

# Pipe Temperature Sensors

CE

Model TE-703 / 704

RoHS



- Four immersion thermowell installation options—brass adapter with 304 SS probe for adjustable insertion, plastic, galvanized steel or NEMA-4/IP-65 steel enclosure. Four strap on surface mount installation options—rugged 304 SS hermetically sealed probe, plastic, galvanized steel or NEMA-4/IP-65 contact surface temperature sensors offer the industry's most extensive range to satisfy all HVAC, appliance and industrial applications.
  - 304 SS thin wall probe with a cold rolled hermetically sealed end forms a monolithic encapsulated cavity for the sensor and is immune to failures caused by high humidity, contamination, thermal shock and vibration.
  - Fast response brass contact sensor for strap on applications is insulated from the enclosure to provide accurate pipe surface temperature measurement.
- More than 16 types of interchangeable NTC thermistors, precision platinum, nickel or balco RTDs are available for universal compatibility.

TE 703/704 temperature sensors offer the industry's most extensive range of enclosure, installation and sensor types to satisfy all HVAC, industrial and commercial applications. These revolutionary sensors incorporate more than twenty five years of product development and experience drawn from millions of installations world wide in all types of applications. This product and process design combined with automated manufacturing processes yields a rugged, reliable, repeatable and stable temperature sensor at a low cost. The only line of temperature sensors offering lifetime warranty against moisture migration related failures. For large volume OEM customers, TE-703/704 temperature sensors are available in many custom configurations. Wire type, length or gage, terminals, connectors, probe lengths, enclosure options or sensor types may be customized based on volume.

 **MAMAC SYSTEMS®**

# TE-703

## TE-703-A Immersion Temperature Sensor Thermowell Mount

Incorporate a hermetically sealed 304 SS probe and a brass adapter with a compression sleeve providing a rugged assembly for immersion temperature sensing if field adjustable insertion depth is desired. The brass adapter is screwed in to the thermowell, compression sleeve is loosened, probe inserted to desired length and the sleeve is tightened. Sensor has 6ft/1.8m plenum rated cable for remote termination. TE-703-A sensors provide a cost effective and reliable solution for hot/chilled water, condenser water or low pressure steam applications which require adjustable insertion length.



## TE-703-B Immersion Temperature Sensor Polycarb Enclosure

Corrosion free 30% glass filled polycarbonate enclosure designed to withstand temperature extremes, mechanical shock and vibration. 304 SS probe crimp attached to the enclosure for a low profile mating surface. Patented locking thermowell adapter, single screw cover attachment, are some of the features which improve reliability and lower installation costs. TE-703-B sensors provide a cost effective and reliable solution for hot/chilled water, condenser water or low pressure steam applications.



## TE-703-C Immersion Temperature Sensor Galvanized Steel Enclosure

Industry standard NEMA-1 / IP-30 galvanized sheet metal enclosure designed for all industrial and commercial immersion temperature sensing applications. Hermetically sealed, fast response 304 SS probe crimp attached to the enclosure for a low profile mating surface. Keyed enclosure cover to swing open without removing the screws, 1/2" conduit opening, are some of the features which improve reliability and lower installation cost.



## TE-703-D Immersion Temperature Sensor Painted Steel Enclosure

Rugged steel enclosure with welded seams, gasketed cover and powder coated finish, rated NEMA-4 / IP-65 for harsh environments. TE-703-D has all other features including a 304 SS probe, conduit opening similar to the TE-703-C series except designed for applications in unconditioned environments where the unit may be subjected to dirt, condensation, oil vapor and other contaminants.



# TE-704

## TE-704-A Surface Temperature Sensor Strap On Probe

Incorporates a 2" 304 SS probe with a 6 ft/1.8m plenum rated cable for pipe surface temperature sensing. Nylon ties are provided to secure the probe to the pipe. TE-704-A provides a cost effective and reliable solution for surface contact temperature measurement of conditioned water pipes, low pressure steam or refrigerant lines.



## TE-704-B Surface Temperature Sensor Polycarb Enclosure

Corrosion free 30% glass filled polycarbonate enclosure designed to withstand temperature extremes, mechanical shock and vibration. Fast response brass contact sensor attached to the enclosure for a low profile mating surface, mounting bracket for pipe clamp installation, single screw cover attachment, are some of the features which improve reliability and lower installation costs.



