

Rosemount[™] 397

TUpH pH Sensor



A high performance sensor with ease of maintenance in mind

Rosemount 397 pH Sensors feature a TUpH reference design and are designed to be used with the Quik-Loc Kit, easing installation and maintenance. These low-maintenance sensors are ideal for measuring pH in aqueous solutions with high levels of suspended solids.

Overview



A TUpH sensor design

- Excellent coating resistance and extended sensor life in process solutions with high levels of suspended solids.
- Highly chemical resistance with polypropylene and Tefzel sensor body options.
- Operates in process temperatures up to +212 °F (+100 °C) and in pressures up to 100 psig (689.5 kPa).
- Helical reference pathway slows down the effects of poisoning ions.



Ease of maintenance and installation

- Quik-loc kit allows for quick and easy access to sensor without cable twisting.
- Visual confirmation that the sensor is locked into position.

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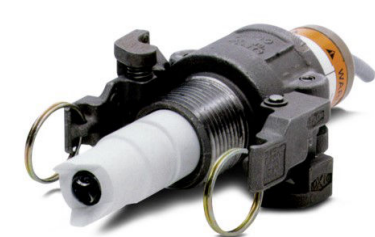
Features and applications

The body is specifically designed for use with the Quik-Loc kit, which consists of an adapter and coupler. The polyether ether ketone (PEEK) adapter enables the sensor to fit into a 1-inch (25 mm) male NPT (MNPT) Dixon coupler for quick and easy removal without the sensor cable twisting. The 316 stainless steel Dixon coupler is sealed with an EP gasket and features locking arms.

⚠ WARNING

Emerson does not recommend using the Quik-Loc kit in processes with hazardous, corrosive, or strong oxidizing chemicals due to a risk of spray and bodily hazards.

Ordering information



The Rosemount 397 pH Sensor is housed in either a polypropylene or Tefzel body and is designed to be used with the Quik-Loc Kit (sold separately). Sensors come standard with 15 ft. (4.6 m) of integral cable and do not come with an integral preamplifier.

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Typical model number: 397-02-10-54-62

Sensor type

Code	Description
397	pH Sensor

Preamplifier/cable

Code	Description
02	Analog

Measuring electrode

Code	Description
10	pH - general purpose glass

Temperature sensor compatibility

Code	Description
54	Pt-100 ⁽¹⁾

(1) If selected with option 62, compatible with existing transmitter models Rosemount 1056, 1057, 56, 1066, and 5081. Without option 62, compatible with legacy transmitter models 1054, 2054, 2081, and XMT.

Body material and sensor connection

Code	Description
-	No selection - polypropylene body and 15-foot (4.6 m) integral cable with BNC connector
62	Polypropylene body and 15-foot (4.6 m) integral cable with wire leads ⁽¹⁾
64	ETFE body and 15-ft. (4.6 m) integral cable with wire leads ⁽¹⁾
07	Polypropylene body and 4-foot (1.2 m) integral cable with wire leads
08	Polypropylene body and 10-foot (3 m) integral cable with wire leads

(1) Only available with option 54.

Calibration 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 Certificate

Accessories

Part number	Description
23555-00	Junction box with preamplifier
2002565	Mounting bracket kit for junction box
23646-01	Extension cable for junction box, prepped
9200273	Extension cable for junction box, unprepped
23757-00	Quik-Loc Kit; for use with 1-inch (25 mm) tees; 1.4 in. (36 mm) insertion depth
23757-01	Quik-Loc Kit; for use with 1½-inch (38 mm) and 2-in. (51 mm) tees; 2 in. (51 mm) insertion depth
9160441	1-inch (25 mm) male NPT (MNPT) stainless steel coupler
23753-00	Polyether ether ketone (PEEK) adapter for insertion depth of 2 in. (51 mm)

Part number	Description
23753-01	PEEK adapter for insertion depth of 1.4 in. (36 mm)
9160447	1-inch (25 mm) ethylene-propylene (EP) gasket for Quik-Loc coupler

