Electronic Temperature Switches

TX Series

TM Series

Ameritrol, Inc.
Instruments and Controls

Features

- No Moving Parts
- 316L Stainless Steel Sensor
- Temperatures to 900F
- Pressures to 10,000 PSIG
- Field Programmable for Increase or Decrease in Temperature
- Explosion Proof Enclosures
- Wide Temperature Range
- Threaded, Flanged, Sanitary Probes
- Exotic Alloys for Corrosion Resistance
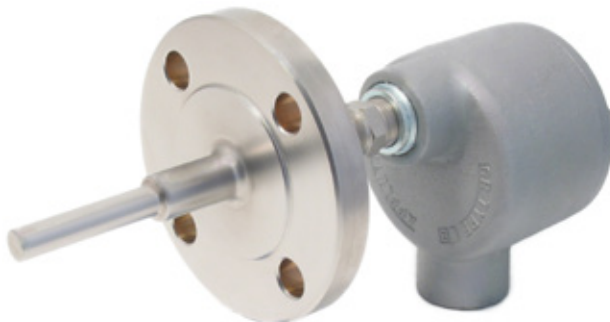- Reliable and Cost Effective

TX Thermowell Type Sensor

Optional Remote Electronics

TX Sanitary Thermowell

TX Sanitary Direct Immersion

Optional TX Flanged Thermowell

TM Extended Direct Immersion

Operation

The TX and TM series of temperature switches offer a completely electronic instrument to detect the increase or decrease of temperature. These switches are used in industrial applications including pipelines and tanks. The RTD sensor provides an extremely reliable and repeatable device at a very cost effective price.

A relay output is standard with options for dual separately adjustable set-points. Remote mounted electronics are available for process temperatures to 900F.
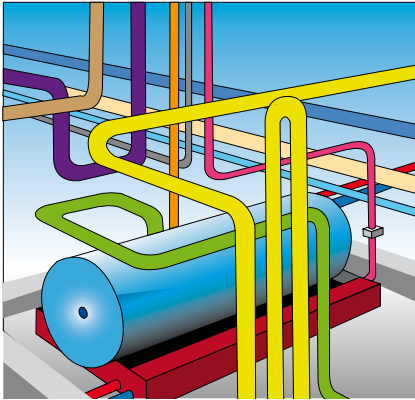
Applications

• High/Low Temperature Alarm in Pipelines

• High/Low Temperature Alarm in Tanks

• Heater Burn-Out Protection

• Control Heat Tracing on Pipes

• Temperature Alarm in HVAC Systems

• Dual Switch Point for 2 Independent Set-Points

• Optional Sanitary compatibility available

TM Series Specifications

Sensor Head

Material of Construction:	316L Stainless Steel Standard
Operating Temperature:	-50 to +350F (-46 to +177C) Standard
Operating Pressure:	Vacuum to 4000 PSIG (275 Bar) Option to 10,000 PSIG (689 Bar)
Response Time:	From 3 Seconds
Repeatability:	+/- 1 Degree Fahrenheit
Process Connection:	½" MNPT, ¾" MNPT, 1" MNPT
Probe Length:	See Part Number Specification

Electronics

Housing:	Powder Coated General Purpose
Temperature:	-50 to +150F (-46 to +65C)
Power Input:	120 VAC, 50/60 Hz, 4 Watts; Options: 24 VDC/VAC, 240VAC
Relay Output:	SPDT 2 Amps Resistive Standard
Electrical Connection:	1" FNPT
Shipping Weight:	4 lbs

TX Series Specifications

Sensor Head

Material of Construction:	316L Stainless Steel Standard Optional Exotic Alloys
Operating Temperature:	-50 to +350F (-46 to +177C) Standard Option -100 to +900F (-73 to +482C) Option -200 to +500F (-129 to +260C)
Operating Pressure:	Vacuum to 4000 PSIG (275 Bar) Option to 10,000 PSIG (689 Bar)
Response Time:	From 3 Seconds
Repeatability:	+/- 1 Degree Fahrenheit
Process Connection:	½" MNPT, ¾" MNPT, 1" MNPT Option Flanged, other MNPT Threads See Part Number Specification
Probe Length:	See Part Number Specification

