Designed to go where you work

Finally, a digital substitute for your mercury-in-glass thermometers! Accurate and repeatable to ± 0.05 °C over its full range, the 1551A/1552A "Stik" Thermometer is the new "gold standard" of industrial temperature calibration. Whether working outdoors in environments where potentially explosive gases may be present or on the floor of a processing plant, the intrinsically-safe, battery-operated, portable reference thermometer is designed to go where you work.

Features at a glance

- Accuracy of ± 0.05 °C (± 0.09 °F) over full range
- Intrinsically safe (ATEX and IECEx compliant)
- Two models to choose from (-50 °C to 160 °C or -80 °C to 300 °C)
- User-configurable temperature trend/stability indicator
- Display temperature in °C or °F
- Optional data logging to internal memory
- 300-hour battery life
- Percent battery-life and low-battery indicator
- NVLAP-accredited, NIST-traceable calibration included

Thermometer probe and digital readout combined into one unit

The stainless steel probe and digital readout are fixed together and calibrated as a system. The accuracy specification is easy to understand since it includes all uncertainty components, including drift, for up to one year[1]. The large backlit LCD display rotates 90° making it easy to read from any angle. A user-configurable stability/trend indicator lets you know when your temperature is stable enough to record an accurate measurement. A user-settable auto-off function extends typical battery life to three hundred hours. A low-battery indicator and stop-measure function prevent erroneous measurements from being made due to low battery life. A simple three-point calibration function allows you to easily and accurately calibrate the "Stik" Thermometer. Data logging to internal memory of up to 10,000 time-stamped measurements is optionally available.

Why calibrate process temperature sensors?

Because temperature greatly effects the accuracy of a volumetric measurement, process manufacturers of chemical, pharmaceutical, food or petroleum products require accurate temperature measurements—especially for processes where quality or custody transfer are regulated by government agencies. Since all temperature sensors are subject to drift with time, regular calibration or verification against a reliable reference thermometer is required. Finding a reference thermometer that is accurate, repeatable and robust, however, can be challenging.

What's wrong with my reference thermometer?

Industrial reference thermometers available on the market today, such as mercury-in-glass thermometers (or "ASTM thermometers") and portable electronic thermometers are useful, but both come with inherent problems. Although accurate and repeatable, mercury thermometers are fragile. The risk of a mercury spill poses potential hazards to the environment and to the health of personnel. Many of the United States and European Union countries have already banned their use in industrial applications. Some organizations have replaced their mercury thermometers with more durable portable electronic thermometers, only to discover that the RTD probes lack the repeatability and dependability required of a legitimate reference thermometer.

The best alternative to mercury thermometers

The Fluke "Stik" Thermometer is accurate, stable and durable, making it the best alternative to mercury thermometers and existing electronic thermometers. The thin-film RTD sensor incorporates the same characteristics of other premium reference thermometers designed by Hart Scientific, but it is more robust and less susceptible to drift. Accuracy and repeatability, however, are not sacrificed for improved durability.

Using a glass-stem mercury- or spirit-filled thermometer at different immersion depths, or at significantly different ambient temperatures from which it was calibrated, may require the application of emergent-stem corrections that can be tedious but necessary to calculate an accurate measurement. This isn't required with the "Stik" Thermometer. The sensor of the 1551A Ex requires a minimum immersion depth of only 7 cm (2.8 in), with no appreciable effect on the measured temperature due to heat loss through stem conduction.

Some digital thermometers can become less accurate when used outside a narrow range of ambient temperatures. This isn't the case for the "Stik" Thermometer. Your measurement remains accurate in ambient temperatures from -10 °C to 50 °C (14 °F to 122 °F). With a superior probe design combined with electronic functions that assist accurate measurement, the "Stik" Thermometer surpasses the capabilities of other digital thermometers and is the perfect substitute for your mercury thermometers.

[1]In order to minimize sensor drift, the probe should always be protected from mechanical shock.

Easy-to-use, one-handed menu navigation

1 The digital display and probe are fixed together as a system. The hinge allows the display to rotate 90° to easily view the measurement from any angle.

2 Easily power up with the press of a button and after a short self-test, start making measurements within seconds. The power key is slightly recessed inside the plastic molded case to protect against accidental power off.

3 Max/Min/Trend/Up key allows you to see the maximum or minimum temperature since the most recent power up. The trend function tells you the positive or negative rate of temperature change in degrees per minute.

