Data Management Software CL-S10w Ver.1.4

Instruction Manual



A Safety Warning

Please read this manual and the instrument and computer manual carefully beforehand and use the software properly and safely.

Official name of the applications used in this manual

| (Notation in the main text) | (Official name) |
|-----------------------------|--|
| Windows, Windows 7 | Microsoft [®] Windows [®] 7 Professional Operating |
| | System |
| Windows, Windows 8.1 | Microsoft [®] Windows [®] 8.1 Pro Operating System |
| Windows, Windows 10 | Microsoft [®] Windows [®] 10 Pro Operating System |
| Excel | Microsoft [®] Excel [®] |

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- No responsibility shall be bore in the event of accidents related to the use of this product not in accordance with the instructions, notwithstanding the above mentioned.

Firstly

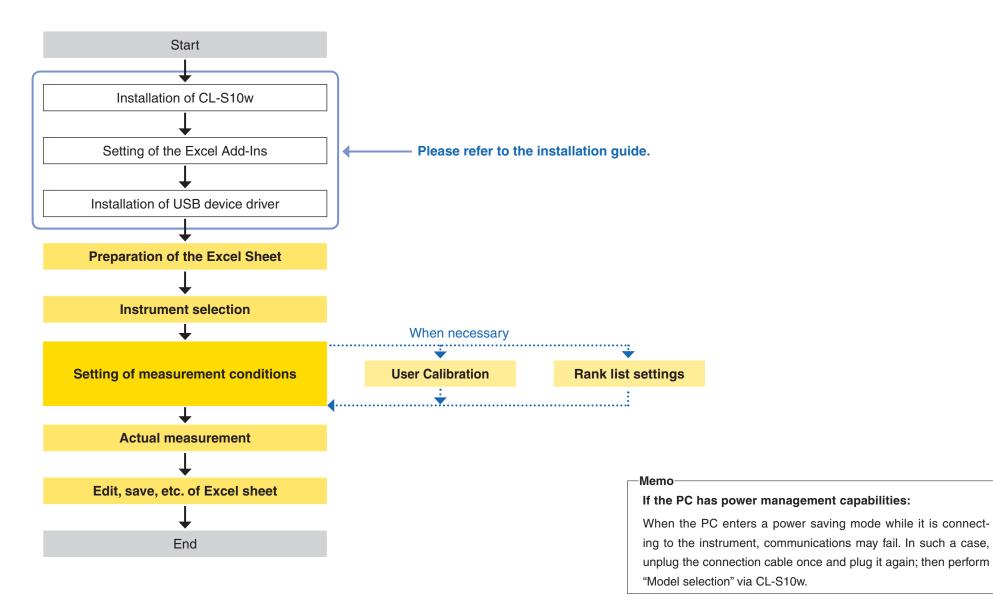
CL-S10w is a utility software that allows the CL-500A spectroradiometer or CL-200/CL-200A chromameter to be connected to a PC and provides graphic representation of the measurements on the PC.

The data could be loaded into Excel via initiating the Excel Add-Ins. This document is aimed at those who have already mastered basic Excel operations.

Contents

| Operation flow | 1 |
|--|----|
| Measurement Example | 2 |
| 1. Preparation of Excel sheet | 2 |
| 2. Instrument selection | 2 |
| 3. Setting of the measurement conditions | 2 |
| 4. Start Measurement | 2 |
| CL-S10w Menu | 3 |
| Version Display | 3 |
| Measurement Screen | |
| 1-1. Setting of Measurement Condition ① CL-500A | 4 |
| CL-200/CL-200A | 5 |
| <about (correction)="" cf="" of="" use="" value=""> CL-200/CL-200A</about> | 6 |
| 1-2. Setting of Measurement Condition (2) (Device) CL-500A | 7 |
| CL-200/CL-200A | 8 |
| 1-3. Set the items of the imported data | 9 |
| 1-4. Select the Head that will measure the data | |
| 1-5. The settings can be managed by a file | 11 |
| 1-6. Start measurements | |
| User calibration screen | 13 |
| 2. This screen allows you to perform user calibration on CL-500A | |
| CL-200/CL-200A | |
| Rank List Setting screen | |
| 3-1. Select the Rank List | |
| Edit Rank screen | |
| 3-2. Adding and editing Ranks | |
| Template | |
| Other template examples | 20 |

Operation flow



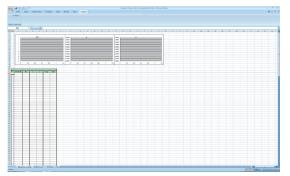
Measurement Example

Explanation of method of measurement using a template.

1. Preparation of Excel sheet

Select Start Menu - All programs - KONICAMINOLTA - (CL-S10w) - Template to open the template.

Select "Measure_Trend" Sheet.



2. Instrument selection

- (1) Select "CL-S10w" from the Excel "Add-Ins" menu and click on "Model selection". The model selection screen will open.
- (2) Selecting the model you are about to connect to the PC

<When connected to CL-200A>

Set the COM port assigned to the "USB Serial Port" of the Device Manager which the device driver has been installed.

| Select Instr | ument | × |
|--------------|---------|--------|
| Instrument | CL-500A | • |
| Port | | V |
| | OK | Cancel |

Please refer to the installation guide for further details.

<When connected to CL-200>

Set the COM port which has been assigned to the computer's serial port (usually COM1) or the RS-USB adapter.

(3) Click OK when the settings are done.

3. Setting of the measurement conditions

(1) Select "CL-S10w" from the Excel "Add-Ins" menu and click on "Measure...". The measurement screen will open.

When CL-S10w starts Excel and opens the measurement screen for the first time, it checks the instrument model connected to the PC (and heads and CF settings when the connected model is CL-200/CL-200A) for consistency. The more the number of connected heads is, the longer the time required for the check is.

(2) Load a configuration file template according to the instructions on page 11. See page 17 for available templates and their corresponding configuration files. Screen and uncheck the "Show title" of "Options" tab.

| | B | С | D | E | F | G | н | | J |
|----|-----|------------|-----|-----|-----|-----|-----|-----|--------|
| 1 | | | | | | | | | |
| 2 | | | | | | _ | | | T |
| 3 | | 1.0 | | | Ev | | | | 1.0000 |
| 4 | | 1 ° I | | | | | | | 0.9000 |
| 5 | | 1 1 | | | | | | | |
| 6 | | 1 1 | | | | | | | 0.8000 |
| 7 | | 1 1 1 | | | | | | | 0.7000 |
| 8 | | 1 1 4 | | | | | | | 0.8000 |
| 9 | | 1 1 4 | | | | | | | 0.5000 |
| 10 | | | | | | | | | |
| 11 | | 0 | | | | | | | 0.4000 |
| 13 | | 0 | | | | | | | 0.3000 |
| 14 | | 0 | | | | | | | 0.2000 |
| 15 | | 0 | | | | | | | 0.1000 |
| 16 | | 1.6 | | | | | | | 0.0000 |
| 17 | | 1 ° . | 0.2 | 0.4 | 0.5 | 0.6 | 1 | 1.2 | 0.0000 |
| 18 | | Ľ | 0.2 | 0.4 | 0.0 | 0.0 | | 1.2 | l ° |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |
| 21 | No. | | | | | | | | |
| 22 | | Serial No. | Εv | × | ¥ | Тср | duv | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | I | | l | | l | l | I | | |
| | | | | | | | | | |
| | | | | | | | | | |

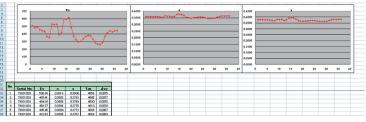
| L-500A | | -/ |
|--------------------|------------------------|----------------|
| Simple screen | AUTO | Close |
| User Calibration i | nfo. | |
| CH00: | | |
| Measure | | |
| Start | Stop | |
| | | |
| Mode | Interval | 10 |
| C Spot | Times | 10 |
| Interval | Interval (sec.) | 0 |
| | L | |
| Condition Data | Device(Head) Options | Instrument |
| Illuminance Units | lx | • |
| Observer | 2 degree | - |
| Meas. Time | AUTO | - |
| | - | |
| User Cal. CH | CH00: | • |
| - Options | | |
| Show title | 🗔 Confirm o | verwrites |
| | iter meas 🥅 Update in | |
| | | same place |
| Add data by a | col unit | |
| | | |
| 🔲 Transfer data us | ing CL-500A key | |
| | | NUMICA MINOLIA |

(Measurement screen)

4. Start Measurement

Click on the Measurement Start button.

