SMART pH Analyzers and Sensors

Smart solutions for pH sensor calibration

ROSEMOUNT®
Analytical

EMERSON™
Process Management

SMART instruments make field calibration problems a thing of the past

SMART analyzers and sensors eliminate one of the largest problems with measuring pH – field calibration. Traditional calibration methods require hauling buffers and rinse solutions from the lab to the installation point. Now with Rosemount Analytical SMART technology, calibration is truly plug and play.

Each SMART pH sensor comes with factory calibration embedded in the sensor's memory. Simply connect them to a Rosemount Analytical SMART analyzer and automatically upload the latest settings.

Data stored in the sensor includes:

> Slope

> Reference Offset

> Temperature calibration offset

> Glass Impedance

> Reference Impedance

> Time Stamp

> Sensor Serial Number

> Manufactured Date

No muss, no fuss calibration.

Here's how SMART Technology eliminates field calibration hassles

Customer Headaches	SMART Solution
Field calibration hassles	Pre-calibrate in lab
Harsh field environments	Safe, controlled lab environment
Calibration solutions and equipment must be taken to process location	Leave buffers and equipment in lab
Difficult to schedule calibrations and record the data	Calibrate in advance
Difficult sensor troubleshooting	Sensor diagnostic history helps troubleshoot problems
Lack of interoperability with legacy products	Use of open standards and backward compatibility with SMART products
Multiple analyzers for new and legacy products	SMART and standard sensors can be used on same Rosemount Analytical instrument

SMART ANALYTICAL INSTRUMENTS
WITH MULTI-PARAMETER CAPABILITIES

Model 1056 Dual Input, Multi-parameter Analyzer

Model 1057 Three Input, Intelligent Analyzer

LINE POWERED ANALYZERS

Models 1056 and 1057 feature these SMART capabilities:

> Quick Start automatic recognition of SMART pH sensor to facilitate startup.

> Compatible with all conventional pH and ORP sensors and all Rosemount Analytical SMART sensors.

> Field replacement of pH signal board.

> Field reconfiguration of Model 1056 analyzer with any combination of signal input board.

> One, two or three SMART pH sensor inputs, depending on analyze.

> In the Model 1056, SMART pH sensors can be combined with any other measurement without restriction. Choose from pH/ORP/ISE, Conductivity, Chlorine, Oxygen, Ozone, Turbidity, Flow, and 4-20mA Current Input.

> Historical calibration data and diagnostics allow technicians to predict appropriate calibration frequency and estimate sensor life.

Model 6081 Wireless pH Transmitter

WIRELESS TRANSMITTER

Model 6081 features these SMART capabilities:

> Quick Start automatic recognition of SMART pH sensor to facilitate startup

> Compatible with both conventional pH and ORP sensors with and without integrated preamplifier

> Automatic calibration upon live connection to Rosemount Analytical SMART pH sensors with upload of stored calibration data

SMART pH SENSORS
READY FOR ANY JOB

PERpH-X®
High Performance Sensors

PERpH-X sensors are specifically designed for high temperature and high pressure applications where some poisoning, coating, organics, bacteria growth and scaling can be addressed with special electrolyte refill kits.

TUpH®
Rugged Sensors

The TUpH family of sensors is your choice for coating, high solids content applications of a viscous nature with the potential for plugging.

General Purpose and Triple Junction Sensors

These standard sensors are good for clean water applications where coating is not an issue. Possible poisoning is addressed by triple junction technology.

SENSOR DIAGNOSTICS
### REAL-TIME MONITORING KEEPS YOU INFORMED

pH probes require careful monitoring for proper functioning and to give the user a good understanding of the process effects on the probe.

> **View live diagnostics –** glass impedance is used to evaluate sensor condition and performance which can indicate coating and exposure to high temperature. Reference impedance and mV input can indicate coating, poisoning and high temperature.
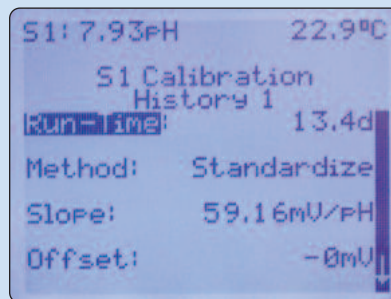
> **Faults and Warnings –** set points for faults and warnings can be programmed from the host or at the measurement point.

