

USB-500 Series

Low-Cost Data Loggers and Accessories



Features

- Stand-alone, remote data loggers and portable logger assistant
- Measure temperature, humidity, voltage, current, or event/state change
- 1 or 2 channels
- Low cost, small size
- Battery powered

Software

- Includes easy-to-use software to set sampling interval, alarms, and start time
- Easily display, graph, and save data in formats such as .csv and .txt to import into Microsoft® Excel®
- Supported Operating Systems: Windows® 7/Vista®/XP SP2, 32-bit or 64-bit



USB-500 Series data loggers offer low-cost, stand-alone data collection for temperature, humidity, voltage, current, or event/state change

Overview

The USB-500 Series of stand-alone data loggers record temperature, humidity, voltage, current, or event/state change readings. You can easily set up the logging interval and start-time, log data, then upload the stored data by plugging the logger into a USB port on your computer with the included software. Logged data can then be graphed, printed, and exported to Excel. Each data logger is powered by a long-life lithium battery which lasts for up to a full year.

Several models are available with different measurement input types, sampling intervals, and amount of built-in memory.

Analog Input

One or two channels are available on USB-500 Series data loggers. Units are available with temperature, thermocouple, humidity, voltage, current, or event inputs.

Sampling Interval

Loggers can be programmed with sampling intervals from 1 second to as long as 12 hours, depending on your data collection needs. The logger stores the data and then uploads it to a computer through USB when collection is complete.

Status LEDs

USB-500 Series loggers feature one or two LEDs which indicate logging status, alarm condition, battery, and memory status.

USB-500 Series						
Model	Channels	Measurement Type	Temperature Measurement Range	Sampling Interval	Memory	Features
USB-501-LT	1	temperature	-10 °C to 50 °C	15 min to 2 h	4 K readings	—
USB-501	1	temperature	-35 °C to 80 °C	10 s to 12 h	16 K readings	—
USB-501-LCD	1	temperature	-35 °C to 80 °C	10 s to 12 h	16 K readings	built-in LCD display
USB-501-PRO	1	temperature	-40 °C to 125 °C	1 s to 12 h	32 K readings	extended temp. range
USB-501-RCG	1	temperature	-20 °C to 60 °C	1 s to 12 h	32 K readings	rechargeable battery
USB-501-TC	1	thermocouple	thermocouple dependent	1 s to 12 h	32 K readings	—
USB-501-TC-LCD	1	thermocouple	thermocouple dependent	1 s to 12 h	32 K readings	built-in LCD display
USB-502	2	temperature, humidity	-35 °C to 80 °C	10 s to 12 h	16 K readings	—
USB-502-LCD	2	temperature, humidity	-35 °C to 80 °C	10 s to 12 h	16 K readings	built-in LCD display
USB-502-PLUS	2	temperature, humidity	-35 °C to 80 °C	10 s to 12 h	16 K readings	increased accuracy
USB-503	1	0 VDC to 30 VDC	—	10 s to 12 h	32 K readings	—
USB-504	1	4 mA to 20 mA	—	10 s to 12 h	32 K readings	—
USB-505	1	event, state change	—	1 s to 12 h	32 K readings	—

USB-500 Series

General Information



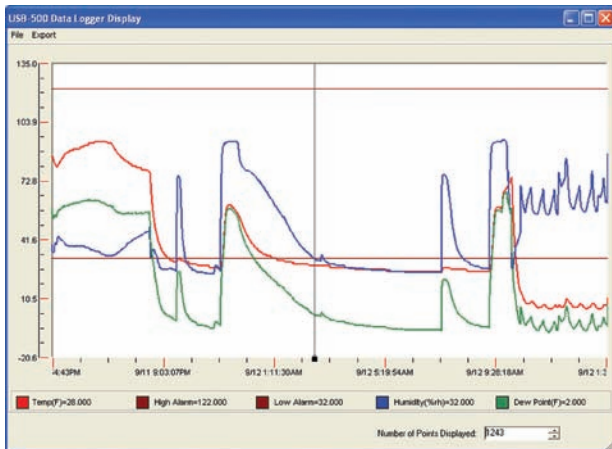
Real-Time LCD Display

The USB-501-LCD, USB-501-TC-LCD and USB-502-LCD feature a built-in LCD for real-time display of data. The LCD can display current and maximum/minimum stored temperature and humidity values.