Specifications

Table 1: Rosemount 397 specifications

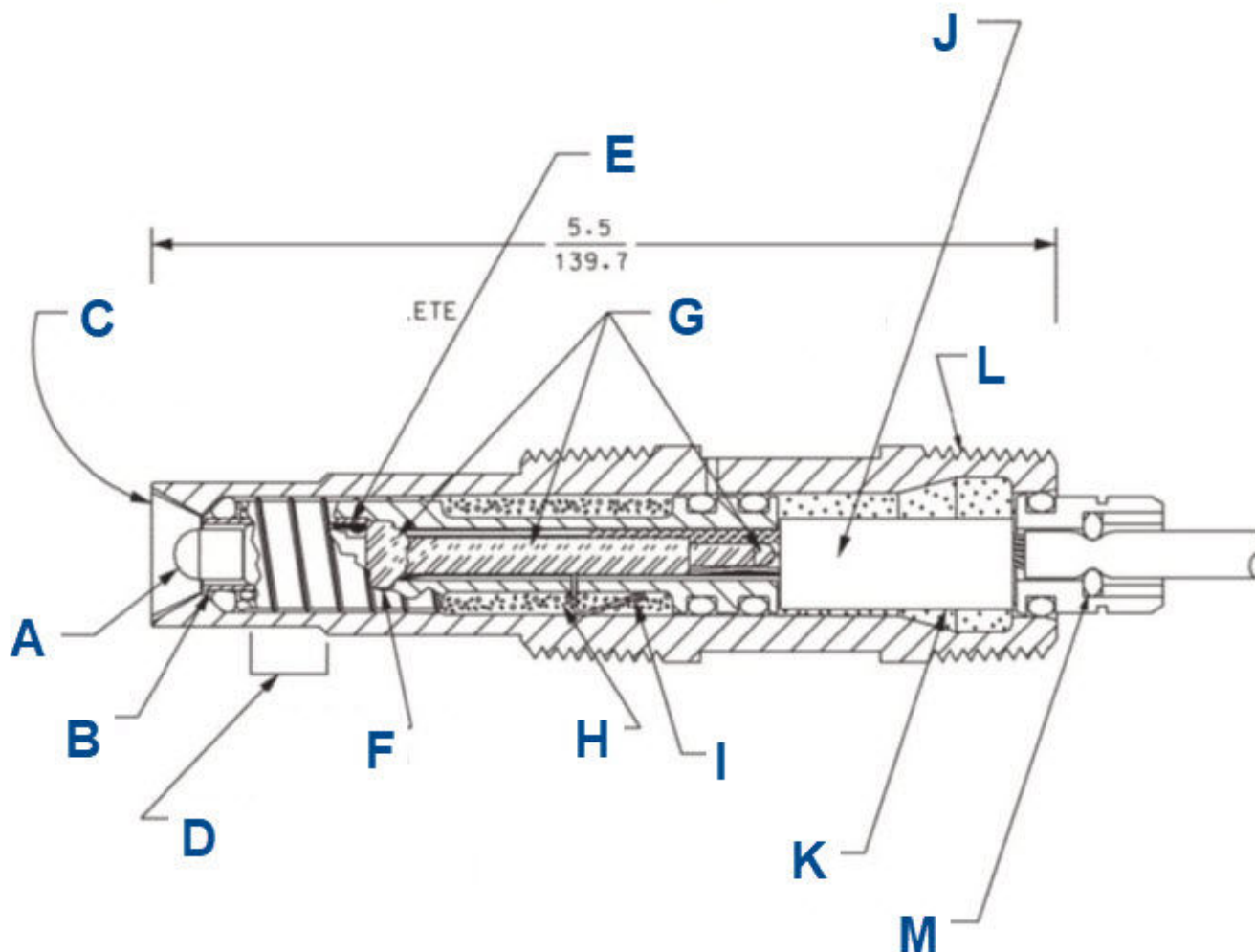
	397	Quik-Loc Kit
Measured ranges	0 to 14 pH	N/A
Available pH ACCUGLASS types	GPHT hemi bulb	N/A
Wetted materials	Polypropylene, ethylene-propylene (EP), glass	316 stainless steel, EP, polyether ether ketone (PEEK)
Process connection	None, must use Quik-Loc Kit, which includes a 1-inch (25 mm) male NPT (MNPT) process connection	1-inch (25 mm) MNPT
Temperature range	+32 to +212 °F (0 to +100 °C)	N/A
Pressure range - hemi bulb	0 to 100 psig (0 to 6.9 barg)	N/A
Pressure range - flat bulb	N/A	N/A
Minimum conductivity	75 µS/cm, nominal	N/A
Preamplifier options	Remote	N/A
Weight/shipping weight	1 lb./2 lb. (0.45 kg/0.9 kg)	1 lb./2 lb. (0.45 kg/0.9 kg)

