USB-500/600 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
- Start/stop logging directly from device on USB-600 Series loggers
- Bracket included for mounting USB-600 Series loggers

Software
- Includes easy-to-use software to set sampling interval, alarms, start time, and many other options
- Easily display, graph, and save data in formats such as .csv to import into Microsoft® Excel®
- Supported Operating Systems: Windows® 8/7/Vista®/XP, 32-/64-bit

USB-500/600 Series data loggers offer low-cost, stand-alone data collection for temperature, humidity, voltage, current, or event/state change.

Overview
The USB-500/600 Series of stand-alone data loggers record several types of environmental readings. Users can easily set up the logging interval and start-time, log data, and then download the data over USB to the computer.

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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Channels</th>
<th>Measurement Type</th>
<th>Temperature Measurement Range</th>
<th>Sampling Interval</th>
<th>Memory</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB-501-LT*</td>
<td>1</td>
<td>Temperature</td>
<td>–10 °C to 50 °C</td>
<td>15 min to 2 h</td>
<td>4 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-501</td>
<td>1</td>
<td>Temperature</td>
<td>–35 °C to 80 °C</td>
<td>10 s to 12 h</td>
<td>16 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-501-LCD*</td>
<td>1</td>
<td>Temperature</td>
<td>–35 °C to 80 °C</td>
<td>1 s to 12 h</td>
<td>16 K readings</td>
<td>Built-in LCD Display</td>
</tr>
<tr>
<td>USB-501-PRO*</td>
<td>1</td>
<td>Temperature</td>
<td>–40 °C to 125 °C</td>
<td>1 s to 12 h</td>
<td>32 K readings</td>
<td>Extended Temp. Range</td>
</tr>
<tr>
<td>USB-501-RCC*</td>
<td>1</td>
<td>Temperature</td>
<td>–20 °C to 60 °C</td>
<td>1 s to 12 h</td>
<td>32 K readings</td>
<td>Rechargeable Battery</td>
</tr>
<tr>
<td>USB-501-TC*</td>
<td>1</td>
<td>Thermocouple</td>
<td>Thermocouple-dependent</td>
<td>1 s to 12 h</td>
<td>32 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-501-TC-LCD*</td>
<td>1</td>
<td>Thermocouple</td>
<td>Thermocouple-dependent</td>
<td>1 s to 12 h</td>
<td>32 K readings</td>
<td>Built-in LCD Display</td>
</tr>
<tr>
<td>USB-502</td>
<td>2</td>
<td>Temperature, Humidity</td>
<td>–35 °C to 80 °C</td>
<td>10 s to 12 h</td>
<td>16 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-502-LCD*</td>
<td>2</td>
<td>Temperature, Humidity</td>
<td>–35 °C to 80 °C</td>
<td>10 s to 12 h</td>
<td>16 K readings</td>
<td>Built-in LCD Display</td>
</tr>
<tr>
<td>USB-502-PLUS*</td>
<td>2</td>
<td>Temperature, Humidity</td>
<td>–35 °C to 80 °C</td>
<td>10 s to 12 h</td>
<td>16 K readings</td>
<td>Increased Accuracy</td>
</tr>
<tr>
<td>USB-503</td>
<td>1</td>
<td>0 VDC to 30 VDC</td>
<td>—</td>
<td>1 s to 12 h</td>
<td>32 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-504</td>
<td>1</td>
<td>4 mA to 20 mA</td>
<td>—</td>
<td>1 s to 12 h</td>
<td>32 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-505</td>
<td>1</td>
<td>Event/State Change</td>
<td>—</td>
<td>10 s to 30 m</td>
<td>32 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-601</td>
<td>1</td>
<td>Temperature</td>
<td>–30 °C to 80 °C</td>
<td>10 s to 2 h</td>
<td>250 K readings</td>
<td>Graphic Display, Stores Multiple Logging Sessions</td>
</tr>
<tr>
<td>USB-602</td>
<td>2</td>
<td>Temperature, Humidity</td>
<td>–30 °C to 80 °C</td>
<td>10 s to 2 h</td>
<td>250 K readings</td>
<td>—</td>
</tr>
<tr>
<td>USB-603</td>
<td>2</td>
<td>Thermocouple</td>
<td>Thermocouple-dependent</td>
<td>2 s to 2 h</td>
<td>250 K readings</td>
<td>—</td>
</tr>
</tbody>
</table>

* Compatible with USB-525 Logger Assistant
Analog Input
One or two channels are available on USB-500/600 Series data loggers. Devices 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 and the logger you are using. The logger stores the data and then uploads it to a computer through USB when collection is complete.

