# NIR Moisture Analyzer KB-230

## Kett

PC Software Operating Manual

Ver 1.0.0.2

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## **Precautions**

## Before use

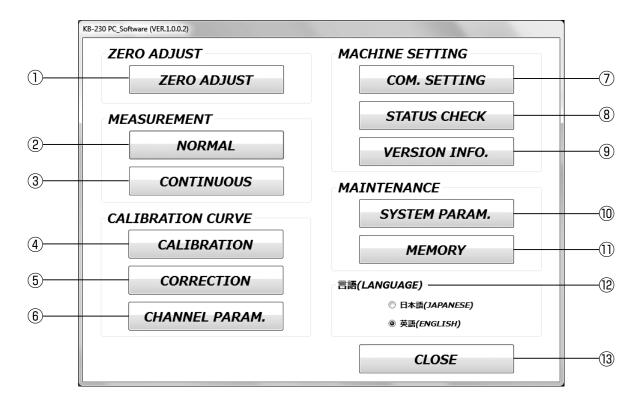
Thank you for purchasing PC Software for NIR Moisture Analyzer KB-230 ("this software" hereafter). Please read this operating manual thoroughly in order to fully use the functions of this PC software.To run this software, an operating system such as ©Microsoft Windows 7/8.1/10 needs to be installed.During operation of this software, the main unit operation of NIR Moisture Analyzer KB-230 is also required. For details of operation, refer to the operating manual of the analyzer.

## Purpose of use

This software provides functions to display or save moisture measurement data obtained using NIR Moisture Analyzer KB-230 and to make calibration curves. It is comprehensive support software to be used for zero-calibration, or setting up the device.

\* Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

## <Main screen>



	Function	Description	Reference
1	Zero-adjustment	Adjusts absorbance using a zero-adjustment plate.	P. 29
2	Normal measurement	Performs measurement in the normal mode. The measurement log can be saved in a file.	P. 9
3	Continuous measurement	Performs measurement in the continuous measurement mode. Samples the moisture or absorbance in the set interval, and displays the trend graph. The measurement data can be saved in a file.	P. 11
4	Calibration	Obtains (measures) calibration data, and calculates the regression based on the entered data and obtains coefficient. Also, it displays the regression calculation results in values and graphs.	P. 15
5	Correction	Corrects the displayed value.	P. 21
6	Channel parameter	Enables checking and changing the channel name and the parameters such as the coefficient.	P. 27
7	Communication setting	Sets the communication port (COM).	P. 8
8	Status check	Enables checking the error and device status.	P. 30
9	Version information	Enables checking the main unit program and the PC software version.	P. 30
10	System parameter	It is only to be used in the maintenance work by the manufacturer.	_
1	Memory maintenance	Customers shall not use this function. Otherwise, data necessary for the normal operation including the unit-specific data may be lost.	P. 31
(12)	Language	Selects an operation language (Japanese or English).	P. 8
(13)	Exiting	Closes the main screen and exit the program.	-

2

## 2. Installation

- \* This PC software runs in the OS of Windows7/8.1/10. There are no special constraints other than OS for this PC software to run. In order to install this software, log in by the administrator authority.
- \* To perform installation, ensure internet-connected environment.
- \* The operation flow with Windows7 is explained as an example.

## 2-1. Installing the USB driver

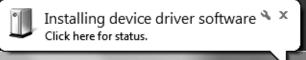
Install the USB driver by either of the following.

## To install the USB driver automatically

## **1** Connect the main unit of KB-230 and the PC. After turning on the main unit of KB-230, connect with the PC using a USB cable.

## **2** Start the installation.

When successfully connected, the following message will be displayed and the driver installation is automatically started.



#### **3** Installation is completed.

When the installation is successfully done, a message will be displayed.

## To install the USB driver manually

#### Download the FTDI's USB driver (VCP).

Download the driver from the following site and save in a given folder.

http://www.ftdichip.com/Drivers/VCP.htm

FTDI	Future Technol THE rise	ogy Device Stabland ad								
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## 2 Extract the driver file.

Extract the driver file in a given folder.

Organize 👻 🏹 Op	en	Include in library +	Share with +	Burn	New folder		80	• 13	. 0
🔆 Favorites	-	Name		Date	modified	Type	5	iae:	
E Desktop		COM v2.12.26 WHQL	Certified	5/18	/2017 10:02 AM	File folder		1	1
B Downloads	$\sim$	1. COM v2.12.26 vm iQi	Certified	5/17	2017 4:34 PM	Compressed (sign	P	1,637 KB	ē.,
B Recent Places									
Libraries									
Documents	1								
Music									
Pictures									
Videos									
Computer									
Local Disk (C:)									

\* Do not use Japanese writing characters (two bytes, one byte).

#### **3** Connect the main unit of KB-230 and the PC.

After turning on the main unit of KB-230, connect with the PC using a USB cable.

\* Even when the following message is displayed, continue the procedures.

Device driver software was not successfully installed \* × Click here for details.

#### **4** Refer to the device property.

Right click on [Other devices | FT232R USB UART].

Cevice Manager	
Ele Action Yiew Help	
** 0 0 00 0 00	
PCVSWTM64032     PCCSWTM64032     Disk drives     Disk drite     Disk drite     Disk drite     Disk drive	

## **5** Property of the USB Serial Port.

Click the [Update Driver...] button.

FT	232R US	B UART Properties	x	J
Г	General	Driver Details		
	17	FT232R USB UAP	Т	
		Device type:	Other devices	
		Manufacturer:	Unknown	
		Location:	Port_#0002.Hub_#0002	
	The Ther elem	e is no driver selecte ent.	e are not installed. (Code 28) d for the device information set or vice, click Update Driver.	
			Update Driver OK Cancel	

## **6** Search for the driver software.

Click the [Browse my computer for driver software] button.

## 2-1. Installing the USB driver

Designate the folder where the FTDI's driver is extracted.

Designate the folder and click the [Next] button.

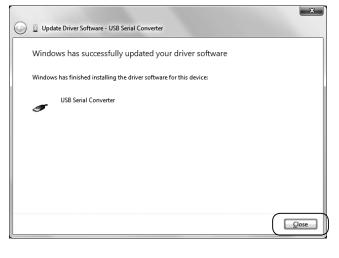
\* To perform searching including the sub folders, check mark "Include subfolders".

O	Update Driver Software - FT232R USB UART
	Browse for driver software on your computer
	Scarch for driver software in this location: CAKB-230\CDM v2:12.26 WHQL Certified I jnclude subfolders I cake subfolders
	Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
	Cancel

## **8** During installation.

0	Update Driver Software - FT232R USB UART	
	nstalling driver software	

## **9** Installation is completed.



## **10** Property of USB Serial Converter.

Click the [Close] button.

USB Serial	Converter Prope	rties	x
General	Driver Details		
5	USB Serial Conv	erter	
	Device type:	Other devices	
	Manufacturer:	FTDI	
	Location:	Port_#0002.Hub_#0002	
This	device is working p	property.	*
			Ŧ
		Close	Cancel

## **1** Refer to the device property.

Right click on [Other devices | USB Serial Port].

Device Manager	X - Eran
Ele Action Yiew Help	
** 0 0 00 0 040	
Batteries	
p 📲 Computer	
Disk drives	
Display adapters	
DVD/CD-ROM drives	
DE ATA/ATAPI controllers	
Imaging devices	
Keyboards	
Mice and other pointing devices	
p 📲 Monitors	
Network adapters	
Other devices	
B USB Serial Port	
p Processors	
Security Devices	
> 229 Sensors	
b - Sound, video and game controllers	
System devices	
b - Universal Senal Bus controllers	

## **12** Property of the USB Serial Port.

When the following window is displayed, click the [Update Driver...].

USB Se	erial	Port Properties		x
Gene	eral	Driver Details		
•	?	USB Serial Port		
		Device type:	Other devices	
		Manufacturer:	Unknown	
		Location:	on USB Serial Converter	
- -	The o There eleme	e is no driver selecte ent.	e are not installed. (Code 28) d for the device information set or	•
	To fir	nd a driver for this de	vice, click Update Driver.	-
			Update Driver	
			ОК Са	ncel

## **13** Search for the driver software.

Click the [Browse my computer for driver software] button.

Hov	v do you want to search for driver software?
*	Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
\$	Browse my computer for driver software Locate and install driver software manually.

- **14** Designate the folder where the FTDI's driver is extracted. Designate the folder and click the [Next] button.
- \* To perform searching including the sub folders, check mark "Include subfolders".

G	Update Driver Software - USB Serial Port
	Browse for driver software on your computer
	Search for driver software in this location: C:XKB-230\CDM v2.12.26 WHQL Certified Include subfolders Include subfolders
	Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
	Next Cancel

## 15 During installation.

Installing drive	software		

## **16** Installation is completed.

Windows has succes	sfully updated your	driver software	
Windows has finished insta	illing the driver software fo	r this device:	
USB Serial Port			

## **17** Property of the USB Serial Port

Click the [Close] button.

USB Serial	Port (COM4) Pro	perties	×
General	Driver Details		
đ	USB Serial Port (	COM4)	
	Device type:	Other devices	
	Manufacturer:	FTDI	
	Location:	on USB Serial Converter	
Devic	ce status		
This	device is working p	roperly.	*
			-
		Close	Cancel

## 2-2. Installing the PC software

#### Set the disk to the CD drive.

Double-click [Start]  $\rightarrow$  [Computer]  $\rightarrow$  [Disk drive]. Copy the setup file in the disk to the desktop, and double-click (

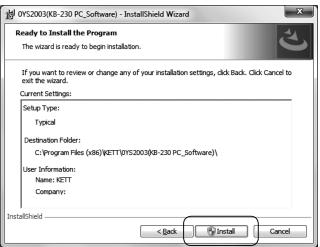
## **2** Start the setup.

Click the [Next] button.



## **3** Start the installation.

Click the [Install] button.



\* Click the [Yes] button when "Do you want to allow the following program from an unknown publisher to make changes to this computer?" is displayed.

#### 4 Installation is completed. Click the [Finish] button.

岁 0YS2003(KB-230 PC_Software	e) - InstallShield Wizard
	InstallShield Wizard Completed The InstallShield Wizard has successfully installed 0YS2003(KB-230 PC_Software). Click Finish to exit the wizard.
	< Back Cancel Cancel

#### Create a short-cut.

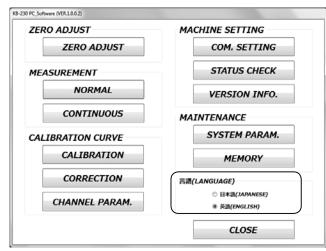
5

When the installation is successfully done, a short-cut icon will be created on the desk top (

#### **6** Start up the PC software.

Double-click the short-cut icon ( ), and start up the PC software.