Table 2: Percent linearity over pH

pH range	GPHT hemi
0-2 pH	94%
2-12 pH	99%
12-13 pH	97%
13-14 pH	92%

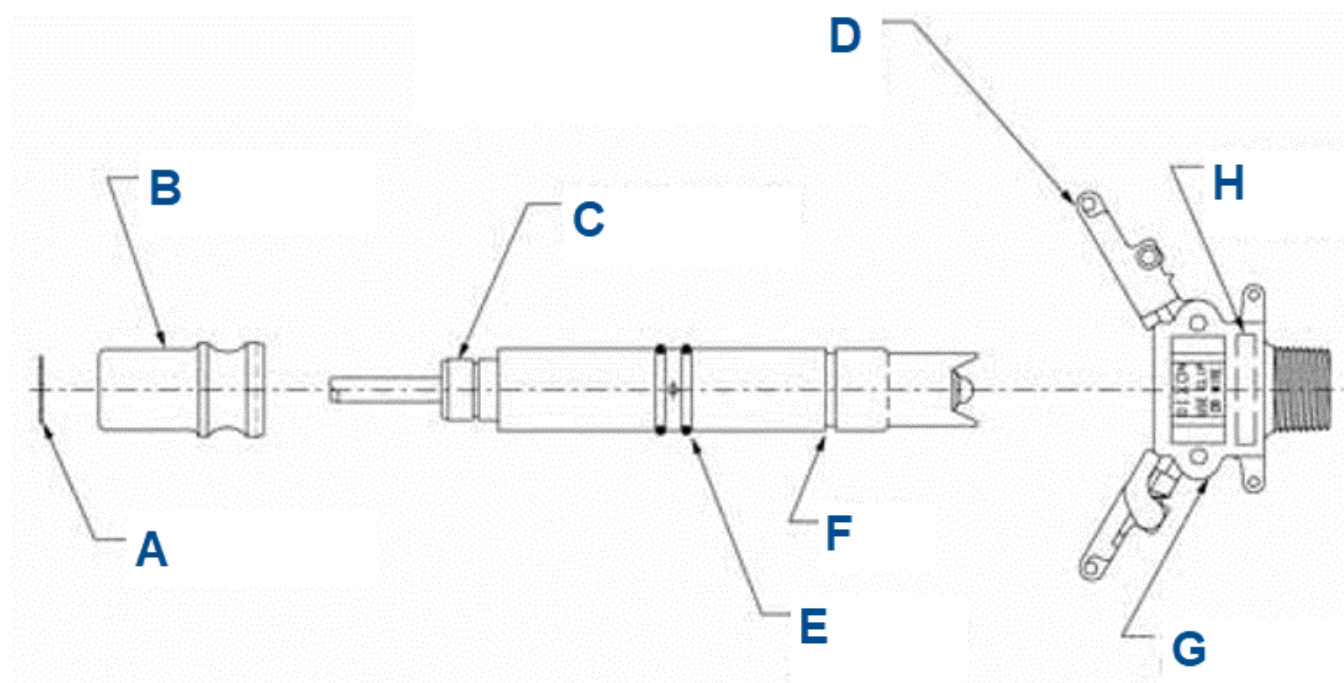
Dimensional and installation drawings

Figure 1: Cross Section Diagram of the TUpH Reference Technology



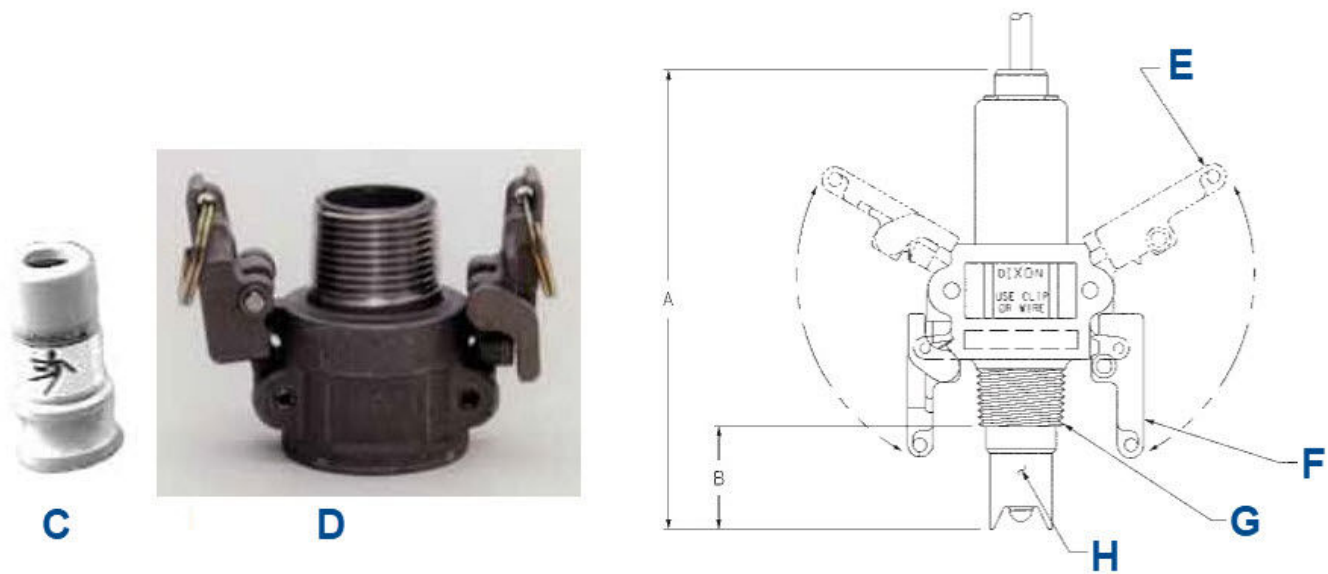
Emerson designs all TUpH sensors with a large area reference junction, a helical reference pathway, and an Accu-Glass pH glass bulb. This sensor technology ensures superior performance while only requiring minimal maintenance.

- A. Accu-Glass hemi pH glass bulb
- B. Titanium solution ground
- C. Shrouded tip for complete pH bulb protection (standard for all hemi bulb sensors)
- D. Large area reference junction for ionic diffusion
- E. Thermocompensator (3K Balco or PT1100 RTD)
- F. Helical reference pathway
- G. SILCORE™ triple seal barrier
- H. Reference electrolyte
- I. Reference electrolyte
- J. Optional integral preamplifier (Rosemount 396P-01 only)
- K. Roll wrap copper shield
- L. 1-inch male NPT (MNPT), two places
- M. Cable seal

Figure 2: Rosemount 397 Sensor and Quik-Loc Kit components

- A. Retaining ring
- B. Adapter, polyether ether ketone (PEEK) PN 23753-00
- C. Retaining ring groove
- D. Cam arms must be in this position (full) for proper adapter/sensor insertion.
- E. O-ring 2-019 EPDM, two
- F. 397 pH Sensor
- G. Coupler, Dixon 8-100 locking
- H. Ethylene-propylene (EP) gasket (not shown) PN 9160447

Figure 3: Quik-Loc mounting dimensions



- A. Sensor length (see [Table 3](#))
- B. Insertion depth (see [Table 3](#))
- C. PEEK adapter
- D. Dixon 316 stainless steel coupler
- E. Sensor released position
- F. Sensor locked position
- G. 1-inch male NPT
- H. TUpH sensor

Table 3: Quik-Loc Kit dimensions

Part number	A: sensor length	B: Insertion depth
23757-00	6.15 in. (156 mm)	1.4 in. (36 mm)
23757-01		2 in. (51 mm)

For more information: [Emerson.com/global](https://emerson.com/global)

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