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- Reference Materials
- User Manual

52-60-00166-0000 V1.1

NKsystem LA-106

SPECTROMETER

User Manual

Table of contents

1.1 Product Overview

Your Light Analyzer LA-106 is a palmtop photon meter that measures range of light sources in multiple modes. It may measure PPFD of plant light source (※1) Light Analyzer LA-106 comes with 3.5" touch control screen. User friendly smart interface enables fast and easy use of this product. Removable optical sensor design enables remote measuring and keeping measurements in SD card.

Connect this product to a PC by USB cable enables easy data management with exclusive software.

(※1) : Photosynthetic Photon Flux Density

Quality of light is critical to photosynthesis in planting operation. Planting, from seeding to flowering and producing fruits requires varieties of control and suppression, which in turn, requires different types of light. This product may assist this study by offering high precision light measurement and analysis.

Thank you for purchasing the LightAnalyzer LA-106. For more information and additional details, please visit our official website: https://www.nihonika.co.jp/en/e/product/5491.html

1.2 Packing Contents

Please ensure the following are included in package of this product: In case of any flaw and/or loss please call the dealer or this Company for help.

Case

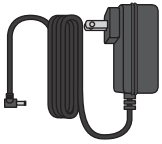
Light Analyzer LA-106
spectrometer

Lithium battery

Protection Bag

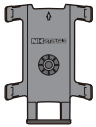
mini USB cable

Type-C USB cable
(3m)



Power Adaptor

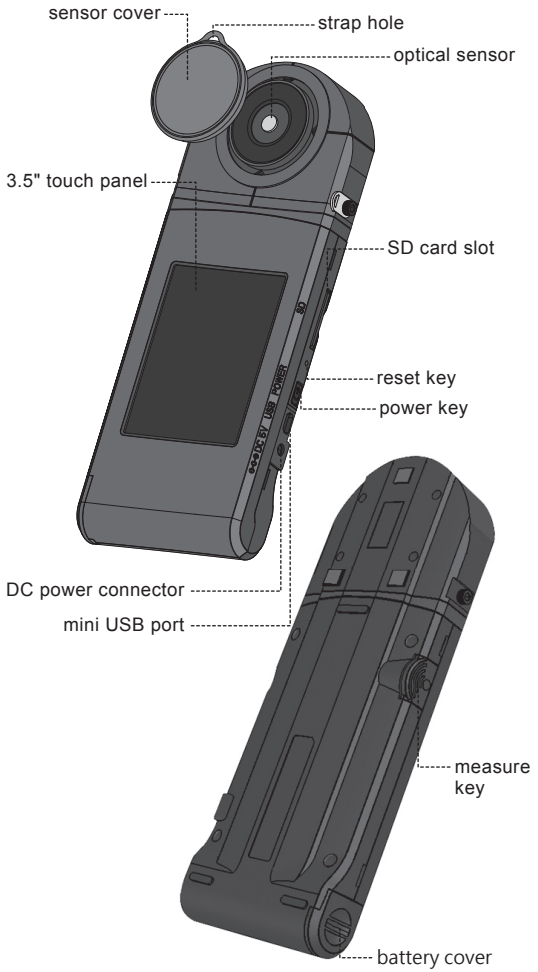
Cap strap
(attached to this product)



Tripod /
Stand Bracket

SD card (user manual)
(inserted in this product)

1.3 Product Description



1.4 Annual Product Calibration

This product is made of high precision components. Please handle with care. Please calibrate this product once per year to maintain accuracy and precision. Please consult retailers/dealer from whom you purchased this product or Nippon Medical & Chemical Instruments calibration of this product.

1.5 Product Notes and Precautions

1. LightAnalyzer LA-106 is made of precision components. Any hit or impact may hamper this product from normal operation. Please handle it with care. In case of any operation error or failure, please consult retailers/dealer from whom you purchased this product or this Company for help. DO NOT repair or disassemble this product by yourself.
2. Touch control panel of this product (LCD Screen) may suffer minor pixel failure (less than 0.1%). This does not hamper use of this product. There may be very fine white spots in the LCD screen which have no impact on measurement precision.

Product Notes and Precautions

Please read the following items carefully to prevent fire, overheating, chemical leak, and explosion.

- DO NOT disassemble or modify battery.
- DO NOT place battery in fire or water.
- Recycle used or old batteries. Stick insulation tape to terminals of disposed battery before its recycling.
- In case of overheat, smoking, odor during battery charging battery charging, please stop charging and remove it from grid power socket immediately to prevent fire from happening.
- DO NOT place any wire or cable close to heat source. It may get deformed or insulation layer molten due to heat and lead to fire or electric shock.
- DO NOT cover or wrap device in charging. Its casing may get deformed due to poor cooling and lead to fire.
- In case this product is falling in water or getting water or foreign metal objects in it, remove the battery immediately to prevent fire or electric shock.
- DO NOT use or keep battery or backup battery in high temperature environment. This may lead to battery leak or shorter battery life cycle.
- DO NOT clean this product with thinner, benzene or other organic solvents as it may damage appearance and touch control panel of this product or lead to fire.
- Keep the battery at proper location and keep it from reach of children. Parts of product swallowed by children may lead to suffocation or choke. Call your doctor in case of parts swallowed by children.
- DO NOT use this product in place marked "No Smoking" as this may lead to fire or explosion.

