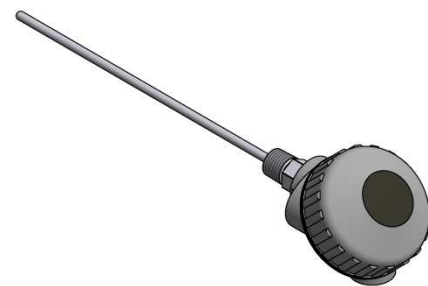
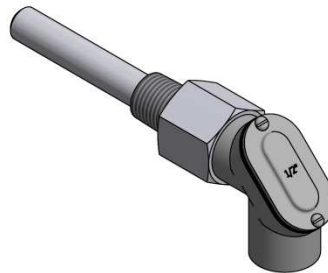


## QAx... Series

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### QAC... QAE... QAM... 544... Temperature Sensors



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### Description

QAx... and 544... temperature sensors are resistance temperature detectors (RTDs). RTDs work on the principal that the resistance of the sensing element changes as a direct function of the temperature.

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### Features

- Accurate and reliable indication of temperature
- Easy installation requiring no special tools
- Suitable for media -58 °F to 900 °F depending on model

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### Application

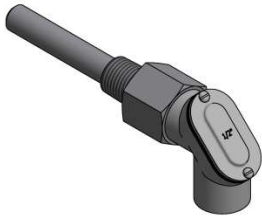
QAx... and 544... sensors are used to measure water, steam, air, exhaust, or FGR temperature. A variety of sensors are available in order to meet the needs of different applications. QAx... and 544... temperature sensors are capable of reliably measuring temperatures as low as -58 °F or as high as 900 °F.

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## Specifications

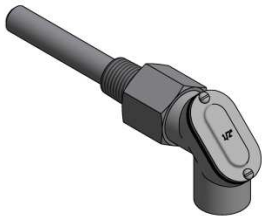
### QAE2012.001



Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-4 to 374 °F [-20 to 190 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	2.5" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF50 / RWF55

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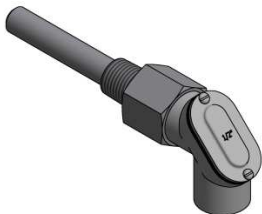
### QAE2020.001



Sensing element	Platinum, 100 Ohm, 3-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-4 to 374 °F [-20 to 190 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	2.5" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water temperature sensor for LMV5x / RWF10 / RWF40 / RWF50 / RWF55

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### QAE2020.005



Sensing element	Nickel, 1000 Ohm, 2-wire
Characteristic	LG (see Appendix A, page 11)
Operating temperature	-13 to 266 °F [-25 to 130 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	2.5" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF55

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**Specifications (continued)****QAE2020.010**

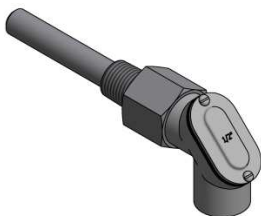
Sensing element	Nickel, 1000 Ohm, 2-wire
Characteristic	LG (see Appendix A, page 11)
Operating temperature	-13 to 266 °F [-25 to 130 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	4" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF55

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**QAE2020.015**

Sensing element	Nickel, 1000 Ohm, 2-wire
Characteristic	LG (see Appendix A, page 11)
Operating temperature	-13 to 266 °F [-25 to 130 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	6" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF55

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**544-577-25**

Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-40 to 240 °F [-40 to 116 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	2.5" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF55

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## Specifications (continued)

### 544-577-40



Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-40 to 240 °F [-40 to 116 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	4" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF55

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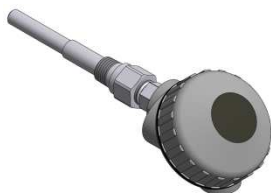
### 544-577-60



Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-40 to 240 °F [-40 to 116 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	6" insertion, stainless steel
Weather head	Aluminum, 1/2" NPT
Primary use	Water / ambient air temperature sensor for LMV5x / RWF40 / RWF55

