

Datasheet

**Platinum Resistance Pt100 4 wire class B Resistance Thermometer with Compact KNS Head**



- Pt100 probe with compact KNS terminal head
- Class B, 4 wire connection
- Various probe available lengths
- 6.0mm diameter in 316 stainless steel
- IP67 aluminium alloy weatherproof connection head
- Sensor temperature rating -100°C to +450°C
- Conforms to IEC 751

**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.

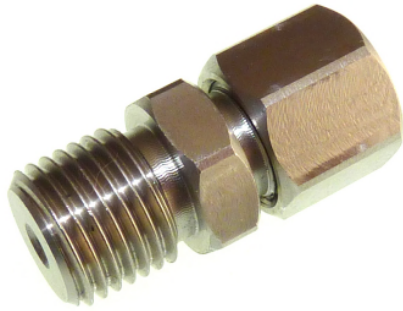
**Specifications**

Sensor type: Pt100 (100 Ohms @ 0°C) to IEC 751, Class B, 4 wire  
 Construction: 6.0mm diameter stem in 316 stainless steel  
 Termination: IP67 KNS connection head  
 Probe temperature range: -100°C to +450°C (connection head @ 170°C)  
 Cable entry: M16 x 1.5mm

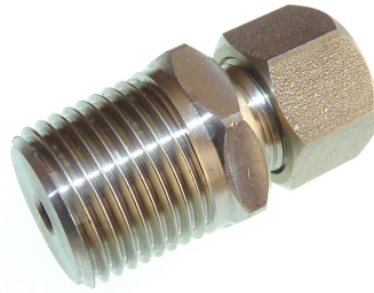
Probe DiaØ	Probe length	RS order code
6.0mm	100mm	<b>872-2717</b>
6.0mm	150mm	<b>872-2711</b>
6.0mm	200mm	<b>872-2720</b>
6.0mm	250mm	<b>872-2723</b>
6.0mm	300mm	<b>872-2727</b>

## Optional Compression Fittings

### Stainless Steel Compression Glands – Parallel, Tapered & M16 Thread (BSP, BSPT, M16)



(BSP parallel example - 381-7362, see below for other sizes)



(BSPT tapered example – 286-787, see below for other sizes)

- Thermocouple installation fittings
- To suit a wide range of mineral insulated and other probe type sensors offered by RS
- Male in-line stainless steel compression type with nut & olive
- 1/8", 1/4", & 1/2" BSP parallel or BSPT tapered threads available. 1/2" M16 thread also available.
- Suits 1.0mm, 1.5mm, 3.0mm, 4.0mm, 4.5mm, 6.0mm, 8.0mm, 1/8", 1/4" or 3/16" probe diameters
- Stainless steel locknuts also available (see below)

#### BSP Parallel:

Type	Thread Size	Thread Type	Suits Probe Ø	Allied code	RS order code
St/Steel	1/8"	BSP Parallel	1.0mm	70654828	<b>804-7975</b>
St/Steel	1/8"	BSP Parallel	1.5mm	70643728	<b>381-7334</b>
St/Steel	1/8"	BSP Parallel	3.0mm	70643729	<b>381-7340</b>
St/Steel	1/8"	BSP Parallel	4.0mm	70657784	<b>839-9566</b>
St/Steel	1/8"	BSP Parallel	4.5mm	70657785	<b>839-9569</b>
St/Steel	1/8"	BSP Parallel	6.0mm	70643730	<b>381-7356</b>
St/Steel	1/8"	BSP Parallel	1/4"		<b>110-4476</b>
St/Steel	1/8"	BSP Parallel	1/8"	70657782	<b>839-9557</b>
St/Steel	1/8"	BSP Parallel	3/16"	70657783	<b>839-9563</b>
St/Steel	1/4"	BSP Parallel	3.0mm	70643731	<b>381-7362</b>
St/Steel	1/4"	BSP Parallel	4.5mm	70657786	<b>839-9572</b>
St/Steel	1/4"	BSP Parallel	6.0mm	70643732	<b>381-7378</b>
St/Steel	1/4"	BSP Parallel	1/4"	70657787	<b>839-9575</b>
St/Steel	1/4"	BSP Parallel	3/16"	70657779	<b>839-9547</b>
St/Steel	1/2"	BSP Parallel	3.0mm	70657788	<b>839-9579</b>
St/Steel	1/2"	BSP Parallel	4.5mm	70657791	<b>839-9588</b>
St/Steel	1/2"	BSP Parallel	6.0mm	70643735	<b>381-7407</b>
St/Steel	1/2"	BSP Parallel	8.0mm	70657789	<b>839-9581</b>

