



8189 Century Boulevard • Minneapolis, MN 55317-8002 • USA
 800-843-5116 • 952-556-4900 • Fax 952-556-4997
 sales@mamacsys.com • www.mamacsys.com



Model TE-211Z/213
Technical Information
TI.211Z/213-05

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

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
TE-213 (VDC)	A Space	—	—	—	1 24 VDC 2 24 VAC	B 0 - 5 VDC C 0 - 10 VDC	1 50 to 85°F 2 40 to 140°F 4 0 to 100°F 7 Custom
	B Duct	A 4 inches/ 100mm B 6 inches/ 150mm C 8 inches/ 200mm D 12 inches/ 300mm	2 Stainless Steel	—	1 24 VDC 2 24 VAC	B 0 - 5 VDC C 0 - 10 VDC	2 40 to 140°F 3 -30 to 130°F 4 0 to 100°F 5 100 to 250°F 6 0 to 250°F 7 Custom
	C Immersion	A 4 inches/ 100mm B 6 inches/ 150mm C 8 inches/ 200mm	2 Stainless Steel	A Brass 1/4" NPT B Brass 1/2" NPT	1 24 VDC 2 24 VAC	B 0 - 5 VDC C 0 - 10 VDC	2 40 to 140°F 3 -30 to 130°F 4 0 to 100°F 5 100 to 250°F 6 0 to 250°F 7 Custom
	D Duct Averaging	F 6 feet/ 1.8 m G 12 feet/ 3.6 m H 24 feet/ 7.2 m	1 Aluminum	—	1 24 VDC 2 24 VAC	B 0 - 5 VDC C 0 - 10 VDC	2 40 to 140°F 3 -30 to 130°F 4 0 to 100°F 5 100 to 250°F 6 0 to 250°F 7 Custom
	E Remote Probe Strap On	E 2 inches/ 50mm	2 Stainless Steel	—	1 24 VDC 2 24 VAC	B 0 - 5 VDC C 0 - 10 VDC	2 40 to 140°F 3 -30 to 130°F 4 0 to 100°F 5 100 to 250°F 6 0 to 250°F 7 Custom
	F Outside Air (Weatherproof)	—	—	—	1 24 VDC 2 24 VAC	B 0 - 5 VDC C 0 - 10 VDC	2 40 to 140°F 3 -30 to 130°F 4 0 to 100°F 5 100 to 250°F 6 0 to 250°F 7 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°F to 150°F
(-35°C to 60°C)

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

Environmental: 10 - 95% RH Non-condensing

Maximum Temperature Span: 250°F (138°C)

Minimum Temperature Span: 35°F (19°C)

CONFORMANCE & TESTING:

RoHS Compliant

EMC Testing:

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

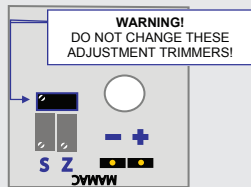
EN 61000-3-3, EN 61000-4-2,

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

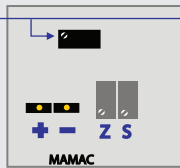
EN 61000-4-5, EN 61000-4-6,

EN 61000-4-11

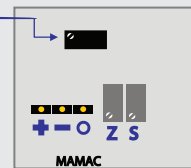
ZERO AND SPAN TRIMMER POSITIONS



TE-211 Board, Wall Mount
Figure 1



TE-211 Board, All Other Versions
Figure 2



TE-211 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

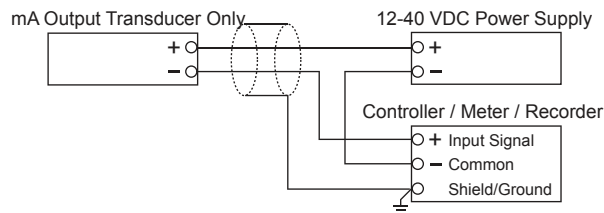


Figure 2 - Wiring for mA Output Transducers where the Controller or Meter has an Internal DC Power Supply

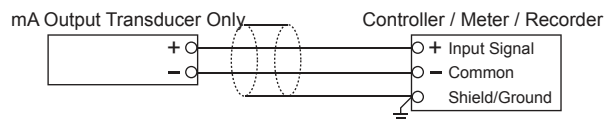


Figure 3 and Figure 4 illustrate typical wiring diagrams for the VDC output temperature transducer.

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

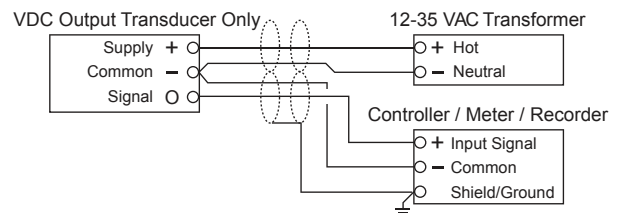
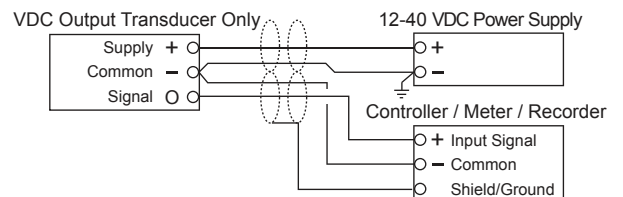


Figure 4 - Wiring for VDC Temperature Transducers When Applied with External DC Supply



MAMAC SYSTEMS®

8189 Century Boulevard • Minneapolis, MN 55317-8002 • USA

800-843-5116 • 952-556-4900 • Fax 952-556-4997

sales@mamacsys.com • www.mamacsys.com

4200 Waterside Centre
Solihull Parkway
Birmingham • West Midlands
B37 7YN • United Kingdom
01384-271113 • Fax 01384-271114

1 Fullerton Road #02-01
One Fullerton
Singapore • 049213
65-31581826 • Fax 65-31581826

4 Armiger Court, Unit 2
Adelaide • S.A.
5088 • Australia
08-8395-4333 • Fax 08-8395-4433

675 Cochrane Drive
East Tower • 6th Floor
Toronto • Ontario
L3R 0B8 • Canada
905-474-9215 • Fax 905-474-0876