

# LG QuickSetupTool

## Setup Manual

### - Instructions for use -

Read this document thoroughly before operating the product after reading, retain it close at hand for future reference.

This English language version of the document contains the original instructions.

**Mitutoyo**

Date of publication: September 3, 2020 ( 1 )

**Note: Please check before you install.**

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**Note: About the application**

- This application runs on windows 10. Please be sure to use the device with windows 10\*.
- This application can be used by connecting to a PC via USB communication. Please prepare the USB cable (Type C) to connect with your PC and use it by yourself.
- Please prepare USB cables (Type C) to connect with your PC before using this application.
- Please refrain from using this application together with other applications.
- \*This application has been confirmed to work on windows 10 Pro.

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## 1. Introduction

This application is a dedicated tool for Mitutoyo Linear Gage (LG) counter EJ Counter, which requires an optional interface unit for connection to the EJ Counter. This application has the following features.

- ① You can set the parameters of the EJ Counter (no need to press EJ Counter keys).
- ② LG multi-channel data can be displayed graphically on a PC.
- ③ Calculate acquired LG multi-channel data, and the results can be saved to the PC.
- ④ Tolerance setting function enables OK/NG judgments to be displayed.
- ⑤ It is possible to save/load the EJ Counter settings on the PC.
- ⑥ It is possible to save/load the settings of this application to the PC.

### 1.1. System configuration

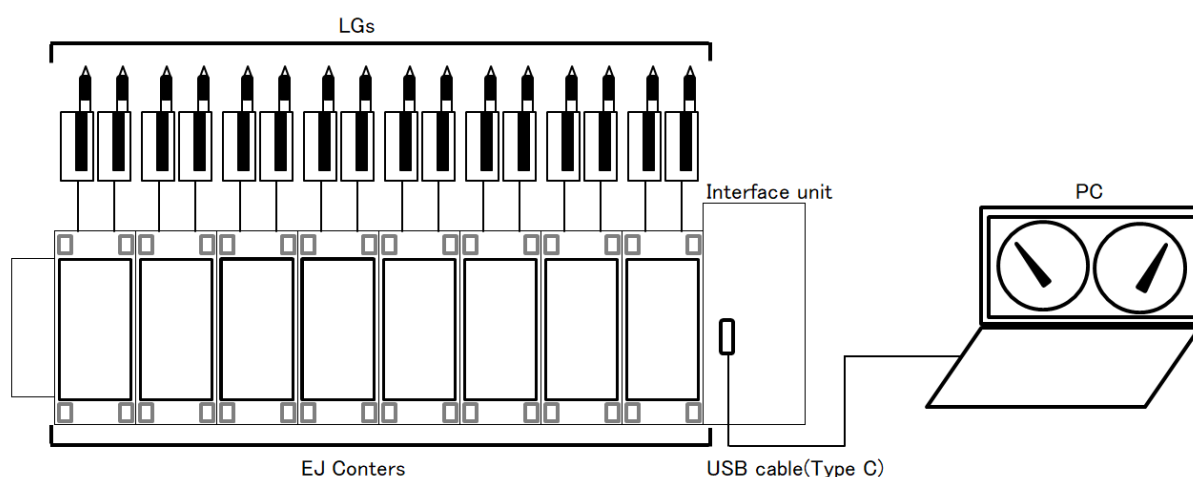


figure 1.1 System configuration

**Tips** ·Up to eight EJ Counters can be connected to one interface unit and up to eight interface units can be connected to one PC by using a HUB. A commercially available HUB can be used, but has to be provided by the customer.

### 1.2. Recommended system requirements

OS: Windows 10 Pro 32bit / 64bit.

Display: 1600x1200 or more.

Memory: 1024MB or more.

**Tips** ·The USB device driver works with standard Windows drivers.

### **1.3. Restriction**

This application is subject to the limitations of the EJ Counter and interface unit. Other restrictions include the following.

- Other Interfaces (CC-Link, PROFINET, etc.) cannot be used at the same time.
- The maximum number of interface units that can be connected is eight.
- Hot swapping is not supported. Please start this application after connecting the devices correctly.
- While this application is running, the key protection of EJ Counters are enabled. It can be deactivated.

## **2. Setup**

### **2.1. Install**

- ① Please download this application from our website to your PC, and double-click "setup.exe" in the folder.
- ② Follow the on-screen installation guidance to complete the installation.

**Tips** • .Net Framework installation will begin before installing this application, if you have upgraded from Windows 8.1. Then install this application.

### **2.2. Launching the application**

- ① Refer to "1.1 System configuration" and the User's Manual for the LG and EJ Counter and interface unit before connecting and turning on the device.
- ② Double-click the "LG QuickSetupTool" shortcut icon on the desktop to launch this application.



figure2.2-1 Shortcut icon

If the following screen is displayed after the splash screen is displayed, this application is ready to launch.



figure2.2-2 Starting up

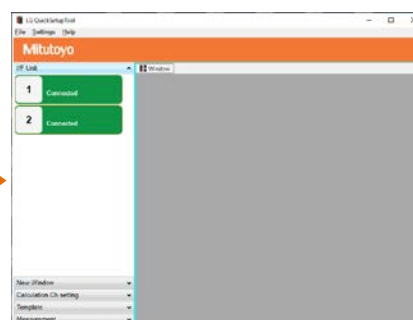


figure2.2-3 Ready to launch

## 2.3. Exit the application

Select "File" – "Exit" from the menu or click on [x] in the upper right corner of the main screen to close this application.

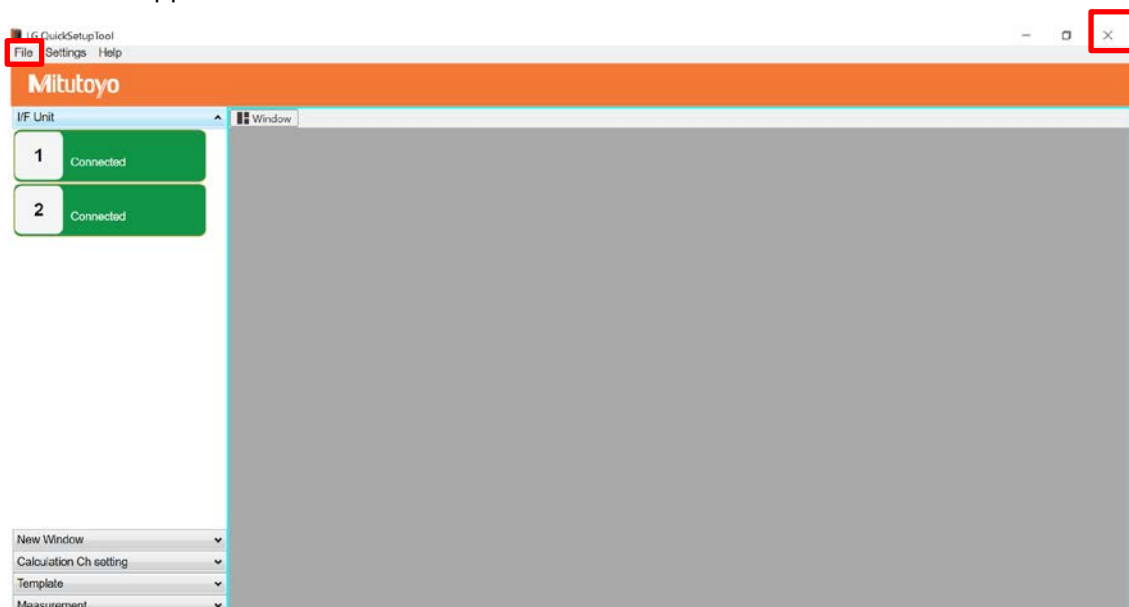


figure2.3 Operation points

## 3. Settings

### 3.1. Screen Composition

Double-click the shortcut icon "LG QuickSetupTool" in figure 2.2-1 to start this application.

With this application, you can perform various operations from the menu bar on the left side of the screen in figure 3.1-1①, and check the measured values and judgment results in the window management area in the center of the screen in②.

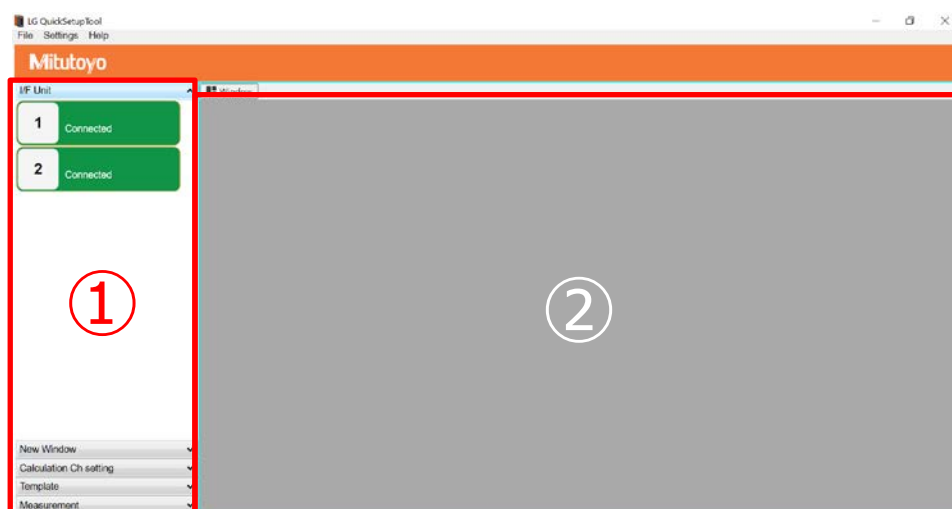


figure3.1-1 Startup screen

The screen composition of this application is as follows.

- ① Selection of interface unit, various settings for each EJ Counters, and start/stop operations for capturing logging results in CSV files.
- ② Display of measurement/judgment results  
 As for the display type, you can select from Counter, Meter, Chart and Total Judgement. By clicking on the "Window" tab, you can change the display type.  
 You can also arrange your window's layout.
- ③ Display of measured values or calculation results  
 Measured values can be selected from among three types: counters, meters and charts (up to 32 views).  
 The display area of the meter and chart can be customized. Individual counters can be cleared of errors and display channels can be switched.
- ④ Total Judgement display  
 Display the Total Judgement result as OK or NG. Judgment conditions can be customized by using up to 4 blocks based on individual Ch results.

