

IM2704 Sample Application Manual

Overview

IM2704 Sample Application (this application) can perform the following operations on the IM2704:

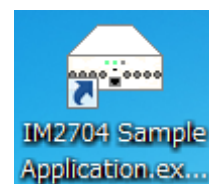
- Settings for IM2704
- Display of measured values
- Sending and receiving communications commands

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 2.5 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

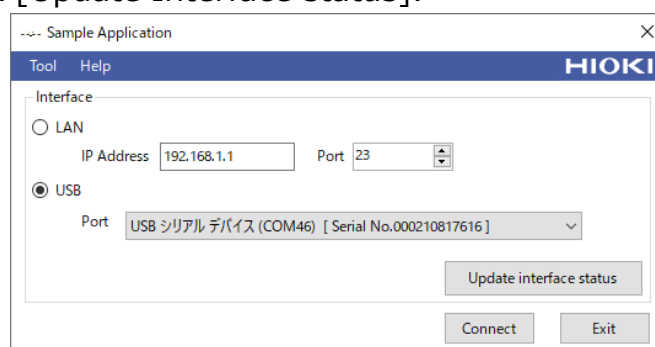
The application can be uninstalled by opening the Windows Setting, choosing Apps.

Connecting the instrument to your computer

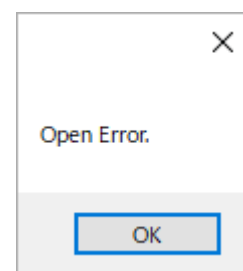
- Connecting the instrument via USB
Works with standard Windows drivers.
- Connecting the instrument via LAN
You'll need a LAN cross cable.

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

The application will force the following settings upon connection.
When the 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 'C' and 'D' channels with values like '9.99999E+28' and 'F'.
- 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 values.**: Points to the 'Setting' section at the bottom left, which includes options for 'Display update', 'Update interval', 'Meas Format', and 'Acquisition Command'.
- Press the button to take a measurement. (:READ?)**: Points to the 'Measurement' button at the bottom right.

Setting (MAIN)

The screenshot shows the 'MAIN' tab of the HIOKI application settings. The settings are organized into several sections:

- Frequency:** Radio buttons for 120Hz and 1kHz (1kHz is selected).
- Level:** Radio buttons for 500mV and 1V (1V is selected).
- Range:** A dropdown menu showing '1nF'.
- TrigSource:** A dropdown menu showing 'IMMEDIATE'.
- ContactCheck:** Radio buttons for ON and OFF (ON is selected). Below it, a 'Threshold' dropdown menu shows '1000Ω'.
- Circuit:** Radio buttons for SERIAL, PARALLEL (selected), and a checked box for AUTO.
- Speed:** Radio buttons for FAST, MEDIUM (selected), SLOW, and MANUAL.
- WAVE:** A dropdown menu showing '4'.
- Trig Delay:** A numeric input field showing '0.0000' with a unit 's'.
- Trig Sync Delay:** A numeric input field showing '0' with a unit 's' and a note 'about 0.00ms'. Below it, a section for 'AUTO' has radio buttons for ON and OFF (OFF is selected), with a note 'total: 18 about: 500us'.

- When the application is started, it is synchronized with the settings of the device.
- If you change the setting on the screen, the setting of this unit will be changed automatically.

Correction (CORR)

- Open Correction and Short Correction

MAIN CORR PANEL SYS INFO LOG

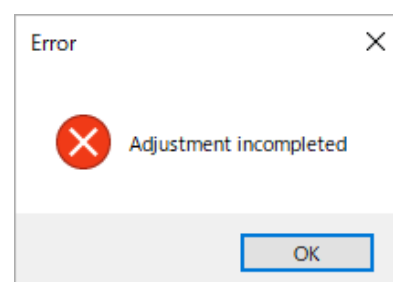
CH1

☐ ON ☒ OFF EXEC

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

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

- When the application is started, it is synchronized with the settings of the device.
- adjust will not be made normally in the following cases
 - When the OPEN adjust is made, the measured value is 1k Ω or less.
 - When the SHORT adjust is made, the measured value is 1k Ω or more.



- Load Correction

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

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

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

MAIN CORR PANEL SYS INFO LOG

No. 1 Load Type Measurement Setting + Adjust Setting

Save Load Clear

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

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

Setting(SYS)

- When the 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 instrument in this mode always outputs the measurement signals from the H_{CUR} terminals. By checking these signals, you can confirm that the instrument generation circuit works.

OFF...Turn off the Measurement signal checking mode.