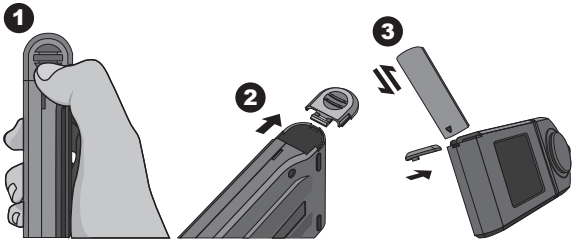
2.1 Preparation before Using

■ Install battery

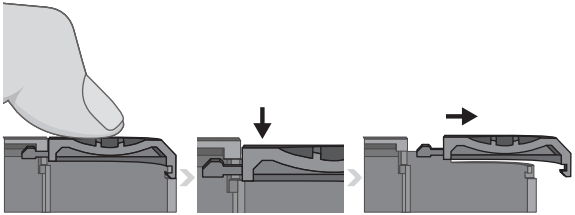
Step1. Hold this product with your hand and press battery cover with your thumb.

Step2. Push battery cover downward from this product to remove it.

Step3. Insert battery in battery compartment with its triangle label facing downward then replace the cover.



※ Press battery cover downward to unlock it from cover latch before pushing it outward of the body.



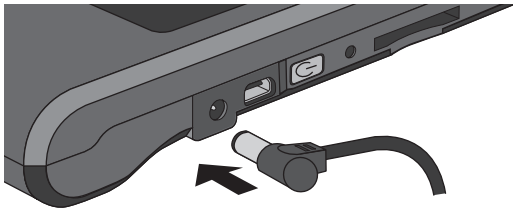
1. Charge the battery full for 6 hours before using it for the first time.
2. To prevent power outage during using this product, please check whether the red light has turned off (fully charged) according to instructions given in next page item1. Once this product is enabled keep an eye on indicator of balance of battery charge at upper right corner of screen.
3. In case a battery goes exhausted soon after fully charged then its life cycle has ended. Please call your dealer for replacement with new one.
4. Time span your battery can last varies with its life cycle. Newly shipped battery after full charge may last around 5 hours.

2.1 Preparation before Using

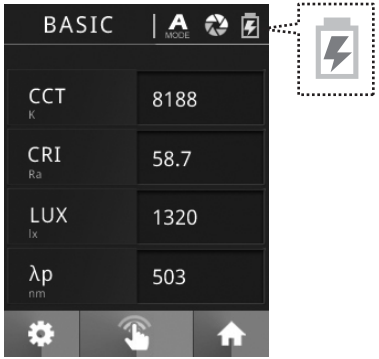
■ Charge your battery

Connect charger to charging port of this product to start charging its battery.

1.Product in off mode: The power key lights red during battery charging and turns off after it is fully charged.



2.Product in on mode: A flash symbol displays at upper right corner of screen of this product during charging and disappears after it is fully charged.



2.1 Preparation before Using

■ SD card

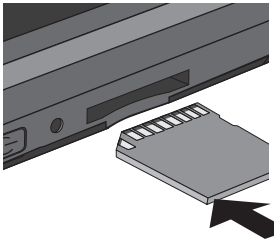
SD has been inserted in this product before shipping to you. See illustration below to remove it.

SD card contains the following :
① PDF file of this manual
② PC software

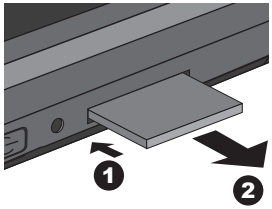
■ Install SD card

This device can save measurement data to an SD card (1 GB or larger). The data can be saved either as an Excel file (xls), or as an Excel file together with JPG image files (spectrum and chromaticity coordinate charts).

※ Insert SD card in direction as indicated



※ Press to remove SD card

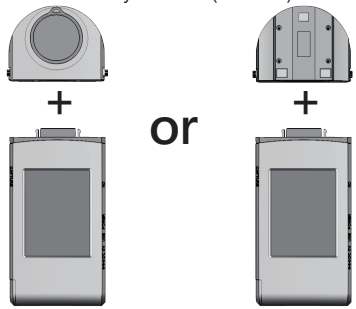


1. The SD card features a card latch design to prevent it from loosening You may feel that the SD card is stuck when it is inserted in or removed. In case it is like this, pull or push it a little harder to get it in place or removed. To remove SD card: Press it as shown in step ①, pull it out after it ejecting a little as shown in step ②.

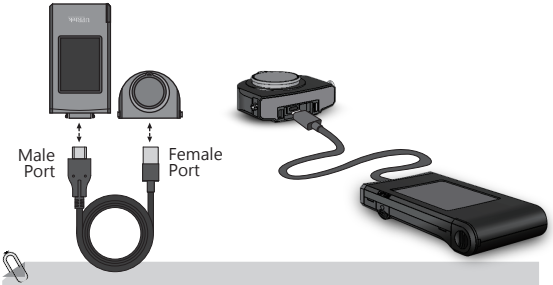
2.1 Preparation before Using

■ Connect optical sensor to host

See diagram below for reverse installing your optical sensor. Please power off this product before removing optical sensor from host then turn around before inserting in host. Power on this product again after it is fully installed (see P11).



Use Type-C USB cable for remote measurement as shown in diagram below. Power off product before connecting Type-C USB cable to it. Power it on again afterwards.

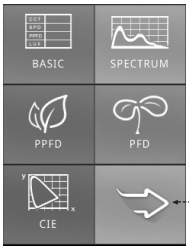


1. Optical sensor and host are paired before shipment to you. DO NOT use either of the two with any other LA-106 device. If you have more than one LA-106 product, DO NOT mix using these two.
2. Please power off this product before getting optical sensor installed to or uninstalled from host.
3. Please run background calibration before using it after power on.

