Nidec
All for dreams

364-24-014-0

FGT-VC

Instruction Manual

Please read this manual thoroughly before use.

NIDEC DRIVE TECHNOLOGY CORPORATION

— Table of Contents —

Introduction

Thank you for using “FGT-VC”, the software dedicated for the Force Gauge Stand “FGS-220VC”.

This instruction manual provides detailed instructions for operating FGT-VC (hereinafter referred to as “this software”).

1. Overview

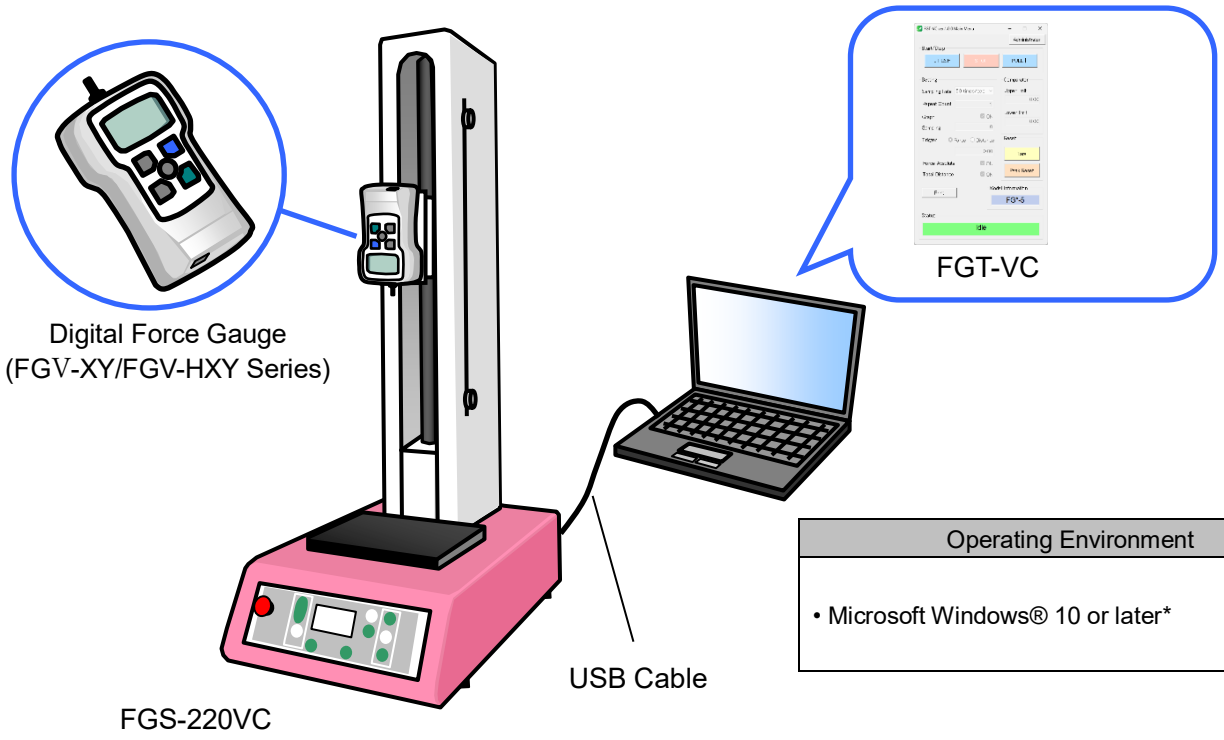
This software is designed to import force measurement data from the Force Gauge Stand “FGS-220VC” as a CSV file. By connecting a PC to the FGS-220VC, which is equipped with a Force Gauge (FGV-XY Series, FGV-HXY Series), the force measurement data can be imported to the PC.

This software offers the following functions.

- Continuous data import (MANU/SING/CONT/PROG modes)
- Repeat count and sampling number setting (CONT/PROG modes)
- Continuous data graph creation
- Upper/lower limit comparator judgement
- Statistical calculations for continuous data
- Trigger function

* Depending on the setting displayed on the LCD of the stand, either mm or inches will be displayed.

2. Configuration



Operating Environment
• Microsoft Windows® 10 or later*

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

3. Setup Procedure

Before using this software, both this software and the communication driver must be installed.

3.1 Extracting Downloaded Files

Extract the “NDTC-mis-fgt-vc_us_download_v*.*.*.zip” file downloaded from our website. After extraction, the following files and folders will be saved to the designated location.

- Setup_fgt_vc_en_*.*.*.msi
- FGT-VC Instruction Manual(*-*-*-*).pdf

*Version information is given in the *.*.* part.

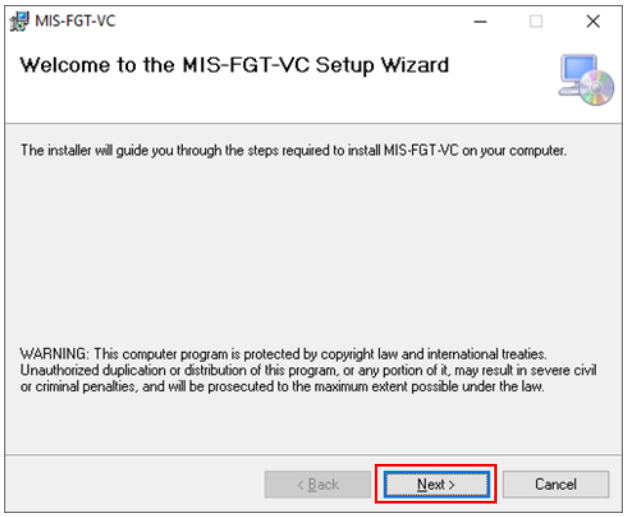
3.2. Installation Procedure

Double-click the installation package “Setup_fgt_vc_en_*.*.*.msi” located in the extracted folder to begin the installation.