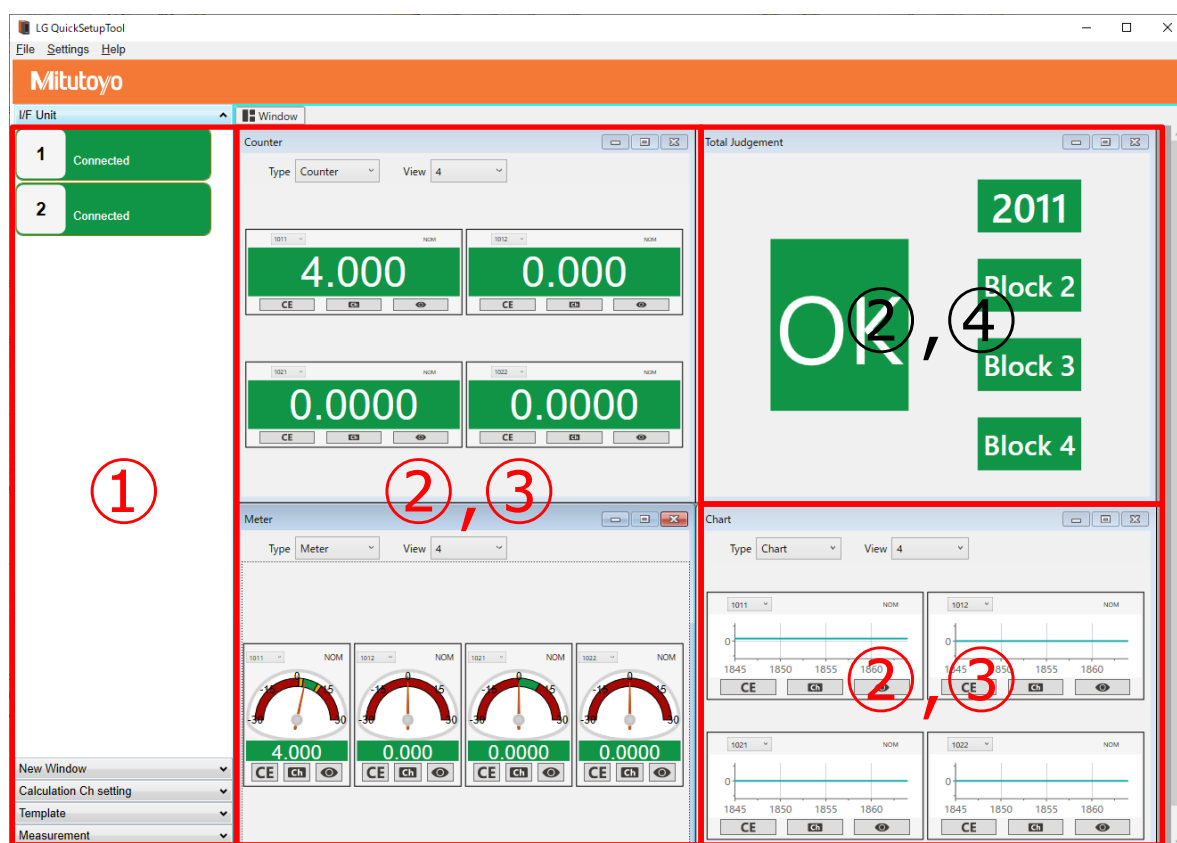


figure3.1-2 Use case

**Tips** • If you are using a laptop computer, the display may be cut off. Please adjust your computer's display settings so that it is displayed properly.

### 3.2. Interface unit Settings

- ① Place the PC mouse cursor on the left side of the screen in the I/F Unit tab, marked in green, and right-click.

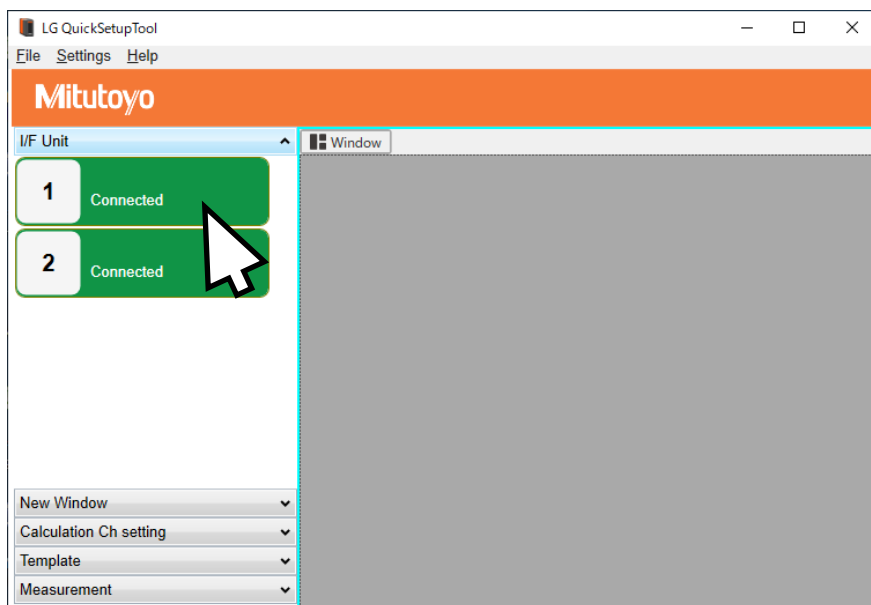


figure3.2-1 An example of cursor position

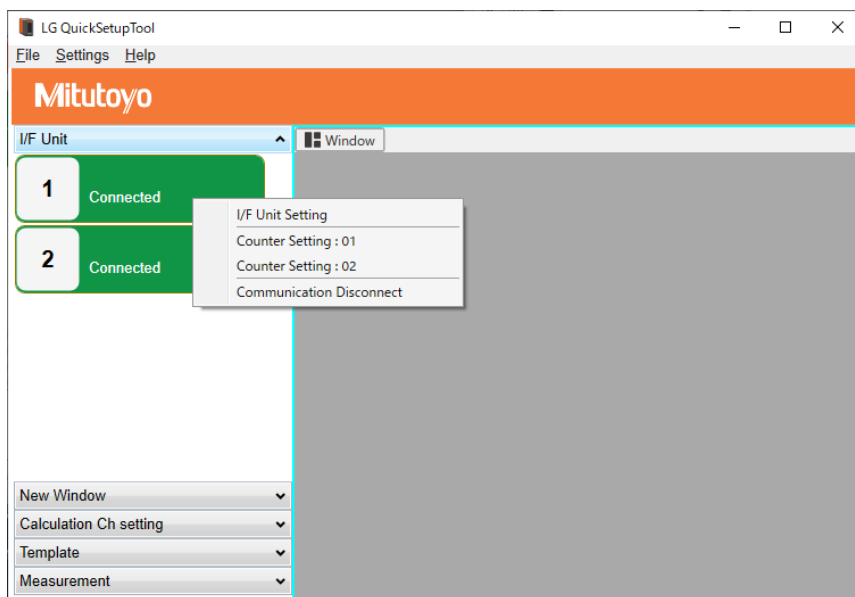


figure3.2-2 After right-clicking



- ② Clicking on [I/F Unit Setting], the following screen is displayed.
- Clicking on I/F Unit ID, you can change ID of interface unit by clicking on the pull-down menu. Click on [Apply] button at the bottom right of the screen to make the ID change take effect.
  - You can enter any name in "In-app display name" box to identify it on the screen. To apply the name, click on [Apply] button.
  - To update the settings of I/F Unit ID and In-app display name, click on [Apply] button.
  - By clicking on the Counter/Ch Setting, pull-down list at the bottom of the screen, you can open the Counter Settings window for the EJ Counter connected to this interface unit (see section 3.3 "Setting of EJ Counters" for more information).
  - To cancel the setting change, click [Close] or [X] on the top right corner of the screen.

The screenshot shows the 'I/F Unit Setting' dialog box. It contains the following fields and controls:

- I/F Unit ID:** A pull-down menu currently showing '1'. A red letter 'a' is next to it.
- In-app display name:** A text input field. A red letter 'b' is above it.
- EJ Connected Count:** A text input field showing '2'.
- Serial Number:** A text input field.
- Counter ID:** A text input field showing '0102FFFFFFFF'.
- Version:** A text input field.
- Counter/Ch Setting:** A pull-down menu showing '01'. A red letter 'd' is to its left.
- Buttons:** 'Set' (next to Counter/Ch Setting), 'Apply', and 'Close' at the bottom right. A red letter 'c' is above 'Apply' and a red letter 'e' is above 'Close'.
- Close button:** A small 'X' button in the top right corner. A red letter 'e' is above it.

figure3.2-3 I/F Unit Setting

- ③ Set the rest of interface units as necessary.

### 3.3. Setting of EJ Counters

- ① As section 3.2, Place the PC mouse cursor on the left side of the screen in the I/F Unit tab, marked in green, and right-click.

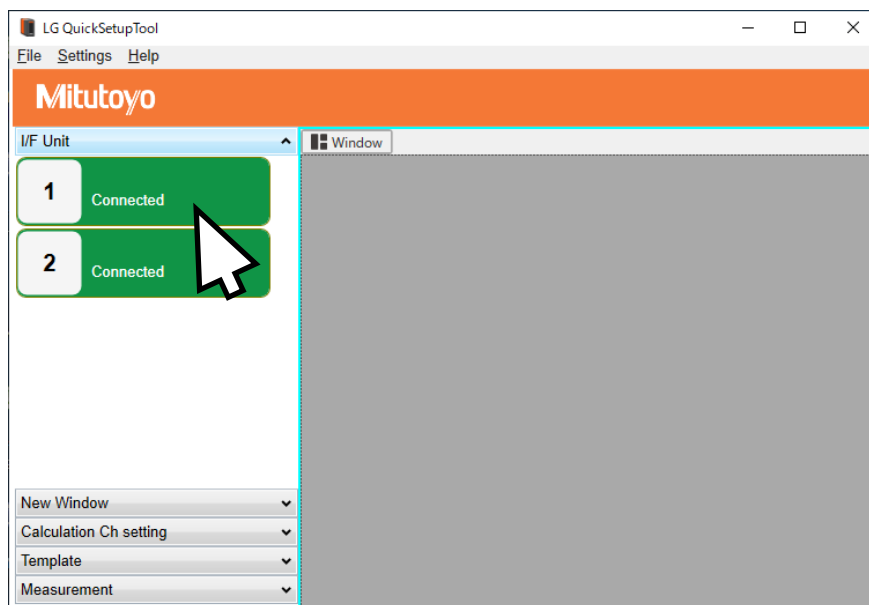


figure3.3-1 An example of cursor position

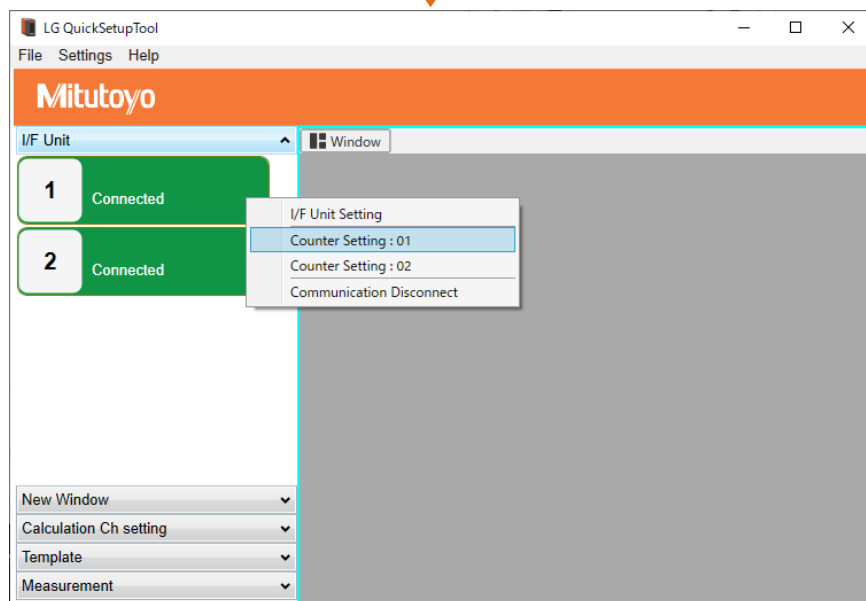


figure3.3-2 After right-clicking

- ② Clicking on [Counter Setting], will open the following window.
- a. Click on [EJ Counter ID] to change the EJ Counter to be set.
  - b. Clicking [Get device settings], you can get and check the current parameter settings of the EJ Counter.
  - c. If you already have a saved template, you can load the settings from the pull-down menu of "Template" (see section 3.6 "Template settings" for details).
  - d. You can enter any name in the "In-app display name" box to identify it on the screen. When you click on [Save Template], the template will be saved in your PC, and the settings will be reflected in the application by [Apply].
  - e. Sets various parameters. Select and set them from the pull-down list. Please refer to section 3.3.2 of the EJ Counter user's manual for details on the "Basic Parameters" and "Advanced Parameters".
  - f. Clicking [Parameter Initialization], will display a confirmation message. Click [OK] to reset all parameters to their initial values.
  - g. When you click [Apply], all parameters will be applied to the EJ Counters and the Counter Setting screen will be closed. When the confirmation message for reloading the Ch set values is displayed, click [OK]. Then tolerance value and preset value and peak mode displayed in this application will be updated to the value reloaded from the EJ Counter.
  - h. If you want to cancel the settings, click [Close] or [X] on the top right corner of the screen. the setting screen will close.

