* To ensure your warranty validation, please place your agent's stamp in the box and fill in the purchase date. If the agent stamp and purchase date cannot be supplied, the warranty period will based on the manufacturing date of the product.

* 為確保您的權益，請要求經銷商蓋上店章及填寫購買日期；未蓋店章與購買日期者，則以出廠日期為依據。

* お客様の権利を確保するために、販売店に店の印章または、購入日を記入することを依頼してください。販売店の印章または購入日のない場合、製造日に基とづいて取り扱いいたします。

Original / Authorized Agent Stamp

Product Serial Number : _____

Purchase Date : _____

V1.1

UPRtek 群燿科技股份有限公司
United Power Research Technology Corporation

TEL：+886-37-580-885 Website：www.uprtek.com
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# MF250N

FLICKER METER | FLICKER光譜計 | フリッカーメーター

## User Manual and Warranty
## 使用說明書與保固手冊
## 使用説明書及び保証書

# Contents



For more operation & firmware update information, please visit www.uprtek.com

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## Introduction

- 1.1 Features
- 1.2 Packing Contents
- 1.3 Appearance Introduction
- 1.4 Annual Product Calibration
- 1.5 Product Notes and Precautions

## 1.1 Features

- Industry-leading launch Flicker measurement instrument.
- Support Flicker Index, Percent Flicker measurement.
- Meets IES / ASSIST / ENERGY STAR / VESA specification definition .
- Standalone operation, no need for smart phone or PC connection .
- Light flicker frequency measurement.
- Spectrum diagram and including five light units-of-measure.
- Flicker time & frequency domain real-time monitoring.
- C/P value highest.



## 1.2 Package Contentsns


Case


MF250N
FLICKER Meter

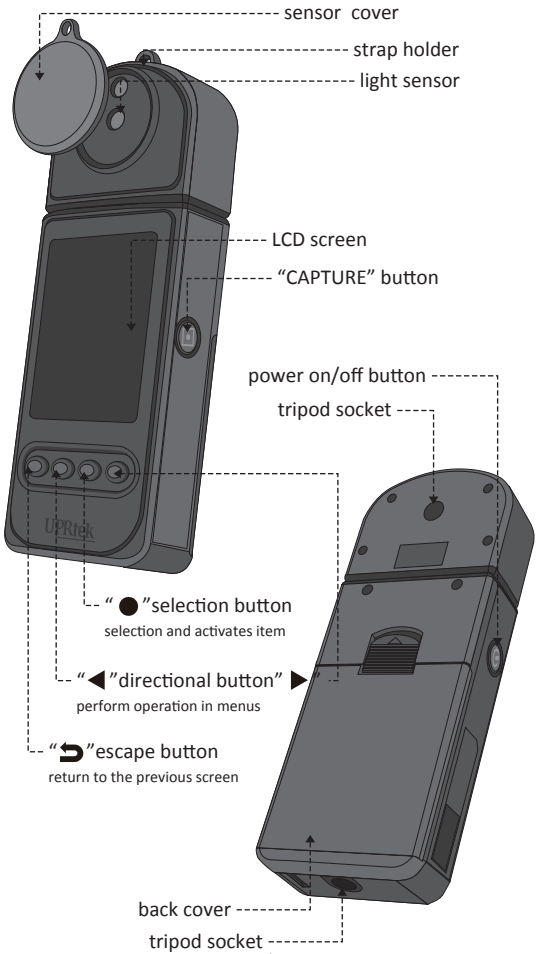

Screen Wiper


User Manual
and Warranty


Protection Bag

Strap

## 1.3 Appearance Introduction






## 1.4 Annual Product Calibration

The MF250N is a high-precision measurement device with sensitive components so to handle with care. To ensure the accuracy of measurements, it is recommended to have the unit calibrated once a year. Please contact your agent or our customer service department for calibration service.

## 1.5 Product Notes and Precautions

The MF250N FLICKER Meter contains sensitive components. Please unpack with care, as any trauma to the unit may damage the equipment. Contact your agent if the unit appears not to be operating normally. Do not attempt any repairs – all repairs must be performed by qualified service agents.

### Precautions / Warnings

Please read the following precautions to avoid fire, excessive heat, chemical leakage and explosion.

