

Model 1066

Liquid Analytical Transmitter

- **WIDE RANGE OF SENSOR INPUTS** – measures pH, ORP, Contacting and Toroidal Conductivity, % Concentration, Total Chlorine, Free Chlorine, Monochloramine, Oxygen, Ozone and Temperature
- **LARGE DISPLAY** – large easy-to-read process measurements, user-definable display of measurement diagnostic parameters
- **DIGITAL COMMUNICATIONS** – HART® version 7 and Foundation Fieldbus communication protocols available for host monitoring and configuration
- **INTUITIVE MENU SCREENS** with advanced diagnostics and help screens
- **SMART Enabled** – automatic calibration with SMART pH sensors
- **TWO 4-20mA CURRENT OUTPUTS** are standard on Model 1066 HART



Features and Applications

This loop-powered analytical unit serves industrial, commercial and municipal applications with the widest range of liquid measurement inputs available for a two-wire liquid transmitter.

The Model 1066 Smart transmitter supports continuous measurement of one liquid analytical input. The design supports easy internal access and wiring connections. The large display gives excellent visibility for live measurements and displayed parameters. Conveniently, live process values are always displayed during programming and calibration routines.

ANALYTICAL MEASUREMENTS: Ordering options for pH/ORP, Resistivity/Conductivity, % Concentration, Total Chlorine, Free Chlorine, Monochloramine, Dissolved Oxygen, and Ozone.

LARGE DISPLAY: The high-contrast LCD provides live measurement readouts in large digits and shows up to four additional variables or diagnostic parameters. The display parameters can be customized to meet user requirements.

DIGITAL COMMUNICATIONS: HART version 7 digital communications are standard on Model 1066. Model 1066 HART units communicate with the Model 475 HART® hand-held communicator and HART monitoring applications such as AMS™ Intelligent Device Manager.

MENUS: Menu screens for calibrating and programming are simple and intuitive. Plain language prompts and help screens guide the user through the procedures. All menu screens are available in eight languages. Live process values are displayed during programming and calibration.

Features and Applications, cont.

QUICK START PROGRAMMING: Popular Quick Start screens appear the first time the unit is powered. The instrument prompts the user to configure the sensor loop in a few quick steps for immediate commissioning.

USER HELP SCREENS: Fault and warning messages include help screens similar to Plant Web alerts that provide useful troubleshooting tips to the user. These on-screen instructions are intuitive and easy to use. They allow many installation and operational problems to be solved directly by the user without the need for a manual or a call to technical support.

DIAGNOSTICS: The transmitter continuously monitors itself and the sensor for problems. A display banner on the screen alerts Technicians to Fault and/or Warning conditions. The dedicated Diagnostic key is available for immediate access to specific fault and warning messages and troubleshooting help screens. Extensive diagnostic data is available for pH including Glass Impedance, Reference Impedance, Slope and Offset.

LANGUAGES: Rosemount Analytical extends its worldwide reach by offering eight languages – English, French, German, Italian, Spanish, Portuguese, Chinese and Russian. Every unit includes user programming menus: calibration routines, faults and warnings and user help screens in all eight languages.

CURRENT OUTPUTS: HART® units include two 4-20 mA electrically isolated current outputs giving the ability to transmit the live measurement value and the process temperature reported from the sensor. Users can assign the live measurement value or

temperature to Output 2. Output dampening can be enabled with time constants from 0 to 999 seconds. HART digital communications on current output 1 is standard on all HART-compatible units (option code –HT).

INPUT DAMPENING: is automatically enabled to suppress noisy process readings. Default input filtering averages readings for settings between one and four seconds. For very noisy or highly variable process conditions, entering a filter setting of four seconds or higher will allow continuous filtering.

SMART-enabled pH: Rosemount Analytical's SMART pH capability eliminates field calibration of pH probes through automatic upload of calibration data and history. pH probe changes are literally plug and play using SMART pH sensors with VP cables.

AUTOMATIC TEMPERATURE COMPENSATION: Most measurements require temperature compensation. The Model 1066 will automatically recognize Pt100, Pt1000 or 22k NTC RTDs built into the sensor. Temperature compensation algorithms are available and selectable as needed to ensure accurate live measurements.

