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ENGLISH

Datasheet

Platinum Resistance Pt100 In-head Temperature Transmitter

TX104P – 4-20mA output, default range supplied 0-100°C



Model TX104P, 4 to 20 mA, Pt100 temperature transmitter which can be fitted in a head mount DIN standard connector or housing. Default range supplied is 0-100°C but if necessary is field rangeable by use and adjustment of on board SPAN and ZERO potentiometers

- LOW COST
- USER RE-RANGEABLE
- Pt100 INPUT
- TWO WIRE (4 TO 20) mA OUTPUT

What is the difference between a RTD and PRT sensor?
Nothing. RTD means resistance thermometer detector (the sensing element) and PRT means Platinum resistance thermometer (the whole assembly) i.e. a PRT uses a RTD.

SPECIFICATIONS @ 20 °C

Output		(4 to 20) mA loop powered, maximum 30 mA
Loop Supply		(10 to 30) VDC reverse connection protected
Max. Loop Load		$\frac{(V.\ Supply\ -10)}{0.020}$
Loop Volts Sensitivity		10 µA/V
Temp. Stability	Zero	Drift type. 0.02 %/°C FRO
	Span	Type. 0.005 %/C FRO
Ambient Temperature*		(0 to 70) °C operating (*at 24 V supply 250 Ω load)

RS124/0816

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Ambient RH	(0 to 95) % RH non condensing
EMC Compatibility	BS EN61326

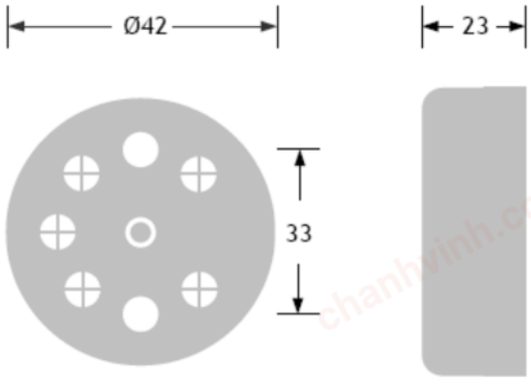
TX104 PLATINUM RESISTANCE SENSOR

Pt100 Input	BS EN 60751, DIN43760
Accuracy	± 0.2 °C plus ± 0.2 % rdg
Response	100 ms to reach 70 % of final value
Offset Adjustment	Range dependant
Span Adjustment	(25 to 500) °C

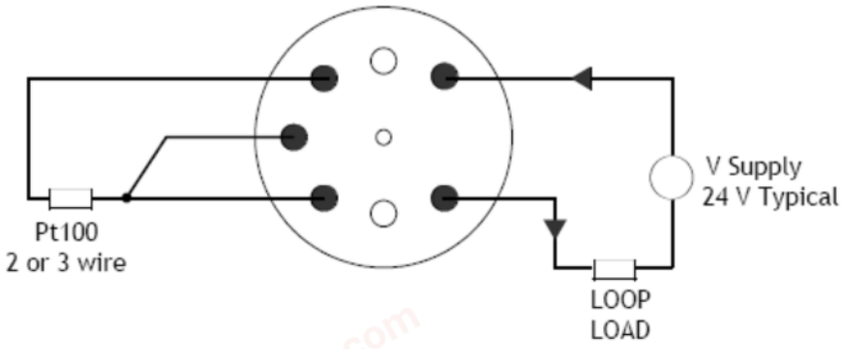
Ordering Information:

Type	Operating Temperature	Supply Voltage	Output	Default input Range	Model No.	Allied Code	RS Order Number
Pt100	0°C to +70°C	10 – 30 Vdc	4-20mA	0-100°C	TX104P	70825785	**363-0216**

Mechanical Details:
(all dimensions in mm)



Connections:

