

Temperature
By
SM 2550B, 20th edition

January 2012 Workshops



Most common method deficiency in all plants inspected to date is that temperature is being measured on the pH meter inside of a lab area (not the compliance point).

Temperature must:

-Be measured with either a glass or resistance thermometer for AZPDES Permits (any other devices must be approved by the USEPA Region 9) [meters ok for APP];

-Be measured at the compliance point immediately.

-Have working thermometers calibrated periodically with a NIST certified thermometer (correction factor if necessary).

-Be done in duplicate at 10% frequency or every 10 samples.



WIKIPEDIA
The Free Encyclopedia

- Main page
- Contents
- Featured content
- Current events
- Random article
- Donate to Wikipedia

- Interaction
 - Help
 - About Wikipedia
 - Community portal
 - Recent changes
 - Contact Wikipedia

- Toolbox
- Print/export

- Languages
 - Беларуская
 - Беларуская (тарашкевіца)
 - Български
 - Català
 - Deutsch
 - Español
 - Français

Article Discussion

Read Edit View history

Search

Resistance thermometer

From Wikipedia, the free encyclopedia

 This article **needs additional citations for verification**. Please help [improve this article](#) by adding [reliable references](#). Unsourced material may be [challenged and removed](#). *(February 2009)*

Resistance thermometers, also called **resistance temperature detectors** or **resistive thermal devices (RTDs)**, are [temperature sensors](#) that exploit the predictable change in [electrical resistance](#) of some materials with changing temperature. As they are almost invariably made of [platinum](#), they are often called **platinum resistance thermometers (PRTs)**. They are slowly replacing the use of [thermocouples](#) in many industrial applications below 600 °C, due to higher accuracy and repeatability.^[1]

Contents [hide]

- 1 General description
- 2 Function
- 3 Advantages and limitations
 - 3.1 RTDs vs Thermocouples
- 4 Elements
- 5 Construction
- 6 Wiring configurations
 - 6.1 Two-wire configuration
 - 6.2 Three-wire configuration
 - 6.3 Four-wire configuration
- 7 History
- 8 Standard resistance thermometer data
- 9 Values for various popular resistance thermometers
- 10 The function for temperature value acquisition (C++)
- 11 See also
- 12 References





Most common method deficiency in all plants inspected to date is that temperature is being measured on the pH meter inside of a lab area (not the compliance point).

Temperature must:

-Be measured with either a glass or resistance thermometer for AZPDES Permits (any other devices must be approved by the USEPA Region 9) [meters ok for APP];

-Be measured at the compliance point immediately.

-Have working thermometers calibrated periodically with a NIST certified thermometer (correction factor if necessary).

-Be done in duplicate at 10% frequency or every 10 samples.

Most common method deficiency in all plants inspected to date is that temperature is being measured on the pH meter inside of a lab area (not the compliance point).

Temperature must:

-Be measured with either a glass or resistance thermometer for AZPDES Permits (any other devices must be approved by the USEPA Region 9) [meters ok for APP];

-Be measured at the compliance point immediately.

-Have working thermometers calibrated periodically with a NIST certified thermometer (correction factor if necessary).

-Be done in duplicate at 10% frequency or every 10 samples.

VWR

ORDER

[Hide Additional Info](#)

ADD TO BASKET

VIEW SHOPPING BASKET

Description	Length	Accuracy	Calibration Points	Divisions	Range	Immersion	Cat. No.	Unit	Price	Quantity
Mercury Filled	460 mm (18 ¹ / ₈ "	±0.3°	0, 10, 20, 30, 37, 40, 50°C	0.1°C	-1 to 51°C	Total	61054-503	Each	\$757.81	<input type="text" value="0"/>
Spirit Filled	460 mm (18 ¹ / ₈ "	±0.3°	0, 10, 20, 30, 37, 40, 50°C	0.1°C	-1 to 51°C	Total	89082-162	Each	\$623.41	<input type="text" value="0"/>
Spirit Filled	460 mm (18 ¹ / ₈ "	±1°	0, 10, 20, 30, 37, 40, 50°C	0.1°C	-1 to 51°C	76 mm (3")	89082-160	Each	\$623.41	<input type="text" value="0"/>
Spirit Filled	610 mm (24")	±1°	0, 10, 20, 37, 40, 50, 56, 60, 70, 80, 90, 100°C	0.1°C	-1 to 101°C	76 mm (3")	89082-164	Each	\$767.75	<input type="text" value="0"/>
Mercury Filled	610 mm (24")	±0.4° to 100°C; ±0.5° above 100°C	0, 25, 37, 44.6, 100, 121, 140, 150, 180, 200°C	0.2°C	-1 to 201°C	Total	61222-332	Each	\$710.28	<input type="text" value="0"/>
Spirit Filled	610 mm (24")	±1°	0, 25, 37, 44.6, 100, 121, 140, 150, 180, 200°C	0.2°C	-1 to 201°C	76 mm (3")	89082-168	Each	\$652.57	<input type="text" value="0"/>
Mercury Filled	460 mm (18 ¹ / ₈ "	±0.3°	0, 10, 20, 30, 37, 40, 50, 56, 60, 70, 80, 90, 100°C	0.1°C	-1 to 101°C	Total	61054-569	Each	\$802.57	<input type="text" value="0"/>
Mercury Filled	610 mm (24")	±1°	0, 10, 20, 30, 40, 50, 56, 60, 70, 80, 90, 100°C	0.1°C	-1 to 101°C	76 mm (3")	61222-662	Each	\$718.04	<input type="text" value="0"/>
Mercury Filled	305 mm (12")	±0.1°	0, 25, 30, 37°C	0.5°C	24 to 38°C	95 mm (3 ¹¹ / ₁₆ "	61054-627	Each	\$676.23	<input type="text" value="0"/>
Easy-Read Fill	305 mm (12")	±1°	0, 37, 56°C	1°C	-20 to 110°C	Total	89082-158	Each	\$225.52	<input type="text" value="0"/>
										