SMART WIRELESS THUM ADAPTOR COMPATIBLE: Enable wireless transmissions of process variables and diagnostics from hard-to-reach locations. A 250 Ohm load resistor is integrated in-circuit on the main circuit board and a dedicated THUM terminal block is provided for easy wiring connection. When commissioned with the THUM Adaptor, Model 1066 HART units will communicate with all other wireless devices on the Emerson wireless network.

Specifications - General

Case: Polycarbonate. NEMA 4X, IP66

Dimensions: Overall 155 x 155 x 131mm (6.10 x 6.10 x 5.15 in.).
Cutout: 1/2 DIN 139mm x 139mm (5.45 x 5.45 in.)



Conduit openings: Six. Accepts PG13.5 or 1/2 in. conduit fittings

Display: Monochromatic graphic liquid crystal display. No backlight. 128 x 96 pixel display resolution. Active display area: 58 x 78mm (2.3 x 3.0 in.). All fields of the main instrument display can be customized to meet user requirements.

Ambient temperature and humidity: -20 to 65°C (-4 to 149°F), RH 5 to 95% (non-condensing).

Storage Temperature: -20 to 70°C (-4 to 158°F)

HART® Communications: PV, SV, TV, and 4V assignable to measurement, temperature and all live HART diagnostics.

RFI/EMI: EN-61326

Hazardous Location Approvals

Intrinsic Safety (with appropriate safety barrier):

Class I, II, III, Div. 1
Groups A-G
T4 Tamb = -20°C to 65°C

1180 II 1 G
Baseefa04ATEX0195X
EEx ia IIC
T4 Tamb = -20°C to 65°C

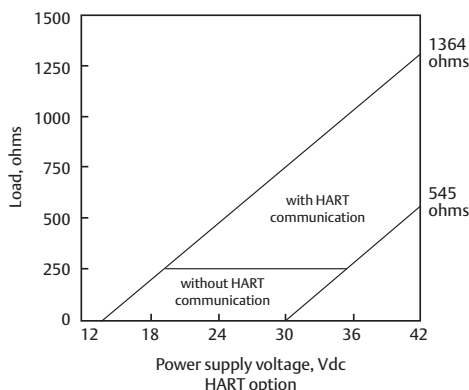
IECEx BAS 11.90098X
EEx ia IIC
T4 Tamb = -20°C to 65°C

Non-Incendive:

Class I, Div. 2, Groups A-D
Dust Ignition Proof
Class II & III, Div. 1, Groups E-G
NEMA 4/4X Enclosure
T4 Tamb = -20°C to 65°C

Input: One isolated sensor input. Measurement choices of pH/ORP, resistivity/conductivity/TDS, % concentration, total and free chlorine, monochloramine, dissolved oxygen, dissolved ozone, and temperature. For contacting conductivity measurements, temperature element can be a PT1000 RTD or a PT100 RTD. Other measurements (except ORP) and use PT100 or PT1000 RTDs or a 22k NTC (D.O. only).

Power & Load Requirements: Supply voltage at the transmitter terminals should be at least 12.7Vdc. Power supply voltage should cover the voltage drop on the cable plus the external load resistor required for HART communications (250 Ω minimum). Minimum power supply voltage is 12.7Vdc. Maximum power supply voltage is 42.4 Vdc (30 Vdc for intrinsically safe operation). The graph shows the supply voltage required to maintain 12 Vdc (upper line) and 30 Vdc (lower line) at the transmitter terminals when the current is 22 mA.



Analog Outputs: Two-wire loop powered (Output 1 only). Two 4-20 mA electrically isolated current outputs (Output 2 must be externally powered). Superimposed HART digital signal on Output 1. Fully scalable over the operating range of the sensor.

Weight/Shipping Weight: 2 lbs/3 lbs (1 kg/1.5 kg)

pH/ORP (Ordering Code – P)

For use with any standard pH or ORP sensor. SMART pH sensor with SMART pre-amplifiers from Rosemount Analytical. Measurement choices are pH, ORP, or Redox. The automatic buffer recognition feature uses stored buffer values and their temperature curves for the most common buffer standards available worldwide. The transmitter will recognize the value of the buffer being measured and perform a self stabilization check on the sensor before completing the calibration. Manual or automatic temperature compensation is menu selectable. Change in pH due to process temperature can be compensated using a programmable temperature coefficient.

