

Platinum Resistance Thermometer Simulation

Model 1146-Pt 100
Model 1144-Pt 100
Model 1144-Pt 500
Model 1144-Pt 1000

Code:	1144-Pt EN
Delivery:	ex stock
Warranty:	24 months



- More than 60 fixed temperature values from - 200 °C ... + 850 °C are in stock
- Calibration in acc. with DIN EN 60751
- ± 0.02 % tolerance for the models 1144-Pt 100, 1144-Pt 500 and 1144-Pt 1000
- ± 0.05 % tolerance from the resistance value in the range - 200 °C ... - 50 °C the model 1146-Pt 100

1144-Pt EN

Application

Today resistance thermometers are one of the important precision and operating measurement instruments of technical temperature measurement. Fast and easy testing of display, control and recording devices in measurement and process engineering is essential. Fixed temperature values can easily be simulated according to the characteristic curves of Pt100, Pt500 and Pt1000 using the precision resistors calibrated in °C (the inscription also includes the resistance value in Ω). The small dimensions of the resistors allow the installation in measuring instruments or measuring circuits for comparison or control measurements. Consideration of the ambient temperature is not necessary and the temperature coefficient of < 10 ppm of the used material MANGANIN® is negligible.

Description

The precision resistors of the models 1144 and 1146 consist of low-capacity and low-inductance wire coils made of MANGANIN®, which are cast in small plastic cylinder housings. Prior to comparison, the resistance bodies are exposed to a meticulous artificial aging procedure. This special method and comparison at approximately only half of the nominal tolerance guarantee long-term stability of < 0.02 % over the course of years.

Resistance Values

Temperature Value in °C		Resistance Value	Temperature Value in °C		Resistance Value	Temperature Value in °C		Resistance Value
t ₉₀	t ₆₈	in Ω	t ₉₀	t ₆₈	in Ω	t ₉₀	t ₆₈	in Ω
Model 1146 - Pt 100			Model 1144 - Pt 100			Model 1144 - Pt 100		
- 200	- 199.938	18.520	+ 40	+ 40.005	115.541	+ 800	+ 800.655	375.704
- 150	- 149.978	39.723	+ 45	+ 45.004	117.470	Model 1144 - Pt 500		
- 100	- 99.995	60.256	+ 50	+ 50.005	119.397	-10	-10.000	480.430
Model 1144 - Pt 100			+ 55	+ 55.006	121.321	0	0.000	500.000
- 50	- 50.002	80.306	+ 60	+ 60.007	123.242	20	20.003	538.970
- 30	- 30.001	88.222	+ 65	+ 65.008	125.160	50	50.005	596.985
- 25	- 25.002	90.192	+ 70	+ 70.008	127.075	100	100.015	692.530
- 20	- 20.001	92.160	+ 80	+ 80.011	130.897	150	150.027	786.625
- 15	- 15.002	94.124	+ 90	+ 90.013	134.707	200	200.045	879.490
- 10	- 10.000	96.086	+ 100	+ 100.015	138.506	250	250.066	970.490
- 8	- 8.000	96.870	+ 120	+ 120.019	146.068	300	300.093	1060.26
- 6	- 6.000	97.653	+ 121	+ 121.020	146.445	400	400.158	1235.46
- 4	- 4.000	98.436	+ 134	+ 134.022	151.334	500	500.246	1404.89
- 2	- 2.000	99.218	+ 150	+ 150.027	157.325	Model 1144 - Pt 1000		
0	0.000	100.000	+ 200	+ 200.045	175.856	-50	-50.002	803.06
+ 2	+ 1.999	100.781	+ 250	+ 250.066	194.098	-10	-10.000	960.86
+ 4	+ 3.999	101.562	+ 300	+ 300.093	212.052	0	0.000	1000.00
+ 6	+ 6.001	102.343	+ 350	+ 350.122	229.716	10	10.002	1039.03
+ 8	+ 8.001	103.123	+ 400	+ 400.158	247.092	20	20.003	1077.94
+ 10	+ 10.002	103.903	+ 450	+ 450.198	264.179	30	30.003	1116.73
+ 15	+ 15.000	105.849	+ 500	+ 500.246	280.978	50	50.005	1193.97
+ 20	+ 20.003	107.794	+ 550	+ 550.297	297.487	100	100.015	1385.06
+ 25	+ 25.003	109.735	+ 600	+ 600.355	313.708	150	150.027	1573.25
+ 30	+ 30.003	111.673	+ 650	+ 650.419	329.640	200	200.045	1758.56
+ 35	+ 35.003	113.608	+ 700	+ 700.492	345.284	250	250.066	1940.98
+ 37	+ 37.005	114.382	+ 750	+ 750.569	360.638	300	300.093	2120.52
						400	400.158	2470.92
						500	500.246	2809.78

Technical Data

Resistance material: MANGANIN®
 Temperature coefficient: ≤ ±10 ppm/K
 Error tolerance: class ± 0.02 % within range ≥ - 50 °C
 class ± 0.05 % within range - 200 ... - 50 °C
 Balance temperature: 23 °C
 Balance point: for connecting wire of 5 mm length
 Temperature range: - 200 ... + 850 °C
 Basic values: calibrated acc. to DIN EN 60751
 Coil design: graduated coil according to Chaperon
 Long-term stability: < 0,02 % over years
 Operating voltage: max. 500 V
 Temperature range: 0 °C ... 85 °C
 Temperature dependence: $R_t = R_{20} [1 + \alpha_{20} (t-20) + \beta (t-20)^2]$
 $\alpha_{20} = 0 \dots 20 \cdot 10^6$
 $\beta = - 0.59 \cdot 10^6$
 Short-time load: approx. 10 % < 1 min
 Ultimate load: 0.7 W up to 25 °C environmental temperature
 Surface temperature: max. 85 °C
 results from heat dissipation and environmental temperature
 Thermal resistance: 90 K/W
 Specifications: according DIN 43783, part 1 (former VDE 410)
 Dimensions: diameter 10.5 mm
 length 18 mm
 length of connecting wire 25 mm
 Grid dimensions: 5 mm
 Weight: ca. 3 g

Order Code

7 pcs **Model 1146-Pt100** - 100 °C
 10 pcs **Model 1144-Pt100** + 100 °C
 12 pcs **Model 1144-Pt500** + 50 °C
 17 pcs **Model 1144-Pt1000** + 150 °C