Electronics

Housing:	Powder Coated Explosion Proof, Nema 4X, UL/CSA Rated to Class 1, Div. 1 & 2, Group B,C,D; Class II, Div. 1 & 2, Group E,F,G; Class III. Option FM and Cenelec/ATEX
Temperature:	-50 to +150F (-46 to +65C)
Power Input:	120 VAC, 50/60 Hz, 4 Watts; Options: 12 VDC, 24 VDC/VAC, 240VAC
Relay Output:	SPDT 3 Amps Resistive Standard See page 4 for options
Electrical Connection:	1" FNPT
Shipping Weight:	5 lbs

PART NUMBER ORDER/ ENTRY SPECIFICATION
Sanitary Process Connection

OPTIONS - NO ENTRY REQUIRED FOR BOXES WITH X

TX- [ ][ ][ ][ ] - [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

DIRECT IMMERSION PROCESS CONNECTION

½", ¾" Tri- clamp Cap	0	7	7	5
1", 1 ½" Tri- clamp Cap	1	0	0	5
2" Tri- clamp Cap	2	0	0	5
3" Tri- clamp Cap	3	0	0	5
4" Tri- clamp Cap	4	0	0	5

THERMOWELL TYPE (SPRING LOADED) PROCESS CONNECTION

1", 1 ½" Tri- clamp Cap

1.63" Insertion Length	1	0	0	A
2.5" Insertion Length	1	0	0	B
4.5" Insertion Length	1	0	0	C
7.5" Insertion Length	1	0	0	D
10.5" Insertion Length	1	0	0	E

2" Tri- clamp Cap

1.63" Insertion Length	2	0	0	A
2.5" Insertion Length	2	0	0	B
4.5" Insertion Length	2	0	0	C
7.5" Insertion Length	2	0	0	D
10.5" Insertion Length	2	0	0	E

3" Tri- clamp Cap

1.63" Insertion Length	3	0	0	A
2.5" Insertion Length	3	0	0	B
4.5" Insertion Length	3	0	0	C
7.5" Insertion Length	3	0	0	D
10.5" Insertion Length	3	0	0	E

4" Tri- clamp Cap

1.63" Insertion Length	4	0	0	A
2.5" Insertion Length	4	0	0	B
4.5" Insertion Length	4	0	0	C
7.5" Insertion Length	4	0	0	D
10.5" Insertion Length	4	0	0	E

INSERTION LENGTH (Direct Immersion Only)

• 1.8" STANDARD			X
• 1.0" OPTIONAL	1	.	0
• SPECIAL - SPECIFY LENGTH IN INCHES			

POWER INPUT

• 117 VAC (90-132VAC)	X
• 12 VDC (+30%, -10%)	B
• 24 VDC or VAC (+/- 10%)	D
• 200-240 VAC	E

PROCESS TEMPERATURE

• -50F TO +350F	X
• -200F TO +500F	F
• -100F TO + 900F	G

LOCAL ELECTRONICS	X
REMOTE ELECTRONICS	R
• CABLE TYPE PVC (200F)	H
• CABLE TEFLON (500F)	I
• CABLE LENGTH FT.	

RELAY OUTPUTS

• SPDT 3 AMP RESISTIVE	X
• SPDT 10 AMP RESISTIVE	J
• DPDT 3 AMP RESISTIVE ☉	K
• DPDT 10 AMP RESISTIVE ☉	L

DUAL SWITCH POINTS ☉

• SPDT 3 AMP RESISTIVE	M
• SPDT 10 AMP RESISTIVE	N

ADDITIONAL TEMPERATURE TRANSMITTER ☉

• MEASURED TEMPERATURE RANGE	T	T	[ ]	- [ ]
• FAHRENHEIT (F) OR CELSIUS (C)				

SENSOR HEAD MATERIAL	
• 316L STAINLESS STEEL	X
HOUSINGS	
• UL/CSA APPROVED XP/NEMA 4X	X
• FM APPROVED XP/NEMA 4X	P
• CENELEC/ATEX APPROVED	Q
STAINLESS STEEL TAG	T

Note:☉ Only one of these options can be selected.

Example: TX-1005-D
TX Series direct immersion temperature switch with 1", 1 ½" tri-clamp style sanitary cap process connection, 1.8" insertion length, 24 VDC or VAC power input, -50 to +350F process temperature, single switch point with SPDT 3 amp contact rating, 316L stainless steel sensor, UL/CSA APPROVED XP (Explosion Proof)/NEMA 4X housing.