Performance Specifications - Transmitter (pH input)

Measurement Range [pH]: 0 to 14 pH

Accuracy: ± 0.01 pH ± 1 mV @ 25°C ± 0.03 pH

Diagnostics: Glass impedance, Reference impedance, Slope and Offset (mV)

Temperature coefficient: ± 0.002 pH/°C

Solution temperature correction: Pure water, dilute base and custom.

Buffer recognition: NIST, DIN 19266, JIS 8802, and BSI.

Input filter: Time constant 1 - 999 sec, default 4 sec.

Response time: 5 seconds to 95% of final reading

Performance Specifications - Transmitter (ORP input)

Measurement Range [ORP]: -1400 to +1400 mV

Accuracy: ± 1 mV

Temperature coefficient: ± 0.12 mV/°C

Input filter: Time constant 1 - 999 sec, default 4 sec.

Response time: 5 seconds to 95% of final reading

Recommended Sensors for ORP:

All standard ORP sensors.

Recommended Sensors for pH:

All standard pH sensors. Supports SMART pH sensors from Rosemount Analytical.



Ordering Information

Model 1066 2-Wire Transmitter is intended for the continuous determination of pH, ORP (Redox), conductivity, (both contacting and toroidal), and for measurements using membrane-covered amperometric sensors (oxygen, ozone, free and total chlorine, and monochloramine). For free chlorine measurements, which often require continuous pH correction a second input for a pH sensor is available. Two 4-20mA analog outputs are standard on HART units. Model 1066 is compatible with SMART pH sensors from Rosemount Analytical. HART® digital communications is standard and FOUNDATION fieldbus digital communications is offered as an option.

Communication with the 1066 is through:

- Local keypad interface
- Model 475 HART® and FOUNDATION® fieldbus Communicator
- HART® protocol version 7
- FOUNDATION fieldbus
- AMS (Asset Management Solutions) Aware
- Wireless THUM Adaptor for WirelessHART networks

Description	
Model 1066 pH/ORP, Conductivity, Chlorine, Oxygen, and Ozone 2-Wire Transmitter	
Measurement	
P	pH/ORP
C	Contacting Conductivity
T	Toroidal Conductivity
CL	Chlorine
DO	Dissolved Oxygen
OZ	Ozone
Communication	
HT	HART® Digital Communication Superimposed on 4-20mA Output
FF	FOUNDATION™ fieldbus Digital Output
FI	FOUNDATION™ fieldbus Digital Output with FISCO
Agency Approval	
60	None Required
67	FM Approved, Intrinsically Safe (appropriate sensor & safety barrier required), and Non-Incendive
69	CSA Approved , Intrinsically Safe (appropriate sensor & safety barrier required), and Non-Incendive
73	ATEX/IECEX Approved, Intrinsically Safe (safety barrier required)

NOTE: Ordering options shown in light gray text are pending.

ACCESSORIES (Weights are rounded up to nearest whole lb or 0.5 kg)			
PART #	DESCRIPTION	WEIGHT	SHIPPING WT
23820-00	Pipe mounting kit, includes U-bolts, mounting bracket, nuts, washers, and screws (complete)	2 lb (1.0 kg)	4 lb (2.0 kg)
23554-00	Gland fittings, PG 13.5, 5 per package	1 lb (0.5 kg)	2 lb (1.0 kg)
9240048-00	Tag, stainless steel (specify marking)	1 lb (0.5 kg)	1 lb (0.5 kg)

pH INPUT

9210014	Buffer Solution, 4.01 pH, 1 pt.	1 lb (0.5 kg)	2 lb (1.0 kg)
9210013	Buffer Solution, 7.0 pH, 1 pt.	1 lb (0.5 kg)	2 lb (1.0 kg)
9210012	Buffer Solution, 10.0 pH, 1 pt.	1 lb (0.5 kg)	2 lb (1.0 kg)



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