Pt100 Standard

For a Pt100 sensor the R0 value is 100 ohms

The basic values for Pt temperature sensors can be calculated using the following formula:

For range 0°C to +600°C use: $\mathbf{Rt = R0\ (1 + At + Bt^2)}$

For range -200°C to 0°C use: $\mathbf{Rt = R0\ (1 + At + Bt^2 + Ct^3(t-100))}$

Where:

Rt = resistance in Ohms at temperature t

R0 = nominal resistance at 0°C

t = temperature in °C

A = 3.9083×10^{-3}

B = -5.775×10^{-7}

C = -4.183×10^{-12}

All Pt temperature sensors we supply are to class B tolerance as standard:

Δt in °C = ± (0,3 + 0,005[t])

The class A tolerance is defined as follows:

Δt in °C = ± (0,15 + 0,002[t])

Temperature Coefficient 0.00385 Ohms/Ohm/°C

Basic values for Pt100 sensors (TS 90)					
°C	Ω	Ω/°C	°C	Ω	Ω/°C
-200	18.52	0.432	350	229.72	0.35
-150	39.72	0.417	400	247.09	0.345
-100	60.26	0.405	450	264.18	0.339
-50	80.31	0.397	500	280.98	0.333
0	100.00	0.391	550	297.49	0.327
50	119.40	0.385	600	313.71	0.322
100	138.51	0.379	650	329.64	0.316
150	157.33	0.374	700	345.28	0.310
200	175.86	0.368	750	360.64	0.304
250	194.10	0.362	800	375.7	0.298
300	212.05	0.356	850	390.48	0.293

°C	Tolerance values for Pt100 sensors			
	Class A		Class B	
	°C	Ohm	°C	Ohm
-200	±0.55	±0.24	±1.30	±0.56
-100	±0.35	±0.14	±0.80	±0.32
0	±0.15	±0.06	±0.30	±0.12
100	±0.35	±0.13	±0.80	±0.30
200	±0.55	±0.20	±1.30	±0.48
300	±0.75	±0.27	±1.80	±0.64
400	±0.95	±0.33	±2.30	±0.79
500	±1.15	±0.38	±2.80	±0.93
600	±1.35	±0.43	±3.30	±1.06
650	±1.45	±0.46	±3.60	±1.13
700	–	–	±3.80	±1.17
800	–	–	±4.30	±1.28
850	–	–	±4.60	±1.34