USB-500 Data Logger Software

Each USB-500 Series data logger includes an easy-to-use software application which allows users to set the sampling interval, alarms, temperature scale, and start time.

The included software also displays, graphs, and saves data to a file, and records maximum and minimum values. Logged temperature, humidity, dew point, voltage, and current data can also be exported to *comma-separated values* (.csv) and text formats for display and analysis in popular spreadsheet programs such as Microsoft Excel.



The included USB-500 Data Logger software displays recorded measurements in an easy-to-read chart. Movable cursors isolate data values along with a time stamp. Temperature, humidity, dew point, voltage, current, and event measurements are displayed. In addition, high and low alarms are also shown.

USB-525 Logger Assistant

The ultra-portable USB-525 logger assistant allows the user to conveniently program compatible USB-500 Series loggers and view the data on a high-resolution screen.

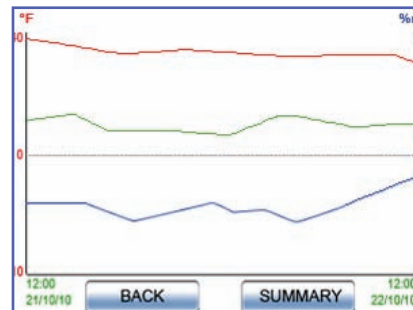


Connect a USB-500 Series data logger directly to the USB port on the USB-525, and follow the instructions on the touch-screen display to set up a compatible logger, download data, view data, and export data for use in a spreadsheet application. Logger setup and data display can be done on site without the need of a computer, reducing interruptions in data collection and decreasing travel by users between sites.

Logged data can also be transferred to a computer over the included micro-USB cable for display using the USB-500 Data Logger software (this feature requires USB-500 Data Logger Application 2.7.1.0 or later).

The USB-525 supports the following USB-500 Series data loggers:

- USB-501
- USB-501-PRO
- USB-502
- USB-501-LCD
- USB-501-RCG
- USB-502-LCD
- USB-501-LT
- USB-501-TC-LCD
- USB-502-PLUS
- USB-501-TC



The USB-525 displays recorded temperature, humidity, dew point, and alarm measurements in an easy-to-read chart.

USB-500 Series

Specifications



Specifications

All specifications are subject to change without notice.
Typical for 25 °C unless otherwise specified.

USB-501-LT

Lowest Cost Temperature Logger

Temperature

Measurement Range: -10 °C to 50 °C
(14 °F to 122 °F)

Resolution: 1 °C (2 °F) typ

Accuracy (Overall Error): ±2.5 °C (±4.5 °F) max

Data Sampling

Sampling Intervals (Software-Selectable): 15 min, 30 min, 1 h, 2 h

Max Temperature Samples: 4,080

Units: °C or °F

Alarms

High Temp Alarm Range: -10 °C to 79.5 °C (14 °F to 175 °F)

Low Temp Alarm Range: -10 °C to 79.5 °C (14 °F to 175 °F)

Temp Resolution: 0.5 °C (1 °F)

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: CR1620 lithium button cell

Battery Lifespan: @ 30 min logging rate, 1 month min

Environmental

Operating Temperature Range: -10 °C to 50 °C (14 °F to 122 °F)

Mechanical

Dimensions (L × W × H): 68 × 18 × 9.4 mm (2.7 × 0.7 × 0.4 in.)



