

BT5525 Sample Application Manual

Overview

BT5525 Sample Application (this application) can perform the following operations on the BT5525:

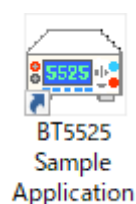
- Setting for BT5525
- Display of measured values (measurement or update of measured values at specified time intervals)
- Backup and Restoration of the instrument's settings
- Sending and receiving communication commands
- Displaying and saving monitor data
- Displaying and saving BDD data

System requirements

- CPU: 1 GHz or greater
- Memory: 512 MB or more
- OS: Windows10, Windows11
- Microsoft .NET 6.0
- Interface: USB 2.0 (virtual COM port), LAN
- Monitor resolution: 1024 x 768 dots or greater
- Hard disk: 30 MB free space or more (However, if .NET Framework 6.0 is not installed, approximately 2.5 GB is required separately)

Installing the application

1. Double-click “ setup_BT5525 Sample Application.exe”.
2. The installer screen will appear.
3. Click **Next** every time when it appears.
4. Installation will begin. When the installation is complete, a shortcut icon will be created on the desktop.



Uninstalling the application

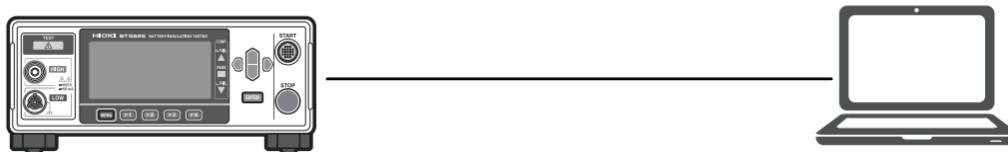
- Windows10, Windows11

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

Connecting the instrument to your computer

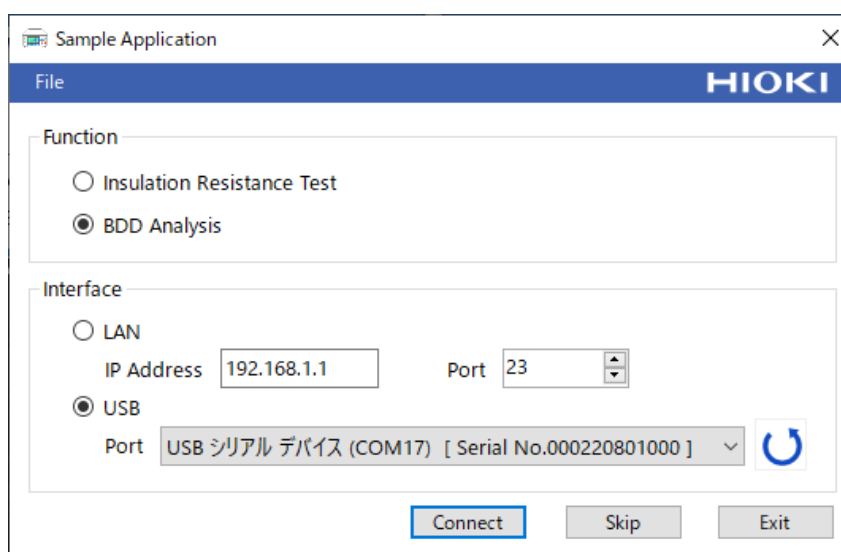
- Connecting the instrument via USB
Works with standard Windows drivers.

- Connecting the instrument via LAN
You'll need a LAN cross cable.

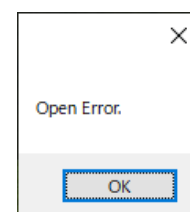


Launching and connecting to the application

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



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.



Application interface

This 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.