Easy-Read Fill	300 mm (11 ¹³ / ₁₆ "	±1°	0, 37, 56°C	1°C	-20 to 110°C	76 mm (3")	89082-156	Each	\$225.52	<input type="text" value="0"/>

ADD TO BASKET

VIEW SHOPPING BASKET

ORDER

[Hide Additional Info](#)

ADD TO BASKET

VIEW SHOPPING BASKET

Description	Length	Accuracy	Calibration Points	Divisions	Range	Immersion	Cat. No.	Unit	Price	Quantity
Mercury Filled	460 mm (18 ¹ / ₈ "	±0.3°	0, 10, 20, 30, 37, 40, 50°C	0.1°C	-1 to 51°C	Total	61054-503	Each	\$757.81	<input type="text" value="0"/>
Spirit Filled	460 mm (18 ¹ / ₈ "	±0.3°	0, 10, 20, 30, 37, 40, 50°C	0.1°C	-1 to 51°C	Total	89082-162	Each	\$623.41	<input type="text" value="0"/>
Spirit Filled	460 mm (18 ¹ / ₈ "	±1°	0, 10, 20, 30, 37, 40, 50°C	0.1°C	-1 to 51°C	76 mm (3")	89082-160	Each	\$623.41	<input type="text" value="0"/>
Spirit Filled	610 mm (24")	±1°	0, 10, 20, 37, 40, 50, 56, 60, 70, 80, 90, 100°C	0.1°C	-1 to 101° C	76 mm (3")	89082-164	Each	\$767.75	<input type="text" value="0"/>
Mercury Filled	610 mm (24")	±0.4° to 100°C; ±0.5° above 100°C	0, 25, 37, 44.6, 100, 121, 140, 150, 180, 200°C	0.2°C	-1 to 201° C	Total	61222-332	Each	\$710.28	<input type="text" value="0"/>
Spirit Filled	610 mm (24")	±1°	0, 25, 37, 44.6, 100, 121, 140, 150, 180, 200°C	0.2°C	-1 to 201° C	76 mm (3")	89082-168	Each	\$652.57	<input type="text" value="0"/>
Mercury Filled	460 mm (18 ¹ / ₈ "	±0.3°	0, 10, 20, 30, 37, 40, 50, 56, 60, 70, 80, 90, 100°C	0.1°C	-1 to 101° C	Total	61054-569	Each	\$802.57	<input type="text" value="0"/>
Mercury Filled	610 mm (24")	±1°	0, 10, 20, 30, 40, 50, 56, 60, 70, 80, 90, 100°C	0.1°C	-1 to 101° C	76 mm (3")	61222-662	Each	\$718.04	<input type="text" value="0"/>
Mercury Filled	305 mm (12")	±0.1°	0, 25, 30, 37°C	0.5°C	24 to 38°C	95 mm (3 ¹¹ / ₁₆ "	61054-627	Each	\$676.23	<input type="text" value="0"/>
Easy-Read Fill	305 mm (12")	±1°	0, 37, 56°C	1°C	-20 to 110°C	Total	89082-158	Each	\$225.52	<input type="text" value="0"/>
										
Easy-Read Fill	300 mm (11 ¹³ / ₁₆ "	±1°	0, 37, 56°C	1°C	-20 to 110°C	76 mm (3")	89082-156	Each	\$225.52	<input type="text" value="0"/>

ADD TO BASKET

VIEW SHOPPING BASKET

Temperature Calibration Records Required:

- physical paper or electronic record
- thermometer serial #
- temperature correction factor, if needed (used)
- units measuring – typically ° C
- date, month, year
- initials of person calibrating
- comments



Serial numbers are on the back of the thermometers.

SB Glass nitrogen filled Serial-No. 3359 PG **EMCO** Made



Most common method deficiency in all plants inspected to date is that temperature is being measured on the pH meter inside of a lab area (not the compliance point).

Temperature must:

- Be measured with either a glass or resistance thermometer for AZPDES Permits (any other devices must be approved by the USEPA Region 9) [meters ok for APP];
- Be measured at the compliance point immediately.
- Have working thermometers calibrated periodically with a NIST certified thermometer (correction factor if necessary).
- Be done in duplicate at 10% frequency or every 10 samples.**

Field Video Demonstration