**BSPT Tapered:**

Type	Thread Size	Thread Type	Suits Probe Ø	Allied code	RS order code
St/Steel	1/8"	BSPT Tapered	1.0mm	70654831	<b>804-7984</b>
St/Steel	1/8"	BSPT Tapered	1.5mm	70637825	<b>286-743</b>
St/Steel	1/8"	BSPT Tapered	3.0mm	70636461	<b>158-610</b>
St/Steel	1/8"	BSPT Tapered	4.5mm	70637826	<b>286-759</b>
St/Steel	1/8"	BSPT Tapered	6.0mm	70657792	<b>839-9591</b>
St/Steel	1/8"	BSPT Tapered	1/4"		<b>110-4475</b>
St/Steel	1/8"	BSPT Tapered	1/8"	70657793	<b>839-9594</b>
St/Steel	1/8"	BSPT Tapered	3/16"	70657794	<b>839-9597</b>
St/Steel	1/4"	BSPT Tapered	3.0mm	70643733	<b>381-7384</b>
St/Steel	1/4"	BSPT Tapered	4.5mm	70657796	<b>839-9604</b>
St/Steel	1/4"	BSPT Tapered	6.0mm	70643734	<b>381-7390</b>
St/Steel	1/4"	BSPT Tapered	1/4"	70657797	<b>839-9608</b>
St/Steel	1/4"	BSPT Tapered	1/8"	70657795	<b>839-9601</b>
St/Steel	1/4"	BSPT Tapered	3/16"	70657790	<b>839-9585</b>
St/Steel	1/2"	BSPT Tapered	3.0mm	70657777	<b>839-9541</b>
St/Steel	1/2"	BSPT Tapered	4.5mm	70637828	<b>286-787</b>
St/Steel	1/2"	BSPT Tapered	6.0mm	70637829	<b>286-793</b>
St/Steel	1/2"	BSPT Tapered	8.0mm	70657780	<b>839-9550</b>
<b>M16</b>					
St/Steel	1/2"	M16	3.0mm	70657800	<b>839-9617</b>
St/Steel	1/2"	M16	6.0mm	70657798	<b>839-9610</b>
St/Steel	1/2"	M16	8.0mm	70657799	<b>839-9614</b>

**Stainless Steel locknuts also available:**

Thread	Allied code	RS order code
S/Steel 1/8" BSPP	70651759	<b>762-1180</b>
S/Steel 1/4" BSPP	70651760	<b>762-1184</b>
S/Steel 1/2" BSPP	70651762	<b>762-1193</b>

## Brass Compression Glands – Parallel, Tapered & NPT Thread

BSP, BSPT & NPT



- Thermocouple installation fittings
- To suit a wide range of mineral insulated and other probe type sensors offered by RS
- Male in-line brass compression type with nut & olive
- 1/8" & 1/4" BSP parallel thread to suit 1.5, 3.0, 4.0, 4.5 & 6.0mm. 3/16 also available.
- 1/2", 1/4" & 1/8" BSPT tapered thread to suit 1.5mm, 3.0mm, 4.5mm, 6.0mm, 1/8" & 3/16"
- Brass locknuts also available