Setup_fgt_vc_en_*.*.*.msi

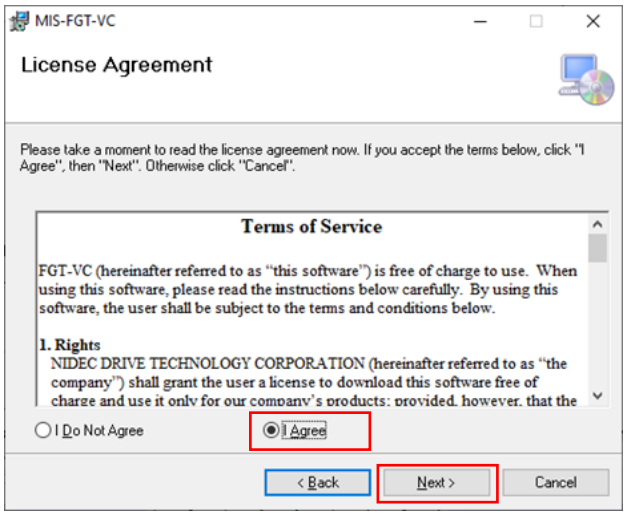
Double-click

①



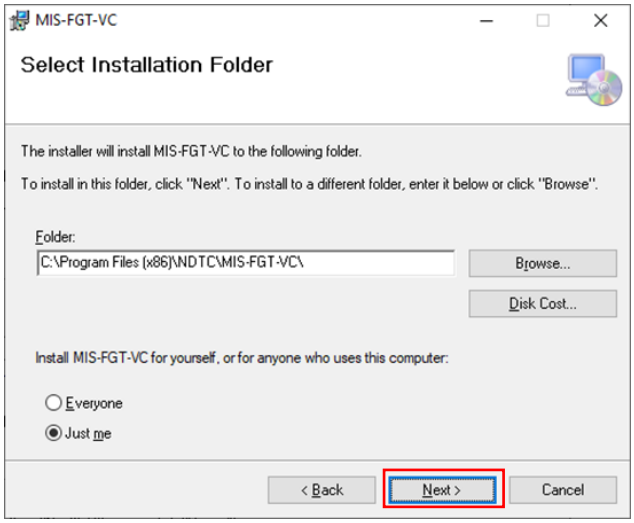
Click [Next] to proceed to the next screen.

②



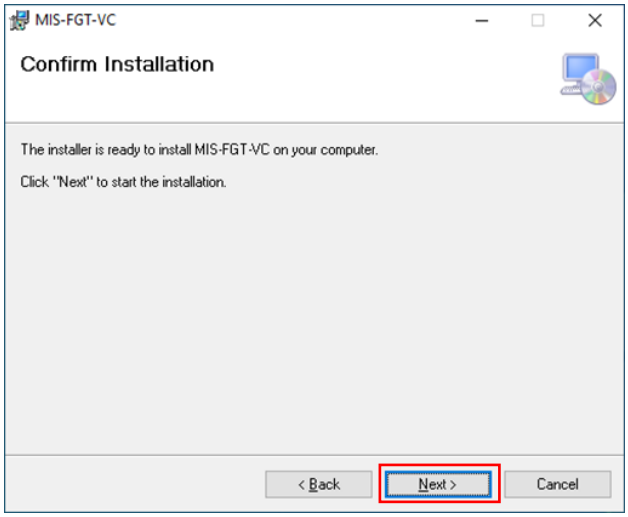
Read the Terms of Service carefully, select [I Agree], and click [Next] to proceed.

③



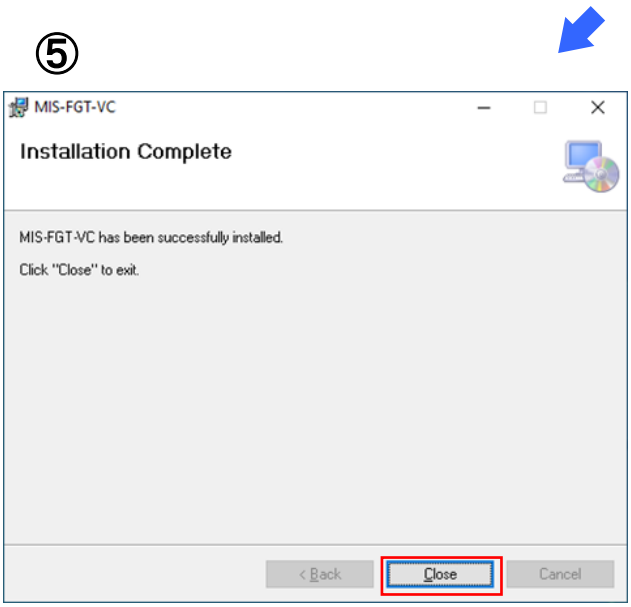
Specify the installation folder, then click [Next] to continue.

④



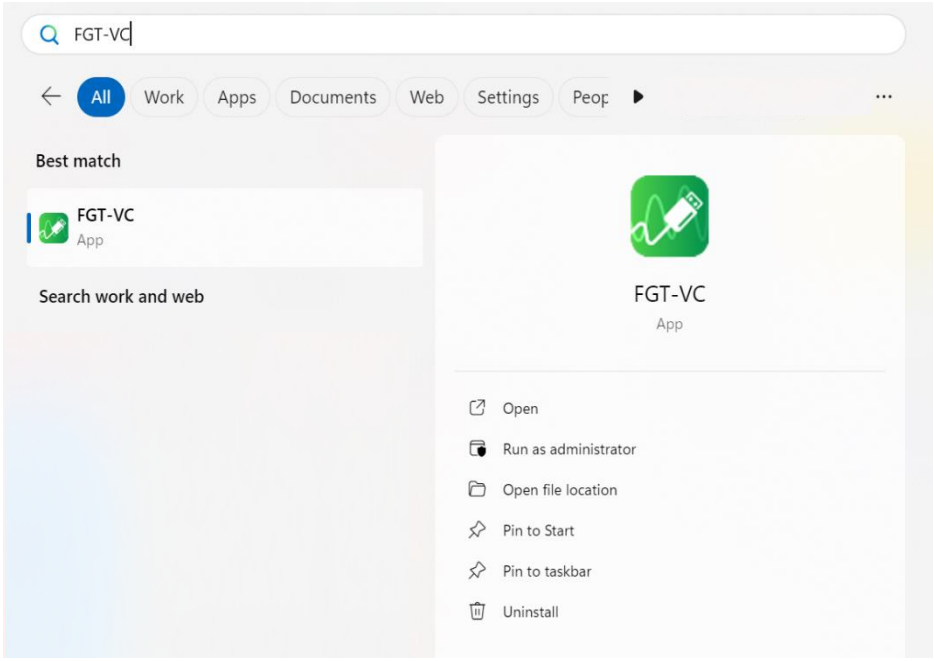
Click [Next] to start the installation process.