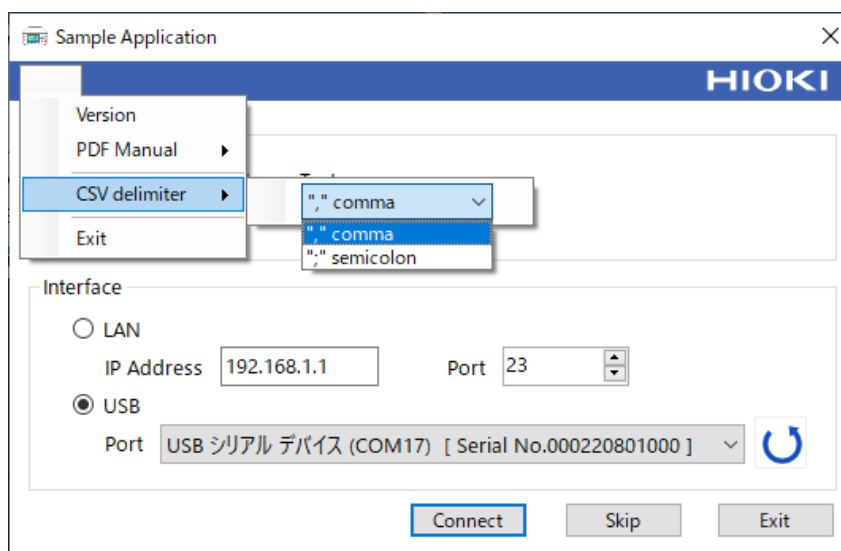
※If it does not exit successfully or cannot communicate on exit, the settings remain as follows.

- Response of measured value and status. :MEASure:VALid 255
- Command monitor OFF.
- Automatic data output setting OFF.

Selecting the delimiter character for text (CSV) files

- This application has the ability to save data to a text (CSV) file
- You can set the separator used for data delimitation from the menu.
Please set the separator according to your environment.

- Comma (",") separator
- Semicolon (";") separator



Insulation Resistance Test

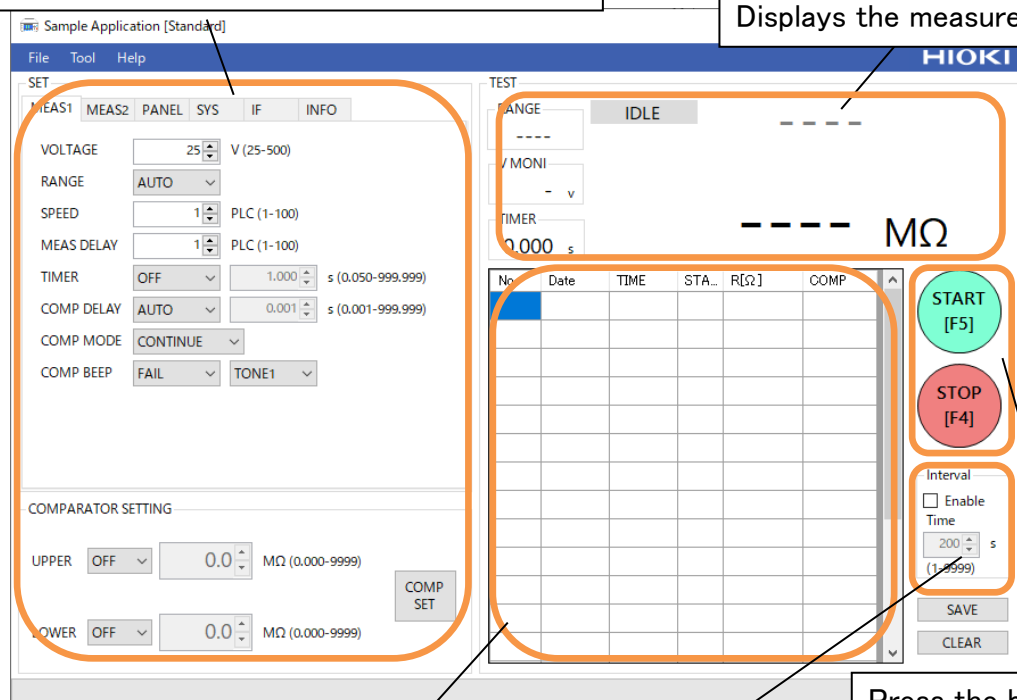
Operate this instrument from the application to perform an insulation resistance test.

● Overview of Main Screen

- When this application is launched, it synchronizes with the settings of the instrument.
- When you change the settings on the screen, the settings on the instrument will automatically change as well. Please note that if you change the settings from the instrument, the settings on the screen will not be reflected.

You can set up and check the instrument.

Displays the measured value.