## 3-1. Selecting the language



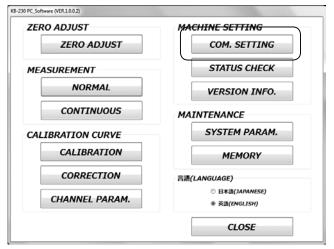
Select the language in the main screen (Japanese/English).

## 3-2. Setting up communication

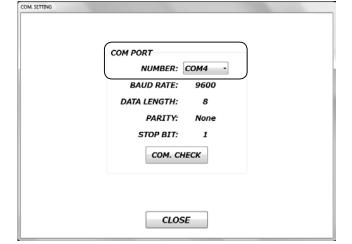
The following is describes items to be set to connect between main unit of KB-230 and the PC.

Connect the main unit of KB-230 and the PC. Use the designated USB cable (VZC-61).

### 2 Click the [COM.SETTING] button in the main screen.



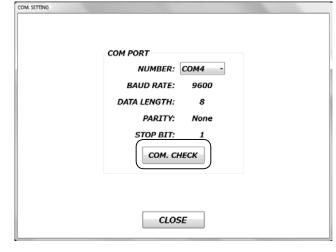
- Set the communication port (COM). Set the COM port number.
- \* The COM port number can be checked with the device manager.



#### Check the communication.

When the [Communication Test] button is clicked, "OK!" will be displayed.

- \* If a message "The port 'COM--' does not exist." is displayed, click the [OK] button, and check the COM port after returning to the "COM. SETTING" screen.
- \* The main screen can be restored by clicking the [CLOSE] button in the "COM. SETTING" screen.





 When "COMMUNICATION NG" is displayed, check the connection and breaks in the communication cable and the COM port number again.

## 4. Measurement

## 4-1. Normal measurement

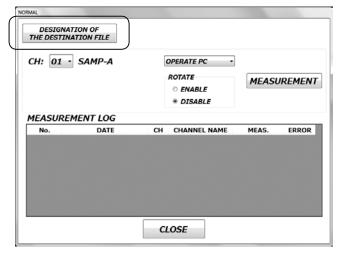
In the normal measurement, measurement can be performed in the normal mode and the measurement log can be saved in a file.

#### **1** Click the [NORMAL] button in the main screen.

30 PC_Software (VER.1.0.0.2)	
ZERO ADJUST	MACHINE SETTING
ZERO ADJUST	COM. SETTING
MEASUREMENT	STATUS CHECK
NORMAL	VERSION INFO.
CONTINUOUS	MAINTENANCE
CALIBRATION CURVE	SYSTEM PARAM.
CALIBRATION	MEMORY
CORRECTION	言語(LANGUAGE)
CHANNEL PARAM.	○ 日本語(JAPANESE) ◎ 英語(ENGLISH)
	CLOSE

#### **2** Designate the destination file.

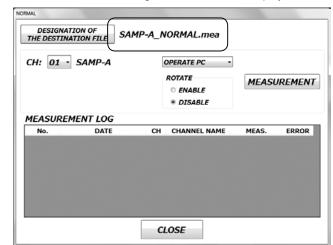
Click the [DESIGNATION OF THE DESTINATION FILE] button.



#### Designate a folder and "File name" in the "Save As" window.

) 🔾 = 🗐 🗐 🖉	ers + KETT + My Documents + KE	3-230 • Data	• + Search	Data
Organize • Ne	w folder			H• (
Favorites Favorites Desktop Downloads Recent Places Ubraries Documents Music Pictures Videos Computer	Name E	Date modifi		Size
File name:	SAMP-A_NORMAL			
Save as type:	RESULT OF A MEASUREMENT FILE("#	nea)		

- \* The default saving destination is My Document\KB-230\Data.
- \* A new file will be created when the file is named and saved.
- \* When an existing file is selected, the file is opened and the measurement log will be displayed.

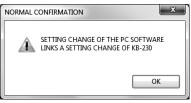


#### Set up the measurement channel.

Select a measurement channel.

DESIGNATION OF THE DESTINATION FILE SAM	P-A_NORMAL.mea	MEASUREMENT
03 04 MEAS 05 MENT LOG 06 07 DATE 08 09 10 -	CH CHANNEL NAME	MEAS. ERROR
	CLOSE	

\* Note that when the measurement channel is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.



The file name of the saving destination will be displayed.

- 4 Select whether to rotate or stop the rotation table by selecting "ENABLE" or "DISABLE".
- \* Note that when the rotation setting of the rotation table is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.

DESIGNATION OF THE DESTINATION FILE	AMP-A_NORMAL.mea		
CH: 01 • SAMP-A	OPERATE PC • ROTATE © ENABLE * DISABLE	MEASU	IREMENT
MEASUREMENT LOG			
No. DATE	CH CHANNEL NAME	MEAS.	ERROR
	CLOSE		

#### **5** Select the measurement operation.

Select either "OPERATE KB-230" or "OPERATE PC".

DESIGNA THE DESTIN	TION OF ATION FILE SA	MP-A_N	ORMAL.mea		
СН: 01	SAMP-A	0	PERATE PC • PERATE KB-230 PERATE PC © ENABLE ® DISABLE	MEASU	IREMENT
MEASURE	MENT LOG				
No.	DATE	CH	CHANNEL NAME	MEAS.	ERROR
		CL	OSE		

#### When "OPERATE KB-230" is selected

The measurement can be started by clicking the [MEA.] button of the KB-230. The result will be displayed when the measurement is done.

	GNATION OF TINATION FILE SAM	P-A_N	IORMAL.mea		
СН: 0	т • samp-a <b>5.4</b>		OPERATE KB-230 - ROTATE © ENABLE ® DISABLE	MEASU	JREMENT
MEASU	REMENT LOG				
No.	DATE	СН	CHANNEL NAME	MEAS.	ERROR
1	5/18/2017 10:56:22 .	01	SAMP-A	5.4	
		С	LOSE		

#### When "OPERATE PC" is selected

The measurement can be started by clicking the [MEASUREMENT] button of the PC software.

DESIGNATION OF THE DESTINATION FILE SAM	1P-A_NORMAL.mea	
CH: 01 · SAMP-A	OPERATE PC ROTATE © ENABLE * DISABLE	MEASUREMENT
MEASUREMENT LOG		
No. DATE	CH CHANNEL NAME	MEAS. ERROR
	CLOSE	

The result will be displayed when the measurement is done.

	NATION OF INATION FILE SA	MP-A_I	NORMAL.mea		
СН: 01	• samp-a <b>5.4</b>		OPERATE PC • ROTATE © ENABLE ® DISABLE	MEASU	JREMENT
MEASUR	REMENT LOG				
No.	DATE	СН	CHANNEL NAME	MEAS.	ERROR
1	5/18/2017 10:58:56	01	SAMP-A	5.4	

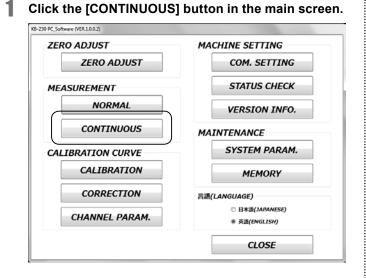
The log will be displayed/saved in the order of measurement.

сн: о	1 · SAMP-A	[	OPERATE PC -		
	8.3		ROTATE © ENABLE ® DISABLE	MEASU	JREMEN
IEASU	IREMENT LOG				
No.	DATE	СН	CHANNEL NAME	MEAS.	ERROR
1	5/18/2017 10:58:56	01	SAMP-A	5.4	
2	5/18/2017 10:59:47	01	SAMP-A	5.4	
3	5/18/2017 11:00:04	01	SAMP-A	5.0	
4	5/18/2017 11:00:16	01	SAMP-A	5.0	
5	5/18/2017 11:00:33	01	SAMP-A	6.4	
6	5/18/2017 11:00:51	01	SAMP-A	6.4	
7	5/18/2017 11:01:05	01	SAMP-A	8.4	
8	5/18/2017 11:01:16	01	SAMP-A	8.3	

## 4-2. Continuous measurement

## • Starting the measurement

After measuring in the continuous measurement mode, sample the moisture or absorbance in the set interval and displays the trend graph. The measurement data can be saved in a file. Refer to P.14 for the items to be displayed in the graph.



## **?** Connect the main unit of KB-230.

Click the [CONNECTION] button to connect the main unit of KB-230.

\* During connection, the [CLOSE] button is disabled. To close the screen, click the [CUT OFF] button.

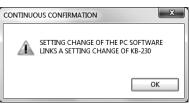
CONNECTION	REC. CY	CLE: <b>2</b> • S	CH: ROTATE © ENABLE	O DISABLE
INDICATION OF THE RESULT OF MEASUREMENT FILE		OF THE RESULT IREMENT FILE		
AUTO 100.000				
↑ 75.000				
+ 50.000				
- 25.000				
↓ 0.000				
GRAPH SELECT 0.00 ◎ MEAS ←	-	0.50 + SCROLL	0.75 →	MINUTE 1.00
O ABS. CLOS	E		MANUAL	MAXIMIZATION

## **3** Select a measurement channel.

Select a measurement channel.

CUT OFF	REC. CYCLE: 2 S	○ E02 = ● DISABLE
INDICATION OF THE RESULT OF MEASUREMENT FILE	SETTING OF THE RESULT OF MEASUREMENT FILE	05 0.0
AUTO 100.000		07 08 09 10 -
↑ 75.000		
+ 50.000		
- 25.000		
↓ 0.000		
GRAPH SELECT 0.00 ◎ MEAS. ←	0.25 0.50 - + SCROLL	0.75 MINUTE 1. → AUT
© ABS. CLOSE		O MANUAL

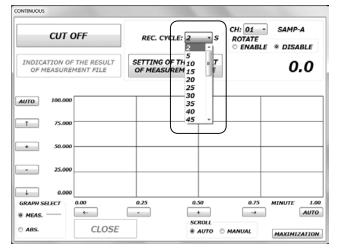
 Note that when the measurement channel is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.



#### Select the recording cycle.

Δ

Select the seconds for the "REC.CYCLE".



#### 5 Select the type of the graph.

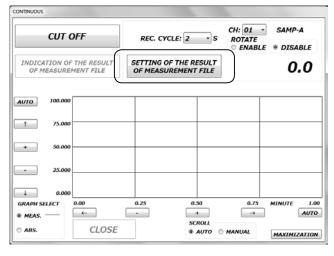
Select either "MEAS." or "ABS." as the item to be displayed in the graph.

