

IM2704 Sample Application Manual

Overview

IM2704 Sample Application (this application) can perform the following operations on IM2704 and IM2706 (hereinafter referred to as "the device") :

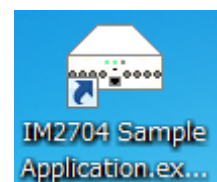
- Settings for the device
- Display of measured values
- Sending and receiving communications commands

System requirements

- CPU: Operating speed of 1 GHz or greater
- RAM: 512 MB or greater
- OS: Windows 10, Windows 11
- Microsoft .NET Framework 4.8.1
- Interface: USB, LAN
- Monitor resolution: 1440×900 or greater
- Hard drive: Free space of 5 MB or greater (If .NET Framework 4.8.1 has not yet been installed, about 4.5 GB more free space will be required.)

Installing this application

1. Double click the downloaded file "setup_IM2704 Sample Application.exe"
2. Click [Next](#) every time when it appears.
3. The installation will be started. When it is completed, a shortcut, as shown in the right, will be created on the desktop.



Uninstalling the application

- Windows10, Windows11

This application can be uninstalled by opening the Windows Setting, choosing Apps.

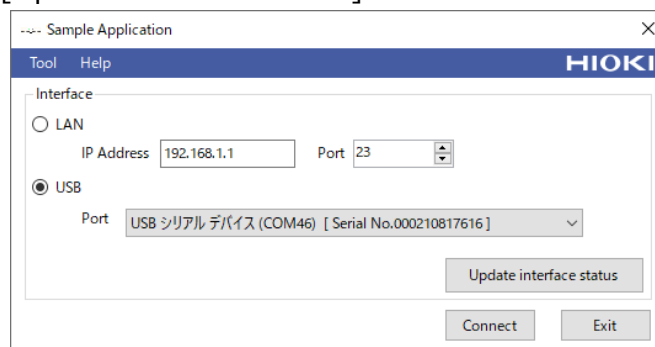
Connecting the instrument to your computer

- Connecting the instrument via USB
Works with standard Windows drivers.
- Connecting the instrument via LAN
You'll need a LAN cross cable.

Launching and connecting to the application

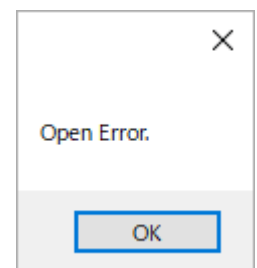
1. Double-click the application's shortcut on the desktop. The measurement screen will be displayed.
2. Select an interface and click [Connect].

If you have connected to the PC via USB after starting this application, please click [Update Interface status].



3. If you get an error message like the one on the right, please make sure that you are using the correct IP address and port. Also, the port may be used by other applications.

- Initial value of the device
IP address ... 192.168.1.1
Port ... 23



Application interface

This application will force the following settings upon connection.

When this application is closed, the following settings will be restored to the original settings at the time of connection.

If it does not exit successfully or cannot communicate on exit, the settings remain as follows.

- Response of measured values [Measurements and Status]
:MEASure:VALid 18

The screenshot shows the 'Sample Application' window with the following components and callouts:

- Displays the measured value.** Points to the 'Measure Value' section on the left, which displays '9.99999E+28 F' for CH1 and CH2.
- You can check the settings of the device and the log of command transmissions.** Points to the 'Setting' and 'LOG' tabs on the right side of the interface.
- You can switch between the measured value display screen and full screen (image).** Points to the 'Display switching' button at the bottom left.
- You can configure settings related to the display of measured** Points to the 'Setting' tab, specifically the 'Display update' and 'Update interval' options.
- Press the button to take a measurement. (:READ?)** Points to the 'Measurement' button at the bottom right.

Measure Setting (MAIN)

- When this application is started, it is synchronized with the settings of the device.
- Changing the screen settings will also change the settings of the device. If the change fails, it will revert to the original settings.