2.1 Preparation before using

■ Set up date and time

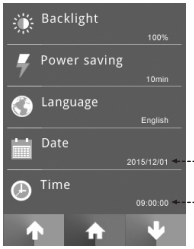
Set up date and time before taking any measurement.



Press lower right arrow icon to enter the next page. ①

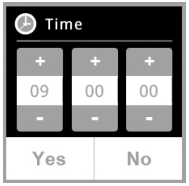
Click 【Option】 icon. ②

③



Press【Date】and【Time】for its settings.

④ Once date is set, press Yes to exit to setup option page.

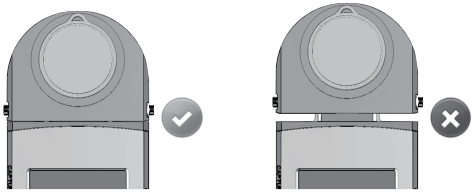


⑤ Once time is set, press Yes to exit to setup option page.

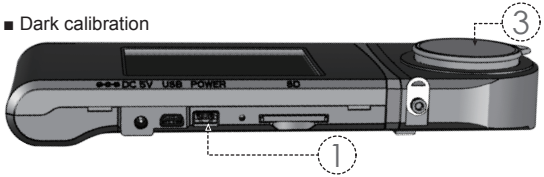
2.2 Taking a Measurement

■ Precautions on optical sensor installation

Make sure optical sensor latch is well connected to host.



■ Dark calibration



Once this product is powered on the power key lights in green and the screen prompts with message for dark calibration.

② The "Do you want to do dark calibration?" dialog box displays, click Yes to proceed.

③ Click OK once the cover is well replaced.

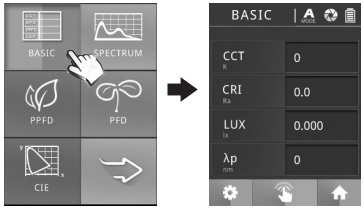
Once message "Dark calibration finish" prompts, click OK and the main menu displays. ④

1. Press and hold power key for 1 second to power on this product.
2. Press and hold power key for 3 seconds to power it off.
3. Please run dark calibration after each power on of this product.

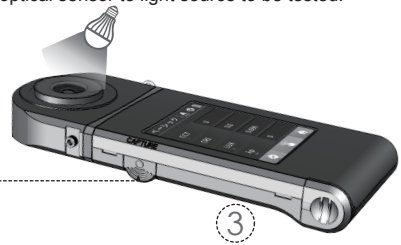
2.2 Taking a Measurement

■ Measurement

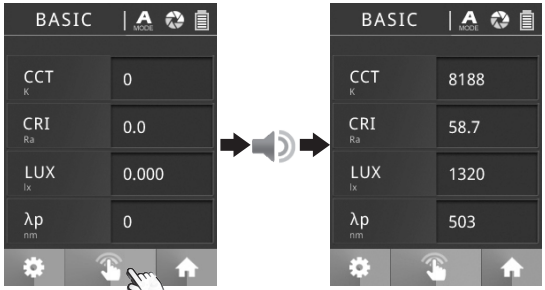
Click “BASIC” mode to enter measurement page.



① Point optical sensor to light source to be tested.



② ③



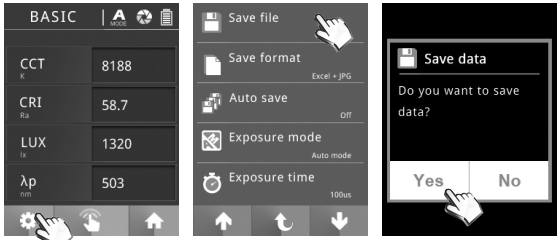
Press the measurement button at bottom center of screen or the measurement key at left hand side to measure.

This product beeps once after measurement is done and displays results on screen.

2.2 Taking a Measurement

■ Save measurement data

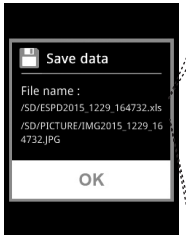
① ② ③



Press the setup button at lower left corner.

Click “Save file”

④



Measurement data is now saved in SD card. You may note down file name if necessary.

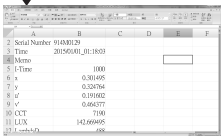
※ When “Auto Save” is turned on, the above operation is not required.

※ JPG files are saved in the PICTURE folder.

EXCEL file name :

ESPDY Y Y Y _ M M D D _ H H M M S S

.xls regular (year) (month)(day) (hour/min/seconds)



▲You may save entire source data.

You may read data in an Excel file with PC exclusive software of Microsoft Excel application program. To read data with Excel Microsoft Excel application program a warning message as shown in screen below may display, just click 【Yes】 to open the file.

JPG file name :

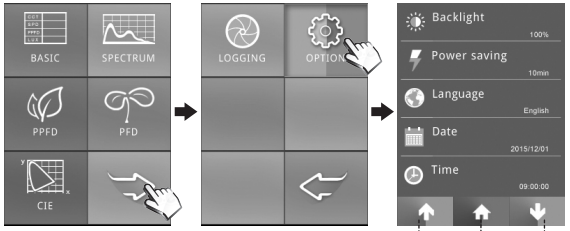
IMGY Y Y Y _ M M D D _ H H M M S S

.JPG regular(year) (month)(day) (hour/min/seconds)

▲You may save measurement screen in “BASIC mode”, “SPECTRUM mode”, “PPFD mode” and “CIE 1931.1976 mode”.