\* The item to be displayed is only the measurement data or the absorbance. However, both data will be saved in the file. It is possible to switch the display item during the measurement.

СИТ	OFF	REC. CY	CLE: 2 • S	CH: 01 ROTATE © ENABLE	SAMP	
INDICATION O OF MEASURI			F THE RESULT REMENT FILE		0	.0
AUTO 100.00	2					
↑ 75.00						
+ 50.00						
- 25.00						
↓ 0.00						
GRAPH SELECT MEAS. —— ABS.	0.00 CLOSE	0.25	0.50 + SCROLL © AUTO	0.75 →	MINUTE	1.0 AUTO

## **6** Set up the measurement result file.

Click the [SETTING OF THE RESULT OF MEASUREMENT FILE] button.



### Designate a folder and "File name" in the "Save As" window.

) 🗍 🗐 🖉 🖉	KETT + My Documents + KB-230 + E	Jota 👻	++ Search Do	ta .	
Organize • New fo	lder			3H •	6
🔆 Favorites	Name	Date modified	Type	Size	
Desktop Downloads Recent Places	SAMP-A_NORMAL.mea	5/18/2017 11-01 AM	MEA File	1	KB
Libraries Documents Music					
Pictures Videos					
Computer					
File name: SAI	MP-A_CONTINUOUS.mea				
- Constant and Later	ULT OF MEASUREMENT FILE(".mea)				

\* The default saving destination is My Document\KB-230\Data.

CUT OFF	REC. CYCLE: 2	CH: 01 SAMP-A ROTATE © ENABLE ® DISABLE
INDICATION OF THE RESULT OF MEASUPEMENT FILE	START OF THE RECORD	0.0
SAMP-A_CONT	INUOUS.mea	
↑ 75.000		
+ 50.000		
- 25.000		
↓ 0.000 GRAPH SELECT 0.00 © MEAS. ←	0.25 0.50 - +	0.75 MINUTE 1. → AUT
© ABS. CLOSE	SCROLL a AUTO	O MANUAL

## Start recording.

7

Click the [START OF THE RECORD] button.

CONTINUOUS						
	сит о	DFF	REC. CY	CLE: 2 - S	CH: 01 ROTATE © ENABL	SAMP-A
		THE RESULT MENT FILE	START OF	THE RECORD		0.0
		SAMP-A_CON	TINUOUS.me	3	_	
AUTO	100.000					
<u>↑</u>	75.000					
+	50.000		_			
-	25.000		_			
<b>_</b>	0.000					
GRAPH S	ELECT	0.00	0.25	0.50	0.75	MINUTE 1.00
MEAS.		-	-	+ SCROLL	→	Αυτο
O ABS.		CLOSE			MANUAL	MAXIMIZATION

Recording to the measurement data file and displaying in a graph is started.

\* Refer to P.14 for scaling the graph and items to be displayed in the graph.

	CUT O	FF	REC. CY	CLE: 2 *	CH: 01 ROTATE © ENAB	SAMP-A
	ATION OF 1EASUREM	THE RESULT IENT FILE	THE END O	F THE RECOR	D	8.7
		SAMP-A_CON	TINUOUS.mea	,		
AUTO	100.000					
î	75.000					
+	50.000					
-	25.000					
Ļ	0.000		/			
GRAPH S MEAS.	<u>elect</u>	€	0.25	0.50 + SCROLL	0.75 →	MINUTE 1.
O ABS.		CLOSE		SCROLL	O MANUAL	MAXIMIZATIO

#### Terminate recording.

Click the [THE END OF THE RECORD] button. The recording to the measurement data file will be terminated.

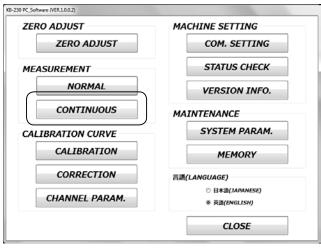
The file name of the saving destination will be displayed.

## 4-2. Continuous measurement

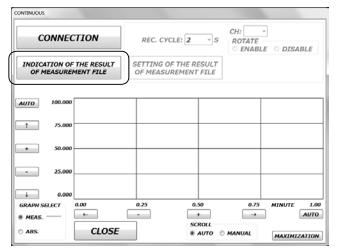
## • Opening the stored data

Open a saved measurement data and display a graph.

### Click the [CONTINUOUS] button in the main screen.



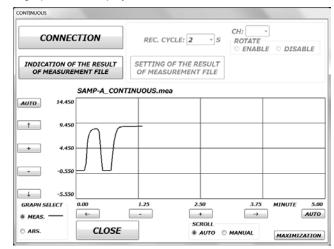
## Click the [INDICATION OF THE RESULT OF MEASUREMENT FILE] button.



Designate a folder and "File name" in the "Open" dialog window, and click the [Open] button.

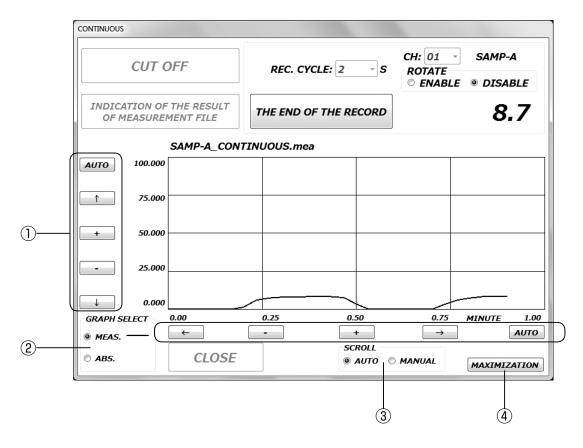
Organize • New folde	4			\$H •	11	
🕆 Favorites 🙃	Name	Date modified	Туре	Size		
E Desktop	SAMP-A_CONTINUOUS.mea	5/18/2017 11:10 AM	MEA File		5 KB	
Downloads  Control Control  C	SAMP-A_NORMALmee	5/18/2017 11:01 AM	MEA File		1.68	
Computer	ime: SAMP-A_CONTINUOUS-mea	)	- RESURT C		DNT FIL	

A graph will be displayed.



\* Refer to P.14 for scaling the graph and items to be displayed in the graph.

## <Graph window>

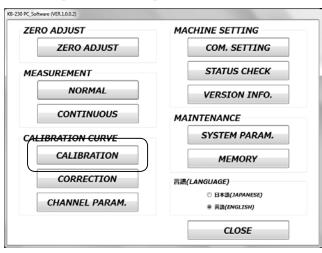


	Function	Description
1	Graph scaling	Scale up or down the displayed graph. [+][-]: Scales up/down. [↑][↓][←][→]: Moves the cursor. [AUTO]: Scales automatically.
2	Switching the graph	Select either "MEAS." or "ABS." as the item to be displayed in the graph.
3	Scroll	Either "AUTO" or "MANUAL" can be selected.
4	Maximize	Maximizes the screen.

## 5-1. Making a calibration curve

Obtain the optical measurement data of the samples to be used for making calibration curves, enter the sampling amount, perform calibration, and make calibration curves.

Click the [CALIBRATION] button in the main screen.



The "CALIBRATION" will be displayed.

	RATION RESU			
DATE			BRATIO	V GRAPH
	STD. VALUE	X1	X2	DATA READING
				NEW MEASUREMENT
				START OF MEASUREMEN
				SELECT USE ABS.:
				CALCULATION
				SAVE CALIBRATION DATA FILE
	8			-

#### <About tabs>

Calibration data

Enables obtaining absorbance data from the sample measurement, entering standard moisture, and executing calculation.

Result of calibration

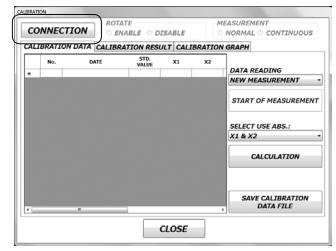
Displays the result of regression calculation.

#### Calibration graph

Displays the calibration curve in a graph, enables writing the channel parameters to KB-230 and printing out.

2 Connect the main unit of KB-230.

Click the [CONNECTION] button to connect the main unit of KB-230.



## **3** Select data to load.

Select the data to load. The following four data are available.

	CUT OF		ATE NABLE ® DI	SABLE		EASUREMENT NORMAL ® CONTINUOUS
AL	IBRATION	DATA CALIBR	ATION RESU	ILT CALL	BRATION	GRAPH
*	No.	DATE	STD. VALUE	X1	X2	DATA READING NEW MEASUREMENT NEW MEASUREMENT CALIB. DATA FILE KB-230 CALIB. DATA MEASURE DATA FILE SELECT USE ABS.: X1 & X2 CALCULATION
•					,	SAVE CALIBRATION DATA FILE
				CLOSE		

New measurement

When creating a calibration curve by performing new measurement

- $\rightarrow$  Proceed to step 4.
- Calibration data file

When making a calibration curve by using existing calibration data files (addition, deletion, re-calculation etc.)

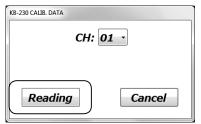
→ Designate a folder and "File name" in the "Open" dialog window, and click the [Open] button. (File extension: .cal)

Organize • Nev	w folde	,			5H •	11	6
2 Favorites	-	Name	Date modified	Туре	Size		
Desktop		SAMP-A_CALIBRATION.cal	5/18/2017 11:25 AM	CAL File		1 K8	
Libraries     Documents     Music     Pictures     Videos	H						
Computer	4						

#### Main unit calibration data

When creating calibration curves using calibration data saved by KB-230

#### $\rightarrow$ Select a number for CH, and click the [READING] button.



#### Measurement data file

When creating calibration curves using the normal measurement data or the continuous measurement data.

→ Designate a folder and "File name" in the "Open" dialog window, and click the [Open] button. (File extension: .mea)

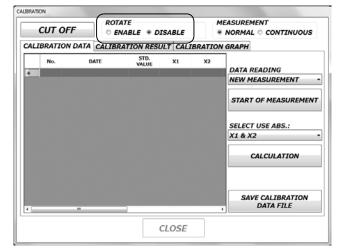
Drganize - New folde					11	6
	Name	Date modified	Type	Size	1.18	-
7 Favorites	SAMP-A_CONTINUOUS.mea	5/18/2017 11:10 AM	MEA File		5 KB	
B Downloads	SAMP-A_CONTINUOUS.mea	5/18/2017 11:10 AM			1.68	
1 Recent Places			100000000			
1						
Libraries     Documents     Music     Pictures     Videos						
Computer						
Documents  Music  Pictures						

\* The following message will be displayed when performing step 3 "Select data to load" while data has been already leaded.

