

## Series Q46C4 Conductivity Monitor

Conductivity Monitors shall be supplied for continuous monitoring of conductivity in (Specify Application and Location). The conductivity monitoring system shall consist of an electronic monitor housed in a NEMA 4X enclosure suitable for wall, pipe, or panel mounting, a 4-electrode style conductivity sensor, and accessories listed below. The Conductivity Monitoring System shall be ATI Series Q46C4/Q25C4 as described below.

The conductivity sensor shall be a 1" NPT, four-electrode design capable of a measuring range of 0 to 2 Siemens with the same cell. The sensor electrodes shall be constructed of titanium for optimum chemical resistance. O-ring seals shall be composed of Viton.

The sensor shall be constructed of molded PEEK (poly-ether-ether-ketone) components. These components include the body, electrode holder, all rear seal components, and all internal components. The body shall be hex shaped to facilitate quick connection to standard 1" NPT fittings. The sensor shall be encapsulated and mechanically sealed by dual, high performance, o-rings at every solution interface.

The sensor shall include a Pt1000 RTD for high accuracy temperature measurements.

The sensor shall include a highly chemical resistant, cross-linked polyethylene jacketed cable. The sensor cable shall contain two foil shields for optimum electrical performance.

The sensor shall be available in mounting styles that include convertible, insertion, and submersion configurations.

Monitors shall be powered by either 90-260 VAC single-phase line power, or 12-24 VDC. Either version of the monitor shall provide two isolated 4-20 mA outputs as standard, with an option for a third 4-20 mA output. Outputs shall be configurable for conductivity, temperature, or PID control. Analog outputs shall be both ground isolated and isolated from each other.

For alarm purposes, monitors shall contain three SPDT relays. Relay functions shall be programmable for control, alarm, or fail functions, and may be designed for either normal or failsafe operation. For monitors supplied with only 2 analog outputs, monitors shall have the option of an additional 3 low-power relays to allow for additional external alarm functions.

The conductivity monitor electronic assembly shall provide a variety of functions as follows.

1. Provide user selectable display of Conductivity, Concentration, TDS, process temperature, or PID % output on the main display. Main display variable shall be indicated with a minimum character height of 0.75" to allow easy readability up to 20 feet away.
  2. Provide the ability to use the 4-20 mA output for PID control. Proportional, Integral, and Derivative functions shall be user adjustable, and also provide for output hold when needed.
  3. Provide two isolated 4-20 mA outputs, with output spans programmable by the user for any segment of a display range. An optional third analog output is available, providing separate outputs for conductivity and temperature.
  4. Provide output hold and output simulate functions to allow for testing or remote receiving devices or to allow maintenance without disturbing control systems.
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5. The monitor shall contain calibration functions for 1-point calibration for conductivity or % concentration. An air-zero calibration routine shall be provided for calibrating the sensor zero point at initial installation. Calibration stability monitors shall be provided to hold calibration status until stable calibration conditions have occurred. In addition, the transmitter shall allow a sensor cell constant value to be entered directly for calibration without solutions.
6. The monitor shall provide a function for automatically compensating for sensor fouling. If the sensor fouling reaches a level to which it can no longer be compensated for, the transmitter shall indicate a fouling warning.
7. The monitor shall be configurable as a concentration monitor, which include functions for displaying concentration values from built-in tables. A user configurable table shall be available for entering data points for a custom concentration curve
8. Provide three 6 amp SPDT relay outputs in standard unit. Software settings for relay control include setpoint, deadband, phase, delay, and failsafe. Provide an optional 3-relay card, for 0-30 V signals, to bring the total to 6 relays. Relays shall be programmable for either control or alarm function, or relays may be assigned to diagnostic functions for use in indicating trouble conditions at a remote location.
9. Provide option for digital communications. These options shall include Profibus-DP, Modbus-RTU, or Ethernet-IP.
10. Diagnostic functions shall be incorporated into the transmitter. The 4-20 mA output shall be capable of being assigned to safely rise to 20 mA, fall to 4 mA, or be left alone, during diagnostic failures. Diagnostic error messages shall be displayed in clear language; no confusing error codes shall be displayed.

The complete Conductivity Monitor shall be Series Q46C4/Q25C4 as manufactured by Analytical Technology, Inc. or approved equal.

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