

Platinum Resistance Detectors

Technical Information

All devices are manufactured from traceable materials and their construction is controlled by our BS EN ISO 9001: 2008 approved Quality System, using the latest techniques in production and testing.

Temperature Range

Normal operating temperature range is between -200°C and +600°C. Extra care, however, should be taken to avoid contamination of the Platinum wire above +450°C by the correct choice of insulation materials, and protection sheaths.

Stability

Stability is greatly enhanced during the manufacturing process when all detectors are subject to pre-aging at elevated temperatures. All devices easily comply with the requirements of BS EN 60751:1996 showing a typical ice point shift of no more than 0.05% when subjected to 10 consecutive cycles between -200°C and +600°C.

Vibration

When correctly housed, standard detectors are capable of withstanding vibration and acceleration levels of up to 30G over the frequency range 10Hz to 1 kHz.

Pressure and Moisture

Detector accuracy will remain unaffected by large changes in pressure. They are NOT, however, hermetically sealed. Therefore devices must be housed in suitable protective sheaths when in contact with fluids or saturated atmospheres. Detectors can be supplied glass covered to improve hermetical sealing.

Self Heating

All detectors comply with the requirements of BS EN 60751:1996 and will show rises of less than 0.3°C in a stirred ice bath while dissipating 10mW. However, with the more usual 1mA measuring current the rise for a typical detector would be less than 0.002°C.

Construction

Detectors manufactured by RTD Products are of the partially supported, wirewound type which offer the user, the best available balance of accuracy, stability and ruggedness. They are produced in a comprehensive range of standard diameters and lengths. Non standard sizes are also available - please contact the sales department.

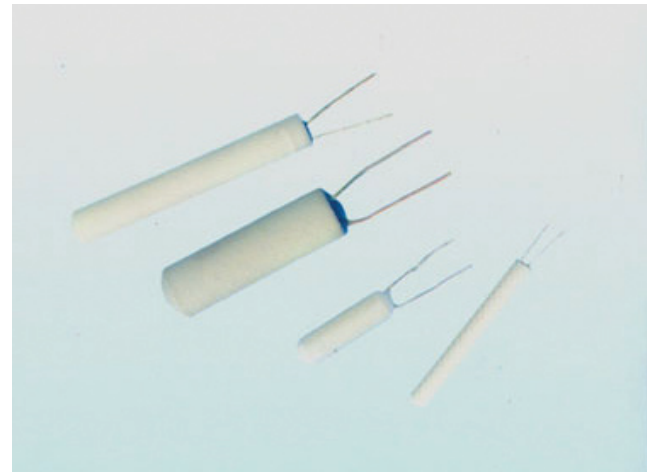
Tolerances

Detectors are available in the two BS EN 60751:1996 tolerance classes A or B. Class A is the closer tolerance device offering an interchangeability of +/-0.06 Ohms (0.15°C) at 0°C. The figures for class B are +/-0.12 Ohms (0.3°C) at 0°C.

Closer tolerance devices are available, commonly known as 1/3, 1/5, or 1/10 DIN. these offer tolerances of 1/3, 1/5 or 1/10 of the class B figures shown above. Detectors can also be made to the Japanese standards JIS C1604:1992.

Quality Approvals

RTD Products is BS EN ISO 9001:2008 Quality Assurance Approved by British Standards Institute (BSI). All products are manufactured and rigorously tested to this standard. Our comprehensive calibration laboratory is traceable to UKAS standards.



Lead Resistance

Devices up to 1.6mm dia are fitted with pure Platinum leadouts, larger sizes use Platinum / Palladium wires. In all cases lead length is 7mm +/-1 mm minimum. Longer leads are available at extra cost.

Leads

Detector leadouts are designed to withstand a straight pull of 500 or 2000 gf depending on size, however the ceramic body and the glass anchoring the leads will be damaged by excessive bending or twisting. Ideally, extension leads should be spot welded, but brazing or soldering will be satisfactory provided ALL traces of flux residue are removed.

Calibration

The specific calibration point for all detectors is 5mm from the ceramic body. Certification of calibration traceable to UKAS at specific temperatures (normally 0°C or 100°C) can be provided from our comprehensive calibration laboratory at extra cost.

Winding Details

The Platinum wire is wound into a very small coil which is inserted into the bores in a high purity alumina tube, where it is "partially supported" by a small amount of high temperature glass. This form of construction results in a detector combining excellent stability with good resistance to high levels of vibration. Duplex winding are also available.