Counter Setting

I/F Unit ID: 1 EJ Counter ID: 01 Get device settings

Setting info Ch.1 Ch.2

Template

In-app display name Save Template

Basic parameters

Linear gauge resolution A-axis: 1: 0.001mm (1μm) B-axis: 1: 0.001mm (1μm)

Count direction 0: + direction 0: + direction

Origin detection direction 0: + direction 0: + direction

Origin detection function 0: Disable

Advanced parameters

Key protect 1: Protected Tolerance judgment setting 1: 5-step tolerance judg

Display mode selection 6: Ch.1 A-axis count Ch Peak value preset 0: Disable

Display at startup 0: Counter standby Speed sampling cycle 0: 10ms

Smoothing 0: No smoothing Arbitrary ID specification 01: Auto ID specification

Hide the lowest-order digit 0: Display all digits Unit 0: Display mm

Power saving function 1: Display goes out after

Parameter initialization

I/O setting

ERR/ALLGO selection 0: Use as ERR Ch coupling selection 0: Do not couple Ch

Origin re-detection 0: Disable Preset by I/O 0: Executed only for Ch

Ch affected by the CLEAR signal 0: Executed only for Ch

Apply Close

figure3.3-3 Counter Setting (Setting Info)

- ③ Follow the steps ① again to display the Counter Setting screen.

- ④ At the top of the Counter Setting screen, click on the [Ch.1] tab.

Counter Setting

I/F Unit ID: 1 EJ Counter ID: 01 Get device settings

Setting info **Ch.1** Ch.2

Template

In-app display name Save Template

Basic parameters

Linear gauge resolution A-axis: 1: 0.001mm (1μm) B-axis: 1: 0.001mm (1μm)

Count direction: 0: + direction

Origin detection direction: 0: + direction

Origin detection function: 0: Disable

Advanced parameters

Key protect: 1: Protected Tolerance judgment setting: 1: 5-step tolerance judgment

Display mode selection: 6: Ch.1 A-axis count Ch Peak value preset: 0: Disable

Display at startup: 0: Counter standby Speed sampling cycle: 0: 10ms

Smoothing: 0: No smoothing Arbitrary ID specification: 01: Auto ID specification

Hide the lowest-order digit: 0: Display all digits Unit: 0: Display mm

Power saving function: 1: Display goes out after Parameter initialization

I/O setting

ERR/ALLGO selection: 0: Use as ERR Ch coupling selection: 0: Do not couple Ch

Origin re-detection: 0: Disable Preset by I/O: 0: Executed only for Ch

Ch affected by the CLEAR signal: 0: Executed only for Ch

Apply Close

figure3.3-4 Counter Setting (Setting Info)

- ⑤ Switch to the Tolerance Value, Preset Value, Peak Mode setting tab of Ch.1.
- a. Click on "EJ Counter ID" to change the EJ Counter to be set.
  - b. Clicking "Get device Settings", you can get and check the current parameter settings of EJ Counter.
  - c. If you already have a saved template, you can load the settings from the pull-down menu of "Template" (see section 3.6 for details on "template settings").
  - d. You can enter a name of your choice in the "In app display name" field and identify it on the screen. When you click on the [Save template] button, the template will be saved in your PC, and the settings will be reflected in the app by [Apply] clicking.
  - e. Enter tolerance values from S1 to S4 and click [Setting] to set the tolerance values to EJ Counter and the completion message appears. Please refer to Section 3.2.3 of the EJ Counter User's Manual "Clearing the peak values" for details on tolerance settings.
  - f. Enter the preset values and click [Settings] to set the preset value in the EJ Counter and the completion message will be displayed. Click [Clear] to clear the preset values.
  - g. It is possible to set the count value by [Preset clear], [Zero set] and [Preset execution]. By executing [Preset Clear], the preset value is released and it returns to the previous value before the preset value, and the maximum value, minimum value and runout width are cleared.
  - h. To switch the peak mode. Select from the pull-down menu and click on the [Apply] button to switch. Clicking [Peak clear] will clear the peak values.
  - i. Clicking [Close] will stop the setting and close it.
  - j. It is also possible to collectively set tolerance, preset values and peak mode by clicking [Apply].
  - k. You can check Ch ID in "In-app assigned ID".

figure3.3-5 Counter Setting (Ch.1)

- ⑥ Click on "Ch.2" tab and set up the same as Ch.1.
- ⑦ Repeat steps ① to ⑤ to complete the setting of all EJ Counters.

**Tips**

- If you change the ID of EJ Counter at "Arbitrary ID specification" in "Advanced parameter", EJ Counter will be restarted automatically. Please follow the dialog and restart this application.
- While the Counter Settings screen is open, the PW LED on the interface unit to which that EJ Counter is connected will blink.

### 3.4. Calculation Ch setting

- ① On the left side of the screen, click on [Calculation Ch setting] and expand it.

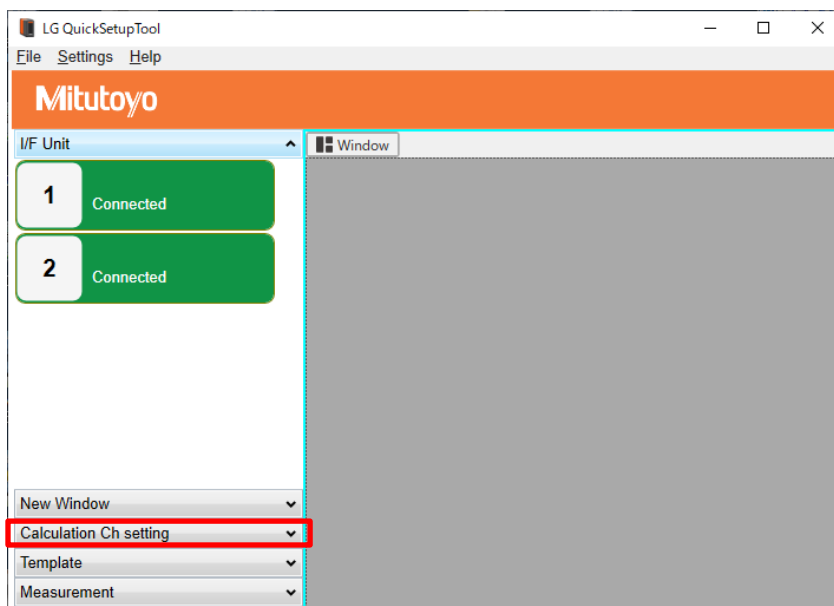


figure3.4-1 Before calculation of the Ch settings opens

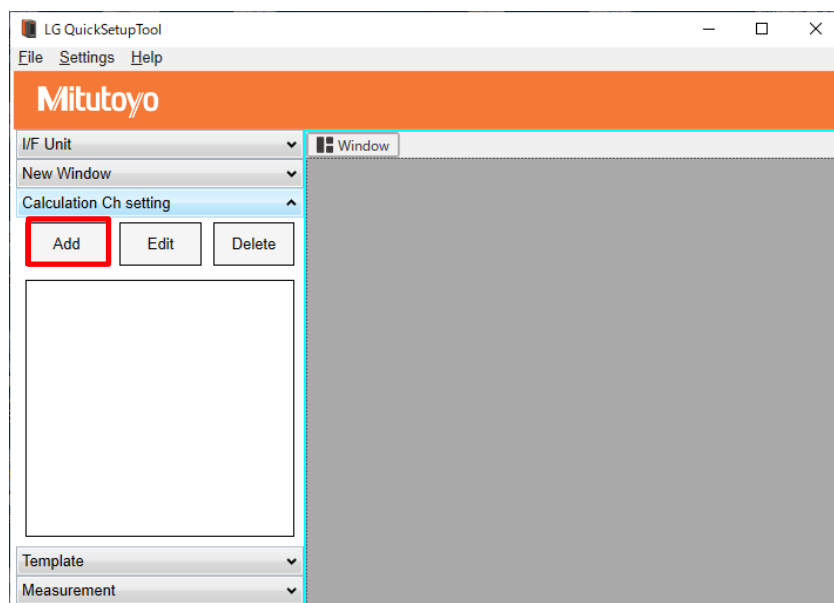


figure3.4-2 After open Calculation Ch setting



- ② By clicking on [Add] of the expanded Calculation Ch setting, the setting screen will be displayed.
- a. Specify the in-app assigned ID, which can be set to any value from 9001 to 9016.
  1. b. Enter the Arithmetic expression. Place the cursor in the input area and right-click, the template of the calculation formula will be displayed. Select the necessary calculation. Replace "#" with the in-app ID of the target Ch. (See Section 3.4-⑤).
  - c. Set the tolerance. Enter the tolerance values from S1 to S4 according to the selected tolerance judgment setting.
  - d. Enter the preset values and click [Apply]. Click [Clear] when need to clear the preset values.
  - e. You can enter any name in the "In app display name" field to identify it on the screen. When you click on "Save template", the template is saved to your computer.
  - f. If a saved template exists, you can copy the Arithmetic expression and Tolerance and Preset settings preset values from the "Template" pull-down list (see section 3.6 for information on the template settings screen).
  - g. If you click the [Apply] button, the calculation Ch will be reflected in the application.
  - h. Clicking "Close" will stop the setting and close it.

figure3.4-3 Calculation Ch setting screen

figure3.4-4 Template of arithmetic expressions

**Tips** • Calculation Ch cannot be specified in an arithmetic expression, and it is not possible to set three or more items in an arithmetic expression.

Example of an arithmetic expression

Note: ✓ : Applicable, – : Not applicable

✓ Configurable : ID(1011)/ID(1012)

– Not configurable : ID(9001)/ID(1012))

✓ Configurable : Max(ID(1011),ID(1012))

– Not configurable : Max(ID(1011),ID(1012),ID(2011))

- ③ In order to edit the created Calculation Ch settings, click on the [Edit] button after selecting the Calculation Ch to be edited to open the Calculation Ch setting screen.

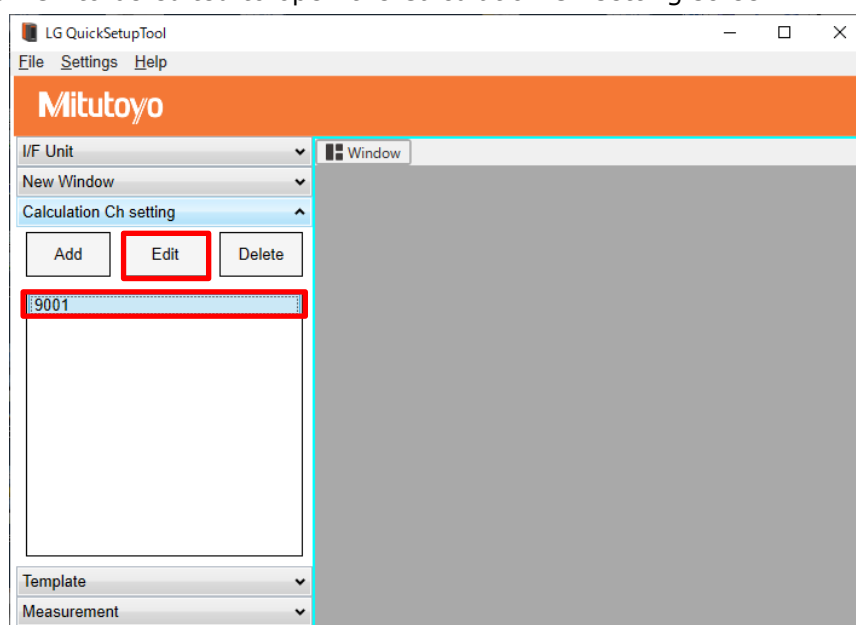


figure3.4-5 Selection Point for Editing

- ④ When deleting the created calculation channel, click on the [Delete] button after selecting the Calculation Ch to be deleted.

