User Manual R1.1
Santacary Technology Co. Ltd.
XAR-L Digital Illuminance Meter

INTRODUCTION

Congratulations on your purchase of this Santacary XAR-L Digital Illuminance Meter. XAR-L is a portable precision instrument used to measure illuminance (lux, footcandle) in the field.

It is meet CIE photopic spectral response. The light sensor used in the meter is a very stable, long life silicon photo diode.

FEATURES

- ✧ Light-measuring levers ranging from 0 to 188,000 lux, 0 to 17,472 fc (footcandle) repeatedly.
- ✧ Spectral sensitivity close to CIE photopic curve.
- ✧ Accurate and instant response.
- ✧ Data-Hold function for holding measuring values.
- ✧ Unit display for easy reading.
- ✧ Simultaneously display the measured values of lux and fc illuminance.
- ✧ Maximum and minimum measurements.
- ✧ Easy to read large backlight display
- ✧ Trend chart display showing the past readings for illuminance (lux)
- ✧ With temperature and humidity measurement
- ✧ Only two buttons and easy to operate
- ✧ Four AA Alkaline Batteries

APPLICATION

- ✧ Lighting engineers and specifiers
- ✧ R&D at light products manufacturers
- ✧ Inspection of light sources at construction sites, government and educational facilities
- ✧ Maintenance of lights in factories, offices, and hospitals
- ✧ Electrical product manufacturers
- ✧ Quality control of light sources at home
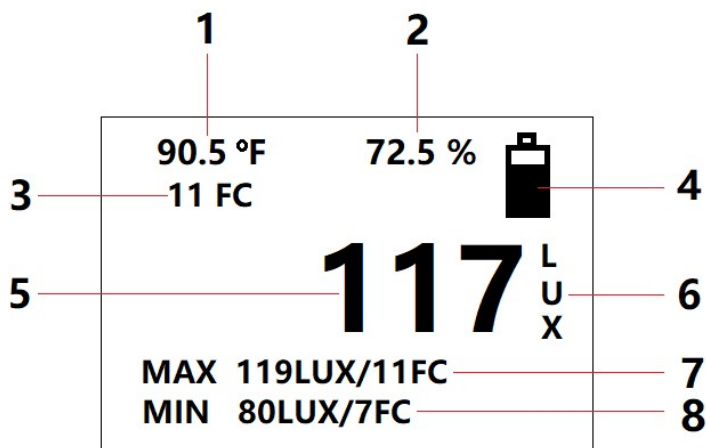
✧ Agricultural and forestry industries

DEVICE
1. Photo detector
2. LCD display
3. Power button
4. Function button

DISPLAYS
Normal Display

1. Temperature
2. Relative humidity
3. Illuminance value in fc
4. Battery gauge
5. Illuminance value in lux
6. Illuminance unit (lux)
7. Maximum illuminance in lux and fc
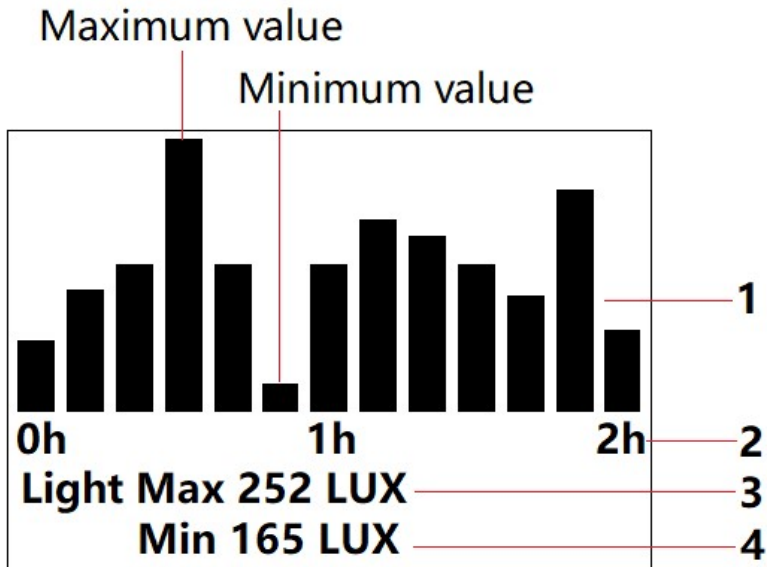8. Minimum illuminance in lux and fc

