



PRODUCT DATASHEET

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NON-GLASS pH SENSOR FOR SUBMERSION/INSERTION

- NO GLASS TO BREAK due to use of Ion-selective field effect transistor.
- REDUCED DRIFT with TUpH reference technology.
- SUITABLE FOR USE AT COLD TEMPERATURES with continued rapid response and accuracy.
- REDUCED CALIBRATION FREQUENCY due to increased sensor stability.
- QUICK CABLE-TO-SENSOR RELEASE provided by waterproof electrode/cable connector.
- MINIMUM SENSOR MAINTAINANCE due to TUpH reference technology which ensures continued reference performance when the sensor becomes coated.
- OPTIMUM VERSATILITY by providing various mounting options.
- BUILT-IN CABLE CAP PREAMPLIFIER allows use with most pH instruments.
- AVAILABLE WITH 316SS TRI-CLOVER® FITTING.



Model TF396 with Mating Cable



**Model TF396
with Tri-Clover® Fitting**

FEATURES AND APPLICATIONS

The ion-selective field effect transistor (ISFET) pH electrode provides a stable pH measurement. Its rate of response can be ten times faster than glass electrodes, enabling better process control. Its short response time and increased stability at low temperatures make it suitable for use in cold processes like brine or water for cooling. Aging effects caused by temperature fluctuations or large changes of process pH are greatly reduced, providing longer intervals between calibration and maintenance of the sensor.

Because there is no glass bulb, it can be used in many applications that restrict or prohibit pH glass electrodes due to the risk of broken glass getting into the process. It may also provide longer sensor life in processes that will break or crack pH glass bulbs. By allowing direct installation into the process, costs for laboratory analysis of sample lines are greatly reduced.

The TUpH Reference technology includes a large area reference junction for minimum maintenance requirements. The reference junction provides an electrical connection between the reference electrode and the sample, and helps maintain a stable reference potential, regardless of the change in sample pH. The TUpH reference electrode junction (the entire plastic tip surrounding the ISFET electrode) maintains a steady reference signal, even in dirty applications, by resisting plugging (a common cause of pH signal drift). This large reference junction area (400 times greater than typical teflon or ceramic junctions) is made of micron-sized reference pathways allowing for ionic exchange but preventing plugging by larger particles and will continue to send a steady pH signal, even in the dirtiest of applications. The field-proven TUpH reference junction technology results in greatly reduced maintenance requirements.

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FEATURES AND APPLICATIONS (continued)

The TUpH helical reference pathway resists reference poisoning. Ions diffuse through the reference pathways and a charge is passed to the reference element. The reference element must be protected from contamination by poisoning ions such as sulfide, mercury, cyanide, and ammonia that will cause reference drift and offsets. The TUpH sensor's long internal reference pathway hinders the contaminants' migration to the reference element thereby providing an increased sensor life.

All TUpH sensor models have been specifically designed for improved performance in harsh, dirty, or abrasive applications where large quantities of suspended solids are present.

The Model TF396 offers a watertight sensor-to-cable connector that prevents cable twisting and eliminates the need for rewiring when replacing the sensor. The sensor cable includes an integral preamplifier cap with mating connector and is compatible with most Rosemount Analytical analyzers and transmitters.

SPECIFICATIONS

Measurement Range: 2-12 pH

Measuring element: ISFET

Repeatability: ± 0.05 pH

Response time to pH change: 99% in 30 seconds step change

Wetted Materials: Code -01: Polypropylene, EPDM, Ryton, Silicon.