4 The Setup/Down key lets you step through submenus and adjust field values down.

5 The Enter/Backlight key allows you to accept changes while in the setup menus or turn on the backlight.

6 User-selectable resolution (0.1, 0.01, 0.001)

7 Temperature displayed in °C or °F.

8 The stability/trend indicator tells you if your temperature source is trending upward or downward (pictured trending up). A flat bar indicates that the temperature source and thermometer are stable within the user-selected stability window (0.01, 0.1, 1.0, 10.0).
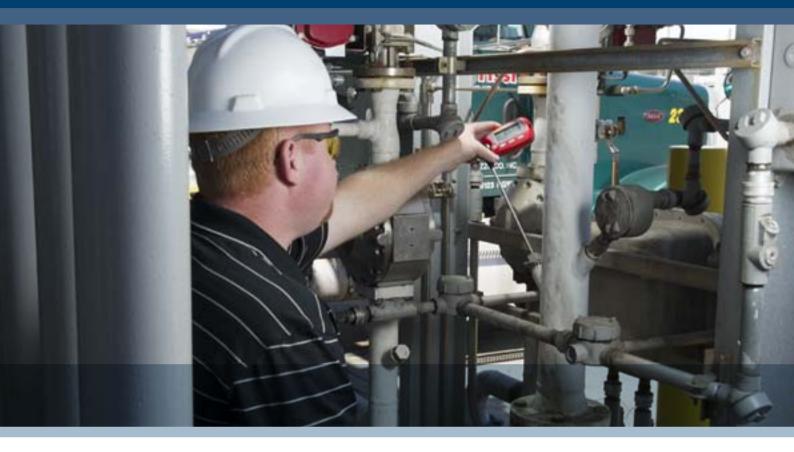
1551A Ex/1552A Ex Specifications

Specifications	1551A Ex	1552A Ex
Temperature range	–50 °C to 160 °C (-58 °F to 320 °F)	–80 °C to 300 °C (–112 °F to 572 °F)
Accuracy (1 year)	± 0.05 °C (± 0.09 °F)	
Display units	°C, °F	
Sensor type	100 Ω thin-film RTD	100 Ω wire-wound PRT
Probe temperature coefficient	0.00385 Ω/Ω/°C nominal	
Sensor length	≤ 10 mm	≤ 30 mm
Sensor position (from sheath tip)	3 mm (0.1 in)	
Minimum immersion depth[1]	7 cm (2.8 in)	12 cm (4.8 in)
Probe sheath material	SST	
Response time	4.8 mm diameter probe (3/16 in): 14 seconds 6.35 mm diameter probe (1/4 in): 21 seconds	
Probe hysteresis	± 0.01 °C	
Temperature resolution	Selectable: 0.1, 0.01, 0.001 (default 0.01)	
Sample rate	Selectable: 0.5 seconds, 1 seconds, 2 seconds (default 1 seconds)	
Operating temperature range readout	–10 °C to 50 °C (14 °F to 122 °F)	
Storage temperature	–20 °C to 60 °C (-4 °F to 140 °F) 0 % to 95 % RH, non-condensing	
Optional data logging[2]	Up to 10,000 time-stamped readings stored to internal memory	
Logging intervals[2]	2 seconds, 5 seconds, 10 seconds, 30 seconds, or 60 seconds; 2 minutes, 5 minutes, 10 minutes, 30 minutes, or 60 minutes	
Damping	Moving average of the most recent 2 to 10 readings (ON/OFF, 2, 5, 10)	
Communications	RS-232 stereo jack (access calibration parameters only)	
AC power	None	
DC power	Three AAA batteries, typical battery life of 300 hours without LCD backlight	
EMC compliance	EN61326:2006 Annex C; CISPR II Edition 5.0-2009; Class "B"	
Enclosure rating	IP50	
Electronics dimensions (H x W x D)	114 mm x 57 mm x 25 mm (4.5 in x 2.25 in x 1.0 in)	
Weight	196 g (6.9 oz)	
Calibration (included)	NVLAP-accredited, NIST-traceable	
Characterization	CVD	ITS-90

[1]Per ASTM E 644
[2]See ordering information for optional data logging configurations

Ordering information

1551A Ex

1551A-9	Thermometer, Fixed RTD, -50 °C to 160 °C, 4.8 mm x 229 mm (3/16 in x 9 in)
1551A-12	Thermometer, Fixed RTD, -50 °C to 160 °C, 6.35 mm x 305 mm (1/4 in x 12 in)
1551A-20	Thermometer, Fixed RTD, -50 °C to 160 °C, 6.35 mm x 508 mm (1/4 in x 20 in)

1551A Ex Datalogging options

1551A-9-DL	Thermometer, Fixed RTD, -50 °C to 160 °C, 4.8 mm x 229 mm (3/16 in x 9 in) with Datalog
1551A-12-DL	Thermometer, Fixed RTD, -50 °C to 160 °C, 6.35 mm x 305 mm (1/4 in x 12 in) with Datalog
1551A-20-DL	Thermometer, Fixed RTD, -50 °C to 160 °C, 6.35 mm x 508 mm (1/4 in x 20 in) with Datalog

1552A Ex

1552A-12	Thermometer, Fixed PRT, -80 °C to 300 °C, 6.35 mm x 305 mm (1/4 in x 12 in)
1552A-12-DL	Thermometer, Fixed PRT, -80 °C to 300 °C, 6.35 mm x 305 mm (1/4 in x 12 in) with Datalog

Accessories

1551-CASE	Case, 1551-2, Carrying
1551-CBL	Cable, RS-232 155X

Standard accessories include: NVLAP-accredited report of calibration, User's Guide on CD-ROM, three AAA batteries

Note: Model number appended with a -9, -12, -20 indicates probe sheath length in inches. All probe diameters are 6.35 mm (1/4 in) with the exception of the 1551A-9, which is 4.8 mm diameter (3/16 in).