Logger Start Modes
Depending on the USB-500/600 Series logger being used, users can configure a device to start logging in one of the following ways:
- start immediately
- start when logger button pressed (loggers with LCDs only)
- start at selected date and time
- start based on temperature or humidity condition (USB-600 loggers only)

Alarms
All USB-500/600 Series data loggers except for the USB-505 provide high alarm and low alarm options that can be set through software. Users can also enable a hold on each alarm so that an alarm status continues even if the logged value is no longer in an alarm condition. The hold option allows users to be notified of an alarm condition without having to download data from the logger.

Alarms are indicated by LED blink patterns. USB-600 Series data loggers also have LCD and audible alarm indicators.

Status LEDs
Each USB-500/600 Series data logger includes one or two LEDs which indicate logging status and alarm conditions. Some loggers also have LED indicators for battery and memory status.

Real-Time LCD Display
The following USB-500/600 Series data loggers feature a built-in LCD for real-time text display of data:
- USB-501-LCD
- USB-501-TC-LCD
- USB-502-LCD
- USB-601
- USB-602
- USB-603

The LCD on all of these loggers can display current and maximum/minimum stored temperature and humidity values.

The LCD on the USB-601, USB-602, and USB-603 also display the following information:
- graphical display of temperature/humidity
- logging start mode (if logging does not start immediately)
- alarm indicators
- animated icon indicating device is logging
- locked mode indicator when start/stop logging button is disabled

Multiple Logging Sessions
(USB-600 Series Only)
Users can start and stop logging on the USB-600 Series data loggers either through software or using the buttons on the logger. This feature allows for storing of multiple logging sessions in between downloads.
USB-500/600 Series Data Logger Software
Each USB-500/600 Series data logger includes an easy-to-use software application which allows users to configure the following settings:
- sampling interval
- high/low alarm options
- temperature scale
- logger start mode
- buffer management
- LED and LCD power saving options

Settings vary depending on the data logger you are using.

Use the included software to download, display, and save data to a file. The loggers also record 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.

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

The USB-525 is compatible with the following temperature/humidity data loggers:
- USB-501-LT
- USB-501-TC
- USB-501-LCD
- USB-501-TC-LCD
- USB-501-PRO
- USB-501-LCD
- USB-502
- USB-502-PLUS
- USB-502-LCD
- USB-502-PLUS

Connect a 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-500/600 Data Logger software.

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
USB-500/600 Series
Specifications

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

Mechanical
Dimensions (L x W x H): 119.5 x 25.3 x 22.1 mm (4.7 x 1.04 x 0.87 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-Selective): 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 year logging rate, 1 year typ

Environmental
Moisture and Dust Protection: Protective cap installed, IP67

Mechanical
Dimensions (L x W x H): 98 x 26 x 26 mm (3.86 x 1.02 x 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°F) typ
Accuracy (Overall Error): ±0.5°C (±1°F) typ,
±1.5°C (±3°F) max, when operating between 0°C and 40°C

Data Sampling
Sampling Intervals (Software-Selective): 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: 16,379
Units: °C or °F
Data Rollover (Software-Selective): Allows unlimited logging periods by overwriting the oldest data when the memory is full

Alarms
High Temperature Alarm Range: –35°C to 80°C (–31°F to 176°F)
Low Temperature Alarm Range: –35°C to 80°C (–31°F to 176°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

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): ±0.5°C (±1°F) typ,
±1°C (±2°F) max

Data Sampling
Sampling Intervals (Software-Selective): 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-Selective): 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°F)

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: ≥ 1 year @ ≤ 20°C and a 10 s logging rate
≥ 2 years @ 80°C and a 10 s logging rate
≥ 3 years max @ –40°C to 125°C (–40°F to 257°F)

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-500/600 Series Specifications

**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 sampling interval, 1 week
- @ 20 °C (68 °F) and a 1 min sampling interval, 4 weeks
- 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 × W × H):** 92.7 × 19.8 × 19.8 mm (3.65 × 0.78 × 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).
- **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):** ±1 °C (±2 °F) typ

**Included Thermocouple Probe**
- **Type:** K
- **Measurement Range:** 0 °C to 400 °C (32 °F to 752 °F)
- **Accuracy:** ±2.5 °C (±4.5 °F)
- **Connector Type:** Mini-thermocouple
- **Cable Length:** 1.5 m
- **Stainless Steel Probe Length:** 100 mm

**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 Sampling Interval; 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-500/600 Series Specifications

**USB-502**

**Temperature & Humidity Logger**

**Temperature**
- Measurement Range: –35 °C (~31 °F) min, 80 °C (176 °F) max
- Repeatability: ±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-Selective):** –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%

**Power**
- Power Source: 1/2AA 3.6 V lithium battery
- Battery Life: 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-Selective):** –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