CALIBRATION
DO YOU WANT TO OVERWRITE THE DATA? CLICK "YES" TO OVERWRITE. CLICK "NO" TO ADD DATA. CLICK "CANCEL" TO STOP THE PROCESS.
Yes No Cancel

#### 4 Select whether to rotate or stop the rotation table by selecting "ENABLE" or "DISABLE".

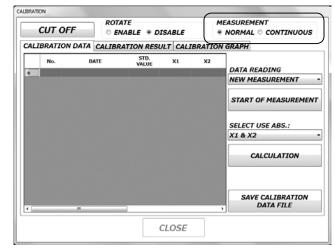
\* Note that when the rotation setting of the rotation table is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.



### 5 Select a measurement mode.

Select either "NORMAL" or "CONTINUOUS" as a measurement mode.

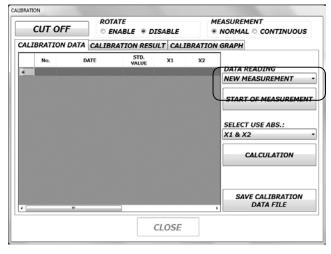
 Note that when the measurement mode is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.



## **6** Start a measurement.

#### In the case of normal measurement

Click the [START OF MEASUREMENT] button to start a measurement.



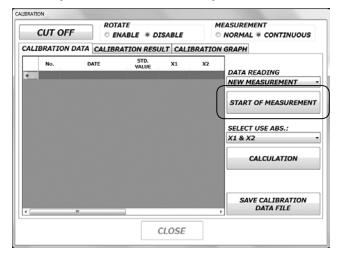
When the measurement is complete, the absorbance is obtained and the result is displayed.

CUT OFF					EASUREMENT NORMAL © CONTINUOUS		
ALI	BRAT	ION DATA	CALIBRAT	ION RESU	ILT CALIB	RATION	GRAPH
Γ	No.	D	ATE	STD. VALUE	X1	X2	)
	1	5/18/2017	11:32:27 AM		0.5630	0.5220	DATA READING
** (							NEW MEASUREMENT
							START OF MEASUREMEN
							SELECT USE ABS.:
							X1 & X2
							CALCULATION
•		ш				,	SAVE CALIBRATION DATA FILE
				(	CLOSE		

Continue measurements to obtain absorbance data.

	сит	OFF		: BLE ® DISA	ABLE	MEASUREMENT NORMAL   CONTINUOU		
ALI	BRAT	ON DATA	CALIBRAT	ION RESULT	CALIB	RATION	GRAPH	
	No.	D	ATE	STD. VALUE	X1	X2 ^	]	
	4	5/18/2017	11:33:46 AM		0.5353	0.517¢	DATA READING	
	5	5/18/2017	11:33:57 AM		0.5353	0.5170	NEW MEASUREMENT	
	6	5/18/2017	11:34:07 AM		0.5355	0.5172		
	7	5/18/2017	11:34:25 AM		0.5455	0.5190	START OF MEASUREMENT	
	8	5/18/2017	L1:34:35 AM		0.5446	0.5194	START OF PLEASUREMENT	
	9	5/18/2017	1:34:46 AM		0.5445	0.5194		
	10	5/18/2017	11:35:05 AM		0.5532	0.5170	SELECT USE ABS.:	
	11	5/18/2017	11:35:16 AM		0.5537	0.5179		
	12	5/18/2017	11:35:27 AM		0.5539	0.518(=	X1 & X2	
	13	5/18/2017	11:35:48 AM		0.5897	0.5310		
	14	5/18/2017	11:35:58 AM		0.5897	0.5318	CALCULATION	
	15	5/18/2017	11:36:09 AM		0.5896	0.5313		
	16	5/18/2017	L1:36:26 AM		0.5981	0.5350		
	17	5/18/2017	L1:36:37 AM		0.5979	0.5351		
	18	5/18/2017	11:36:48 AM		0.5984	0.5355		
++							SAVE CALIBRATION	
							DATA FILE	
•						,		
				CL	OSE			

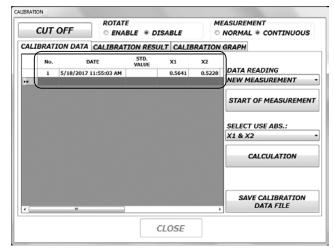
In the case of continuous measurement
 Click the [START OF MEASUREMENT] button.



The continuous measurement is started and obtained absorbance data will be displayed or updated. At this point, data is not fixed. The data will be fixed by clicking the [SAMPLING] button.

ALIBRATION						
CUT	OFF	ROTATI ENA	E BLE ® DI	SABLE		ASUREMENT NORMAL ® CONTINUOUS
CALIBRAT	ION DATA	CALIBRAT	ION RESU	LT CALIB	RATION	GRAPH
No.	D	ATE	STD. VALUE	X1	X2	
H# 1	5/18/2017	11:52:18 AM		0.5473	0.5058	DATA READING
						NEW MEASUREMENT .
						SAMPLING
						SELECT USE ABS.:
						CALCULATION
4						SAVE CALIBRATION DATA FILE
			C	LOSE		

Continue measurements	to obtain	absorbance	data.
-----------------------	-----------	------------	-------



CAL

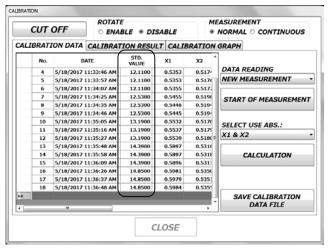
### **7** Enter the standard moisture.

Enter the standard moisture content of the sample.

	CUT OFF			© ENABLE ® DISABLE			MEASUREMENT NORMAL  CONTINUOUS		
CALIBRATION DATA			CALIBRAT	ION RESULT	CALIB	BRATION GRAPH			
	No.	D	ATE	STD. VALUE	X1	X2			
	1	5/18/2017	11:32:27 AM	13.5000	0.5630	0.5220	DATA READING		
•	2	5/18/2017	11:33:13 AM		0.5626	0.522(	NEW MEASUREMENT		
	3	5/18/2017	11:33:24 AM	$ \longrightarrow $	0.5629	0.5220			
	4	5/18/2017	11:33:46 AM		0.5353	0.5174	START OF MEASUREMENT		
	5	5/18/2017	11:33:57 AM		0.5353	0.5176	CHART OF THEADOREFIELD		
	6	5/18/2017	11:34:07 AM		0.5355	0.5172			
	7	5/18/2017	11:34:25 AM		0.5455	0.519( <sup>E</sup>	SELECT USE ABS.:		
	8	5/18/2017	11:34:35 AM		0.5446	0.5194			
	9	5/18/2017	11:34:46 AM		0.5445	0.5194	X1 & X2		
	10	5/18/2017	11:35:05 AM		0.5532	0.5170			
	11	5/18/2017	11:35:16 AM		0.5537	0.5179	CALCULATION		
	12	5/18/2017	11:35:27 AM		0.5539	0.5180			
	13	5/18/2017	11:35:48 AM		0.5897	0.5316			
	14	5/18/2017	11:35:58 AM		0.5897	0.5318	1		
	15	5/18/2017	11:36:09 AM		0.5896	0.5313			
	16	5/18/2017	11:36:26 AM		0.5981	0.5350	SAVE CALIBRATION		
1	17	5/18/2017	11-36-37 AM		A 5979	0 5351	DATA FILE		
				CLO	OSE	7	Ju		

Enter the standard moisture content of all the samples to be used in the calculation.

The data whose "STD. VALUE" is blank cannot be used in the calculation.



#### **8** Save the calibration data.

Click the [SAVE CALIBRATION DATA FILE] button.

	CUT OFF			E BLE ® DI:	SABLE		ASUREMENT NORMAL © CONTINUOUS
ALIBRATION DATA CALIBRAT				ION RESU	GRAPH		
	No.	D	ATE	STD. VALUE	X1	X2 ^	
	4	5/18/2017	11:33:46 AM	12.1100	0.5353	0.517 <sup>z</sup>	DATA READING
	5	5/18/2017	11:33:57 AM	12.1100	0.5353	0.5170	NEW MEASUREMENT
	6	5/18/2017	11:34:07 AM	12.1100	0.5355	0.5172	
	7	5/18/2017	11:34:25 AM	12.5300	0.5455	0.5190	START OF MEASUREMENT
	8	5/18/2017	11:34:35 AM	12.5300	0.5446	0.5194	CHART OF FIERDOREFIELD
	9	5/18/2017	11:34:46 AM	12.5300	0.5445	0.5194	·
	10	5/18/2017	11:35:05 AM	13.1900	0.5532	0.5170	SELECT USE ABS.:
	11	5/18/2017	11:35:16 AM	13.1900	0.5537	0.5179	
	12	5/18/2017	11:35:27 AM	13.1900	0.5539	0.518( ≡	X1 & X2
	13	5/18/2017	11:35:48 AM	14.3900	0.5897	0.5310	
	14	5/18/2017	11:35:58 AM	14.3900	0.5897	0.5318	CALCULATION
	15	5/18/2017	11:36:09 AM	14.3900	0.5896	0.5313	
	16	5/18/2017	11:36:26 AM	14.8500	0.5981	0.5350	
	17	5/18/2017	11:36:37 AM	14.8500	0.5979	0.5351	
	18	5/18/2017	11:36:48 AM	14.8500	0.5984	0.5355	
						-	SAVE CALIBRATION DATA FILE
•	_					,	DATATILL
				C	LOSE		

Designate a folder and "File name" in the "Save As" window.

Organize - New folder			311 .	
Favorites     Evoluties     Evolution     Scatter     Scatter	Date modified 5/18/2017 11:25 AM	Type CAL File	Size	1 K8
Videos Computer File game SAMP-B, CAUBRATION.cs( Sove as type: (CAL FRES(:sa) Hide folders		Save		ncel

The default saving destination is My Document\KB-230\Data.