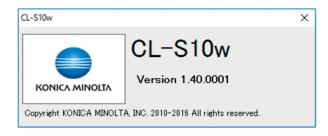
The measurement will begin and the measured data will be added to the cell. The linked trend graph (time series chart) will be shown.



CL-S10w Menu

| | H | | | ÷ | | Book | 1 - Excel | | Ŧ | - | | × |
|-------------------------------|--------|---------------|---------|-------------|----------|------|-----------|--------------|-----------|---------|-------|-----|
| | File | Home | Insert | Page Layout | Formulas | Data | Review | View Add-Ins | ♀ Tell me | Sign in | ₽ Sha | re |
| | CL | -S10w - | | | | | | | | | | |
| Select Instrument screen | •••••• | Select Instru | ment | | | | | | | | | |
| Measurement screen 1 | •••••• | Measure | | | | | | | | | | |
| User Calibration(CF) screen 2 | J | User Calibrat | ion(CF) | | | | | | | | | ^ |
| Rank List Setting screen 3 | •••••• | Rank List Set | ting | √ fs | | | | | | | | ~ |
| Version Display ····· | ••••• | /ersion | | C | | - | | | | | | |
| | | ~ | U | C | D | E | F | G | Н | 1 | J | |
| Excel Template | - | | | | | | | | | | | - |
| | 2 | | | | | | | | | | | - |
| | 3 | | | | | | | | | | | - 1 |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | | | | | | | | | | | |

Version Display



1-1. Setting of Measurement Condition ① CL-500A

These settings are reflected on the instrument.

| CL-500A | | > |
|-----------------------|-----------------------|----------------|
| Simple screen | AUTO | Close |
| User Calibration info |) | |
| (CH00 : | | |
| - Measure | | |
| Start | Stop | |
| | Interval | |
| C Spot | Times | 10 |
| S opor | | |
| Interval | Interval (sec.) | 0 |
| Condition Data De | evice(Head) Options | s [Instrument] |
| Illuminance Units | lx | • |
| Observer [| 2 degree | • |
| Meas. Time | AUTO | • |
| User Cal. CH | CH00: | • |
| - Options | | |
| Show title | 🗖 Confirm o | verwrites |
| Move cursor after | meas 🗖 Update in | same place |
| Add data by a co | | |
| | | |
| Transfer data using | CL-500A key | |

- User Calibration info -

These fields show custom calibration information.

"User calibration channel":"ID" and time stamp

- Illuminance Units -

Selection of lx or fcd is possible.

- Observer -

2° viewing angle (CIE 1931)

10° viewing angle (CIE 1964)

- Meas. Time -

FAST : The exposure time is 0.5 sec.

- SLOW : The exposure time is 2 sec.
- AUTO : The exposure time is automatically adjusted (between 0.5 to 27 sec) depending on the illuminance of the light source.
- S-FAST : The exposure time is 0.2 sec.
- User Cal. CH -

This field lists the available user calibration channels ("User calibration channel":"ID")

- Options -

| When checked | |
|-------------------------|---|
| Show title | : Title is attached to the heading of the measured data. |
| Confirm overwrites | : The measurement will not start if there is already data in the cell to be writ- |
| | ten in. (A message will be displayed.) |
| Move cursor after meas. | : The cursor will move when data is added. |
| Update in same place | : The data in the same position will be updated without adding a row. |
| Add data by a col uni | t : The dada is added so that the number of columns increases. (If this is un- checked, the data is added so that the number of rows increases.) |

1-1. Setting of Measurement Condition ① (CL-S10w) CL-200/CL-200A

Settings stored in the instrument remain unchanged. Settings made on a setting screen have effect only on CL-S10w. When using the instrument solo, change the settings directly on the instrument.

| CL-200A/CL-200 | | X |
|-----------------------|----------------------|---------------|
| Simple screen | (Normal) | Close |
| User Calibration info | | |
| | | |
| Measure | | |
| | ~ 1 | |
| Start | Stop | |
| Mode | Interval — | 10 |
| C Spot | Times | 10 |
| Interval | Interval (sec.) | 0 |
| | | |
| Condition Data De | vice(Head) Options | Instrument |
| - | | |
| Illuminance Units | lx | |
| Observer | 2 degree | _ |
| - | | |
| CF mode | - (Normal) | |
| | | |
| | | |
| Options | | |
| Show title | 🗌 Confirm ove | erwrites |
| Move cursor after | meas 🔲 Update in s | ame place |
| 🗖 Add data by a col | unit | |
| | | |
| Transfer data using | CL-200A key | |
| | | |
| | | NOTION MITCHA |

- Illuminance Units -

Selection of lx or fcd is possible.

- Observer -

The viewing angle of CL-200/CL-200A is fixed at 2°. This is not adjustable.

- CF mode -

This field is active when the instrument is CL-200/CL-200A.

- (Normal) : Factory calibrated with standard illuminant A used as the light source
- S (Multi) : Factory calibrated with standard illuminant A used as the light source
- CF (CF Normal) : Custom calibrated with CL-200/CL-200A
- CF S (CF Multi) : Custom calibrated with CL-S10w (RGB calibration/WRGB calibration/onepoint calibration)

- Options -

| • | |
|-------------------------|---|
| When checked | |
| Show title | : Title is attached to the heading of the measured data. |
| Confirm overwrites | : The measurement will not start if there is already data in the cell to be writ- |
| | ten in. (A message will be displayed.) |
| Move cursor after meas. | : The cursor will move when data is added. |
| Update in same place | : The data in the same position will be updated without adding a row. |
| Add data by a col unit | : The dada is added so that the number of columns increases. (If this is un- |
| | checked, the data is added so that the number of rows increases.) |

<About use of CF (Correction) Value> CL-200/CL-200A

• The settings on CL-S10w, CL-200/CL-200A body are as listed in the table below. There are 2 regions below where the CF value is written in the CL-200/CL-200A.

A: The region where the correction factor from CL-200/CL-200A is written

B: The region where the correction factor from CL-S10w is written

The correction factor in CL-S10w is written in region B in both single-color calibration and RGB calibration.

| | CL-200A | CL- | CL-200 | | | |
|-----------------|---|---|--|----------|--|--|
| CF Mode | Appearance on the top of the display (Switch with CF key) | Appearance on the top of the display (Switch with CF key) | Calibration Mode (Switch using CAL Mode switch) | | | |
| - (Normal) | - (Blank cell) | - (Blank cell) | NORM. | | | |
| S (Multi) | S | - (Blank cell) | MULTI | | | |
| CF (CF Normal) | CF | CF | NORM. ··· | Region A | | |
| CF S (CF Multi) | CF S | CF | MULTI | | | |

• To use multiple factors separately, please follow the steps below.

Only one region is written with the factor to CL-200/CL-200A from CL-S10w. (Region B mentioned above)

1 During custom calibration, check the $ar{}$ Save File check box and save the file.

By saving the file, overwriting will occur during setting conditions, and the correction factors could be used. The need for correction every time will be unnecessary.

