

Emerson Rosemount 3900VP-02-10

General-Purpose pH Sensor

Product scope

- Uses low-resistance general-purpose glass across the 0 to 14 pH range.
- Connects through a detachable VP8 cable interface without an internal preamplifier.
- Combines a double-junction reference, porous PTFE junction and integral solution ground.

Manufacturer source

Exact-model technical record

Verified model-specific overview, function, operating principle, applications and technical data.

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Emerson Rosemount 3900VP-02-10

General-Purpose pH Sensor

Product overview

Emerson Rosemount 3900VP-02-10 is a general-purpose pH sensor with no integral preamplifier, low-resistance pH glass and a VP8 detachable cable connection. Its double-junction reference and porous PTFE interface support routine aqueous process measurement.

3900VP-02-10 uses the 02 no-preamp electronics option and the 10 general-purpose pH glass selection. The molded PPS body carries a double-junction reference and solution ground for durable insertion or submersion service.

Hydrogen-ion activity at the glass membrane creates the millivolt signal used by the connected analyzer to calculate pH. A VP8 connector separates the sensor from its interconnecting cable, simplifying sensor exchange without replacing the entire run.

Analyzer input compatibility, cable length, temperature element and process connection must be confirmed before installation. The absence of an internal preamplifier makes cable and analyzer matching particularly important for a stable high-impedance signal.

Technical specifications

Measurement	pH
Preamplifier option	02: none
Glass option	10: general-purpose low-resistance pH glass
Measurement range	0 to 14 pH
Cable interface	VP8 detachable connector
Reference construction	Double junction
Liquid junction	Porous PTFE
Body material	PPS
Solution ground	Integral
Process connections	3/4 in. and 1 in. NPT
Low-temperature capability	Down to -10 °C for the documented sensor execution
Primary service	General-purpose aqueous pH measurement

3900VP-02-10 function and operating principle

Ordered configuration

The suffix identifies a no-preamp pH sensor rather than an ORP or preamplified execution.

System role

Its electrochemical cell develops the measurement voltage interpreted by the remote analyzer.

Selection and installation

Cable cleanliness, analyzer impedance and process mounting determine successful replacement.

Functional path

- Uses low-resistance general-purpose glass across the 0 to 14 pH range.
- Connects through a detachable VP8 cable interface without an internal preamplifier.
- Combines a double-junction reference, porous PTFE junction and integral solution ground.

Application scenarios

- Water and wastewater systems can monitor basin, pipe or sample-stream pH.
- Neutralization and chemical-treatment skids use the sensor for continuous reagent-control feedback.
- General process vessels can apply insertion or submersion mounting through the supported NPT connections.

3900VP-02-10 engineering checks

Compatibility

- The no-preamp output requires a compatible high-impedance pH analyzer input.
- A VP8 interconnecting cable is selected separately for the required installation length.
- Process mounting must use the supported 3/4 in. or 1 in. NPT arrangement.

Temperature Range

- The general-purpose glass covers the documented 0 to 14 pH measurement range.
- Low-resistance glass supports response in colder aqueous samples down to the stated limit.
- The integral solution ground supports analyzer diagnostics where the connected transmitter provides them.

Diagnostics & Protection

- Routine cleaning removes process coating from the glass and porous PTFE junction.
- Two-point buffer calibration evaluates slope and offset after cleaning.
- A dry, uncontaminated VP8 connection protects the high-impedance measurement path.

Critical technical note

Keep the VP8 connector of 3900VP-02-10 clean and dry; moisture or contamination can destabilize the sensor's high-impedance pH signal.

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