### BSPP Parallel:

Type	Thread Size	Thread Type	Suits Probe Ø	Allied code	RS order code
Brass	1/8"	BSP Parallel	1.5mm	70657765	<b>839-9496</b>
Brass	1/8"	BSP Parallel	3.0mm	70643725	<b>381-7277</b>
Brass	1/8"	BSP Parallel	4.0mm	70657764	<b>839-9490</b>
Brass	1/8"	BSP Parallel	4.5mm	70657766	<b>839-9500</b>
Brass	1/8"	BSP Parallel	6.0mm	70657768	<b>839-9507</b>
Brass	1/8"	BSP Parallel	3/16	70657767	<b>839-9503</b>
Brass	1/4"	BSP Parallel	3.0mm	70643727	<b>381-7306</b>
Brass	1/4"	BSP Parallel	4.5mm	70657770	<b>839-9519</b>
Brass	1/4"	BSP Parallel	3/16	70657769	<b>839-9513</b>

### BSPT Tapered:

Brass	1/8"	BSPT Tapered	1.5mm	70637822	<b>286-715</b>
Brass	1/8"	BSPT Tapered	3.0mm	70637823	<b>286-721</b>
Brass	1/8"	BSPT Tapered	4.5mm	70637824	<b>286-737</b>
Brass	1/8"	BSPT Tapered	6.0mm	70657773	<b>839-9529</b>
Brass	1/8"	BSPT Tapered	1/8	70657771	<b>839-9522</b>
Brass	1/8"	BSPT Tapered	3/16	70657772	<b>839-9525</b>
Brass	1/4"	BSPT Tapered	3.0mm	70657774	<b>839-9531</b>
Brass	1/4"	BSPT Tapered	6.0mm	70657778	<b>839-9544</b>
Brass	1/4"	BSPT Tapered	1/4mm	70657776	<b>839-9538</b>
Brass	1/4"	BSPT Tapered	3/16	70657775	<b>839-9535</b>
Brass	1/2"	BSPT Tapered	6.0mm	70657781	<b>286-771</b>

### NPT

Brass	1/8"	NPT	1.5mm	70657781	<b>839-9553</b>
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### Brass locknuts also available:

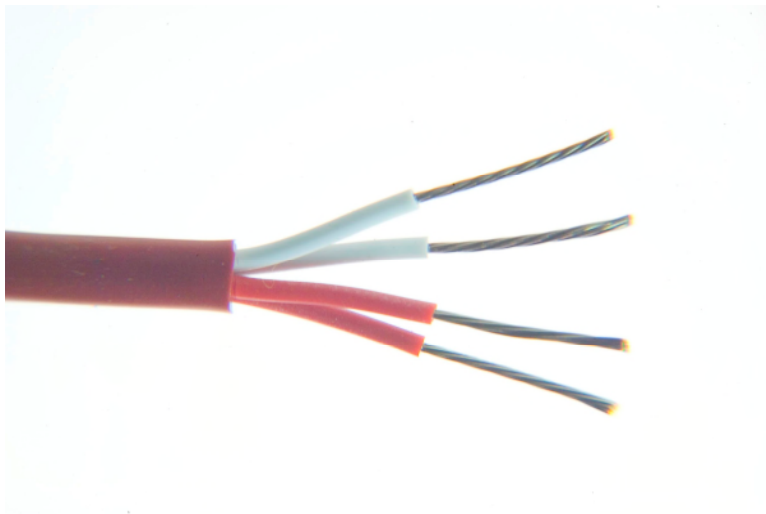
Thread	Allied code	RS order code
Brass 1/8" BSPP	70651756	<b>762-1171</b>
Brass 1/4" BSPP	70651757	<b>762-1174</b>
Brass 1/2" BSPP	70651758	<b>762-1178</b>