**Power**
- Power Source: 1/2AA 3.6 V lithium battery
- Battery Life: 1 year typ (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-500/600 Series
Specifications

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 (±0.6 °F) typ,
±1.5 °C (±3 °F) max
Internal Resolution: 0.5 °C (1 °F) typ
Dew Point Accuracy (Overall Error): ±1.1 °C
(±2.0 °F) typ
Alarm Threshold Range (Software-Selective): –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

Data Sampling
Sample Rate (Software-Selective): 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-Selective): 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 (depends on 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 x W x H): 103.0 x 26.4 x 26.4 mm (4.06 x 1.04 x 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-Selective): 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: 1 year typ (depends on ambient temperature, sampling interval, and use of alarm LEDs)

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

Mechanical
Dimensions (L x W x H): 98.0 x 26.8 x 26.8 mm (3.86 x 1.05 x 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-Selective): 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: 1 year typ (depends on ambient temperature, sampling interval, and use of alarm LEDs)

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

Mechanical
Dimensions (L x W x H): 98.0 x 26.8 x 26.8 mm (3.86 x 1.05 x 1.05 in.)
USB-500/600 Series
Specifications

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): 10 s, 30 s, 1 min, 5 min, 15 min, 30 min
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: 1 year typ (depends on ambient temperature, sampling inter-
val, 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-525 Logger Assistant
Portable Device for USB-500 Model Logger
Setup and Data Viewing

Compatible Data Loggers
- USB-501-LT
- USB-501
- USB-501-LCD
- USB-501-PRO
- USB-501-RCG

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-500/600 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.)

USB-601
Temperature Logger with
Graphic LCD Screen

Temperature
Measurement Range: –30 °C to 80 °C (–22 °F to 176 °F)
Resolution: 0.1 °C (0.1 °F) typ
Accuracy (Overall Error): ±0.1 °C (±0.2 °F) typ,
±0.75 °C (±1.5 °F) max

Data Sampling
Sampling Intervals (Software-Selectable): 10 s, 15 s, 20 s, 30 s, 1 min, 2 min, 5 min, 10 min,
15 min, 20 min, 30 min, 1 h, 2 h
Max Temperature Samples: 252,928
Units: °C or °F

Alarms
High Temperature Alarm Range: –30 °C to 79.5 °C (–22 °F to 175 °F)
Low Temperature Alarm Range: –30 °C to 79.5 °C (–22 °F to 175 °F)

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

Power
Power Source: Two 1/2AA 3.6 V lithium batteries
Battery Lifespan: 1 year typ at 10 minute logging rate with no audible alarm
or alarm LEDs and minimal LCD use

Environmental
Moisture and Dust Protection: IP67
Operating Temperature Range: –30 °C to 80 °C (–22 °F to 176 °F)

Mechanical
Dimensions (L × W × H): 88.0 × 48.5 × 30.5 mm (3.86 × 1.91 × 1.19 in.)
USB-500/600 Series
Specifications

USB-602
Temperature/Humidity Logger with Graphic LCD Screen

Temperature
Measurement Range: –30 °C to 80 °C (–22 °F to 176 °F)
Internal Resolution: 0.1 °C (0.1 °F) typ
Dew Point Accuracy (Overall Error): ±1.1 °C
(±2.0 °F) typ
Accuracy (Overall Error): ±0.5 °C (±1.0 °F) typ, ±2.0 °C (±4.0 °F) max
Repeatability: ±0.1 °C (±0.2 °F) typ
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: ±0.1 %RH 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, 15 s, 20 s, 30 s, 1 min, 2 min, 5 min, 10 min, 15 min, 20 min, 30 min, 1 h, 2 h
Max Temperature Samples: 252,928
Units: °C or °F

Alarms
High Temperature Alarm Range: –30 °C to 79.5 °C (–22 °F to 175 °F)
Low Temperature Alarm Range: –30 °C to 79.5 °C (–22 °F to 175 °F)

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

Power
Power Source: Two 1/2AA 3.6 V lithium batteries
Battery Lifespan: 1 year typ at 10 minute sampling interval with no audible alarm or alarm LEDs and minimal LCD use

Environmental
Moisture and Dust Protection: IP67
Operating Temperature Range: –30 °C to 80 °C (–22 °F to 176 °F)
At temperatures below -5 °C the LCD exhibits slower response times. The LCD is disabled at temperatures below -20 °C and above 70 °C.

Mechanical
Dimensions (L × W × H): 88.0 × 48.5 × 30.5 mm (3.86 × 1.92 × 1.19 in.)