USB-501

Temperature Logger

Temperature

Measurement Range: -35 °C to 80 °C (-31 °F to 176 °F)

Resolution: 0.5 °C (1 °F) typ

Accuracy (Overall Error): ±1 °C (±2 °F) typ

Data Sampling

Sampling Intervals (Software-Selectable): 10 s, 30 s, 1 min,
5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Max Temperature Samples: 16,382

Units: °C or °F

Alarms

High Temperature Alarm Range: -35 °C to 79.5 °C (-31 °F to 175 °F)

Low Temperature Alarm Range: -35 °C to 79.5 °C (-31 °F to 175 °F)

Temperature Resolution Range: 0.5 °C (1 °F)

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Lifespan: @ 1 min logging rate, 1 year typ

Environmental

Moisture and Dust Protection: Protective cap installed, IP67

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Mechanical

Dimensions (L × W × H): 98 × 26 × 26 mm (3.86 × 1.02 × 1.02 in.)



USB-501-LCD

Temperature Logger with LCD

Temperature

Measurement Range: -35 °C to 80 °C

(-31 °F to 176 °F)

Resolution: 0.5 °C (1.0 °F) typ

Accuracy (Overall Error): ±0.5 °C (±1.0 °F) typ,
±1.5 °C (±3.0 °F) max, when operating between
0 °C and 40 °C

Data Sampling

Sampling Intervals (Software-Selectable): 10 s, 30 s, 1
min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 16,379

Units: °C or °F

Data Rollover (Software-Selectable): Allows unlimited logging
periods by overwriting the oldest data when the memory is full

Alarms

High Temperature Alarm Range: -35 °C to 79.5 °C (-31 °F to 175 °F)

Low Temperature Alarm Range: -35 °C to 79.5 °C (-31 °F to 175 °F)

Alarm Temperature Resolution: 0.5 °C (1.0 °F) typ

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Lifespan: @ 1 min logging rate, 1 year max

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Moisture and Dust Protection: Protective cap installed, IP67

Mechanical

Dimensions (L × W × H): 119.5 × 25.3 × 22.1 mm (4.7 × 1.04 × 0.87 in.)



USB-501-PRO

Temperature Logger with Rugged Enclosure

Temperature

Measurement Range: -40 °C to 125 °C (-40 °F to 257 °F)

Resolution: 0.1 °C (0.2 °F) typ

Accuracy (Overall Error): ±0.2 °C (±0.4 °F) typ,
±0.5 °C (±1.0 °F) max, when operating between 0 °C and 40 °C

Data Sampling

Sampling Intervals (Software-Selectable): 1 s, 2 s, 5 s, 10 s,
30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 32,510

Units: °C or °F

Data Rollover (Software-Selectable): Allows unlimited logging
periods by overwriting the oldest data when the memory is full

Alarms

High Temperature Alarm Range: -40 °C to 124.5 °C (-40 °F to 256 °F)

Low Temperature Alarm Range: -40 °C to 124.5 °C (-40 °F to 256 °F)

Alarm Temperature Resolution: 0.1 °C (0.2 °F) typ

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 2/3AA 3.6 V lithium battery

Battery Lifespan

@ -20 °C and a 10 s logging rate, 1 year min,

@ 80 °C and a 10 s logging rate, 2 year, typ

@ -40 °C to 125 °C (-40 °F to 257 °F), 3 year max



USB-500 Series

Specifications

Environmental

Operating Temperature Range: -40°C to 125°C (-40°F to 257°F)
Moisture and Dust Protection: Protective cap installed, IP67
Corrosion Protection: Stainless steel housing, 316 grade

Mechanical

Dimensions (L x W x H): 111 x 20 x 20 mm (4.37 x 0.787 x 0.787 in.)

