

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ROSEMOUNT

396P-02-12-55

PH AND ORP SENSOR

Used with the applicable Rosemount TUpH process sensors configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Rosemount official manufacturer documentation

Code	Description
LC	Loop Calibration Certificate (sensor and transmitter calibrated together with test data)
EC	Electronic Calibration Certificate (sensor calibrated against factory instrument with test data)

Material Traceability Certificates

Code	Description
MC	Material Traceability Certification

Rosemount 396P and 396PVP ordering information



Rosemount 396P and 396PVP pH/oxidation reduction potential (ORP) sensors feature a model reinforced polypropylene body with forward and rear facing 1 in (25 mm) male pipe threads (MPT) suitable for insertion, submersion, and flow-through installations. The Rosemount 396P sensor has an integral cable connection, and the Rosemount 396PVP sensor has a Variopol cable connection for use with VP8 interconnecting cables (sold separately).

Related information

[Accessories](#)

Rosemount 396P ordering information

Note

The Rosemount 396P pH/oxidation reduction potential (ORP) sensor is available with or without an integral hermetically sealed preamplifier.

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Model

Code	Description
396P	pH sensor: TUpH® insertion/submersion/flow-through

Sensor Output & Connections

Code	Description
01	Preamplifier, 25 ft (7.62 m) cable. (Preamplifier is SMART for pH electrodes used with -55 option only).
02	Without integral preamplifier, 15 ft (4.57 m) cable
03	Analog with preamplifier, 33 ft (10.06 m) cable ⁽¹⁾
04	Analog with preamplifier, 50 ft (15.24 m) cable ⁽¹⁾
05	Analog with preamplifier, 66 ft (20.12 m) cable ⁽¹⁾
06	Analog with preamplifier, 100 ft (30.48 m) cable ⁽¹⁾
07	No preamplifier, 4 ft (1.22 m) cable

Code	Description
08	No preamplifier, 10 ft (3.05 m) cable

(1) *Standard preamplifier if used with oxidation reduction potential (ORP)*

Measuring electrode

Code	Description
10	pH - General purpose low resistivity (GPLR) glass
12	Oxidation reduction potential (ORP)
13	pH - GPLR flat bulb

Transmitter/thermocouple compatibility

Code	Description
54	For use with Rosemount 1054, 2054, and 2081 (Pt-100)
55	For use with Rosemount 56, 1056, 1057, 1066, and 5081

Optional selections

Sensor tip

Code	Description
41	Slotted tip

Calibration and conformance certificates

Code	Description
CC	Certificate of Calibration (no test data given)
LC	Loop Calibration Certificate (sensor and transmitter calibrated together with test data)
EC	Electronic Calibration Certificate (sensor calibrated against factory instrument with test data)

Material Traceability Certificates

Code	Description
MC	Material Traceability Certification

Rosemount 396PVP ordering information

Note

The Rosemount 396PVP comes standard with a patented reference junction, a solution ground, and a recessed electrode; an optional slotted tip is also available. You must purchase a mating Variopol (VP) cable for all new Rosemount 396PVP installations. The VP8 cable assembly works with both the VP6 and VP8 sensor connectors.

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Model

Code	Description
396PVP	pH sensor: TUpH® Variopol connector

Specifications

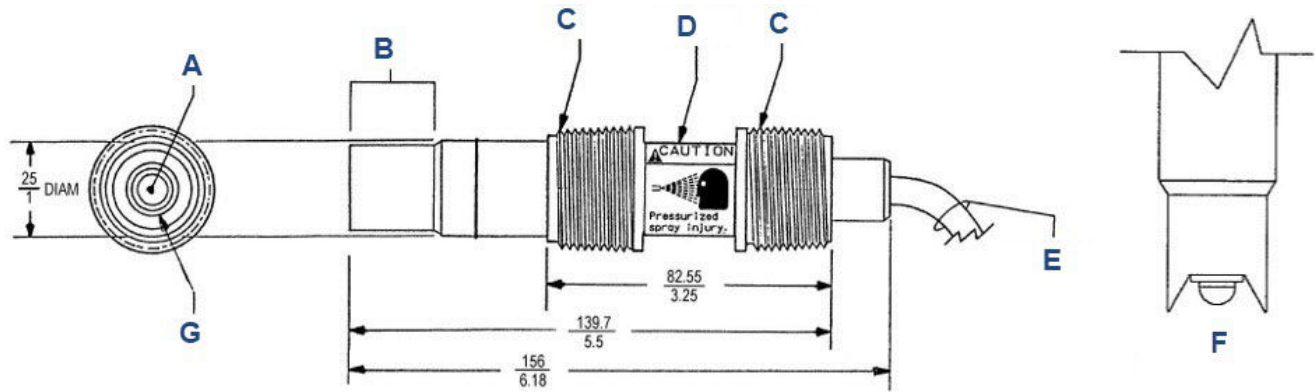
Table 1: Rosemount 396/396VP/396P/396PVP/396R/396RVP Sensors Specifications