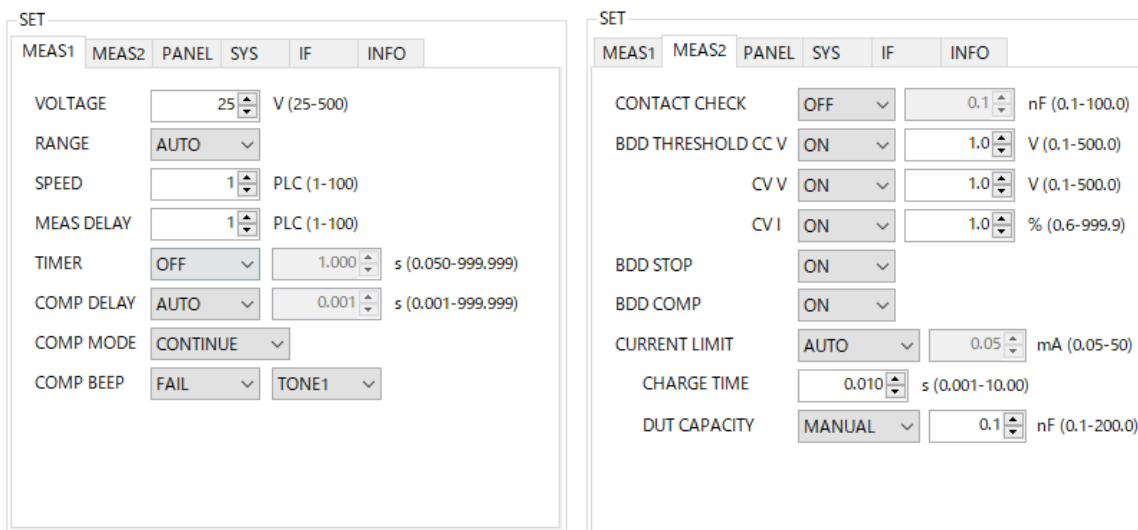
Displays measurement results.

Interval Measurement
Records test results at
each set time interval.

Press the button to
perform the TEST,
which can also be
operated with the
F5/F4 keys.

● **MEAS1、MEAS2**

➤ All test settings that can be configured on the instrument can be changed.

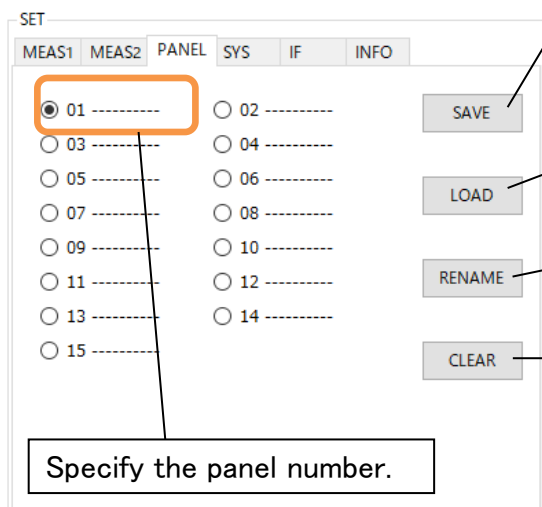


● **COMPARATOR SETTING**



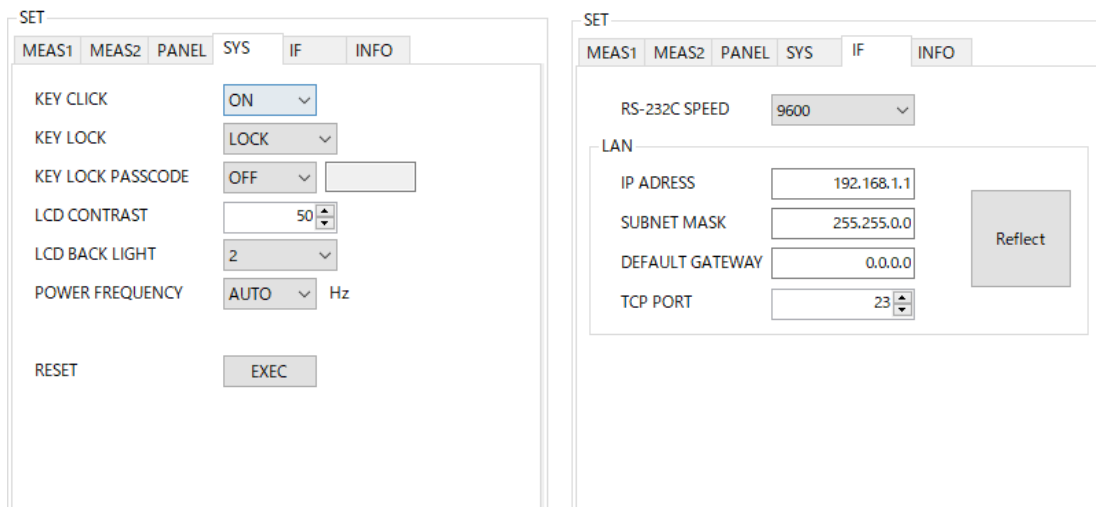
Reflects the setting in this instrument.