USB-501-RCG

Temperature Logger with Rechargeable Battery



Temperature

Measurement Range: -20°C to 60°C
(-4°F to 140°F)

Resolution: 0.1°C (0.2°F) typ
Accuracy (Overall Error): $\pm 1^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$) typ,

Data Sampling

Sampling Intervals (Software-Selectable): 1 s, 2 s, 5 s, 10 s, 30 s,
1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 32,510

Units: $^{\circ}\text{C}$ or $^{\circ}\text{F}$

Data Rollover (Software-Selectable): Allows unlimited logging periods by overwriting the oldest data when the memory is full

Alarms

High Temperature Alarm Range: -20.5°C to 60°C (-5°F to 140°F)

Low Temperature Alarm Range: -20.5°C to 60°C (-5°F to 140°F)

Alarm Temperature Resolution: 0.5°C (1.0°F)

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: Rechargeable lithium battery

Battery Lifespan

@ -20°C (-4°F) and a 1 s logging rate, 1 week min,

@ 20°C (68°F) and a 1 min logging rate, 4 weeks min

Battery operates best at temperatures between 10°C and 30°C (50°F and 86°F). Only recharge battery in an environment within this temperature.

Environmental

Operating Temperature Range: -20°C to 60°C (-4°F to 140°F)

Moisture and Dust Protection: Protective cap installed, IP67

Corrosion Protection: Protective cap installed, stainless steel housing, 316 grade

Mechanical

Dimensions (L x W x H): 92.7 x 19.8 x 19.8 mm
(3.65 x 0.78 x 0.78 in.)

USB-501-TC

Thermocouple Logger

Temperature

The USB-501-TC can log temperatures as detailed below using thermocouple sensors. However, the data logger should not be subjected to temperatures outside the operating temperature range of -10°C to 40°C (14°F to 104°F).

The K-type thermocouple probe that ships with the USB-501-TC is rated from 0°C to 400°C (32°F to 752°F).

Measurement Range

K-type Thermocouple: -200°C to 1350°C
(-328°F to 2462°F)

J-type Thermocouple: -200°C to 1190°C
(-328°F to 2174°F)

T-type Thermocouple: -200°C to 390°C
(-328°F to 734°F)

Resolution: 0.5°C (1°F) typ

Accuracy (Logger Error): $\pm 1^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$) typ

Data Sampling

Sampling Intervals (Software-Selectable): 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 5 min,
15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Max Temperature Samples: 32,510

Units: $^{\circ}\text{C}$ or $^{\circ}\text{F}$

Alarms

High Temperature Alarm Range: -200°C to 1349.5°C (-328°F to 2461°F)

Low Temperature Alarm Range: -200°C to 1349.5°C (-328°F to 2461°F)

Alarm Temperature Resolution: 0.5°C (1°F)

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Lifespan: @ 1 min logging rate, 6 months typ

Environmental

Operating Temperature Range: -10°C to 40°C (14°F to 104°F)

Mechanical

Dimensions (L x W x H): 118 x 27 x 27 mm (3.86 x 1.02 x 1.02 in.)

USB-501-TC-LCD

Thermocouple Logger with LCD

Temperature

Measurement Range

K-type Thermocouple: -200°C to 1350°C (-328°F to 2462°F)

J-type Thermocouple: -200°C to 1190°C (-328°F to 2174°F)

T-type Thermocouple: -200°C to 390°C (-328°F to 734°F)

Resolution: 0.5°C (1°F) typ

Accuracy (Logger Error): $\pm 1^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$) typ

Note: The USB-501-TC-LCD ships with a K-type thermocouple probe rated from 0°C to 400°C (32°F to 752°F). The USB-501-TC-LCD can log temperatures as detailed above using thermocouple sensors. However, the data logger should not be subjected to temperatures outside the operating temperature range of -10°C to 40°C (14°F to 104°F).



USB-500 Series

Specifications



Data Sampling

Sampling Intervals (Software-Selectable): 1 s, 2,s, 5 s, 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 32,510 max

Units: °C or °F

Data Rollover (Software-Selectable): Allows unlimited logging periods by overwriting the oldest data when the memory is full.

Alarms

High Temperature Alarm Range: -200 °C to 1349.5 °C
(-328 °F to 2461 °F)

Low Temperature Alarm Range: -200 °C to 1349.5 °C
(-328 °F to 2461 °F)

Alarm Temperature Resolution: 0.5 °C (1 °F) typ

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Life: @ 25 °C and 1 min logging rate, 6 months typ

Environmental

Operating Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

LCD Status Indicators

The high-contrast LCD shows temperature data and information regarding the logger status.