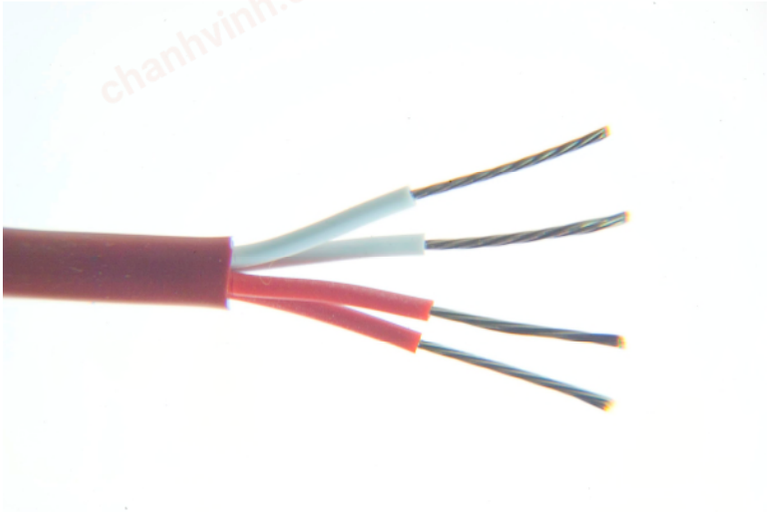


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Need RTD Cable or Pt100/Pt1000 Detectors?

RTD Extension Cable – 4 core (10 or 25 metre reel)

Platinum Resistance Thermometer Extension Cable – Silicone Rubber Insulated



- Silicone rubber insulated cable for extending Platinum Resistance Thermometers
- Can be used to extend up to 4 wire RTD configurations
- Commonly used with Pt100Ω thermometers but suitable with other types Pt130/500/1000Ω etc.
- 4 core silicone rubber insulated 7/0.2mm tin plated copper conductors, twisted together with silicone rubber outer jacket
- Cores colour coded 2 x Red / 2 x White to IEC-751
- Good electrical and mechanical properties, highly flexible, resistant to oils, acids and other adverse fluids
- Good heat resistance up to 200°C
- Insulation rating -40°C to 200°C
- Supplied in 10 or 25 metre reel lengths

Type	**Conductors**	**mm²**	**Cores** (4 core)	**Jacket**	**Reel Length**	**Allied Code**	**RS order Code**
RTD	7/0.2mm	0.219	2x Red / 2 x White	Brown	10 metres	70657147	**827-5823**
RTD	7/0.2mm	0.219	2x Red / 2 x White	Brown	25 metres	70644361	**455-4242**

Overall sheath Dimension (approx.)

4.0mmØ

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RTD Extension Cable – 4 & 6 core PFA

Platinum Resistance Thermometer Extension Cable, PFA insulated & screened





4 core (cores: 2 x red / 2 white)

6 core (cores: 4 x red / 2 x white)

- PFA insulated cable for extending Platinum Resistance Thermometers
- High temperature to 260°C, extruded PFA Teflon® construction
- Commonly used for Pt100Ω thermometers, also suitable with other types such as Pt130, Pt500 & Pt1000Ω
- 4 & 6 core available – to extend 2, 3 or 4 wire RTD configurations, the 6 core can be used to extend 2 x 3 wire duplex (dual element) configurations
- Construction – PFA insulated 7/0.2mm tin plated copper conductors, twisted cores with nylon cord, tin plated copper braided screen with PFA insulated outer jacket
- Cores colour coded Red & White in accordance with IEC-751, black outer jacket
- Good mechanical strength and flexibility, resistant to oils, acids and other adverse fluids
- Insulation rating -75°C to 260°C
- See below for available reel lengths