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### QAE2012.903



Sensing element	Platinum, 100 Ohm, 3-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-50 to 900 °F [-46 to 482 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	4" insertion, stainless steel
Weather head	Aluminum, 3/4" NPT
Primary use	Water / steam temperature sensor for LMV5x / RWF10 / RWF40 / RWF50 / RWF55
Accessories	<b>QAE-AC-903P:</b> 0-900° to 4-20 mA transmitter

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**Specifications (continued)****QAE2012.9002**

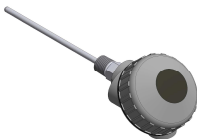
Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-50 to 900 °F [-46 to 482 °C]
Accuracy	See Appendix A, page 12
Process connection	1/2" NPT on thermowell
Thermowell	4" insertion, stainless steel
Weather head	Aluminum, 3/4" NPT
Primary use	Water / steam temperature sensor for LMV5x / RWF10 / RWF40 / RWF50 / RWF55

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**QAC22**

Sensing element	Nickel, 1000 Ohm, 2-wire
Characteristic	LG (see Appendix A, page 11)
Operating temperature	-58 to 158 °F [-50 to 70 °C]
Accuracy	See Appendix A, page 12
Process connection	None
Thermowell	None
Weather head	Integral, hole for M16 connection
Primary use	Ambient air temperature sensor for LMV52 / RWF40 / RWF55

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**QAM-P206**

Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-50 to 900 °F [-46 to 482 °C]
Accuracy	See Appendix A, page 12
Probe	1/4" diameter, 6" long, stainless steel
Process connection	1/2" NPT
Thermowell	None
Weather head	Aluminum, 3/4" NPT
Primary use	Stack or FGR temperature sensor for LMV52

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## Specifications (continued)

### QAM-P210



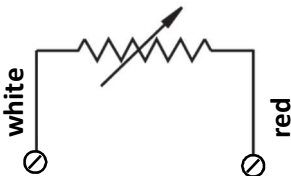
Sensing element	Platinum, 1000 Ohm, 2-wire
Characteristic	385 (see Appendix A, page 10)
Operating temperature	-50 to 900 °F [-46 to 482 °C]
Accuracy	See Appendix A, page 12
Probe	1/4" diameter, 10" long, stainless steel
Process connection	1/2" NPT
Thermowell	None
Weather head	Aluminum, 3/4" NPT
Primary use	Stack temperature sensor for LMV52

## Wiring

QAE2012.001, QAE2020.005,  
QAE2020.010, QAE2020.015,  
544-577-25, 544-577-40,  
544-577-60



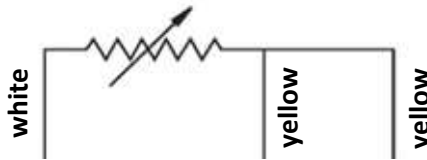
QAE2012.9002, QAM-P206,  
QAM-P210



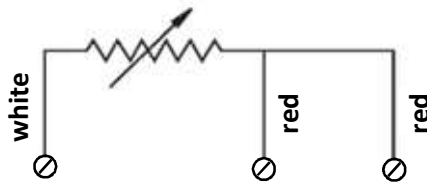
QAC22



QAE2020.001



QAE2012.903



G1+	M1	I1	RWF40... water / steam
3	4	5	RWF10... water / steam
11	12	14	RWF55... water / steam
11	12	13	RWF50... water / steam
X60.1	X60.2	X60.4	LMV5x... water / steam