#### 9 Select an absorbance.

\*

Select an absorbance to be used for calculation. The absorbance can be selected from three types: X1 & X2 / X1 / X2

#### \* In the normal cases, select X1 or X2.

C	CUT OFF		© ENABLE ® DISABLE			MEASUREMENT NORMAL  CONTINUOUS		
ALIBRATION DATA CALIBRAT			TION RESUL	LT CALIB	RATION	GRAPH		
	No.	D	ATE	STD. VALUE	X1	X2 1		
	4	5/18/2017	11:33:46 AM	12.1100	0.5353	0.517	DATA READING	
	5	5/18/2017	11:33:57 AM	12.1100	0.5353	0.5170	NEW MEASUREMENT	
	6	5/18/2017	11:34:07 AM	12.1100	0.5355	0.5172		
	7	5/18/2017	11:34:25 AM	12.5300	0.5455	0.5190	START OF MEASUREMEN	
	8	5/18/2017	11:34:35 AM	12.5300	0.5446	0.5194	CHART OF THEADOREFIELD	
	9	5/18/2017	11:34:46 AM	12.5300	0.5445	0.5194		
	10	5/18/2017	11:35:05 AM	13.1900	0.5532	0.5170	SELECT USE ABS.:	
	11	5/18/2017	11:35:16 AM	13.1900	0.5537	0.5179		
	12	5/18/2017	11:35:27 AM	13.1900	0.5539	0.518(	X1 & X2	
	13	5/18/2017	11:35:48 AM	14.3900	0.5897	0.5310	X1 & X2	
	14	5/18/2017	11:35:58 AM	14.3900	0.5897	0.5318	XI	
	15	5/18/2017	11:36:09 AM	14.3900	0.5896	0.5313	<u>X2</u>	
	16	5/18/2017	11:36:26 AM	14.8500	0.5981	0.5350		
	17	5/18/2017	11:36:37 AM	14.8500	0.5979	0.5351		
	18	5/18/2017	11:36:48 AM	14.8500	0.5984	0.5355		
							SAVE CALIBRATION	
•							DATA FILE	

## **10** Execute calculation.

Click the [CALCULATION] button.

сит	CUT OFF			BLE		EASUREMENT NORMAL © CONTINUOUS	
ALIBRAT	ION DATA	CALIBRAT	TON RESULT	CALIB	RATION	GRAPH	
No.	D	ATE	STD. VALUE	<b>X</b> 1	X2 ^		
4	5/18/2017	11:33:46 AM	12.1100	0.5353	0.517¢	DATA READING	
5	5/18/2017	11:33:57 AM	12.1100	0.5353	0.5170	NEW MEASUREMENT	
6	5/18/2017	11:34:07 AM	12.1100	0.5355	0.5172		
7	5/18/2017	11:34:25 AM	12.5300	0.5455	0.5190	START OF MEASUREMENT	
8	5/18/2017	11:34:35 AM	12.5300	0.5446	0.5194	START OF PIEASOREPIEI	
9	5/18/2017	11:34:46 AM	12.5300	0.5445	0.5194		
10	5/18/2017	11:35:05 AM	13.1900	0.5532	0.5170	SELECT USE ABS.:	
11	5/18/2017	11:35:16 AM	13.1900	0.5537	0.5179		
12	5/18/2017	11:35:27 AM	13.1900	0.5539	0.518(=	X1 & X2	
13	5/18/2017	11:35:48 AM	14.3900	0.5897	0.5310		
14	5/18/2017	11:35:58 AM	14.3900	0.5897	0.531	CALCULATION	
15	5/18/2017	11:36:09 AM	14.3900	0.5896	0.531		
16	5/18/2017	11:36:26 AM	14.8500	0.5981	0.5350		
17	5/18/2017	11:36:37 AM	14.8500	0.5979	0.5351		
18	5/18/2017	11:36:48 AM	14.8500	0.5984	0.5355		
+						SAVE CALIBRATION	
						DATA FILE	

When the calibration is complete, the following message will be displayed.

The "CALIBRATION RESULT" tab will be displayed when the [OK] button is clicked.



#### **1** Display the calibration result.

The result of calibration will be displayed in the "CALIBRATION RESULT" tab.

When "X1 & X2" is selected for "SELECT USE ABS.", two types of calibration curves will be created.

The recommended calibration curve will be displayed at the left side. (FACTOR 1 / FACTOR 2).

CUT OFF	© ENABLE	ISABLE		SUREMENT ORMAL © CONTIN	uous
BRATION DATA	CALIBRATION	RESULT CALI	BRATION G	RAPH	
	BER OF THE SAMPL				
n	EM	FACTOR2		FACTOR1	)
CROSS VALIDATI	ON RESULT(SECV)		0.11062	0.20296	
MULTIPLE CORRE	LATION(R)		0.99838	0.98917	
CONTRIBUTION	RATIO(R2)		0.99675	0.97847	
STD. DEVIATION	(SEC)		0.05640	0.14526	
a0			11.2227	-14.0302	
ə1			59.3879	38.5069	
a2			59.7318	10.9518	)
STANDARD VALUE	CALCULATED VALUE(F2)	RESIDUAL ERROR(F2)	CALCULATED VALUE(F1)	RESIDUAL ERROR(F1)	
13.5000	13.4781	0.02185	13.366	0 0.13404	
13.5000	13.4544	0.04561	13.350	6 0.14944	
13.5000	13.4722	0.02779	13.362	0.13789	
12.1100	12.1079	0.00213	12.248	-0.13894	
12.1100	12.0959	0.01408	12.251	.1 -0.14113	
•					
		CLOSE			

## Items of the calibration result STD. DEVIATION (SEC)

With the regression calculation result obtained from the calibration curves created using KB-230, the standard error of multiple regression will be output as "Se: Standard error of regression". With the PC software, "STD. DEVIATION (SEC)" will be output as the standard deviation between the predicted value and the standard value.

#### **RESIDUAL ERROR**

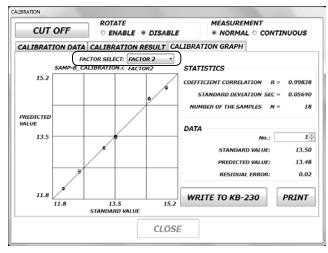
The error between the predicted value and the standard value that exceeds twice of "STD. DEVIATION (SEC)" will be displayed with the red background color.

#### **RECOMMENDED FACTOR**

With a small number of samples, the credibility of the recommended factor decreases. If the result is not appropriate, it may be improved by increasing the number of samples.

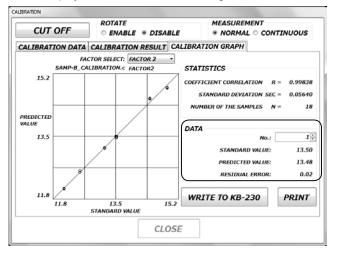
## **12** Display the calibration graph.

Click the "CALIBRATION" tab. The calibration result will be displayed. The graph can be switched with "FACTOR SELECT".



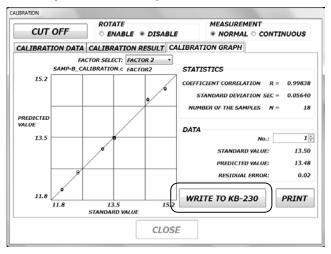
## **13** Select data.

When a marker on the graph is clicked, data such as data number, standard value, predicted value, and residual error will be displayed in the data field on the right.

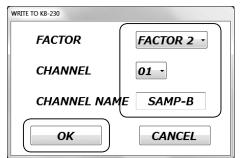


## 14 Write calibration curve coefficient on the main unit of KB-230.

Click the [WRITE TO KB-230] button.



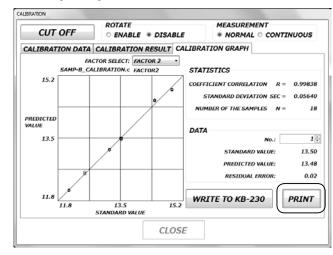
Select the calibration factor and channel number, and enter the channel name. The calibration curve coefficient will be written in the main unit by clicking the [OK] button.



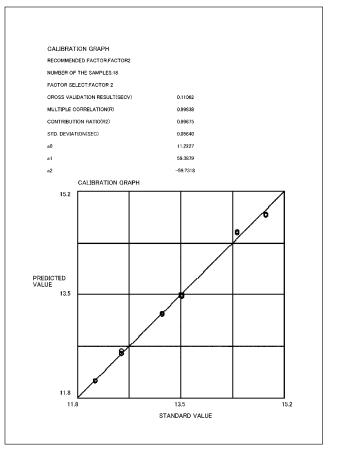
\* The data to be written is only the channel parameters of the main unit (channel name, coefficient a0, a1, a2). The absorbance will not be written.

## 15 Print out the calibration result and graph.

Click the [PRINT] button.



#### <Printout example>

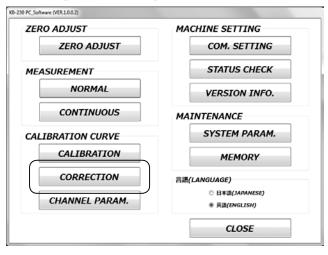


## 5-2. Correction

Setting offset value and slope correction value will enable correction of the displayed value.

Moisture value (displayed moisture) after correction = Moisture value before correction x Slope correction value + Offset value

#### **1** Click the [CORRECTION] button in the main screen.



The "CORRECTION" screen will be displayed.

The current correction coefficient loaded from the main unit will be displayed.

СН: 01 - 3	SAMP-B	ROTA	T <b>E</b> IABLE ® DISA		NORMAL © CONTINUOU
CURRENT OFFSET & OFFSET: 0.00	k SLOPE 1000 SLOPE:	1.00000	)		
CORRECTION D	ATA CORRECT	ION RESUL	r )		
START OF ME	ASUREMENT		OFFSET+:		CALCULATION
No.	DATE	CH TA	RGET VALUE	DISP. VALUE	MEAS. VALUE(RAW)
•	10				,
	" RRECTION DAT	A FILE	S	AVE A CORR	, ECTION DATA FILE

#### <About tabs>

CORRECTION DATA

Enables obtaining absorbance data from the sample measurement, entering correction target value, and executing calculation.

CORRECTION RESULT

Displays correction results and a graph.

**2** Select a measurement channel.

Select a measurement channel.

 Note that when the measurement channel is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.

СН: 01 - SAMP-B	© ENABLE .		MEASUREMENT
CURRENO1 T & SLOPE OFFS 02 00000 SLOPE: 03 CORREO4 DATA CORRECT	1.00000 ION RESULT		
05 STAI 06 07	CORRECTION ME		CALCULATION
* 08 09 10 -	CH TARGET VALU	E DISP. VALUE	MEAS. VALUE(RAW)
۲			•
OPEN THE CORRECTION DAT	A FILE	SAVE A CORF	RECTION DATA FILE

- Select whether to rotate or stop the rotation table by selecting "ENABLE" or "DISABLE".
  - Note that when the rotation setting of the rotation table is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.

CH: 01 •			DTATE ENABLE ® DI	SABLE	MEASUREMENT NORMAL © CONTINUOU
OFFSET: 0.0	DODOO SLOPE:	1.0000			
START OF M	EASUREMENT		ECTION MET		CALCULATION
No.	DATE	СН	TARGET VALUE	DISP. V/	ALUE MEAS. VALUE(RAW)
•	"				, ORRECTION DATA FILE

#### **4** Select a measurement mode.

Select either "NORMAL" or "CONTINUOUS" as a measurement mode.