2.3 Setup Items in OPTION

Click OPTION icon in main screen to set up this product.



Previous page | Back to main menu | Previous page

■ Backlight Setting

■ Power Saving Setting

To turn off the power-saving mode, press and hold the " -" button until OFF is displayed.

■ Language Setting

■ Date Setting

■ Time Setting

+ / - : Adjust key

2.3 Setup Items in OPTION

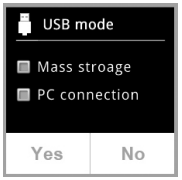
Capacity of SD card displays once it is inserted. In case message "Please insert SD card" displays after a SD card has been inserted the one you have inserted may be failed to be identified by this product.

Charge left

■ Check Storage Device

■ Check Version

■ USB Mode Setting



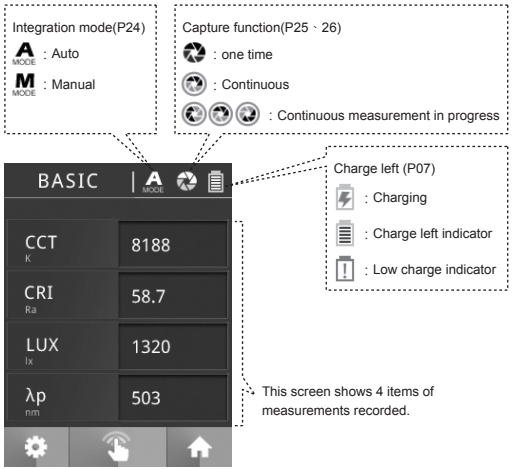
Please refer 5.1 for USB mode setup.

The Battery section is for checking the remaining battery level only. (It cannot be changed.)

3.1 BASIC Mode

Click “BASIC” icon in main screen to display measurement readings.

※ The exposure mode is typically set to “Auto”.

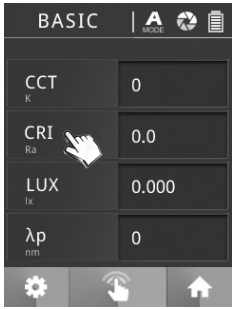


3.1 BASIC Mode

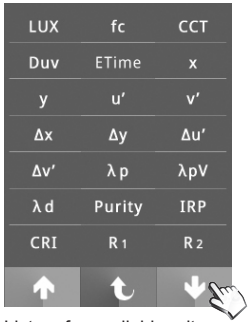
■ Customize the four measurement items in BASIC mode.

The 4 items on the Basic list can be customized with different units of measure according to your preference.

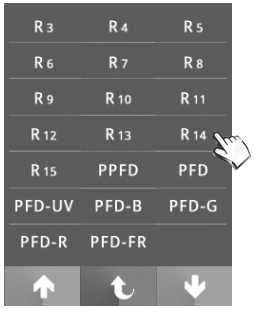
① Click the item to be changed.



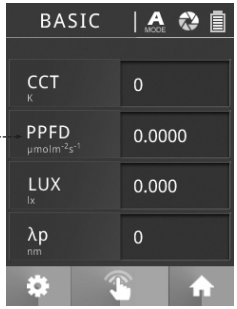
② List of available items displays, click down arrow key “↓” to scroll down to next page.



③ Click items to be shown in position ①. Click “⮤” key at bottom of screen to back to last page without selecting any item.

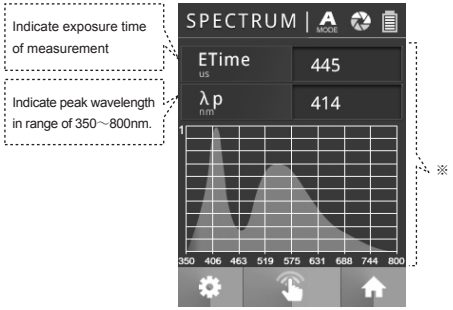


④ Default item changed. Follow the same steps to change other default items.



3.2 SPECTRUM Mode

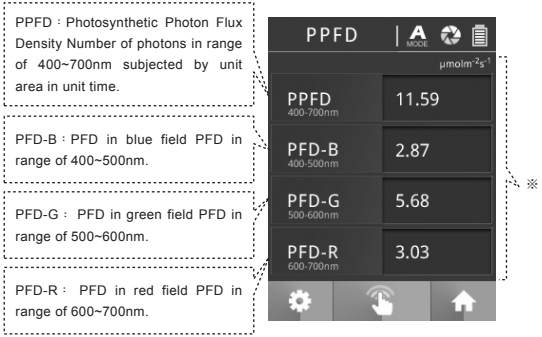
Click “SPECTRUM” icon in main menu to display spectrum in range of 350~800nm.



Display framed in ※ symbol is fixed one and is unavailable for user's change and selection.

3.3 PPFD Mode

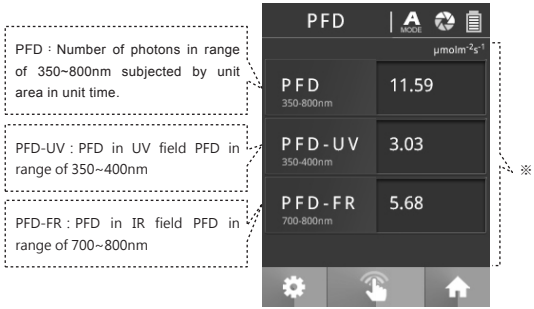
Click “PPFD” icon in main menu to validate Photosynthetic Photon Flux Density (PPFD) measurement as well as PFD measurement of red, green, and blue light.



Display framed in ※ symbol is fixed one and is unavailable for user's change and selection.