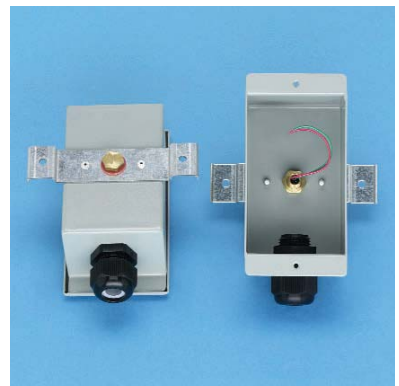
## TE-704-C Surface Temperature Sensor Galvanized Steel Enclosure

Industry standard NEMA-1 / IP-30 galvanized sheet metal enclosure designed for all industrial and commercial surface temperature sensing applications. Fast response brass contact sensor attached to the enclosure for a low profile mating surface. Keyed enclosure cover to swing open without removing the screws, 1/2" conduit opening, are some of the features which improve reliability and lower installation cost.



## TE-704-D Surface Temperature Sensor Painted Steel Enclosure

Rugged steel enclosure with welded seams, gasketed cover and powder coated finish, rated NEMA-4 / IP-65 for harsh environments. TE-704-D has all other features including a fast response brass contact sensor, conduit opening similar to the TE-704-C series except designed for applications in unconditioned environments where the unit may be subjected to dirt, condensation, oil vapor and other contaminants.



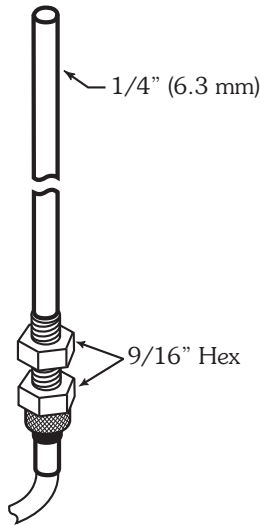
# TE-703/704

## SPECIFICATIONS:

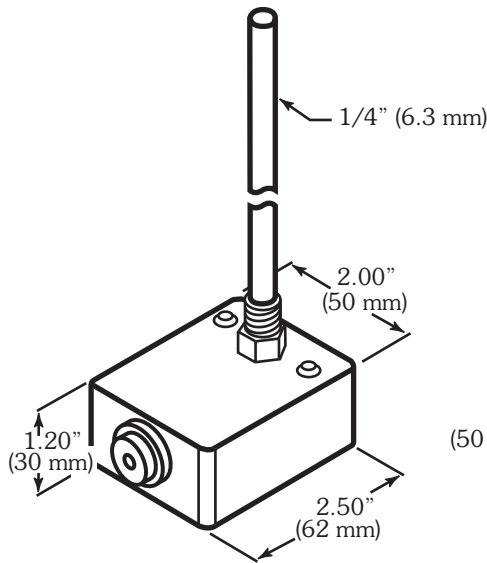
Platinum RTD sensors:	+/- 0.1% @ 0 C, Alpha : 385 per DIN 43760
Nickel RTD sensors: (#2)	+/- 0.5 C @ 0 C, 5000 PPM/K T.C.R.
Nickel RTD sensors: (#4)	+/- 0.5 F @ 70 F / 21.1 C, 6000 PPM/K T.C.R.
Balco RTD sensors:	+/- 0.5 F @ 70 F /21.1 C, 4300 PPM/K T.C.R.
Thermistor sensors:	+/- 0.2 C interchangeability @ 77 F/ 25 C
Probe Material:	1/4" / 6.3mm O.D, 0.020" / 0.5mm wall 304 Stainless Steel
Flange Material:	Galvanized Steel
Bulkhead Fitting:	Brass with poly compression sleeve
Plastic Enclosure:	Polycarbonate 30% glass filled, rated UL 94V-5-0
Steel NEMA-1 / IP-30:	18 Ga. Galvanized Steel
Steel NEMA-4 / IP-65:	18 Ga. Cold Rolled Steel, Baked on Enamel
Operating Temp:	-40F/-40C to 210F/100C
Ambient Temp:	-40F/-40C to 160F/70C
Warranty:	Five Years (Lifetime on Moisture Migration).