⑤



Click [Close] to finish the installation.

Once the installation is complete, the FGT-VC application will be added to the Windows Start menu.



3.3. USB Driver Installation

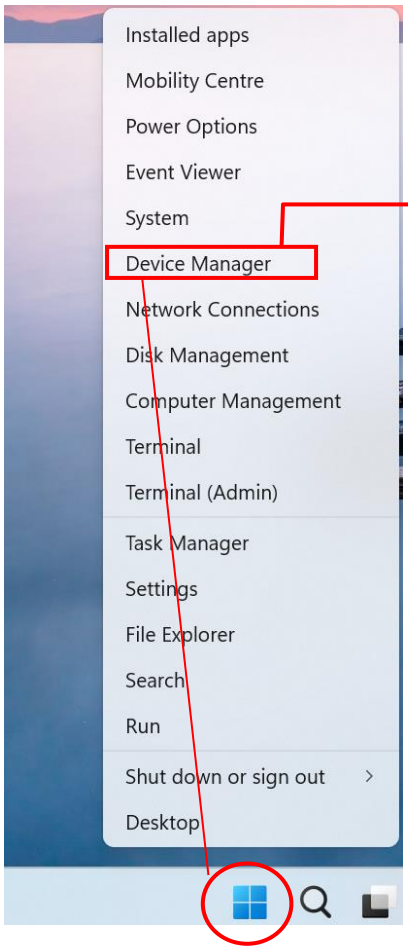
With FGS-VC turned ON, insert the USB cable into the PC's USB port.

The driver installation process may vary slightly depending on the PC environment.

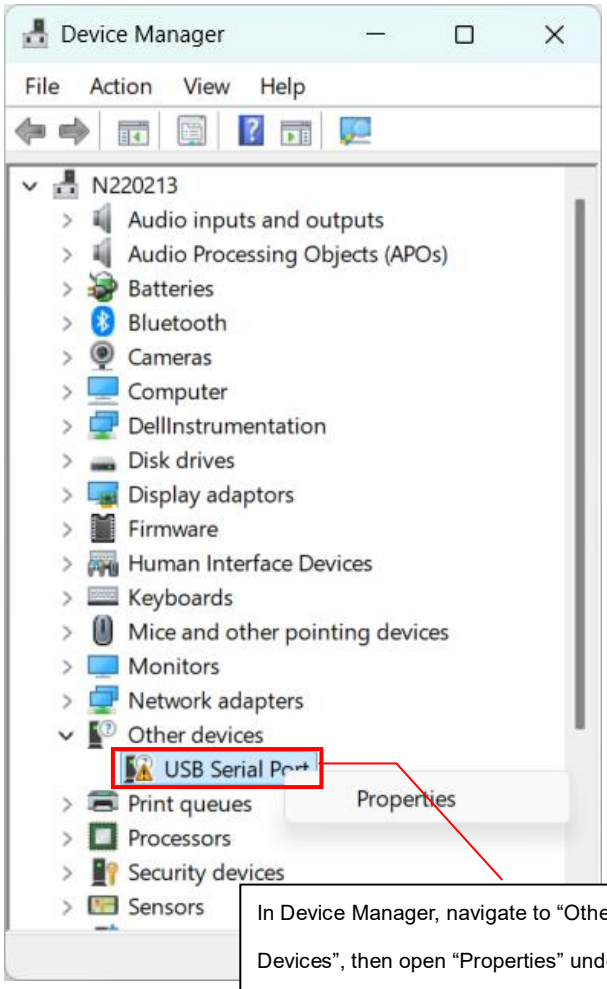
Follow the installation procedure that corresponds to your PC environment, as shown below.

For Windows 10/Windows 11

With FGS-VC turned ON, insert the USB cable into the PC's USB port, then open "Device Manager".

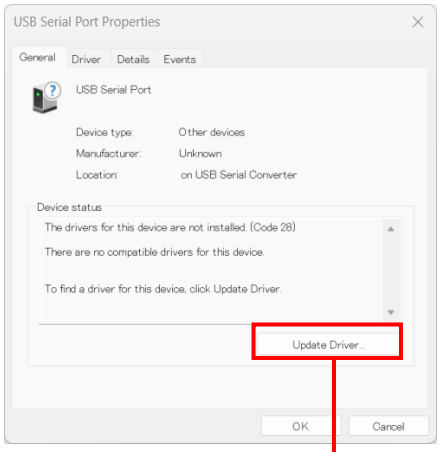


Right-click



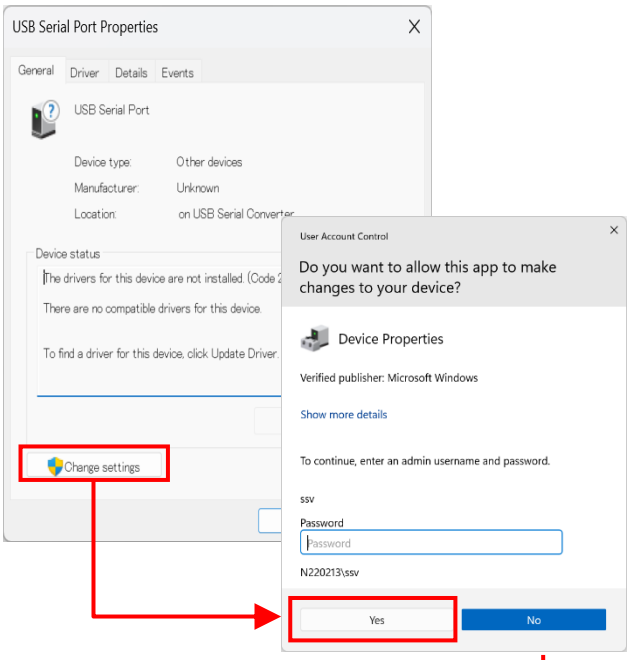
In Device Manager, navigate to "Other Devices", then open "Properties" under "USB Serial Port".