3.4 PFD Mode

Click “PFD” icon in main screen to validate measurement of PFD (Photon Flux Density) in range of 350~800nm.

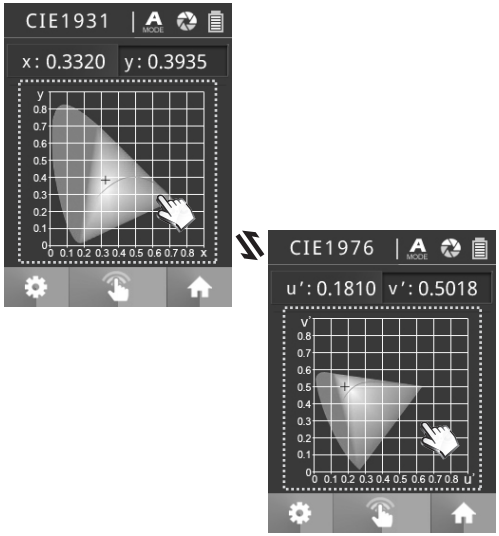


Display framed in ※ symbol is fixed one and is unavailable for user's change and selection.

3.5 CIE Mode

Click “CIE” icon in main screen to validate CIE 1931 and CIE 1976 chromaticity coordinates chart.

■ Click chromaticity coordinates chart to switch between CIE1931 / CIE1976.



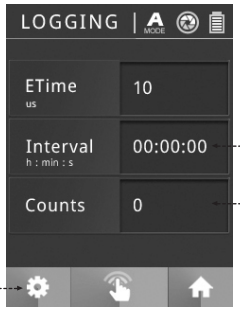
3.6 LOGGING Mode

Click “LOGGING” icon to start continuous measuring and save readings in Excel file format automatically.

■ Set up operation conditions

You can set the measurement interval and count (number of repetitions).

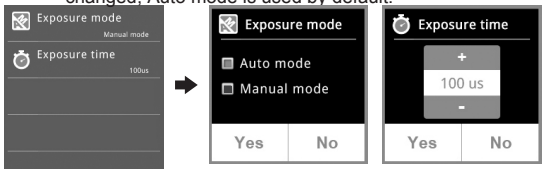
Etime (The exposure time) is typically set to Auto (A).



2 Click “Interval” to set up time span between two measurements. Scope: 00(hh):00(mm):10(ss)~24 :00:00

3 Click “Counts” to set up number of repetitions. The range is 1–9999 times, or INF (infinite).

1 Normally, the exposure mode does not need to be changed; Auto mode is used by default.



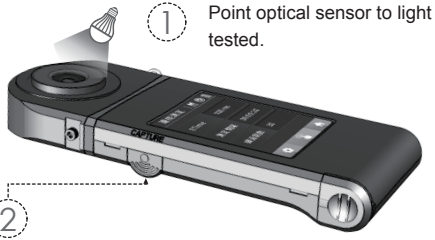
※ Exposure mode can have exposure time set up in manual mode only.

See section 6.1: Product specification for measurement interval and count.

3.6 LOGGING Mode

■ Measurement

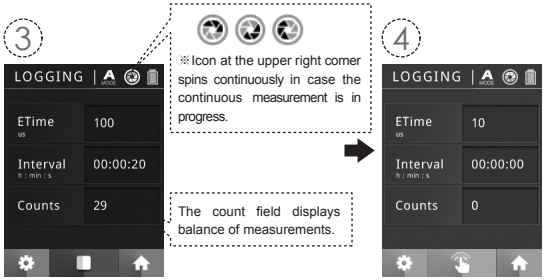
1 Point optical sensor to light source to be tested.



2

Press the measurement button at bottom center of screen or the measurement key at left hand side to measure. (You can press measurement key at both sides.)

3

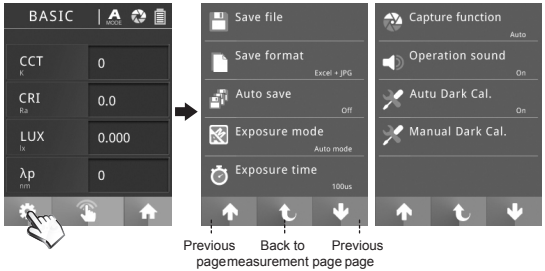


Press the key at bottom center of screen to stop continuous measurement.

The Count option will reset to its default settings after measurement is done.

4.1 Measurement Settings

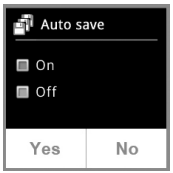
In mode of “BASIC”, “SPECTRUM”, “PPFD”, “PFD”, “CIE” you may click icon at lower left corner for settings in details.



■ Save format

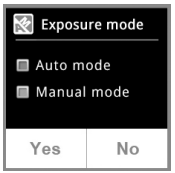
You may opt to save measurement data of Excel file only or both Excel and JPG files.

■ Auto save



Opt to select auto save measurements or not.

■ Exposure mode



The exposure mode is typically set to Auto.

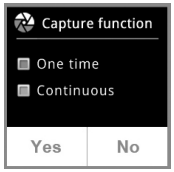
■ Exposure time

+ / - : Adjust key

Exposure time can be set in units of microseconds (1 µs = 0.000001 second). Valid range: 60 to 1,000,000 µs, with adjustment steps of ±1 µs when the exposure time is less than 100 µs, and ±1,000 µs otherwise.

