

Water Quality Monitoring

Q32C2 2-Electrode Conductivity M-Node

OVERVIEW

Compact Low-Power Smart Conductivity Sensing

The Q32 series of smart water quality nodes, developed as part of the MetriNet distribution monitoring system, are available for integration into a variety of monitoring systems. Using the Q32C2 conductivity sensor, users can monitor conductivity in a variety of clean water applications, from potable water to industrial process water. System integrators can easily interface Q32 sensors using one of two available outputs, RS485/Modbus RTU, 0...2.5V. For remote and/or low-power conductivity monitoring, the Q32C2 sensor is an ideal solution for ease of installation, ease of maintenance and long-term reliability.

DESCRIPTION

Q32C2 conductivity nodes are compact assemblies incorporating both measuring cells and electronics. This assembly incorporates 2-electrode sensor technology with titanium electrodes for monitoring conductivity in the 0...2000 uS range. Electronics are encapsulated to protect from moisture, and data is accessed via an M8 5-pin B-coded IP67 connector at the back.

Q32 nodes operate as part of the Q52/MetriNet system and also individually as they are fully programmable using our free PC-based utility program or the Q51 handheld calibrator. Selectable power modes allow high power real-time measurement or very low power periodic measurement for battery powered applications.

Features

- Certified NSF 61 and 372
- Continuous conductivity measurement over 0...2000 uS range
- Setup and calibration can be done anywhere with all calibration and configuration data stored internally.
- Titanium electrodes for superior chemical compatibility
- Sleep mode allows cyclic measurement at very low power
- Choice of two flow cell assemblies rated for use to 50 psig (3.45 bar)
- RS485/Modbus digital output with optional 0...2.5V
- Two programmable alarms (useful for digital output only)
- Simplified digital interface to aid in fast UI development
- Diagnostic data and digital flags indicate node status



Figure 1: Optional inlet assembly with mesh filter, pressure reducing valve, shut-off and sample tap



Figure 2: Modular flow cell for installation of multiple parameters in series to minimize water usage

CERTIFICATION



SPECIFICATIONS

Parameter	Q32C2 Conductivity
Typical Application	Monitoring of potable water distribution systems or clean industrial process water
Analysis Method	Conductometry (2-electrodes) with temperature compensation
Measurement Range	0...2000 uS
Temperature Range	-5...50° C (23...122° F)
Output Resolution, LDL	2 uS, 1 uS
Accuracy	¹ 0.5% of range, or ± 10 uS
Repeatability	¹ 0.25% of range, or ± 5 uS
Response Time	90% in 30 seconds at 10° C
Zero Stability	± 3 uS
Power	3.5...5V DC, 40 mW Max. (8 mA @ 5V DC full power mode, 1.3 mA @ 5V DC low power mode)
Isolation	Galvanically isolated power and signal to 500V DC minimum
Environmental Rating	NEMA 6 (IP67) Temporary Submergence
Regulatory Approval	CE, NSF 61, 372
Size/Weight	4.5 in. L x 1.5 in. D (114 x 38 mm); 0.25 lb
Sensor Wetted Material	Titanium (inner and outer electrode), PEEK insulator, PVC body, Viton O-ring
Flow Cell Wetted Material	Ryton cell, EPDM O-rings
Sample Inlet Pressure	² Stable 1...50 psi (0.07...3.45 bar), 20...30 psi recommended
Sample Temperature	2...45° C, temperature compensated
Suspended Solids	Sample filtered to less than 100 microns
Sample Flow Rate	Fixed 0.2 lpm (3.2 gph) with installed fixed flow regulator ² 0.2...0.5 lpm (3.2...8 gph)
Inlet/Drain Connection	1/4 in. O.D. push connect fitting
Sensor Output	Isolated RS485/Modbus RTU, 19.2K baud, and 0...2.5V DC analog out
Sensor Cable	M8 B-coded 5-pin connector: White = +5V DC, Blue = Common, Brown 0...2.5V DC, Gray TR (+), Black TR (-)

¹ Nodes are shipped uncalibrated. For optimum accuracy, nodes should be properly prepared and user calibrated on-site with fresh calibration solution as part of normal installation and setup. Frequency of follow up cleaning and recalibration is determined by the operating conditions in the specific application. Accuracy and repeatability specified at a fixed temperature.

² Nodes are specifically designed for use within the modular flow cell assembly (see [Figure 2 on page 1](#)), which operates at a fixed flow rate of 200 mL/min. and requires stable fixed inlet pressure. Some nodes can be sensitive to changes in flow and pressure, so operating in this controlled flow manifold greatly reduces those potential variability issues and maximizes sensor life.

ORDERING INFORMATION

00-1848	Q32C2 Conductivity sensor, RS485/Modbus/0...2.5V
31-0204	12.9 ft. Sensor cable with tinned ends
31-0212	18 in. Sensor cable with tinned ends
00-1865	USB to M8 cable, 5 ft. (for PC to node connection)
00-1798	Mobile calibrator with node and USB cables
05-0166	Optional inlet assembly (see Figure 1 on page 1) with mesh filter, pressure reducing valve, shut-off and sample tap
55-0083	O-ring silicone lube, 150 g tube

NOTE: Each sensor is supplied with an O-ring kit and O-ring silicone pillow packet.



Figure 3: Q51 Calibrator for sensor