● When logged in with administrator privilege

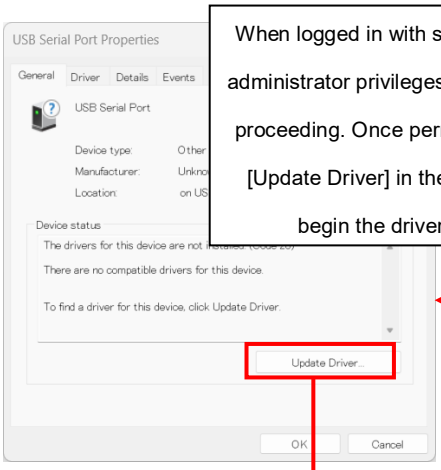


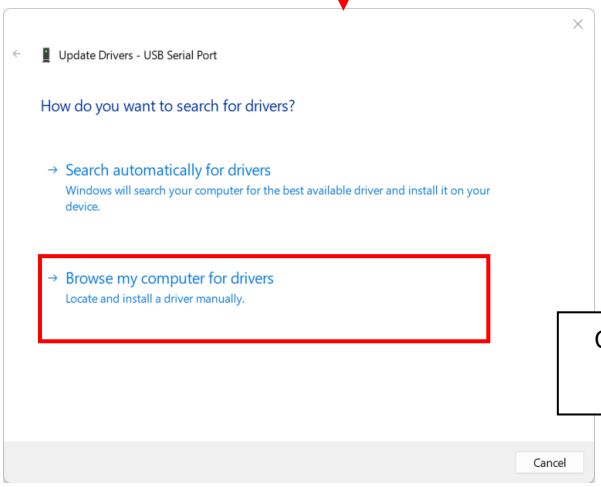
In the Properties window, click [Update Driver] to begin the driver update.

● When logged in with standard user privileges

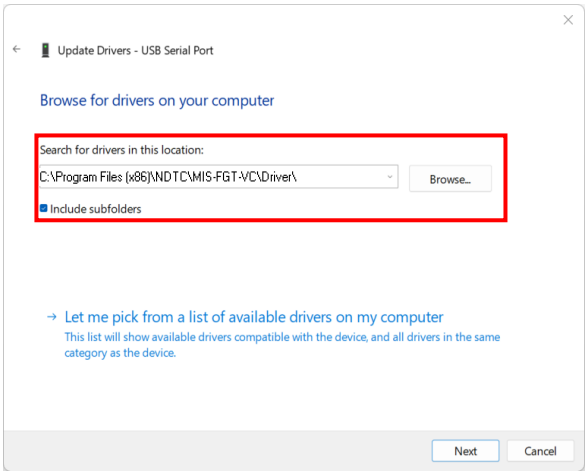


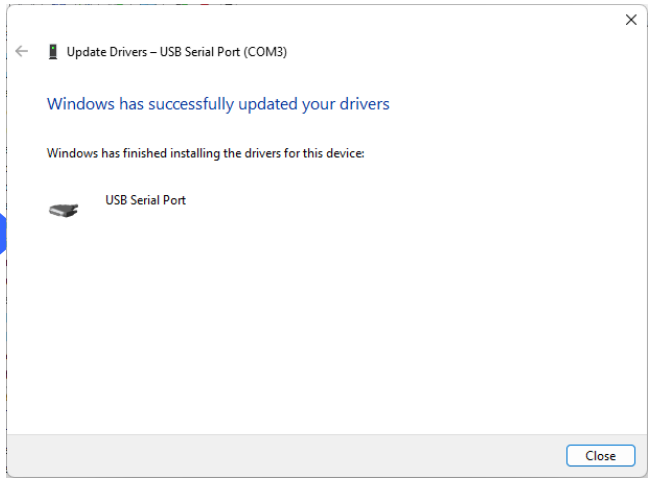
When logged in with standard user privileges, administrator privileges must be granted before proceeding. Once permission is granted, click [Update Driver] in the Properties window to begin the driver update process.





Click “Browse my computer for drivers” and proceed to the next step.





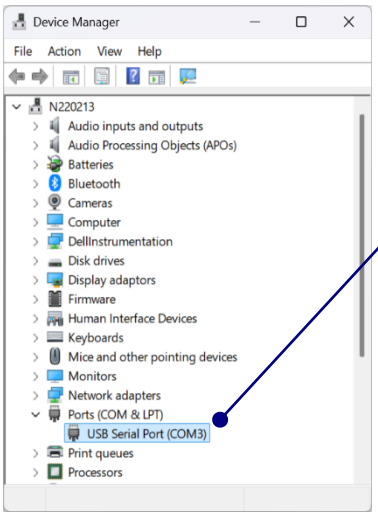
Click [Browse], then select “C:/Program Files (x86)/NDTC/MIS-FGT-VC/Driver”, and click [Next] to proceed.

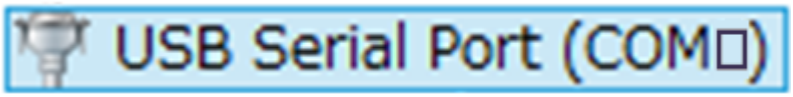
Once the installation is complete, the screen above will appear. Click [Close] to finish the process.

