

Data Management Software
CL-S10w
Installation Guide



KONICA MINOLTA



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®

Notes about the text

- Unauthorized reproduction in whole or part of this manual is prohibited.
- The contents of this document may change without notice.
- Every effort is made to ensure the information in this text is correct, but in the event of doubt, error or omission, please contact the vendor where you made your purchase.
- 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.

About the registered Trademark

Microsoft, Windows, Windows 7, Windows 8.1, Windows 10, Excel are U.S. registered trademarks of Microsoft corporation in the U.S. and other countries.

Software Terms of Use

The terms of use for this software is shown in the end user agreement dialog during online installation. Installation will start only if the user agrees to the agreement.

Notes in use

- This software is an application running on the Windows 7, Windows 8.1 or Windows 10. Neither OS includes this software.
- Before you install this software, one of the above OS must be installed in the PC.
- This software is an Add-Ins software for Excel 2007, Excel 2010, Excel 2013 or Excel 2016. None of the Excel includes this software.
- Before you install this software, one of the above Excel must be installed in the PC.
- Please set and insert the CD-ROM smoothly and correctly into the CD-ROM drive.
- Please do not stain or scratch the recording surface of the CD-ROM as it will lead to reading errors.
- Please avoid extreme temperature changes and condensation.
- Do not leave in direct sunlight or near areas with high temperatures such as heaters.

- Please do not apply force or drop the CD-ROM.
- Please do not apply water, alcohol or thinner etc to the CD-ROM.
- Please remove the CD-ROM only when the PC is switched on.

Note about the storage

- Please store the CD-ROM in its case after use and take good care of it.
- Please do not store in direct sunlight or near areas with high temperatures such as heaters.
- Please do not store the CD-ROM in areas of high humidity.

Method of disposal

- Please dispose of this product according to the rules and regulations of the governing body of the respective region.

Package Contents

- One Installation CD-ROM of Data Management software CL-S10w
(CL-10w Setup, CL-S10w Instruction Manual, CL-500A SDK, CL-500A SDK Reference Manual)
- Installation guide (This document)
- Service Guide

This instruction guide is also installed in PDF form with a shortcut in the start menu during the software installation.

* If you are using Windows 8.1 or 10, right-click on the start screen and select "All applications" at the lower right of the screen.

To read the manual, go to <Start Menu -> All programs -> KONICAMINOLTA -> (CL-S10w) -> CL-S10w Manual> PDF file. The installation CD-ROM also contains other language versions of the instruction manual in PDF format. You will need the Adobe Reader® from Adobe Corporation. The latest Adobe Reader® could be downloaded for free from the Adobe website. Also, it is possible to use the Adobe Reader® installer included with the installation CD-ROM for installation.

(Example) When the CD-Rom is in E drive E:\Adobe Reader \EN

System Requirements

(Conditions of Use) OS Windows 7 Professional 32 bit, 64 bit
 Windows 8.1 Pro 32 bit, 64 bit
 Windows 10 Pro 32 bit, 64 bit
 (The Japanese, English, Chinese (Traditional), Chinese (Simplified) version of the above OS)

Application Software

Excel 2007 32bit, Excel 2010 32bit
 (When using Windows 7 OS)

Excel 2010 32bit, Excel 2013 32bit, 64bit
 (When using Windows 8.1 OS)

Excel 2013 32bit, 64bit, Excel 2016 32bit, 64bit
 (When using Windows 10 OS)

(Control target) Photometer CL-500A, CL-200, CL-200A

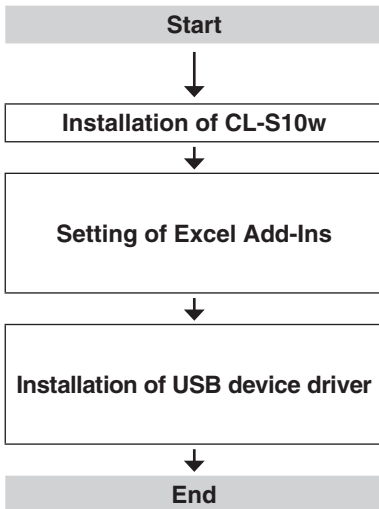
(Language) Display language Japanese, English, Chinese (Simplified) (Select any one during installation)

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Installation procedures

This software is supplied in CD-ROM form, therefore a CD-ROM drive is required for installation. You need to log in as a user with administrator privileges to install this software.



If an older version of this software has been installed in the PC, uninstall the older version before installing the latest version.

Installation of CL-S10w from the CD-ROM.

Set the Add-Ins in Excel.

The installation procedure differs slightly depending on which version of Excel you are using; Excel 2007, 2010, 2013 or 2016.

Install the device driver for connecting the instrument to a USB port of the PC.

The installation procedure differs depending on which version of Windows you are using; Windows 7, 8.1 or 10.

Please see the instruction manual for the usage of CL-S10w. It is possible to access the instruction manual from the Start menu (Adobe Reader® is required separately).

<Start -> All Programs -> KONICAMINOLTA -> (CL-S10w) -> CL-S10w Manual>

If you are using Windows 8.1 or 10, right-click on the start screen and select "All applications" at the lower right of the screen. You will see the template icons and the CL-S10w manual icon on the screen.

When using Windows 7, Excel 2007

The screens might differ from those in Excel 2010, but the steps are the same.

Please follow the steps below.

You will see a User Account Control dialog box during installation of the software. At that time, select "Yes" or "Continue".

1. Installation

1 Start Windows.

2 Set and insert the CL-S10w CD-ROM in the CD-ROM drive.

The installation program should start up automatically. Please double-click on the 'Setup.exe' icon if the installation does not start automatically.

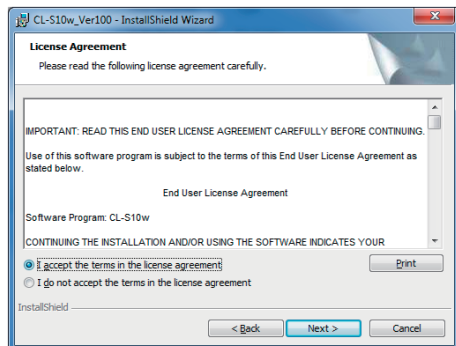
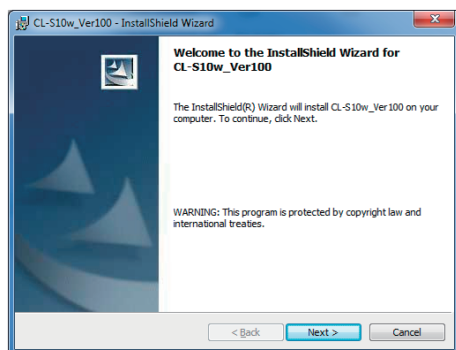
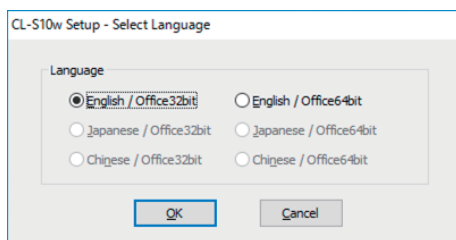
3 A language selection dialog box will open. Select one from among six combinations of language and Office version and click on **OK.**

'Chinese' is in simplified form. When using Traditional Chinese OS, please select the 'English'.

We shall proceed and explain with the 'English' hence on.

