

# **AMPROBE**®

**LM-100**

**LM-120**

**Light Meters**

**Users Manual**



# LM-100 / LM-120

## Light Meters

Users Manual

English

LM100\_Rev002

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## **Limited Warranty and Limitation of Liability**

Your Amprobe product will be free from defects in material and workmanship for 1 year from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Amprobe's behalf. To obtain service during the warranty period, return the product with proof of purchase to an authorized Amprobe Test Tools Service Center or to an Amprobe dealer or distributor. See Repair Section for details. THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STATUTORY - INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE HEREBY DISCLAIMED. MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

### **Repair**

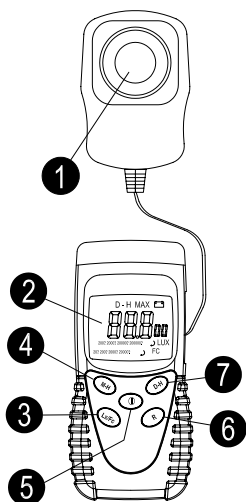
All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe® Test Tools.

### **In-Warranty Repairs and Replacement – All Countries**

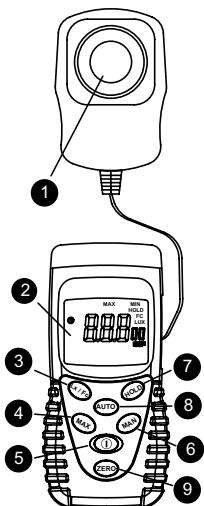
Please read the warranty statement and check your battery before requesting repair. During the warranty period any defective test tool can be returned to your Amprobe® Test Tools distributor for an exchange for the same or like product.

### **Non-Warranty Repairs and Replacement – US and Canada**

Non-warranty repairs in the United States and Canada should be sent to a Amprobe® Test Tools Service Center. Call Amprobe® Test Tools or inquire at your point of purchase for current repair and replacement rates.



LM-100







LM-120

- ① Light sensor
- ② Display(LCD)
- ③ Lux / foot candles
- ④ MAX HOLD (LM-100) / MIN and MAX value (LM-120)
- ⑤ Power Button: ON/OFF
- ⑥ Manual range selection
- ⑦ DATA HOLD button
- ⑧ AUTO ranging
- ⑨ Light sensor Zero Adjustment

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## SYMBOLS

	Caution! Refer to the explanation in this Manual		Complies with EU directives
	Conforms to relevant Australian standards.		Do not dispose of this product as unsorted municipal waste.

### Warning and Precautions

- Do not operate the meter in explosive gas (material), combustible gas (material) steam or filled with dust.
- The light sensor is calibrated to CIE standard incandescent lamp at 2854 °K and may give different readings for spectrums from other lamp types.

## UNPACKING AND INSPECTION

Your shipping carton should include:

- 1 LM-100 or LM-120 light meter
- 1 9 volt battery
- 1 Users Manual


If any of the items are damaged or missing, return the complete package to the place of purchase for an exchange.

## INTRODUCTION

The LM-100 and LM-120 measure the visible light from fluorescent, metal halide, high-pressure sodium or incandescent sources.

One LUX (Lumen) is the illumination from a one candela lamp perpendicular to a surface one meter squared at a distance of one meter. One foot-candle (Fc) is the illumination from a one candela lamp perpendicular to a surface one foot squared at a distance of one foot.

## OPERATION

1. Press the  button to turn power on or off
2. Remove sensor cap and place the sensor perpendicular to the light.
3. Select Illuminance scale and range for reading.
4. When done testing, replace the sensor cover to protect the filter and sensor.

## Lx / fc

Illuminance scales. 1 foot-candle = 10.764 Lux and 1 lux = 0.09290 foot-candles.

## Data Hold

Freezes the reading present on the LCD at the moment the button is pressed. Press HOLD again to disable Data Hold.

## MAN Ranging (LM-100)

Press the MANual ranging button for useable reading.

## AUTO / MAN Ranging (LM-120)

Press the AUTO or MANual ranging button for useable reading. AUTO ranging is the default operation.