Code -02: 316SST, Titanium, Polypropylene, EPDM, Ryton, Silicon

Process Connections: Code -01: 1 in. MNPT front and rear facing threads

Code -02: 2 in. Tri-Clamp connection

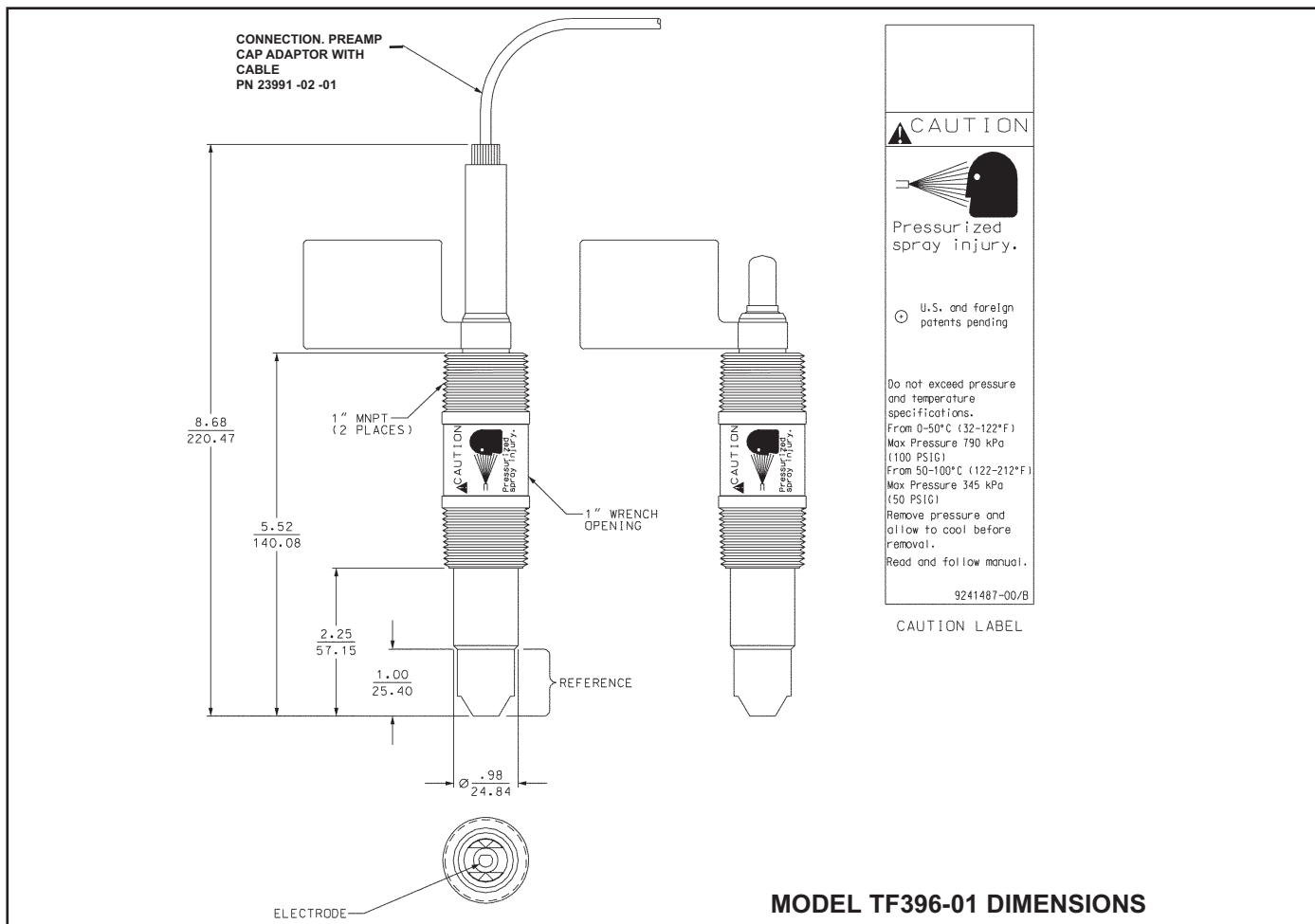
Temperature Range: 0 to 100°C (32 to 212°F) @ 50 psig

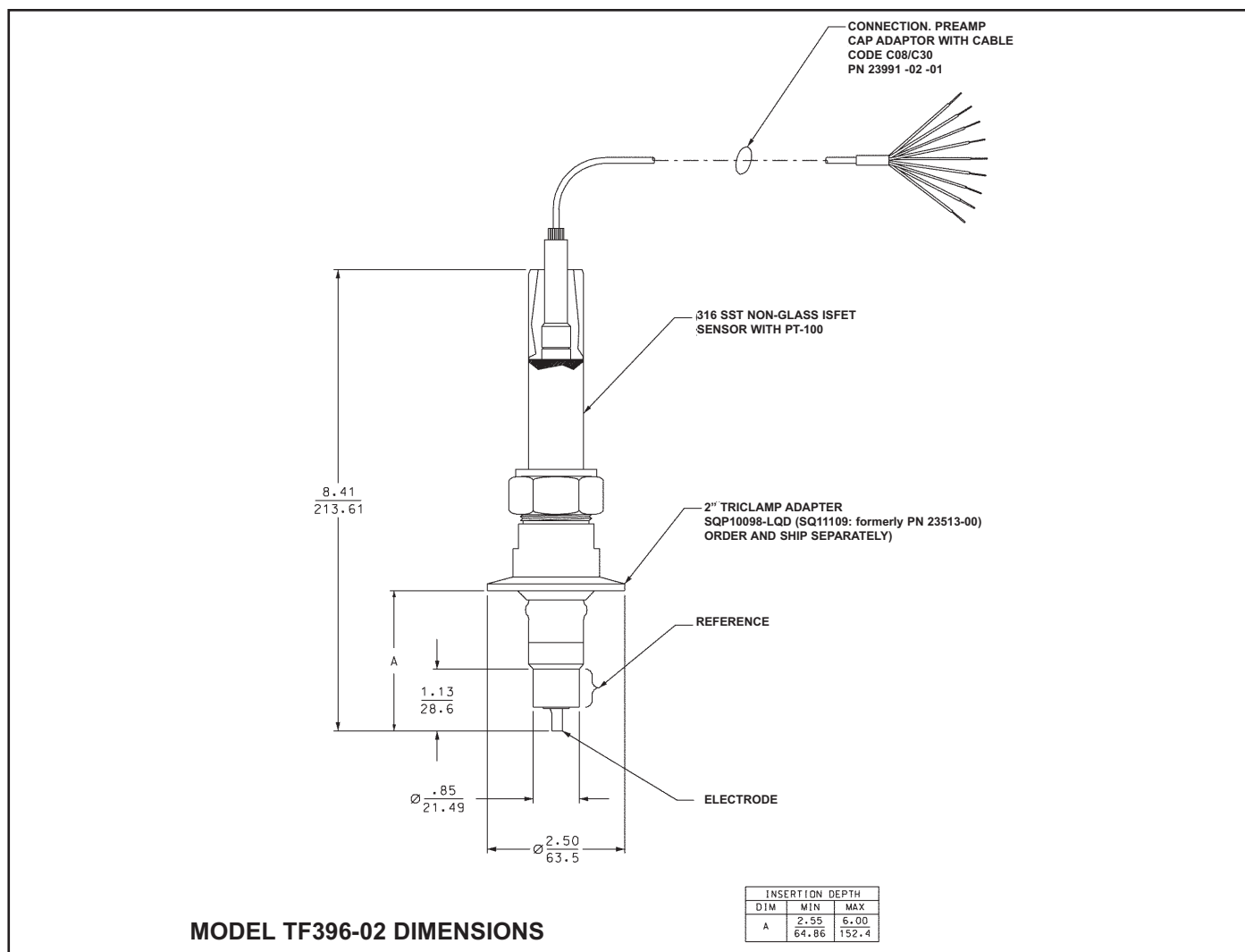
Pressure Range: -10 to 100 psig (32 to 790 kPa [abs]) at 50°C