● **PANEL**



- Saves the settings to the specified panel number. If panel data already exists, it is overwritten.
- Loads the settings for the specified panel number.
- Renames the specified panel number. (Max. 10 single-byte alphanumeric characters)
- Deletes the setting of the specified panel number.

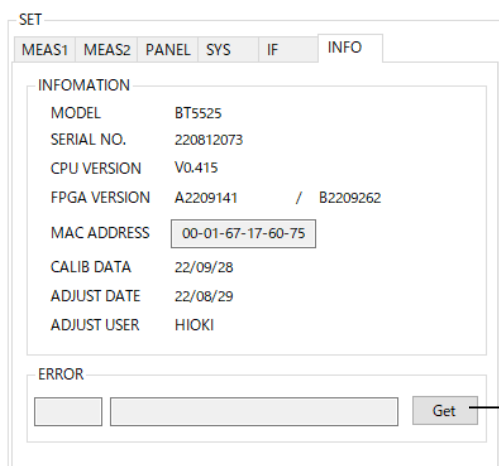
● SYS, IF



- [RESET] : The settings of the instrument other than the communication settings and panel are initialized.
- LAN: To change the LAN settings, press [Reflect]. The instrument's LAN settings will not be changed until [Reflect] is pressed; if a LAN connection has been made, it will be reconnected.
- Some functions cannot be set from the application.

● INFO

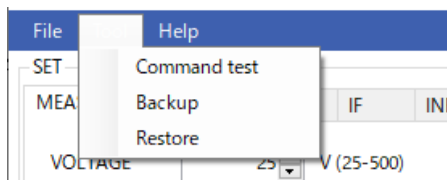
Information on this instrument can be checked.



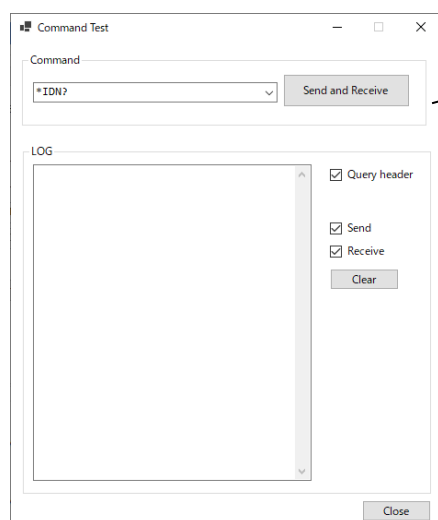
- Obtains error information from the instrument. For details on various errors, refer to the “:SYSTem:ERRor?” command page in the instrument’s instruction manual.

● Various Tools

The following windows open from [Tool] on the top toolbar. When the window is closed, it returns to the original screen. The instrument will be synchronized with the instrument at that time.

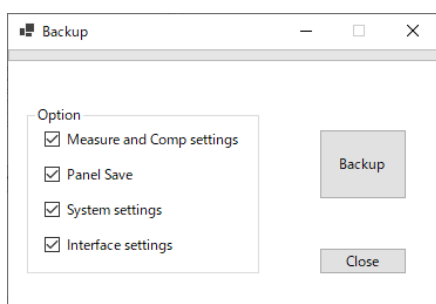


➤ **Command test**



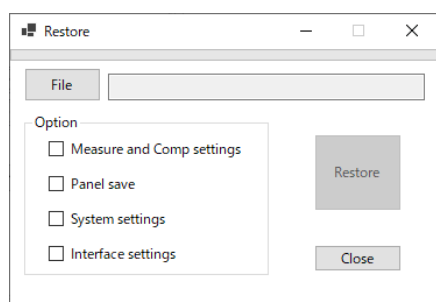
Send and receive arbitrary commands.