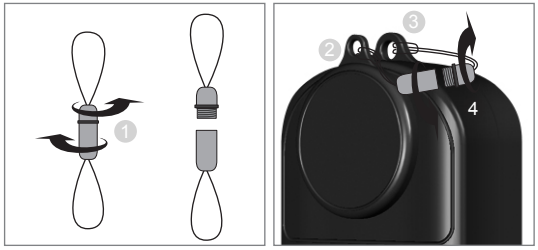
- Do not disassemble.
- Do not expose the product to heat or water/ moisture.
- If the unit is accidently immersed in water, or if moisture has seeped inside, or metal objects have penetrated the casing, immediately remove the battery to avoid fire or electric shock.
- Do not use paint thinner, benzene or other organic solvents to clean the equipment as damage may occur to the exterior finish.
- Device screen isn't touch panel, and do not press firmly with a finger or nib to avoid screen broken.



# 2 Getting Started

## 2.1 Preparing Before Use

■ strap installation




■ battery installation

Open the battery cover and loaded 4 AA batteries.

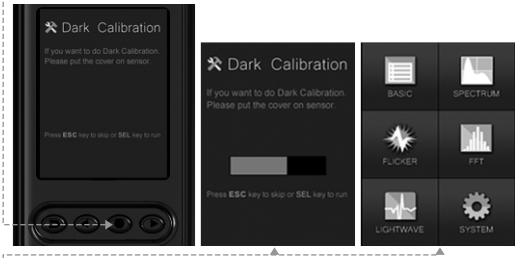



## 2.2 Quick Start

**1** Place the sensor cover on the MF250N.


**2** Press the On/Off button on the left side of the unit, then the UPRtek splash screen will appear on the display.

**3** The unit will ask you if you want to perform a "Dark Calibration". Prss "Selection ●" button.




**4** When Dark Calibration is finished, the screen will indicate main menu.

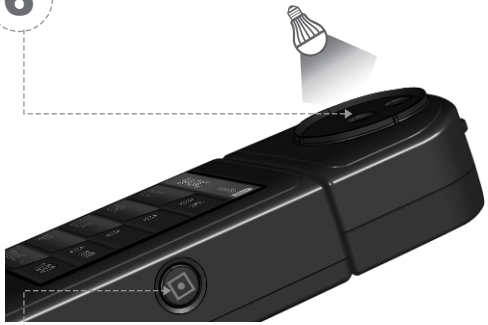
**Notice**

Suggest to execute dark calibration when every time turn on MF250N.

## 2.2 Quick Start

**5** Press directional buttons to select in main menu and then enter the mode by pressing selection button.


**6** Point light sensor towards light source.



**7** Press the capture button on the right side of the unit.

**8** The results will be instantly displayed on the screen.



## 2.3 Measurement Mode

■ SPECTRUM

This screen displays spectrum graphics, λP and I-Time value.

■ BASIC

This screen show a list of light measurements record(CCT, CRI, LUX, λP, I-Time).


■ FLICKER

This mode is used to continuously capture measurements. The screen list 5 items (Flicker Index, Flicker Percentage, VESA FMA, FFT Frequency, FFT Magnitude).

■ FFT

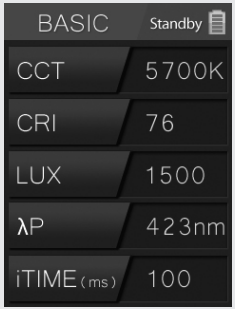
This mode is used to real-time monitoring measurements. You can get the frequency information such as relative intensity and frequencies.

■ LIGHTWAVE

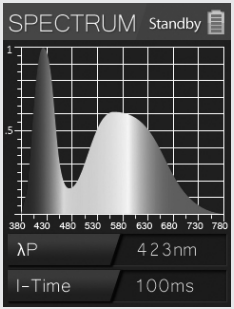
This mode is used to real-time monitoring measurements. You can get continuity light waveform, and period of wave.

# 2.4 Taking a Measurement

■ BASIC mode

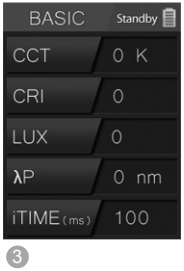



■ SPECTRUM mode




Steps of measurement in SPECTRUM mode is the same as BASIC mode. The example only describe BASIC mode.