Type	Conductors	mm²	Cores	Screen	Jacket	Reel Length	Allied Code	RS order code
RTD	7/0.2mm	0.219	x 4	Yes	Black	10 metres	70646175	611-8078
RTD	7/0.2mm	0.219	x 4	Yes	Black	25 metres	70646176	611-8090
RTD	7/0.2mm	0.219	x 4	Yes	Black	50 metres	70657148	827-5827
RTD	7/0.2mm	0.219	x 4	Yes	Black	100 metres	70657150	827-5836
RTD	7/0.2mm	0.219	x 6	Yes	Black	25 metres	70646177	611-8107
RTD	7/0.2mm	0.219	x 6	Yes	Black	50 metres	70657151	827-5839

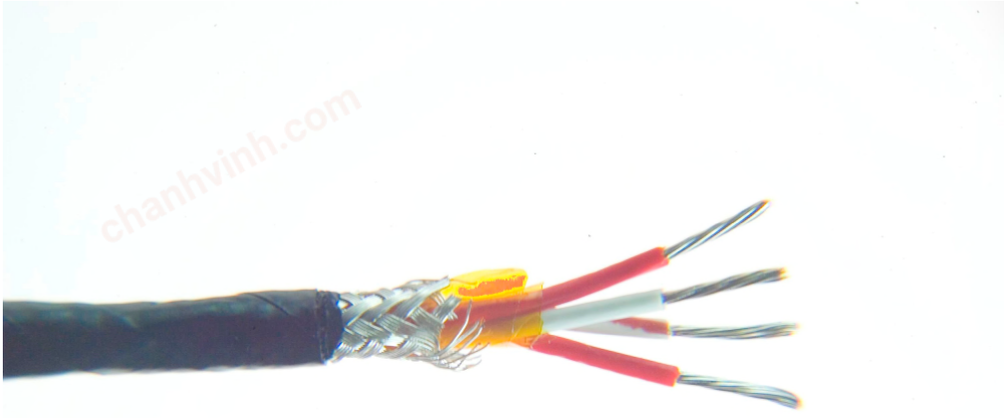
Overall sheath Dimension (approx.)

4 core: 3.2mmØ
6 core: 3.8mmØ

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RTD Extension Cable – 4 core PTFE (10 & 25 reel lengths)

Platinum Resistance Thermometer Extension Cable, PTFE insulated & screened



- PTFE insulated cable for extending Platinum Resistance Thermometers
- High temperature to 260°C, wrapped PTFE tape construction
- Can be used to extend 2, 3 or 4 wire RTD configurations
- Commonly used for Pt100Ω thermometers, also suitable with other types such as Pt130, Pt500 & Pt1000Ω
- 4 core PTFE insulated 7/0.2mm silver plated copper conductors, twisted cores, Mylar tape, silver plated copper braided screen with PTFE insulated outer jacket
- Cores colour coded 2 x Red / 2 x White to IEC-751 + black outer jacket
- Good mechanical strength and flexibility, resistant to oils, acids and other adverse fluids, steam, gasses etc.
- Insulation rating -75°C to 260°C
- Supplied in 10, & 25 metre reel lengths

Type	**Conductors**	**mm²**	**Cores** (4 core)	**Screen**	**Jacket**	**Reel Length**	**Allied Code**	**RS order code**
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	10 metres	70644773	**492-9775**
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	25 metres	70642885	**290-4976**

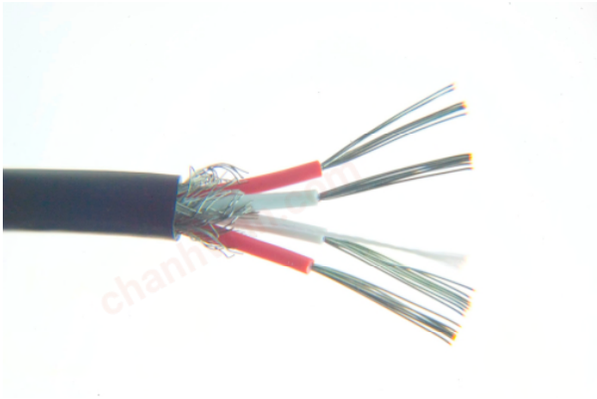
Overall sheath Dimension (approx.)