- Checking the COM port number

The assigned COM port number can be verified in Device Manager.

When selecting a COM port number during the startup of this software, select the COM port number appears in Device Manager.





* The □ symbol displays the COM port number.

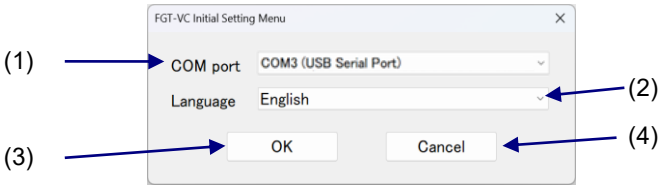
4. FGT-VC Software Details

4.1 Startup

Click “FGT-VC” in the Start menu to launch the application.

4.2 Initial Setting Menu

Once FGT-VC is launched, the following screen will appear.



(1) COM port : Only COM port numbers registered in Device Manager can be displayed and selected.

(2) Language : When the display language is set to English, the available options are English, English (USA), and Japanese.

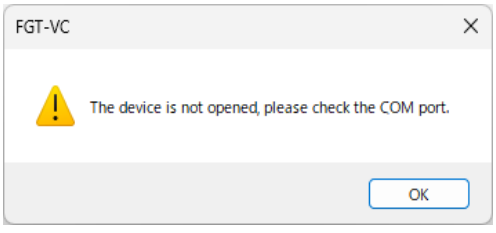
When set to Japanese, the available options are 英語 (English), 英語 (米) (English (USA)), and 日本語 (Japanese).

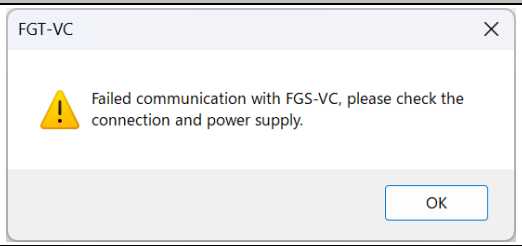
Switching the display language will update the Main Menu accordingly.

(3) OK : Click to send the configured settings to the force gauge and display the Main Menu.

(4) Cancel : Click to close the Initial Setting Menu.

If a communication error occurs when clicking the [OK] button, the following message will appear.

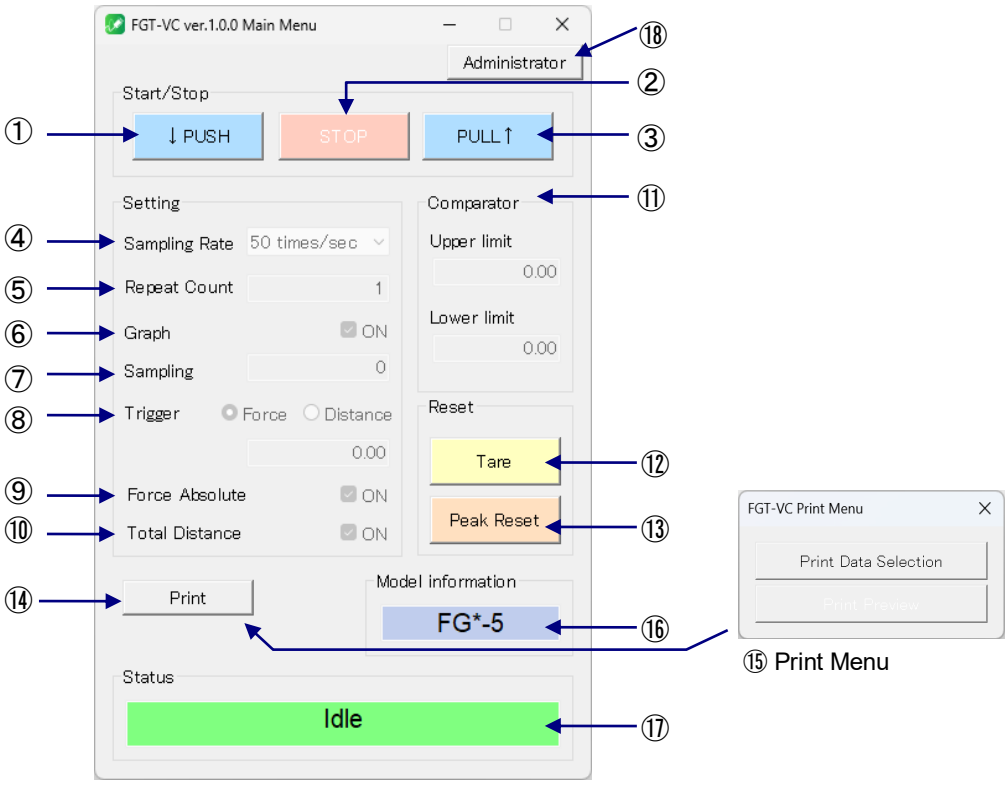
• If a communication port different from the one set on the PC is selected in COM Port. • If the force gauge is not connected to the PC.	
Ensure that the serial cable between the PC and the force gauge is properly connected. If the connection is fine, verify the COM port settings on the PC.	

• If the communication setting of the force gauge is not configured correctly.	
Ensure that the baud rate of the force gauge is set to 19200. If the baud rate is different, change the setting on the force gauge to 19200.	

4.3. Main Menu

If communication is established successfully on the Initial Setting Menu, the following Main Menu will appear.

This screen allows for configuration settings as well as starting and stopping data import.