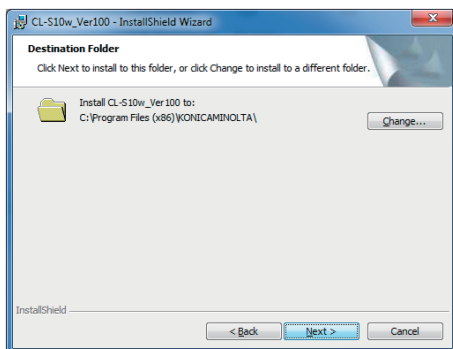
4 The wizard screen will appear and click **Next.**

5 Read the License Agreement and select 'I accept the terms in the license agreement' if you agree to it and click **Next.**



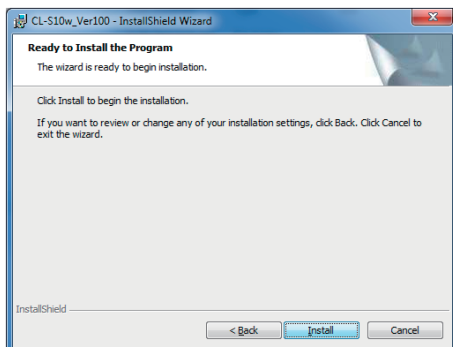
6 Check the destination folder to install to and click **Next** .

The destination folder can be changed. Please remember the path of the destination folder as it is necessary during the Excel Add-Ins setup.

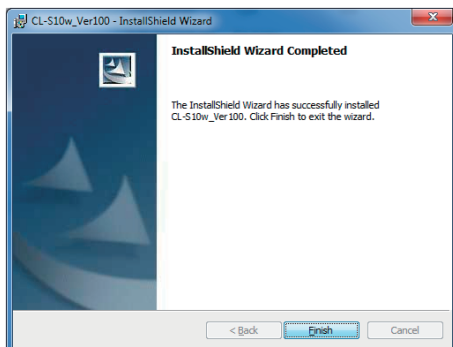


7 Click **Install** .

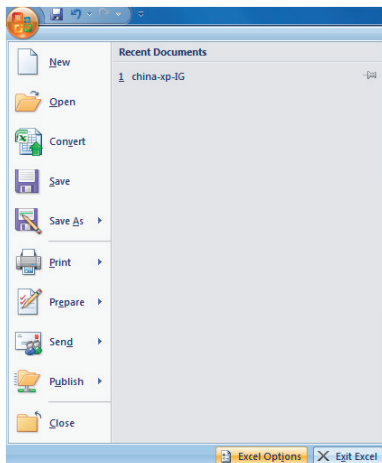
File copy will begin.



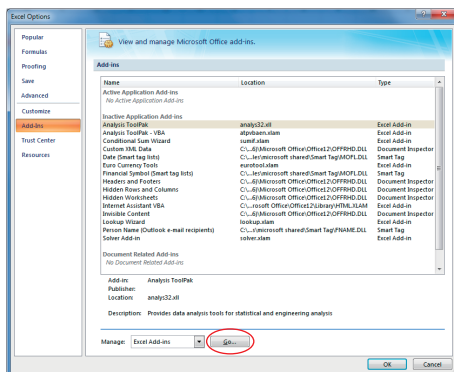
8 Click **Finish** when the installation is completed.



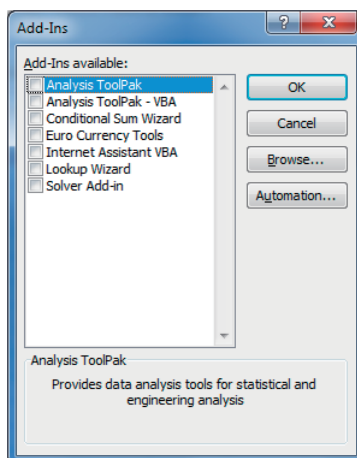
9 Next add CL-S10w into Excel Add-Ins. Start Excel 2007, click on the top left round icon and click **Excel Options** from the menu.



10 Select 'Add-Ins' on the left and click **Go** in the Manage Add-Ins below.

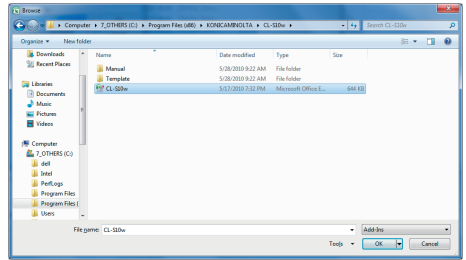


11 Click **Browse** from the Add-Ins setting menu.

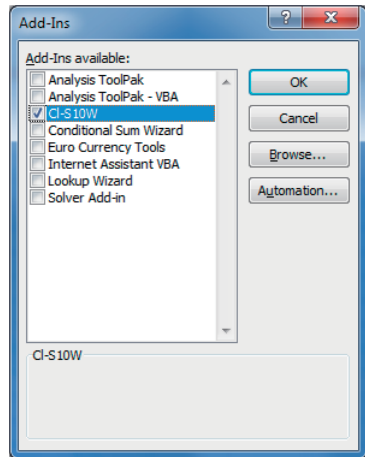


12 Select the destination folder when CL-S10w is installed and select the CL-S10w. xla (the file extension might not be shown in some cases) and click **OK**.

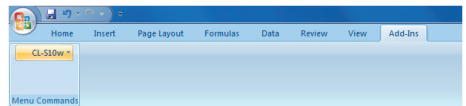
(Example) C:\Program Files
 \KONICAMINOLTA\CL-S10w



13 Check the 'CI-S10W' added in the Add-Ins setting menu and click **OK**.



14 "CL-S10W" was added to the "Add-Ins" in the menu bar in Excel 2007.



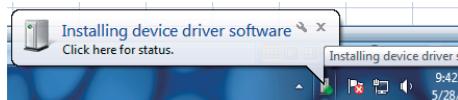
2. Installation of the device driver

Connecting the instrument to a USB port of the PC requires the device driver to be installed. Please follow the steps below.

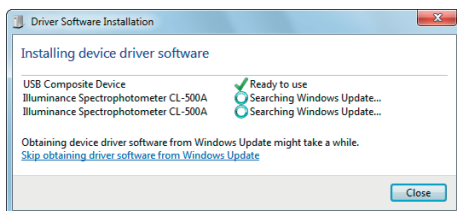
For CL-500A

1 Connect the instrument to a USB port of the PC.

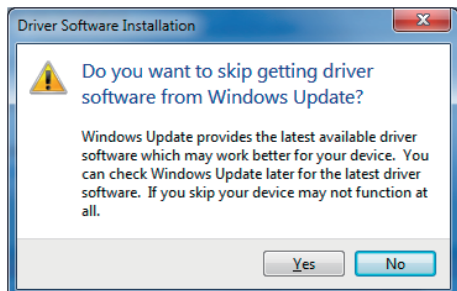
The installation of the device driver should start automatically, and select the icon showing Installing device driver software from the taskbar.



2 Click on 'Skip obtaining driver software from Windows Update'.



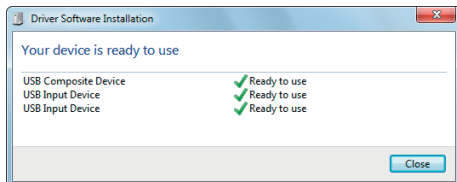
3 Click Yes in the Confirmation window.



4 Wait for the screen below to appear and click Close.

Two kinds of device drivers for CL-500A will be installed.

The installation may take several minutes. Do not turn off the power of CL-500A or pull out the USB cable until the installation is complete.

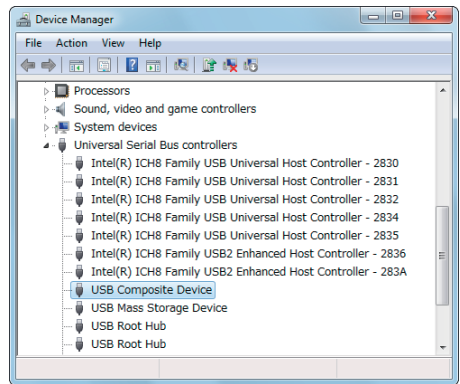


5 Use the following procedure to check that the device drivers are properly installed.

Right click on the 'Computer' from the Start menu and select 'Properties'.