3.5mmØ

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RTD Extension Cable – 4 core PVC (10, 25 & 50 reel lengths)

Platinum Resistance Thermometer Extension Cable, PVC insulated & screened



- PVC insulated cable for extending Platinum Resistance Thermometers
- Can be used to extend 2, 3 or 4 wire RTD configurations
- Commonly used for Pt100Ω thermometers but also suitable with other types such as Pt130, Pt500 & Pt1000Ω
- 4 core PVC insulated 7/0.2mm tin plated copper conductors, twisted cores, polyester tape & nylon cord, tin plated copper braided screen with PVC insulated outer jacket
- Cores colour coded 2 x Red / 2 x White to IEC-751 with black outer jacket
- Heat resistant PVC to 105°C
- Good for general purpose cable, highly flexible & waterproof
- Insulation rating -10°C to 105°C
- Supplied in 10, 25 & 50 metre reel lengths

Type	**Conductors**	**mm²**	**Cores** (4 core)	**Screen**	**Jacket**	**Reel Length**	**Allied Code**	**RS order code**
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	10 metres	70644772	492-9753
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	25 metres	70642884	290-4954
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	50 metres	70646179	611-8129

Overall sheath Dimension (approx.)

4.4mmØ

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Platinum Resistance Pt100 & Pt1000 Thin Film Detectors Platinum

Sensing Resistors – Thin Film (Pt100 & Pt1000 Ohm)



Pt100 Elements, Thin Film (100 Ohm)

- Pt100 elements to IEC751 Class A, B and 1/3DIN
- For use from –50°C to +500°C
- Thin film construction
- Suitable for surface & immersion applications where protected
- Vibration resistant

Specifications:

Sensor type:	Pt100 (100 Ohms @ 0°C)
Construction:	Thin film, 10mm tails
Temperature range:	-50°C to +500°C
Ice point resistance:	100Ω
Fundamental interval (0°C to 100°C):	38.5Ω (nominal)
Self-heating:	<0.5°C/mW
Thermal response:	0.1s
Stability:	±0.05%

Resistance	**Dimensions** (width x length)	**Tolerance Class**	**Allied code**	**RS order code**
Pt100	2 x 5.0mm	Class A	70646146	**611-7788**
Pt100	2 x 5.0mm	Class B	70646148	**611-7801**
Pt100	2 x 5.0mm	Class B	70642888	**290-5070** (Packet of 5)
Pt100	2 x 10mm	Class A	70643577	**362-9799**
Pt100	2 x 10mm	Class B	70641762	**237-1607**
Pt100	2.0 x 10mm	1/3DIN	70643578	**362-9812**
Pt100	2.0 x 2.3mm	Class A	70643579	**362-9834**
Pt100	2.0 x 2.3mm	Class B	70643580	**362-9840**
Pt100	2.0 x 2.3mm	1/3DIN	70643581	**362-9856**

Pt100 Elements (continued)

Resistance	**Dimensions** (width x length)	**Tolerance Class**	**Allied code**	**RS order code**
Pt100	1.2 x 1.6mm	Class A	70646834	**666-7362**
Pt100	1.2 x 1.6mm	Class B	70646831	**666-7353**

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Pt100	1.0 x 3.0mm	Class A	70646833	**666-7359**
Pt100	1.0 x 3.0mm	Class B	70646832	**666-7356**
Pt100	2.0 x 5.0mm	1/3 Din	70656467	**814-0162**
Pt100	1.2 x 4.0mm	Class B	70656468	**814-0165**
Pt100	1.2 x 4.0mm	Class A	70656469	**814-0169**

Pt1000 Elements, Thin Film (1000 Ohm)

- Pt1000 elements to IEC 751 Class A and B
- For use from –50°C to +500°C
- Thin film construction
- Suitable for surface & immersion applications where protected
- Vibration resistant