Trend Chart Display

XAR-L has a data log function that provides up to 2 hours history of illuminance.

The trend chart displays the past readings for illuminance. The time per division (indicates the chart's time per unit division) is 10 min / div. Trend chart contains a maximum of 13 recorded data at one time. The time span is 2 hours. After the chart is full the data is FIFO (first-in,

first-out). Below is the example of Trend Chart Display.
1. Vertical bar of illuminance (The higher the bar, the greater the value)
2. Time scale (farther to the right, longer time in the past)
3. Maximum value on the chart of illuminance
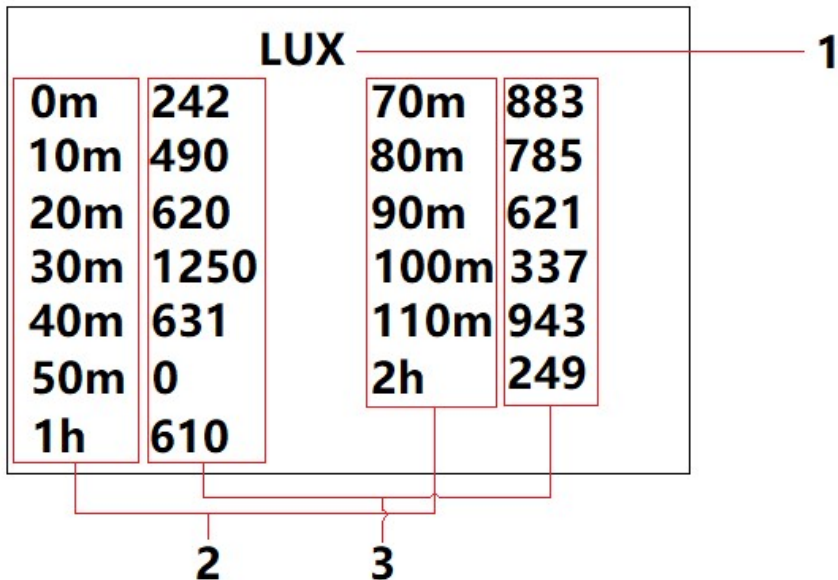4. Minimum value on the chart of illuminance

At the bottom of the chart, there are two numerical indicators: Max and Min. The Max and Min values reflect the maximum and minimum values on the chart of illuminance.

Log Display
This display lists the 13 recorded data in the trend chart with time stamples.
1. Illuminance unit (lux)

2. Time stamples in past (m--minute, h--hour)
3. Illuminance value

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┌─────────────────────────────────────────┐
│              LUX ──────────────────── 1  │
│  ┌──────────┐     ┌──────────────┐       │
│  │ 0m   242 │     │ 70m   883    │       │
│  │ 10m  490 │     │ 80m   785    │       │
│  │ 20m  620 │     │ 90m   621    │       │
│  │ 30m  1250│     │ 100m  337    │       │
│  │ 40m  631 │     │ 110m  943    │       │
│  │ 50m  0   │     │ 2h    249    │       │
│  │ 1h   610 │     │              │       │
│  └──────────┘     └──────────────┘       │
└─────────────────────────────────────────┘
         2              3
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OPERATING INSTRUCTIONS

1. When the meter is turned off, press ⏻ to turn on the meter.

When the meter is first turned on, it performs 1 second countdown for meter warm up, then enters Normal Display with current illuminance (lux, fc), temperature, and humidity readings displayed. The meter starts taking measurements when power on and updates readings every 2 seconds. The unit of illumination is lux and fc (footcandle), which are displayed at the same time.