○IM2704

MAIN	CORR	PANEL	SYS	INFO	LOG
Setting					
Frequency <input type="radio"/> 120Hz <input checked="" type="radio"/> 1kHz		Circuit <input type="radio"/> SERIAL <input checked="" type="radio"/> PARALLEL <input checked="" type="checkbox"/> AUTO			
Level <input type="radio"/> 500mV <input checked="" type="radio"/> 1V		Speed <input type="radio"/> FAST <input checked="" type="radio"/> MEDIUM <input type="radio"/> SLOW <input type="radio"/> MANUAL			
Range 1nF		WAVE 4			
TrigSource IMMEDIATE		Trig Delay 0.0000 s			
ContactCheck <input checked="" type="radio"/> ON <input type="radio"/> OFF		Trig Sync Delay 0 about 0.00ms			
Threshold 1000Ω		AUTO <input type="radio"/> ON <input checked="" type="radio"/> OFF total: 18 about: 500us			

○IM2706

MAIN	CORR	PANEL	SYS	INFO	LOG
Setting					
Frequency <input type="radio"/> 1kHz <input checked="" type="radio"/> 1MHz		Circuit <input type="radio"/> SERIAL <input checked="" type="radio"/> PARALLEL <input checked="" type="checkbox"/> AUTO			
Level <input type="radio"/> 500mV <input checked="" type="radio"/> 1V		Speed <input type="radio"/> FAST <input checked="" type="radio"/> MEDIUM <input type="radio"/> SLOW <input type="radio"/> MANUAL			
Range 1nF		WAVE 4			
TrigSource IMMEDIATE		Trig Delay 0.0000 s			
FreqShift CH1: +0 % CH2: +0 %		Trig Sync Delay 0 about 0.00ms			
		AUTO <input type="radio"/> ON <input checked="" type="radio"/> OFF total: 30 about: 300us			

Correction (CORR)

- When this application is started, it is synchronized with the settings of the device.
- When correction is enabled, "Valid" will be displayed. If the correction function is OFF or not set to enabled, but the correction function is ON, "Invalid" will be displayed.

- Open Correction and Short Correction

○IM2704

MAIN
CORR
PANEL
SYS
INFO
LOG

OPEN(CH1)

OPEN(CH2)

SHORT(CH1)

SHORT(CH2)

LOAD(CH1)

LOAD(CH2)

CH1
Invalid

☐ ON
 ☒ OFF

EXEC

Freq	G[S]	B[S]
120Hz	+0.00000E+00	+0.00000E+00
1KHz	+0.00000E+00	+0.00000E+00

Reload correction data

Execution Date: 00/00/00 00:00:00

○IM2706

MAIN
CORR
PANEL
SYS
INFO
LOG

OPEN(CH1)

OPEN(CH2)

SHORT(CH1)

SHORT(CH2)

LOAD(CH1)

LOAD(CH2)

CH1
Valid

☒ ON
 ☐ OFF

EXEC

Freq	G[S]	B[S]
1kHz (500mV)	-3.93145E-12	+8.93612E-12
1MHz (500mV)	+5.97280E-11	-1.78614E-11
1kHz (1V)	+4.14282E-13	+3.73529E-12
1MHz (1V)	-1.85839E-11	-1.33535E-11

Setting
 FreqShift: +0 %
 Cable: 0 m

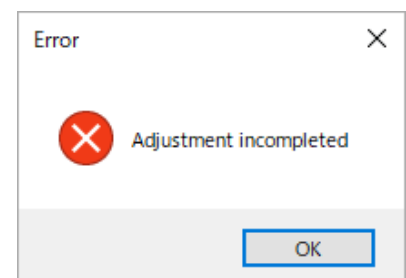
Cable

0m

Reload correction data

Execution Date: 25/03/14 15:00:13

- When a correction error message appears, the correction has not been performed successfully. Please refer to the correction section of the instruction manual.

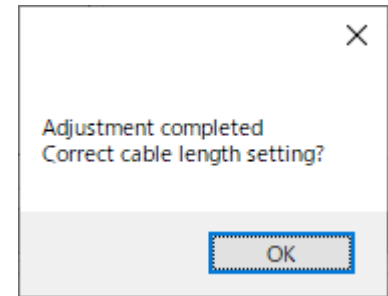


For IM2706 only

- Cable Length Check Function

This function checks the cable length setting value against the actual length of the connected cable after the open correction has been successfully completed.

If the following message appears, there may be a discrepancy between the measurement cable used during the open correction and the cable length correction setting, so please verify.