Item	Description
① ↓ PUSH Button	Moves in the PUSH direction[*1] and starts data import. The operation of the FGS-VC unit varies depending on the selected operation mode.
② STOP Button	Stops operation and ends data import.
③ PULL ↑ Button	Moves in the PULL direction[*1] and starts data import. The operation of the FGS-VC unit varies depending on the selected operation mode.
④ Sampling Rate	Select a data import sampling rate: 10 times/sec, 20 times/sec, or 50 times/sec.
⑤ Repeat Count Input range: 1–9999	Enter the repeat count (the number of consecutive identical operations) for CONT mode and PROG mode.
⑥ Graph	Select the checkbox to create a graph (In CONT/PROG mode, up to 10 overlay graphs can be created) of force and distance on the Import Data screen after data import.
⑦ Sampling Input range: 0–9999	In CONT/PROG mode, data is imported on the specified sampling number. If set to “0”, data is imported according to the repeat count.
⑧ Trigger Input range: Distance 0.0–400.0 Force Variable[*2]	“Force” selected : Continuous data import starts when |Force value| ≥ Input value. “Distance” selected : Continuous data import starts when |Distance value| ≥ Input value.

Item	Description
⑨ Force Absolute Checkbox	Select the checkbox to display the force value as an absolute value.
⑩ Total Distance Checkbox	Select the checkbox to display the total distance (excluding MANU mode).
⑪ Upper/Lower Limit Comparator Judgement Input range: Variable*2	Enter the judgement value for comparison against the maximum value. If upper limit < lower limit, input is not allowed. If upper limit = lower limit = 0, judgement is disabled.
⑫ Tare	Performs a tare adjustment on the force gauge connected to the stand.
⑬ Peak Reset	Resets the peak value of the force gauge connected to the stand.
⑭ Print Button	Displays the Print Menu.
⑮ Print Menu	Allows for data selection and print preview.
⑯ Connected FG	Displays the model of the connected force gauge.
⑰ Status	Displays the operating status of the FGS-VC.
⑱ Administrator	Displays the Administrator Privileges screen. Enables locking/unlocking of settings and password changes.

*1: In PROG mode, the operation starts in the preset direction, regardless of whether the button (PUSH or PULL) clicked. JOG mode is not supported.

*2: The input range varies depending on the rated value of the connected force gauge. (Refer to “5. Variable Input Range Reference Table.”)

4.4. Measurement Operations

Press the [↓ PUSH] or [PULL ↑] button on the Main Menu to start the operation of the FGS-VC, which will allow measurement data to be imported into the Import Data screen.

① Data Import

When the measurement operation begins, measurement data (distance (mm) from the starting point and the corresponding force value) is imported into the Import Data screen.

The number of imported entries varies based on the sampling rate selected in the Main Menu, as shown below.

- 10 times/sec ・・・ Approximately 10 entries per second
- 20 times/sec ・・・ Approximately 20 entries per second
- 50 times/sec ・・・ Approximately 50 entries per second

> The indicated number of imported measurement data entries per second for the sampling rate shown above represents an approximate value.
> It does not guarantee the exact number of imported entries.

② Maximum Data Entries

The maximum number of data entries that can be imported in a single test operation is 65,535.

It is not possible to import more than this limit in one operation.

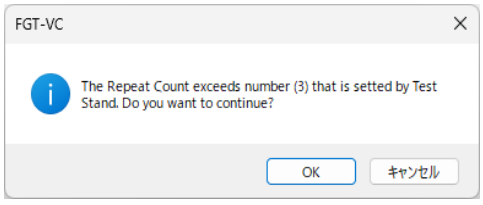
③ Repeat Count

For CONT mode and PROG mode, the repeat count specifies the number of consecutive test operations.

Up to 9,999 repetitions can be performed.

(This is not applicable to MANU mode and SING mode.)

> If the repeat count is set higher than the main unit's maximum repeat count, the following message will appear. In this case, selecting [OK] will start the test operation, but the repeat count will be limited to the maximum value set on the main unit.



④ Sampling Number

In CONT mode and PROG mode, setting the sampling number determines how many measurement data entries from continuous operations will be saved in the measurement sheet file.
When the sampling number is set, the created measurement sheet file is created according to the following rules.

Example: Repeat count = 20 (starting from VC-1)

Sampling No.: 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

VC-1

Only the first measurement data entry is saved in the measurement sheet file (total: 1 sheet file).

Sampling No.: 5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

VC-1 VC-2 ・ ・ ・

Measurement data entries for the 1st, 5th, 10th, 15th, and 20th cycles are saved in the measurement sheet file (total: 5 sheet files).

Sampling No.: 10

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

VC-1 VC-2 VC-3 ・ ・ ・

Measurement data entries for the 1st, 3rd, 5th, 7th, 9th, 11th, 13th, 15th, 17th, and 20th cycles are saved in the measurement sheet file (total: 10 sheet files).

Sampling No.: 20

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

VC-1 ・ ・ ・

All measurement data entries are saved in the measurement sheet file (total: 20 sheet files).

: Test for saving measurement sheet files

● Method for determining the number of tests for saving measurement sheet files
- When the sampling number is 1, only the first measurement data entry is saved in the measurement sheet file.
- When the sampling number is 2 or more, the measurement data entries saved in the measurement sheet file are determined as follows.

When saving the measured data for sampling number x at a repeat count of y, assuming that the measured data is sampled at equal rates, the rate A is calculated as follows

$$A = \frac{y-1}{x-1} \quad \cdots ①$$

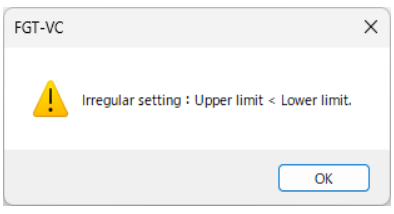
Using Equation ①, the sampled operation counts given PUSH Limit ON as $B(1)$, $B(2)$, $B(3)$, ..., $B(x)$, $B(c)$ is expressed as the following equation

$$B(c) = A \cdot (c-1) + 1 \quad \cdots ②$$ (c means any number from 1 to Sampling number x - 1.).