2. Place the meter so the light falls squarely on the detector filter. Read the illuminance nominal from the LCD display. The maximum and

minimum values are recorded during the measurement and updated in real time.

3. Data-Hold mode: Press the power button ⏻ to select Data-Hold mode. When HOLD mode is selected, the illuminance meter stops all further measurements. Press the power button ⏻ again to exit Data-Hold mode. Then it resumes normal operation. The maximum and minimum values of illuminance before HOLD mode is reset and cleared.

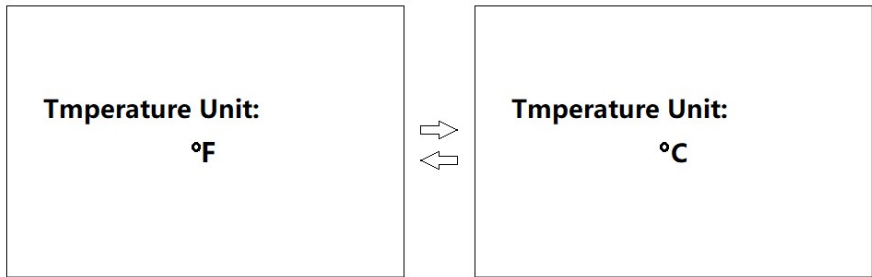4. Press any button to turn on the backlight.

Note:
➢ LCD backlight will turn off automatically after 2 minutes of inactivity.
➢ When LCD backlight is off, press any button to turn on the backlight.

5. Press Function button **FUNC** shortly to switch Normal Display, Trend Chart Display and Log Display.

6. Temperature Units Setup Menu
By pressing the Function button **FUNC** for 3 seconds, the meter enters into Temperature Units Setup Menu. In this Menu, press power button ⏻ shortly to switch two temperature units: °F and °C. Pressing the Function button **FUNC** shortly to select "Exit" item then press power button ⏻ shortly to switch back to the Normal Display.

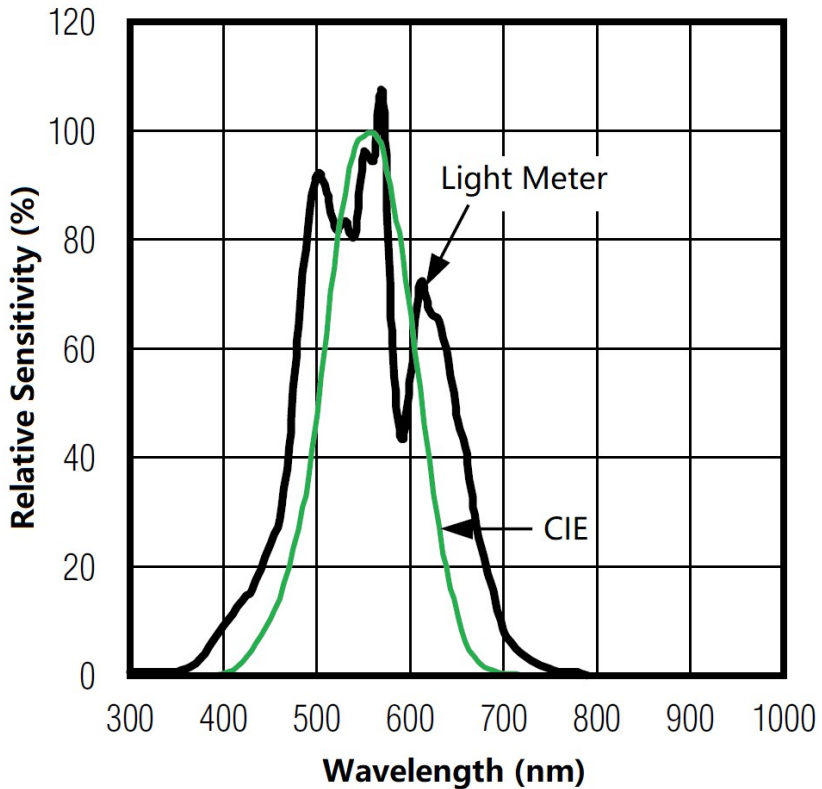| Tmperature Unit:		Tmperature Unit:
°F	⇒ ⇐	°C