**1** The icon of BASIC mode will turn into green when selected[1]. Press selection button[2] and then the screen will display[3].

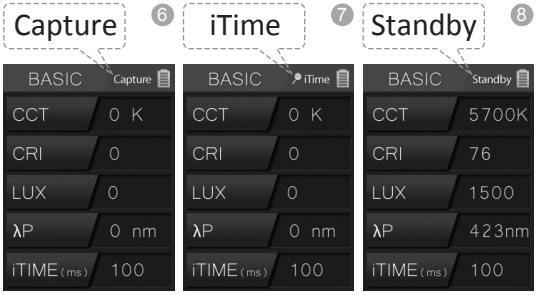






# 2.4 Taking a Measurement

**2** Point light sensor towards light source[4]. Press the capture button[5].


**3** When press the capture button, the screen will show "Capture" at the upper right corner[6]. "Capture" change to "iTime" means in processing the integration time (iTime) search[7]. The status display "Standby" when measuring completed[8].

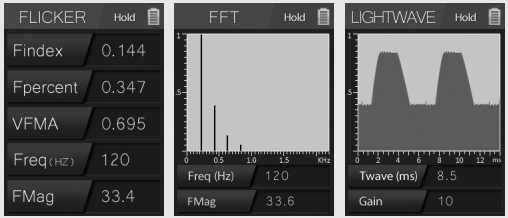



**Notice**

System will skip iTime search when user measurement environment illuminance are similar with previous.

# 2.5 Continuous Measurement

■ FLICKER ■ FFT ■ LIGHTWAVE




These three modes are real-time monitoring. Steps of measurement in FFT and LIGHTWAVE mode are the same as FLICKER mode. The example only describe FLICKER mode.

**1** Press directional buttons to select FLICLER mode[1] in main menu. The icon of FLICKER mode will turn into green when selected[2]. Press selection button[3] and then the screen will display[4].

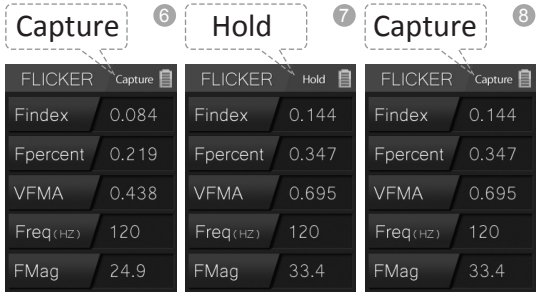




# 2.5 Continuous Measurement

**2** Point light sensor towards light source[5].


**3** This icon "Capture" at the upper right corner of the screen means real-time monitoring[6]. When press the capture button will hold measurement state, the screen will show "Hold"[7] and press capture button again to continue real-time monitoring[8].



# 3

## Miscellaneous





## 3.1 SYSTEM Setting



**1** Press direction button ◀▶ to select SYSTEM mode in main menu and then enter SYSTEM mode by pressing selection button ●.