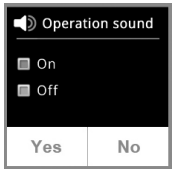
4.1 Measurement Settings

■ Capture function



Select for one time or continuous measurement. In case continuous measurement is set, press Measurement / Local Measurement key to start auto measurement at frequency of once per 3 seconds. Press Measurement / Local Measurement key again to stop continuous measurement. (See Section 4.2: Continuous measurement for reference.)

■ Operation sound



Select to on/off operation sound. Set operation sound on to beep once after measurement operation (enabled by pressing the Measurement / Local Measurement key) completed.

■ Auto dark calibration

When users press the measure button on the screen/on the machine, dark calibration will be executed before the measurement.

■ Manual dark calibration

This product is default to run background calibration after power on. This operation enables running background calibration any time.

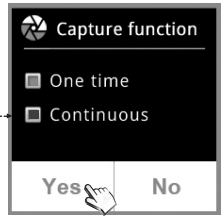
About auto save:

1. Measurements are auto saved (Excel + JPG) in case this operation is set on. In case there is no SD card inserted when measurement is running, this product prompts warning messages while keep on measuring.
2. Measurements are saved only by clicking Save icon in case this operation is set off.

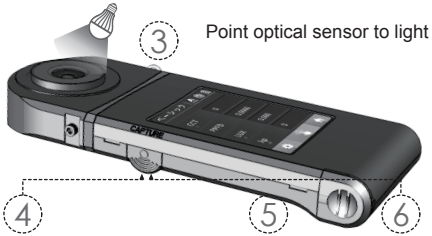
4.2 Continuous Measurement Settings

1 Click icon at lower left corner of “BASIC” screen, click “Capture function”, “Continuous”, “Yes”.

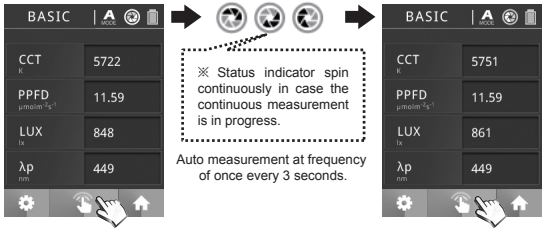
Click icon at bottom center of screen to back to “BASIC” indicators with icon ② change to “ ” . 2



3 Point optical sensor to light source.



4 5 6



Press measure key or click measurement button at bottom center of screen to start continuous measurement.

Click measurement button or press measure key again to stop continuous measurement.

1. Users cannot save the measurement data while processing continuous measurement.
2. Adjust the integration time is only allowed in the manual mode.

5.1 PC Connection

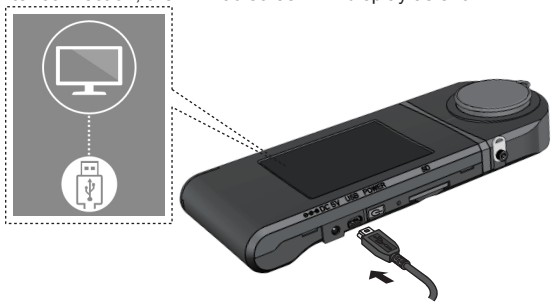
You may connect this product to a Windows PC with mini USB (rather than Type-C USB) cable.
Note: Please select PC connection in USB mode in items of OPTION mode.

Mass storage：
The PC can access the files on the SD card of LA-106.

PC connection：
Connection LA-106 to PC via mini USB cable for measurement use with LIGHT ANALYZER.

1 2 3

After connection, the LA-106 screen will display as shown.

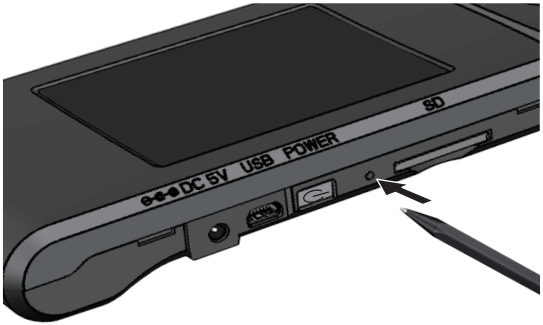


1 . See manual of LIGHT ANALYZER for operation with PC connection.

5.2 Troubleshooting

In case of system failure or stuck (screen gets locked) please press and hold the power key for 3 seconds to shut down this product. Then power it on again and see does it back to normal. In the problem persists, run steps below to reset this product.

To reset this product : Reset this product by pressing the reset key with sharpened pencil.



1. DO NOT use sharp point objects with diameter less than 1mm (e.g., paper clip and ball pen) to press the key as it may lead to board circuit induction or damage and failure to this product.
2. DO NOT use pencils with broken point to press the key as the pigment core may jam the key for reset or lead to damage and failure to this product.

6.1 Specification

Optical Features		
Sensor	CMOS Linear Image Sensor	
Illuminance meter class	Directional response conforms to JIS C 1609-1:2006 for General Class AA.	
Wavelength Range	350 ~ 800 nm	
Wavelength Data Increment	1 nm	
Spectral Resolution	Approximately 12 nm (Half Bandwidth)	
Receptor Size	Ø 6.9 ± 0.1 mm	
Wavelength Reproducibility	± 1 nm *1	
Measurement Range	(1) 70 ~ 150,000 lx（illuminance range) (2) 0.5 ~ 1,000 W/m^2 （irradiance rang) (3) 1 ~ 3,000 μmol/m^2/s（PPFD rang)	
Illuminance Accuracy	Illuminant A @ 2,856K at 20,000lx *2	±5%
Color Accuracy		±0.0025 in CIE 1931 x,y
Color Repeatability		0.0005 in CIE 1931 x,y
CCT Accuracy		±2%
CRI Accuracy @ Ra		±1.5%
Exposure Time Range	60μs ~ 1,000 ms	
Digital Resolution	16 bits	
Capture Function	One time / Continuous	
Dark Calibration	Auto / Manual	
Operation Mode	Standalone Mode / USB Mode (Mass storage *3 + PC connection)	
Exposure Mode	Auto / Manual	
Measuring Modes	1. BASIC Mode 2. SPECTRUM Mode 3. CIE 1931 / 1976 Chromaticity Coordinates 4. PFD Mode 5. PPFD Mode 6. LOGGING Mode	