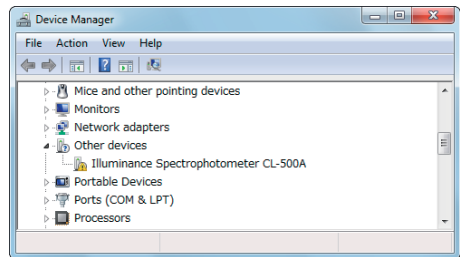
The screen below will appear after clicking 'Device Manager' on the left of the Control Panel.

On this screen, make sure that "USB Composite Device" has properly been installed.



If the installation fails, the "USB Composite Device" may not be displayed on the screen or, even if the "USB Composite Device" is displayed, some devices may be located under the "Other devices" directory as shown in the figure below.

In such a case, uninstall the "USB Composite Device" and some devices under the "Other devices" directory; then perform the installation again from step 1.



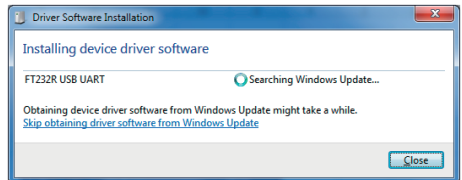
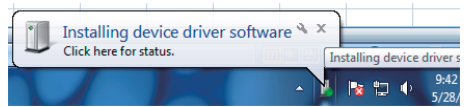
The above installation is completed.

For CL-200A

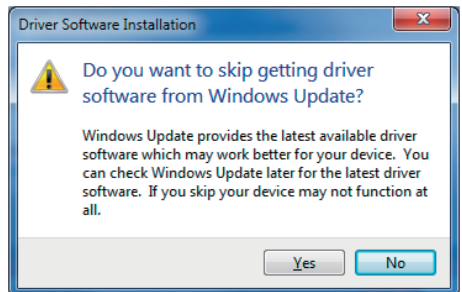
- 1 With the CL-S10w installation CD-ROM inserted in the PC, connect the instrument to a USB port of the PC.

The installation of the device driver should start automatically, and select the icon showing Installing device driver software from the taskbar.

- 2 Click on 'Skip obtaining driver software from Windows Update'.

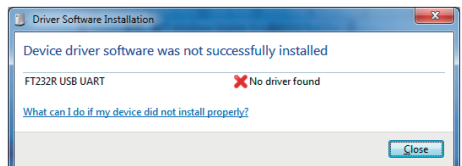


- 3 Click in the Confirmation window.



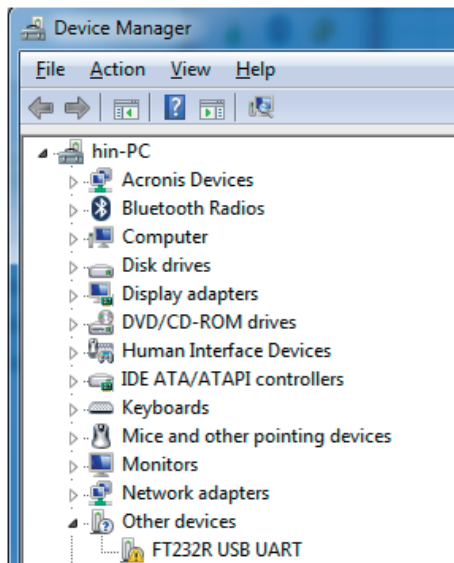
- 4 Wait for the screen below to appear and click .

Please wait for a while as this may take several minutes.

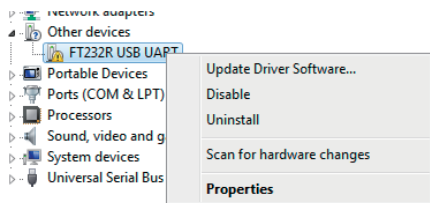


5 Right click on the ‘Computer’ from the Start menu and select ‘Properties’.

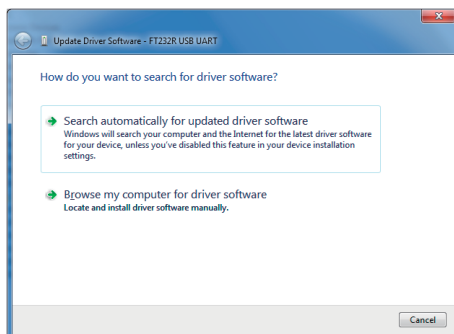
Clicking on ‘Device Manager’ on the left of the Control Panel will open the screen as shown to the right.



6 Right click on ‘FT232R USB UART’ and select ‘Update Driver Software’.

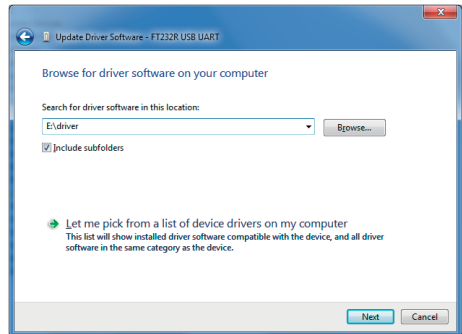


7 Click on ‘Browse my computer for driver software’.

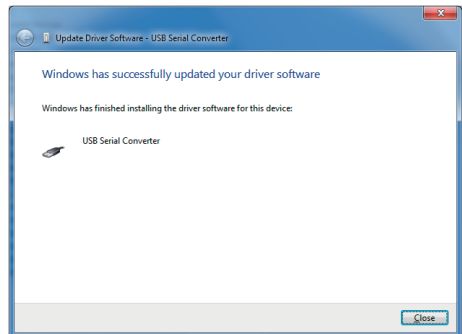


8 Designate the driver folder in the CL-S10w CD-ROM and click **Next** .

(Example) In the case of CD-ROM in E drive.
E:\driver

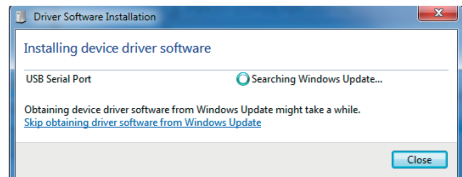


9 Click **Close** .

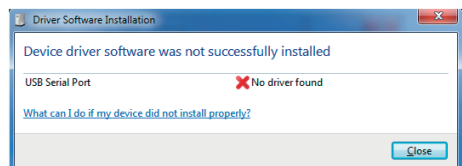


10 Select the icon from the taskbar like Step 1 as the USB Serial Port device driver will start installation automatically.

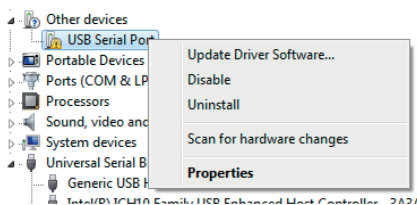
Click on 'Skip obtaining driver software from Windows Update' and click **Yes** in the Confirmation window.



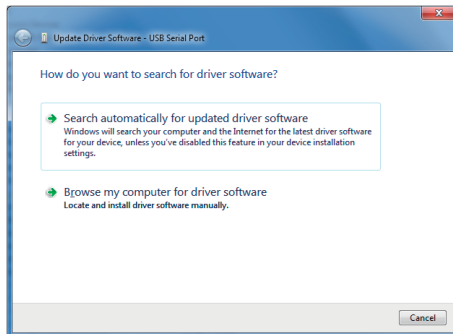
11 Wait for the screen below to appear and click **Close** .



