

## Water Quality Monitoring

### Q32H5 Peracetic Acid M-Node

#### OVERVIEW

##### Compact Low-power Smart PAA Sensing

The Q32 series of smart water quality nodes, developed as part of the MetriNet distribution monitoring system, is available for integration into a variety of monitoring systems. Using the Q32H5 PAA sensor, water suppliers can verify that adequate peracetic acid levels are maintained where required. 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 PAA monitoring, the Q32H5 sensor is an ideal solution for ease of installation, ease of maintenance and long-term reliability.

#### DESCRIPTION

Q32H5 Peracetic Acid nodes are compact assemblies incorporating both measuring cells and electronics. 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 are fully programmable using our free PC-based utility program or 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 measurement of peracetic acid from 0...200 ppm
- Setup and calibration can be done anywhere with all calibration and configuration data stored internally
- Reagentless measurement with easily replaceable membrane and electrolyte
- Internal energy storage allows cyclic measurement at very low power without loss of sensor bias
- 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                 | Q32H5 Peracetic Acid (PAA)                                                                              |
|---------------------------|---------------------------------------------------------------------------------------------------------|
| Typical Application       | Monitoring of disinfectant levels in water systems                                                      |
| Analysis Method           | Amperometric membrane sensor                                                                            |
| Measurement Range         | 0...200 ppm                                                                                             |
| Temperature Range         | -5...50° C (23...122° F)                                                                                |
| Output Resolution, LDL    | 1 ppm, 1 ppm                                                                                            |
| Accuracy                  | <sup>1</sup> 1% of range or $\pm 2$ ppm                                                                 |
| Repeatability             | <sup>1</sup> 0.5% of range or $\pm 1$ ppm                                                               |
| Response Time             | 90% in 60 seconds at 10° C                                                                              |
| Zero Stability            | $\pm 1$ ppm noncumulative                                                                               |
| 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    | PVC body, TFE membrane, PVC membrane ring, PVC electrolyte chamber, Viton O-ring                        |
| Flow Cell Wetted Material | Ryton cell, EPDM O-rings                                                                                |
| Sample Inlet Pressure     | <sup>2</sup> Stable 1...50 psi (0.07...3.45 bar), 20...30 psi recommended                               |
| Sample Temperature        | 2...45° C, temperature compensated                                                                      |
| Sample pH                 | <sup>3</sup> pH 4...9 (requires stable pH value; as pH changes >9 pH will reduce reading)               |
| Suspended Solids          | Sample filtered to less than 100 microns                                                                |
| Sample Flow Rate          | Fixed 0.2 lpm (3.2 gph) with installed fixed flow regulator<br><sup>2</sup> 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, 19.2 K 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 (-) |

<sup>1</sup> 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 recalibrating is determined by the operating conditions in the specific application. Accuracy and repeatability specified at a fixed temperature.

<sup>2</sup> 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

|         |                                                                                                                                      |
|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| 00-1858 | Q32H5 Peracetic Acid 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 <a href="#">Figure 1 on page 1</a> ) with mesh filter, pressure reducing valve, shut-off and sample tap |
| 55-0083 | O-ring Silicone lube, 150 g tube                                                                                                     |



Figure 3: Q51 Calibrator for sensor

**NOTE:** Each sensor is supplied with spare membranes, electrolyte, O-ring kit, O-ring silicone pillow packet and 18 inch sensor to bus cable.