U.S. PATENT NO. 6457857, 6555748, 6599012, 7036224

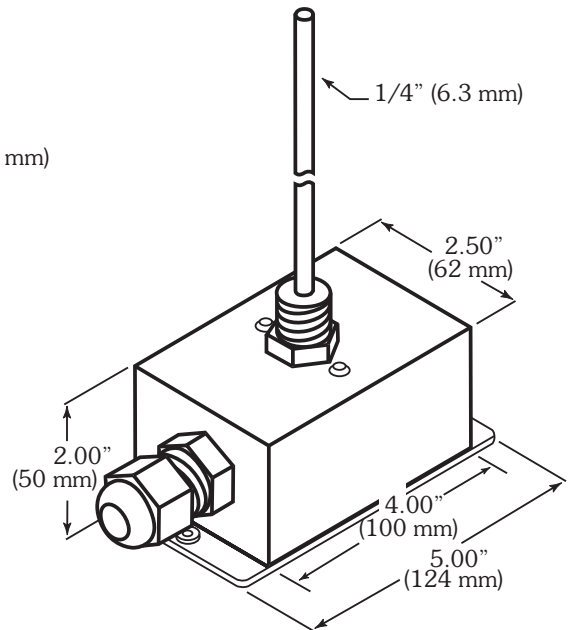
**TE-703-A**



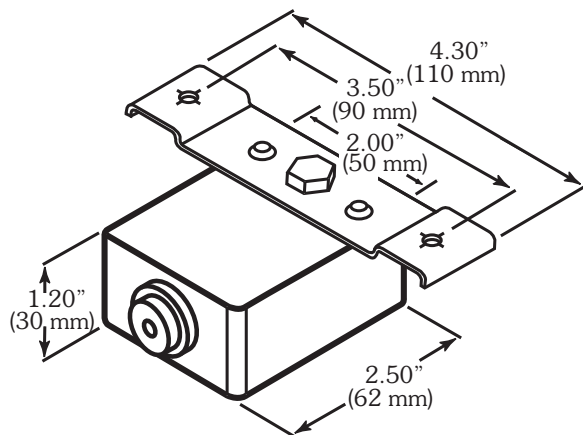
**TE-703-B**



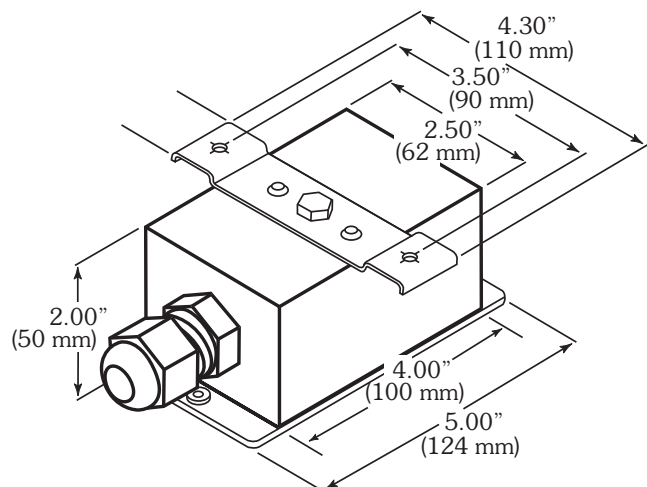
**TE-703-C/D**



**TE-704-B**



**TE-704-C/D**





# TE-703/704

## ORDERING INFORMATION: TE-703

Installation		Sensor*		Probe Length		Adapter	
<b>A</b>	Immersion style	<b>1</b>	100 ohm Platinum RTD	<b>A</b>	4 inches/100mm	<b>1</b>	1/8" NPT
	With adapter	<b>2</b>	1,000 ohm Nickel RTD (5000 PPM)	<b>B</b>	6 inches/150mm	<b>2</b>	1/4" NPT
<b>B</b>	Polycarb Plastic	<b>3</b>	1,000 ohm Platinum RTD	<b>C</b>	8 inches/200mm	<b>3</b>	1/2" NPT
	Enclosure IP-54	<b>4</b>	1,000 ohm Nickel RTD (6000 PPM)				
<b>C</b>	Galvanized Steel	<b>5</b>	1,000 ohm Balco RTD				
	Enclosure NEMA-1 / IP-30	<b>7</b>	10,000 ohm NTC therm. (Type III)				
<b>D</b>	Painted Steel	<b>8</b>	10,000 ohm NTC therm. (Carel)				
	Enclosure NEMA-4 / IP-65	<b>10</b>	3,000 ohm NTC therm.				
		<b>12</b>	10,000 ohm NTC therm. (Type II)				
		<b>13</b>	5,000 ohm NTC therm.				
		<b>14</b>	1,035 ohm Silicon PTC				
		<b>15</b>	100,000 ohm NTC therm.				
		<b>16</b>	10,000 ohm NTC thermistor (Eliwell)				
		<b>17</b>	20,000 ohm NTC therm.				
		<b>18</b>	2,252 ohm NTC therm.				
		<b>21</b>	1,800 ohm NTC therm.				

**Example: TE-703-A-10-A-3:** Immersion style with 1/2" adapter, 3000 ohm thermistor and 4 inch probe.

**Example: TE-703-D-10-C-2:** NEMA-4 enclosure, 3000 ohm thermistor, 8 inch probe and 1/4" NPT brass fitting.

## ORDERING INFORMATION: TE-704

Installation		Sensor*	
<b>A</b>	Surface Mount	<b>1</b>	100 ohm Platinum RTD
	Strap-on	<b>2</b>	1,000 ohm Nickel RTD (5000 PPM)
<b>B</b>	Polycarb Plastic	<b>3</b>	1,000 ohm Platinum RTD
	Enclosure IP-54	<b>4</b>	1,000 ohm Nickel RTD (6000 PPM)
<b>C</b>	Galvanized Steel	<b>5</b>	1,000 ohm Balco RTD
	Enclosure NEMA-1 / IP-30	<b>7</b>	10,000 ohm NTC therm. (Type III)
<b>D</b>	Painted Steel	<b>8</b>	10,000 ohm NTC therm. (Carel)
	Enclosure NEMA-4 / IP-65	<b>10</b>	3,000 ohm NTC therm.
		<b>12</b>	10,000 ohm NTC therm. (Type II)
		<b>13</b>	5,000 ohm NTC therm.
