

# 4100-CAP Capacitance Monitor



## Continuous capacitance / dielectric monitoring of liquids and solids

Over 40 years of Arjay's field proven HF capacitance experience has been applied to the 4100-CAP monitor. This unique system provides complete flexibility for monitoring solids and liquids for concentration, moisture content, blending, and quality control.

- unique capacitance approach eliminates routine cleaning
- no moving parts
- control and interface panel mounts safely away from the process
- tank or pipe installation

The 4100-CAP sensing probe monitors the capacitance field around the probe within a shield, tank or pipe. As the dielectric characteristics of a fluid or solid change, the resulting capacitance change is monitored and configured into a useable signal for process control and recording. A display is available in user configured engineering units.

Product dielectric changes in your application may not be strictly linear. Arjay has designed a 5-point calibration into the controller to enhance accuracy over an extended measurement range. This instrument is ideal for general monitoring and trending of process conditions.



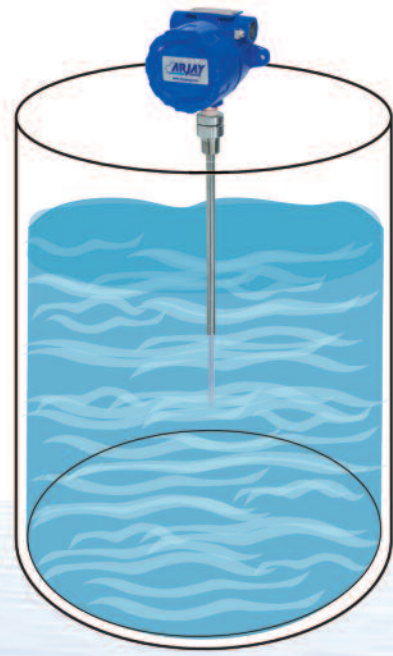
explosion proof sensing probe

316SS wetted metals with Teflon coated probe

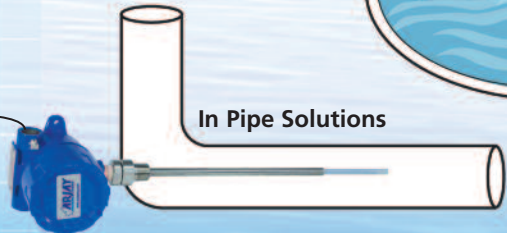
(beacon and buzzer optional)



up to 1 km



In Tank Solutions



In Pipe Solutions

Monitoring concentrations to assist in process batching, oil/water knock-out treaters, glycol in water blending, etc.

# 4100-CAP

## Features and Benefits

- no moving parts
- remote electronics via standard twisted pair
- all set-up, calibration and diagnostics are accessed at the control panel
- multi-point calibration curve
- all control wiring and interface is done at the control panel
- HF capacitance technology does not require routine cleaning
- touch screen interface for easy set-up and user interface
- trend display of hour, day or month increments

## Technical Specifications - Probe

Process Temp.	-60°C to +200°C
Ambient Temp.	-40 C to +55 C
Pressure	103 bar/10342 kPA/1500psi at stable temperature
Process Connection	available threaded or flanged
Wetted Parts	316SS and Teflon

## Technical Specifications - Control Panel

Operating Temp.	0°C to +55°C
Resolution	.007% (.07 pF at 1,000 pF)
Accuracy	0.2% of full scale pF
Power Input	24 vdc or 80-240 vac +/- 10%, 1P, 50-60 HZ
Display	touch screen full colour tank view graphics, % and engineering units trend line selectable hours, days or none
Relay Outputs	four SPDT, 10 amp @ 240 vac, dry
Enclosure	Type 4 metal painted blue / IP 66 optional Type 4X SS or polycarbonate

## Optional Interfaces

Analog Output	4-20 mA non-isolated
Communication	RS-485 Modbus

**Accuracy Note:** Reading accuracy is dependent on many variables such as fluid dielectric stability, temperature, blending dynamics, etc. This monitor is designed for general monitoring and trending of process conditions.

Minimum Calibration Range: 2.0 pF  
Maximum Calibration Range: 2000 pF

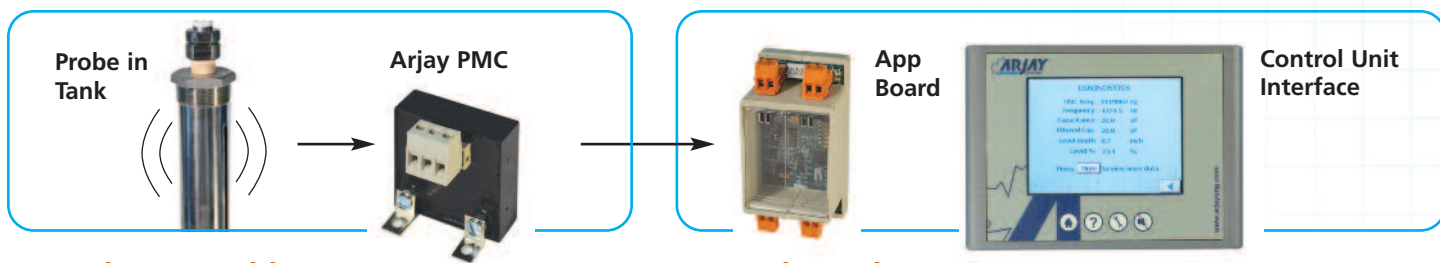
### Certifications (certificates available on website)

**Included Standard on Control Unit and Probe - Ordinary Location Use**  
UL/CSA/IEC 61010-1  
CAN/CSA 22.2  
CE

**Included Standard on Probe - Hazardous Location Use - Explosion Proof**  
USA/Canada CSA Zone 1,2; AEx db IIC T5 Gb  
IECEX/ATEX Zone 1,2; Ex db IIC T5 Gb

**Optional on Probe - Hazardous Location Use - Intrinsically Safe**  
UL/CSA/IEC 60079  
ANSI/UL 913-2013  
Class I; Division 1,2; Groups A,B,C,D; T4  
Class II; Division 1,2; Groups E,F,G  
Class III; Division 1,2  
Class 1, Zone 0,1,2; Ex ia IIC T4 Ga

**Included Standard on Probe**  
CRN # 0F07450.2 (all provinces)  
NACE MR-0175 Compliant where applicable



## Probe Assembly

The Arjay PMC (pulse module circuit) installed at the probe converts the probe signals to a frequency pulse. This allows the controller to be safely mounted up to 1 km away from the tank with virtually no loss to signal stability. No operator interface is required at the probe using this unique Arjay PMC design.

## Control Panel

All calibration, control interface and power wiring is done at the main control unit. The touch screen provides a simple menu-driven operator interface and display.

The Arjay App board is the heart of the 4100-CAP. This board monitors and controls the signals from the probe, applies the appropriate calibration algorithms and interfaces this information to the touch screen and PLC hardware.



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