

# SOLAR<sup>®</sup> L I G H T

## USER MANUAL

GLM100 LAMP MONITORING SYSTEM



Part Number: 210111  
Revision Level: A



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# 1 INTRODUCTION

A UV lamp monitor can reduce maintenance costs by determining exactly when lamps need to be serviced. The LM100 continuously monitors relative lamp output from 0% to 100%. It provides a cost-effective and trouble-free method of determining exactly when lamps need to be removed for cleaning.

## 1.1 SUPPORTED DETECTORS

The LM100 was specifically designed to monitor output from Solar Light's UW254 submersible germicidal probe but will accept output from any 4 to 20mA detector (two wire).

## 1.2 FEATURES

- Warning and Error Threshold Alarms
- AC or DC Power Input
- Power Relays for External Warning Devices
- Simple 0 to 100% Output Display
- Easy One-Step Calibration
- Colored Indicator Lights
- Large 0.56" LED Display

# 2 GETTING STARTED

## 2.1 INSTALLATION

The LM100 utilizes a standard 1/8 DIN enclosure. Mounting is as follows:

- 1 In your panel, cut a hole to the dimensions specified in Figure 1.
- 2 Unscrew thumbscrews from rear panel and remove side rails. See Figure 2.
- 3 Place the LM100 in the hole you've just cut.
- 4 Replace side rails and tighten thumbscrews.

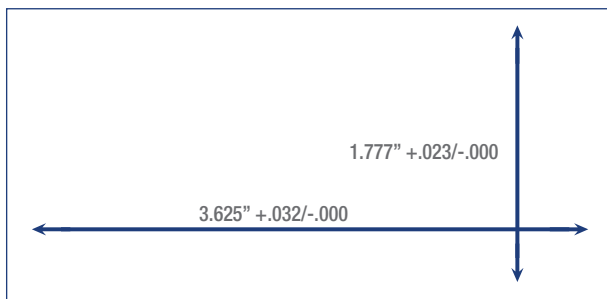


Figure 1 Panel Cutout Dimensions



Figure 2 Rear View of LM100

## 2.2 POWER SUPPLY

The LM100 can be powered by 110/220 Vac or 12 to 24 Vdc. The default configuration for AC is 110 Vac. Jumper JP6 on the main board must be changed to power the LM100 by 220 Vac. See the instructions below to change JP6. No adjustments are needed for DC power. See Figure 5 and Table 1 for more on wiring.

To change the configuration of JP6, follow the steps below:

- 1 Disconnect the power to the LM100 and all connectors from the rear panel.
- 2 Unscrew the two screws from the front panel of the meter.
- 3 Slide the board out of the case.
- 4 Set JP6 for the desired voltage. See Figure 3.
- 5 Replace the board, screws, connectors, and reconnect the power.

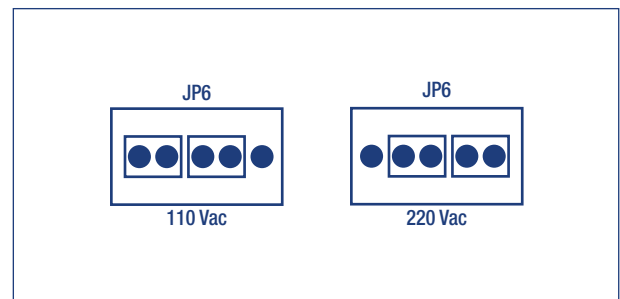


Figure 3 JP6 on Main Board

# 3 CONTROL INTERFACE

## 3.1 FRONT PANEL

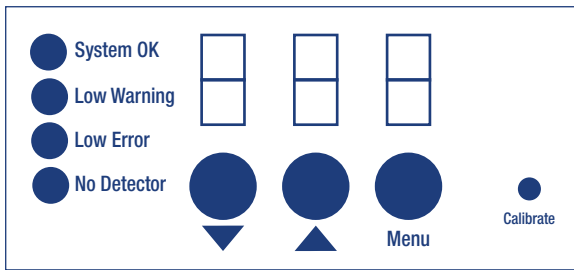


Figure 4 Front Panel

## 3.2 DISPLAY

The 3-digit display indicates the % output of the detector when in normal mode and displays the warning or error thresholds when setting them. The warning threshold is generally the higher of the two but each can be set to any value between 0-100%.