The value $B(c)$ obtained from Equation ② may include decimal places. Thus, given the integer part by $B'(c)$,

$B'(1)$, $B'(2)$, $B'(3)$, ..., $B'(x)$

indicate the number of the sampled operation counts where measurement data is sampled and saved as a measurement sheet file.
* The first measurement data entry (Repeat count: 1st cycle) and the final measurement data entry (Repeat count: Last cycle) are always saved in the measurement sheet file.
* If the sampling number is set to 0, all measurement results are saved in the measurement sheet file.



● The sampling number cannot be set to a value higher than the repeat count.
If it is entered, the message shown on the left will appear.

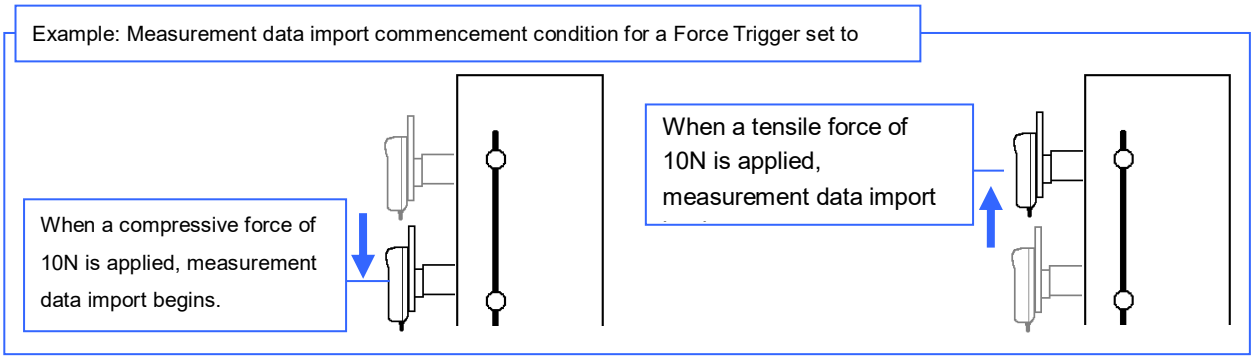
⑤ Trigger

Setting a trigger determines the timing for starting measurement data acquisition.

There are two types of triggers, “Force Trigger” and “Distance Trigger”. Either option can be selected in the Main Menu.

Both the force trigger and distance trigger are judged against the absolute value of the acquired data.

Additionally, if Total Distance is enabled, the judgement is performed based on the accumulated distance value.



⑥ Force Absolute

The absolute value for force can be toggled ON or OFF in the Main Menu.

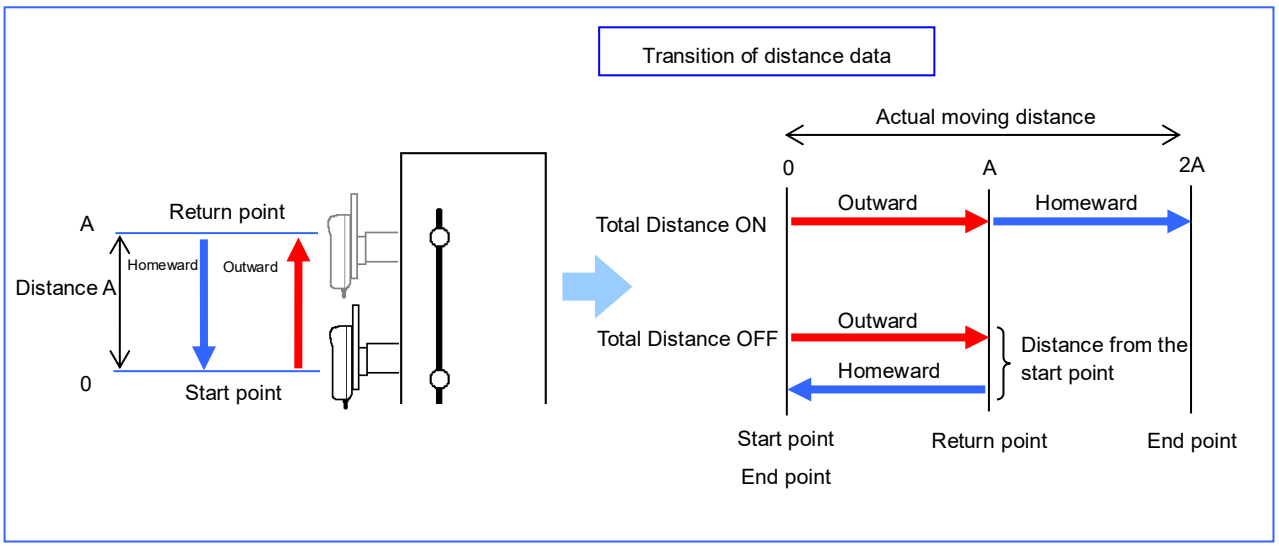
When set to ON, measurement data for force is imported as absolute values.

⑦ Total Distance

The Total Distance setting can be toggled ON or OFF for all operation modes except MANU mode.

When the Total Distance is set to ON, the imported distance data reflects the actual moving distance.

When the Total Distance is set to OFF, the imported distance data represents the distance from the test start position.



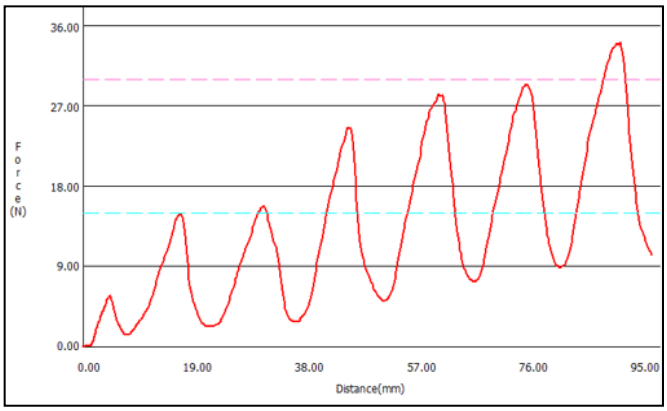
⑧ Upper/Lower Limit Comparator Values

The maximum value of the imported force data is compared with the upper/lower limit comparator values as follows to determine the test result.