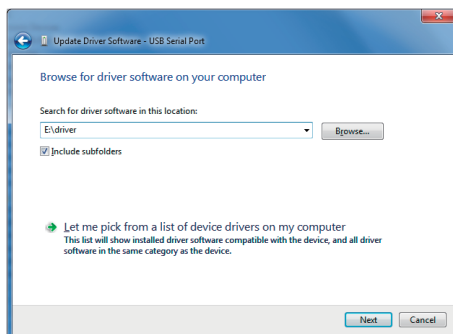
12 Show the Device Manager like Step 5 and right click on the 'USB Serial Port' and select 'Update Driver Software'.



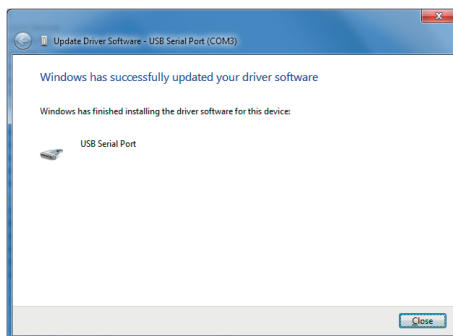
13 Click on 'Browse my computer for driver software'.



14 Designate the driver folder in the CL-S10w CD-ROM and click **Next**.
 (Example) In the case of CD-ROM in E drive.
 E:\driver



15 Click **Close**.

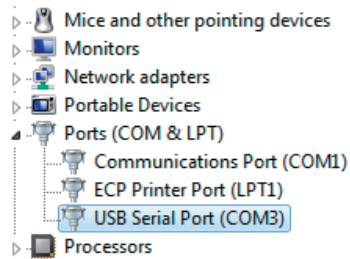


16 Check the COM port assigned to the photometer.

Show the Device Manager like Step 5 and expand the 'Ports (COM & LPT)' to show the assigned COM port number.

Note

This COM port number is necessary to start CL-S10w and to connect the photometer.

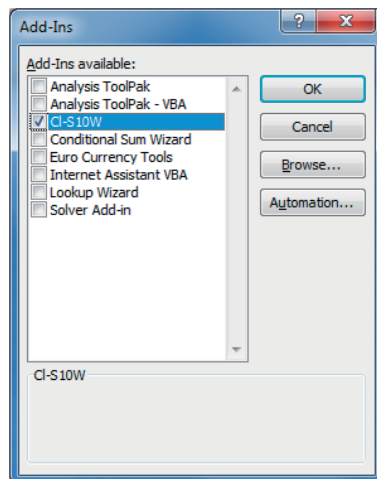


The above installation is completed.

3. Uninstallation of CL-S10w (Before version up)

1 Firstly uncheck the 'CL-S10W' from the Excel Add-Ins setting menu.

Please follow steps 9-10 to show the Add-Ins setting menu.



2 Select the 'Control Panel' in the Start menu and click on the 'Uninstalling the program' icon.

Select 'CL-S10w' from the 'Uninstalling or changing the program' list and click on the **Uninstall** button.

When using Windows 8.1/10, Excel 2013

The setup procedure for Excel 2010 or 2016 is the same as that for Excel 2013, though the screen layout may differ between these Excel versions.

Please follow the steps below.

You will see a User Account Control dialog box during installation of the software. At that time, select "Yes" or "Continue".

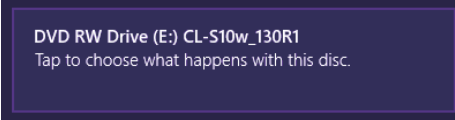
1. Installation

1 Start Windows.

2 Set and insert the CL-S10w CD-ROM in the CD-ROM drive.

Click on "Tap to choose what happens with this disc." on the screen.

Then click on 'Run setup.exe'.



DVD RW Drive (E:) CL-S10w_130R1
Tap to choose what happens with this disc.



DVD RW Drive (E:) CL-S10...

Choose what to do with this disc.

Install or run program from your media



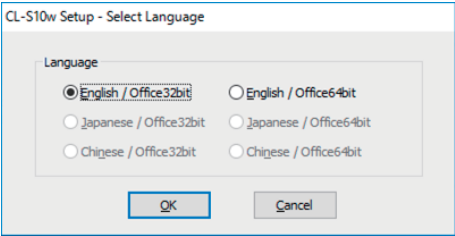
Run setup.exe
Published by KONICA MINOLTA, INC.

3 A language selection dialog box will open. Select one from among six combinations of language and Office version and click on **OK**.

'Chinese' is in simplified form. When using Traditional Chinese OS, please select the 'English'.

We shall proceed and explain with the 'English' hence on.

CL-S10w Setup - Select Language



Language

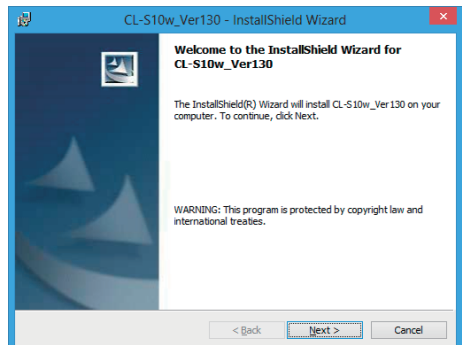
English / Office32bit English / Office64bit

Japanese / Office32bit Japanese / Office64bit

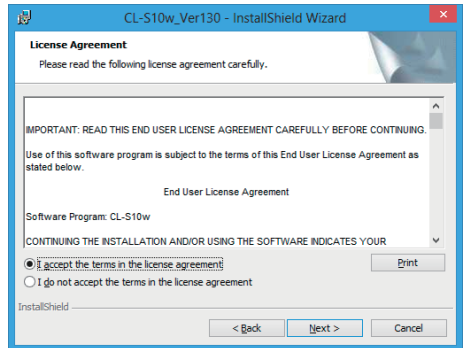
Chinese / Office32bit Chinese / Office64bit

OK Cancel

4 The wizard screen will appear and click **Next**.

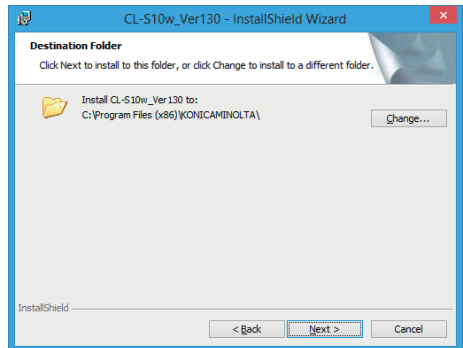


- 5** Read the License Agreement and select 'I accept the terms in the license agreement' if you agree to it and click **Next** .

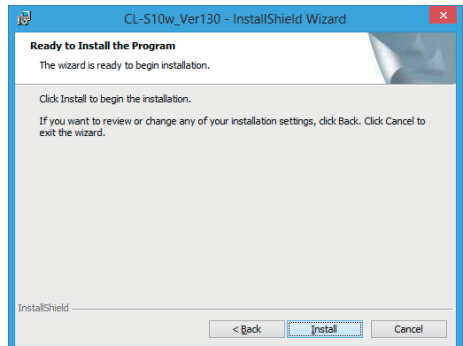


- 6** Check the destination folder to install to and click **Next** .

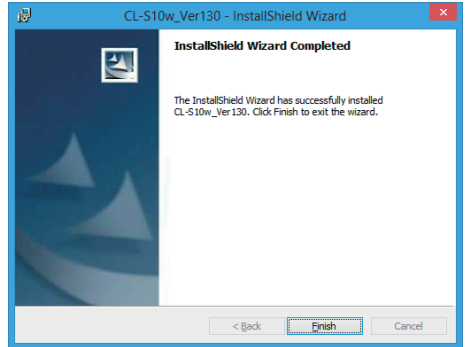
The destination folder can be changed. Please remember the path of the destination folder as it is necessary during the Excel Add-Ins setup.