## 3.3 BUTTONS

The **UP**, **DOWN**, and **MENU** buttons located below the display are used to set the warning and error threshold values. The recessed **CALIBRATE** button is used to calibrate the meter.

## 3.4 LIGHTS

### Ready

Indicates that the LM100 has power and is operational

### Service

Turned on when output falls below the warning threshold

### Limit Exceeded

Turned on when output falls below the error threshold

### Detector Fault

Indicates that no detector is connected (input < 4 mA)

## 3.5 REAR PANEL

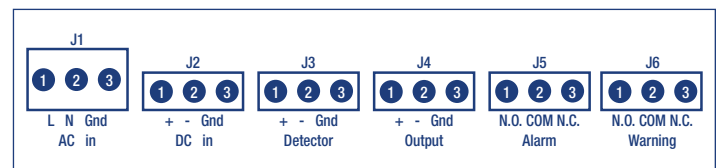


Figure 5 Rear Panel

TABLE 1 REAR PANEL CONNECTOR DESCRIPTIONS

Connector	Description
<b>J1</b> 1 2 3	Accepts Power from Either a 110 or 220 Vac Source. Jumper JP6 on the Main Board Must be Adjusted to Switch Between 110 and 220 Vac. See Figure 3. <ul style="list-style-type: none"><li>AC Line Connection (No Connection for DC Operation)</li><li>AC Neutral Connection (No Connection for DC Operation)</li><li>Earth Ground</li></ul>
<b>J2</b> 1 2 3	Accepts Power from a 12 to 24 Vdc Source. No Adjustments are Required. <ul style="list-style-type: none"><li>DC + Input (No Connection for AC Operation)</li><li>DC - Input (No Connection for AC Operation)</li><li>Earth Ground</li></ul>
<b>J3</b> 1 2 3	Accepts Analog Input from a 4 to 20 mA Detector. <ul style="list-style-type: none"><li>Detector + Input</li><li>Detector - Input</li><li>Detector Shield (Earth Ground)</li></ul>
<b>J4</b> 1 2 3	Outputs a 4 to 20 mA Scaled Analog Signal Where 4 mA (20 mA) = 0% (100%) for External Data Storage. <ul style="list-style-type: none"><li>4 - 20mA + Output</li><li>4 - 20mA - Output</li><li>Earth Ground</li></ul>
<b>J5</b> 1 2 3	10A 125 Vac Form C Relay. Contacts 1,2 are Enabled While Contacts 2,3 are Disabled when the Detector Output Falls Below the Warning Threshold, Connecting or Disconnecting Power Respectively to an External Warning Device. <ul style="list-style-type: none"><li>Alarm Normally Open Relay Contact</li><li>Alarm Common Relay Contact</li><li>Alarm Normally Closed Relay Contact</li></ul>
<b>J6</b> 1 2 3	10A 125 Vac Form C Relay. Contacts 1,2 are Enabled While Contacts 2,3 are Disabled when the Detector Output Falls Below the Error Threshold, Connecting or Disconnecting Power Respectively to an External Warning Device. <ul style="list-style-type: none"><li>Warning Normally Open Relay Contact</li><li>Warning Common Relay Contact</li><li>Warning Normally Closed Relay Contact</li></ul>

# 4 SETUP

## 4.1 CALIBRATION

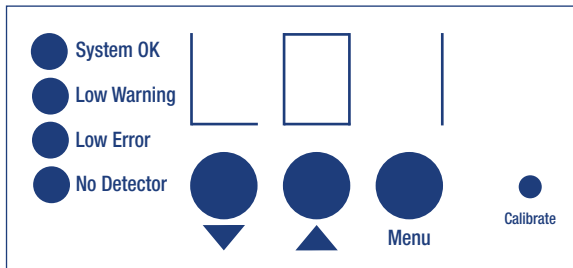
Calibrating the meter sets the current detector output level to 100%. To calibrate the meter, do the following:

- 1 Expose the detector to clean lamps and allow them to warm up and become stable.
- 2 With a pointed object, press the recessed **CALIBRATE** button.