- Load Correction

○IM2704

○IM2706

Valid: ON and the current setting is the same as the active setting
Invalid: OFF or different from the current setting

- [Adjust]
Execute the Load correction.
Enter a format, a reference value, and then click [EXEC].
- [Adjusted Data]
Displays the reference and correction values at the time of Load correction.
- [Setting]
Displays the settings at the time of Load correction.

Panel (PANEL)

- When this application is started, it is synchronized with the settings of the device.

Specify the panel number to be saved, loaded, or deleted.

The screenshot shows the 'PANEL' tab selected. At the top, there are tabs for MAIN, CORR, PANEL, SYS, INFO, and LOG. Below these are three buttons: Save, Load, and Clear. Above the buttons, there is a 'No.' spinner set to 1, a 'Load Type' dropdown, and a 'Measurement Setting + Adjust Setting' dropdown. Below the buttons is a table with 10 rows, numbered 1 to 10. The first row is highlighted in blue. All rows show 'NO DATA' in the 'Data storage date' column.

No	Data storage date
1	NO DATA
2	NO DATA
3	NO DATA
4	NO DATA
5	NO DATA
6	NO DATA
7	NO DATA
8	NO DATA
9	NO DATA
10	NO DATA

- [Save]**
Saves the current settings to the specified panel number. If panel data already exists, it will be overwritten.
- [Load]**
Reads the settings of the specified panel number.
- [Clear]**
Removes the setting for the specified panel number.

System setting(SYS)

- When this application is started, it is synchronized with the settings of the device.

- [LAN]
If you want to change the LAN setting, press the [Reflect](#) button.
The LAN setting of this product will not be changed until you press the [Reflect](#) button.
- [Time]
It is possible to set and read the time of the device.
- [Backup]
ON...The settings of the device are backed up.
Even if you change the settings of the device and turn it back on, the settings will be remembered.
OFF...The settings of the device are not backed up.
Even if you change the settings of this unit and turn it back on, the settings are not stored. The setting is the last time it was set to "ON".
Set to "OFF" when you want to keep the same settings at startup, or if you want to speed up the process by eliminating the backup process.

- [Signal checking mode]
ON...Turn on the Measurement signal checking mode. The device in this mode always outputs the measurement signals from the HCUR terminals. By checking these signals, you can confirm that the device generation circuit works.
OFF...Turn off the Measurement signal checking mode.
- [RESET]
:PRESet ... The settings of the device, except for the communication settings, correction values and the panel, are initialized.
*RST ... The settings of the device, except for the communication settings and the panel, are initialized.
:SYSTem:RESet ... The settings of the device, except for the communication settings are initialized.
Full ... Set to factory default.

Information on the device (INFO)

MAIN CORR PANEL SYS INFO LOG

Information

Main Serial And Version : 210817616 / V1.00
FPGA Version Main : A2107141
FPGA Version Sub : B2303021
Adjustment Date Unit : 2021/08/10
Calibration Date Unit : 2000/00/00

Copy

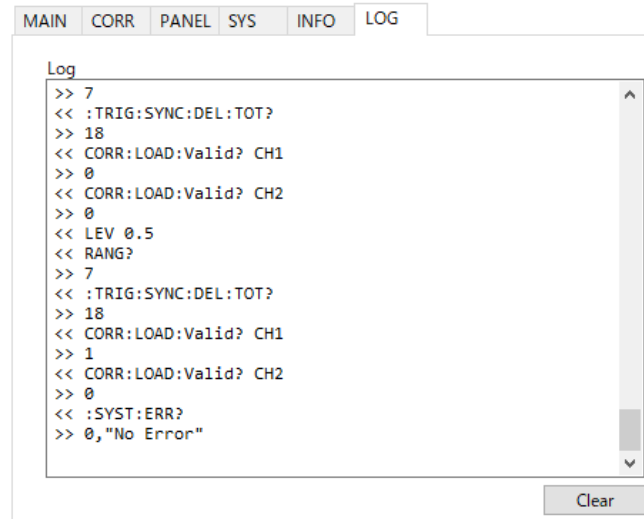
Error

No Error

Get

- You can check the information on the device
You can copy the information on the device by right-clicking on it.
- [Error]
It is possible to obtain the error information of the device.
For details about the contents of each error, refer to the page of the
":SYSTem:ERRor?" command in the operation manual of the device.

