

## TEMPERATURE SENSOR

### ORDERING INFORMATION:

**\*Note:** For Installation Styles B-F, a NEMA-1/IP-30 enclosure is standard. If a NEMA-4/IP-65 enclosure is required the NEMA-4/IP-65 must be specified when placing an order.

**\*Note:** For (#7) Custom temperature range, the custom range must be specified in either Fahrenheit or Celcius when placing an order.

Model	Installation	Probe Length	Probe Material	Well Fitting	Supply Voltage	Signal Output	Range
<b>TE-211Z</b> (4-20 mA)	<b>A</b> Space	—	—	—	<b>1</b> 24 VDC	<b>E</b> 4-20 mA 2 wire	<b>1</b> 50 to 85°F <b>2</b> 40 to 140°F <b>4</b> 0 to 100°F <b>7</b> Custom
	<b>B</b> Duct	<b>A</b> 4 inches/ 100mm <b>B</b> 6 inches/ 150mm <b>C</b> 8 inches/ 200mm <b>D</b> 12 inches/ 300mm	<b>2</b> Stainless Steel	—	<b>1</b> 24 VDC	<b>E</b> 4-20 mA 2 wire	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>C</b> Immersion	<b>A</b> 4 inches/ 100mm <b>B</b> 6 inches/ 150mm <b>C</b> 8 inches/ 200mm	<b>2</b> Stainless Steel	<b>A</b> Brass 1/4" NPT <b>B</b> Brass 1/2" NPT	<b>1</b> 24 VDC	<b>E</b> 4-20 mA 2 wire	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>D</b> Duct Averaging	<b>F</b> 6 feet/ 1.8 m <b>G</b> 12 feet/ 3.6 m <b>H</b> 24 feet/ 7.2 m	<b>1</b> Aluminum	—	<b>1</b> 24 VDC	<b>E</b> 4-20 mA 2 wire	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>E</b> Remote Probe Strap On	<b>E</b> 2 inches/ 50mm	<b>2</b> Stainless Steel	—	<b>1</b> 24 VDC	<b>E</b> 4-20 mA 2 wire	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>F</b> Outside Air (Weatherproof)	—	—	—	<b>1</b> 24 VDC	<b>E</b> 4-20 mA 2 wire	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom

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**\*Note:** For (#7) Custom temperature range, the custom range must be specified in either Fahrenheit or Celcius when placing an order.

Model	Installation	Probe Length	Probe Material	Well Fitting	Supply Voltage	Signal Output	Range
<b>TE-213</b> (VDC)	<b>A</b> Space	—	—	—	<b>1</b> 24 VDC <b>2</b> 24 VAC	<b>B</b> 0 - 5 VDC <b>C</b> 0 - 10 VDC	<b>1</b> 50 to 85°F <b>2</b> 40 to 140°F <b>4</b> 0 to 100°F <b>7</b> Custom
	<b>B</b> Duct	<b>A</b> 4 inches/ 100mm <b>B</b> 6 inches/ 150mm <b>C</b> 8 inches/ 200mm <b>D</b> 12 inches/ 300mm	<b>2</b> Stainless Steel	—	<b>1</b> 24 VDC <b>2</b> 24 VAC	<b>B</b> 0 - 5 VDC <b>C</b> 0 - 10 VDC	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>C</b> Immersion	<b>A</b> 4 inches/ 100mm <b>B</b> 6 inches/ 150mm <b>C</b> 8 inches/ 200mm	<b>2</b> Stainless Steel	<b>A</b> Brass 1/4" NPT <b>B</b> Brass 1/2" NPT	<b>1</b> 24 VDC <b>2</b> 24 VAC	<b>B</b> 0 - 5 VDC <b>C</b> 0 - 10 VDC	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>D</b> Duct Averaging	<b>F</b> 6 feet/ 1.8 m <b>G</b> 12 feet/ 3.6 m <b>H</b> 24 feet/ 7.2 m	<b>1</b> Aluminum	—	<b>1</b> 24 VDC <b>2</b> 24 VAC	<b>B</b> 0 - 5 VDC <b>C</b> 0 - 10 VDC	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>E</b> Remote Probe Strap On	<b>E</b> 2 inches/ 50mm	<b>2</b> Stainless Steel	—	<b>1</b> 24 VDC <b>2</b> 24 VAC	<b>B</b> 0 - 5 VDC <b>C</b> 0 - 10 VDC	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom
	<b>F</b> Outside Air (Weatherproof)	—	—	—	<b>1</b> 24 VDC <b>2</b> 24 VAC	<b>B</b> 0 - 5 VDC <b>C</b> 0 - 10 VDC	<b>2</b> 40 to 140°F <b>3</b> -30 to 130°F <b>4</b> 0 to 100°F <b>5</b> 100 to 250°F <b>6</b> 0 to 250°F <b>7</b> Custom