2 Press Select and write cal. file to CL-200A/CL-200... when setting measurement conditions to commence overwrite.

The factor written into the CL-200/CL-200A cannot be confirmed, so it is advisable to commence overwrite every time.

By using the factor calibrated to the object to be measured, a more precise measurement could be obtained.

1-2. Setting of Measurement Condition 2 (Device) CL-500A

The instrument tab allows you to upload data from the instrument to the PC and save it as a file, or to download the filed data to the instrument.

| CL-500A | | | | | | | |
|---|--|--|--|--|--|--|--|
| Simple screen AUTO Close User Calibration info. CH00 : | | | | | | | |
| Measure Start Stop Mode Interval O Spot Times Interval Interval (sec.) | | | | | | | |
| Condition Data Device(Head) Options Instrument User Calibration(CF) Save cal. file from CL-500A Select and write cal. file to CL-500A | | | | | | | |
| Upload Upload data from CL-500A | | | | | | | |
| Rank Select and write rank file to CL-500A | | | | | | | |
| | | | | | | | |
| Transfer data using CL-500A key | | | | | | | |

- User Calibration (CF) -

Enabled when the instrument is CL-200/CL-200A

- Upload -

Upload data from CL-500A... button

Pressing this button uploads the data stored in the instrument and displays it in Excel format.

The "Date & Time" column shows time stamps generated by the instrument.

- Rank -

Select and write rank file to CL-500A... button

Using this button allows you to select a file (.scl file) and assign the rank list to CL-500A.

1-2. Set the items of the imported data (2) (Device) CL-200/CL-200A

The instrument tab allows you to upload data from the instrument to the PC and save it as a file, or to download the filed data to the instrument.

| CL-200A/CL-200 | | X |
|-------------------------|----------------------|----------------|
| Simple screen | (Normal) | Close |
| User Calibration info. | | |
| | | |
| Measure | | |
| Start | Stop | |
| Mode | Interval | |
| C Spot | Times | 10 |
| Interval | Interval (sec.) | 0 |
| Condition Data Devi | ice(Head) Options | s Instrument |
| User Calibration(CF) |) | |
| Save cal. file | from CL-200A/CL- | ·200 |
| Select and write c | al. file to CL-200A. | /CL-200 |
| Upload | | |
| Upload data f | irom CL-200A/CL- | 200 |
| - Bank | | |
| | ank file to CL-200A | /CL-200 |
| | | |
| | | |
| | | |
| 🥅 Transfer data using C | L-200A key | |
| | | KONICA MINOLTA |

- User Calibration (CF) -

Save cal. file frim CL-200A/CL-200... button

Pressing this button open the "Save as" screen where the CF file can be saved as a CF file (.cfm file). "CF mode: CF S (CF Multi)" is selected in CL-S10w.

Select and write cal. file to CL-200A/CL-200... button

The CF value for multi calibration in CL-200/CL-200A could be set by designating the file (file extension: cfm). Also the settings on CL-S10w are 'CF: ON', 'CAL Mode: S/CFS (Multi)'.

-Memo-

The number of Heads to be controlled and the set CF values are the same so there is a need to arrange the serial number of the heads and CF values in the same order in the file.

- Upload -

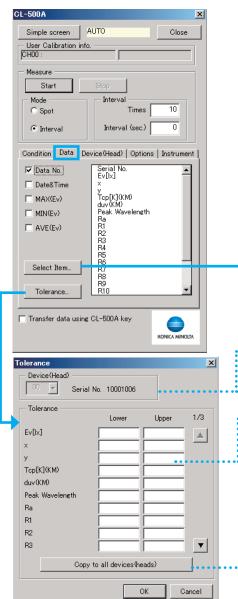
Enabled when the instrument is CL-500A.

- Rank -

Enabled when the instrument is CL-500A.

1-3. Set the items of the imported data

The settings of the CL-200/CL-200A body cannot be modified.



Data No. Others

The data of the checked items will be imported into Excel.

Select Item button

Pressing this button opens the measurement item selection screen. Items selected on this screen are listed on the limit setting screen.

Tolerance button

Pressing this button opens the measurement item selection screen. Items selected on this screen are listed on the limit setting screen. checked.

Setting of Tolerance

••• Device (Head)

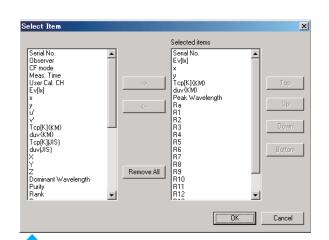
Select the serial No. of the device (head for CL-200/CL-200A) for which you are about to set the limits.

Tolerance

Please enter the upper and lower limits of the tolerance. Blank spaces will not be taken into calculation.

Copy to all devices (heads) button

Pressing this button copies the limits of the device (head) currently selected to all the devices (heads). (The instrument itself is not capable of limiting the measurement ranges.)



Memo

About the Tcp [K] (KM) and Tcp [K] (JIS)

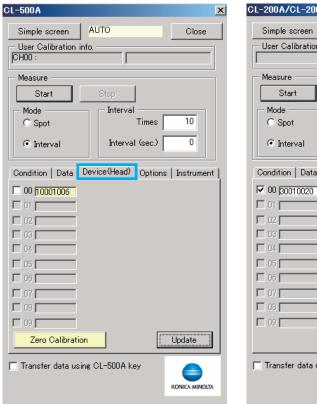
- Tcp [K] (KM) : Color temperature determined by Konica Minolta's original algorithm used in CL-200/CL-200A and other instruments.
 - (This algorithm is similar to the JIS method but was developed to enable higher-speed calculations of color temperature.)
- Tcp [K] (JIS): Color temperature determined by the algorithm specified in JIS Z8725.

(CL-500A uses this algorithm.)

There might be a slight difference in the values of Tcp [K] (KM) between Tcp [K] (JIS) in some cases. The margin of error of the chromatic range of the color temperature calculable designated by JIS Z 8725 between the Tcp [K] (JIS) based values and Tcp [K] (KM) values are within $\pm 3\%$.

The error falls within $\pm 1\%$ in almost all color temperature areas excluding high temperature areas. When the color temperature exceeds 19000 [K], the error may be larger than $\pm 2\%$.

1-4. Select the Head that will measure the data.



| - User Calibration | info. | |
|------------------------------|--------------------|-----------------|
| Measure | | |
| Start | Stop | |
| Mode | Interval Times | 10 |
| Interval | Interval (sec.) | |
| Condition Data | Device(Head) Optic | ons Instrumen |
| • 00 30010020 | | 20 |
| 01 | | 21 |
| 02 | E 12 | 22 |
| 03 | 🗆 13 📃 🗌 🗌 | 23 |
| 04 | L 14 | 24 |
| 05 | | 25 |
| 06 | E 16 E | 26 |
| 07 | | 27 |
| 08 | | 28 |
| 09 | E 19 E | 29 |
| | | Update |

-Memo-

The serial No. field highlighted in yellow denotes that the instrument needs to be zero-calibrated. This applies to CL-500A only. Press the **Zero Calibration** button. (This button is not displayed for CL-200/CL200A.)

00

The serial No. of the device (head for CL-200/CL-200A) appears. Check the check boxes of the devices (heads) you are about to use for measurement.

Update button

When CL-S10w opens the measurement screen or CF screen for the first time, it checks the instrument model connected to the PC (and heads and CF settings when the connected model is CL-200/CL-200A) for consistency. If you change the connection status of the instrument or perform custom calibration on the instrument, press the **Update** button.