## 4.2 SERVICE THRESHOLD

To set the service threshold follow these steps:

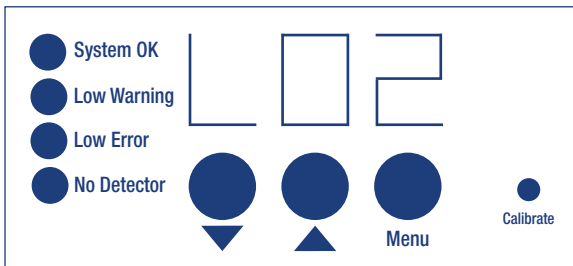
- 1 Press the **MENU** button. The display should read "L01".
- 2 Press the **MENU** button again.
- 3 Press the **UP** or **DOWN** button until the display reads the desired value.
- 4 Press the **MENU** button.



## 4.3 LIMITED EXCEEDED THRESHOLD

To set the limit exceeded threshold follow these steps:

- 1 Press the **MENU** button.
- 2 Press the **UP** button. The display should read "L02".
- 3 Press the **MENU** button.
- 4 Press the **UP** or **DOWN** button until the display reads the desired value.
- 5 Press the **MENU** button.



## 4.4 EXTERNAL POWER RELAYS

See Figure 6 to connect your external warning devices to the external power relays.

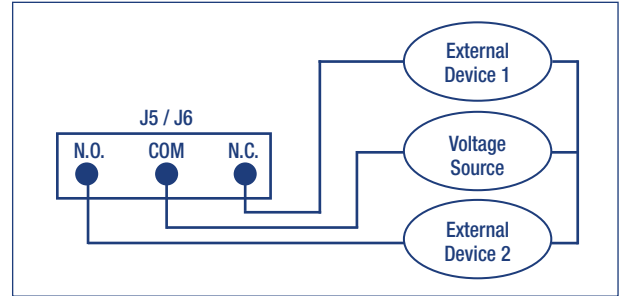


Figure 6 Wiring Diagram for External Power Relays

- External device 1 turns **OFF** with alarm.
- External device 2 turns **ON** with alarm.
- Voltage source is an external AC power source.

## 4.5 DATA COLLECTION

See Figure 7 to connect your data storage device to the 4 to 20mA analog output.

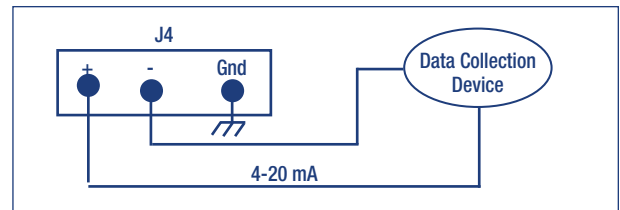


Figure 7 Wiring Diagram for Data Collection Device

# 5

# TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Power Requirements	
Vac	110 / 220 volts
Vdc	12 – 24 volts
Current	0.4 A
Max Detector Current Input	40 mA
Max Current Output (4-20 mA)	40 mA
Dimensions (L x W x H)	7.0" x 3.9" x 1.9" (17.8 x 9.9 x 47.3 cm)
Weight	1 lb. 6 oz. (0.62 kg)
Case Material	Clear Anodized Aluminum
Display Resolution	1%
Accuracy	± 0.1%
Range	0 – 100%

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