6.1 Specification

Measuring Capabilities	1. Illuminance (LUX) / Foot Candle (fc) 2. Correlated Color Temperature (CCT) 3. CIE Chromaticity Coordinates (1) CIE 1931 x,y Coordinates (2) CIE 1976 u',v' Coordinates 4. △x , △y , △u' , △v' 5. Delta uv (Duv) 6. Dominant Wavelength (λd) 7. Excitation Purity 8. Color Rendering Index (CRI,Ra) / R1 ~ R15 9. Spectral Power Distribution (SPD) 10.Peak Wavelength (λp) 11.Peak Wavelength Value (λpV) 12.irradiance（350nm to 800nm）(W/m^2) 13.Photosynthetically Active Radiation (PAR) PPFD （400nm~700nm） PFD-R（600nm~700nm） PFD-G（500nm~600nm） PFD-B（400nm~500nm） PFD （350nm~800nm） PFD-UV（350nm~400nm） PFD-FR（700 nm~800nm）
System Configurations	
Display	3.5" LCD 320X240 Resistive Touch LCD
Max. Files	≒78000 Files @ 16GB SD Card (Excel+JPG)
Battery Operation Time	≦ 5 hours / Fully Charged
Power	2,500 mAh / Rechargeable Li-ion Battery
Data Output Interface	SD Card (SD2.0,SDHC / from 1 GB ~ 32 GB) / USB 2.0
Data Format	Compatible Excel / JPG

6.1 Specification

Dimensions	196 x 78 x 30 mm (H x W x D)
Weight (with Battery)	276 g ± 20 g
Operating Temperature	0 ~ 35 ℃
Storage Temperature	-10 ~ 40 ℃
Display languages	English / Japanese / Simplified Chinese / German

*1 : Input source must be a stable light source.

*2 : Temperature 23±2℃ and relative humidity 50% or less.

*3 : In mass storage mode, even a PC without an SD card slot can access files on the LA-106 SD card.

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

Figure 1 : Cosine Correction

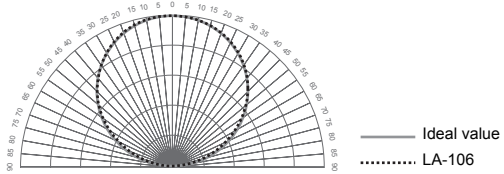
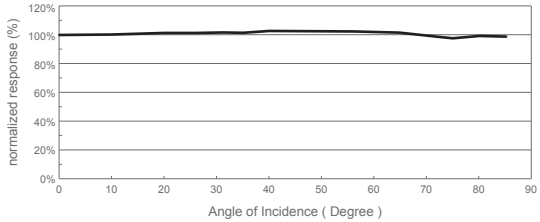


Figure 2 : Cosine Correction



6.1 Specification

Figure 3：Normalized Response in Photon Units

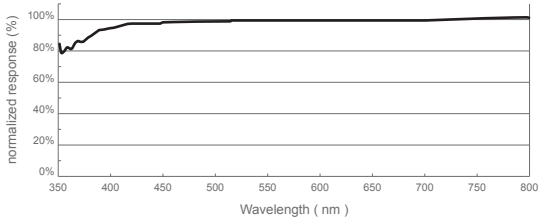
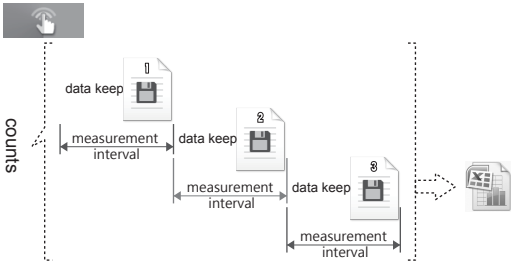


Figure 4：See below for details about continuous measurement in LOGGING mode

See figure below for measurement Interval, Counts, Etime (exposure time) in LOGGING mode :

Counts: user may set count to 3 to carry out 3 measurements and the logging measurement ends after all three measurement data have been saved automatically.

start to measurement



6.2 General Attributes

Main menu	BASIC mode
CCT	▸ Correlated Color Temperature

CRI (Ra) ▸ Color Rendering Index

assessment color for average color rendering index (R1~R8) /average color rendering index (Ra). Full score at 100 (the best and without any color deviation)

Lux ▸ Illuminance

brightness of light projecting on surface of object.

λp ▸ Peak Wavelength

Wavelength of the strongest power.

λpV ▸ Peak Wavelength Value

Wavelength of the strongest power : $mWm^{-2}nm^{-1}$

λd ▸ Dominate wavelength

Domain wavelength (λd) can be used in presenting color. Get chromaticity coordinates of target light, connect to E light source chromaticity point (0.333, 0.333) in chromaticity space to get a line, wavelength of interconnecting point of the latter and spectrum track (U-shaped) is the domain wavelength (λd) of target light source.