1-5. The settings can be managed by a file

| CL-500A | | | |
|---|---|------------|--|
| Simple screen User Calibration i CH00 : | AUTO | Close | |
| Measure Start Mode © Spot | Stop Interval Times Interval (sec.) | 10 | |
| C Interval Condition Data Configuration fil | Device(Head) Options | Instrument | |
| , ☐ Hide an alarm setting file fo loaded. | ية) n message provided whe r the template has not b | n the | |
| Rank file | | Load | |
| Transfer data usi | ing CL-500A key | | |

- Configuration file -

This measurement screen (consisting of a measurement frame, condition tab and data tab) allows you to set measurement conditions, measurement ranges (upper/lower limits) and other parameters and to save/ load the settings as a configuration file.

Clear button

The designated configuration files (file extension: .txt) will be cleared.

The name of designated configuration files (file extension: .txt) will be shown.

- Rank file -

The Rank file created in Rank List Setting screen can be loaded.

From this, the rank according to the chromatic range could be differentiated.

Clear button

The designated Rank List File (file extension: scl) is cleared.

Save button

The current contents will be saved as a configuration file (file extension: .txt). The contents of the configuration files will be reflected every time the measurement screen is opened.

Load button

Designate the configuration file (file extension: .txt). The contents of the configuration files will be reflected every time the measurement screen is opened.

See page 17 for selecting a template.

□ Hide an alarm message provided when the setting file for the template has not been loaded.

When using a template for measurement, you are recommended to load the setting file for the template. If the setting file has not been loaded, an alarm message will appear. Check the checkbox to hide the alarm message.

The name of designated Rank List File (file extension: scl) is shown.

Load button

The Rank List File (file extension: scl) is designated.

The contents of the Rank List File are shown. It is also shown after CL-S10w is rebooted.

Detailed measurement screen

1-6. Start measurements

CL-500A AUTO Close Simple screen - User Calibration info. CHOO Measure Start Interval Mode 10 C Spot Times Interval Interval (sec.) 0 Condition Data Device(Head) Options Instrument Illuminance Units - Ix • 2 degree -Observer Meas, Time AUTO -CH00: • User Cal. CH - Options Show title Confirm overwrites ▼ Move cursor after meas □ Update in same place Add data by a col unit Transfer data using CL-500A key KONICA MINOLTA Simple measurement screen

| CL-500A | > |
|------------------------|-------|
| Detailed screen AUTO | Close |
| User Calibration info. | |
| Measure Stop | |

Meas. Time (for CL-500A) or **CF mode** (for CL200/CL-200A).

Simple screen button

The simple measurement screen is shown when pressed.

- Mode -

Select Spot measurement or Interval measurement.

- Interval -

Set the Times and Interval of the measurement.

□Transfer data using CL-500A/CL-200A key

✓ When it is checked, CL-S10w enters into transfer mode.

This feature is enabled when CL-500A is used or only one head is connected to CL-200A. Pressing the measurement button of CL-500A or the [▶/D-OUT] button of CL-200A transfers the data to the Excel sheet. Data transfer from CL-200A depends only on the settings stored in the instrument, no matter what settings are made via CL-S10w. Also, by pressing the Hold button of CL-200A body during transfer mode, the items of the color table could be edited. The differentiation function of the tolerance is not applied.

Detailed screen button

When pressed, the detailed screen is shown.

Spot measurement

- 1 Please select spot mode.
- 2 Please press the Measurement Start button. The data of a measurement will be shown in the Excel sheet.

Interval measurement

- 1 Select Interval mode.
- 2 Enter the times and interval (sec). Times :1-100,000 Interval(sec) :0-3,600 (When set to 0, it becomes continuous measurement.)

-Memo-

- Set the interval so that it is longer than the actual measurement time.
- Excel may slow down or terminate if a lot of data is handled in Excel spreadsheets or a number of application programs are running at the same time. You are recommended to save Excel files at appropriate intervals to prevent data loss when continuously collecting a lot of data such as spectral data using CL-S10w.

3 Press the Measurement **Start** button.

The data of the set number of measurements will be shown for every measurement done in the Excel sheet. The data will be added to the selected cells.

Press **Stop** button to stop the interval measurement.

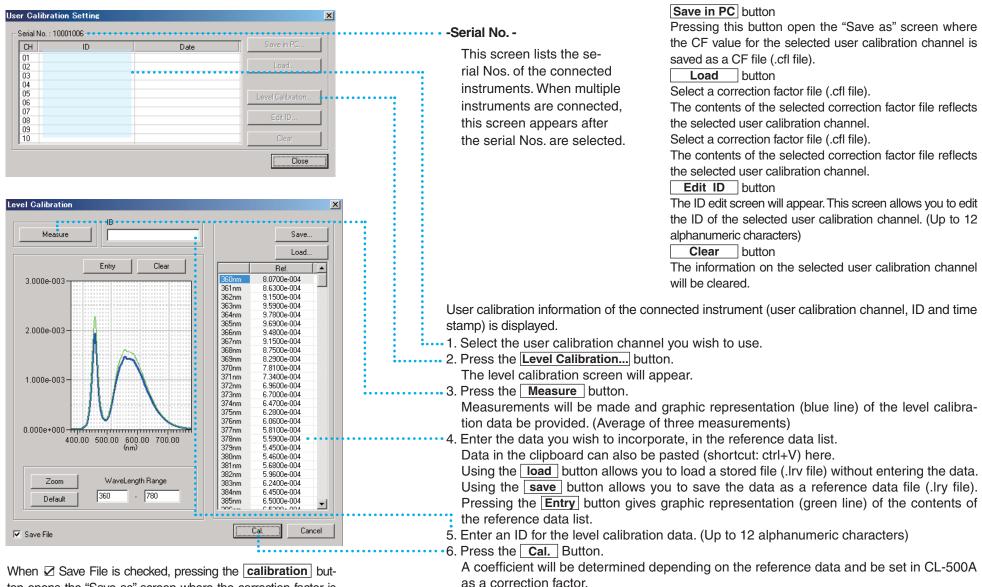
Without set Tolerance range

| Data No | | | | | | |
|---------|---------------------|---------------|-----------|---|--------|--------|
| Data NO | Date&Time | Serial No.(0) | Ev[lx](0) | | k(0) | y(0) |
| 1 | 2010/04/15 14:04:22 | 73630105 | 244.6900 | l | 0.3885 | 0.4044 |
| 2 | 2010/04/15 02:04:23 | 73630105 | 590.9800 | | 0.3885 | 0.4052 |
| 3 | 2010/04/15 02:04:25 | 73630105 | 679.9300 | | 0.3877 | 0.4057 |
| 4 | 2010/04/15 02:04:26 | 73630105 | 614,5300 | | 0.3885 | 0.4054 |
| 5 | 2010/04/15 02:04:28 | 73630105 | 603.9500 | | 0.3856 | 0.4055 |
| 6 | 2010/04/15 02:04:29 | 73630105 | 604.1500 | Ь | 0.3856 | 0.4055 |
| 7 | 2010/04/15 02:04:30 | 73630105 | 600.0400 | | 0.3856 | 0.4055 |
| 8 | 2010/04/15 02:04:31 | 73630105 | 608.8200 | | 0.3885 | 0.4055 |
| 9 | 2010/04/15 02:04:33 | 73630105 | 610.7300 | | 0.3856 | 0.4054 |
| 10 | 2010/04/15 02:04:34 | 73630105 | 619,1100 | | 0.3885 | 0.4054 |

Within set Tolerance range

User calibration screen

2. This screen allows you to perform user calibration on CL-500A.



When \checkmark Save File is checked, pressing the <u>calibration</u> button opens the "Save as" screen where the correction factor is saved as a CF file (.cfl file).

If the correction factor exceeds 1000, it is rounded down to 1000.

User calibration screen

2. This screen allows you to perform user calibration on CL-200/CL-200A

| User Calibration S | etting | × |
|---|---|---|
| Head 00 30010020 01 02 03 03 | | |
| 04 05 06 07 08 09 | 14 15 16 17 18 19 | Image: 24 Image: 25 Image: 25 Image: 25 Image: 25 Image: 25 Image: 25 Image: 26 Image: 27 Image: 28 Image: 29 |
| Select Calibration | | Update |
| | | OK Cancel |

1 - Head -

The serial number of the connected head is shown.

