

# Introduction

Thank you for buying an OM-52/OM-53 on/off data logger. With proper care it will give you years of reliable readings. These loggers detect and record each time that a device turns on or off as determined by a level going above or below a threshold value.

# On/off data loggers in detail

This type of data loggers measure only two states: on or off. The logger checks for a state change every half second and records the time at which a state change occurs. If there is no change in state, the logger will not record. This feature optimizes the use of internal memory and allows the logger to record up to 2000 state changes over extended periods.

# Common specifications:

Minimum state duration: 0.5 seconds Time accuracy: approx. ±1 minute per week (±100 ppm at +68°F), accuracy detail shown in Plot A Capacity: 2,000 state changes Operating temperature: -4°F to +158°F (-20°C to +70°C) Relative humidity range: 0 to 95%, non-condensing Size/weight: 2.4" x 1.9" x 0.8"/approximately 1 oz. Battery: CR-2032 (lithium); provides one year of continuous use; user-replaceable Storage temperature:  $-40^{\circ}$ F to  $+167^{\circ}$ F ( $-40^{\circ}$ C to  $+75^{\circ}$ C)

# Sensor specifications

**OM-52** - The AC-magnetic-field threshold is approximately 2 Gauss at 60 Hz. Position the logger such that its green LED blinks when the motor is on. Usually the side of the motor is best.

**Light sensor version** (part number OM-53) - The light intensity threshold is adjustable from approximately 10 to 100 lumens/m<sup>2</sup>. The light sensitivity is

peaked in the forward direction as shown in Plot B. This directionality can be taken advantage of to minimize the effect of other light sources when trying to determine the on/off state of a particular light source. The light sensor is on the side of the case, next to the green LED. Note, however, that the sensor detects light directed at the front of the case.

# Connecting the communications cable and Launching

A Starter Kit, which includes an interface cable and software, is required to operate your logger. Connect the interface cable into the 3.5 mm jack (Diagram A) on the logger and into a working serial port of your computer. Install and start the logger's software. Select Launch... under Logger on the menu bar and the launch dialog box will appear. For a complete explanation on installing the software and launching your logger, please refer to the software manual or the software's on-line help.

# Deploying your logger

# **Operation and on/off indication**

The on/off loggers have two LED lights: red and green (Diagram A). One of these LEDs will blink every two seconds (every four seconds during Delayed Start); if the logger detects that device being monitored is off, then the red LED will blink, if the logger detects that the device is on, then the green LED will blink. When deploying the loggers, be sure to position them such that they detect 'on' and 'off' properly, (use the sensitivity control as needed on the OM-53).

Light Intensity sensor O the 0-Green LED Red LED O 3.5 mm jack

Although the LEDs blink every two seconds, the state is checked every half second, with state changes recorded as detected. If the battery voltage is low, both LEDs will blink every other second regardless of the state. The LED's should be viewed straight on, as shown in Diagram A.

# Sensitivity control (part number OM-53)

The sensitivity control on the front of the light sensing loggers (Diagram B) adjusts the threshold that the logger uses to Sensitivit





Plot A

Time Accuracy

120 160

Timebase Error (ppm)

100

50

0

-50

-100

-150

-200

0 40 80 Tem perature (°F)



Diagram A

control



Diagram B

OM-53

determine if the light is on or off. Use a small screw driver to adjust the sensitivity control. Turning it clockwise increases the sensitivity. Turning it counterclockwise decreases the sensitivity.

#### How to set the sensitivity control (part number OM-53)

Launch the logger and mount it where it will be used. With the monitored device on, turn the sensitivity control down until the red LED is blinking. (If the green LEDs are still blinking with the sensitivity all the way down, that is OK because this means you have plenty of light to be detected.) With the device still on, turn the sensitivity control up until the green LED is blinking. From this point turn the sensitivity control up by an additional 10 degrees. Verify that the data logger detects on and off properly by turning the monitored device on and off, and watching for the data logger to change between blinking the red LED and blinking the green LED.

If you turn the sensitivity control all the the way up, and the green LED does not consistently blink with the device on, this means there is not enough light for the data logger's sensor. Try moving the data logger closer to the light source, or changing it's orientation such that the light is perpendicular to the face of the logger.

## Test deployment

Before deploying your on/off logger for an extended time, we recommend running a test deployment to verify that the data logger is reliably recording when your device turns on and off, and to benchmark how often it turns on and off. Based on this benchmark, you can determine about how long the data logger can go before its 2000 state-change capacity is full.

### Mounting options

Included with your on/off logger are three options for mounting it on location: a magnet, hook and loop tape, and double-sided tape. These can be stuck on the back of your data logger. When using the magnet, note that it works best on flat surfaces.

## Readout

Reconnect the logger to the interface cable, start the software, select Readout under Logger on the menu bar and the data will be displayed in a graphical or tabular form. For a complete explanation on reading out your logger, please refer to the software manual.

#### No data is information too

The logger records the initial on/off state at launch and a final on/off state at readout, even if the state has not changed. This allows you to determine the entire period during which the logger was watching for on/off state changes.

### Keep it dry

Your logger can be permanently damaged by corrosion if it gets wet. Protect it from rain or condensation. Should it get wet, remove the battery immediately and dry the board completely with a hair dryer before reinstalling the battery.

## Changing the battery

To change the battery, open the case (Diagram C). Lift the cuit board and remove the battery by carefully pushing it out with a small screwdriver or other small, blunt instrument. Be sure to install battery with the printed side away from the logger's circuit board (Diagram D). The logger's green LED will blink a number of times after the battery has been installed. Note: Do not cut open, incinerate, heat above 185°F (85°C) or recharge the lithium battery. Dispose per local regulations.



Diagram C

# Room light on/off

Place the OM-53 Light on/off logger so that it faces the light of interest minimizing the light that can reach it from other sources. Sunlight reflected from windows or mirrors can trigger false readings. Adjust the sensitivity control on the front of the logger so that it can tell the difference between on and off. For most applications setting the sensitivity control in the middle of its range will be adequate.

#### 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.

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FOR <u>WARRANTY</u> RETURNS, please have the following information available BEFORE contacting OMEGA:	FOR <u>NON-WARRANTY</u> REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE
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PURCHASED,	1. Purchase Order number to cover the COST of the
2. Model and serial number of the product under war-	repair,
ranty, and	2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.	3. Repair instructions and/or specific problems relative to the product.

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