\* Note that when the measurement mode is changed via the PC software, the setting in the main unit of KB-230 will be changed as well.

		SAMP-B	ROT. © E	ATE NABLE ® DI	SABLE	MEASUREMENT NORMAL © CONTINUE
OFFS	TT OFFSET 8 ET: 0.00		1.00000			
CORRE	CTION D	ATA CORRECT	ION RESUL	τ		
STAR	RT OF ME	ASUREMENT		TION METH		CALCULATION
	No.	DATE	СН Т	ARGET VALUE	DISP. VAL	JE MEAS. VALUE(RAW)
•						
•						
	THE CO	= RRECTION DAT	A FILE		SAVE A CO	RRECTION DATA FILE

#### 5 Start a measurement.

#### In the case of normal measurement

Click the [START OF MEASUREMENT] button to start a measurement.

СН: 01 - SAMP-B	ROTATE © ENABLE ® DISABLE	MEASUREMENT MORMAL © CONTINUOUS
CURRENT OFFSET & SLOPE OFFSET: 0.00000 SLOPE:	1.00000	
CORRECTION DATA CORRECTION	ON RESULT	
START OF MEASUREMENT	CORRECTION METHOD	CALCULATION
No. DATE	CH TARGET VALUE DISP. V	ALUE MEAS. VALUE(RAW)
r		
OPEN THE CORRECTION DATA	A FILE SAVE A C	, ORRECTION DATA FILE

The result will be displayed when the measurement is done. The measurements will be continued to obtain measurement data.

H: 01	- SAMP-B		OTATE Denable @ Dis		MEASUREMENT IN NORMAL © CONTINUO
OFFSET:	SET & SLOPE 0.00000 SLOPE:	1.000	00		
ORRECTIC	ON DATA CORRECTIO	ON RE	SULT		
START O	FMEASUREMENT		RECTION METH		CALCULATION
No.	DATE 5/18/2017 2:25:46 PM	CH 01	TARGET VALUE	DISP. VALUE	MEAS. VALUE(RAW)
••	3/18/2017 2:23:46 PM	01		14.4	14.4000
¢ [					,
OPEN THI	= E CORRECTION DATA	FILE		SAVE A CORI	, RECTION DATA FILE

## In the case of continuous measurement

Click the [START OF MEASUREMENT] button. The continuous measurement is started, and obtained

measurement data will be displayed or updated. At this point, data is not fixed.

СН: 01 - SAMP-B	ROTATE © ENABLE ®	DISABLE	MEASUREMENT
CURRENT OFFSET & SLOPE OFFSET: 0.00000 SLOPE:	1.00000		
CORRECTION DATA CORRECTION	N RESULT		
START OF MEASUREMENT	© OFFSET ○ OFF		CALCULATION
No. DATE	CH TARGET VAL	UE DISP. VAL	UE MEAS. VALUE(RAW)
1			
OPEN THE CORRECTION DATA	FILE	SAVE A COL	, RRECTION DATA FILE

## The measurement data will be fixed by clicking the [SAMPLING] button.

сн:	01	SAMP-B	Ľ	© ENABLE ⊚ L	DISABLE	MEASUREMENT O NORMAL @ CONTINUOU
		ET & SLOPE 0.00000 SLOPE:	1.000	000		
CORI	RECTIO	DATA CORRECT	TION RI	SULT		
	SA	MPLING		RECTION MET		CALCULATION
20	No.	DATE 5/19/2017 1:28:02 P		TARGET VALUE	DISP. VA	
•				TARGET VALUE		
	1		PM 01		11.	

## The measurements will be continued to obtain measurement data.

СН: 01	- SAMP-B		OTATE O ENABLE @ DIS	ABLE	MEASUREMENT
OFFSET:	SET & SLOPE 0.00000 SLOPE:	1.000	00		
CORRECTIO	N DATA CORRECTIO	N RE	SULT		
START OF	MEASUREMENT		RECTION METH		CALCULATION
No.	DATE	СН	TARGET VALUE	DISP. VAL	UE MEAS. VALUE(RAW)
*	5/19/2017 1:28:29 PM	01		11.3	11.3000
	5/19/2017 1:28:29 PM	01		11.3	11.3000
	5/19/2017 1:28:29 PM	01		11.3	11.3000
					11.3000 RRECTION DATA FILE

\*

## **6** Enter the correction target value.

Enter the correction target value of the sample.

	ENT OFF:	SET & SLOPE 0.00000 SLOPE:	1.000	00		
CORI	RECTIO	N DATA CORRECTIO	N RE	SULT		
ST	ART OF	MEASUREMENT		RECTION METH		CALCULATION
	No.	DATE	CH	TARGET VALUE	DISP. VALUE	MEAS. VALUE(RAW)
	1	5/18/2017 2:25:46 PM	01	13.5000	14.4000	14.4000
Þ	2	5/18/2017 2:26:38 PM	01		14.4	14.4000
	3	5/18/2017 2:26:48 PM	01		14.4	14.4000
	4	5/18/2017 2:27:04 PM	01		13.1	13.1000
	5	5/18/2017 2:27:14 PM	01		13.1	13.1000
	6	5/18/2017 2:27:24 PM	01		13.1	13.1000
	7	5/18/2017 2:27:40 PM	01		13.6	13.6000
	8	5/18/2017 2:27:49 PM	01		13.6	13.6000
•	-		-	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
OP	EN THE	CORRECTION DATA	FILE	s	AVE A CORRE	CTION DATA FILE

Enter the correction target value of all the samples to be used in the calculation.

The data whose "TARGET VALUE" is blank cannot be used in the calculation.

	ENT OFF: FSET:	SET & SLOPE 0.00000 SLOPE:	1.000	00		
CORF	RECTIO	N DATA CORRECTIO	N RE	SULT		
ST	ART OF	MEASUREMENT		RECTION METH		CALCULATION
	No.	DATE	СН	TARGET VALUE	DISP. VALUE	MEAS, VALUE(RAW) *
	12	5/18/2017 2:28:35 PM	01	13.1900	14.3000	14.3000
	13	5/18/2017 2:28:49 PM	01	14.3900	15.6000	15.6000
	14	5/18/2017 2:28:59 PM	01	14.3900	15.6000	15.6000
	15	5/18/2017 2:29:08 PM	01	14.3900	15.6000	15.6000
	16	5/18/2017 2:29:29 PM	01	14.8500	15.9000	15.9000
	17	5/18/2017 2:29:39 PM	01	14.8500	15.9000	15.9000 =
	18	5/18/2017 2:29:49 PM	01	14.8500	15.9000	15.9000
**						
•	_		_			
	EN THE	CORRECTION DATA	FILE	s	AVE A CORRE	CTION DATA FILE

#### **Save the correction data file.**

Click the [SAVE CORRECTION DATA FILE] button.

	NT OFF:	SET & SLOPE 0.00000 SLOPE:	1.000	00		
CORR	ECTIO	N DATA CORRECTIO	N RE	SULT		
ST	ART OF	MEASUREMENT		RECTION METH		CALCULATION
	No.	DATE	СН	TARGET VALUE	DISP. VALUE	MEAS. VALUE(RAW) *
	12	5/18/2017 2:28:35 PM	01	13.1900	14.3000	14.3000
	13	5/18/2017 2:28:49 PM	01	14.3900	15.6000	15.6000
	14	5/18/2017 2:28:59 PM	01	14.3900	15.6000	15.6000
	15	5/18/2017 2:29:08 PM	01	14.3900	15.6000	15.6000
	16	5/18/2017 2:29:29 PM	01	14.8500	15.9000	15.9000
	17	5/18/2017 2:29:39 PM	01	14.8500	15.9000	15.9000 =
	18	5/18/2017 2:29:49 PM	01	14.8500	15.9000	15.9000
**						
•	_					,
OPI	EN THE	CORRECTION DATA	FILE	]	AVE A CORR	ECTION DATA FILE
				CLOSE	1	

#### Designate a folder and "File name" in the "Save As" window.

Irganize - New folder		jii • 0
Favorites Name Destop Downloads	Date modified Type No items match your search.	Size
Recent Places     Ubranies     Documents     Music     Protores		
Computer -	_	
File name: SAMP-B_CORRECTION.cod		
Save as type COR FILES(*.con)	)	

\* The default saving destination is My Document\KB-230\Data.

The file name of the saving destination will be displayed.

CH:		- SAMP-B		OTATE D ENABLE @ DIS		IEASUREMENT NORMAL © CONTINUOU
	FSET:	0.00000 SLOPE:	1.0000	00		
CORI	RECTIO	N DATA CORRECTIO	N RES	SULT		
ST	ART OF	MEASUREMENT		SECTION METH		CALCULATION
	No.	DATE	СН	TARGET VALUE	DISP. VALUE	MEAS, VALUE(RAW) *
	12	5/18/2017 2:28:35 PM	01	13.1900	14.3000	14.3000
	13	5/18/2017 2:28:49 PM	01	14.3900	15.6000	15.6000
	14	5/18/2017 2:28:59 PM	01	14.3900	15.6000	15.6000
	15	5/18/2017 2:29:08 PM	01	14.3900	15.6000	15.6000
	16	5/18/2017 2:29:29 PM	01	14.8500	15.9000	15.9000
	17	5/18/2017 2:29:39 PM	01	14.8500	15.9000	15.9000
	18	5/18/2017 2:29:49 PM	01	14.8500	15.9000	15.9000
**						
•						
OP	EN THE	CORRECTION DATA	FILE	5	AVE A CORRI	ECTION DATA FILE
SAMP-	B_CORR	ECTION.cor		CLOSE	]	

To open an existing correction data file
 Click the [OPEN THE CORRECTION DATA FILE] button.

		SAMP-B		OTATE ) enable @ di:	SABLE	MEASUREMENT <sup>®</sup> NORMAL <sup>©</sup> CONTINUOU
	ENT OFFSET "SET: 0.0	& SLOPE	1.0000	o		
CORR	RECTION L	DATA CORRECTI	ON RES	ULT		
STA	ART OF MI	EASUREMENT		SET ® OFFSET		CALCULATION
	No.	DATE	CH	TARGET VALUE	DISP. VA	LUE MEAS. VALUE(RAW)
*						
*						

Designate a folder and "File name" in the "Open" dialog window, and click the [Open] button. (File extension: .cor)

) () a likers +	KETT + My Documents + KB-230 + Da	ta 👻	++ Search Di			-
Irganize - New folde	•			新 •	1	4
ar Favorites	Name	Date modified	Type	Size		
R Desktop	SAMP-8_CORRECTION.cor	5/18/2017 2-44 PM	COR File		2 KB	
B Downloads						
3 Recent Places						
1423 A						
Libraries						
Documents						
Documents						
Documents  Music  Pictures						
Documents						
Documents Music Pictures Videos						
Computer						
Documents Music Pictures Videos						
Documents Music Pictures Videos Computer Local Disk (C:)	ime: SAMP-8, CORRECTION-cor	)				

\* The following message will be displayed when the [OPEN THE CORRECTION DATA FILE] button is clicked while data has been already leaded.