Check the head that is to be user calibrated $\overline{\mathbf{v}}$.

2 - Select calibration -

Please select calibration mode.

3 Please press the **OK** button

The user calibration screen of the selected calibration mode is shown.

| Single-color Calibration 🎖 | X | |
|---|-----------------------|------|
| Head | | |
| Measured data | Set data Ev[k] x y | |
| Ev[x] x y Measure | | |
| | Copy To All Head | • |
| ✓ Save File (CF Multi) area in CL-200/CL-200A. | S Cal Cancel | •••• |

Update

CL-S10w will check the CF value of the connected heads of CL-200/CL-200A body when the measurement screen or the CF settings screen is opened. Press the **Update** button when the connection of the heads is changed after the connection check or when the CL-200/CL-200A is custom calibrated.

| ead | | | | Calibration M | ode | | |
|--------|-----------|-----------|------|---------------|--------|---------------|----|
| 00 🔽 | Serial No | .: 3001 | 0020 | C RGB | ۲ | RGBW | |
| | Me | asured da | ta | | | Set data | |
| E | v[lx] | × | у | | Ev[lx] | × | у |
| white: | | | | Measure | | | |
| Red: | | | | Measure | | | |
| Green: | | | | Measure | | | |
| Blue: | | | | Measure | | | |
| | | | | | | py To All Hea | ad |

Please select the serial number of the head to be calibrated.

> The serial number of the head will be shown.

- The measurement of all the connected heads will begin and the data of the selected heads will be shown. (Average of three measurements)
 - 6 Please enter the Calibration Set Data. All the selected set values of the heads will be copied to all the heads when Copy To All Head button is pressed.

••• 7 Please press **Cal.** Button.

The correction factor (CF value) will be calculated with the entered calibration set data and set as the multi calibration CF value in CL-200/CL-200A.

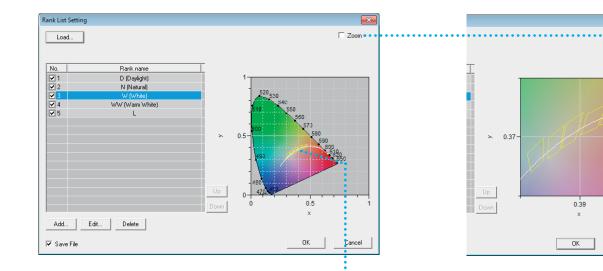
Memo

The calibration point of the smallest numbered head will be reflected in the setting value the next time CL-S10w is started.

..... When Save File is checked √, the 'Save as...' screen will appear when **Cal.** is pressed and the CF file (file extension: cfm) can be saved.

Rank List Setting screen

3-1. Select the Rank List



Load button

Designate the Rank List file (file extension: scl). Saved Rank List files are loaded and shown. A chromacity selection Rank List file is prepared as a sample template.

It is placed in the Template folder under where

CL-S10w is installed.

(Example)C:/Program Files/KONICAMINOLTA

/CL-S10w/Template /Fluorescent Lamp.scl

No. Rank name

The checked number rank will be selected for differentiation.

Cancel

- Memo

In case of overlapping chromacity range, the smaller numbered rank shall be differentiated first.

•• The selected rank will be shown on the list.

Up button

Moves the selected rank up.

Down button

Moves the selected rank down.

Add... button

The edit rank screen will appear when pressed. A new rank will be created and added to the list. A maximum of 20 ranks could be added to the list. (Refer to 3-2. Adding and editing Ranks)

Edit button

The edit rank screen will appear when pressed. (The edit screen will appear also when the rank in the list is double-clicked.) Edit the selected rank. (Refer to 3-2. Adding and editing Ranks)

Delete button

The selected rank will be deleted when pressed.

□ Save File

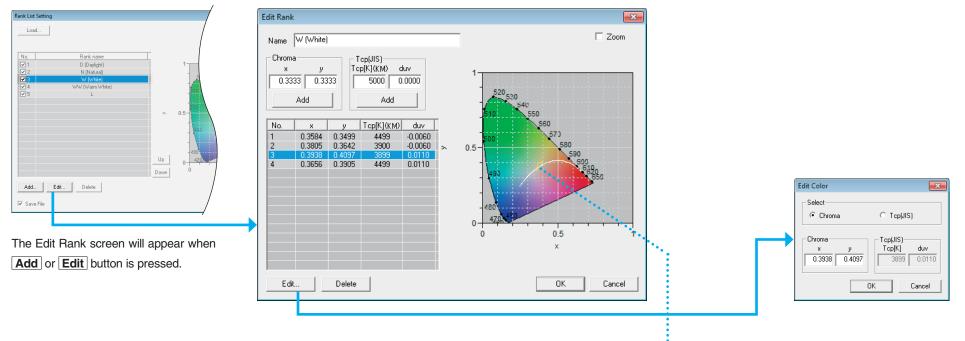
When Save File is checked, the 'Save As...' screen will appear when OK is pressed and the rank list file (file extension: scl) can be saved. Also it will be reflected when CL-S10w is started up again.

🗌 Zoom

✓ When checked, the graph scale of the selected ranks in the list could be enlarged in the displayed region.

Edit Rank screen

3-2. Adding and editing Ranks



Name

Enter the rank name. (Up to 40 characters)

- Chroma - - Tcp(JIS) -

Enter x,y or Tcp,duv and press the **Add** button to add the chroma points to the list below. 3-10 chroma points could be added to the list. 0.000 < x < 1.0000.000 < y < 1.000 $1.562 \le Tep < 100.000$

$$1,563 \ge 1 \text{ cp} < 100,000$$

-0.1
$$\leq$$
 duv \leq 0.1

Edit button

When pressed, the Edit Color screen is shown. (The edit screen will also appear when the chroma point in the list is double-clicked.) Edit the selected chroma point.

Delete button

When pressed, the selected chroma point is deleted.

Zoom

✓ When checked, the graph scale of the entered chroma points could be enlarged in the displayed region.

•••• The chroma points are drawn connected sequentially in a straight line.

Template

There are pre-installed templates in CL-S10w.

'Measure_Trend' Sheet/ 'Measure_uv' Sheet/ 'Ranking' Sheet

The Template is placed in the Template folder under where CL-S10w is installed.

(Example) C:/Program Files/KONICAMINOLTA/CL-S10w/Template

Select the KONICAMINOLTA – (CL-S10w) – Template from the All Programs of the Start Menu to activate the template.

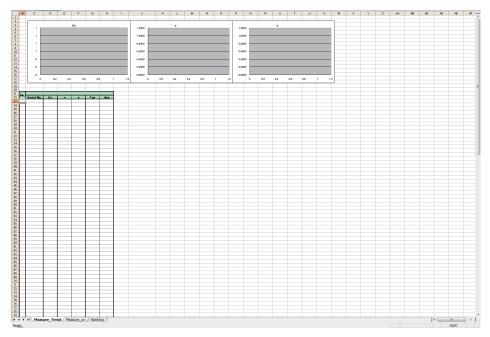
The following table shows available templates and their corresponding configuration files.