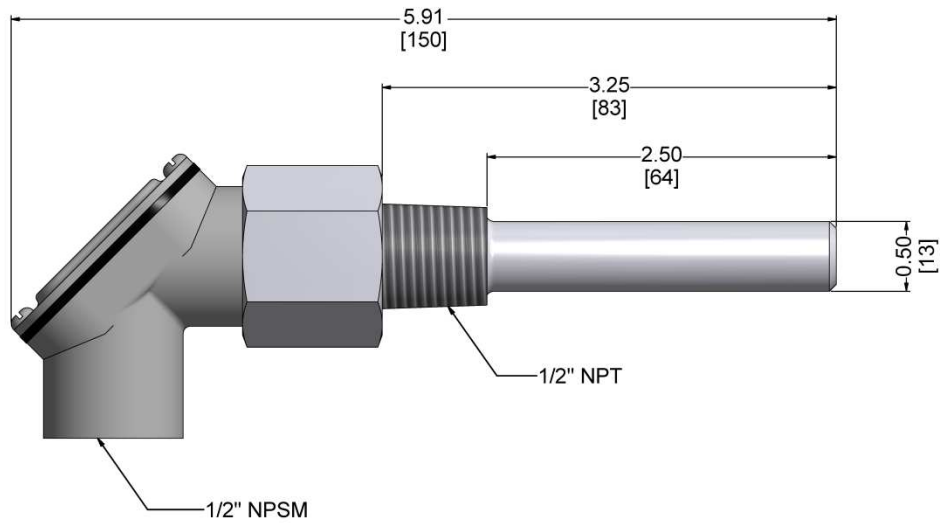
G1+	M1	RWF40... water / steam
B9	M9	RWF40... ambient air
11	14	RWF55... water / steam
31	32	RWF55... ambient air
11	13	RWF50... water / steam
X60.3	X60.4	LMV5x... water / steam
X86.1	X86.2	LMV52... exhaust
X87.1	X87.2	LMV52... ambient air

Note: There is no polarity when wiring a 2-wire RTD.