## MAX (LM-120)

The MAX MIN feature reads and updates the display to show the maximum or minimum value measured after you press the MAX MIN button. Pressing the MAX MIN button for less than 1 second will put the meter into a mode of displaying the maximum, minimum, or actual readings. Each time the MAX button is pressed, the meter will cycle from MAX → MIN → off. Press the MAX MIN button for more than 1 seconds to disable this feature.

Select the proper measurement range before enabling the MAX MIN feature.

## Auto-Power Off (LM-120)

In order to save battery life, your light meter powers down automatically after approximately 6 minutes of inactivity. You can turn it back on by pressing the **ⓘ** button. You can disable Auto Power Off by pressing and holding the HOLD button while turning the meter ON.

## Zero (LM-120)

The light sensor will change the null point over time. To reset the null point, cover the sensor, press the ZERO button. The display will show "ADJ". When the null reset is done, the display will read '00.0'.

## SPECIFICATIONS

### General:

Sampling Rate:	2.5 times per second for digital display.
Display:	3 ½ digit, 1999 count LCD
Sensor:	Silicon photodiode and filter.
Environment:	Indoor operation
Altitude:	Up to 2000m.
Temperature / Humidity:	
Operating:	-10 °C to 50 °C, 0 to 80 %RH.

Storage:	-10 °C to 50 °C, 0 to 70 %RH.
Power Supply:	9V NEDA 1604, IEC 6F22, JIS 006P battery
Battery life:	200 hours
Auto Power Off:	approx 6 min
Dimension (Base):	130 x 63 x 38 mm (5.1 x 2.5 x 1.5")
Dimension (Sensor):	80 x 55 x 29 mm (3.2 x 2.2 x 1.1")
Weight:	220 g (.48 lb.) include battery

**CE**-EMC: EN61326-1 This product complies with requirements of the following European Community Directives: 89/336/EEC (Electromagnetic Compatibility) and 73/23/EEC (Low Voltage) as amended by 93/68/EEC (CE Marking). However, electrical noise or intense electromagnetic fields in the vicinity of the equipment may disturb the measurement circuit. Measuring instruments will also respond to unwanted signals that may be present within the measurement circuit. Users should exercise care and take appropriate precautions to avoid misleading results when making measurements in the presence of electronic interference.

#### **Illumination:**

Measuring Range:	20, 200, 2000, 20000, 200000 Lux 20, 200, 2000, 20000 Foot candles
Accuracy:	± 3 % (Calibrated to standard incandescent lamp at 2854 °K) 6% other visible light sources Angle deviation from cosine Characteristics 30 ° ± 2 % 60 ° ± 6 % 80 ° ± 25 %

Cosine Angular corrected per JIS C 1609:1993 and CNS 5119 general A class specifications.

#### **MAINTENANCE AND REPAIR**

If there appears to be a malfunction during the operation of the meter, the following steps should be performed in order to isolate the cause of the problem.

1. Check the battery. Replace the battery immediately when the symbol "🔋" appears on the LCD.
2. Review the operating instructions for possible mistakes in operating procedure.

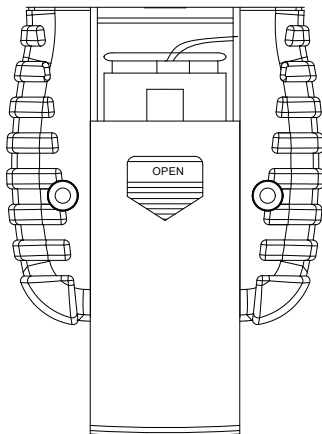
Except for the replacement of the battery, repair of the meter should be performed only by a Factory Authorized Service Center or by other qualified



instrument service personnel. The front panel and case can be cleaned with a mild solution of detergent and water. Apply sparingly with a soft cloth and allow to dry completely before using. Do not use aromatic hydrocarbons or chlorinated solvents for cleaning.

### Battery Replacement

1. Turn off the meter and slide out the battery cover. Replace the battery with a NEDA type 1604 or equivalent 9V alkaline battery. Replace the cover.
2. Remove battery when the LM-100 / LM-120 is not used for extended period.



Battery Replacement