**2** ◀▶ : select the item

● : determines the item selected

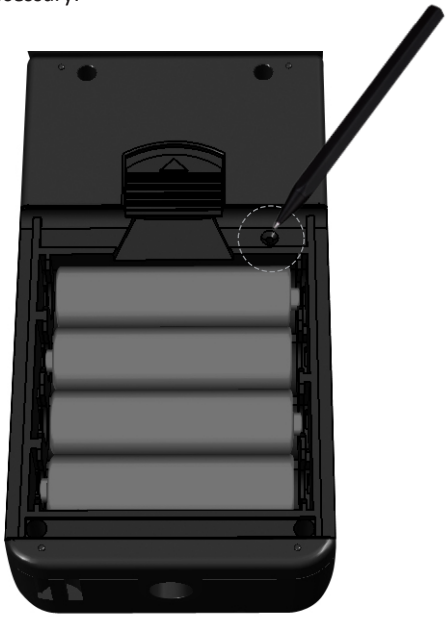
**3** ◀▶ : adjust

● : confirm the item adjusted

**4** ⮌ : exit the item

## 3.2 System Reset

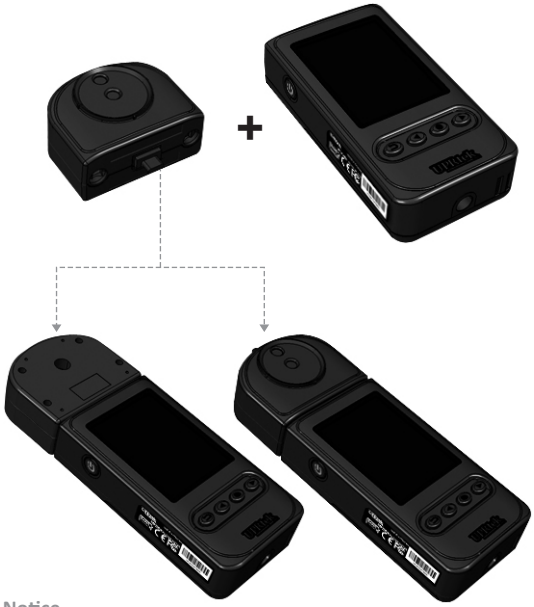
User can press this key to reset the system if necessary.





## 3.3 Light Sensor Head Assembly

The embedded sensor is designed flexibly for light-oriented. Please be sure the sensor is connected with the system before power on. Please make sure the sensor face to the light before measuring.



Notice

1. Suggest to execute dark calibration when every time turn on MF250N.
2. The light sensor head and the meter has been paired, please do not mix with others.
3. Please ensure to turn off the power before you rotating the sensor head.

# 4 Specification





| | | |
|---|---|---|
| Spectrum | Sensor | CMOS Linear Image Sensor |
| | Spectral Bandwidth | Approximately 15 nm（half bandwidth） |
| | Receptor Size | φ6.6± 0.1mm |
| | Wavelength range | 380~780 nm |
| | Integration time range | 6~1200 ms |
| | Measurement Range | 70~70000 Lux |
| Flicker | Sampling rate | 5 K/Sec |
| | Frequency range | 5~2000 Hz |
| | Frequency resolution | 5 Hz |
| | Measurement Range | 30~60000 Lux |
| | Standard | IES/ ASSIST/ ENERGY STAR/ VESA |
| | Measure response | <3.0 Sec |
| General | Measuring Modes | 1. Basic Mode<br>2. Spectrum Mode<br>3. Flicker Mode<br>4. FFT Mode<br>5. Lightwave Mode |
| | Measuring Capabilities | 1. Flicker Index<br>2. Flicker Percentage<br>3. VESA FMA<br>4. FFT Frequency<br>5. Flicker Frequency-domain Graphic<br>6. Flicker Time-domain Graphic<br>7. CCT<br>8. CRI (Ra)<br>9. Illuminance (LUX)<br>10. λP<br>11. iTime<br>12. Spectrum Graphics |

| | | | |
|---|---|---|---|
| General | Illuminance Accuracy | Illuminant A @ 2856K at 20000 Lux | ± 5% |
| | CCT Accuracy | | ± 3.5% |
| | CRI Accuracy @ Ra | | ± 2.5% |
| | Flicker Accuracy | | ± 5% |
| | Display | 2.8" TFT LCD, 240x320 Pixel | |
| | Battery | AA Battery x4 | |
| | Dimension | 180*65*30mm ( H x W x D ) | |
| | Weight | 250 g ± 20 g | |
| | Operating Temperature Range | 0~35℃ | |
| | Storage Temperature Range | -10~40℃ | |

The company reserves the right to change product specifications without prior notice.



# 4.2 General Attributes

CCT
- Correlated Color Temperature

CRI
- Color Rendering Index

Lux
- Illuminance

λp
- The Peak of Wavelength

iTime (ms)
- Integration Time of CMOS

Findex
- Flicker Index

Fpercent
- Flicker Percentage

VFMA
- FMA(Flicker Modulation Amplitude) define by VESA

Freq (Hz)
- The Primary Frequency

Fmag
- The Magnitude of the Primary Frequency

Twave (ms)
- The Period Time

Gain
- Gain of the Sensor

# 5 Appendix Warranty

## Warranty Policy

UPRtek provides replacement or repair services to our customers for defective products within the applicable warranty period.