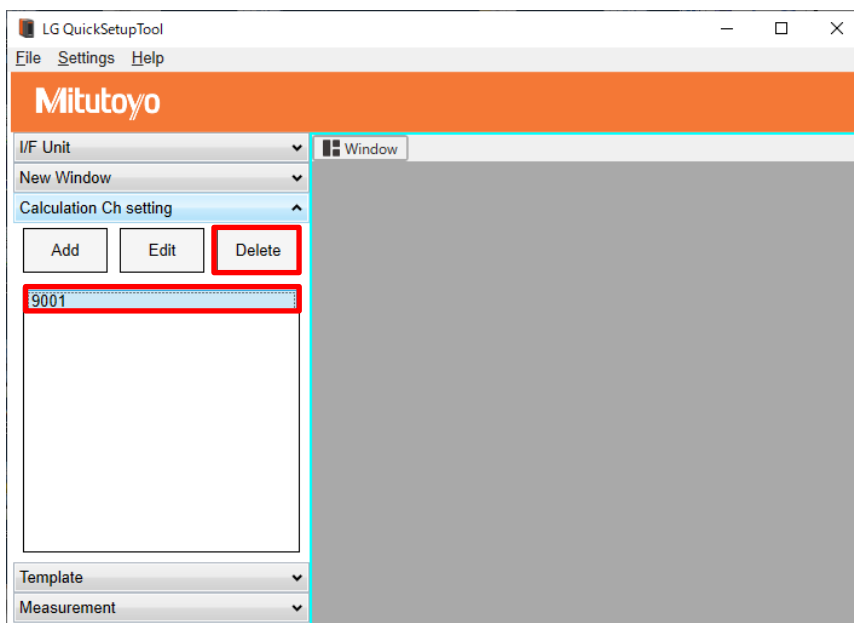


figure3.4-6 Selection point for deleting a Calculation Ch

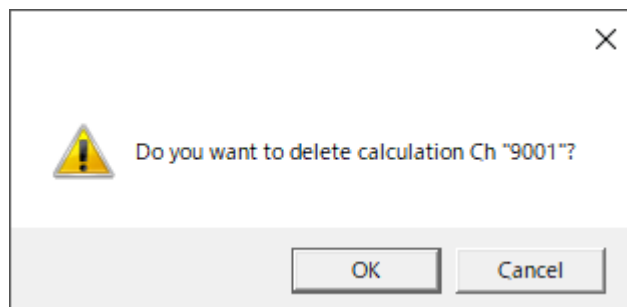


figure3.4-7 Confirmation message for deleting the Calculation Ch

### 3.5. Total Judgement settings

- ① Click on [New Window] on the left side of the screen to expand it.
- ② When you click the [Total Judgment] button, the Total Judgment window will appear in the "Window" area.

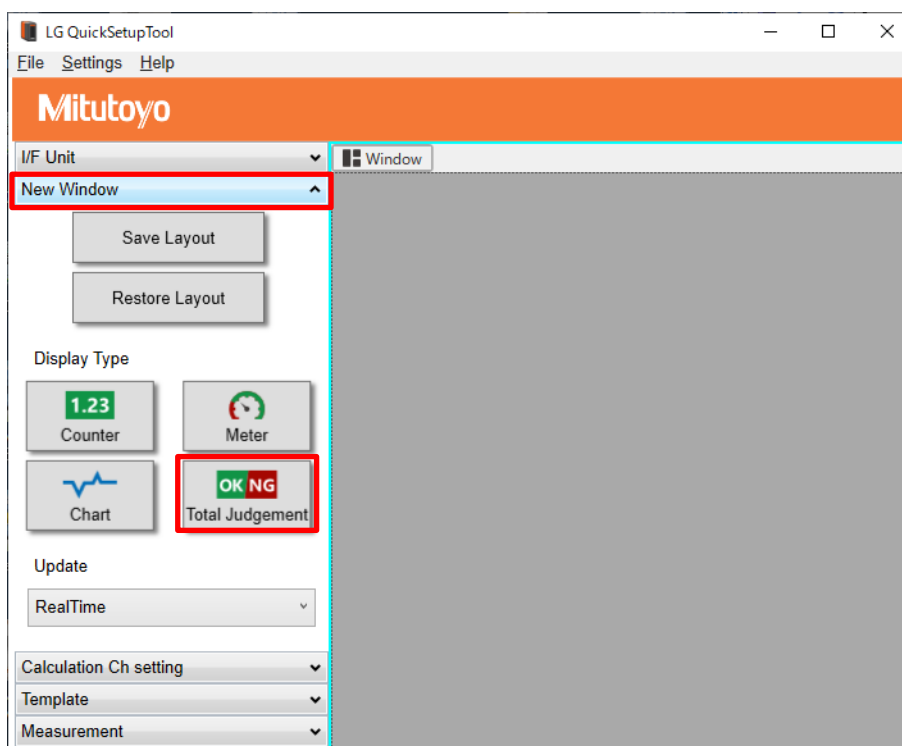


figure3.5-1 Selection point for Total Judgement

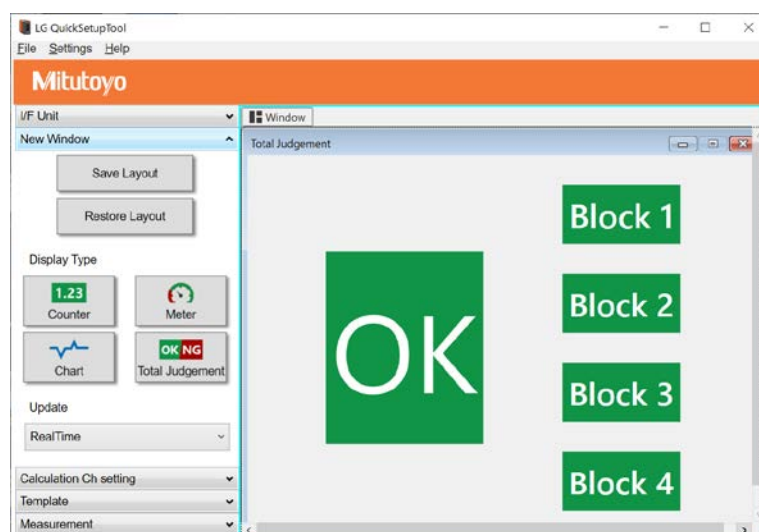


figure3.5-2 Total judgment is displayed

**Tips** • In the Total Judgement, "OK" is displayed only when all of Blocks 1 to 4 are within the tolerance. Unset blocks are judged as OK.

- ③ When you click a Block, you'll see the Total Judgement Setting screen. Select Ch to be used for evaluation from "Judgmenttable Ch" and click [<] to move the selected Ch to the Judgement Ch. After selecting them, click [Apply]. When you want to remove it from Judgement Ch, click [>].

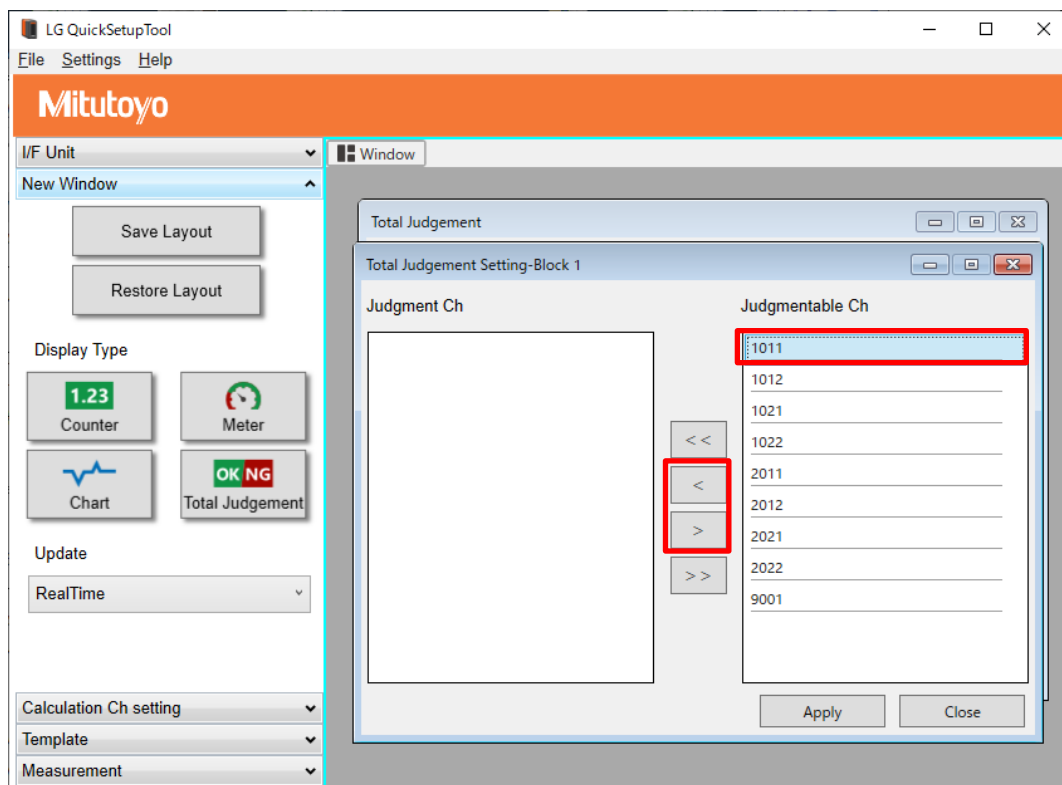


figure3.5-3 Total judgement setting-Block1

- ④ When the setting is complete, the in-app assigned ID of the Ch used for judgment will be displayed in the block.

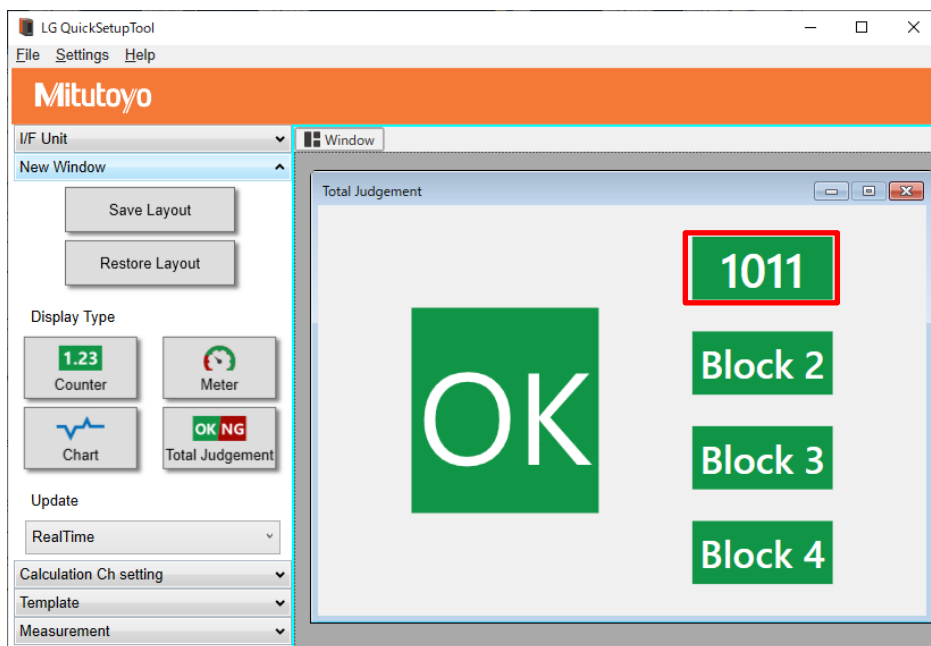


figure3.5-4 If you set your in-app assigned ID:1011 to Block 1

### 3.6. Template settings

- ① By creating a template, you can easily copy the parameter settings of EJ Counter, tolerance/ preset values and calculation Ch settings to multiple channels. Click [Template] on the left side of the screen and expand it.
- ② Select Counter/Channel/Calculation channel from the pull-down menu of [Counter] and click [Add] to open the setting window.