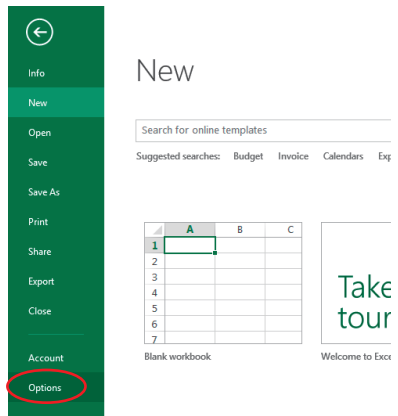
- 7** Click **Install** .
File copy will begin.



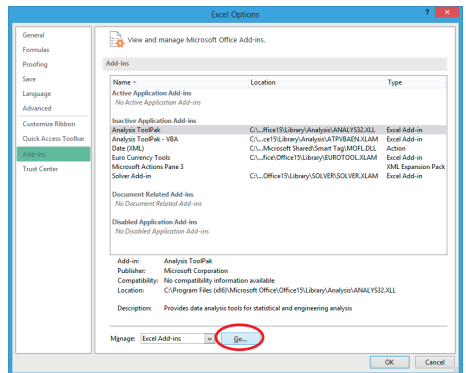
8 Click **Finish** when the installation is completed.



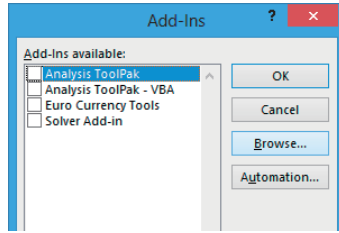
9 Adding CL-S10w into Excel Add-Ins: Start Excel 2013 and click on **Options** on the left menu.



10 Select 'Add-Ins' on the left and click **Go** in the Manage Add-Ins below.

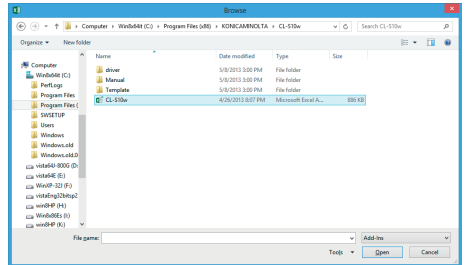


11 Click **Browse** from the Add-Ins setting menu.

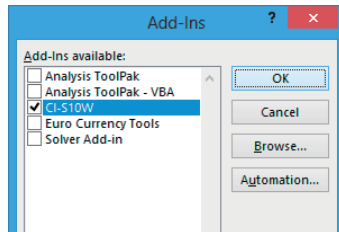


12 Select the destination folder when CL-S10w is installed and select the CL-S10w. xla (the file extension might not be shown in some cases) and click **OK**.

(Example) C:\Program Files
 \KONICAMINOLTA\CL-S10w



13 Check the 'CL-S10W' added in the Add-Ins setting menu and click **OK**.



14 "CL-S10W" was added to the "Add-Ins" in the menu bar in Excel 2013.



2. Installation of the device driver

Connecting the instrument to a USB port of the PC requires the device driver to be installed. Please follow the steps below.

For CL-500A

1 Connect the instrument to a USB port of the PC.

Device driver installation will begin.

Two kinds of device drivers for CL-500A will be installed.

The installation may take several minutes. Do not turn off the power of CL-500A or pull out the USB cable until the installation is complete.

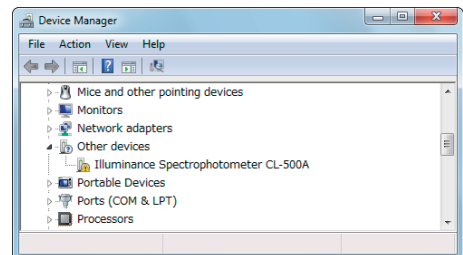
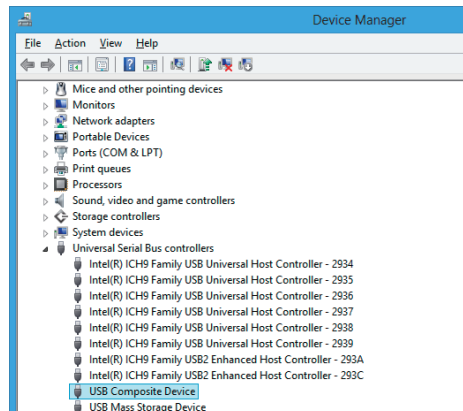
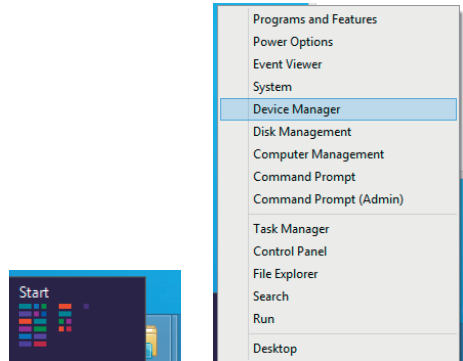
2 Use the following procedure to check that the device drivers are properly installed.

Place the cursor at the lower left corner of the screen. When a window opens, right-click. Select 'Device manager' on the menu. The screen as shown to the right will appear. On this screen, make sure that "USB Composite Device" has properly been installed.

If the installation fails, the "USB Composite Device" may not be displayed on the screen or, even if the "USB Composite Device" is displayed, some devices may be located under the "Other devices" directory as shown in the figure below.

In such a case, uninstall the "USB Composite Device" and some devices under the "Other devices" directory; then perform the installation again from step 1.

The above installation is completed.



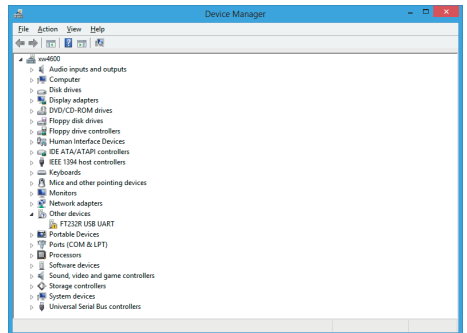
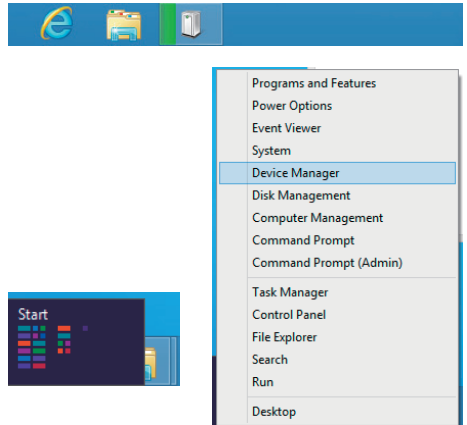
For CL-200A

1 With the CL-S10w installation CD-ROM inserted in the PC, connect the instrument to a USB port of the PC.

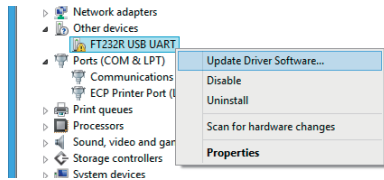
Device driver installation will begin, and the task bar will show an icon named "Installing device driver software".

2 Place the cursor at the lower left corner of the screen. When a window opens, right-click.

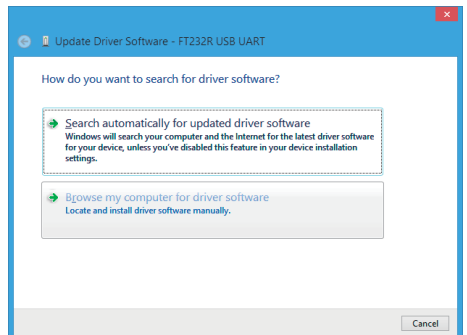
Clicking on 'Device Manager' will open the screen as shown to the right.



