# HTC LX-104 Data Logger Lux Meter Instruction Manual



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Contents



## Instruction

- Thedigital illuminance meter isaprecisioninstrumentusedto measure illuminance (Lux, footcandle) inthe field.
- It is meet CIE photopic spectral response.
- It is fully cosine corrected for the angular incidence of light.
- The illuminance meter is compact, tough and easy to handle owing to its construction.
- The light sensitive component used in the meter is a very stable, long-life silicon photo diode and spectral response filter.

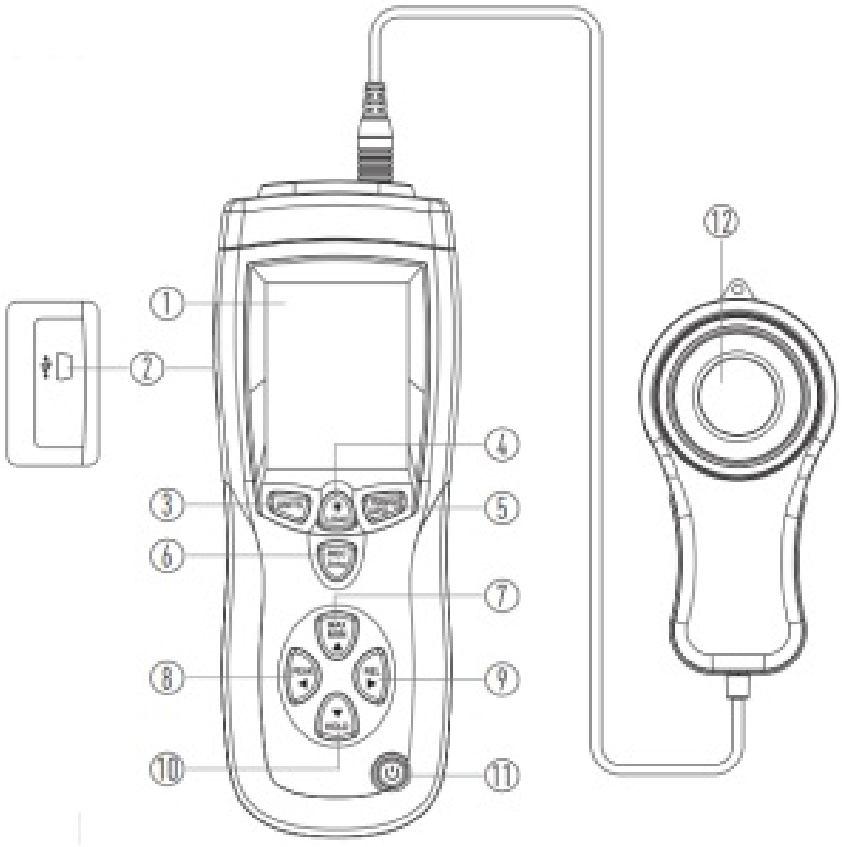
## Features

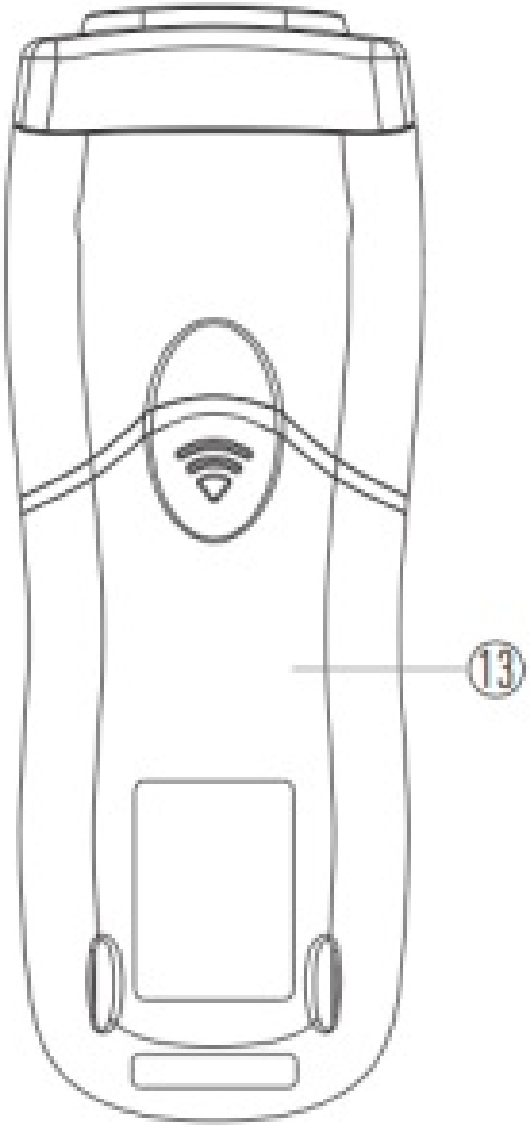
- Light-measuring levels ranging form 0.1Lux~0.1kLux/0.01FC~0.01kFC, repeatedly.
- High accuracy and rapid response.
- Data-hold function for holding measuring values.
- Unit and sign display for easy reading.
- Automatic zeroing.
- Meter corrected for spectral relative efficiency.
- Correction factor need not be manually calculated for non-standard light sources.
- Short rise and fall times.
- Peak-hold function for tracing the peak signal of light pulse with least duration 10μs and keep it.
- Capable of selecting measuring mode in Lux or FC scale alternatively.
- Auto power off 15minutes or disable Auto Power Off.
- Maximum and minimum measurements.
- Relative reading .
- Easy to read large backlit display.
- USB output connect with PC.
- 4 Level ranging.
- 99 values in memory ,that could be read on the meter.
- More than 16000 values records datalogger.