➤ **Backup**



- Backs up the instrument's settings and saves a dedicated settings file.
- Check the items to be backed up and click [Backup] to open the folder selection screen. When "Complete Backup" is displayed, the backup is complete. If multiple PANELs are set up, it may take some time.

➤ **Restore**



- Restore the instrument's settings from the dedicated settings file created by the above backup.
- Press [File] and select the backup file from the folder.
- Press [Restore] to execute the restoration, which is complete when "Complete Restore" is displayed. If multiple PANELs are set up, it may take some time.

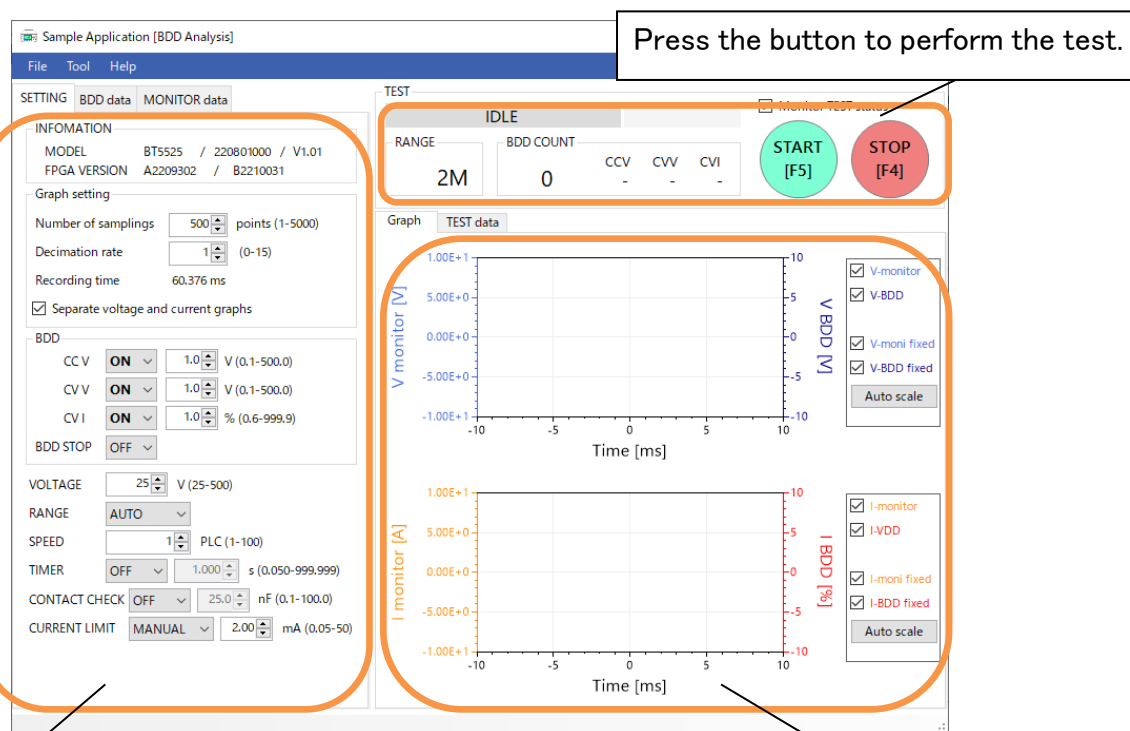
BDD Analysis

Insulation resistance test is performed, and when the test stops, monitor voltage and current values (reference values) from the start of the test are acquired, displayed on the data grid, and waveforms are displayed on the graph.

Waveform data can be saved as CSV. (Note that this is different from the actual detection waveform of the BDD function.)

- Overview of Main Screen

- When this application is launched, it synchronizes with the settings of this instrument.
- When the screen settings are changed, the settings of this unit are automatically changed as well.



You can set up and check the instrument. Displays monitor data and BDD data acquired after the test.

Display a graph of monitored data and a list of test results.

● SETTING

➤ Graph setting

Graph setting

Number of samplings	500	(1-5000)
Decimation rate	1	(0-15)
Recording time	60.376 ms	
<input checked="" type="checkbox"/> Separate voltage and current graphs		

- Sets the number of waveforms sampled.
- Sets the degree to which sampled waveforms are thinned out. Larger values result in lower resolution, but allow acquisition of waveforms of longer duration.
- The recording time with the above settings is shown.
- If checked, the voltage and current graphs are displayed separately.