3 Right click on 'FT232R USB UART' and select 'Update Driver Software'.



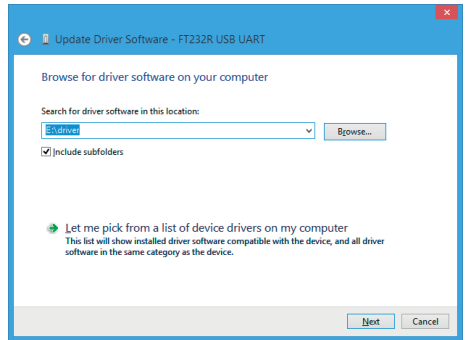
4 Click on 'Browse my computer for driver software'.



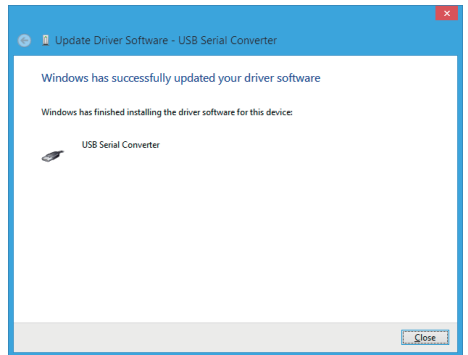
5 Designate the driver folder in the **CL-S10w CD-ROM** and click **Next** .

(Example) In the case of CD-ROM in E drive.

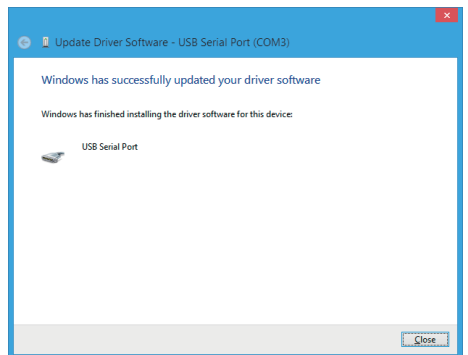
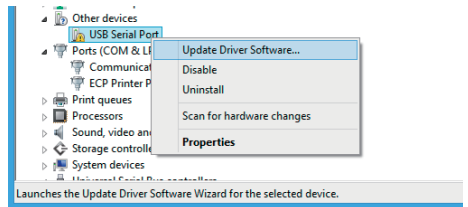
E:\driver



6 Click **Close** .



7 Then, install the **USB serial port device driver** in the same manner as steps 2 to 6.

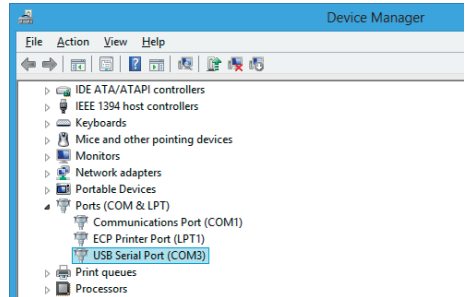


8 Check the COM port assigned to the photometer.

Show the Device Manager like Step 2 and expand the 'Ports (COM & LPT)' to show the assigned COM port number.

Note

This COM port number is necessary to start CL-S10w and to connect the photometer.

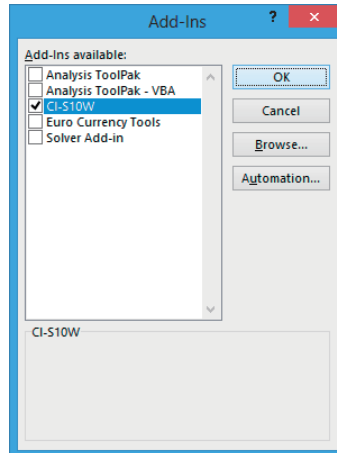


The above installation is completed.

3. Uninstallation of CL-S10w (Before version up)

1 Firstly uncheck the 'CL-S10W' from the Excel Add-Ins setting menu.

Please follow steps 9-10 to show the Add-Ins setting menu.



2 Place the cursor at the lower left corner of the screen. When a window opens, right-click.

Select 'Program and function' on the menu.

Select 'CL-S10w' from the 'Program and function' list and click on the **Uninstall** button.

About the template

Excel templates are installed together with CL-S10w.

The measurements in CL-S10w can be done immediately in these templates. Please use them for references when creating various templates for various use.

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

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

In addition, select Start Menu -> All programs -> KONICAMINOLTA -> (CL-S10w) -> Template to start the template.

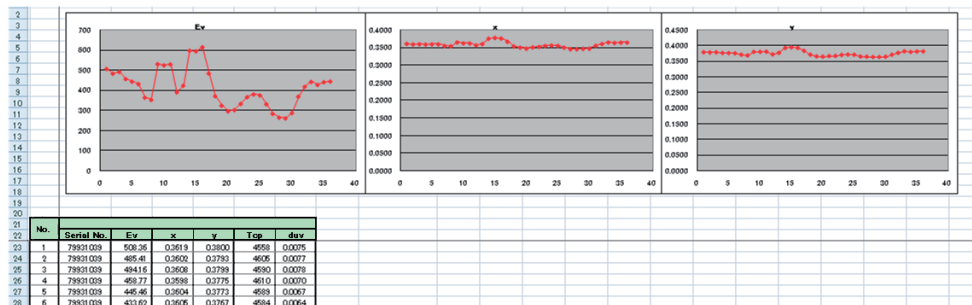
Please refer to the instruction manual for the details of the usage of the templates.

<Start Menu-> All programs -> KONICAMINOLTA -> (CL-S10w) -> CL-S10w Manual>

If you are using Windows 8.1/10, right-click on the start screen and select "All applications" at the lower right of the screen. You will see the template icons and the CL-S10w manual icon on the screen.

1. Measurement values trend

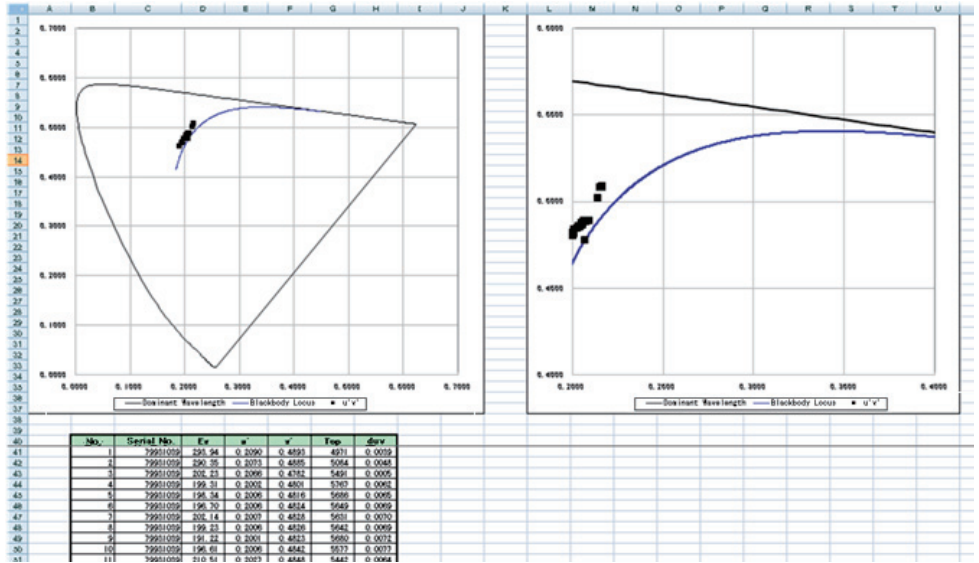
A time series chart with continuous variation in values is shown.



2. A u'v' chroma diagram plot

The measured data are shown in a graph form in a u'v' chroma diagram.