Minimum Process Conductivity: 100 μ S/cm

Cable Lengths: 20 ft, 50 ft (6 m, 18 m)

Weight/Shipping Weight: 0.45 kg/0.9 kg (1 lb/2 lb)





ORDERING INFORMATION

The **Model TF396 TUpHFET Non-glass ISFET pH Sensor** is housed in a molded reinforced polypropylene body with 1 in. MNPT threads suitable for insertion, submersion or flow through installation, or housed in a 316SST body for use with a 2.0 inch Tri-Clamp fitting. The sensor includes an ion-selective field effect transistor, a reference junction, a solution ground, and a recessed protective tip. The Model TF396 includes automatic temperature compensation (Pt 100 RTD) and connector for use with a cable assembly that includes an integral cap with mating connector and a choice of 20 or 50 ft of cable.

MODEL TF396	NON-GLASS ISFET pH SENSOR		
CODE	PREAMPLIFIER/CABLE (Required Selection)		
01	Threaded body for insertion/submersion service		
02	316 SST Body for use with Tri-clamp (PN 23513-00, ordered separately)		
CODE	CABLE AND INTEGRAL CAP WITH PREAMPLIFIER		
C08	20 ft cable		
C50	50 ft cable		
TF396	-01	-C08	EXAMPLE

Notes:

- ¹ For first-time installation, cable and integral cap with preamplifier (Codes C20 or C50) must be included.
- ² For installations with distances (between the sensor and instrument) of more than 50 ft; a cable extension junction box should be used.
- ³ The Model TF396 is compatible with Models 54e, 56, 81, 1055, 1056, 1057, 1066, 3081, 4081, 5081 and XMT

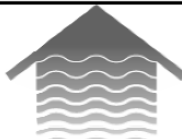
ACCESSORIES: FIRST TIME INSTALLATION GUIDE

CODE	MOUNTING ASSEMBLIES
915240-03	Tee, Flow-through, 2 in. PVC, 3/4 in. NPT
915240-04	Tee, Flow-through, 2 in. PVC, 1 in. NPT
915240-05	Tee, Flow-through, 2 in. PVC, 1-1/2 in. NPT
11275-01	Handrail Mounting Assembly
2002011	Flow Cell, CPVC, 1 in. FNPT
24091-00	Cell, Low Flow
SQP10098-LQD	2.0 inch Tri-Clamp adapter (SQP11109: formerly PN 23513-00)
CODE	REMOTE JUNCTION BOXES
23550-00	Cable extension junction box
CODE	EXTENSION CABLES (requires a remote junction box)
9200273	Cable, Extension, 11 Conductor, Shielded, Unprepped
23646-01	Cable, Extension, 11 Conductor, Shielded, Prepped, per ft
CODE	OTHER
2001492	Tag, Stainless Steel, Specify Marking
12707-00	Jet Spray Cleaner
23242-02	Mounting Adapter, 1-1/2 in. Insertion, 1 in. x 3/4 in.
7901631	Shroud, PVC
9210012	Buffer Solution, 4.01pH, 16 oz.
9210013	Buffer Solution, 6.86pH, 16 oz.
9210014	Buffer Solution, 9.18pH, 16 oz.
9322014	Union, KYNAR
9330022	Union, CPVC



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