

Comprehensive List of 50 Temperature Sensor Types and Variations

#	Sensor Type / Variation	Technology	Key Characteristic / Application
Thermocouples (9 Types)			Measure temperature via the Seebeck effect (voltage)
1	Type B Thermocouple	Platinum-Rhodium	High-temperature applications (up to 1800°C)
2	Type C Thermocouple	Tungsten-Rhenium	Extremely high-temperature, vacuum furnaces
3	Type E Thermocouple	Chromel-Constantan	Highest EMF output, good for low-temp applications
4	Type J Thermocouple	Iron-Constantan	Common, wide range, less expensive
5	Type K Thermocouple	Chromel-Alumel	Most common general-purpose type, wide range
6	Type N Thermocouple	Nicrosil-Nisil	High stability and resistance to oxidation
7	Type R Thermocouple	Platinum-Rhodium	High-temperature, high accuracy, expensive
8	Type S Thermocouple	Platinum-Rhodium	High-temperature, reference standard
9	Type T Thermocouple	Copper-Constantan	Low-temperature, high accuracy, food industry
Resistance Temperature			Measure temperature via

Detectors (RTDs) (10 Types)			resistance change (positive coefficient)
10	Pt10 RTD	Platinum	10 Ohms at 0°C, low resistance
11	Pt50 RTD	Platinum	50 Ohms at 0°C
12	Pt100 RTD	Platinum	100 Ohms at 0°C, most common industrial standard
13	Pt200 RTD	Platinum	200 Ohms at 0°C
14	Pt500 RTD	Platinum	500 Ohms at 0°C
15	Pt1000 RTD	Platinum	1000 Ohms at 0°C, common in battery-powered devices
16	Thin-Film RTD	Construction Method	Fast response time, small size
17	Wire-Wound RTD	Construction Method	High accuracy, high stability
18	Coiled Element RTD	Construction Method	High vibration resistance
19	Ceramic Element RTD	Construction Method	High temperature and chemical resistance
Thermistors (10 Types)			Measure temperature via resistance change (negative or positive coefficient)
20	NTC Thermistor (Bead)	Negative Temp. Coefficient	High precision, small size
21	NTC Thermistor (Disc)	Negative Temp. Coefficient	Surface mounting, higher power dissipation
22	NTC Thermistor (Chip)	Negative Temp. Coefficient	PCB mounting, fast response

23	NTC Thermistor (Glass-Encapsulated)	Negative Temp. Coefficient	High stability, moisture resistance
24	PTC Thermistor (Switching)	Positive Temp. Coefficient	Used for overcurrent protection
25	PTC Thermistor (Resettable Fuse)	Positive Temp. Coefficient	Self-resetting circuit protection
26	Linear Thermistor	Specialized NTC	Provides a near- linear output over a range
27	Thermopile Sensor	Thermopile Array	Non-contact, measures infrared radiation
28	Surface Mount Thermistor	Package Type	Automated assembly (SMD)
29	Probe/Immersion Thermistor	Package Type	Liquid or gas immersion applications
Semiconductor/IC Sensors (22 Types)			Measure temperature using diodes/transistors (voltage/current)
Analog IC Sensors (5)			Output voltage proportional to temperature
30	LM35 Series	Analog IC	Output 10mV/°C, pre- calibrated in Celsius
31	LM34 Series	Analog IC	Output 10mV/°F, pre- calibrated in Fahrenheit
32	TMP36 Series	Analog IC	Low voltage, low power, wide temperature range
33	AD590 Series	Analog IC	Output current proportional to absolute temperature
34	KTY81 Series	Silicon-based	Positive Temperature

			Coefficient (PTC) silicon sensor
Digital IC Sensors (10)			Output digital signal (e.g., I2C, SPI, 1-Wire)
35	DS18B20	Digital IC (1-Wire)	Single-wire interface, popular for long-distance sensing
36	DHT11	Digital IC (T+H)	Low-cost, combined Temperature and Humidity
37	DHT22 / AM2302	Digital IC (T+H)	Higher accuracy than DHT11, combined T+H
38	BME280	Digital IC (T+H+P)	Combined Temperature, Humidity, and Pressure
39	BMP180 / BMP280	Digital IC (T+P)	Combined Temperature and Barometric Pressure
40	MCP9808	Digital IC (I2C)	High accuracy, low power consumption
41	TMP102	Digital IC (I2C)	Tiny package, low power, ideal for wearables
42	SHT30 / SHT31	Digital IC (T+H)	High-end, combined T+H sensor
43	Si7021	Digital IC (T+H)	Low-power, factory-calibrated T+H sensor
44	MAX31855	Digital IC (SPI)	Cold-junction compensated Thermocouple-to-Digital Converter
Specialized & Other Types (6)			Niche applications and technologies

45	Fiber Optic Sensor	Optical	Immune to EMI, high voltage, harsh environments
46	Quartz Crystal Sensor	Frequency-based	High resolution, measures frequency change
47	Diode-based Sensor	Semiconductor	Used in cryogenic applications
48	Thermistor Array	Array	Measures temperature distribution over an area
49	Non-Contact Infrared (IR)	Thermopile	Measures surface temperature without physical contact
50	Resistance-based (General)	Other Materials	Non-Platinum resistance sensors (e.g., Copper, Nickel)