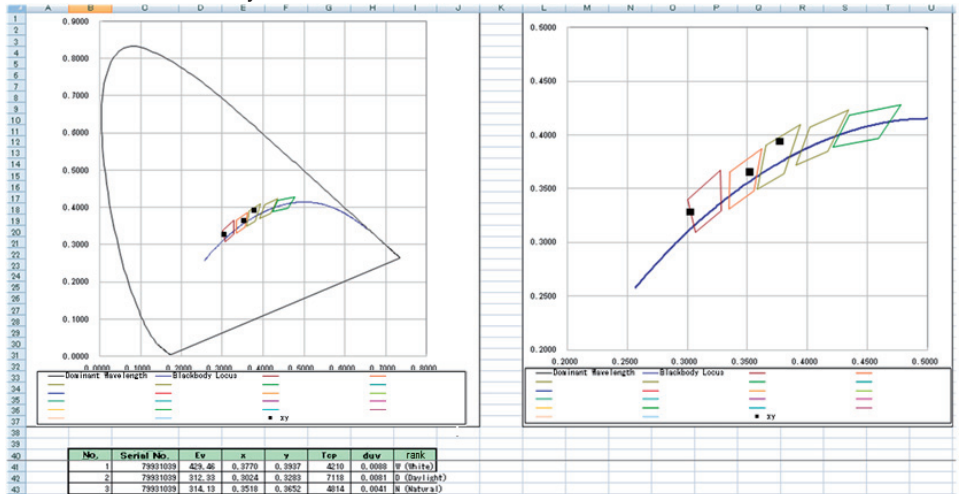
The u'v' chroma diagram is an improved chroma diagram that compares the distance between the chroma points in the xy chroma diagram and the difference in the subjective color difference.



3. Rank display

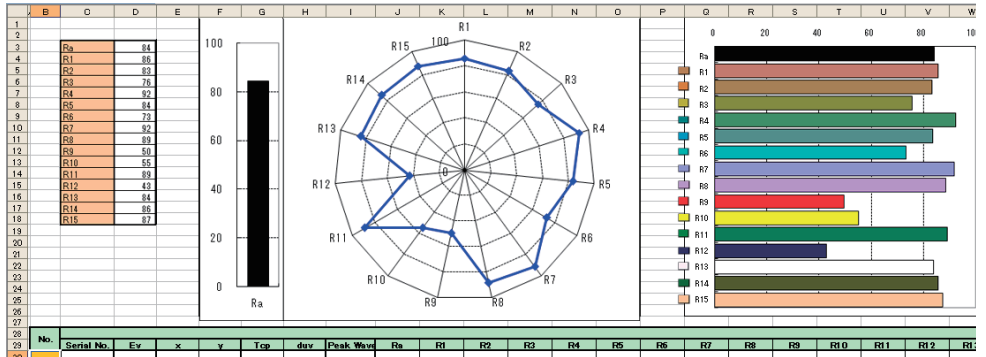
The rank is displayed in several separated regions of the xy chroma range.

With regards to the chroma of LED etc, whether there is a match among the various standards can be determined easily.



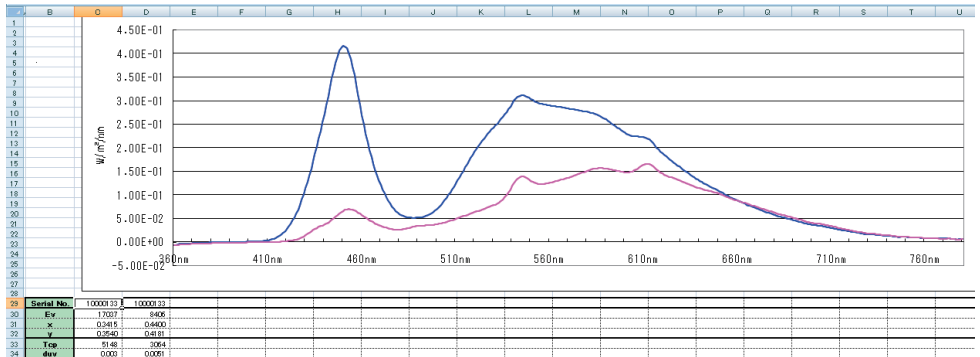
4. Color Rendering Index

Color rendering indexes are shown visually for easy understanding.



5. Spectral

Spectral irradiance data are displayed as the spectral waveform.

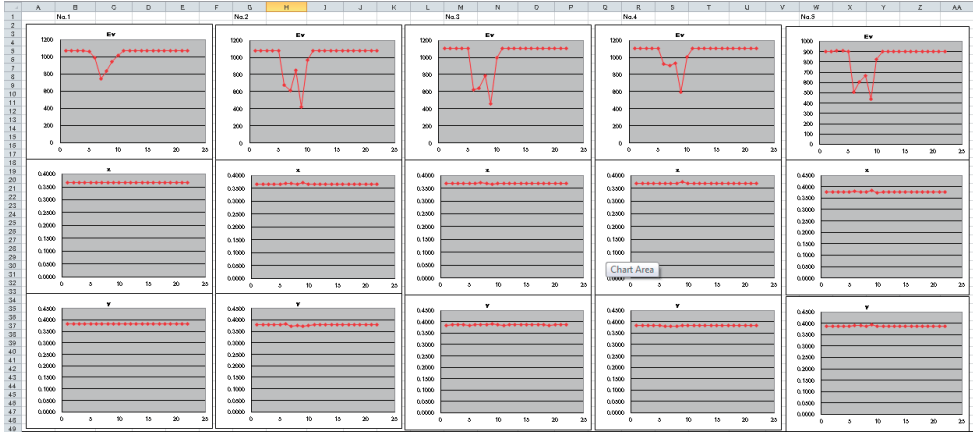


6. Multi-point measurement

CL-200/CL200A allows multi-point measurement using multiple heads.

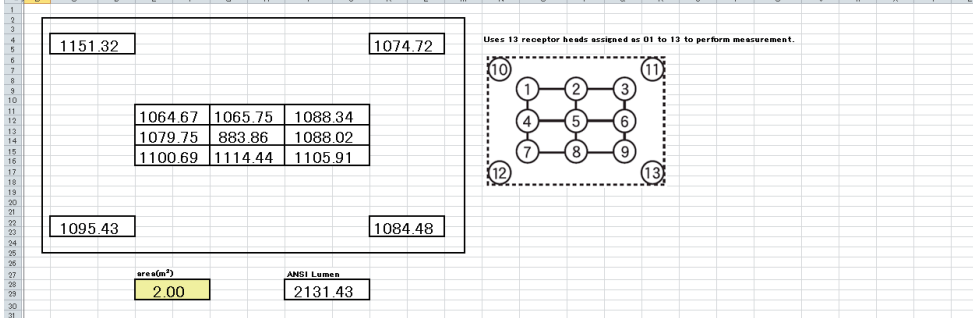
The multi-point measurement template is available in five types:

- 2-point measurement template containing the trend and xy chromaticity diagram
- 5-point measurement template containing the trend and xy chromaticity diagram
- 13-point measurement template containing the trend, xy chromaticity diagram and ANSI lumen measurements
- 30-point measurement template containing the trend and xy chromaticity diagram
- 30-point measurement template containing the ranking