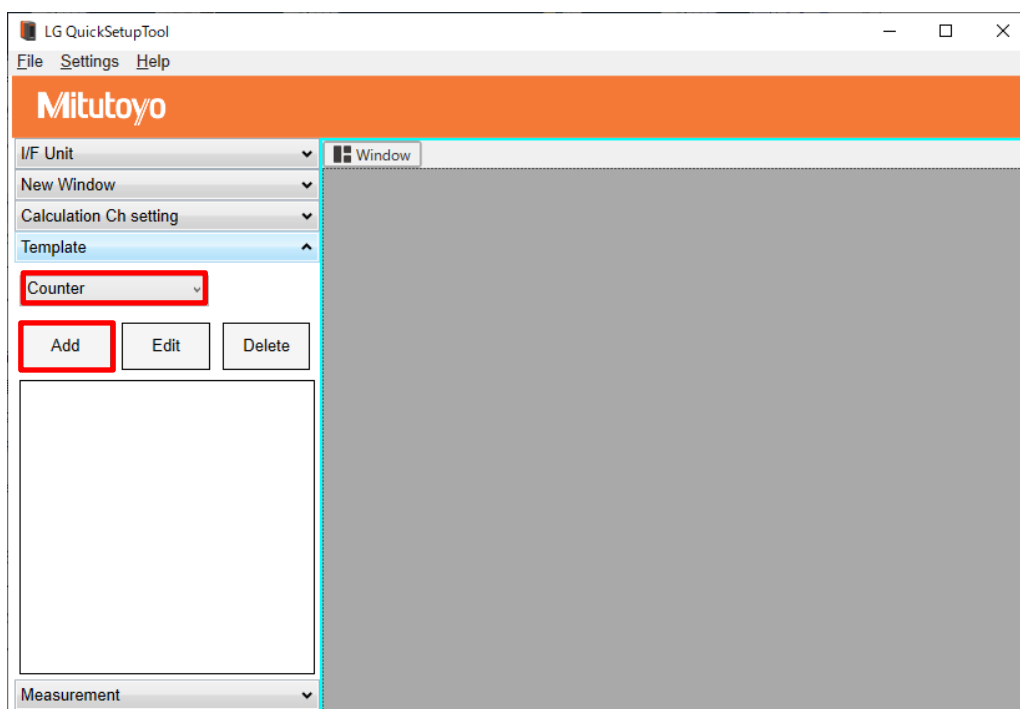


figure3.6-1 Template Setting Selection Point

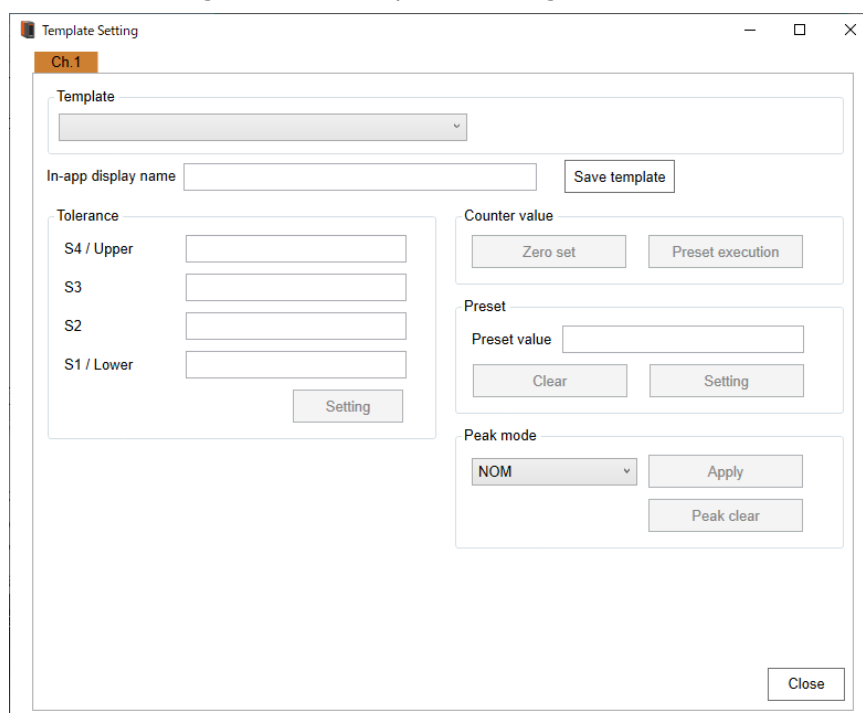


figure3.6-2 Ch.1 Template configuration screen

- ③ When you have finished entering the settings, click [Save template] to add the template to the list. To edit the template, click on [Edit] while it is selected, or click on [Delete] to delete it.

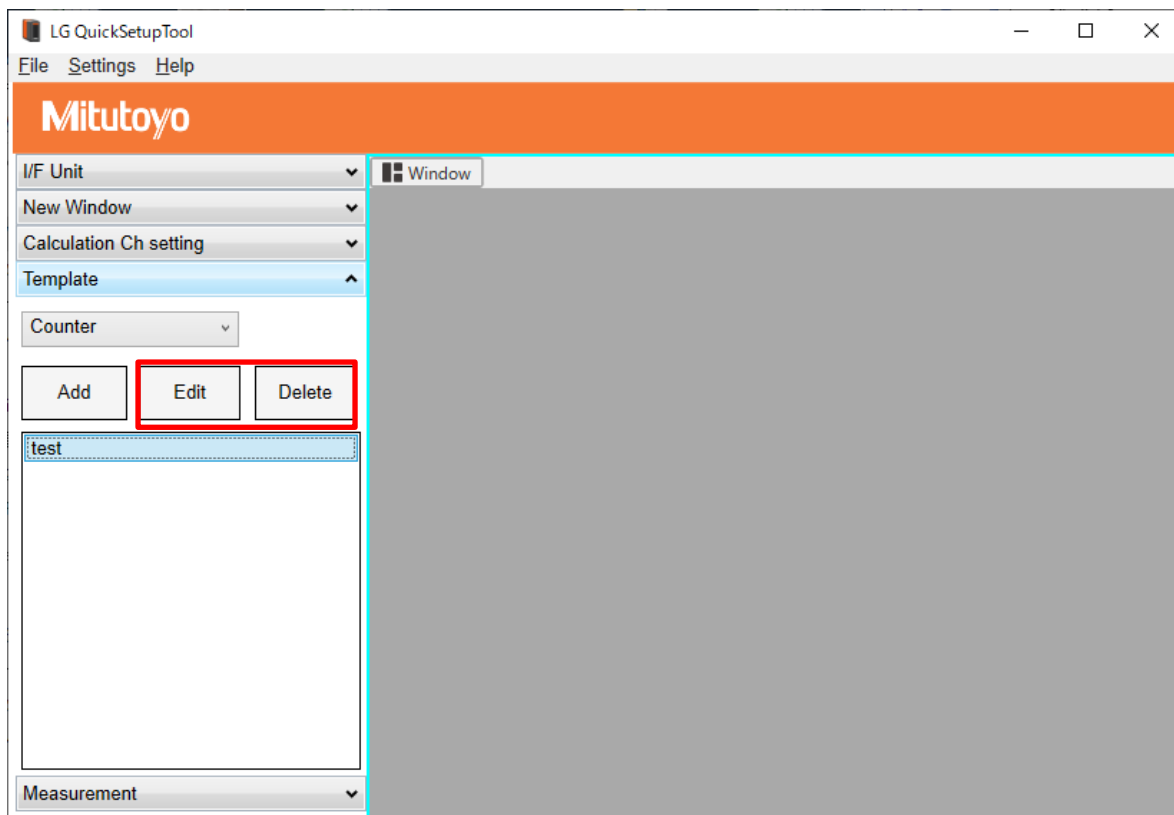


figure3.6-3 Selections for editing/deleting template settings



#### 4. Display of the current value

- ① The current measurement values and Total Judgement results are displayed in the “Window” area. Click on [New Window].
- ② Click the icon for the desired display type.

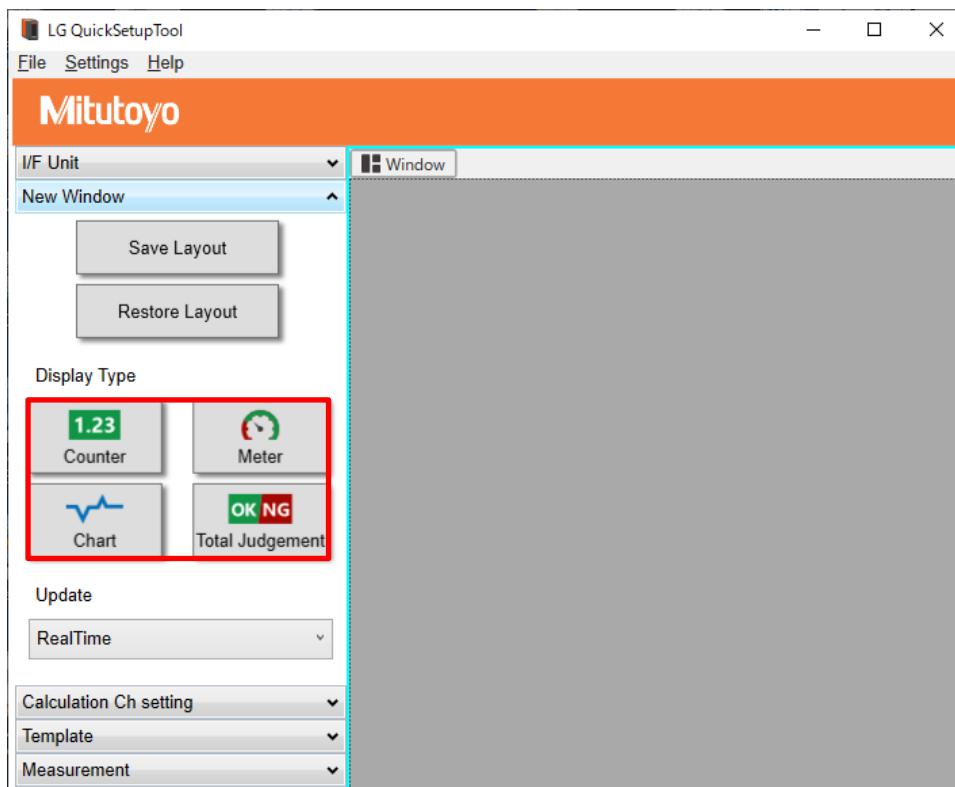


figure3.6-4 Selections when adding windows

③ Click the icon for the desired display type.