CORRECTION
DO YOU WANT TO OVERWRITE THE DATA? CLICK "YES" TO OVERWRITE. CLICK "NO" TO ADD DATA. CLICK "CANCEL" TO STOP THE PROCESS.
Yes No Cancel

## **8** Select a correction method.

Select a correction method to be used for calculation. Select either "OFFSET" or "OFFSET + SLOPE".

No.         DATE         CORRECTION METHOD           12         5/18/2017 2:28:35 PM         0         0FFSET         0         0FFSET         CALCULATION           13         5/18/2017 2:28:35 PM         0         13.1900         14.3000         14.3000           14         5/18/2017 2:28:35 PM         0         14.3900         15.6000         15.6000           15         5/18/2017 2:28:30 PM         0         14.3900         15.6000         15.6000           16         5/18/2017 2:29:30 PM         0         14.4590         15.9000         15.9000           16         5/18/2017 2:29:30 PM         0         14.4590         15.9000         15.9000           17         5/18/2017 2:29:40 PM         0         14.4500         15.9000         15.9000           18         5/18/2017 2:29:40 PM         0         14.4500         15.9000         15.9000		ENT OFF: FSET:	SET & SLOPE 0.00000 SLOPE:	1.0000	00		
No.         DATE         CH         TARGET VALUE         DISP. VALUE         MEAS. VALUE(RAW)           12         5/18/2017 2:28:35 PM         01         13.1900         14.3000         14.3000           13         5/18/2017 2:28:35 PM         01         13.1900         15.6000         15.6000           14         5/18/2017 2:28:05 PM         01         14.3900         15.6000         15.6000           15         5/18/2017 2:29:05 PM         01         14.3900         15.6000         15.6000           16         5/18/2017 2:29:05 PM         01         14.8500         15.9000         15.9000           17         5/18/2017 2:29:39 PM         01         14.8500         15.9000         15.9000	CORF	RECTIO	N DATA CORRECTIO				
12         5/18/2017         2:28:35 PM         01         13.1900         14.3000         14.3000           13         5/18/2017         2:28:49 PM         01         14.3900         15.6000         15.6000           14         5/18/2017         2:28:49 PM         01         14.3900         15.6000         15.6000           15         5/18/2017         2:29:09 PM         01         14.3900         15.6000         15.6000           16         5/18/2017         2:29:09 PM         01         14.4300         15.9000         15.6000           16         5/18/2017         2:29:29 PM         01         14.48500         15.9000         15.9000           17         5/18/2017         2:29:29 PM         01         14.48500         15.9000         15.9000	ST	ART OF	MEASUREMENT				CALCULATION
13         5/18/2017 2:28:49 PM         01         14.3900         15.6000         15.6000           14         5/18/2017 2:28:59 PM         01         14.3900         15.6000         15.6000           15         5/18/2017 2:29:29 PM         01         14.3900         15.6000         15.6000           16         5/18/2017 2:29:29 PM         01         14.4800         15.9000         15.9000           17         5/18/2017 2:29:39 PM         01         14.8500         15.9000         15.9000		No.	DATE	СН	TARGET VALUE	DISP. VALUE	MEAS. VALUE(RAW) *
14         5/18/2017 2:28:59 PM         01         14.3900         15.6000         15.6000           15         5/18/2017 2:29:08 PM         01         14.3900         15.6000         15.6000           16         5/18/2017 2:29:29 PM         01         14.4800         15.9000         15.9000           17         5/18/2017 2:29:39 PM         01         14.4800         15.9000         15.9000		12	5/18/2017 2:28:35 PM	01	13.1900	14.3000	14.3000
15         5/18/2017 2:25:08 PM         01         14.3900         15.6000         15.6000           16         5/18/2017 2:29:29 PM         01         14.8500         15.9000         15.9000           17         5/18/2017 2:29:39 PM         01         14.8500         15.9000         15.9000		13	5/18/2017 2:28:49 PM	01	14.3900	15.6000	15.6000
16         5/18/2017 2:29:29 PM         01         14.8500         15.9000         15.9000           17         5/18/2017 2:29:39 PM         01         14.8500         15.9000         15.9000		14	5/18/2017 2:28:59 PM	01	14.3900	15.6000	15.6000
17 5/18/2017 2:29:39 PM 01 14.8500 15.9000 15.9000		15	5/18/2017 2:29:08 PM	01	14.3900	15.6000	15.6000
		16	5/18/2017 2:29:29 PM	01	14.8500	15.9000	15.9000
18 5/18/2017 2:29:49 PM 01 14.8500 15.9000 15.9000		17	5/18/2017 2:29:39 PM	01	14.8500	15.9000	15.9000
		18	5/18/2017 2:29:49 PM	01	14.8500	15.9000	15.9000
18 No. 19 No.	**						
· · · · · · · · · · · · · · · · · · ·	۰.						,
OPEN THE CORRECTION DATA FILE SAVE A CORRECTION DATA FILE	OP	EN THE	CORRECTION DATA	FILE	5	AVE A CORRE	CTION DATA FILE

## **9** Execute calculation.

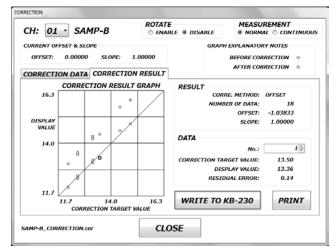
Click the [CALCULATION] button.

CURRI		SAMP-B		OTATE Denable @ DIS		MEASUREMENT Normal © Continuou
CORF	ECTIO	N DATA CORRECTIO	ON RES	SULT RECTION METH		CALCULATION
	No.	DATE	сн	TARGET VALUE	DISP. VALUE	MEAS. VALUE(RAW) *
	12	5/18/2017 2:28:35 PM	01	13.1900	14.3000	14.3000
	13	5/18/2017 2:28:49 PM	01	14.3900	15.6000	15.6000
	14	5/18/2017 2:28:59 PM	01	14.3900	15.6000	15.6000
	15	5/18/2017 2:29:08 PM	01	14.3900	15.6000	15.6000
	16	5/18/2017 2:29:29 PM	01	14.8500	15.9000	15.9000
	17	5/18/2017 2:29:39 PM	01	14.8500	15.9000	15.9000 =
	18	5/18/2017 2:29:49 PM	01	14.8500	15.9000	15.9000
**						
•						,
OP	EN THE	CORRECTION DATA	FILE	5	AVE A CORI	RECTION DATA FILE
				CLOSE	1	

#### **1** Display the correction result.

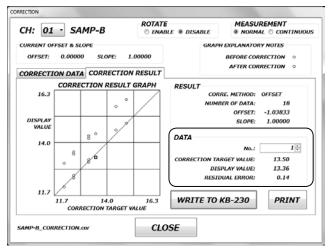
The correction result will be displayed in the [CORRECTION RESULT] tab.

\* The graph before the correction will be displayed with the green markers, and after the correction will be displayed with red markers.



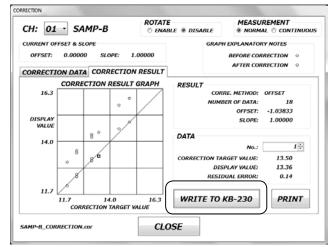
## 11 Select data.

When a marker (red) on the graph is clicked, data such as data number, standard value, predicted value, and residual error will be displayed in the data field on the right.

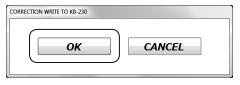


## 12 Write the correction coefficient on the main unit of KB-230.

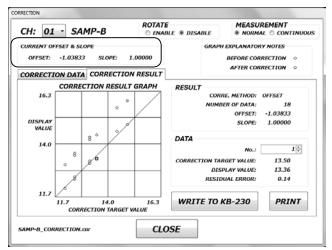
Click the [WRITE TO KB-230] button.



When the [OK] button is clicked, the calculated correction coefficient will be written on the main unit.

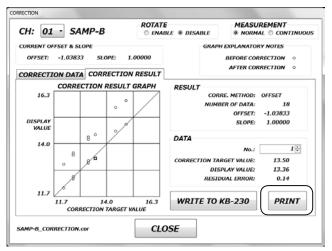


- \* The data to be written is only the correction coefficient. The measurement data will not be written.
- When writing is complete, the current correction coefficient will be displayed after being updated.

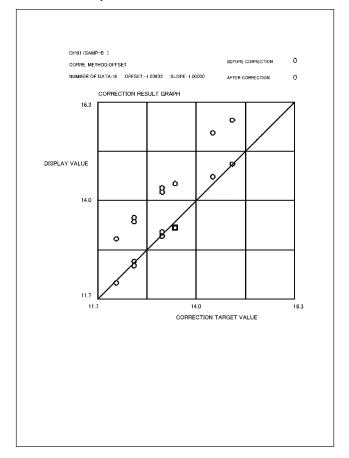


## **13** Print the correction result and the graph.

Click the [PRINT] button.



#### <Printout example>



## 5-3. Channel parameter

#### The channel parameters can be set or checked.

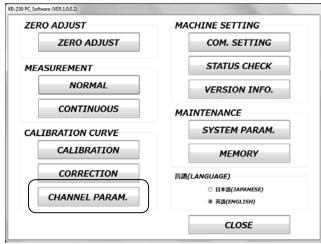
The following items can be set.

- Channel name
- Smoothing value of continuous measurement<sup>\*1</sup>
- Number of normal measurements
- Digits
- Coefficient (a0)
- Coefficient (a1)
- Coefficient (a2)
- Offset (offset value)
- Slope (correction value)

#### \*<sup>1</sup> The time constant of each smoothing value is as follows:

Smoothing value	Time constant
0	0 sec.
1	1 sec.
2	2 sec.
3	4 sec.
4	8 sec.
5	16 sec.

## Click the [CHANNEL PARAM.] button in the main screen.



### **2** The channel parameter screen will be displayed.

	CH.02	CH.03	CH.04	CH.05
CHANNEL NAME				
CONTINUOUS SMOOTHING	 			
NORMAL MEAS. NT	 			
DIGITS	 			
COEFFICIENT (a0)	 			
COEFFICIENT (a1)	 			
COEFFICIENT (a2)				
OFFSET				
SLOPE				

#### <Button description>

.

#### **Load data from the main unit.** Load the channel parameter (50CH) of the main unit of KB-230.

CHANNEL PARAM.	