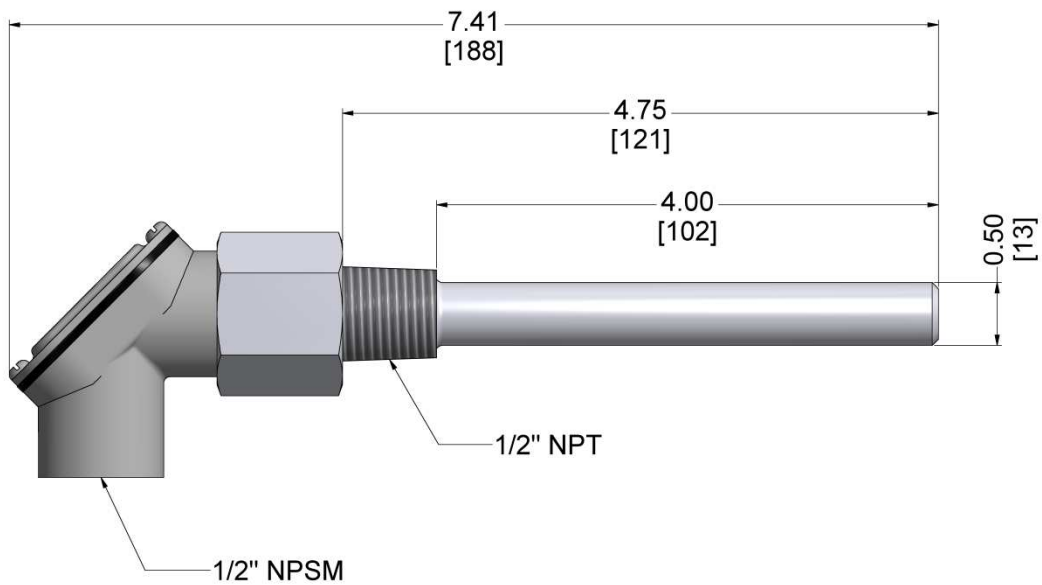
## Dimensions

Dimensions in inches; millimeters in brackets

QAE2012.001, QAE2020.001, QAE2020.005, 544-577-25



QAE2020.010, 544-577-40

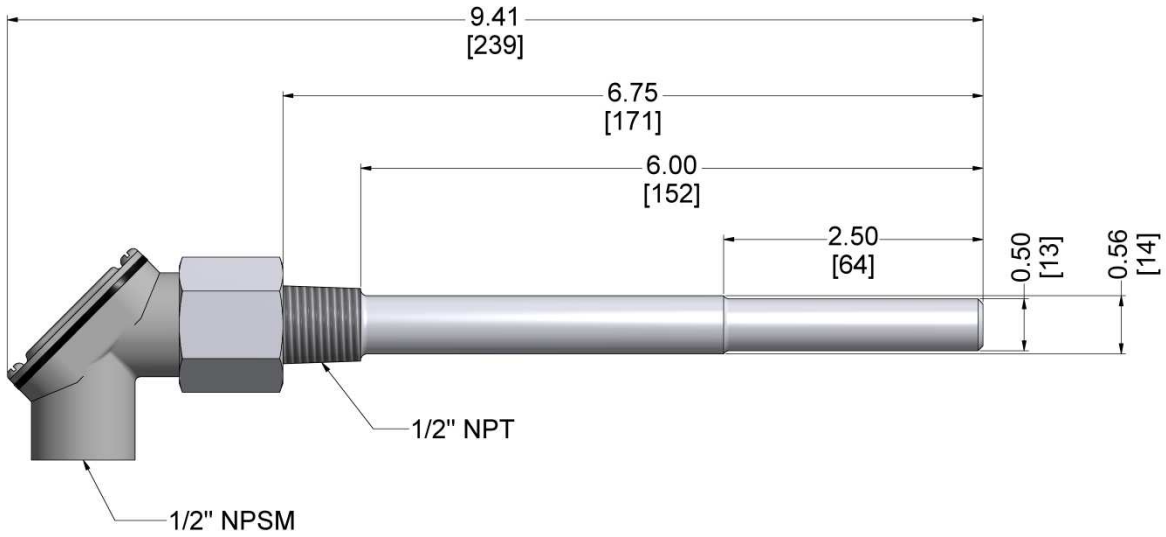




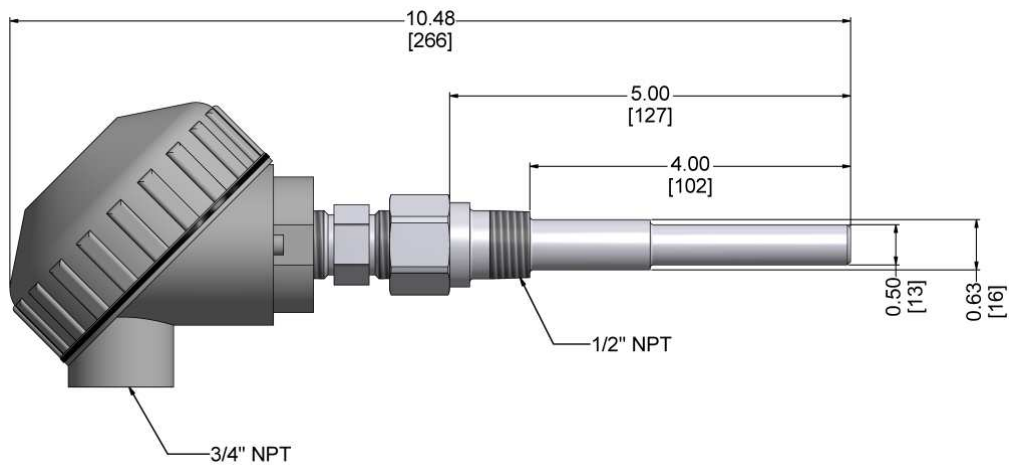
## Dimensions (continued)