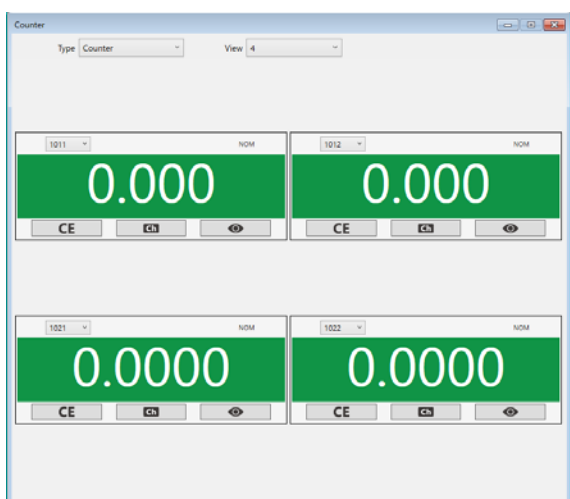


figure3.6-5 Counter type



figure3.6-6 Meter type



figure3.6-7 Chart type

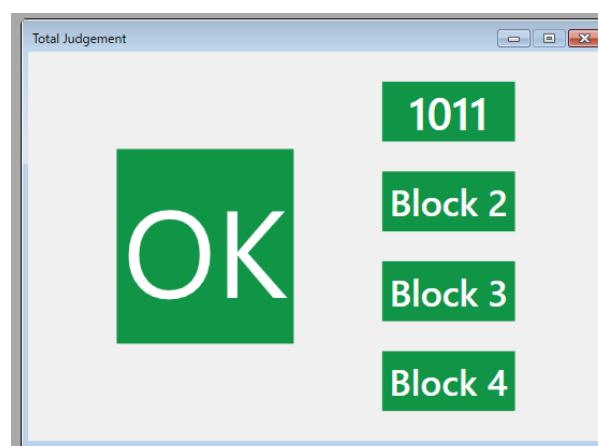



figure3.6-8 Total Judgement

**Tips** • The following operations are available as common specifications, except for the Total Judgement.

Click [CE] to clear the error (you need to resolve the cause of the error).

You can set up the EJ Counter by clicking on [Ch] (see section 3.3).

By clicking on  , you can set the display range, center value and number of scale points (only for Meter and Chart).

Up to 32 Ch can display

You can change the display type from the [Type] pull-down list

- Only one Total Judgement window can be displayed.

- ④ Clicking on the [Window] tab will allow you to choose how to view multiple windows.

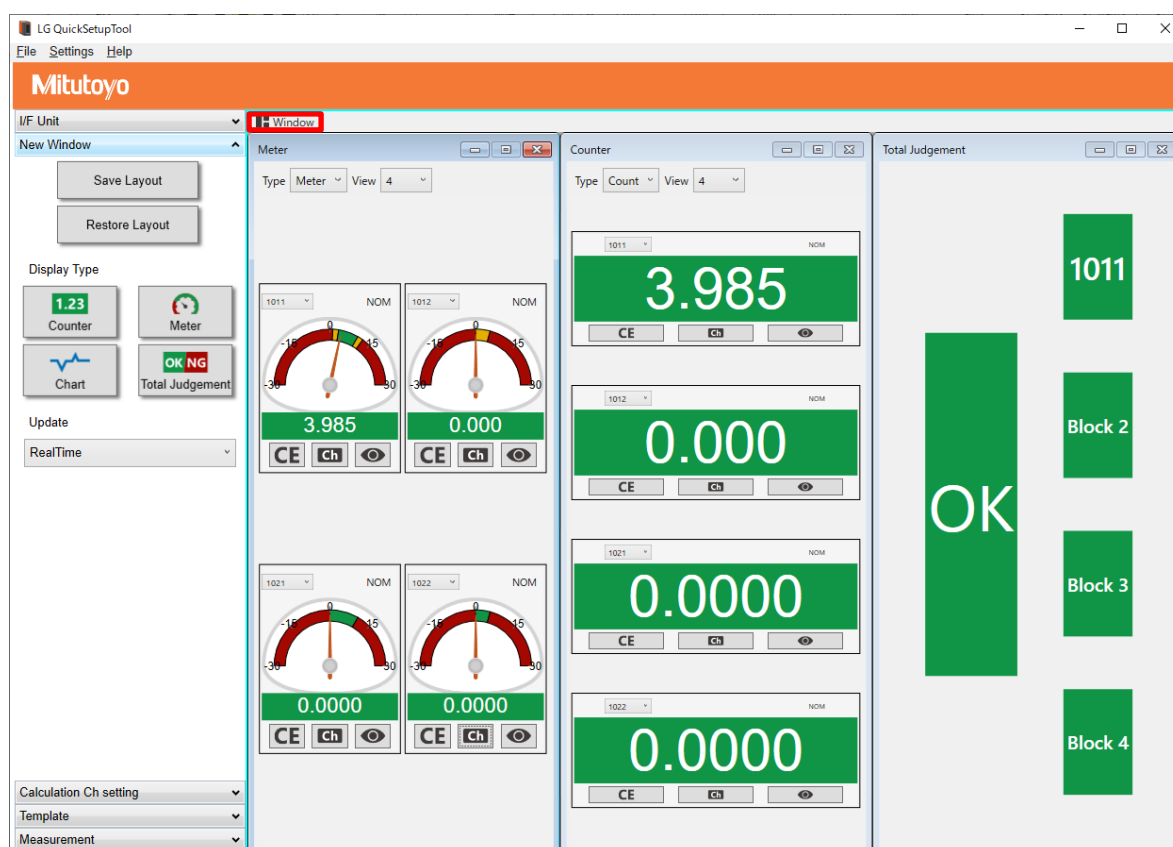


figure3.6-9 An example of "Vertically" aligned

- ⑤ You can set the display update cycle from the "Update" pull-down list in the left menu.
- ⑥ If you want to repeat the current window arrangement, you can save it as a layout. Click on [Save Layout].
- ⑦ To recall a saved layout, click [Restore Layout].

## 5. Getting a log

Save the measurement results as a CSV file to your PC. There are four ways to record the log

- Always-on get..... Record logs in RealTime.
- Timer..... Record logs in the specified period.
- KEY..... Record a log at any point in time by the customer.
- OK..... Record logs only when the judgment on the specified channel is OK.

### 5.1. Always-on get

- ① Set Update cycle. Select [RealTime] from the "Update" pull-down menu in "New window"(see section 4-⑤).
- ② Set the output contents of the log. Click [Measurement] in the menu bar on the left side of the screen, and select [Always-on get] on the display.
- ③ Click the [Output setting] button. The Output setting screen is displayed.

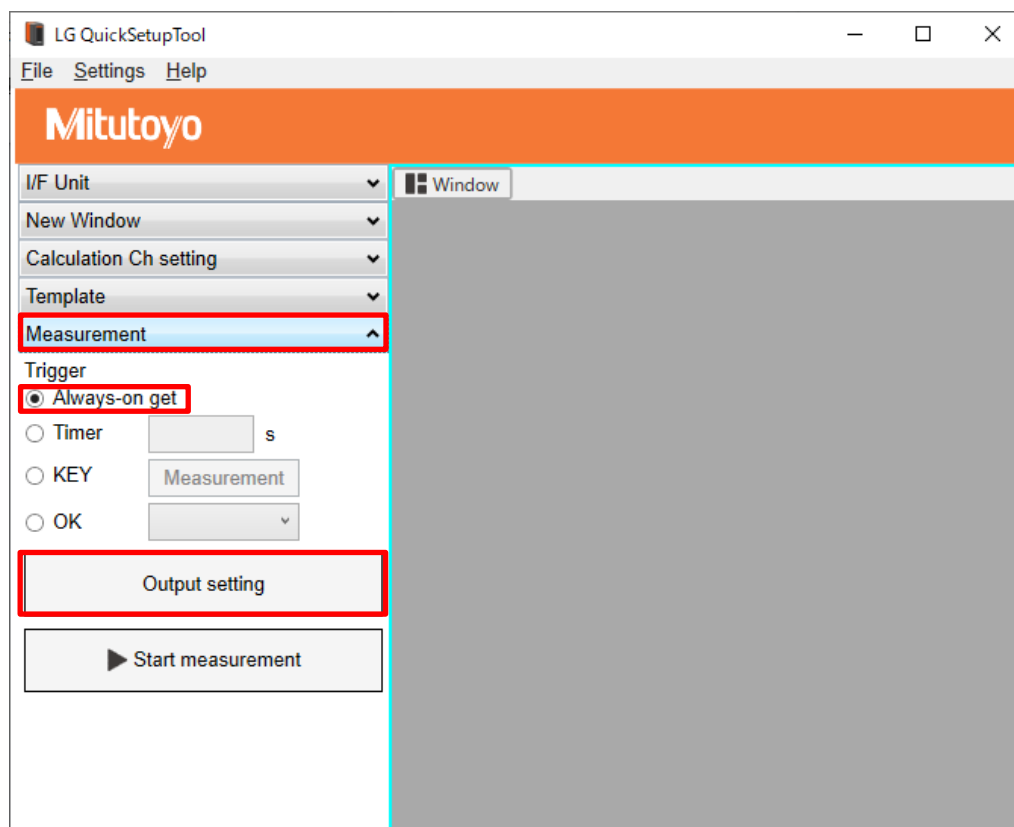


figure5.1-1 Select points to open Output setting screen

- ④ Select the channel you want to log from "Outputable Ch" on the right, and click [ < ]. You can remove unnecessary channels by clicking [ > ].
- ⑤ Checking the "Outputs" checkbox allows you to output tolerance/comprehensive judgments/time stamps to the log.
- ⑥ For "Log format" pull-down list, select "CSV".
- ⑦ Set "Log save method" from the pull-down menu. Select [Auto save] to save the log automatically at the end of logging, or select [Specify when measurement completed] to specify the file name.
- ⑧ In "Log save location", specify where to save the log file. Click "Reference" to specify a location on your computer.
- ⑨ When all settings are complete, click "Apply". To cancel the settings, click "Close".

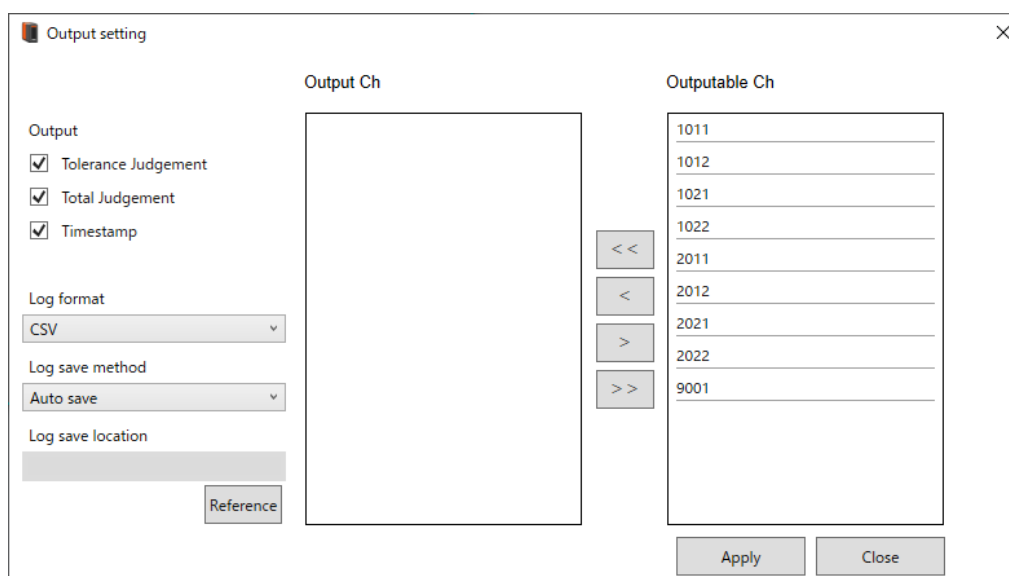


figure5.1-2 Output setting screen

## 5.2. Timer

Set the update cycle, refer to section 4-⑥. The operation after that is the same as 5.1-③ and onwards.

## 5.3. KEY

- ① Select [KEY] from the [Measurement] menu on the left side of the screen.
- ② Set the output contents in the same way as 5.1-③ to ⑨.