Temperature (°C/°F): Current temperature, stored max, and stored min values

LCD Mode (Software-Selectable): Always on; on for 30 seconds after the LCD button is pressed; always off

Mechanical

Dimensions (L × W × H): 134.5 × 23.9 × 21.2 mm
(5.29 × 0.94 × 0.83 in.)

USB-502

Temperature & Humidity Logger

Temperature

Measurement Range: -35 °C (-31 °F) min, 80 °C (176 °F) max

Repeatability (Short Term): ±0.1 °C (±0.2 °F) typ

Accuracy (Overall Error): ±0.5 °C (±1 °F) typ, ±2 °C (±4 °F) max

Dew Point Accuracy (Overall Error): ±1.1 °C (±2 °F) typ

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

Alarm Threshold Range (Software-Selectable): -35 °C to 79.5 °C
(-30 °F to 175 °F) (high and low alarms)

Relative Humidity (%RH)

Measurement Range: 0% to 100%

Repeatability (Short Term): ±0.1 typ

Accuracy (Overall Error): ±3.0 typ

Note: Specifies the overall error in the logged readings for relative humidity measurements from 20% to 80%

Internal Resolution: 0.5 typ

Long Term Stability: 0.5 typ (%RH per year)

Alarm Threshold Range: 0% to 99.5% (high and low alarms)

Data Sampling

Sampling Intervals (Software-Selectable): 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 16,382 max

Relative Humidity Samples: 16,382 max

Temperature Units: °C or °F

Logging Modes: Immediate and delayed start



USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Lifespan: 1 year typ (battery lifespan depends on the sample rate and ambient temperature)

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Ingress Protection: Meets IP67 Standard with protective cap installed

Mechanical

Dimensions (L × W × H): 103 × 26.4 × 26.4 mm (4.06 × 1.04 × 1.04 in.)

USB-502-LCD

Temperature and Humidity Logger with LCD

Temperature

Measurement Range: -35 °C to 80 °C

(-31 °F to 176 °F)

Note: At temperatures below -20 °C

(-4 °F), the LCD may exhibit slower

response time of approximately 10 seconds.

Repeatability (Short Term): ±0.1 °C, ±0.2 °F

typ

Accuracy (Overall Error): ±0.5 °C typ, ±2 °C max; ±1 °F typ, ±4 °F max

Internal Resolution: 0.5 °C, 1 °F typ

Dew Point Accuracy (overall error): ±1.1 °C, ±2 °F typ

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

Alarm Threshold Range (Software-Selectable): -35 °C to 79.5 °C

(-31 °F to 175 °F) (high and low alarms)

Relative Humidity (%RH)

Measurement Range: 0% to 100%

Repeatability (Short Term): ±0.1 typ

Accuracy (Overall Error): ±3.0 typ, ±6.0 max

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

Internal Resolution: 0.5 typ

Long Term Stability: 0.5 typ (%RH per year)

Alarm Threshold Range: 0% to 99.5% (high and low alarms)

Data Sampling

Sampling Interval (Software-Selectable): 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 16,379 max

Relative Humidity Samples: 16,379 max

Temperature Units: °C or °F

Logging Modes: Immediate, delayed start, and push to start (through the LCD button on the device)

Data Rollover (Software-Selectable): Allows unlimited logging periods by overwriting the oldest data when memory is filled

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

LCD Status Indicators

The high-contrast LCD shows temperature data and information regarding the logger status.

Temperature (°C/°F): Current temperature, stored max, and stored min values

Relative Humidity (%RH): Current relative humidity, stored max, and stored min values

LCD Mode (Software-Selectable): Always on; on for 30 seconds after the LCD button is pressed; always off



USB-500 Series

Specifications



Power

Power Source: 1/2AA 3.6 V lithium battery
Battery Life: 1 year typ (battery lifespan depends on the sample rate, ambient temperature, and use of the LCD screen)

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)
Note: At temperatures below -20 °C (-4 °F), the LCD may exhibit slower response time of approximately 10 seconds

Mechanical

Dimensions (L × W × H): 126.0 × 24.1 × 25.3 mm (4.96 × 0.95 × 1.00 in.)

