ADMAG CA

Measuring the impossible when nothing else will work

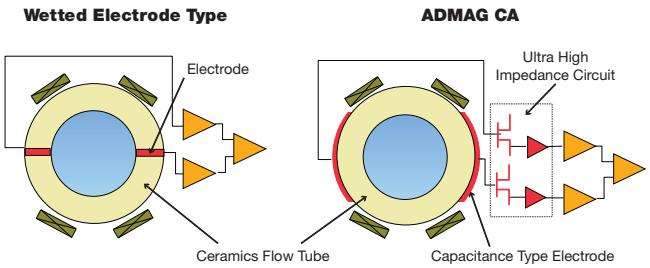
The ADMAG series is based on decades of Yokogawa experience with magmeters. The ADMAG series continues the tradition of high quality and reliability that is synonymous with the Yokogawa name

The ADMAG CA magmeter measures the un-measureable with the ability to meter fluids with conductivity as low as 0.01µS/cm. The non wetted capacitive electrode plates, which are mounted on the outer surface of a ceramic flow tube and not in contact with the fluid, are capacitively coupled to the fluid. In addition, the ADMAG CA Magmeter employs an advanced high-frequency excitation method. This revolutionary design is an excellent alternative to other flow technologies, as it can provide accurate, reliable measurement of low conductivity liquids such as pure water as well as coating process flows and high concentration slurries.

Advanced technology

High Frequency Excitation

The problem with using a high frequency excitation rate is the tradeoff in stability and zero drift. The ADMAG CA overcomes these limitations by using coils and associated ultra high impedance circuitry that enable fast magnetic field rise and collapse times. This leaves more time for a stable signal measurement and higher excitation frequencies, resulting in faster response time and a more stable measurement.



Ultra low Conductivity Measurements

Capacitance type electrodes and very high impedance amplifier of ADMAG CA makes ultra-low conductive fluid measurement possible. This combined technology allows the Admag CA to measure fluids with conductivity levels as low as 0.01µS/cm.

Accuracy Specification

The ADMAG CA offers a high accuracy of up to 0.5% of flow rate.

Non-wetted Electrodes

The ADMAG CA utilizes a non wetted electrode design, instead electrode pick up plates are placed on the measuring tube to pick up and measure the electromotive force.

The non-wetted electrodes create an excellent opportunity for use in chemical and slurry applications as it is not affected by the corrosion, coating and abrasive issues associated with wetted electrodes.

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The benefits range from reducing slurry or process noise, eliminating potential leak paths and is for high coating process applications.

Ceramic Liner - Excellent on corrosive fluid and abrasive fluid

Ceramic liner tubes have many advantages over fluoropolymer (PFA/PTFE) or other liner materials like rubber. Yokogawa uses alumina ceramic (Al_2O_3) for its ceramic liner tubes, which demonstrates excellent characteristics for a broad range of applications.

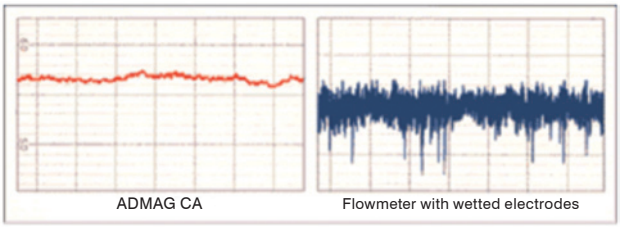
The Alumina ceramic (Al_2O_3) used in the ADMAG CA has a purity of 99.9%.

These properties of the ceramic liner provide:

- Excellent insulating characteristics
- Excellent resistance to abrasion, ensuring accurate measurements even with highly abrasive slurries
- Excellent resistance to corrosive fluids
- Excellent durability under high temperature and high pressure conditions without additional metal tube

Coating resistant

Non-wetted capacitive electrodes can measure electromotive force through capacitance including coating insulating material, offering steady measurement. Field-proven applications such as latex, reclaimed oil, hot spring water, red mud, and dye which had been difficult in the past to measure using conventional magmeters is now possible utilizing the ADMAG CA. The following figure compares the outputs of measurement between a wetted electrode type and the ADMAG CA when there is grease on the inside of the tube.



ADMAG CA | Flowmeter with wetted electrodes

Mirror finished surface

By means of a special magnetic polishing process, the inner surface of the ceramic liner tube can be given a mirror finish. This polishing method is advantageous in eliminating problems such as abrasive irregularities and dull edges and will reduce the coating affects of your process. The mirror finished ceramic liner tube has a surface roughness of Ra 0.1 μm.

Specification

Size mm (Inches)	15 (0.5)- 200 (8)
Excitation	High frequency
Flow span m/s (ft/s)	0.5 (1.64) -10 (32.8)
Min. fluid conductivity (μS/cm)	As low as 0.01
Protection	IP67, NEMA4X, JIS C0920 watertight type
Hazardous area classification	FM, CSA, TIIS(JIS)
Accuracy	±0.5% of flowrate (Depends on nominal pipe size and fluid conditions)
Repeatability	± 0.1% of flowrate (1 mm/s min.)
Lining material	Ceramic
Electrode Construction	Non-wetted plate electrodes installed on outside of ceramic tube
Fluid pressure	-0.1 MPa to 4 MPa: Ceramic lining size 50 mm or smaller -0.1 MPa to 2 MPa: Ceramic lining size 80 mm or greater
Fluid temperature	-10 deg C to 120 deg C
Process connection	JIS 10K/20K/F12, ANSI 150/300, DIN PN10/16: Wafer
Output signal	4-20 mA DC, pulse, or alarm (transistor contact: 30 V DC, 200 mA max.)
Function	Variable damping time (1 sec min.), self-diagnostics, loop test, BRAIN communication
Indicator	7-seg. LCD with back light
Power supply voltage	80-264 V AC/47-63 Hz or 100-130 V DC, 20.4-28.8 V DC
Maximum power consumption	14 W

Note 1: The accuracy of a product before shipment is defined as totalized value at the result of calibration test in our water actual flow test facility.

Note 2: For a fluid with large flow noise (pure water, pure alcohol or others), or a fluid with low conductivity and low viscosity, the output fluctuates and is impossible to measure accurately.

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