MAJOR TECH MT943 Data Logging Light Meter Instruction Manual

Contents

MAJOR TECH MT943 Data Logging Light Meter

INTRODUCTION

- The digital illuminance meter is a precision instrument used to measure illuminance (Lux, footcandle) in the 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.

SAFETY

- 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.

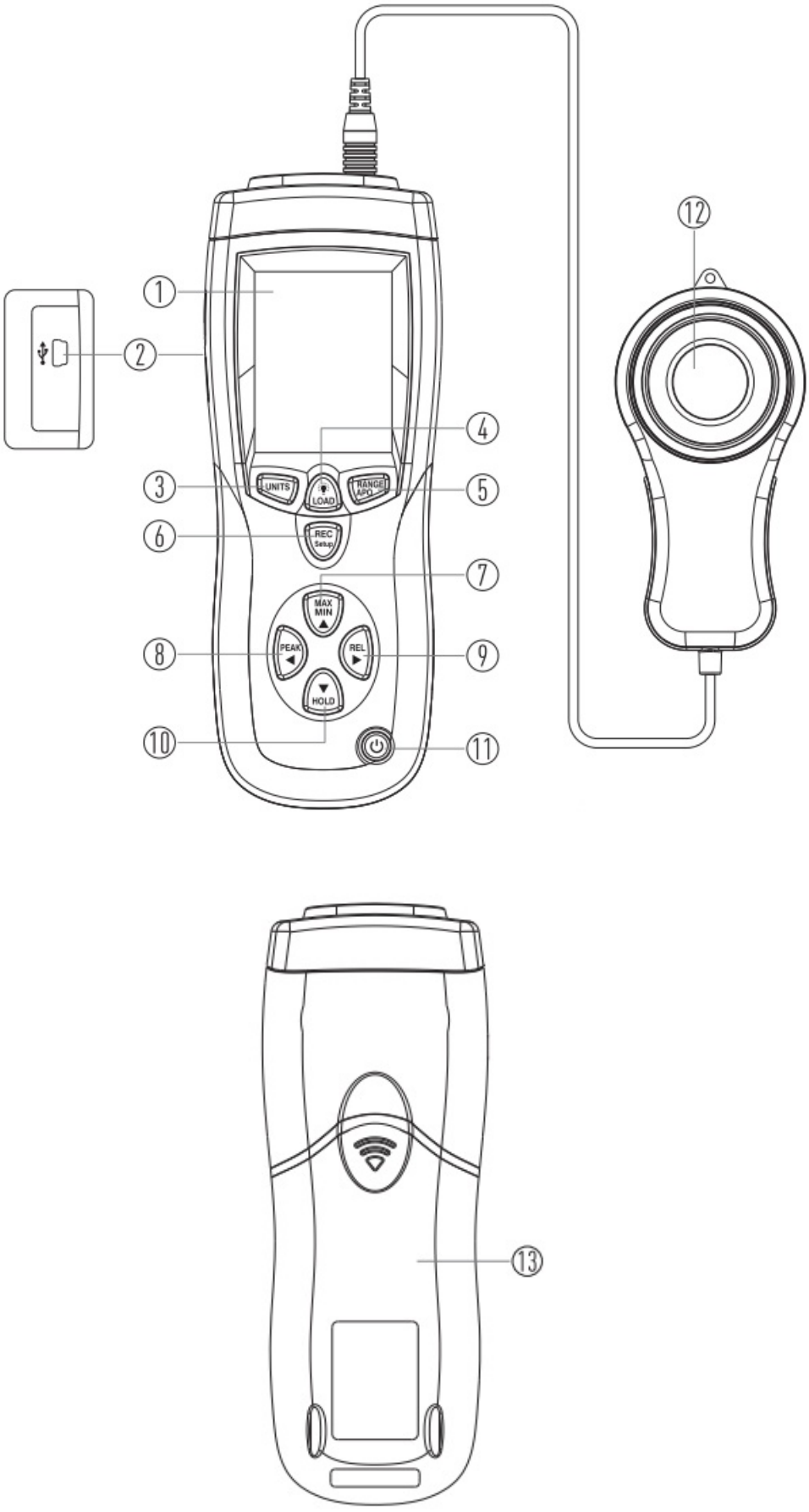
SPECIFICATIONS

Function	**Range**
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 Vλ 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 Cover