USB-502-PLUS

Temperature and Humidity Logger with Increased Accuracy

Temperature

Measurement Range: -35 °C to 80 °C (-31 °F to 176 °F)

Repeatability: ±0.1 °C, ±0.2 °F typ
Accuracy (Overall Error): ±0.3 °C typ, ±1.5 °C max; ±0.6 °F typ, ±3 °F max

Internal Resolution: 0.5 °C, 1 °F typ
Dew Point Accuracy (Overall Error): ±1.1 °C, ±2 °F typ

Note: Specifies the overall error in the calculated dew point for relative humidity measurements from 40% to 100% RH at 25 °C

Alarm Threshold Range (Software-Selectable): -35 °C to 79.5 °C (-30 °F to 175 °F) (high and low alarms)

Relative Humidity (%RH)

Measurement Range: 0% to 100%

Repeatability (Short Term): ±0.1 typ

Accuracy (Overall Error): ±2.0 typ, ±4.0 max

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

Internal Resolution: 0.5 typ

Long Term Stability: 0.5 typ (%RH per year)

Alarm Threshold Range: 0% to 99.5% (high and low alarms)

Data Sampling

Sample Rate (Software-Selectable): 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Temperature Samples: 16,382 max

Relative Humidity Samples: 16,382 max

Temperature Units: °C or °F

Logging Modes: Immediate and delayed start

Data Rollover (Software-Selectable): Allows unlimited logging periods by overwriting the oldest data when the memory is full.

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Life: 1 year typ

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Ingress Protection: Meets IP67 Standard with protective cap installed

Mechanical

Dimensions (L × W × H): 103.0 × 26.4 × 26.4 mm (4.06 × 1.04 × 1.04 in.)



USB-503

Voltage Logger

Voltage

Measurement Range: 0 VDC to 30 VDC

Resolution: 50 mVDC

Accuracy (Overall Error): ±1% typ

Data Sampling

Sampling Intervals (Software-Selectable): 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Max Voltage Samples: 32,510

Units: VDC

Alarms

High Voltage Alarm Range: 0 VDC to 30 VDC

High Voltage Alarm Resolution: 0.3 V

Low Voltage Alarm Range: 0 VDC to 30 VDC

Low Voltage Alarm Resolution: 0.3 V

USB Specifications

USB Device Type: USB 2.0 (full speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Lifespan: One year (battery lifespan depends on ambient temperature, logging rate, and use of alarm LEDs)

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Mechanical

Dimensions (L × W × H): 98.0 × 26.8 × 26.8 mm (3.86 × 1.05 × 1.05 in.)



USB-504

4-20 mA Current Logger

Current

Measurement Range: 4 mA DC to 20 mA DC typ

Resolution: ±0.05 mA DC

Accuracy (Overall Error): ±1%, ±1 count

Data Sampling

Sampling Intervals (Software-Selectable): 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h

Max Current Samples: 32,000

Units: mA DC

Alarms

High Current Alarm Range: 4 mA DC to 20 mA DC

High Current Alarm Resolution: 0.16 mA

Low Current Alarm Range: 4 mA DC to 20 mA DC

Low Current Alarm Resolution: 0.16 mA

USB Specifications

USB Device Type: USB 2.0 (Full-speed)

Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery

Battery Lifespan: One year (battery lifespan depends on ambient temperature, logging rate, and use of alarm LEDs)

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Mechanical

Dimensions (L × W × H): 98.0 × 26.8 × 26.8 mm (3.86 × 1.05 × 1.05 in.)