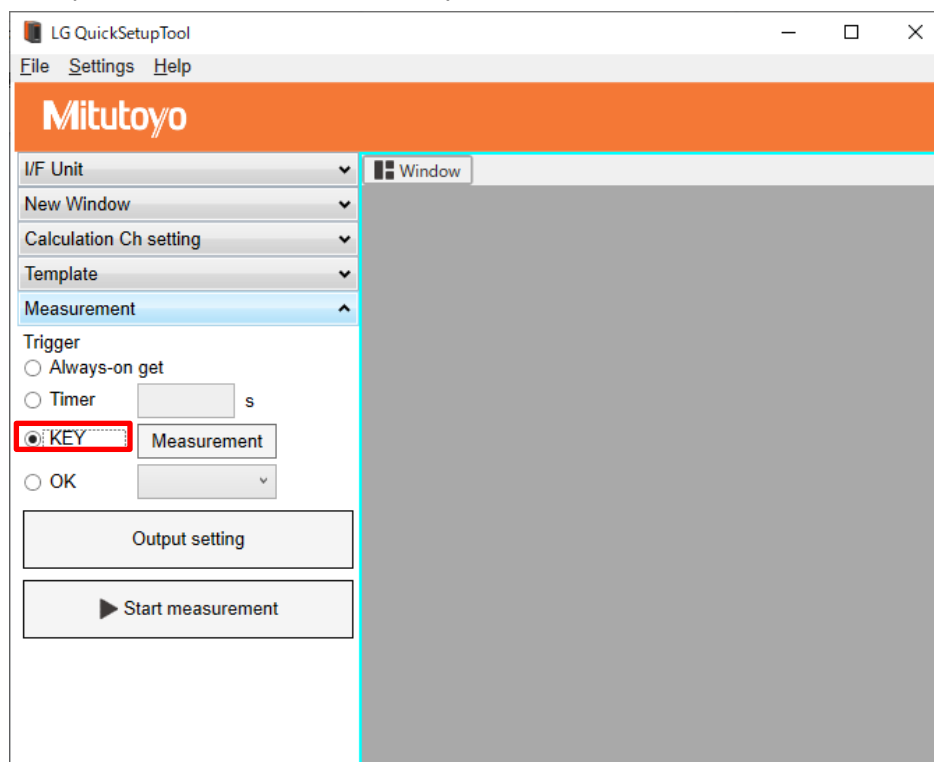


figure5.3 Selected Trigger type (KEY)

#### 5.4. OK

- ① Select [OK] from [Measurement] on the left side menu bar.
- ② Select the channel you want to specify as an OK condition from the pull-down list at the right of [OK] above.
- ③ Set the output contents in the same way as 5.1-③ to ⑨.

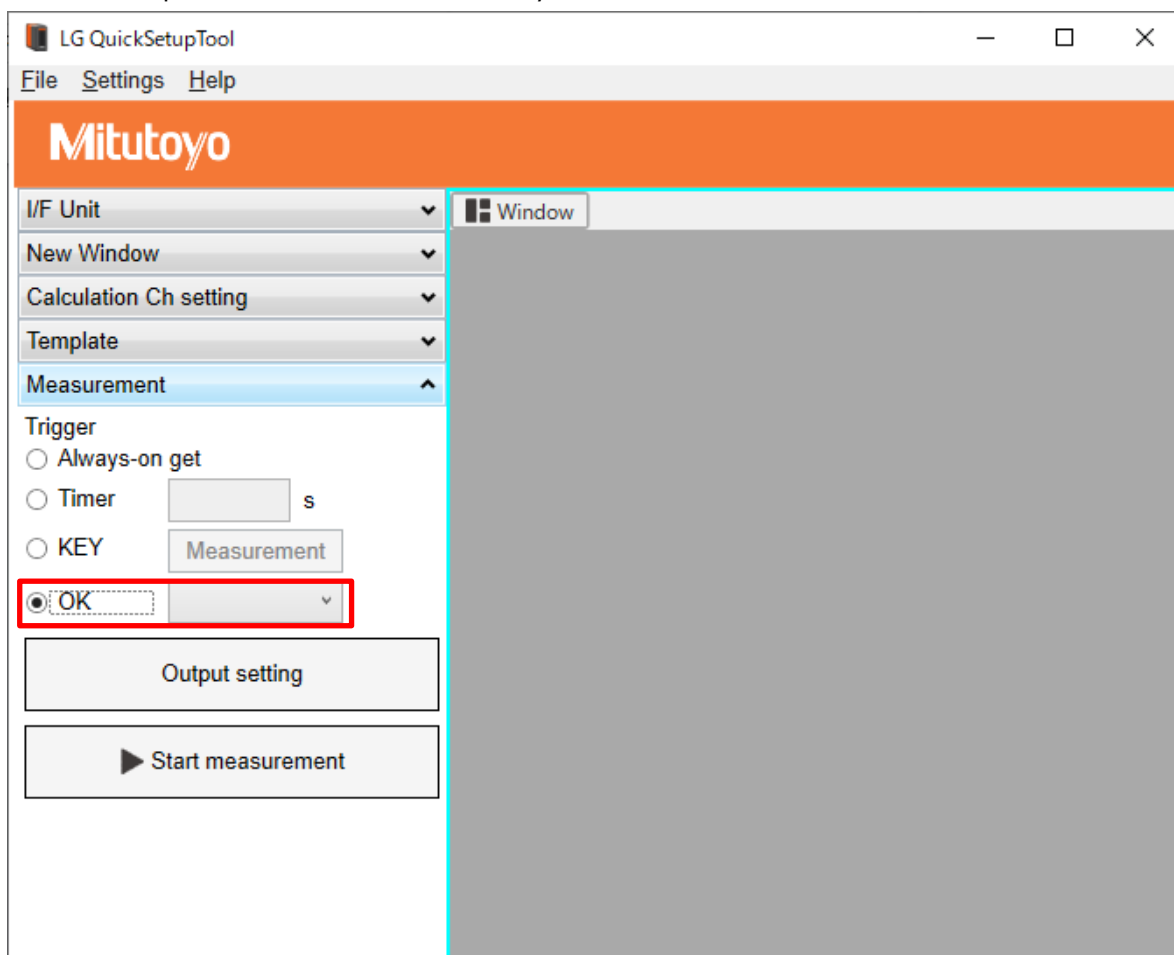


figure5.4 Selected Trigger type (OK)

## 5.5. Measurement

- ① Click the [Start measuring] button in the "Measurement" menu on the left side of the screen.

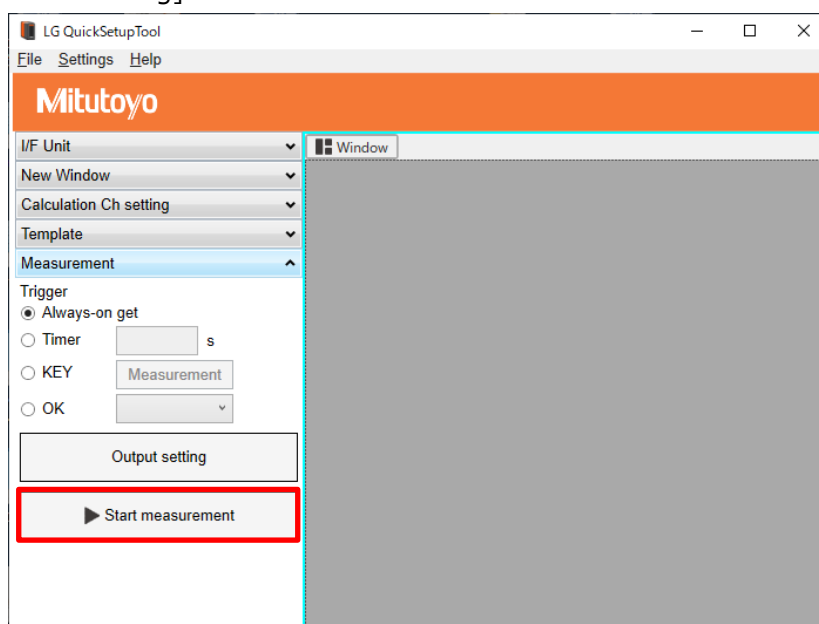


figure5.5-1 Operation point at the start of measurement

- ② The button turns red and the cursor changes to a light blue ring during measurement.
- ③ In the case of KEY setting, if you click on the [Measurement] button, the log is acquired at that time.

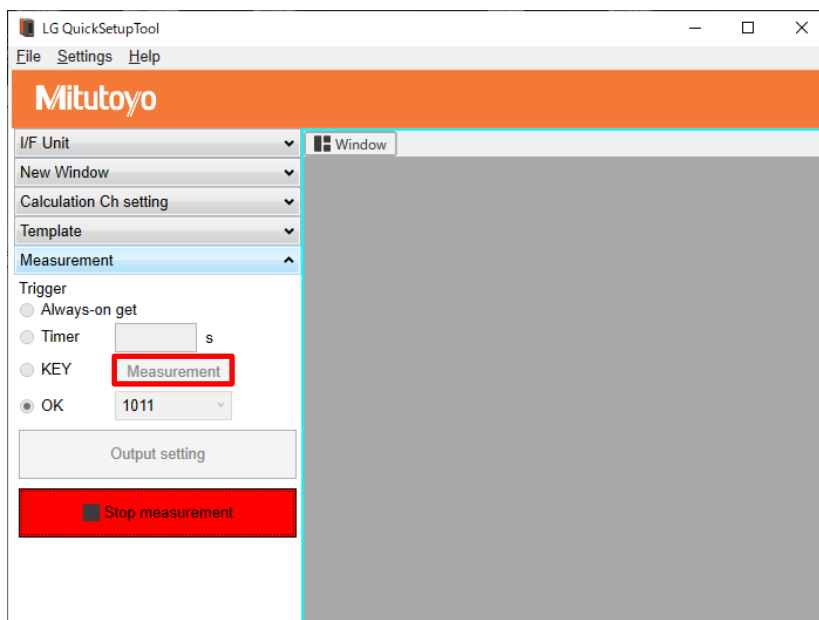


figure5.5-2 Measurement in progress

- ④ Clicking [Stop measurement] terminates the log acquisition. You can specify the file name if you have selected [Specify when measurement completed] for the log saving method.

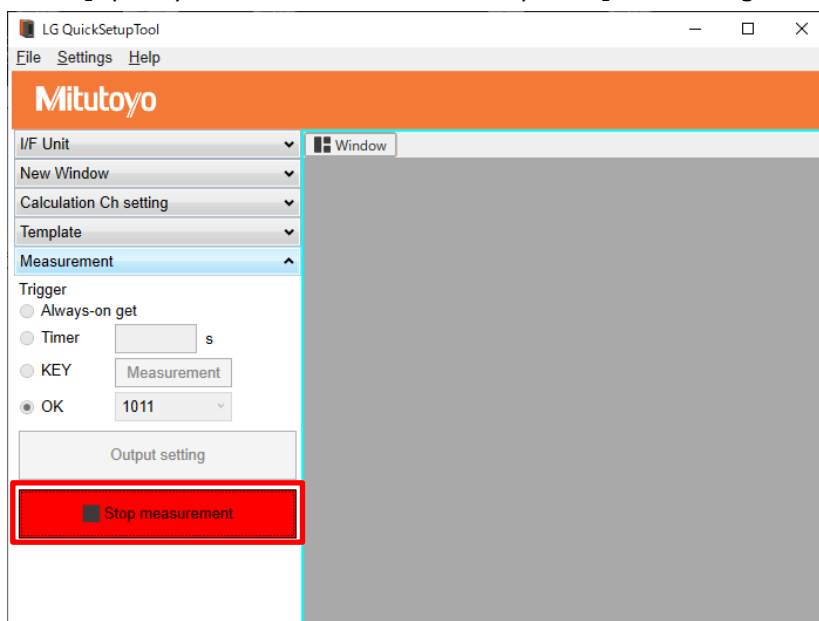


figure5.5-3 Operation point at the end of measurement

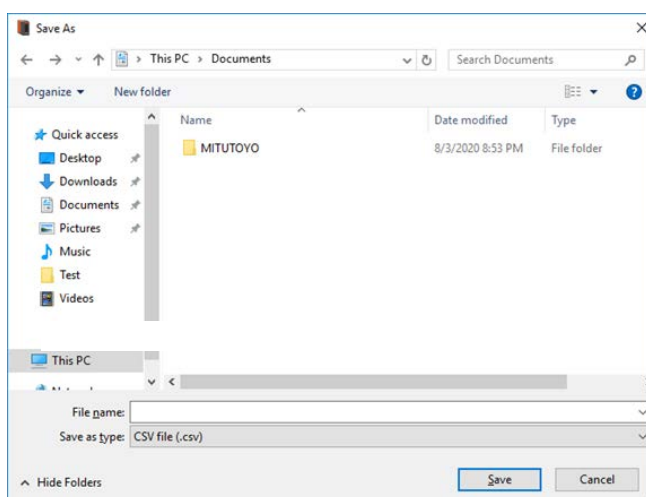


figure5.5-4 Specification of the file name  
(only Specify when measurement completed)



## 5.6. Checking the log

Open the folder you specified when you got the log, and double-click the file you want to check the log.