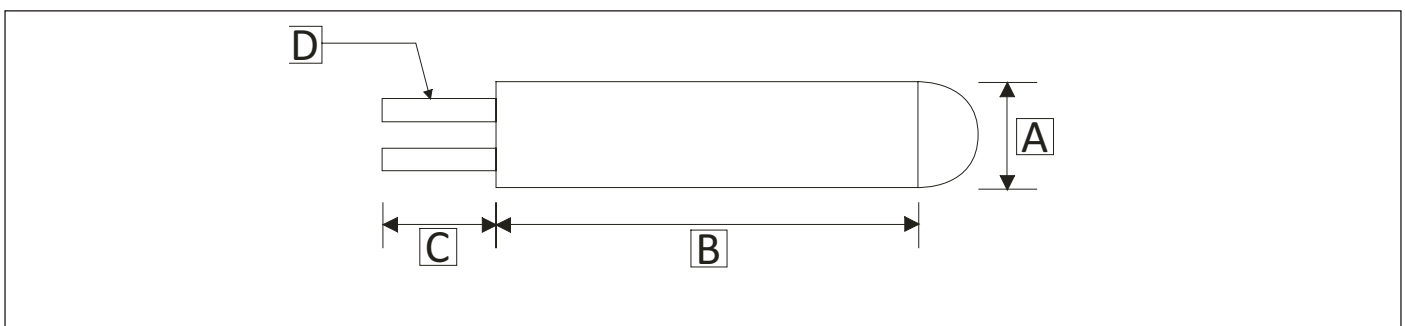
ATEX Approved Products

ATEX approved intrinsically safe and explosion proof temperature assemblies, which can be supplied complete with transmitters and thermowells, are available from RTD's parent company British Rototherm. For more details please visit www.rototherm.co.uk



Model Number	Diameter ± 0.075mm (A)	Length ± 0.5mm (B)	Temperature Range	Lead Diameter (D)	Lead Resistance Ohms/mm/lead (nominal)	Lead Length ±1mm (C)	Lead Material	Sensing Length	Calibration Point (from ceramic body)
PR 0815	0.80	15.00	-20°C to +60°C	0.15	0.006398	7.00	PURE Pt	13mm	5mm
PR 0915	0.90	15.00	-20°C to +60°C	0.15	0.006398	7.00	PURE Pt	13mm	5mm
PR1210	1.20	10.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	8mm	5mm
PR 1215	1.20	15.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	13mm	5mm
PR 1415	1.40	15.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	13mm	5mm
PR 1415 Duplex	1.40	15.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	13mm	5mm
PR1425	1.40	25.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	22mm	5mm
PR1425 Duplex	1.40	25.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	22mm	5mm
PR 1515	1.50	15.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	13mm	5mm
PR 1515 Duplex	1.50	15.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	13mm	5mm
PR 1608	1.60	8.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	8mm	5mm
PR 1615	1.60	15.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	13mm	5mm
PR 1615 Duplex	1.60	15.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	13mm	5mm
PR 1625	1.60	25.00	-20°C to +60°C	0.23	0.002721	7.00	PURE Pt	22mm	5mm
PR 1625 Duplex	1.60	25.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	22mm	5mm
PR 2006	2.00	6.00	-20°C to +60°C	0.25	0.002303	7.00	PURE Pt	6mm	5mm
PR 2015	2.00	15.00	-20°C to +60°C	0.35	0.001175	7.00	PURE Pt	13mm	5mm
PR 2015 Duplex	2.00	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 2808	2.80	8.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	8mm	5mm
PR 2815	2.80	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 2815 Duplex	2.80	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 2825	2.80	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 2825 Duplex	2.80	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 3015	3.00	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 3015 Duplex	3.00	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 3025	3.00	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 3025 Duplex	3.00	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 3208	3.20	8.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	8mm	5mm
PR 3215	3.20	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 3215 Duplex	3.20	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 3225	3.20	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 3225 Duplex	3.20	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR3815	3.80	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR3815 Duplex	3.80	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 3825	3.80	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 3825 Duplex	3.80	25.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	22mm	5mm
PR 4515	4.50	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 4515 Duplex	4.50	15.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	13mm	5mm
PR 4530	4.50	30.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	26mm	5mm
PR 4530 Duplex	4.50	30.00	-20°C to +60°C	0.35	0.001039	7.00	10% Pt plated Pd	26mm	5mm

Pt - Platinum Pd - Palladium Elements denoted PR i.e. PR conform to BS EN 60751:1996
JR i.e. JR conform to JIS C1604:1992



Tolerances for Platinum Resistance Detectors to BS EN 60751:1996 / DIN 43760

Temp °C	Tolerance									
	Class B		Class A		1/3 DIN*		1/5 DIN*		1/10 DIN*	
	+/-°C	+/- OHMS	+/-°C	+/- OHMS	+/-°C	+/- OHMS	+/-°C	+/- OHMS	+/-°C	+/- OHMS
-200	1.3	0.56	0.55	0.24	0.44	0.19	0.26	0.11	0.13	0.06
-100	0.8	0.32	0.35	0.14	0.27	0.11	0.16	0.06	0.08	0.03
0	0.3	0.12	0.15	0.06	0.1	0.04	0.06	0.02	0.03	0.01
100	0.8	0.3	0.35	0.13	0.27	0.11	0.16	0.05	0.08	0.03
200	1.3	0.48	0.55	0.2	0.44	0.16	0.25	0.1	0.13	0.05
300	1.8	0.64	0.75	0.27	0.6	0.21	0.36	0.13	-	-
400	2.3	0.79	0.95	0.33	0.77	0.26	-	-	-	-
500	2.8	0.93	1.15	0.38	-	-	-	-	-	-
600	3.3	1.06	1.35	0.43	-	-	-	-	-	-
650	3.6	1.13	1.45	0.46	-	-	-	-	-	-
700	3.8	1.17	-	-	-	-	-	-	-	-
800	4.3	1.28	-	-	-	-	-	-	-	-
850	4.6	1.34	-	-	-	-	-	-	-	-

NOTE

Tolerances are calculated to 2 decimal points and are taken as a fraction of Class B.

* The tabulated values for close tolerance detectors 1/3rd, 1/5th and 1/10th DIN are interpolated and are for guidance only.