Dimensions in inches; millimeters in brackets

QAE2020.015, 544-577-60



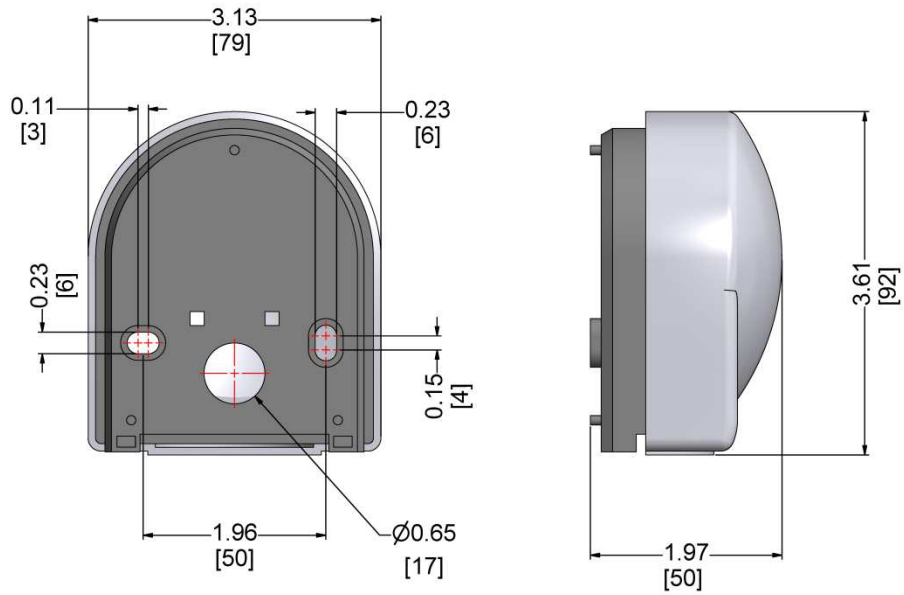
QAE2012.903, QAE2012.9002



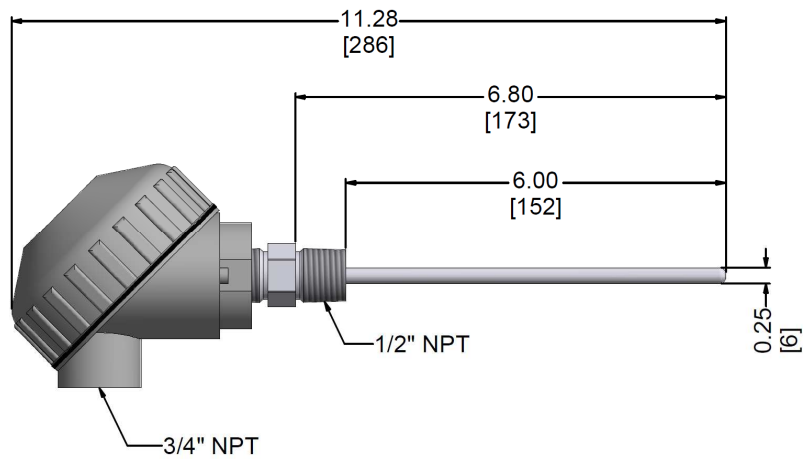
## Dimensions (continued)

Dimensions in inches; millimeters in brackets

### QAC22



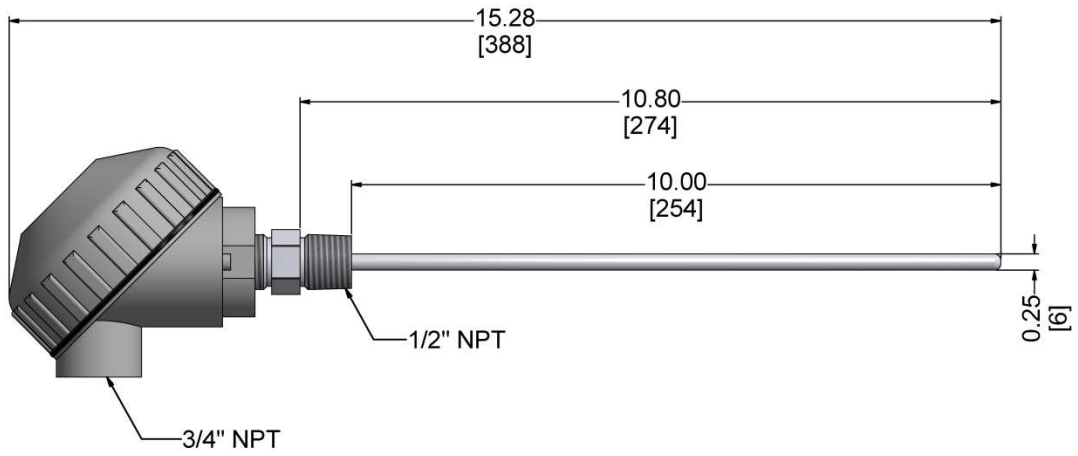
### QAM-P206



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## Dimensions (continued)