7. When the measurement is completed, press power button ⏻ for 2 seconds to turn off the meter.

SPECTRAL SENSITIVITY CHARACTERISTIC

To the detector, the applied photo diode with filter makes the spectral sensitivity characteristic almost meet C.I.E. (INTERNATIONAL COMMISSION ON ILLUMINATION) Photopic curve as the following chart described.

Spectral Sensitivity Characteristics

SPECIFICATIONS

Illuminance Specification

Measuring Range	0 to 188,000 lux, 0 to 17,472 fc
Spectral Response	CIE Photopic (CIE human eye response curve)
Accuracy	±5% reading, ±1 digit (<10,000Lux) ±10% reading, ±10 digit (>10,000Lux)
Repeatability	±3%

Photo Detector	One silicon photo diode and spectral response filter

Temperature Specification

Temperature Range	-10°C to 50°C (14°F to 122°F) display
Display Resolution	0.1°C (0.1°F)
Display Options	°C/°F switchable
Accuracy	±0.5°C (±0.9°F)
Response Time	5~30 seconds (device must equilibrate with environment)

RH Specification

Measurement Range	0.0~99.9%RH
Display Resolution	1%RH
Accuracy	±4.5%RH
Response Time	<8 seconds for 63% of step change

General

Operating	-10°C to 50°C (14°F to 122°F), 0~90% RH non-condensing
Storage	-10°C to 60°C (14°F to 140°F), 0~80% RH non-condensing
Power Supply	Four AA Alkaline Batteries
Dimensions	75x165x25 mm (2.95x6.49x0.98")
Weight	124 grams (4.37 oz.) without batteries

MATERIALS SUPPLIED

✧ Santacary XAR-L Digital Illuminance Meter
✧ Carry case
✧ English User Manual

CLEANING AND STORAGE

The front panel and case can be cleaned carefully with a soft wet cloth. Allow drying completely before using. Do not use aromatic hydrocarbons or chlorinated solvents for cleaning.

Do not store the instrument where temperature or humidity is excessively high.

RECOMMENDED ILLUMINATION

1fc=10.76Lux

Locations		Lux	fc
Office	Conference, Reception room	200~750	18~70
	Clerical work	700~1,500	65~140
	Typing drafting	1,000~2,000	93~186
Factory	Visual work at production line	300~750	28~70
	Inspection work	750~1,500	70~140
	Electronic parts assembly line	1,500~3,000	140~279
	Packing work, Entrance passage	150~300	14~28
Hotel	Public room, Cloak room	100~200	9~18
	Reception	200~500	18~47
	Cashier	750~1,000	70~93
Store	Indoors Stairs Corridor	150~200	14~18
	Show window, Packing table	750~1,500	70~140
	Forefront of	1,500~3,000	140~279

	show window		
Hospital	Sickroom, Warehouse	100~200	9~18
	Medical Examination Room	300~750	28~70
	Operating room, emergency treatment	750~1,500	70~140
School	Auditorium, Indoor Gymnasium	100~300	9~28
	Class room	200~750	18~70
	Laboratory, Library, Drafting room	500~1,500	47~140

WARRANTY

The XAR-L is warranted to be free from defects in material and workmanship for a period of two year from the date of purchase. This warranty covers normal operation and does not cover misuse, abuse, alteration, neglect, improper maintenance.

CONTACT US

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