		CH.01	
			CHANNEL NAME
 	 		CONTINUOUS SMOOTHING
	 		NORMAL MEAS. NT
 	 		DIGITS
			SLOPE
			COEFFICIENT (a0) COEFFICIENT (a1) COEFFICIENT (a2) OFFSET SLOPE

#### [MAIN BODY DATA] will be displayed.

All the parameters of the CH are selected by clicking the CH number. The CH parameters can be copied by right-clicking copy and paste.

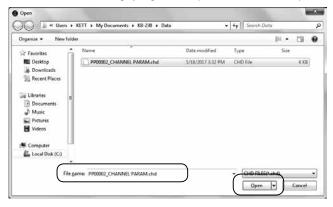
MAIN BODY DATA	)					
	CH.01	CH.02	CH.03	CH.04	CH.05	c
CHANNEL NAME	SAMP-B					
CONTINUOUS SMOOTHING	15	15	15	15	15	
NORMAL MEAS. NT	01	01	01	01	01	
DIGITS	3.1: ***.*	3.1: ***.*	3.1 : ***.*	3.1 : ***.*	3.1 : ***.*	3.1
COEFFICIENT (a0)	11.2227	0.00000	0.00000	0.00000	0.00000	
COEFFICIENT (a1)	59.3879	0.00000	0.00000	0.00000	0.00000	
COEFFICIENT (a2)	-59.7318	0.00000	0.00000	0.00000	0.00000	
OFFSET	0.00000	0.00000	0.00000	0.00000	0.00000	
SLOPE	1.00000	1.00000	1.00000	1.00000	1.00000	
(						,
CH PARAM. FILE O	PEN	CLOSE	СН	PARAM.	FILE SAV	'E

#### Open the CH parameter file.

Open an existing parameter file.

	CH.01	CH.02	CH.03	CH.04	CH.05
CHANNEL NAME					
CONTINUOUS SMOOTHING					
NORMAL MEAS. NT					
DIGITS				-	
COEFFICIENT (a0) COEFFICIENT (a1)					
COEFFICIENT (a1)					
OFFSET					
SLOPE					
LOPE					

Designate a folder and "File name" in the "Open" dialog window, and click the [Open] button. (File extension: .chd)



READ BY KB-23	0		ŀ	WRITE TO	) KB-230	
PP00002_CHANNEL	PARAM.	chd				
	CH.01	CH.02	CH.03	CH.04	CH.05	c
CHANNEL NAME	SAMP-B					
CONTINUOUS SMOOTHING	15	15	15	15	15	
NORMAL MEAS. NT	01	01	01	01	01	
DIGITS	3.1 : ***.*	3.1: ***.*	3.1 : ***.*	3.1 : ***.*	3.1 : ***.*	3.1
COEFFICIENT (a0)	11.2227	0.00000	0.00000	0.00000	0.00000	
COEFFICIENT (a1)	59.3879	0.00000	0.00000	0.00000	0.00000	
COEFFICIENT (a2)	-59.7318	0.00000	0.00000	0.00000	0.00000	
OFFSET	0.00000	0.00000	0.00000	0.00000	0.00000	
SLOPE	1.00000	1.00000	1.00000	1.00000	1.00000	
CH PARAM. FILE O	PEN		СН	PARAM.	FILE SAV	/E

**C**11 с н. 

#### Write to the main unit.

Write the channel parameter to the main unit of KB-230.

LNAME	SAMP-B					
UOUS SMOOTHING	15	15	15	15	15	
MEAS. NT	01	01	01	01	01	
	3.1: ***.*	3.1: ***.*	3.1 : ***.*	3.1: ***.*	3.1: ***.*	3.
IENT (a0)	11.2227	0.00000	0.00000	0.00000	0.00000	
IENT (a1)	59.3879	0.00000	0.00000	0.00000	0.00000	
IENT (a2)	-59.7318	0.00000	0.00000	0.00000	0.00000	
	0.00000	0.00000	0.00000	0.00000	0.00000	
	1.00000	1.00000	1.00000	1.00000	1.00000	
1	ENT (a0) ENT (a1)	3.1: ****           EENT (a0)         11.2227           TENT (a1)         59.3879           EENT (a2)         -59.7318           0.00000         -59.7318	3.1:*****         3.1:*****           LENT (a0)         11.2227         0.00000           LENT (a1)         59.3879         0.00000           LENT (a2)         -59.7318         0.00000           0.00000         0.00000         0.00000	3.1:****         3.1:****         3.1:****           LENT (a0)         11.2227         0.00000         0.00000           LENT (a1)         59.3879         0.00000         0.00000           LENT (a2)         -59.7318         0.00000         0.00000           0.00000         0.00000         0.00000         0.00000	3.1: ****         3.1: ****         3.1: ****         3.1: ****           LENT (a0)         11.2227         0.00000         0.00000         0.00000           LENT (a1)         59.3879         0.00000         0.00000         0.00000           LENT (a2)         -59.7318         0.00000         0.00000         0.00000           LENT (a2)         0.00000         0.00000         0.00000         0.00000	3.1:         ****         3.1:         ****         3.1:         ****           LENT (a0)         11.2227         0.00000         0.00000         0.00000         0.00000           ENT (a1)         59.3879         0.00000         0.00000         0.00000         0.00000           ENT (a2)         -59.7318         0.00000         0.00000         0.00000         0.00000           0.00000         0.00000         0.00000         0.00000         0.00000         0.00000

Set the channel to be CHANNEL PARAM. WRITE TO KE-230 written and click the [OK button. The channe parameter will be written to the main unit.

[]	
1	PLEASE SET A CHANNEL TO WRITE
о	CH: 01 · ~ CH: 01 ·
	OK CANCEL

#### Save the CH parameter file.

Save the channel parameters in the file.

READ BY KB-23		chd	ŀ	WRITE TO	) KB-230	
	CH.01	CH.02	CH.03	CH.04	CH.05	_
CHANNEL NAME	SAMP-B					
CONTINUOUS SMOOTHING	15	15	15	15	15	
NORMAL MEAS. NT	01	01	01	01	01	
DIGITS	3.1 : ***.*	3.1: ***.*	3.1 : ***.*	3.1 : ***.*	3.1 : ***.*	3
COEFFICIENT (a0)	11.2227	0.00000	0.00000	0.00000	0.00000	
COEFFICIENT (a1)	59.3879	0.00000	0.00000	0.00000	0.00000	
COEFFICIENT (a2)	-59.7318	0.00000	0.00000	0.00000	0.00000	
OFFSET	0.00000	0.00000	0.00000	0.00000	0.00000	
SLOPE	1.00000	1.00000	1.00000	1.00000	1.00000	
CH PARAM. FILE O	PEN	CLOSE	СН	PARAM.	FILE SAV	'E

Designate a folder and "File name" in the "Save As" window.

#### The default saving destination is My Document\KB-230\Data. \*

	der			3H •
Travorites	Name	Date modified	Type	Size
E Desktop	PP00002_CHANNEL PARAM.chd	5/18/2017 3-32 PM	CHD File	4 KB
Downloads     Recent Places				
E Necent Places				
Libraries				
Documents				
Music  Pictures				
Videos				
<ul> <li>A 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10</li></ul>				
Computer •	and the second			
	0002_CHANNEL PARAM.chd			

## 6. Zero-adjustment

Calibrates absorbance using a zero-adjustment plate.

**1** Click the [ZERO ADJUST] button in the main screen.

ZERO ADJUST	MACHINE SETTING
ZERO ADJUST	COM. SETTING
MEASUREMENT	STATUS CHECK
NORMAL	VERSION INFO.
CONTINUOUS	MAINTENANCE
CALIBRATION CURVE	SYSTEM PARAM.
CALIBRATION	MEMORY
CORRECTION	言語(LANGUAGE)
CHANNEL PARAM.	<ul> <li>日本語(JAPANESE)</li> <li>英語(ENGLISH)</li> </ul>
	CLOSE

## 2 Set the zero-adjustment plate to the main unit of KB-230.

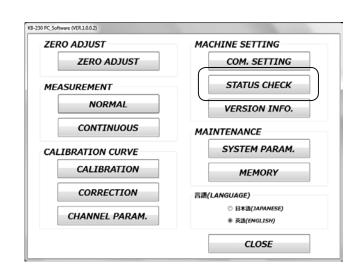
Open the light shielding cover of the main unit of KB-230, and set the zero-adjustment plate onto the rotation table. Then, close the cover.

## **3** Start the zero-adjustment.

Click the [ZERO ADJUST] button.

X1: 0.0005
X2: 0.0003
ZERO ADJUST
PUSH [ZERO ADJUST] AFTER SET A ZERO PLATE.
CLOSE

## 7-1. Status check



### Click the [STATUS CHECK] in the main screen.

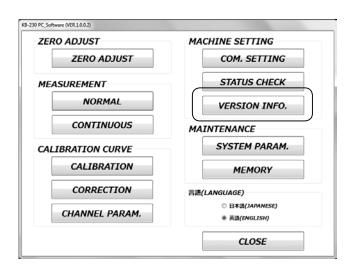
#### **2** Check the status.

The error and device status can be checked.

CH: 01	t SAMP-B	VOLT(V1):	2.5844
MEAS.:	11.2	VOLT(V2):	1.5457
ABS.(X1):	0.0004	VOLT(V3):	1.2244
ABS.(X2):	0.0004	PGC:	9.439
TEMP.(t):	30.9	MEAS. MODE:	NORMAL
TEMP. VOLT(Vt):	2.2241	ROTATE:	DISABLE
E-01:SYSTEM MEM. ERR E-02:CALC. ERROR E-03:MOTOR ERROR E-04:TEMRERROR(HIGH E-04:TEMRERROR(LOW E-05:LOW REFLECTION	ı) )	E-06:CHANNEL UN E-07:SENSOR INPU E-08:CHANNEL ME E-09:CALIB. DATA E-10:MACHINE DA E-11:ROTATE ERRO	JT ERROR M. ERROR MEM. ERROR TA MEM. ERROR

## 7-2. Version information

Click the [VERSION INFO.] button in the main screen.



## **2** Check the version information.

Enables checking the main unit program and the PC software version.

VERSION INFO.	
	КВ-230
	VERSION: 0YS2001B
	UPDATE: 2017/03/21
	KB-230 PC_Softwarte
	DRAWING No.: 0YS2003A
	VERSION: 1.0.0.2
	UPDATE: 2/13/2017
	CLOSE

## 8. Maintenance



The items of "SYSTEM PARAM." and "MEMORY" should be used only in the maintenance work conducted by the maker. Do not use them yourself. Otherwise, data necessary for the normal operation including the unit-specific data may be lost.