-Memo-

If a template-based configuration file contains invalid data such as out-of-range values, valid data are also not indicated on the chromaticity diagram. Deleting invalid data from the list allows valid data to be indicated on the chromaticity diagram.

| Template file name | Configuration file name | |
|---------------------------------|---------------------------------------|--|
| | Template_Trend ("Measure_Trend"sheet) | |
| Template | Template_uv ("Measure_uv"sheet) | |
| | Template_Rank ("Ranking"sheet) | |
| Template_CRI | Template_CRI | |
| Template_CRI&Spectral | Template_CRI&Spectral | |
| Template_MacAdamEllipse | Templete MacAdemEllines | |
| Template_MacAdamEllipse_shifted | Template_MacAdamEllipse | |
| Template_Multi_2 | | |
| Template_Multi_5 | Townlate Townel | |
| Template_Multi_13 | Template_Trend | |
| Template_Multi_30 | | |
| Template_MultiRank | Template_Rank | |
| Template_Spectral | Template_Spectral | |
| | | |

'Measure_Trend' Sheet



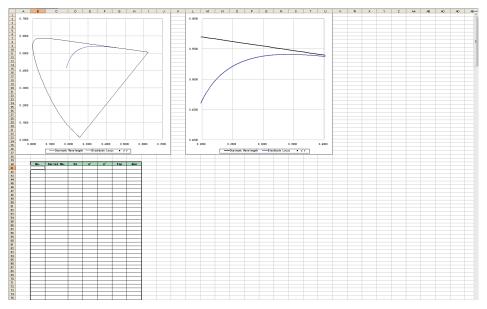
| CL-200A/CL-200 | 🔳 🕕 Loa |
|--|-------------------|
| Simple screen - (Normal) | Close The |
| User Calibration info. | area |
| 1 | |
| Measure | Seri |
| Start Stop | duv |
| Mode Interval | |
| C Spot Times | ¹⁰ See |
| Interval Interval (sec.) | 0 for ho |
| | |
| Condition Data Device(Head) Options Ir | nstrument |
| Illuminance Units | ⊸ |
| | |
| Observer 2 degree | |
| CF mode - (Normal) | |
| | |
| - Options | |
| Show title Confirm overw | vrites |
| ✓ Move cursor after meas 🗌 Update in sam | ne place |
| Add data by a col unit | |
| | |
| Transfer data using CL-200A key | |
| - , | |
| KOP | NICA MINOLTA |
| | |

① Load setting file "Template_Trend.txt". The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[lx], x, y, Tcp[K] (KM), and duv (KM) will be selected.

See $\ \underline{\ }^{"}$ 1-5. The settings can be managed by a file " for how to load a setting file.

| Condition Data De Data No. Date&Time MAX(Ev) MIN(Ev) AVE(Ev) | evice(Head) Options Instrument Serial No. EV[k] x y Tcp[k](KM) duv(KM) |
|---|--|
| Select Item | |

Measure_uv' sheet



| CL-200A/CL-200 | | × | ① Lo |
|---------------------|------------------------|----------------|------|
| Simple screen | - (Normal) | Close | Th |
| User Calibration in | fo | | ., |
| J | ļ | | wil |
| Measure | | | Ev |
| Start | Stop | | se |
| Mode | Interval | | |
| C Spot | Times | 10 | See |
| Interval | Interval (sec.) | 0 | loa |
| Condition Data [|)evice(Head) Option: | s Instrument | |
| Illuminance Units | lx . | | |
| Observer | 2 degree | • | |
| CF mode | - (Normal) | • | |
| | | | |
| - Options | | | |
| Show title | 🗖 Confirm o | verwrites | |
| Move cursor afte | er meas 🔲 Update in | same place | |
| 🗖 Add data by a c | ol unit | | |
| | | | |

① Load setting file "Template_uv.txt".

The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[lx], u', v', Tcp[K] (KM), and duv (KM) will be selected.

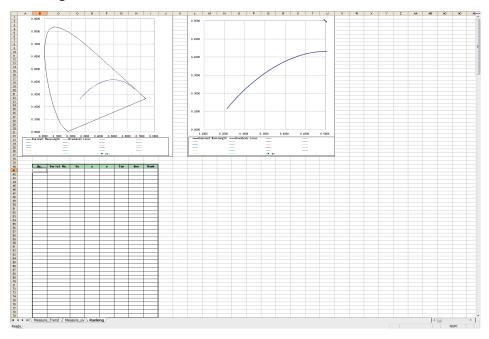
See $\frac{\text{``1-5. The settings can be managed by a file ''}}{\text{a setting file.}}$ for how to load a setting file.

| | Condition Data De | vice(Head) Options Instrument |
|-------|-------------------|-----------------------------------|
| | 🔽 Data No. | Serial No. Ev[lx] |
| ••••• | Date&Time | |
| | MAX(Ev) | Tcp[K](KM) duv(KM) |
| | MIN(Ev) | |
| | AVE(Ev) | |
| | | |
| | Select Item | |
| | Tolerance | |
| | | |

^② Click on the **Start** button.

² Click on the **Start** button.

'Ranking' Sheet



| CL-200A/CL-200 | × | | | | | | |
|---|------------------------------------|--|--|--|--|--|--|
| Simple screen | - (Normal) Close | | | | | | |
| User Calibration inf | 0 | | | | | | |
| | | | | | | | |
| Measure | | | | | | | |
| Start | Stop | | | | | | |
| Mode | Interval | | | | | | |
| C Spot | Times 10 | | | | | | |
| Interval | Interval (sec.) | | | | | | |
| Condition Data D | evice(Head) Options Instrument | | | | | | |
| Indiminando Ornito | | | | | | | |
| Observer | 2 degree 💌 | | | | | | |
| CF mode | - (Normal) | | | | | | |
| Options Show title Confirm overwrites Move cursor after meas Update in same place Add data by a col unit | | | | | | | |
| | | | | | | | |
| | | | | | | | |

① Load setting file "Template_Rank.txt".

The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[Ix], x, y, Tcp[K] (KM), duv (KM) and Rank will be selected.

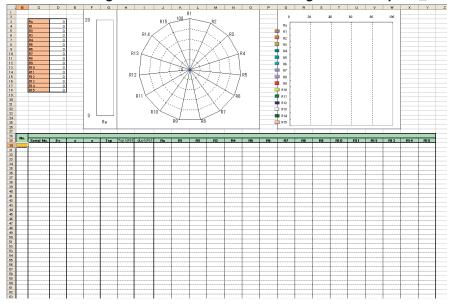
See $\underline{\ }^{\underline{a}}$ <u>1-5. The settings can be managed by a file</u> " for how to load a setting file.

| Condition Data Device(Head) Options Instrument |
|--|
| ✓ Data No. Serial No. Ev[b3] Ev[b3] ✓ Date&Time × ✓ MAX(Ev) dpr(K)(KM) ✓ MIN(Ev) Bank. ✓ AVE(Ev) |
| Select Item Tolerance |

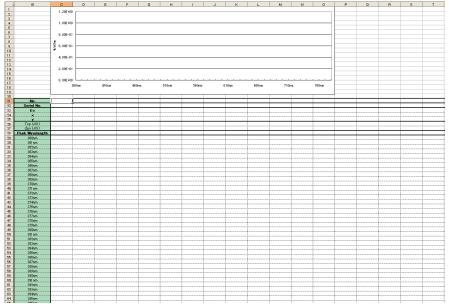
⁽²⁾ Assign the rank list and click on the **Start** button.

Other template examples

"Color rendering index" sheet of color rendering index "Template_CRI.xIs"



pectral" sheet of spectro graphing "Template_Spectral.xls"



| L-200A/CL-200 | | × | ① Loa |
|-----------------------|-----------------------|------------|--------|
| | - (Normal) | Close | The |
| User Calibration info | D | | - |
| | | | area |
| Measure | , | | No. |
| Start | Stop | | Way |
| Mode | Interval | | - |
| C Spot | Times | 10 | See |
| Interval | Interval (sec.) | 0 | load |
| Condition Data De | evice(Head) Options | Instrument | |
| Illuminance Units | lx | | ••••• |
| Observer [| 2 degree | • | |
| CF mode | - (Normal) | • | |
| | | | |
| Options | — • • | | |
| Show title | Confirm ov | | |
| Move cursor after | r meas 🔲 Update in | same place | |
| Add data by a col | l unit | | |
| L | | | 2 Clic |

Load setting file "Template_CRI.txt".