Example: TX-200B-FRH10M
TX Series temperature switch thermowell type with 2" tri-clamp style sanitray cap process connection, 2.5" insertion length, 117 VAC power input, -200 to +500F process temperature, remote electronics, separately adjustable dual switch points with SPDT 3 amp contact rating, 316L stainless steel sensor, UL/CSA APPROVED XP (Explosion Proof)/NEMA 4X housing.

PART NUMBER ORDER/ ENTRY SPECIFICATION
Thermowell Process Connection

OPTIONS - NO ENTRY REQUIRED FOR BOXES WITH X

TX - ☐☐☐☐☐☐ - ☐☐☐☐☐☐☐☐☐☐☐

PROCESS CONNECTION THREADED

1" Insertion Length (U)

½" MNPT 316 Stainless	0	5	0	0	S	A

1 ¼" Insertion Length (U)

¾" MNPT 316 Stainless	0	7	5	0	S	A
1" MNPT	1	0	0	0	S	A

2.5" Insertion Length (U)

½" MNPT 316 Stainless	0	5	0	0	S	B
¾" MNPT 316 Stainless	0	7	5	0	S	B
1" MNPT 316 Stainless	1	0	0	0	S	B

4.5" Insertion Length (U)

½" MNPT 316 Stainless	0	5	0	0	S	C
¾" MNPT 316 Stainless	0	7	5	0	S	C
1" MNPT 316 Stainless	1	0	0	0	S	C

7.5" Insertion Length (U)

½" MNPT 316 Stainless	0	5	0	0	S	D
¾" MNPT 316 Stainless	0	7	5	0	S	D
1" MNPT 316 Stainless	1	0	0	0	S	D

10.5" Insertion Length (U)

½" MNPT 316 Stainless	0	5	0	0	S	E
¾" MNPT 316 Stainless	0	7	5	0	S	E
1" MNPT 316 Stainless	0	7	5	0	S	E

PROCESS CONNECTION FLANGED

1" Flange	1	0
1 ½" Flange	1	5
2" Flange	2	0
3" Flange	3	0

150# Rating	1
300# Rating	2
600# Rating	3
900# Rating	4

Raised Face	1
Flat Face	2

316 Stainless Steel	S
Carbon Steel	C
Monel	M

INSERTION LENGTH

A	1 ¼" U Length
B	2 ½" U Length
C	4 ½" U Length
D	7 ½" U Length
E	10 ½" U Length
F	13 ½" U Length
G	16 ½" U Length

POWER INPUT	
• 117 VAC (90-132VAC)	X
• 12 VDC (+30%, -10%)	B
• 24 VDC or VAC (+/- 10%)	D
• 200-240 VAC	E
PROCESS TEMPERATURE	
• -50F TO +350F	X
• -200F TO +500F	F
• -100F TO + 900F	G
LOCAL ELECTRONICS	X
REMOTE ELECTRONICS	R
• CABLE TYPE PVC (200F)	H
• CABLE TEFLON (500F)	I
• CABLE LENGTH FT. ☐	
RELAY OUTPUTS	
• SPDT 3 AMP RESISTIVE	X
• SPDT 10 AMP RESISTIVE	J
• DPDT 3 AMP RESISTIVE ①	K
• DPDT 10 AMP RESISTIVE ①	L
DUAL SWITCH POINTS ①	
• SPDT 3 AMP RESISTIVE	M
• SPDT 10 AMP RESISTIVE	N

ADDITIONAL TEMPERATURE TRANSMITTER ①	
• MEASURED TEMPERATURE RANGE	
T T ☐ - ☐	
• FAHRENHEIT (F) OR CELSIUS (C)	
HOUSINGS	
• UL/CSA APPROVED EXPLOSION PROOF	X
• FM APPROVED EXPLOSION PROOF	P
• CENELEC/ATEX APPROVED	Q
STAINLESS STEEL TAG	T

Note: ①Only one of these options can be selected.

Example 1: TX-0750SA-D
TX Series temperature switch with ¾" MNPT thermowell process connection, 316L stainless steel sensor, 1¼" insertion length, 24 VDC or VAC power input, -50 to +350F process temperature, single switch point with SPDT 3 amp contact rating.