		<b>14</b>	1,035 ohm Silicon PTC
		<b>15</b>	100,000 ohm NTC therm.
		<b>16</b>	10,000 ohm NTC thermistor (Eliwell)
		<b>17</b>	20,000 ohm NTC therm.
		<b>18</b>	2,252 ohm NTC therm.
		<b>21</b>	1,800 ohm NTC therm.

**Example: TE-704-C-1:** NEMA-1 enclosure with 100 ohm Platinum RTD surface mount sensor.

\* For sensor compatibility, please refer to TI.700-10.

\*\* For a complete Resistance vs Temperature tables, please refer to TI.700-11.

# TE 703-704



**MAMAC Systems is the leading global manufacturer of sensors, transducers, control peripherals and web browser based IP appliances. MAMAC products are used for HVAC and environmental controls, remote monitoring, alarming, energy metering and industrial automation.**

**All MAMAC products are manufactured in the USA.**

**WARRANTY:** MAMAC Systems, Inc. and its subsidiaries (hereinafter referred to as MAMAC Systems) warrants its products to be free of defects in material and workmanship for a period of five (5) years from date of shipment. If a unit is malfunctioning, it must be returned to the factory for evaluation. A return authorization number (RMA) will be issued by the customer service department and this number must be written or prominently displayed on the shipping boxes and all related documents. The defective part should be shipped freight pre-paid to the factory. Upon examination by MAMAC Systems, if the unit is found to be defective, it will be repaired or replaced at no charge to the customer. However, this warranty is void if the unit shows evidence of being tampered with, damaged during installation, misapplied, misused, or used in any other operating condition outside of the unit's published specifications.

**MAMAC Systems makes no other warranties or representations of any kind whatsoever, expressed or implied, except that of title. All implied warranties including any warranty of merchantability and fitness for a particular purpose are hereby disclaimed. User is responsible to determine suitability for intended use.**

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