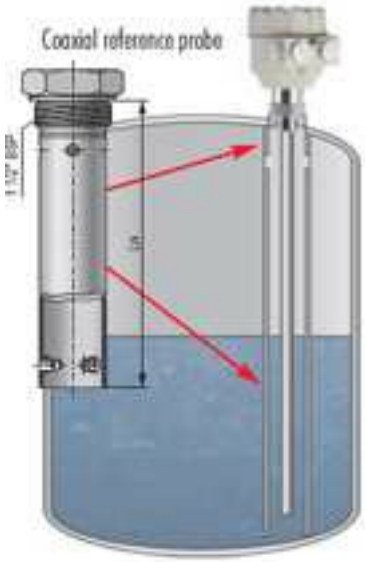
The concentric electrode having an insulated inner electrode has a sleeve extending from the boss and is therefore complete in itself.

Turbulent Vessels
For Turbulent conditions it may be necessary to mount the electrode inside a stilling pipe. If the pipe is metal it must be connected to the electrode mounting boss. If the pipe is plastic an earthing wire must be used down the length of the pipe and connected to the mounting boss. A stainless steel wire with weight should be used for this. For insulated rod electrodes a stainless steel ready bracket (option) should be used to hold the electrode 150mm from the wall.

Maintenance

The Capacitance sensors have no moving parts and are relatively maintenance free.
Routine maintenance should be limited to checking the electrode is not fouled.
Malfunction can normally be traced to -
Material cling to electrode rod
Moisture in the termination head due to poor cable seal or unsecure cap.
Damage to the plastic sheath of the insulated electrodes.

Fault Finding:
Check the voltage across V+ / V- . This should be in excess of 15V when the current output is 20mA.
Check the mounting boss has good electrical connection with the vessel.
Unplug the module and check there is no leakage between the electrode rod and the mounting boss / earth, reading below 5 meg ohms should be investigated.



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