USB-500 Series

Specifications & Ordering Information



USB-505 Counter, Event and State Logger

Voltage

Input Range: 3 VDC to 24 VDC
Volt Free Contacts Voltage Resolution: 50 mVDC

Current

Volt Free Contacts Current: 35 µA typ

Data Sampling

Time Between Events: 200 ms minimum
Time Between State Changes: 500 ms minimum
Time Between Event Counts: 10 ms minimum with red LED disabled;
50 ms minimum with red LED enabled
Max Event or State Change Samples: 32,510
Timing Accuracy: ±3 s per day at 20 °C
Sampling Intervals (Software-Selectable): 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 5 min, 15 min, 30 min, 1 h, 2 h, 6 h, 12 h
Max Event Samples: 32,510

USB Specifications

USB Device Type: USB 2.0 (full speed)
Device Compatibility: USB 1.1, USB 2.0

Power

Power Source: 1/2AA 3.6 V lithium battery
Battery Lifespan: One year battery lifespan depends on ambient temperature, logging rate, and use of alarm LEDs)

Environmental

Operating Temperature Range: -35 °C to 80 °C (-31 °F to 176 °F)

Mechanical

Dimensions (L × W × H): 98.0 × 26.8 × 26.8 mm (3.86 × 1.05 × 1.05 in.)



Ordering Information

Description	Part No.
Battery-powered remote temperature logger measures and stores up to 16,382 temperature readings	USB-501
Battery-powered remote temperature logger with LCD display measures and stores up to 16,379 temperature readings	USB-501-LCD
Battery-powered remote temperature logger measures and stores up to 4,080 temperature readings	USB-501-LT
Battery-powered remote temperature logger with extended temperature range measures and stores up to 32,510 temperature readings	USB-501-PRO
Rechargeable battery-powered remote temperature logger measures and stores up to 32,510 temperature readings	USB-501-RCG
Battery-powered remote thermocouple data logger measures and records temperatures from -200 °C to 1300 °C	USB-501-TC
Battery-powered remote thermocouple data logger with LCD measures and stores over 32,000 temperature readings	USB-501-TC-LCD
Battery-powered remote temperature and humidity logger measures and stores up to 16,382 relative humidity and 16,382 temperature readings	USB-502
Battery-powered remote temperature and humidity logger with LCD display measures and stores up to 16,379 relative humidity and 16,379 temperature readings	USB-502-LCD
Battery-powered remote temperature and humidity logger with increased accuracy measures and stores up to 16,382 relative humidity and 16,382 temperature readings	USB-502-PLUS
Battery-powered remote data logger measures and stores up to 32,510 voltage readings	USB-503
Battery-powered remote current loop data logger measures and stores up to 32,000 current loop readings	USB-504
Battery-powered remote event, state change, and event count data logger measures and stores up to 32,510 event and state change readings	USB-505
Rechargeable battery-powered remote device for on-site setup and data collection from compatible USB-500 Series data loggers.	USB-525

USB-525 Logger Assistant Portable Device for USB-500 Logger Setup and Data Viewing

Memory

Internal Flash Memory: Stores over 8,500,000 temperature/humidity samples

LCD

240 × 320 pixels, 2.8" thin film transistor with touch-screen
Time Out (Software-Selectable): Backlight turns off after 10 s, 20 s, 30 s, or 1 min of inactivity

USB Specifications

USB Device Type: USB 2.0 (full speed)
Device Compatibility: USB 1.1, USB 2.0
USB Type A Socket (Top of Device): Connects to compatible USB-500 Series data loggers
micro-USB Socket (Bottom of device): Connects device to computer using 1 m (3.28 ft) USB cable (included)

Power

Power Source: Lithium polymer battery, rechargeable using micro-USB connection
Battery Lifespan: 8 hours max (intermittent use)
5 hours min (constant use)
Power Down: Device powers down after 5 minutes of inactivity

Environmental

Operating Temperature Range: 0 °C to 50 °C (32 °F to 122 °F)

Mechanical

Dimensions (L × W × H): 107 × 68 × 19 mm (4.2 × 2.7 × 0.7 in.)