## Specifications

**Display:** 3-3/4 digit LCD with high speed 40 segment bar graph
**Measuring Range:** 400.0Lux, 4000Lux, 40.00kLux and 400.0kLux / 40.00FC, 400.0FC, 4000FC, 40.00kFC
**Note:** 1FC=10.76Lux, 1kLux=1000Lux, 1kFC=1000FC
**Over Range Display:** LCD will show “OL” symbol.
**Spectral Response:** CIE Photopic (CIE human eye response curve).
**Spectral Accuracy:** CIE V function f1’<6%
**Cosine Response:** f2’ <2%
**Accuracy:** ±3% rdg±0.5%f.s. (<10,000Lux); ±4% rdg±10d. (>10,000Lux)
**Repeatability:** ±3%
**Sampling Rate:** 1.3 times/sec of analog bar-graph indication; 1.3times/sec of digital display Datalogger sampling could be setup
**Photo Detector:** One silicon photo diode and spectral response filter.
**Operating Temperature:** 0 to 40°C (32 to 104°F)
**Operating Humidity:** 0% to 80%RH
**Storage Temperature:** -10 to 50°C (14 to 140°F)
**Storage Humidity:** 0% to 70% RH
**Power Source:** 1 piece 9V battery
**Photo Detector Lead Length:** 150cm (approx.)
**Photo Detector Dimensions:** 115 x 60 x 20mm (L x W x H)
**Meter Dimensions:** 170 x 80 x 40mm (L x W x H)
**Weight:** 390g
**Accessories:** Carry Case, Instruction Manual, Battery

## Description






1. LCD Display
2. USB Interface
3. UNITS Button
4. Backlight/LOAD Control Button
5. RANGE Button
6. REC/SET Button
7. MAX/MIN Button
8. Peak Hold Button
9. REL Button
10. Data Hold Button
11. Power Button
12. Photo Detector
13. Battery Cove

## Operating Instructions

**Power-Up**
Press the Power Button to turn the meter ON or OFF.

**Selecting the Lux or FC scale**
Set the RANGE Button to desired Lux or FC range.

**Auto Power Off**
Press the REC/SET Button and RANGE/APO Button, enable the Auto Power Off or disable this function.

**Over Range**

- If the instrument only displays “OL”, the input signal is too strong, and a higher range should be selected.
- The range will show on the down of the LCD.
- LUX: 400->4k->40k->400k; FC: 40-> 400->4k->40k.

**Data-Hold Mode**

- Press the Data Hold Button to select Data-Hold mode.
- When Data-Hold mode is selected, the illuminance meter stops all further measurements.
- Press the Data Hold Button again to exit Data-Hold mode, then it resumes normal operation.

**Peak-Hold Mode**

- Press the Peak Hold Button to choose Pmax or Pmin recorder mode, and expose the photo detector to light pulse measuring field.
- Press the Peak Hold Button again to exit PEAK recorder mode, then the meter will resume normal operation.

**Maximum and Minimum Mode**

- Press the MAX/MIN Button to choose the Maximum (MAX) reading, Minimum (MIN) readingandcurrent reading (MAX/MIN blink) recorder mode.
- Press the MAX/MIN Button again to exit this mode.

**Relative Reading Mode**

- Press the REL Button to enter Relative mode.
- The display shown zero value and the current reading will be stored as a zero-in value.
- Press the REL Button again to exit this mode.

**USB Mode**

- Connect with PC with USB, the “  ” will displays in the screen.

**Back-Light Function**

- Press the Backlight Button to turn on; Press again to turn off.

**Setup Time and Sampling Rate**

- Press the MEM/SETUP Button and UNITS Button key start to setup the time and sampling.
- The first setup target is the hour, press the PEAK or REL Button to choose the object of the setting
- Press the REL Button to choose object to repeat as below process: Hour->minter->second->sampling->month-> day->week->year->hour……
- Press the PEAK Button to choose the object and repeat as below process: Hour->year->week->day->month-> sampling->second->minter->hour->year……
- Press the MAX/MIN Button to add object of setting, press the HOLD Button to reduce the object of seting.
- Hold the MEM/SETUP and UNITS Button to exit the setting time and sampling mode, and then confirm.

**MEM Function**

- Press the MEM/SET Button to save the present data.
- HOLD the LOAD Button 5s start to load the records.
- Press the MAX/MIN Button to add the number of records.
- Press the HOLD Button to reduce the number of records.
- After you do that you must hold the LOAD Button 5s to resume normal operation.

