Overview - Digital Thermometers

Measuring range (°C)	Accuracy (°C)	Features	Art. No.	Page
-10 to +50	±1	Solar thermometer, Min/Max-storage	KT83.1	815
-10 to +200	±1	Thermometer with timer, alarm and min./max. functions	X256.1	817
-20 to +50	±1	Refrigerator thermometer	TA56.1	817
-20 to +55	±0.4	°C and rF data logger; memory with capacity for 1 mill. measured values; data readout via PC or SD card	PH32.1	830
-20 to +50	±1	Min/Max-temperature values; Suitable for inside and outside; Splashproof	CK39.1	817
-20 to +70	±0.5	°C- and rF data logger with display for 16000 measured values	NA07.1	829
-20 to +140	±0.2 to ±0.5	Data logger for high temperatures; water-tight and pressure-tight up to 10 bar	ENE3.1	831
-30 to +50	±0.5	Wireless data logger with integrated NTC temperature sensor	ECK0.1	832
-30 to +70	±1	Digital fridge/freezer thermometer with min/max function	PE75.1	817
-30 to +60	±1	°C and rF data logger with wireless sensor; connectivity for 8 transmitters	PL21.1	831
-30 to +60	±1	LAN data logger with Internet connection, data can be retrieved via smartphone, up to 50 transmitters can be connected	ENN0.1	832
-30 to +70	±0.5	°C data logger with display for 16000 measured values	NA06.1	829
-30 to +220	±0.5 / 1%	Folding thermometer for core temperature and random measurement	PE63.1	820
-30 to +220	±1.5 to ±2 or 2 %	Non-contact thermometer with hold and lock function	Y400.1	834
-35 to +55	±0.5	°C data logger; memory with capacity for 1 mill. measured values; data readout via PC or SD card	PH31.1	830
-35 to +70	±0.5	°C data logger with display for 40 000 measured values	CXC4.1	829
-35 to +365	±2 to ±2 %	Infrared thermometer with measuring spot marking and pistol grip	LY46.1	834
-40 to +65	±1	Readings transferred wirelessly, up to three transmitter units can be connected, min./max. memory	LP27.1	815
-30 to +70	±1	Wireless transmission of measured values, min/max memory	HY40.1	815
-40 to +70	±0.5 to ±1	°C data logger with integrated USB port for 60000 measured values	CCE2.1	828
-40 to +70	±0.5 to ±1	For monitoring refrigerators; alarm, min./max. and hold functions	KA32.1	818
-40 to +70	±1 to ±2	Inner-/outer thermometer Rotilabo®, min/max function	YE41.1	816
-40 to +70	±0,5, ±1,0	USB data logger able to display 150.000 readings, data issued as a PDF automatically	EHX3.1	828
-40 to +200	±1 to ±2	Insertion thermometer with revolving display, Min/Max and hold function	AK16.1	819
-40 to +200	±0.5 to ±1.5	For monitoring refrigerators; alarm, min./max. and hold functions	KA33.1	818
-40 to +200	±1 to ±1.5	Penetration thermometer with HOLD-, Min- and Max-function	T332.1	819
-40 to +200	±0.5 to ±1	Min/Max-storage, hold function, display lighting	N359.1	825
-40 to +200	±1 to ±1.5	Permanently-connected NTC penetration probe, min/max and hold function	HNN8.1	825
-40 to +250	±0.5 to ±1 or 1 %	Folding thermometer for core temperature and random measurement	TA94.1	820
-40 to +250	±0.5 to ±1 or 1 %	Penetration thermometer with min/max and hold function, water and dustproof (IP 67)	LN45.1	819
-50 to +60	±1	Inner-/outer thermometer Min/Max-storage	AN34.1	816
-50 to +70	±1.5	Thermometer with timer-function and temperature trend	Y845.1	815
-50 to +70	±1	Indoor-/outdoor thermometer, officially calibrated with certificate, min/max function	EH47.1	818
-50 to +70	±1	Inner-/outer thermometer, Min/Max-storage	CH86.1	816
-50 to +70	±1 to ±2	Inner-/outer thermometer with limit value alarm and Min/Max function	HA34.1	816
-50 to +70	±0.3	With factory certificate, alarm, min./max. functions and temperature control	HAN2.1	819
-50 to +125	±0.5 to ±1	°C data logger with display for 60 000 measured values. Connection of external sensor	NA22.1	830
-50 to +150	±0.2 or ±0.4	Precision-NTC-thermometer with acoustic limit value alarm, min/max function	EL54.1	822
-50 to +200	±1	Penetration probe thermometer, hold function	A321.1	820
-50 to +250	±0,5 to ±2,5	Penetration probe and infrared thermometer for core and surface temperature measurement	XK00.1	833
-50 to +250	±0.5 to ±1 or 1 %	Folding thermometer for core temperature and random measurement with Min/Max-function	PE64.1	820
-50 to +300	±0.2 to ±0.3	Conformity assessment; with alarm and min./max. functions	EH93.1	823
-50 to +300	±1.5 to ±2	Non-contact temperature quicktester with laser spot marker	P855.1	833
-50 to +300	±0.2 to ±0.5 or 0.4 %	For simple, fast measurements, with penetration probe, IP 67	HHY1.1	822
-50 to +1000	±0.5 to ±0.7 / ±0.3 % to ±0.5 %	Wide range of accessories available; with alarm, min./max. and hold functions	EH73.1	824
-60 to +500	±2 or ±2 %	Infrared thermometer with circuit laser, thermocouple input for external sensors	EHP6.1	834
-60 to +1000	±2 or ±2 %	Infrared thermometer with thermocouple input and double laser	KA38.1	834
-64 to +1370	±1 or ±1 %	For simple temperature measurements, various K-type sensors can be connected, hold function	KL30.1	821
-80 to +70	±0.5 to ±0.8	°C data logger for 40 000 measured values, specially designed for low temperatures	CXC5.1	829
-100 to +800	±0.2 to 0.2 %	Pt 100-thermometer with Min/Max-function and limit value alarm	EH87.1	823
-200 to +220	±1.5 to ±2.5	Wireless data logger with 2 connections for external temperature sensors	ECK1.1	832
-200 to +250	±0.5	°C-data logger with display for 60000 measured values. Connection of external sensor	NK56.1	830
-200 to +850	±0.3	Pt 100 thermometer with min/max and hold function, internal memory, USB interface, adjustment feature	HNN5.1	826
-200 to +1760	±0.1 to ±1.5	With calibrating function, can be connected either to Pt 100 probe or thermocouple	X717.1	827
-200 to +1760	±0.1 to ±1.5	With calibrating function, can be connected either to Pt 100 probe or thermocouple	X718.1	827
-200 to +1760	±0.03 to ±1.5	With calibrating function and extremly high accuracy	X719.1	827
-200 to +1760	±0.03 to ±1.5	With calibrating function and extremly high accuracy	X720.1	827
-200 to +1375	±0.5	Type K thermometer with min/max, hold and average values, adjustment feature	HNN9.1	826