Specifications	Rosemount 396/396VP	Rosemount 396P/396PVP	Rosemount 396R/396RVP
Photo			
Measurements and ranges	pH: 0 to 14	pH: 0 to 14 Oxidation reduction potential (ORP): -1500 to 1500 mV	pH: 0 to 14 ORP: -1500 to 1500 mV
Available pH ACCUGLASS types	GPHT hemi bulb or GPHT flat bulb	General purpose low resistivity (GPLR) hemi bulb or GPLR flat bulb	GPLR hemi bulb or GPLR flat bulb
Wetted materials	316 stainless steel, polypropylene, EPDM, glass	Titanium, polypropylene, EPDM, glass, platinum (ORP only)	Titanium, polypropylene, EPDM, glass, platinum (ORP only)
Process connection	None, use 1 in (25 mm) NPT process connector, PN 23166-00 or 23166-01 (sold separately)	1 in (25 mm) male national pipe thread (MNPT) front and rear facing threads	None, use 1 in (25 mm) process connector or ball valve kit (1.5 in (38 mm) or 1.25 in (31.8 mm)) sold separately
Temperature range	32.0 °F (0 °C) to 212.0 °F (100 °C)		
Pressure range-hemi bulb	0 psig (0.00 barg) to 150 psig (10.34 barg)		
Pressure range-flat bulb	0 psig (0.00 barg) to 100 psig (6.89 barg)		
Maximum pressure at retraction or insertion	Not applicable	Not applicable	Code 21: 64 psig (4.41 barg) Code 25: 35 psig (2.41 barg)
Minimum conductivity	100 µS/cm		
Integral cable	Various, coaxial with BNC	Code 01, 03, 05, and 06: Various lengths, 11 conductor Code 02, 07, and 08: Various lengths coaxial	Standard: 15 ft (4.57 m) coaxial Code 60: 9.5 in (241 mm) coaxial with BNC Code 61: 9.5 in (241 mm) coaxial
Preamplifier options	Remote or integral SMART		
Weight/shipping weight	1 lb (0.5 kg)/2 lb (0.9 kg)	1 lb (0.5 kg)/2 lb (0.9 kg)	Sensor: Code 21: 2 lb (0.9 kg)/3 lb (1.4 kg) Code 25: 3 lb (1.4 kg)/4 lb (1.8 kg) Ball valve PN 23240-00: 5 lb (2.3 kg)/7 lb (3.2 kg) Junction box: 3 lb (1.4 kg)/4 lb (1.8 kg)
VP cable	Use cable PN 24281-XX (where XX = -01 through -08 and designates various cable lengths).		

Table 2: Percent Linearity over Various pH Ranges

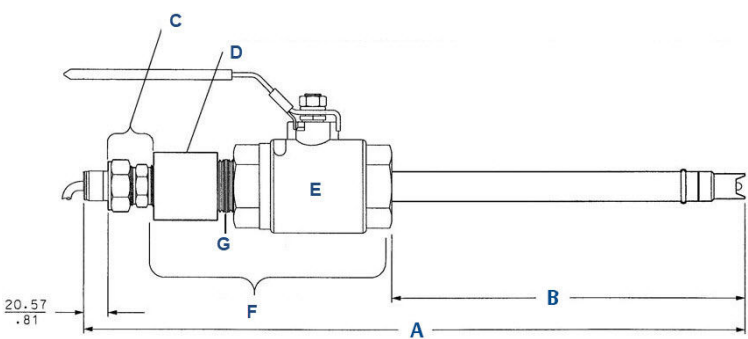
pH range	Rosemount 396/396VP		Rosemount 396P/396PVP		Rosemount 396R/396RVP	
	GPHT hemi	GPHT flat	GPHT hemi	GPHT flat	GPHT hemi	GPHT flat
0 to 2 pH	94%	95%	94%	N/A	94%	93%
2 to 12 pH	99%	99%	97%	98%	97%	98%

Figure 4: Rosemount 396P/396PVP Dimensional Drawing



- A. Electrode
- B. Reference junction
- C. 1 in (25 mm) male national pipe thread (MNPT)
- D. 1 in (25 mm) wrench opening
- E. Cable or V connector (not shown)
- F. Sensing end tip, slotted tip option
- G. Solution ground

Figure 5: Retraction Assembly (PN 23240-00) and Process Connector (PN 23166-00 or 23166-01) with Rosemount 396R pH Sensor



- A. Dimension (see [Table 3](#))
- B. Dimension (see [Table 3](#))
- C. Process connector (PN 23166-00 or 23166-01) (not included with ball valve kit)
- D. 1 1/2-in (38 mm) to 1-in (25mm) reducer (PN 9310104)
- E. Ball valve (PN 9340065)
- F. Ball valve kit (PN 23240-00)
- G. 1 1/2-in close nipple (PN 9310102)

Note

Dimensions are in millimeters/inches.

Table 3: Rosemount 396R Insertion Lengths for Retraction Assembly 23240-00

Sensor tube length	A	B (maximum)
21-in (533 mm)	23.1-in (587 mm)	12.9-in (328 mm)
36-in (914 mm)	37.58-in (954.5 mm)	27.4-in (696 mm)