## 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

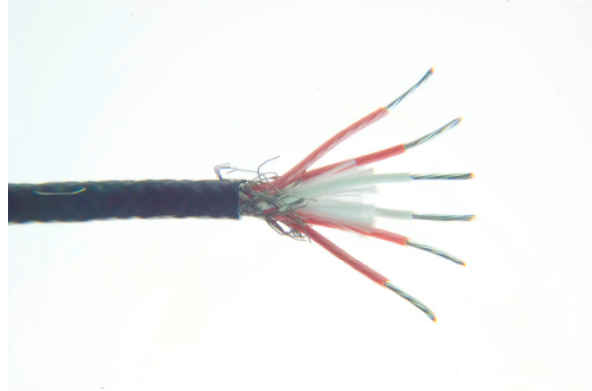
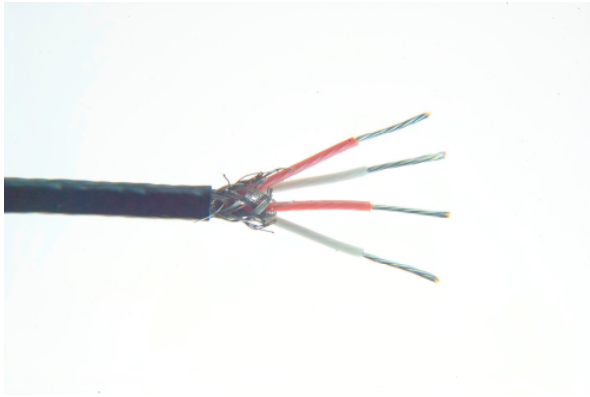
Type	Conductors	mm <sup>2</sup>	Cores (4 core)	Jacket	Reel Length	Allied Code	RS order Code
RTD	7/0.2mm	0.219	2x Red / 2 x White	Brown	10 metres	70657147	<b>827-5823</b>
RTD	7/0.2mm	0.219	2x Red / 2 x White	Brown	25 metres	70644361	<b>455-4242</b>

**Overall sheath Dimension (approx.)**

4.0mmØ

## 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	mm <sup>2</sup>	Cores	Screen	Jacket	Reel Length	Allied Code	RS
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.)