Example 2: TX-2011SD-GRI10TT0-800F
TX Series temperature switch with 2" 150# rating raised face 316 stainless steel flanged thermowell process connection, 7 ½" insertion length, 120 VAC power input, -100 to +900F process temperature, remote electronics, 10' Teflon cable, single switch point with SPDT 3 amp contact rating, additional temperature transmitter with 0-800F range.

PART NUMBER/ ORDER ENTRY SPECIFICATION

TX Series Direct Immersion Explosion Proof Temperature Switch
Standard Fast Response Sensor

OPTIONS - NO ENTRY REQUIRED FOR BOXES WITH X

TX - ☐☐☐☐ - ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

PROCESS CONNECTION THREADED

½" MNPT	0	5	0	0
¾" MNPT	**0**	**7**	**5**	**0**
1" MNPT	**1**	**0**	**0**	**0**
1-¼" MNPT	1	2	5	0
1-½" MNPT	1	5	0	0
2" MNPT	2	0	0	0

PROCESS CONNECTION FLANGED

1" FLANGE	1	0
1-¼" FLANGE	1	2
1-½" FLANGE	1	5
2" FLANGE	2	0
3" FLANGE	3	0
4" FLANGE	4	0
6" FLANGE	6	0

150# RATING	1
300# RATING	2
600# RATING	3
900# RATING	4
1500# RATING	5

RAISED FACE 316L SS	1
RAISED FACE CS	2
FLAT FACE 316L SS	3
FLAT FACE CS	4
SPECIAL	5

INSERTION LENGTH

• 1.8" STANDARD			X
• 1.2" OPTIONAL	1	.	2
• SPECIAL - SPECIFY LENGTH IN INCHES			

POWER INPUT

• 117 VAC (90-132VAC)	X
• 12 VDC (+30%, -10%)	B
• 24 VDC or VAC (+/- 10%)	D
• 200-240 VAC	E

PROCESS TEMPERATURE

• -50F TO +350F	X
• -200F TO +500F	F
• -100F TO + 900F	G

LOCAL ELECTRONICS | X

REMOTE ELECTRONICS | R

• CABLE TYPE PVC (200F)		H
• CABLE TEFLON (500F)		I
• CABLE LENGTH FT.		

RELAY OUTPUTS

• SPDT 3 AMP RESISTIVE	X
• SPDT 10 AMP RESISTIVE	J
• DPDT 3 AMP RESISTIVE ◔	K
• DPDT 10 AMP RESISTIVE ◔	L

DUAL SWITCH POINTS ◔

• SPDT 3 AMP RESISTIVE	M
• SPDT 10 AMP RESISTIVE	N

ADDITIONAL TEMPERATURE TRANSMITTER ◔

• MEASURED TEMPERATURE RANGE

T	T	☐☐	-	☐

• FAHRENHEIT (F) OR CELSIUS (C)

SENSOR HEAD MATERIAL

• 316L STAINLESS STEEL		X
• HASTELLOY C-276	A	D
• MONEL / ALLOY 400	A	M
• TITANIUM	A	T
• CARPENTER 20 / ALLOY 20	A	P
• OTHER ALLOYS CONSULT MANUFACTURER		

HOUSINGS

• UL/CSA APPROVED EXPLOSION PROOF	X
• FM APPROVED EXPLOSION PROOF	P
• CENELEC/ATEX APPROVED	Q
STAINLESS STEEL TAG	T

Note: ◔ Only one of these options can be selected.

Example: TX-1000-D
TX Series temperature switch with 1" MNPT process connection, 1.8" insertion length, 24 VDC or VAC power input, -50 to +350F process temperature, single switch point with SPDT 3 amp contact rating, 316L stainless steel sensor.

TM Series Direct Immersion Temperature Switch
General Purpose Enclosure (NEMA 1)
Standard Fast Response Sensor

TM - ☐☐☐☐☐ - ☐☐

PROCESS CONNECTION

½" MNPT	0	5	0	0
¾" MNPT	0	7	5	0
1" MNPT	1	0	0	0

POWER INPUT

12 VDC (+30%, -10%)	B
117 VAC (90-135 VAC)	C
24 VDC or VAC (± 10%)	D

INSERTION LENGTH

0	1	1.2" PROBE
0	2	1.8" PROBE
		SPECIAL PROBE LENGTH, SPECIFY LENGTH IN INCHES

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