➤ BDD setting

BDD

CCV	OFF	1.0	V (0.1-500.0)
CVV	OFF	1.0	V (0.1-500.0)
CVI	OFF	1.0	% (0.6-999.9)
BDD STOP	OFF		

Enable BDD setting, set threshold

- CCV: Detects V in CC (charging) state
- CVV: Detects V in CV (steady) state
- CVI: Detects I in CV (steady) state
- When turned ON, the test is stopped when the BDD count reaches 1 or more.

● TEST

Displays the test status of the instrument.
 IDLE: Waiting
 TEST: Testing
 DISCHARGE: Discharging
 INTERLOCK: Waiting at interlock

Displays measurement results.

TEST

Monitor TEST status

RANGE	BDD COUNT	CCV	CVV	CVI
2M	0	0	0	0

START [F5] STOP [F4]

Displays the number of BDD counts and their breakdown.

When checked, the test status of this instrument is monitored; check this box if you want to control the test with EXT I/O. The operation of this instrument will not be possible because it will always be in the remote state (RMT). Uncheck the check box if you want to operate the instrument.

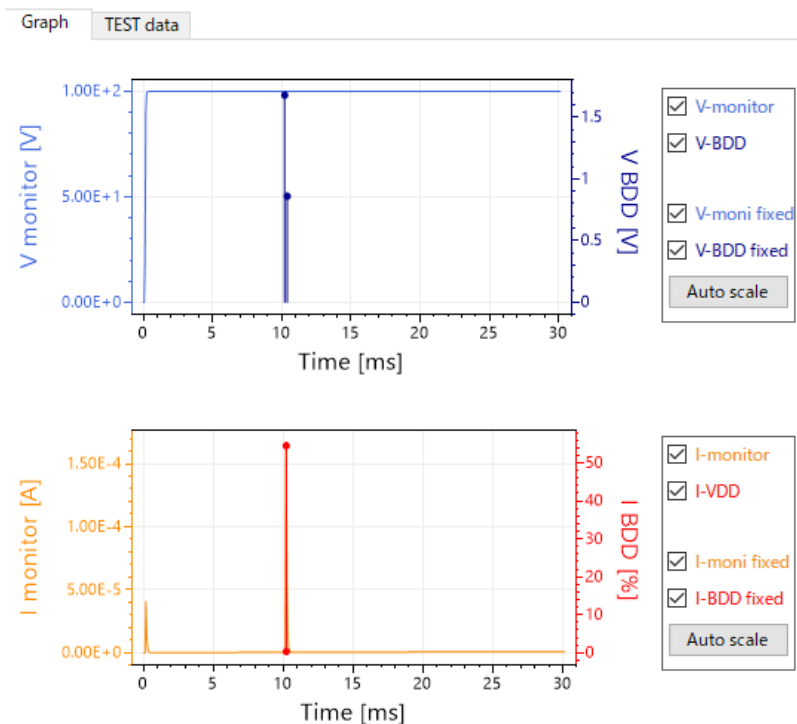
● BDD data / MONITOR data

Time[ms]	Vmoni[V]	Imoni[A]
0.12	6.464	0.003461
0.241	14	0.003461
0.362	21.24	0.003461
0.483	28.48	0.003461
0.603	35.71	0.003461
0.724	42.95	0.003461
0.845	50.21	0.003461
0.966	57.45	0.003461
1.086	64.7	0.003461

- After the test STOP, it is read from the instrument and the display is updated.
- It can be saved as CSV by [SAVE].
- Vmoni and Imoni are reference values.
- BDD data displays the result when BDD COUNT is 1 or more, and the unit of BDD value is [V] when Type is CCV or CVV, and [%] when CVI.

Note that the % of CVI is a percentage of the BT5525's own reference value and cannot be converted to a current value.

● Graph / TEST data



Graph

- Displays monitor value waveforms of voltage and current.
- Displays the detection time and magnitude of BDD as dots with bars.
- Move, zoom in/out, and copy images on the graph by mouse operation.
- Check boxes allow you to switch between showing/hiding the waveforms and fixing the axes.