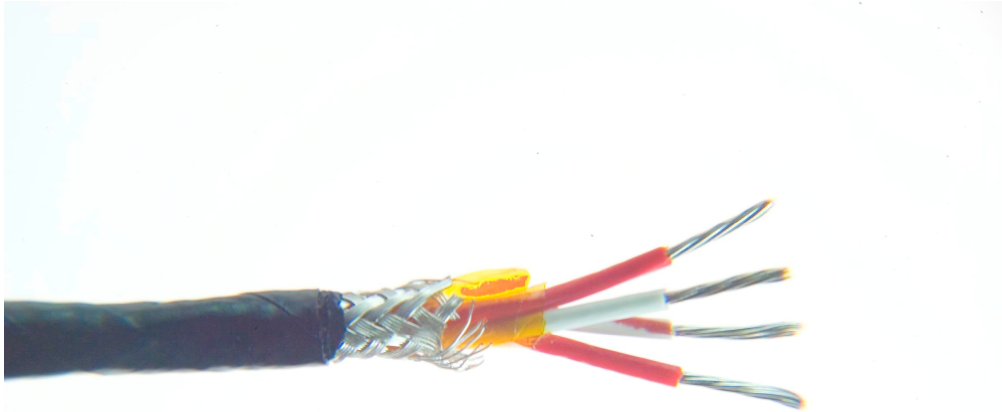
4 core: 3.2mmØ

RS196/0816

6 core: 3.8mmØ

## 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

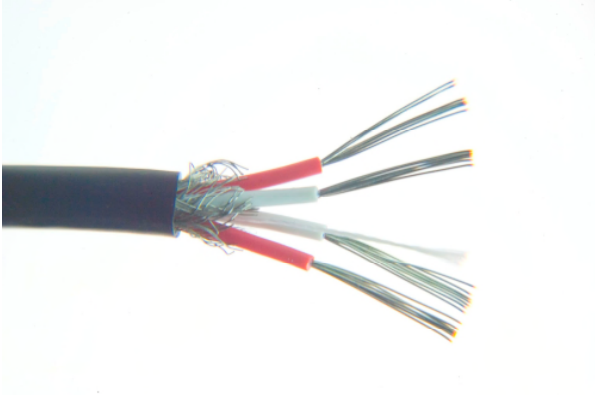
Type	Conductors	mm <sup>2</sup>	Cores (4 core)	Screen	Jacket	Reel Length	Allied Code	RS order code
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	10 metres	70644773	<b>492-9775</b>
RTD	7/0.2mm	0.219	2x Red/2x White	Yes	Black	25 metres	70642885	<b>290-4976</b>

**Overall sheath Dimension (approx.)**

3.5mmØ

## 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	mm <sup>2</sup>	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

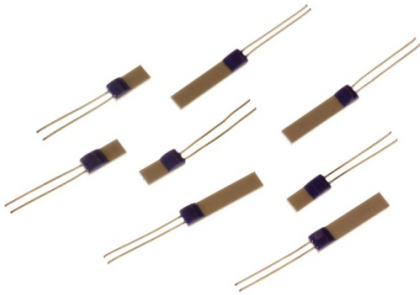
**Overall sheath Dimension (approx.)**

4.4mmØ



# 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  $-50^{\circ}\text{C}$  to  $+500^{\circ}\text{C}$
- Thin film construction
- Suitable for surface & immersion applications where protected
- Vibration resistant

#### Specifications:

Sensor type:	Pt100 (100 Ohms @ $0^{\circ}\text{C}$ )
Construction:	Thin film, 10mm tails
Temperature range:	$-50^{\circ}\text{C}$ to $+500^{\circ}\text{C}$
Ice point resistance:	100 $\Omega$
Fundamental interval ( $0^{\circ}\text{C}$ to $100^{\circ}\text{C}$ ):	38.5 $\Omega$ (nominal)
Self-heating:	$<0.5^{\circ}\text{C}/\text{mW}$
Thermal response:	0.1s
Stability:	$\pm 0.05\%$

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

#### Pt100 Elements (continued)

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

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

### **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

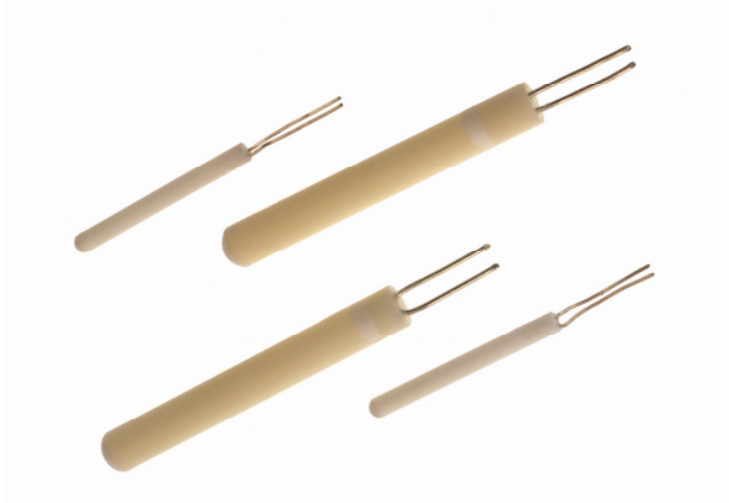
#### **Specifications:**

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%

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

# 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
- 100 $\Omega$  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:	100 $\Omega$
Fundamental interval (0°C to 100°C):	38.5 $\Omega$ (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:*

### Single element:

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

### Dual element:

Pt100 (x2)	Class A	1.5mm	15mm	70643873	<b>397-1595</b>
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