

User's Guide



Instruction Sheet

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OM-EL-USB-5

Counter, Event and State USB Data Logger



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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

OM-EL-USB-5

Counter, Event and State USB Data Logger

FEATURES

- Functions as an event logger, state change logger and event counter
- Logging rate of up to four times per second for events, two times per second for state changes and 100 times per second when counting
- Stores up to 32,510 readings in event mode
- Stores up to 32,510 readings in state change mode
- Stores up to 32,510 timed intervals in event counter mode
- Accepts input voltages of up to 24V
- Volt free contacts option (normally open contact only)
- Rising and falling edge triggering
- LED flash on event / state change
- Connection via two screw terminals
- USB Interface for set-up and data download
- Supplied with replaceable internal lithium battery, Windows control software and measurement leads



ORDERING INFORMATION

| | |
|---|-------------|
| Standard Data Logger (Data Logger, Software on CD, Battery) | OM-EL-USB-5 |
| Replacement Battery | OM-EL-BATT |

This standalone data logger can record events (detecting an input and storing the time and date), record state changes (similar to an 'event' but also recording when the input reverts back to normal) and count events (count the number of events that happen during a timed interval). Up to 32,510 events or state changes can be recorded and up to 32,510 timed intervals in event counter mode (with 65,536 events in each interval).

Events and state changes can be triggered by either a rising edge (a voltage going from low to high) or falling edge (a voltage going from high to low). It is also possible to use volt free contacts. Instead of measuring an external voltage, the data logger applies a voltage across the screw terminals and detects when the input closes (i.e. a relay or microswitch).

Fast logging rates allow event capturing at speeds of up to two times per second and state changes at speeds of up to four times per second. Event counting can operate at speeds of up to 100 times per second (when the LEDs are turned off). The user can easily set up the logger, and download the stored data by plugging the data logger into a PC's USB port and running the purpose designed software under Windows 2000, XP, Vista & 7. Data can then be graphed, printed and exported to other applications.

The data logger is supplied complete with software, measurement leads terminated with crocodile clips and a long-life lithium battery which allows logging for up to 1 year. Functionality of the unit is indicated by flashing red and green LEDs, with an option to flash the red LED every time an event occurs.

| Specifications | Minimum | Typical | Maximum | Unit |
|-----------------------------------|-----------|---------|-----------|----------------------|
| Time between events | 200 | | | Milliseconds |
| Time between state changes | 500 | | | Milliseconds |
| Time between event counts | 10* | | | Milliseconds |
| Input voltage ** | 3 | | 28 | V d.c. |
| 'Volt free contacts' voltage *** | 2.75 | | 3.6 | V |
| 'Volt free contacts' current | | 35 | | µA |
| Timing accuracy † | | | ±3 | Seconds per 24 hours |
| Operating temperature range | -35 (-31) | | +80 (176) | °C (°F) |
| 1/2AA 3.6V Lithium Battery Life ‡ | | 1 | | Years |

* 10 milliseconds can only be achieved with the LEDs disabled. If the LEDs are enabled, the time between the event counts is reduced to 50 milliseconds

** see 'Voltage input range' section for details

† Per day at 20°C

*** Voltage will decrease as battery is discharged

‡ Assuming 1 event every 5 mins at 20°C in Voltage input mode

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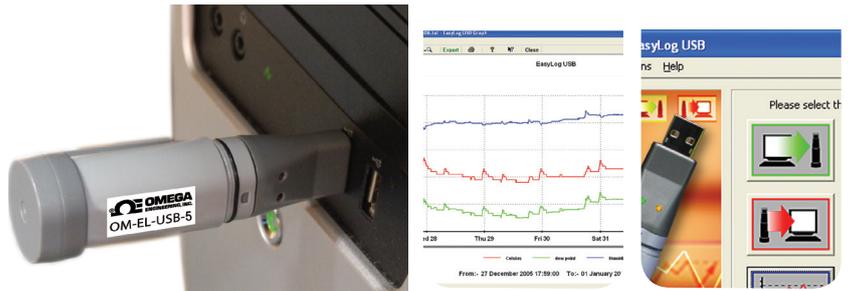
Counter, Event and State USB Data Logger

WINDOWS CONTROL SOFTWARE

Omega's EasyLog USB control software is supplied free of charge with each data logger. Easy to install and use, the control software runs under Windows 2000, XP, Vista & 7. The software is used to set-up the data logger as well as download, graph and export data to Excel.

The software allows the following parameters to be configured:

- Logger name
- Record events, record state changes or count events
- Triggering on rising of falling edges (see 'Edge Triggering' section)
- Voltage or Volt free contact triggering
- Flash LED on event/state change
- Voltage range
- Time period for event counting (i.e count the number of events every 10s). Maximum number of events per time period is limited to 65,000.



The latest version of the control software may be downloaded free of charge from www.omega.com

LED FLASHING MODES

OM-EL-USB-5 features a red and a green LED to indicate the status of the data logger.

| | | |
|-----------------------------|--|---|
| <p>Green LED Red LED</p> | | Green single flash (10 seconds) Normal logging |
| | | Green single flash (20 seconds) Low battery |
| | | Green double flash (20 seconds) Data logger memory full |
| | | Red single flash Event / State change / Count recorded |

VOLTAGE INPUT RANGE

The logger features a selectable voltage input range, which allows the logger to operate with a wide variety of system. Each input range has a different high and low "trigger voltage" (i.e the voltage at which the logger considers a signal to be high or low).

| Voltage range | Low trigger voltage | High trigger voltage |
|---------------|---------------------|----------------------|
| 0 - 3V | 0.8V | 2V |
| 0 - 5V | 1.3V | 3.4V |
| 0 - 12V | 3.2V | 8V |
| 0 - 24V | 6.4V | 16V |

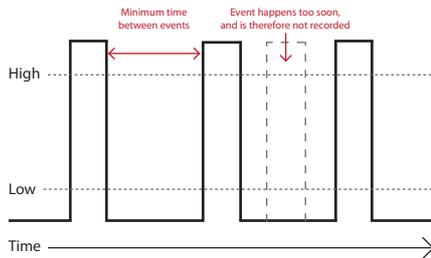
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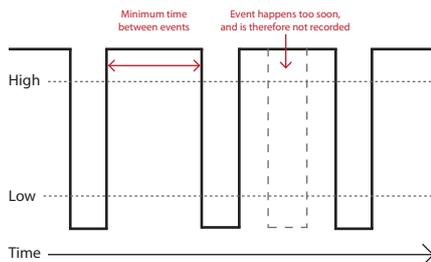
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EDGE TRIGGERING

If the user selects 'rising edge' triggering, then an event is recorded at the point a signal goes from low to high. This is the default setting.



If the user selects 'falling edge' triggering, then an event is recorded at the point a signal goes from high to low.



BATTERY REPLACEMENT

We recommend that you replace the battery every 12 months, or prior to logging critical data.

The OM-EL-USB-5 does not lose its stored readings when the battery is discharged or when the battery is replaced; however, the data logging process will be stopped and cannot be re-started until the battery has been replaced and the logged data has been downloaded to PC.

Only use OM-EL-BATT lithium batteries. Check with your supplier that the battery you are ordering is 'press fit' and is not fitted with solder tags. Before replacing the battery, remove the OM-EL-USB-5 from the PC.

Note:

Leaving the OM-EL-USB-5 plugged into the USB port for longer than necessary will cause some of the battery capacity to be lost.

WARNING

Handle lithium batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

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OM-EL-USB-5

Counter, Event and State USB Data Logger

DIMENSIONS

All dimensions in mm (inches)



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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