QAM-P210

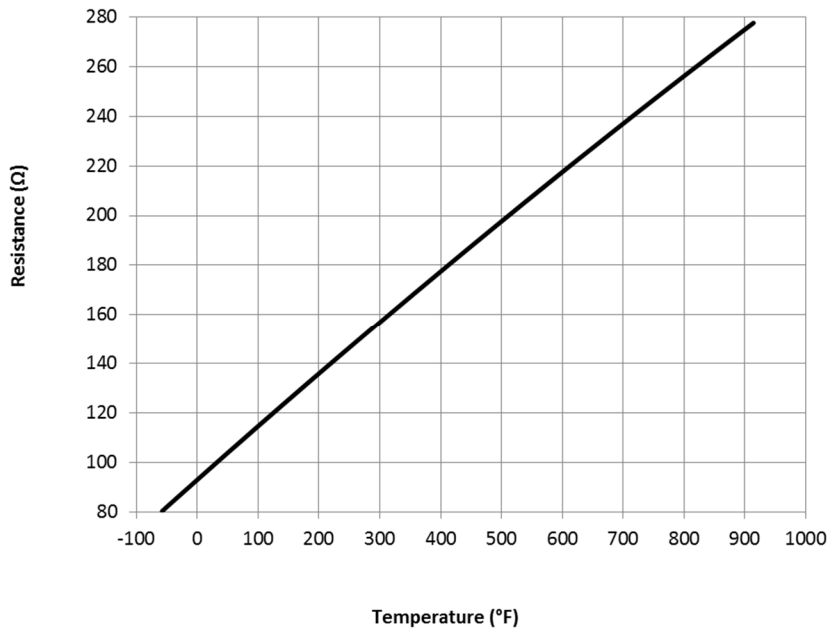


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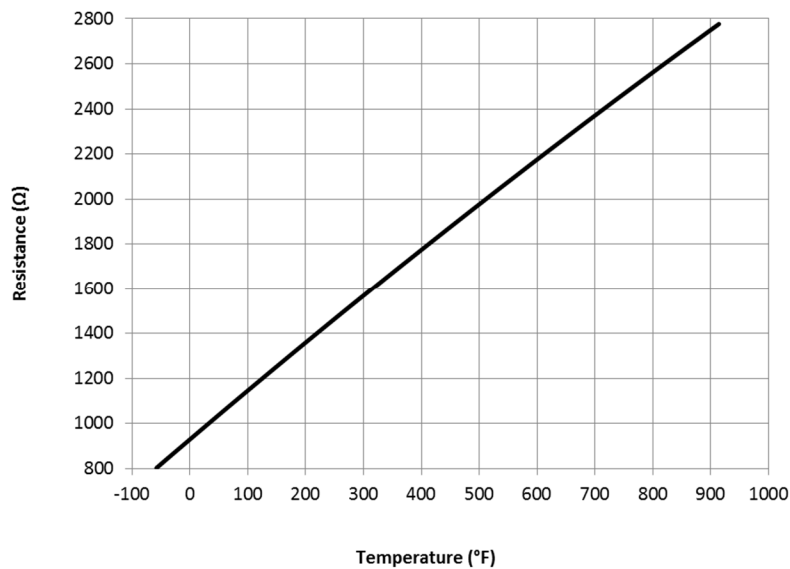
## Appendix A

