

# AQUAMETA AN420-15

## Water Level Sensor



The AN420 series of water level probes are a cost effective and robust solution designed for continuous water level measurement where a 4-20mA output is required. The probes are temperature and barometric pressure compensated. Reverse and overvoltage protection is included. The AN420-15 is suitable for measuring water levels to 10m (33ft).

### Probe Construction

The probe uses a solid state pressure sensing transducer encapsulated within a probe body manufactured from 316 stainless steel and Delrin. The stainless steel provides weight to the probe. The internal cavity of the probe is filled with a marine-grade polyurethane epoxy that protects the sensor and electronics from moisture. This eliminates the problems of leaky o-rings and seals.

The sensor cable is molded into the probe eliminating problems associated with threaded plugs. In addition the vent tube of the cable is attached directly to the pressure sensor. This means that any moisture that may enter the vent tube cannot affect the internal electronics. This is a point of failure in many makes of level probes. Any moisture that may enter the vent tube will only come in contact with the silicon sensing element that is designed to be exposed to liquids. This design ensures a very high level of reliability.

The pressure end of the probe has two offset orifices on the side of the probe body that that allows the probe to sense the pressure. The offset holes reduce the possibility of clogging and allows for the vent to be cleaned by flushing.

### Features

- No O-rings or seals that can potentially leak
- 4-20mA output
- 10 to 36V
- Temperature stabilized
- Barometric pressure compensation via vented cable
- Impervious to moisture on the vent side of the sensor
- Minimal maintenance and care
- Water level sensor can be installed a long distance away from monitoring equipment

### Applications

- Level measurement in above and underground water tanks
- C-Bus home automation systems for water tank level display
- Building management system (BMS) water tank level indicator

### Output Signals

The AN420 probe uses a two wire 4-20mA output signal. The signal is linear with water depth. The probe will operate with a supply voltage that can range from 10 to 36V DC. The Aquameta Junction box may be used to connect the AN420 to a common twisted pair or extension cord that can run to a distance of 2700m (3000ft). Practical distance is limited by wire gauge and supply voltage.

The 4-20mA signal can be converted to a DC voltage by connecting a suitable resistor in series. The maximum value of a resistor that may be used is defined by the following formula:

$$R_{\max} = (\text{Supply Voltage} - 10V) / 20\text{mA} - \text{Cable}_{\text{Resistance}}$$



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### Specifications AN420-15

<b>Diameter:</b>	22mm
<b>Length:</b>	140mm
<b>Supply voltage:</b>	10 to 36V DC
<b>Output:</b>	4-20mA (1 to 5V over a 250Ω resistor )
<b>Operating Temperature:</b>	-40°C to 85°C
<b>Full Scale (FS):</b>	20mA at 10m(33ft)
<b>Resolution:</b>	Infinite (Analog output)
<b>Linearity and Hysteresis:</b>	±0.4% FS
<b>Accuracy:</b>	± 0.25% FS at a constant temperature, ± 0.5%FS over 0°C to 50°C
<b>Sensing element:</b>	Silicon Diaphragm with wet/wet transducer
<b>Operating range:</b>	0 to 10m(33ft)
<b>Overpressure :</b>	Do not submerge beyond a depth of 12m as damage to sensor will occur
<b>Electronic protection:</b>	Reverse and over voltage protection.
<b>Cable Jacket:</b>	PVC
<b>Cable:</b>	4 conductors 25AWG. (Red +, Black -, Blue and White not used)
<b>Cable O.D.:</b>	4.5mm
<b>Cable termination:</b>	Bare wire tinned
<b>Standard cable length:</b>	15m



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