USB-502

Specifications

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All specifications are subject to change without notice.

Typical for 25 °C unless otherwise specified.

Specifications in *italic* text are guaranteed by design.

Temperature

Table 1. Temperature specifications

Parameter	Specification
Measurement range	-35 °C (-31 °F) minimum, 80 °C (176 °F) maximum
Repeatability	±0.1 °C (±0.2 °F) typical
Accuracy (overall error)	±0.5 °C (+1 °F) typical, ±2 °C (±4 °F) maximum
Dew point accuracy (overall error)	±1.1°C (±2°F) typical (note 1)
Alarm threshold range	Software configurable: –35 to 79.5 °C (–30 to 175 °F), high and low alarms

Note 1: Specifies the overall error in the calculated dew point, for relative humidity measurements between 40 and 100% RH at 25 °C.

Relative humidity

Table 2. Relative humidity specifications

Parameter	Specification (%RH)
Measurement range	0 minimum, 100 maximum
Repeatability (short term)	±0.1 typical
Accuracy (overall error)	±3.0 typical, (note 2)
Internal resolution	0.5 typical
Long-term stability	0.5 typical (%RH per year)
Alarm threshold range	0 to 99.5 (high and low alarms)

Note 2: Specifies the overall error in the logged readings for relative humidity measurements between 20 and 80% RH.

Data sampling

Table 3. Sampling specifications

Parameter	Specification
Sample rate	Software configurable: 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 hr, 2 hr, 6 hr, 12 hr
Temperature samples	16,382 maximum
Relative humidity samples	16,382 maximum
Temperature units	°C or °F
Logging modes	Immediate and delayed start

USB specifications

Table 4. USB specifications

Parameter	Specification
USB-device type	USB 2.0 (full-speed)
Device compatibility	USB 1.1, USB 2.0

LED status indicators

Two bicolor (red/green) LEDs display temperature (°C/°F) and relative humidity (%rh) logging status. All conditions listed below apply to both the % RH and ºC/ºF LED indicators.

Table 5. LED specifications

LED color	Flashing mode	Indication
Green	Single flash every 10 seconds	Currently logging, no alarm.
	Double flash every 10 seconds	Delayed start. Logging to start at the set date and time.
Red	Single flash every 10 seconds	Currently logging, low alarm condition (note 3)
	Double flash every 10 seconds	Currently logging, high alarm condition (note 3)
	Triple-flash (alternating with green) every 10 seconds	Memory full, high or low alarm condition, *Hold* is enabled (no more readings are stored). (note 3)
	Both LEDs triple-flash every 10 seconds	Memory full, no alarms, *Hold* is enabled (no more readings are stored).
	Both LEDs flash once every 60 seconds	Low battery. Alarm conditions are ignored.
	No LEDs flash	Logger stopped or battery depleted

Note 3: If both alarms have Hold selected, the alarm condition may have been triggered at any point during the current logging session.

Power

Table 6. Power specifications

Parameter	Specification
Power source	½ AA 3.6 V lithium battery
Battery lifespan	1 year typical (note 4)

Note 4: Battery lifespan is dependent on the sample rate and ambient temperature.

Environmental

Table 7. Environmental specifications

Parameter	Specification
Operating temperature range	-35 °C to 80 °C (-31 °F to 176 °F)
Ingress protection	Meets IP67 Standard with protective cap installed

Caution! Exposure of the internal sensor to chemical vapors, such as those produced by some plastics and foamed materials, may interfere with the internal sensor and cause inaccurate readings to be logged. In a clean environment, this will rectify itself over time. Ensure that the USB-502 is operated in a ventilated area in which air exchange is allowed.

High levels of pollutants may cause permanent damage to the internal sensor.

Exposure to extreme conditions or chemical vapors will require the following reconditioning procedure to restore the internal sensor to a calibration state: 80 °C (176 °F) at <5%RH for 36 hours baking, followed by 20-30 °C (70 to 90 °F) at >74%RH for 48 hours rehydration.

Mechanical

Table 8. Mechanical specifications

Dimensions	103 mm long x 26.4 mm wide x 26.4 mm high (4.06 in. long x 1.04 in. wide x 1.04 in. high)

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