The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[lx], x, y, Tcp[K] (JIS), duv (JIS), Peak Wavelength, Ra and R1-R15 will be selected.

See <u>"1-5. The settings can be managed by a file</u>" for how to load a setting file.

| •••• | Data No. Date&Time MAX(Ev) MIN(Ev) AVE(Ev) Select Item | evice(Head) Options Instrument Serial No. EV[Lx] X Y Tcp[K]U(S) du/U(S) Peak Wavelength Ra R1 R2 R3 R4 R5 R5 R5 R5 R5 R5 R5 R5 R5 R5 |
|------|--|--|
| | Tolerance | RĨO |

| CL-500A | X | 🗐 🛛 🔍 📕 |
|---|---|---|
| Simple screen | AUTO Close | The o |
| User Calibration in CH00 : | fo | will k |
| Measure Start Mode Spot Interval | Stop Interval Times 10 Interval (sec) 0 Device(Head) Options Instrument | data No., Wave See load a |
| Illuminance Units | k T |) • • • • • • • • • • • • • • • • • • • |
| Observer | 2 degree | |
| Meas. Time | AUTO | |
| User Cal. CH | CH00: | |
| Options Show title Move cursor aft Add data by a c | | |
| | KONICOMINGEN | 2 Click |

① Load setting file "Template_Spectral.txt".

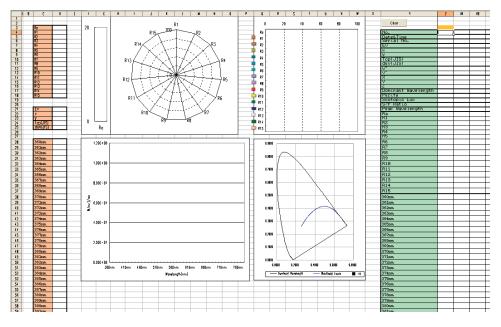
The checkbox of Show title in the Options area will be unchecked and the checkbox of Add data by columns be checked. Data No., Serial No., Ev[Ix], x, y, Tcp[K] (JIS), duv (JIS), Peak Wavelength and Spectral Data will be selected. See <u>"1-5. The settings can be managed by a file</u>" for how to load a setting file.

| ••• | Condition Data De | vice(Head) Options Instrument |
|-----|--|---|
| | ✓ Data No. ✓ Date&Time MAX(Ev) MIN(Ev) MIN(Ev) AVE(Ev) | Serial No. EvIDJ X Y Tcp[K]UIS) duv[JS] Peak Wavelength Spectral |
| | Select Item Tolerance | |
| | | |

² Click on the Start button.

² Click on the **Start** button.

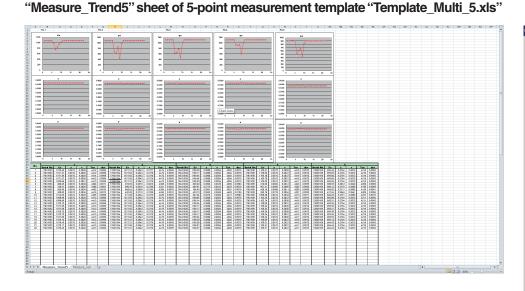
Color rendering index and spectrographing "Template_CRI&Spectral.xls"



 ${\ensuremath{\mathbb O}}$ Load setting file "Template_CRI&Spectral.txt".

See <u>"1-5. The settings can be managed by a file</u>" for how to load a setting file.

² Click on the **Start** button.



CL-200A/CL-200 × - (Normal) Close Simple screen User Calibration info Measure Start - Mode Interval 10 C Spot Times Interval Interval (sec.) Condition Data Device(Head) Options Instrument Illuminance Units • 2 degree -Observer CF mode - (Normal) -- Options Show title Confirm overwrites ✓ Move cursor after meas □ Update in same place Add data by a col unit

① Load setting file "Template_trend.txt". The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[lx], x, y, Tcp[K] (KM), duv (KM) will be selected.

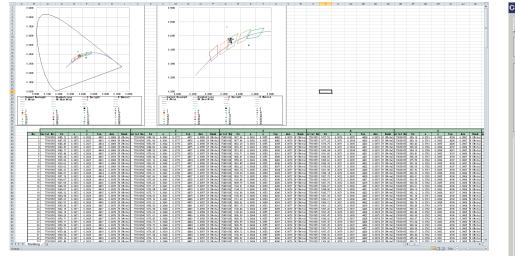
| Condition Data De | vice(Head) Options Instrument |
|--|--|
| ✓ [Data No.] □ Date&Time □ MAX(Ev) ▲ MIN(Ev) ▲ AVE(Ev) | Serial No. EV[k] × Y Tcp[K](KM) duv(KM) |
| Select Item | |
| Tolerance | |

² Click on the **Start** button.

"Measure_ANSI lumen 13" sheet of 13-point measurement template "Template_Multi_13.xls"