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.
- 5.5. 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 photodetector 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) reading and current 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 to start to setup the time and sampling.
- The first setup target is the hour, press the PEAK or REL Button to choose the function of the setting
- Press the REL Button to choose function to repeat as below process: Hour->minter->second->sampling->month-> day->week->year- >hour……
- Press the PEAK Button to choose the function and repeat as below process: Hour->year->week->day->month-> sampling->second- >minter->hour->year……
- Press the MAX/MIN Button to add the function of setting, press the HOLD Button to reduce the function of setting.
- 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 for 5s to 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

- Set up the time and sampling rate first, the default sampling rate is 1s.
- Hold the MEM/SETUP Button for 5s to start the datalogger function, the MEM on the screen will be flicker.
- If the memory IC is full,the memory number will show ‘OL’.
- Press the MEM/SETUP Button for 5s to 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.

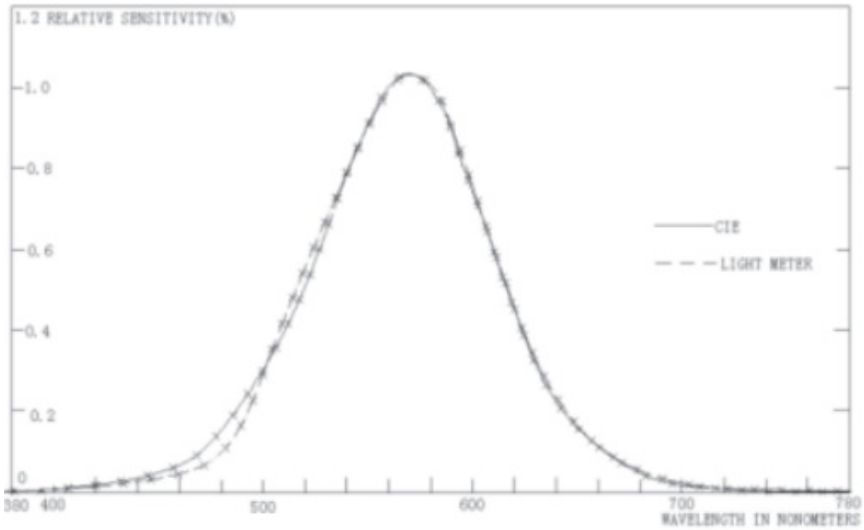
- HOLD the MEM/SETUP and LOAD Button for 5s to clear the 99 memory.

BATTERY CHECK-UP & REPLACEMENT

1. If the battery power is not sufficient, LCD will display low battery and the replacement of one new battery is required.
2. After turning off the meter, disconnect the battery cover with a screwdriver.
3. Disconnect the battery from the instrument and replace it with a standard 9V battery and replace the cover

SPECTRAL SENSITIVITY CHARACTERISTIC

On the detector, the applied photodiode with filters makes the spectral sensitivity characteristic meeting C.I.E. (INTERNATIONAL COMMISSION ON ILLUMINATION) Photo curve V (λ) as the following chart described.



CONNECTING TO PC

System requirements
Windows 10 or higher.
Connection

1. Switch the light meter on.
2. Plug the other end of the connecting cable to the 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 selects the 4 COM.

Note: You should switch the light meter on before you plug the USB line connecting cable 13.6mm jack plug into the meter.

INSTALLING THE SOFTWARE

1. Start windows
2. Insert the USB into the PC or Laptop and download the software.
3. Now follow the installation program instructions.

4. Once the software is installed, switch on the meter.
5. Start the software.
6. Selected the COM port 3, the note is 4.
7. 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 the temperature or humidity is excessively high.
- The reference level, as a marker on the face plate, is the tip of the photodetector globe.
- The calibration interval for the photodetector 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
	Sickroom, Warehouse	100~200	9~18

Hospital	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

1FC=10.76Lux

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Documents / Resources

	**MAJOR TECH MT943 Data Logging Light Meter** [pdf] Instruction Manual MT943 Data Logging Light Meter, MT943, Data Logging Light Meter, Logging Light Meter, Light Meter, Meter
	**MAJOR TECH MT943 Data Logging Light Meter** [pdf] Instruction Manual MT943 Data Logging Light Meter, MT943, Data Logging Light Meter, Logging Light Meter, Light Meter, Meter

References

- **Major Tech - Innovation I Quality I Excellence**
- **Home - Major Tech Australia**