USB-603
Two-Channel Thermocouple Logger with Graphic LCD Screen

Temperature
Measurement Ranges
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: 0.1 °C (0.1 °F) typ
Above 999.9 °C/°F display becomes 1 °C.
Internal resolution remains at 0.1 °C/°F.
Accuracy (Overall Error): ±0.5 °C (±0.9 °F) typ
Quoted accuracy is for the data logger only when measuring within the specified operating temperature. Thermocouple error is not included and should also be taken into consideration.

Included Thermocouple Probes
Type: K
Measurement Range: 0 °C to 400 °C (32 °F to 752 °F)
Accuracy: ±2.5 °C (±4.5 °F)
Connector Type: Mini-thermocouple
Cable Length: 1.5 m
Stainless Steel Probe Length: 100 mm
To improve response time, the thermocouple probes supplied with the USB-603 are not electrically isolated from the thermocouple junction. Depending upon the application, it may be necessary to use electrically-isolated thermocouple probes to avoid ground loops, and/or situations where the probes may come into contact with conductors that are at different electrical potentials. If unsure of the application needs, Measurement Computing recommends using electrically-isolated probes.

Data Sampling
Sampling Intervals (Software-Selectable): 2 s, 5 s, 10 s, 15 s, 20 s, 30 s, 1 min, 2 min, 5 min, 10 min, 15 min, 20 min, 30 min, 1 h, 2 h
Max Temperature Samples: 252,928
Units: °C or °F

Alarms
High Temperature Alarm Range: –30 °C to 79.5 °C (–22 °F to 175 °F)
Low Temperature Alarm Range: –30 °C to 79.5 °C (–22 °F to 175 °F)

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

Power
Power Source: Two 1/2AA 3.6 V lithium batteries
Battery Lifespan: 1 year typ at 10 minute logging rate with no audible alarm or alarm LEDs and minimal LCD use

Environmental
Operating Temperature Range: –10 °C to 40 °C (–14 °F to 104 °F)
Applies to the data logger module only. Refer the probe manufacturer for operating temperature of thermocouple.

Mechanical
Dimensions (L × W × H): 102.0 × 48.5 × 30.5 mm (4.06 × 1.92 × 1.19 in.)
### Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB-501</td>
<td>Battery-powered remote temperature logger measures and stores up to 16,382 temperature readings</td>
</tr>
<tr>
<td>USB-501-LCD</td>
<td>Battery-powered remote temperature logger with LCD measures and stores up to 16,379 temperature readings</td>
</tr>
<tr>
<td>USB-501-ET</td>
<td>Lowest-cost temperature logger measures and stores over 4,000 temperature readings</td>
</tr>
<tr>
<td>USB-501-PRO</td>
<td>Temperature logger with rugged enclosure and extended temperature range (–40 °C to 125 °C) measures and stores over 32,000 temperature readings</td>
</tr>
<tr>
<td>USB-501-RCG</td>
<td>Temperature logger with rechargeable battery measures and stores over 32,000 temperature readings</td>
</tr>
<tr>
<td>USB-501-TC</td>
<td>Thermocouple data logger measures and stores over 32,000 temperature readings. One K-type thermocouple included.</td>
</tr>
<tr>
<td>USB-501-TC-LCD</td>
<td>Thermocouple data logger with LCD measures and stores over 32,000 temperature readings. One K-type thermocouple included.</td>
</tr>
<tr>
<td>USB-502</td>
<td>Temperature and humidity logger measures and stores over 16,000 readings</td>
</tr>
<tr>
<td>USB-502-LCD</td>
<td>Temperature and humidity logger with LCD measures and stores over 16,000 readings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB-502-PLUS</td>
<td>Temperature and humidity logger with increased accuracy (±0.3 °C typical, ±2.0 %RH typical) measures and stores over 16,000 readings</td>
</tr>
<tr>
<td>USB-503</td>
<td>Voltage data logger measures and stores over 32,000 readings</td>
</tr>
<tr>
<td>USB-504</td>
<td>Current loop data logger measures and stores over 32,000 readings</td>
</tr>
<tr>
<td>USB-505</td>
<td>Event, state change, and event count logger measures and stores up to 32,510 readings</td>
</tr>
<tr>
<td>USB-506</td>
<td>Portable Logger Assistant for logger setup and data viewing from compatible USB-500 model data loggers.</td>
</tr>
<tr>
<td>USB-601</td>
<td>Temperature logger with graphic LCD screen, device controls, and multi-session logging measures and stores over 250,000 readings.</td>
</tr>
<tr>
<td>USB-602</td>
<td>Temperature/humidity logger with graphic LCD screen, device controls, and multi-session logging and stores over 250,000 readings.</td>
</tr>
<tr>
<td>USB-603</td>
<td>Two-channel thermocouple logger with graphic LCD screen, device controls, and multi-session logging measures and stores over 250,000 readings. Two K-type thermocouples included.</td>
</tr>
</tbody>
</table>