1. DOA (Dead on Arrival) Returns :

- In the event that you receive a product that is not working properly or is defective, you should notify our service staff upon receipt of the products. If defects in the product are discovered within 7 days after receiving the product (except those due to willful damage or customer misuse), you should notify us by email, facsimile, or phone immediately upon noticing the defect, so we can process the return as a DOA product. You will be issued a DOA number accordingly.
- DOA products must be returned within 30 days of purchase and in original condition. For products considered as "Dead on Arrival", we will replace it with a new product (in whole package) at no charge and pay return and re-delivery shipping costs. International customers should allow for additional transit time due to international customs clearance.

2. RMA (Return Merchandise Authorization) :

- For merchandise sent for repair or replacement with or without warranty, you must first obtain an RMA number by contacting our service staff by mail. The following information is required in order to complete your RMA request: company name, contact person, phone number and e-mail, customer ship-to address, product model number, serial number, and a brief description of the problem you are experiencing with the product you wish to return.
- All returned products will be tested by our professional technicians to verify the complaint / defect in question. However, if the defect in

question cannot be found by our technicians, you are responsible for paying a testing fee plus shipping fee for NDF (No-Defect Found) products.

- Claims for loss or damage during shipment must be made to the courier by the customer. For your protection, we strongly recommend that you fully insure your return shipment for damages. Please use a courier that is able to provide you with proof of delivery.

## Limitation of Warranty

Please note that UPRtek is not responsible for providing repairs under warranty if the product defect is caused by any of the following factors :

1. Damage caused by natural calamity or any inappropriate usage.
2. Product has been repaired or taken apart by unauthorized technicians.
3. The warranty label is altered, damaged or missing.
4. Product serial number does not conform to our original system or the label has been damaged.

## Disclaimer

- UPRtek shall in no event be liable for any defect, damage or data loss that has occurred during the delivery of in-warranty products. Prior to claiming warranty service, UPRtek recommends that you make a backup of your data and remove your data from in-warranty products.
- Under the maximum allowable range of applicable laws and regulations, any business loss, expected cost loss, data disappearance, or any other indirect, accidental, or derived loss or damages due to the utilization of or related to the company product, shall not be the responsibility of UPRtek for any compensation.

## Customers Eligible for Warranty Service

UPRtek warranty policy applies to all customers who purchased from either UPRtek or through authorized agents of UPRtek.

## Duration of Warranty

MF250N HOST :

The MF250N FLICKER METER series all come with a 2-year product warranty.

## Authorized Distributor / Dealer Services

- **Product-based functional testing** - Performed by distributors and dealers to determine whether the product needs to be returned to the factory for further calibration services or technical repairs (All UPRtek authorized distributors/dealers have a right to perform "Product-based functional testing" for a reasonable charge).
- **RMA product delivery to and from factory** - Distributors/dealers can assist customers in sending/receiving RMA products to/from the UPRtek factory.
- Authorized distributors/dealers are listed on our website : www.uprtek.com

## Additional Remarks

Product parts and components are not always manufactured by UPRtek. On occasion, these 3rd party components may need to be replaced but are already discontinued by the supplier. In this case, UPRtek assures customers that it will fulfill it's repair andreplacement responsibilities by using substitute parts or components of equal level and quality.

## Delivery Methods

Consumers can choose either of the two methods

indicated below to return the product to the factory for RMA Service：

- Customers can send the products through UPRtek global distribution channels that will send and return the products to and from the factory for repair and warranty service.
- Customers can return the product directly to the UPRtek factory for servicing.

## Rules on Product Repairs After The Warranty Period

UPRtek provides product services after warranty expiration at reasonable charges. In case of product defects, the customers are still able to send products back to the UPRtek factory for service. The repair charges will be based on the type of defect, and in some cases, maintenance fees will be charged.

However, purchasing a new product is advised under these conditions:

- If the MF250N series or its accessories are no longer available.
- If the product functionality is almost certain to be impossible to recover from (e.g. total immersion in water, undergoing extreme electrical shock, severe contamination or corrosion damage).
- If the product was dropped or sustained such a traumatic impact causing major structural damage, or if our technicians determine that normal functionality cannot be recovered even after major component replacement.
- If multiple parts simultaneously fail due to normal wear and tear, or poor handling.
- Even if the product is within the service period of the warranty, yet parts are no longer available.