R1、R2….R15

Varieties of color rendering index

Average color rendering index (CRI/Ra) : Average of values R1~R8.

Special color rendering index: 7 test colors (R9~R14, R15) excluding colorR1～R8. R9: saturated red; R10: saturated yellow; R11: saturated green; R12: saturated blue; R13: Caucasian complexion; R14: leaf green; R15: Asian complexion

CIE 1931 x,y ▸ CIE 1931 x,y Coordinates

Chromaticity chart CIE1931 by Commission International de l'Eclairage (CIE) Represent light color with plane (2-dimension) coordinates (x, y).

CIE 1976 u',v' ▸ CIE 1976 u',v' Coordinates

Chromaticity chart CIE1976 by CIE Represent light color with plane (2-dimension) coordinates (u', v').

Duv

Duv is deviation of color from Planck locus in terms of distance and direction in a CIE 1960 coordinates system. The more it approaches zero the better it represents the ideal value.

Δx ▸ CIE1931 x Coordinates Different

Represent chromaticity deviation from full radiator pluck in a CIE1931 coordinates system in terms of Delta x, Delta y, Delta xy (coordinates xyz).

Δy ▸ CIE1931 x Coordinates Different

Represent chromaticity deviation from full radiator pluck in a CIE1931 coordinates system in terms of Delta x, Delta y, Delta xy (coordinates xyz).

6.2 General Attributes

Δu' ▸ CIE1976 u' Coordinates Different

Represent chromaticity deviation from full radiator pluck in a CIE1976 coordinates system in terms of Delta u' Delta V' (coordinates u', V').

Δv' ▸ CIE1976 v' Coordinates Different

Represent chromaticity deviation from full radiator pluck in a CIE1976 coordinates system in terms of Delta u' Delta V' (coordinates u', V').

ETime ▸ Exposure time

The integration time is equivalent to the camera shutter speed.

IRR ▸ Irradiance

Irradiance (350nm～800nm). Unit : Wm^{-2}

Main menu SPECTRUM mode

SPECTRUM

A graph showing the emission spectrum of LED light. (wavelengths from 350 ~ 800 nm)

Main menu PPFD mode

PPFD ▸ Photosynthetic Photon Flux Density

Number of photons in range of 400~700nm subjected by unit area in unit time.

PFD-R ▸ PFD in red field

PFD in range of 600~700nm.

PFD-G ▸ PFD in green field

PFD in range of 500~600nm.

PFD-B ▸ PFD in blue field

PFD in range of 400~500nm

Main menu PFD mode

PFD ▸ Photon Flux Density

Number of photons in range of 350~800nm subjected by unit area in unit time.

PFD-UV ▸ PFD in UV field

PFD in range of 350~400nm

PFD-FR ▸ PFD in UV field

PFD in range of 700~800nm

Main menu CIE mode

CIE1931 ▸ CIE 1931 x,y Coordinates

Chromaticity chart CIE1931 by Commission International de l'Eclairage (CIE) Represent light color with plane (2-dimension) coordinates (x, y).

CIE1976 ▸ CIE 1976 u',v' Coordinates

Chromaticity chart CIE1976 by CIE Represent light color with plane (2-dimension) coordinates (u', v').

Appendix

Product warranty

Warranty statement

Please call the dealer from whom you bought this product or this Company in case of any product flaw found in warranty period. This Company shall repair or replace your product.

Items exempted from warranty

NMCI shall not warrant failures due to the following causes：

1. Natural disasters or improper use of this product.
2. Repair and disassemble this product by non-authorized technician.
3. Product serial number differs from original system data kept by this Company and with damaged label.
4. Product failure due to invalid use, modify, or repair made to this product.
5. Failures caused by falling off from high above location or product delivery.
6. Failures caused by fire, earthquake, flood, lightning or other acts of God, pollution or abnormal voltage, invalid source of power (voltage, frequency).
7. There may be fine white spots in the touch control panel which have no impact on its use and quality.
8. Other non-irrelevant matters as determined by this Company.

Disclaimer

- Please remove the SD card before returning this product to us. This Company shall not be responsible for damage and loss of SD card and data contained in it should it is not removed from this product.
- In no event shall this Company be liable for any damage due to use of this product or matters relevant with this product including without limitation to lost profits and unexpected expenses, operation interruptions, damage to other equipment, assemblies, loss of data or business information, or other monetary loss.
- In no event shall this Company be liable any bill or providing any object free of charge regarding claims against the said damages.

Entities covered by this warranty

Warranty of LA-106 is limited to customers who bought this product from authorized sales channels.

Warranty period

One year after its purchase date.
Note: No warranty certificate is issued as the record is maintained in our database.

Other notes

- Improvement and changes to this warranty program may be made by this Company at any time and without notice.
- This product may fail to be repaired, with or without charge, due to its property, end of production of equivalent product or assembly.

How to return your product

Please return your product direct to NKsystem.

Repair service after warranty expiry

NKsystem may provide up to 1 year free of charge repair warranty (subject to shipment on customer's account). NMCI shall provide repair services once warranty expired. Once your product received at NMCI, our service engineer shall check its conditions and quote necessary repair and shipment costs to you before making any service work.

You are recommended to purchase a new product (rather than repair the old one) in case of the following：

- LA-106 host or accessory is out of production.
- Impossible to restore product functions due to damages caused by water exposure, heavy impact and pollution, or corrosion.
- Deformation due to falloff and heavy impact that hamper product function even after replacement of key components.
- Product aging or components aging due to poor working environment and lead to replacement of product.
- Failure to get required components (even within warranty period).