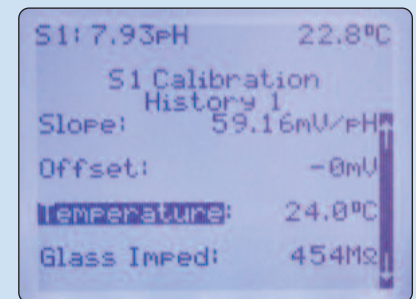> **pH slope** reflects the pH sensitivity of the glass electrode.

> **mV offset** is the cumulative error of the reference cell. High offsets are indicative of coating or poisoning conditions in the process.
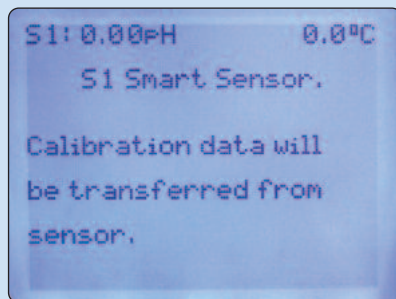
Sensor data transferred to analyzer	*Sensor calibration time and method*	*Sensor calibration diagnostics*

BENCHTOP CALIBRATOR
IDEAL FOR REMOTE CALIBRATION OF pH SENSORS

pH calibration is one of the most difficult procedures to accurately perform due to factors such as extreme environmental temperatures; individual sensor performance issues; buffer temperatures; and operator technique. The BenchTop calibrator allows the user to control the environment during pH sensor calibration ensuring an accurate calibration every time.

Now maintenance personnel can calibrate all their pH sensors in a controlled environment, then take the sensors out into the plant for insertion into the process. Once the calibration information has been uploaded into the process analyzer, the pH measurement can be used to monitor or control the process. Calibrating pH sensors in a lab area, instead of out in the plant can:

> Save time

> Reduce calibration errors

> Limit the amount of calibration solution used

The BenchTop calibrator uses the dual input Model 1056 SMART analyzer mounted in a corrosion resistant stand and pre-wired with both a Variopol cable and push pin connectors for quick easy connectivity. The system can calibrate SMART or non-SMART enabled sensors.

For more information refer to PDS 71-BTC.

USE SMART SENSORS IN THE CONFIGURATION THAT BEST SUITS YOUR NEEDS

The SMART Sensor System

Automatic upload of factory calibration data to the analyzer allows immediate live process measurements. Slope, offset, reference impedance, glass impedance and associated time stamp are all uploaded.

Calibration data can be downloaded or uploaded to or from the SMART Sensor with either a 1056, 1057 or wireless 6081 analyzer, allowing for plug and play field installation.

SMART Sensors can also be reset via the analyzer user menus allowing new buffer calibration data to be utilized instead of stored data.

The available calibration methods using SMART Sensors and Models 1056, 1057 or wireless Model 6081 analyzer are:

> Auto Buffer – two point
> Manual Buffer – two point
> Standardize – one point

> Manual Entry – slope and offset
> Factory Reset of stored calibration data only

Historical readings, or trending, allows technicians to predict appropriate maintenance frequency and estimate probe life for specific probe in a specific process.

Analyzer with SMART-capable technology & pH signal card
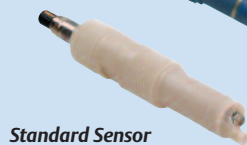
SMART Sensors in SMART mode

SMART-capable analyzers are compatible with both SMART and non-SMART sensors

When combined with a SMART Rosemount Analytical 1056, 1057 or 6081 analyzer, SMART Sensors can be used along with standard, non-SMART, non-Emerson sensors. The analyzers accept pH, conductivity or amperometric readings from a non-SMART sensor while also utilizing the advanced benefits of a SMART pH sensor. This allows users to keep existing sensors until they can be upgraded to SMART technology.

Analyzer with SMART-capable technology & 2 input cards

SMART Sensor in SMART mode

Standard Sensor

SMART-capable sensors are compatible with non-SMART analyzers

SMART Sensors can work with traditional analyzers. No need to stock multiple analyzers or SMART and non-SMART sensors, eliminating double inventory issues. When you're ready to upgrade to SMART analyzers, your SMART sensors will be ready as well.

Standard, non-SMART-capable analyzer

SMART Sensors in passive mode

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