## SPECIFICATIONS:

Accuracy\*:  $\pm 0.50^\circ\text{F}$  FS

Linearity:  $\pm 0.05^\circ\text{F}$

Repeatability:  $\pm 0.01^\circ\text{F}$

Transmitter Error: Better than  $\pm 0.01\%$  span

Supply Voltage: 12-40 VDC  
12-35 VAC (VDC output units only)

Ambient Temperature:  $-30^\circ\text{F}$  to  $150^\circ\text{F}$   
( $-35^\circ\text{C}$  to  $60^\circ\text{C}$ )

Accuracy of Duct Averaging Transducer is  $\pm 3^\circ\text{F}$

Environmental: 10 - 95% RH Non-condensing

Maximum Temperature Span:  $250^\circ\text{F}$  ( $138^\circ\text{C}$ )

Minimum Temperature Span:  $35^\circ\text{F}$  ( $19^\circ\text{C}$ )

## CONFORMANCE & TESTING:

RoHS Compliant

EMC Testing:

BS EN 55022:1998, BS EN 55024:1998,

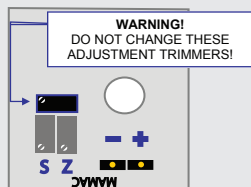
EN 61000-3-3, EN 61000-4-2,

EN 61000-4-3, EN 61000-4-4,

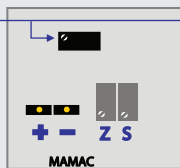
EN 61000-4-5, EN 61000-4-6,

EN 61000-4-11

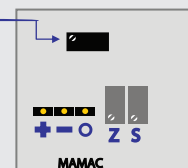
## ZERO AND SPAN TRIMMER POSITIONS



TE-211 Board, Wall Mount  
Figure 1



TE-211 Board, All Other Versions  
Figure 2



TE-213 Board, All Versions  
Figure 3



**Please Note:** "Z" designates the zero trimmer potentiometer, "S" designates the span trimmer potentiometer. These devices are calibrated in our factory using NIST certified temperature calibration equipment. **There should be no requirement for field calibration.**

**Please Note:** Shown with terminal blocks removed!

## TYPICAL APPLICATIONS (wiring diagrams)

Figure 1 and Figure 2 illustrate typical wiring diagrams for the mA output temperature transducer.

Figure 1 - Wiring for mA Temperature Transducers with an External DC Power Supply

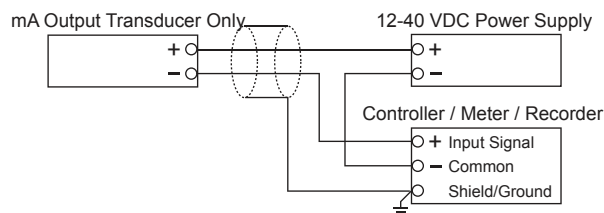


Figure 2 - Wiring for mA Output Transducers where the Controller or Meter has an Internal DC Power Supply

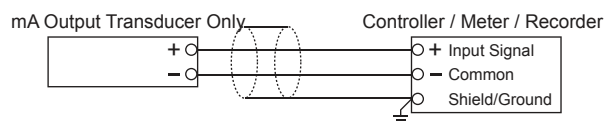


Figure 3 and Figure 4 illustrate typical wiring diagrams for the VDC output temperature transducer.

Figure 3 - Wiring for VDC Temperature Transducers When Applied with External AC Supply

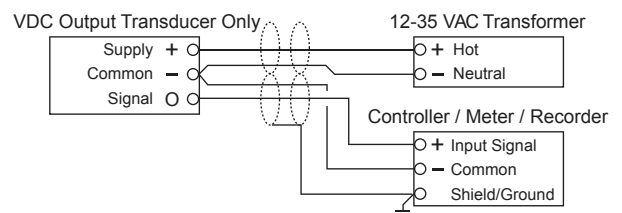
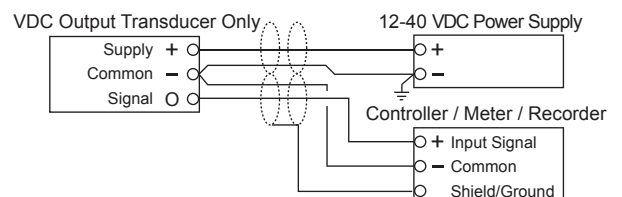


Figure 4 - Wiring for VDC Temperature Transducers When Applied with External DC Supply



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