| 8 0 | D E F | с н | 1 | J | К | L | м | N | 0 | | 0 | 7 | 5 | т | U | v | w | × | Y | z | - | AB | Æ | AD | R | R | AS | ж | ж | AJ. | ж | × | 26.4 |
|---|---|--|--|--|--------------------------------------|--------------------------------------|--------------------------------------|--------|--|--|--------------------------------------|----------------------------|----------------------|-------------------------|--|--------------------------------------|----------------------------|----------------------------------|----------------------|----------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|----------------------|----------------------|--|--|--------------------------------------|----------------------------|----------------------|------------------|---------------|
| 1151.3 | 0 | | | | 1074 | 70 |] . | 949 IJ | receptor | | signed as | 01 10 13 | to perf | | arement. | | | | | | | | | | | | | | | | | | |
| 1101.0 | <u></u> | | | | 10/4 | .12 | j, | 10 | ~~~~ | | ~ | Û | | | | | | | | | | | | | | | | | | | | | |
| | 1064.67 | 1065.75 | 1088 | 2.24 | | | | (| <u>ب</u> ل | Ŷ- | -@ | | | | | | | | | | | | | | | | | | | | | | |
| | 1079.75 | 883.86 | 1088 | 3.02 | | | | (| ₽ | (y- | -ଜୁ | | | | | | | | | | | | | | | | | | | | | | |
| | 1100.69 | 1114.44 | 1105 | 5.91 | | | | 12 | <i></i> | <u> </u> | -@ | 13 | | | | | | | | | | | | | | | | | | | | | |
| | _ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1151.3 | 3 | | | | 1084 | .48 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | arca(m ⁷) | | ANGLIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.00 | | 2131 | .43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 C+ x v 07761 0.0874 0.0878 069.00 0.0874 0.0878 | Top 6ev 9427 00000 4400 00000 | Serial No. 17531084 17521084 | 1072.87 1086.79 | 2 0.3944 0.0544 | 0.3778 0.2777 | Top 4471 1 4470 1 | 000766 | Serial No. 19421038 | Ev 1104.85 1082.57 | 2 0.3989 0.3989 | 0.3594 | 4382 | 0.0076 0.0076 | Seriel No. 71931081 37931081 | 1101 63 104014 | 0.0874 | ¥ 0.0807 0.0827 | - Tcp - 4615 | 60073 | Serial No. 12630308 | Ev 80035 91727 | 0.37% | 0.3873 | 4228 | 0077 | Serial No. 70131080 73131080 | 1112.15 | 0.3999 | 0.3594 | Tep 6080 | 0.0075 0.0075 | Seriel 3 |
| 3 7753053 10 4 7783052 10 5 7753053 10 | 003.38 0.3875 0.3838 066.58 0.3674 0.3939 064.67 0.3874 0.3939 | 4428 00070 4410 00059 4410 00069 | 17531084 77921084 77531084 | 1005.87 1070.72 1085.75 | 03644 03642 03643 | 0.3752 0.2779 0.3777 | 4471 1 4471 1 4471 1 | 0.0005 | 75401008 75401008 75401008 | 108317 110035 108534 | 0.3589 0.3589 0.3589 | 0.3955 0.2954 0.3954 | 4383 4282 4382 | 0.0077 | 77831081 77801051 77831081 | 1007.00 | 0.0817 | 0384 | 4413 4414 4475 | 00073 | 73630105 72630105 73630105 | 823.54 999.57 883.56 | 0.3752 0.3755 0.3756 | 0.3876 0.2972 0.3870 | 4(17 4229 4204 | 0.0085 | 71131060 71131060 71131060 | 109483 110954 1085.02 | 0.3583 0.3589 0.3581 | 0.3990 0.3992 0.3991 | 4085 4090 4074 | 0.0075 | 3 |
| 8 77824082 10 7 77834085 10 8 77824082 10 | 068.07 0.0674 0.0929 064.04 0.0875 0.0929 06017 0.0674 0.0929 | 4403 0.0003 4403 0.0003 4403 0.0003 | 77921024 77531084 77921024 | 1021.01 1096.03 1025.42 | 0.3544 0.3644 0.3544 | 0.2777 0.3777 0.2779 | 4470 1 4465 1 4460 1 | 0.0075 | 75401008 75401008 75401008 | 1099.39 1091.80 1109.37 | 0.3589 0.3585 0.3589 | 0.3054 0.3095 0.2054 | 4392 4384 4390 | 0.0006 | 77921051 77931051 77931051 | 1065.04 1081.33 110060 | 00574 00874 00575 | 02824 03834 02827 | 4412 4413 4412 | 200072 200072 200072 | 72630105 77630105 72630105 | 592.39 675.71 596.70 | 0.2752 0.3754 0.2755 | 0.2675 0.3876 0.2672 | 4015 4014 4009 | 0.0065 | 73131060 73131060 73131060 | 1085.55 1075.55 1096.39 | 0.3589 0.3585 0.3589 | 0.3883 | 4383 | 0.0075 | 3 |
| 1 1753085 10 10 77901082 10 11 77501085 10 12 77801082 10 | 011 27 0.3875 0.3826 011 00 0.2874 0.2829 058 61 0.3874 0.3828 05063 0.2874 0.2829 | 4430 00003 4400 00003 4400 00003 4400 00003 | 77531054 77521054 77531054 77531054 | 1076.26 1072.34 1063.31 1067.12 | 0.3844 0.3644 0.3844 0.3844 | 0.3778 0.3778 0.3777 0.3777 | 4470 1 4453 1 4453 1 4454 1 | 00025 | 75401008 75401008 75401008 75401008 | 1106.51 1105.11 1085.24 1089.24 | 0.3589 0.3589 0.3587 0.3587 | 0.3594 | 4385 | 0.00% 0.00% 0.00% | 77832081 37963081 77832081 37963081 | 110108 109525 109438 109027 | 03874 | 03837 02825 03838 03838 | 4411 | 00073 00072 00072 | 73630305 72630305 73630305 72630305 | 836.36 591.46 830.78 590.20 | 0.3795 0.2754 0.3753 0.2756 | 0.3875 0.3875 0.3875 0.3875 | 4012 | 0.0064 0.0064 0.0065 | 71131060 73131060 73131060 73131060 | 1087.01 1082.40 1083.83 1105.22 | 0.3690 0.3689 0.3689 0.3685 | 0.3992 | 4292 | 0.0075 | 3 |
| 15 77831083 10 14 77831083 10 15 77831083 10 | 068.80 0.0874 0.0829 06467 0.0874 0.0829 068.52 0.0874 0.0828 | 4410 00009 4411 00009 4410 00009 | 77521084 77921084 77521084 | 1073.22 1069.52 1074.33 | 03645 03645 03645 | 0.3778 0.2779 0.3778 | 4471 1 4474 1 4471 1 | 0.000 | 75401008 75401008 75401008 | 1100.55 105462 1107.01 | 0.3589 0.3589 0.3589 | 0.3394 0.2354 0.3394 | 4382 4282 4382 | 0.00% | 77831081 77801051 77831081 | 109065 1094-6 110157 | 0.0815 0.0875 0.0874 | 03838 02825 03837 | - 4411 - 4411 | | 73630105 72630105 73630105 | 880.72 999.72 809.72 | 0.3756 0.2756 0.3755 | 0.3870 0.3870 0.3872 | 4004 4004 4005 | 0.005 | 70131060 70131060 70131060 | 1095.08 | 0.3590 0.2590 0.3593 | 0.3992 0.3992 0.3994 | 4035 4005 4080 | 0.0074 | 2 21 23 |
| | 067.63 0.0674 0.0008 | 4411 G0069 | 77921054 | 107231 | 0.2642 | 0.2778 | 463 | 00086 | 75401009 | 1100.95 | 0.3589 | 0.3955 | 4292 | 0.0076 | 37921051 | 110.00 | 0.2674 | 02827 | -9415 | 00072 | 72630105 | 90014 | 0.2754 | 0.2972 | 4010 | 0.0054 | 73131060 | 1112.45 | 0.2589 | 0,3856 | 436 | 0.0077 | 2 |
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| A Measure_A | ViSilumen13 / Mez | aure_Trend13 / | Measure_ | ey13 /1 | 2/ | - 1 | | | | | - | | 1 | - | | 1 | - | - | | - | 1 | - | | - | 1 | - | 1. | ١., | | 1 [47] 222 | | - | • |

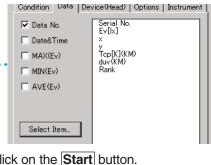
- ① Load setting file "Template_trend.txt".
- ② The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[lx], x, y, Tcp[K] (KM), duv (KM) will be selected.
- ③ Place the cursor in the cell directly under the "No." cell in the Excel sheet and click on the <u>Start</u> button.
- $\odot\,$ First set the Excel macro security level at "Medium" as follows:
 - 1. Select "Option" from "Tool" in the menu bar.
 - The "Option" dialog will appear.
 - 2. Click on "Security" and click on the Marco security button.
 - The "Security" dialog will appear.
 - 3. Select "Medium" in the "Security level" tag and click on the OK button.
 - 4. Click on the **OK** button in the **"Option**" dialog.
 - **Note** that the macro security level setting is saved in Excel. Change the macro security level setting as appropriate when running applications other than CL-S10w.



"Ranking" sheet of Multi (up to 30)-point measurement template "Template_MultiRank.xls"

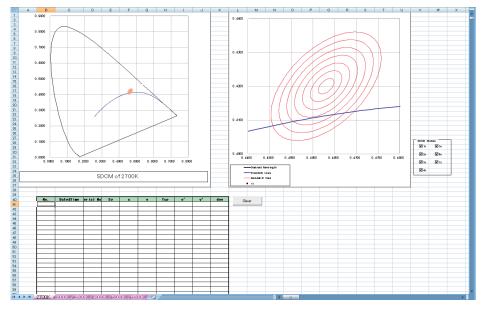
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| Move cursor afte | er meas 🥅 Update in | n same place | |
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① Load setting file "Template_Rank.txt". The checkbox of Show title in the Options area will be unchecked and Data No., Serial No., Ev[lx], x, y, Tcp[K] (KM), duv (KM), Rank will be selected.



MacAdam SDCM-graphing "Template_MacAdamEllipse.xls" and "Template_MacAdamEllipse_shifted.xls"

* These two templates only differ in the position of the ellipse, and can be used in the same manner.



① Load setting file "Template_MacAdamEllipse.txt".

See <u>"1-5. The settings can be managed by a file</u>" for how to load a setting file. ② Click on the **Start** button.