- [RESET]

:PRESet ... All the settings of the device, except for the communication settings, correction values and the panel, are initialized.

***RST** ... The settings of the unit, except for the communication settings and the panel, are initialized.

:SYSTem:RESet ... All settings of this unit except for the communication settings are initialized.

Full ... Set to factory default.

Information on this 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

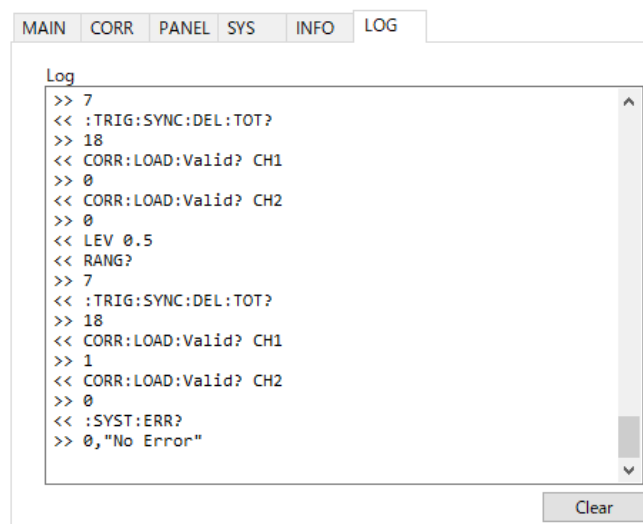
Error

No Error

Get

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

Communication log (LOG)



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

※This symbol is not actually sent or received.

「<<」 … Data sent to the device

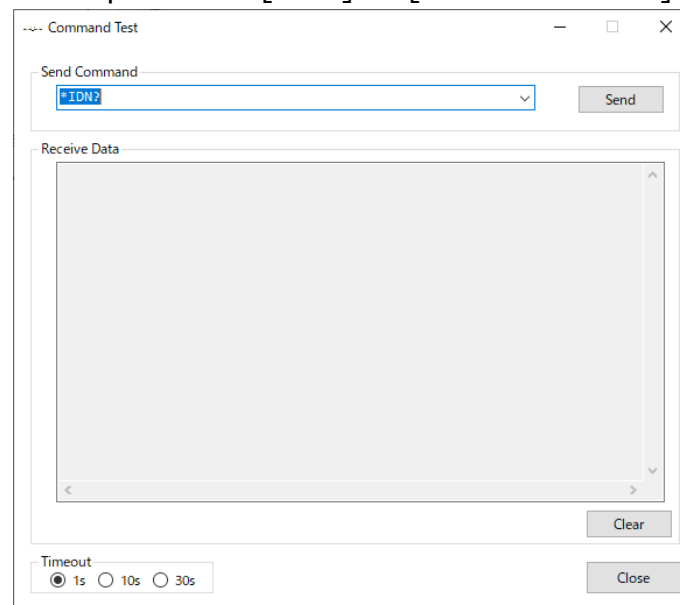
「>>」 … Data received from the device

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

- Displayed in the Log
 - Command s and response 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.

Arbitrary command

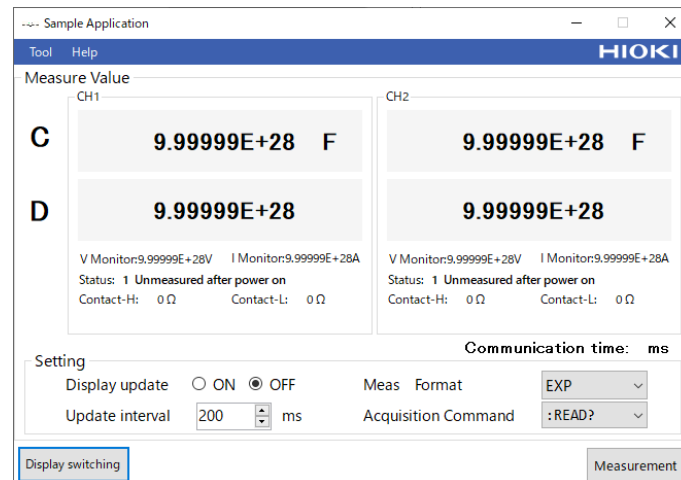
A new window will open from [Tool] to [Command Test].



You can send arbitrary command.

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

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?)

Set the acquisition command to [:FETCh?] and periodically update the measured values. When triggered by an external IO, the measured value of the PC application is also updated. The PC application can be used as a monitor. However, it is not possible to synchronize with triggers from external IO.

- **Meas Format**
EXP...It is a 5-digit number.
UNIT...Significant digits is 6.