Well advised with Roth.

General information on calibration and calibrating meters

Meters with DAkkS Certificates of Calibration:
A DAkkS Certificate of Calibration is issued by a accredited testing agency (must be approved and is monitored by Deutsche Akkreditierungsstelle [German Accreditation Agency]). Meter meets national standard requirements and can be used in accordance with ISO 9000 Quality Assurance Standards.
Very low preset tolerance (lower than required for works certificate).

The user of DAkkS certified meters can therefore issue internal works certificates. This is particulary of advantage in the Quality Assurance Department of larger firms where measuring instruments used in the Production Department must be tested and calibrated at specific intervals.
Individual test points should be customized depending upon temperature ranges under measurement.

Meters with a Works Certificate of Calibration:
A works certificate of calibration is issued after carrying out a comparison measurement with a DAkkS calibrated meter.
Unit meets national standard requirements and can be used in accordance with **ISO 9000** Quality Assurance Standards.
Tolerance of measurement with works certificates is slightly higher than of a DAkkS certified unit. Individual test points should be customized depending upon temperature ranges under measurement.

Information on temperature measurement

There are various methods to make a temperature visible or readable:
Colour reaction (e.g. with colour change crayons), defined solid or liquid extension (e.g. glass thermometers) and electric signals (e.g. digital thermometers).
There are a number of sensor elements available to change the temperature values into electric signals.

Thermocouples (NiCr-Ni)
Thermocouples consist of two point welded wires of different metals.
The most common thermocouple is NiCr-Ni (Designation K).

Resistance sensors (Pt 100)
Here the resistance change of platin resistance, which is independent of temperature, is used. The multiplier resistor is driven with a constant current and the fall of voltage measured.

Thermistors (NTC)
Temperature measurement with thermistors is also based on a temperature-independent resistance change of the thermocouple. Unlike the Pt 100 thermometers, thermistors have a very negative temperature coefficient.

General rule
Thermocouple probes are fast and have a large measuring range.
Pt 100 and NTC probes are slower, but more precise.
There is a special probe for each application, e.g. insertion probe for measuring in plastic or pasty media.