**Datalogger Function**

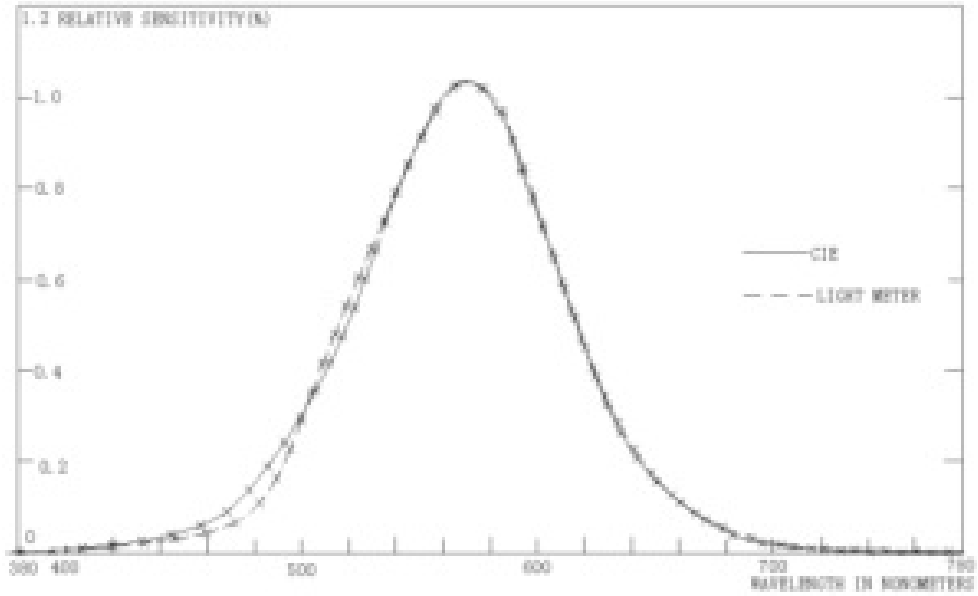
- Setup the time and sampling rate first, the default sampling rate is 1s.
- Hold the MEM/SETUP Button 5s, start the datalogger function, the MEM on the screen will be bicker.
- If the memory IC is full ,the memory number will show ‘OL’.
- Press the MEM/SETUP Button 5s, stop the datalogger function, then the meter will resume normal operation.
- Then the datalogger number will return to 1, you could start your records again.
- HOLD the MEM/SETUP and LOAD Button 5s to clear the 99 memory.

## Battery Check-Up & Replacement

1. As the battery power is not sufficient, LCD willdisplay low batteryandreplacementofonenew battery is required.
2. After turning off the meter, disconnect the battery cover with a screwier.
3. Disconnect the battery from the instrument and replace it with a standard 9V battery and go for the cover.

## Spectral Sensitivity Characteristic

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




## Connecting to PC

1. **8-1.System requirements**
   Windows 98 or windows 2000 (or higher).
2. **8-2.Minimum hardware requirements**
   PC or note book, 90MHz Pentium of faster,32Mb Ram,at least 5Mb free hard disk space screen resolution 800×600.
3. **8-3.Connection**
    1. Switch the light meter on.
    2. Plug the other end of the connecting cable to serial interface of the PC (USB).
    3. Plug the USB line connecting cable 13.6mm jack plug into the meter socket
    4. Start the light meter software.
    5. Selecting the COM port 3, note select the 4 COM.
       **Note:** You should better switch the light meter on before youplugthe USB line connectingcable13.6mm jackplug into the meter.

## Installing the Software

1. Stare windows
2. Close any applications possibly open before installing the “CEM.LINK” software.
3. Insert the CD into the CD-drive.
4. Enter x:\setup in the command line and press OK, the files setup.exe and the help file will be copied onto the hard disk (selected path: c:\program files\ Lightmeter), x is the drive-letter of your CD drive ,e.g. ”g”.
5. Now follow the installation program instructions.
6. Once the software is installed, switch on the meter.
7. Start the software.
8. Selected the COM port 3, note is 4.
9. If the connection is in order, the following display will be seen on the screen; If the connection is not in order, the message “NO CONNECTION” appears on the screen.

## Maintenance

- The white plastic disc on the top of the detector should be cleaned with a damp cloth when necessary.
- Do not store the instrument where temperature or humidity is excessively high.
- The reference level, as marker on the face plate, is the tip of the photo detector globe.
- The calibration interval for the photo detector will vary according to operational conditions, but generally the sensitivity decreases in direct proportion to the product of luminous intensity by the operational time.
- In order to maintain the basic accuracy of the instrument, periodic calibration is recommended.

## Recommended Illumination

| 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, Cloakroom | | | 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 Show Window | | | 1,500-3,000 | 140-279 |
| 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 |

## Documents / Resources

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|---|---|
|  | HTC LX-104 Data Logger Lux Meter [pdf] Instruction Manual<br>LX-104, Data Logger Lux Meter |