No.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.		
92	1	7391051	103.49	0.3973	0.3920	4412	0.0089	7391054	1037.37	0.3943	0.3737	4474	0.0088	7391055	1109.20	0.3668	0.3954	4391	0.0079	7391051	1105.91	0.3913	0.3920	4418	0.0073	7391053	904.34
93	2	7391051	1031.27	0.3975	0.3909	4412	0.0089	7391054	1077.92	0.3943	0.3738	4474	0.0088	7391055	1109.22	0.3668	0.3954	4394	0.0079	7391051	1105.89	0.3913	0.3920	4418	0.0073	7391053	903.92
94	3	7391051	1031.39	0.3973	0.3909	4414	0.0089	7391054	1077.92	0.3943	0.3738	4473	0.0088	7391055	1109.24	0.3668	0.3954	4394	0.0079	7391051	1105.78	0.3913	0.3920	4418	0.0073	7391053	903.85
95	4	7391051	1031.27	0.3975	0.3920	4412	0.0089	7391054	1077.92	0.3943	0.3738	4474	0.0088	7391055	1109.24	0.3668	0.3954	4394	0.0079	7391051	1105.78	0.3913	0.3920	4418	0.0073	7391053	903.85
96	5	7391051	1030.94	0.3975	0.3927	4415	0.0089	7391054	1077.92	0.3943	0.3738	4474	0.0088	7391055	1109.20	0.3668	0.3954	4391	0.0079	7391051	1105.81	0.3913	0.3920	4417	0.0073	7391053	903.95
97	6	7391051	899.23	0.3979	0.3928	4399	0.0071	7391054	876.58	0.3973	0.3910	4392	0.0092	7391055	626.30	0.3968	0.3970	4399	0.0062	7391051	916.00	0.3969	0.3912	4362	0.0095	7391053	805.55
98	7	7391051	899.23	0.3981	0.3929	4396	0.0087	7391054	898.70	0.3974	0.3792	4341	0.0092	7391055	603.01	0.3110	0.3924	4391	0.0076	7391051	891.24	0.3965	0.3920	4391	0.0095	7391053	808.14
99	8	7391051	832.85	0.3978	0.3924	4402	0.0070	7391054	848.42	0.3989	0.3743	4394	0.0092	7391055	784.43	0.3991	0.3924	4391	0.0076	7391051	891.18	0.3969	0.3911	4399	0.0096	7391053	893.92
100	9	7391051	832.85	0.3974	0.3924	4402	0.0087	7391054	820.26	0.3710	0.3702	4340	0.0091	7391055	493.21	0.3983	0.3909	4440	0.0106	7391051	882.91	0.3758	0.3924	4421	0.0092	7391053	827.84
101	10	7391051	1014.02	0.3974	0.3922	4409	0.0088	7391054	971.98	0.3944	0.3730	4483	0.0092	7391055	997.04	0.3939	0.3953	4418	0.0082	7391051	1008.28	0.3974	0.3923	4413	0.0071	7391053	822.22

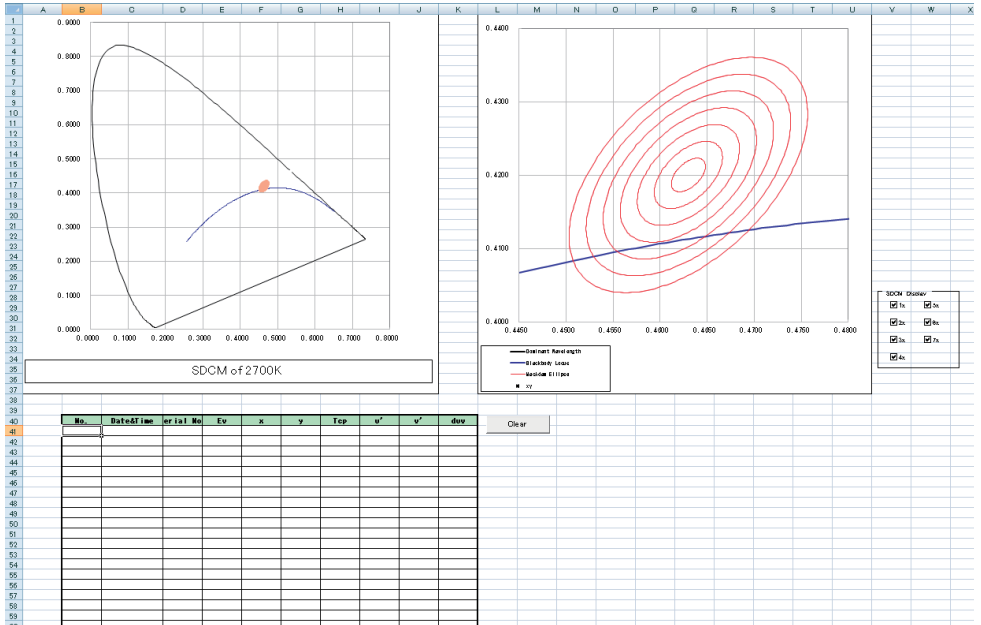
J	B	D	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
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No.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.	Serial No.	Ev	x	y	Tot. div.		
94	1	7391051	1067.69	0.3974	0.3929	4409	0.0089	7391054	1022.02	0.3944	0.3773	4471	0.0096	7391055	1108.69	0.3693	0.3954	4392	0.0076	7391051	1119.03	0.3974	0.3927	4416	0.007	7391053	841.6
95	2	7391051	1063.80	0.3974	0.3929	4409	0.0089	7391054	1088.79	0.3944	0.3772	4470	0.0095	7391055	1088.82	0.3693	0.3956	4392	0.0076	7391051	1104.10	0.3974	0.3927	4416	0.007	7391053	841.6
96	3	7391051	1068.38	0.3975	0.3929	4408	0.0070	7391054	1038.97	0.3944	0.3762	4471	0.0087	7391055	1105.12	0.3693	0.3959	4391	0.0077	7391051	1107.70	0.3974	0.3929	4416	0.007	7391053	841.6
97	4	7391051	1068.69	0.3974	0.3929	4410	0.0089	7391054	1092.70	0.3945	0.3778	4471	0.0096	7391055	1102.95	0.3693	0.3954	4392	0.0076	7391051	1109.01	0.3974	0.3929	4416	0.007	7391053	841.6
98	5	7391051	1064.67	0.3974	0.3929	4410	0.0089	7391054	1099.78	0.3940	0.3777	4472	0.0096	7391055	1098.24	0.3699	0.3954	4391	0.0076	7391051	1079.75	0.3975	0.3929	4416	0.007	7391053	840.9
99	6	7391051	1069.07	0.3974	0.3929	4409	0.0089	7391054	1071.94	0.3944	0.3777	4473	0.0095	7391055	1099.29	0.3693	0.3954	4392	0.0076	7391051	1095.84	0.3974	0.3929	4417	0.007	7391053	841.2
100	7	7391051	1064.94	0.3975	0.3929	4408	0.0089	7391054	1066.00	0.3944	0.3777	4469	0.0095	7391055	1091.60	0.3693	0.3959	4394	0.0076	7391051	1100.13	0.3974	0.3929	4417	0.007	7391053	841.2
101	8	7391051	1070.17	0.3974	0.3929	4409	0.0089	7391054	1078.40	0.3944	0.3778	4470	0.0096	7391055	1108.37	0.3693	0.3954	4391	0.0076	7391051	1100.00	0.3975	0.3929	4417	0.007	7391053	841.2
102	9	7391051	1071.07	0.3975	0.3929	4408	0.0089	7391054	1095.46	0.3944	0.3778	4470	0.0096	7391055	1105.61	0.3693	0.3954	4391	0.0076	7391051	1100.04	0.3974	0.3929	4417	0.007	7391053	841.4
103	10	7391051	1071.00	0.3974	0.3929	4409	0.0089	7391054	1071.84	0.3944	0.3778	4469	0.0095	7391055	1108.11	0.3693	0.3954	4391	0.0076	7391051	1096.36	0.3975	0.3929	4417	0.007	7391053	841.1
104	11	7391051	1069.62	0.3974	0.3929	4409	0.0089	7391054	1063.01	0.3944	0.3777	4468	0.0095	7391055	1099.74	0.3697	0.3954	4391	0.0076	7391051	1084.18	0.3974	0.3929	4413	0.007	7391053	841.3

7. MacAdam ellipse and SDCM

This template shows the chromaticity variation of light sources as a MacAdam ellipse and SDCM (Standard Deviation of Color Matching).



MEMO

MEMO



KONICA MINOLTA