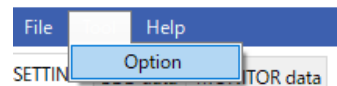
No.	Date	TIME	STATUS	R[Ω]	COMP	BDD	CCheck ...
1	22/10/24	14:32:47	0	9.959E+06	NOCOMP	0	45.9E-09

TEST data

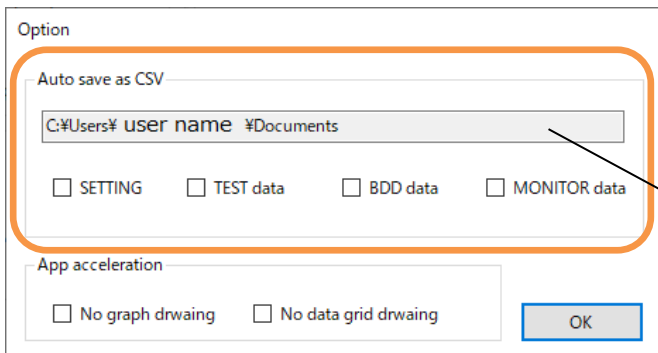
- Lists the test results.
- For details, refer to the “:MEASure?” and “:CONTactcheck:CAPacitance?” command pages of the instrument’s user manual.

● **Option**

The [Tool] on the top toolbar opens the [Option] window.



➤ **Auto save function**



- At the end of the test, the checked items are automatically saved in CSV format. If none of the items are checked, the file will not be automatically saved.
- Enter the location to save the CSV file.
- Click [OK] to save the settings and apply them from the next test.

The file name to be saved automatically changes depending on the data checked.

File name : yyyy-MM-dd_HH-mm-ss_auto_xxxx.csv (xxxx is the type of storage and number of data)

1	#INFORMAITON							
2	DATE	2022/10/24	15:31.12					
3	MODEL	HIOKI	BT5525	2.21E+08				
4	VERSION	V1.01						
5	FPGA	A2209302	B2210031					
6								
7	#SETTING							
8	VOLTAGE		500					
9	RANGE	HOLD	2M					
10	SPEED		1					
11	TIMER		0.1					
12	CONTACT CHECK	ON	20					
13	BDD CCV	ON	0.1					
14	BDD CVV	ON	0.1					
15	BDD CVI	ON	0.6					
16	BDD STOP	OFF						
17	CURRENT LIMIT	MANUAL	25					
18	CHARGE TIME		0.01					
19	DUT CAPACITY	MANUAL	0.1					
20	Graph setting		500	1				
21								
22	#TEST DATA							
23	No.	Date	TIME	STATUS	R[Ω]	COMP	BDD	CCheck value[F]
24	1	2022/10/24	15:31.11	0	9.96E+06	NOCOMP	6	4.60E-08
25								
26								
27	#Number of data							
28	Time	Vmoni	Imoni	Type	Value	Bdd_Id		
29	0.12		17.2	0.003461				
30	0.158			0.003461	CCV	0.23	1	
31	0.241		77.18	0.003461				
32	0.339			0.003461	CCV	0.23	2	
33	0.362		141	0.003461				
34	0.483		205.8	0.003461				
35	0.603		270.7	0.003461				
36	0.724		335.7	0.003461				
37	0.725			0.003461	CCV	0.16	3	
38	0.729			0.003461	CCV	0.25	4	
39	0.733			0.003461	CCV	0.17	5	
40	0.845		400.8	0.003461				
41	0.966		465.5	0.003461				
42	1.063			0.003461	CCV	0.21	6	
43	1.086		499	0.003461				
44	1.207		500	0.001953				
45	1.328		500	0.000801				

Date and time the file was saved, information.

● **Measurement Setting**
Saves when SETTING is checked.

● **TEST result**
Saves when TEST data is checked.

● **BDD data, MONITOR data**
If either BDD data or MONITOR data is checked, it will be saved.
If both BDD data and MONITOR data are checked, both data are combined and sorted by Time and saved.

➤ Application acceleration

Option

Auto save as CSV

C:\Users\% user name %\Documents

SETTING TEST data BDD data MONITOR data

App acceleration

No graph drwaing No data grid drwaing

OK

- Checking the option speeds up the operation of this application. If you have a lot of data you want to auto-save and the test interval is short, etc., and data cannot be read out in time, please try speeding up the process.
- Press [OK] to save and apply the settings.