### Resistance vs. Temperature Charts

**Pt100, 385 characteristic (QAE2012.903, QAE2020.001)**



**Pt1000, 385 characteristic (QAE2012.001, 544-577-25, 544-577-40, 544-577-60, QAE2012.9002, QAM-P206, QAM-P210)**

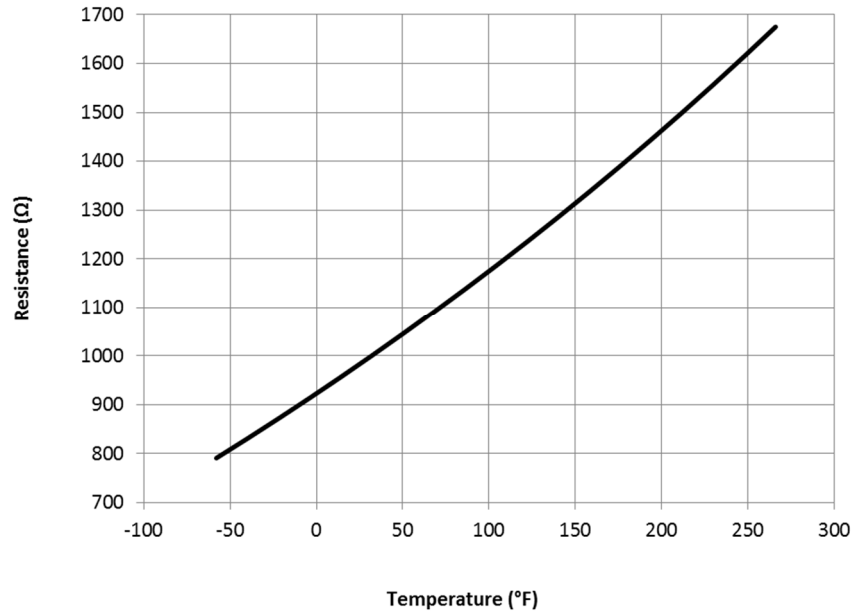


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## Appendix A (continued)

### Resistance vs. Temperature Charts

Ni1000, LG characteristic (QAE2020.005, QAE2020.010, QAE2020.015, QAC22)



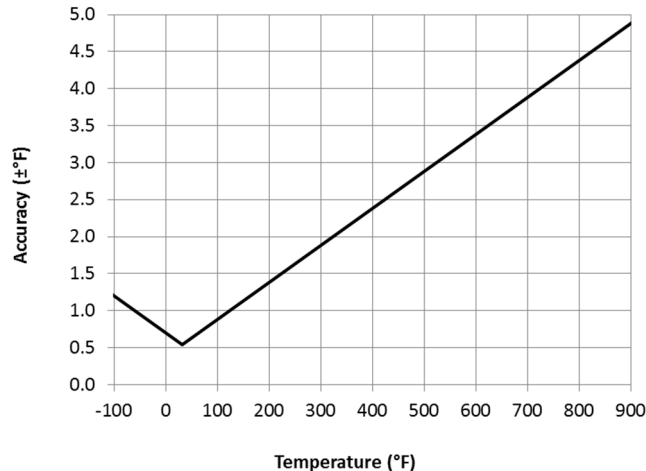
## Appendix A (continued)

### Accuracy

**Pt100 and Pt1000 Sensors (QAE2012.001, QAE2020.001, 544-577-25, 544-577-40, 544-577-60, QAE2012.903, QAE2012.9002, QAM-P206, QAM-P210)**

$$\text{Accuracy} = \pm [0.54 + (0.005 \times |T - 32|)]$$

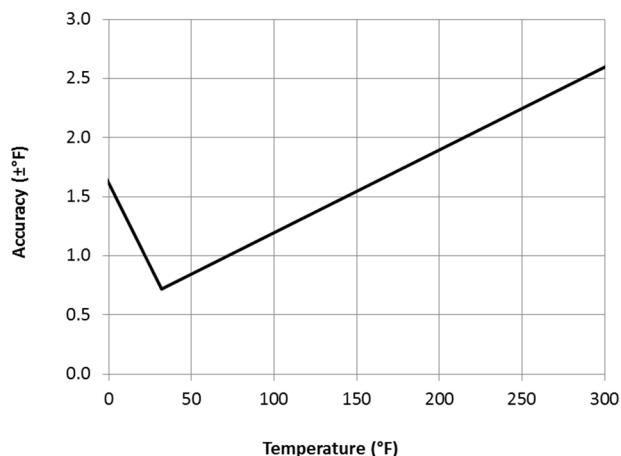
T = Temperature in degrees Fahrenheit



**Ni1000 Sensors (QAE2020.005, QAE2020.010, QAE2020.015, QAC22)**

$$\text{For } T < 32: \text{ Accuracy} = \pm [0.72 + (0.028 \times |T - 32|)]$$
$$\text{For } T > 32: \text{ Accuracy} = \pm [0.72 + (0.007 \times |T - 32|)]$$

T = Temperature in degrees Fahrenheit



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