No	Time	Total	Block1	Block2	Block3	Block4	CH1 011	Judge1 011	CH1 012	Judge1 012	CH9001	Judge9001
0	49:29.3	OK	OK				0.001 OK		0.005 OK		0.006 OK	
1	49:30.3	OK	OK				0.001 OK		0.005 OK		0.006 OK	
2	49:31.3	OK	OK				0.001 OK		0.005 OK		0.006 OK	
3	49:32.3	OK	OK				0 OK		0.003 OK		0.003 OK	
4	49:33.3	OK	OK				0.006 OK		-0.001 OK		0.005 OK	
5	49:34.3	OK	OK				2.734 OK		-0.002 OK		2.732 OK	
6	49:35.3	OK	OK				6.772 OK		-0.002 OK		6.77 OK	
7	49:36.3	OK	OK				5.194 OK		-0.002 OK		5.192 OK	
8	49:37.3	OK	OK				5.857 OK		-0.002 OK		5.855 OK	
9	49:38.3	OK	OK				0.007 OK		0 OK		0.007 OK	
10	49:39.3	OK	OK				0.001 OK		-0.002 OK		-0.001 OK	
11	49:40.3	OK	OK				0.001 OK		-0.011 OK		-0.01 OK	
12	49:41.3	OK	OK				0.001 OK		-0.039 OK		-0.038 OK	
13	49:42.3	OK	OK				0 OK		-0.004 OK		-0.004 OK	
14	49:43.3	OK	OK				0 OK		-0.023 OK		-0.023 OK	
15	49:44.3	OK	OK				0 OK		52.854 OK		52.854 OK	
16	49:45.3	OK	OK				0.001 OK		13.937 OK		13.938 OK	

figure5.6 Example of a log file

**Tips** •The "Total" equals the Total Judgement.

•Blocks that are not used for Total Judgement will be output as blank.

## 6. Others

### 6.1. Language selection

It is possible to change the display language. Select [Settings] from the menu to open the setting screen. Select your preferred language from the "Language" pull-down menu and click [OK].

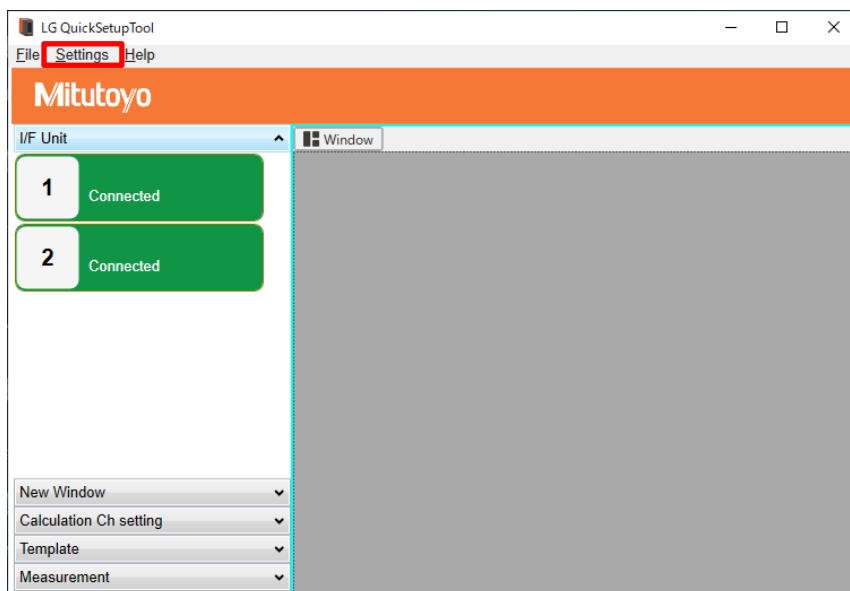


figure6.1-1 Display language setting Operation points at call

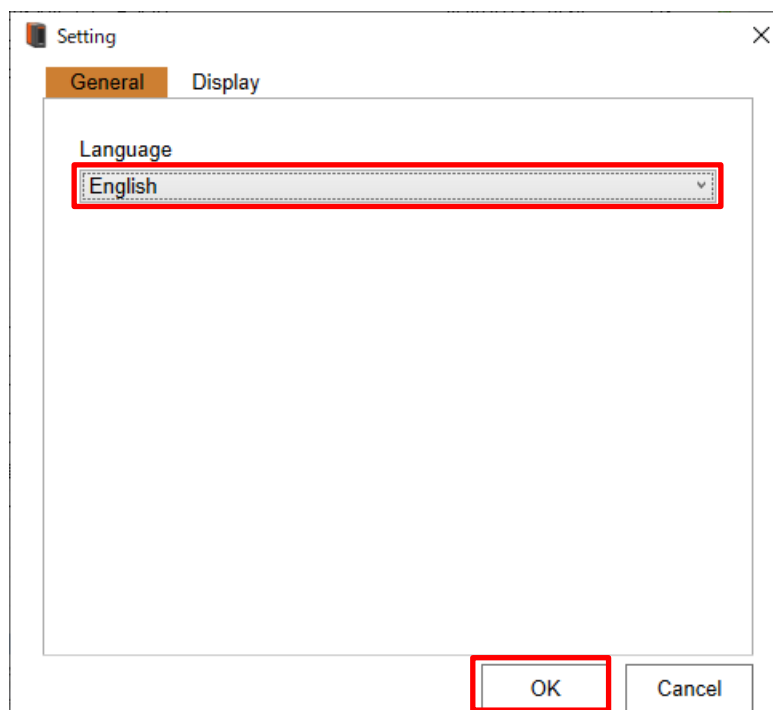


figure6.1-2 Language Selection Screen

## 6.2. Help

Select [Help] - [Manual] from the menu to display the Interface Unit User's Manual. You will need Adobe Acrobat Reader to view it.

When you select [Help] - [About] in the menu, the version of this application will be displayed.

You can also check the system information of your PC.

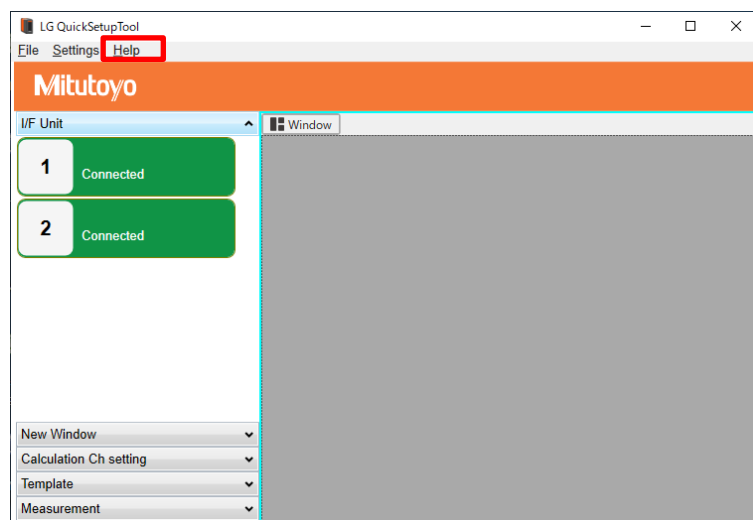


figure6.2 Operation point to call help

## 7. Troubleshooting

If you are encountering problems, please refer to the following troubleshooting tips and tricks, or refer to your user's manual for information on EJ Counter and interface unit errors.

table 7.1 List of troubleshooting tips

Problem	Cause	Solution
The interface unit does not appear on screen.	Interface unit is not powered on.	Check the interface unit connections.
	The USB cable is connected improperly.	Make sure the USB cable is connected.
Number of EJ Counters are not enough.	EJ counters are not linked.	Make sure EJ Counters are connected.
Nothing appears on the chart.	Error in the EJ counter.	Please clear the EJ Counter's error.
Measured values does not change.	HOLD signal of EJ Counter is applying.	Release the HOLD signal of EJ Counter.
The measurement is not started.	The "Log Format" is set to None in the Output settings.	Please set the "Log Format" to CSV.
There is an obvious anomaly in the app's behavior.		Delete the "MITUTOYO" folder in the "Documents" section of your computer.

## 8. Uninstall

Please uninstall this application in the following way if you need.

- ① Right-click on the windows start button and select [programs and features].
- ② Click [uninstall] and follow the on-screen uninstallation guidance to complete the uninstallation.

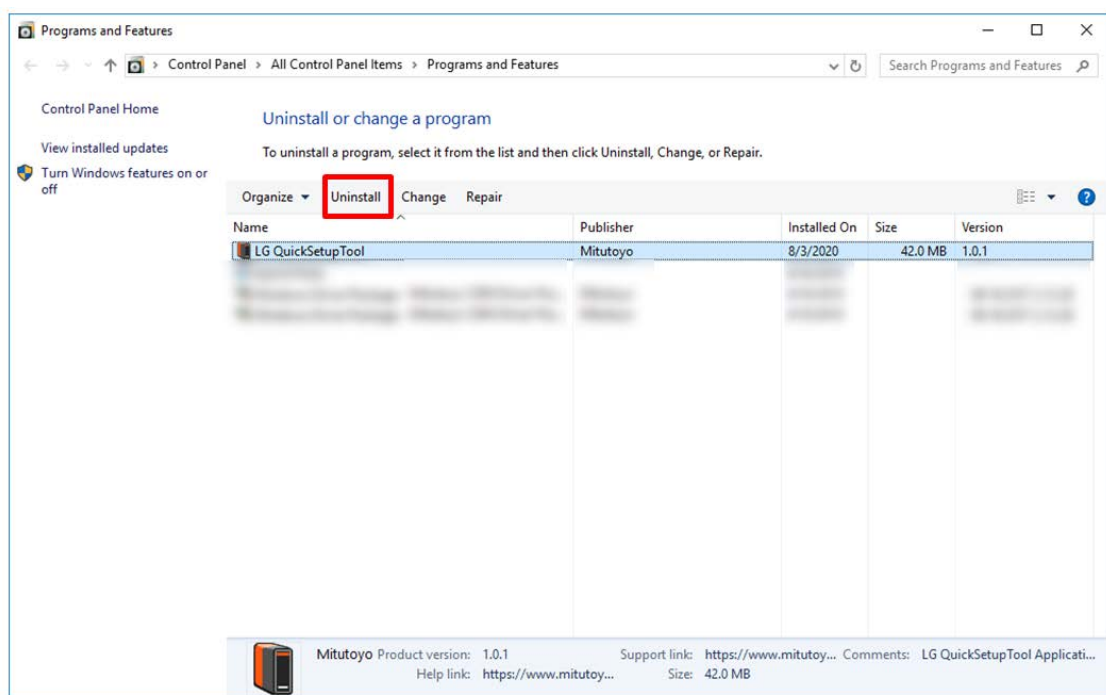


figure8-2 Uninstallable program list

**Tips** • The "MITUTOYO" folder in the "Documents" section of your computer will remain after uninstallation. The log files, templates, and other settings that were obtained up to that point are saved in this folder. If you want to use them on another computer, copy the contents of this folder. To initialize this application, delete the entire "MITUTOYO" folder.

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