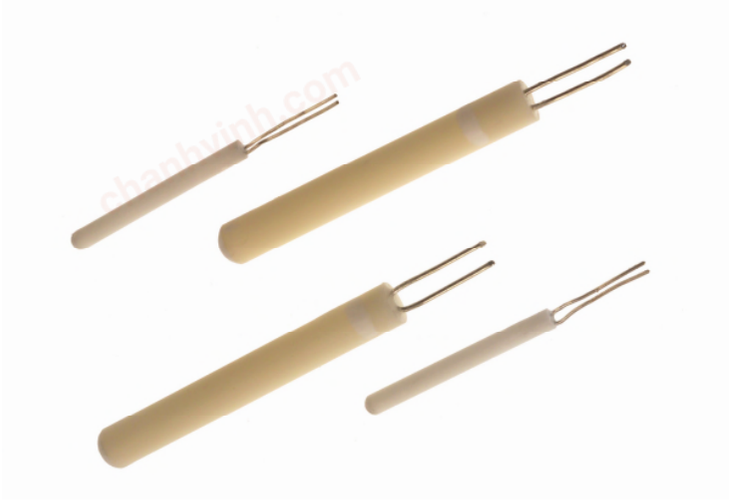
Specifications:

Sensor type:	Pt1000 (1000 Ohms @0°C)
Construction:	Thin film, 10mm tails
Temperature range:	-50°C to +500°C
Ice point resistance:	1000Ω
Fundamental interval (0°C to 100°C):	385Ω (nominal)
Self-heating:	<0.5oC/mW
Thermal response:	0.1s
Stability:	±0.05%

Resistance	**Dimensions** (width x length)	**Tolerance Class**	**Allied code**	**RS order code**
Pt1000	2.0 x 10.0mm	Class A	70643582	**362-9907**
Pt1000	2.0 x 10.0mm	Class B	70643583	**362-9913**
Pt1000	2.0 x 10.0mm	1/3 Din	70656472	**814-0178**
Pt1000	1.0 x 3.0mm	Class B	70656470	**814-0171**
Pt1000	1.25 x 1.7mm	Class B	70656471	**814-0175**

Resistance Pt100 Wire-Wound Detector Elements

Pt100 platinum resistance thermometer elements in a choice of sizes – single & dual element



- Pt100 elements to IEC 60751 Class A or B
- 100Ω Ohms @ 0°C
- Single or dual element
- Platinum coil wire-wound construction sealed inside a high purity alumina ceramic body
- Optimum performance & stability
- Temperature range –200°C to +650°C

Specifications:

Sensor type:	Pt100 (100 Ohms @ 0°C)
Construction:	Wire-Wound, 10mm tails
Temperature range:	-200°C to +650°C
Ice point resistance:	100Ω
Fundamental interval (0°C to 100°C):	38.5Ω (nominal)
Self-heating:	0.02 to 0.3°C/mW
Thermal response:	<0.4s (secs. to 63% of final value – in water @ 1m/s)
Measuring current:	1mA
Tolerance Class:	In accordance with IEC 60751 W0.15 (Class A) -100°C to +450°C W0.3 (Class B) -196°C to +660°C

Continued:

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Single element:

Resistance	Tolerance Class	Diameter (‘D’)	Length (‘L’)	Allied code	RS order code
Pt100	Class B	1.5mm	8mm	70646153	**611-7851**
Pt100	Class A	1.5mm	8mm	70646155	**611-7873**
Pt100	Class B	1.5mm	15mm	70646154	**611-7867**
Pt100	Class A	1.5mm	15mm	70646151	**611-7839**
Pt100	Class B	2.8mm	15mm	70646150	**611-7823**
Pt100	Class A	2.8mm	15mm	70646152	**611-7845**
Pt100	Class B	2.8mm	25mm	70646147	**611-7794**
Pt100	Class A	2.8mm	25mm	70646149	**611-7817**

Dual element:

Pt100 (x2)	Class A	1.5mm	15mm	70643873	**397-1595**