Communication log (LOG)



The symbol that precedes the data(「<<」, 「>>」*) has the following meaning.

「<<」 … Data sent to the device

「>>」 … Data received from the device

* This symbol is not actually sent or received.

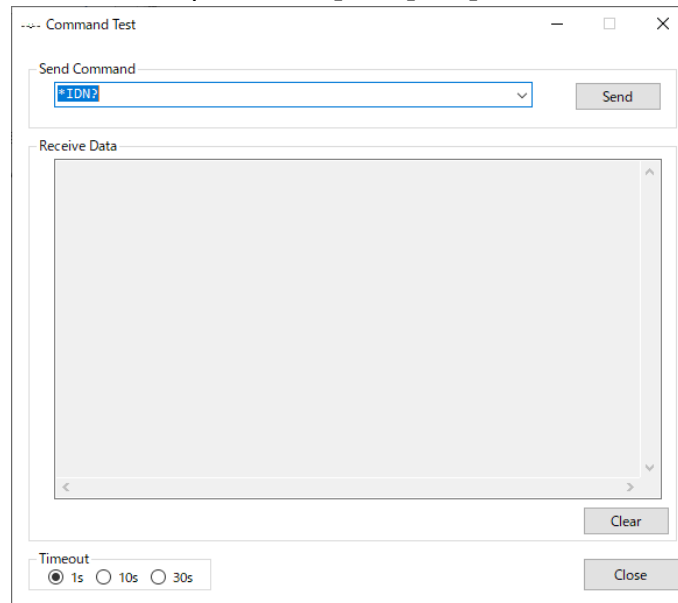
The following is how you can show or hide it in the log.

- Displayed in the Log
 - Commands and responses for setting synchronization at startup.
 - Commands and responses when changing settings from the app.
- Hidden in the Log
 - Transmission and reception of arbitrary commands.
 - Command and measurement value when the [Display update] is ON.
 - Measurement commands and values when the [Measurement] button is pressed.
 - Operation check command (such as *ESR?) and response.

Tool

- Arbitrary command

A new window will open from [Tool] to [Command Test].



You can send arbitrary command.

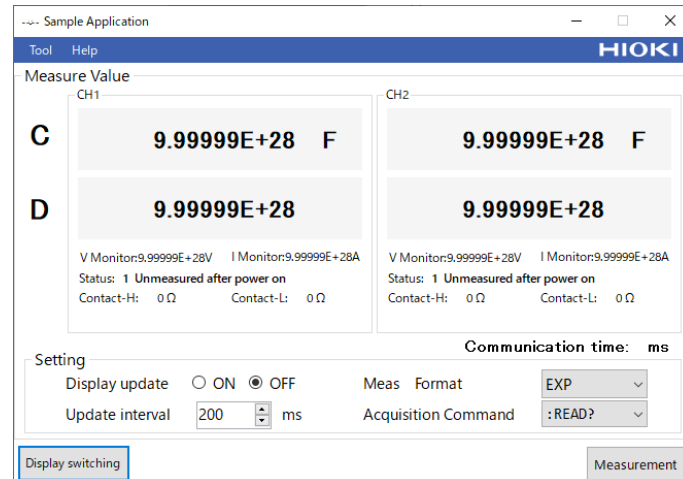
When this window is closed, it returns to the original screen. In that case, it is synchronized with the device.

- Measurement state icon

It will be enabled by checking [Tool] to [Measurement state icon].

The measurement display screen will show a list of icons indicating the measurement status of the device.

Measured value display



- **Update interval**
Sets the update (query transmission) interval when the [Display update] is ON. If it takes longer than the update interval, the update will be done at the interval of the communication time.
- **Acquisition Command**
 - **:READ?** ... Acquisition of the trigger + measurement values.
 - **:FETCh?** ... Acquisition of measured values.

Example (:FETCh?)

The acquisition command is set to [:FETCh?], and the measurement values are updated periodically. When a trigger is received from external I/O, the measurement values in this application will also be updated. This application can be used as a monitor. However, it cannot be synchronized with triggers from external I/O.

- **Meas Format**
 - Exponetial**...It is a representation in scientific notation with 5 decimal places.
 - SI Prefix Unit**...It is a unit display with 6 significant figures and SI prefixes.
 - Engineering**...The representation in scientific notation with the exponent as a multiple of 3.

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