(If upper limit = lower limit = 0, “No judgement”)

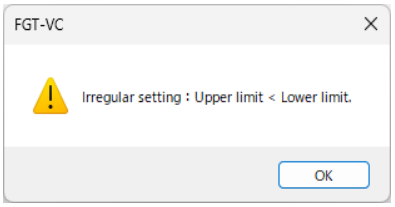
- Lower limit ≤ Maximum value ≤ Upper limit → OK
- Upper limit < Maximum value → HIGH
- Lower limit > Maximum value → LOW

The upper/lower limit comparator values are displayed on the graph as follows.



Upper limit comparator value: Pink dashed line

Lower limit comparator value: Light blue dashed line



- It is not possible to enter a value where upper limit < lower limit.

  If it is entered, the message shown on the left will appear.

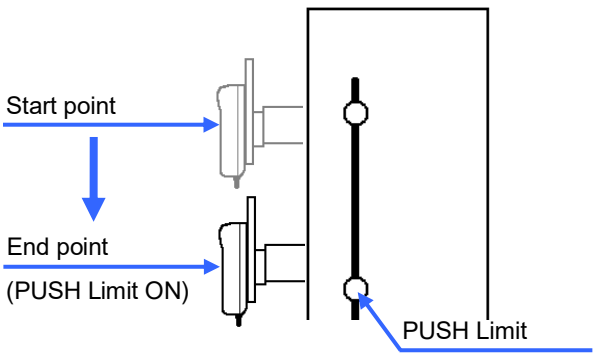
4.5. MANU Mode

① FGS-VC Operation for MANU mode

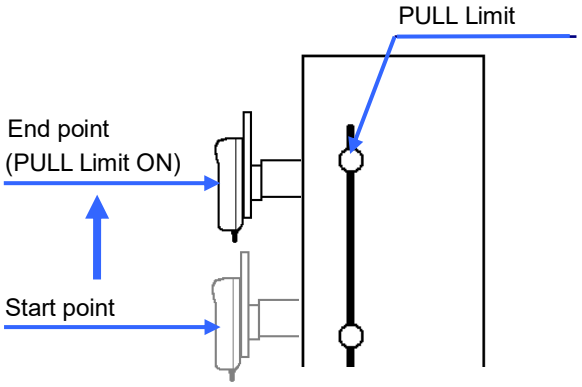
When the FGS-VC unit is set to MANU mode, clicking the [↓ PUSH] or [PULL ↑] button in the Main Menu starts the operation and data import for MANU mode.

If the [↓ PUSH] button is clicked, the unit moves until the PUSH limit switch turns ON.

If the [PULL ↑] button is clicked, the unit moves until the PULL limit switch turns ON.



↓ PUSH When the [PUSH] button is clicked



PULL ↑ When the [PULL] button is clicked

② Data Import for MANU mode

In MANU mode, measurement sheet files are imported as follows.

	A	B
1	Date	2024/12/19 16:21
2		
3	Direction	PUSH
4	Test mode	MANU mode
5	Force Gauge	FG*-5
6	Force Unit	N
7	Sampling Rate	50 times/sec
8	Trigger (Force)	0
9	Number of data	3194
10	Maximum	0
11	Minimum	0
12	Average	0
13		
14	Upper limit	0
15	Lower limit	0
16	Result	Invalid
17		
18	Distance(mm)	Force(N)
19	0	0
20	0	0

Header

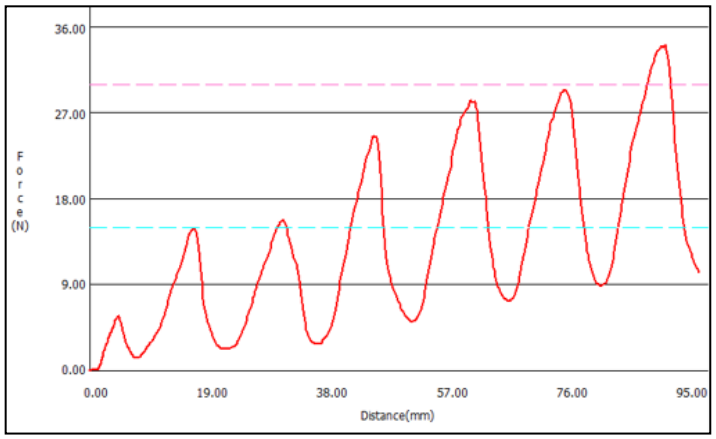
Measurement data

The header displays information such as settings configured in the Main Menu.

③ Graph

A measurement graph file is created after the measurement is completed, only if the Graph is set to ON in the Main Menu.

With the horizontal axis as the distance (mm) and the vertical axis as the force (Unit) for the graph, a red line indicates measurement data from the start point of the operation for MANU mode (or from the data import commencement if the trigger is enabled) to the end point of the operation.



Distance (mm) - Force Graph

④ Creating a File

Once a single measurement data import is completed, the measurement data is output to the following file.

The output file path, file name, and timing for creating file are as follows.

Output file path:

All files are saved to the following folder.

File Output Folder: %APPDATA%/NDTC/MIS-FGT-VC/DATA/

File name:

Files are created using the following naming convention. * The {Mode} field is set to “MANU” for MANU mode.

Measurement Sheet File: VC{Test Date}-{Mode}-{Serial Number}.csv

Measurement Graph File: VC{Test Date}-{Mode}-{Serial Number}.bmp

* The measurement graph file is only output if the Graph is enabled in the Main Menu.

* “Test Date” follows the format “yyyymmdd”.

* “The {Mode} field reflects the selected mode. There are four available modes (MANU, SING, CONT, and PROG.)

* “Serial Number” is a four-digit value ranging from 0001 to 9999, determined according to the rules below.

Once the maximum serial number is reached, further file saving is not possible.

Timing for Creating File:

Files are created once all tests have been completed.

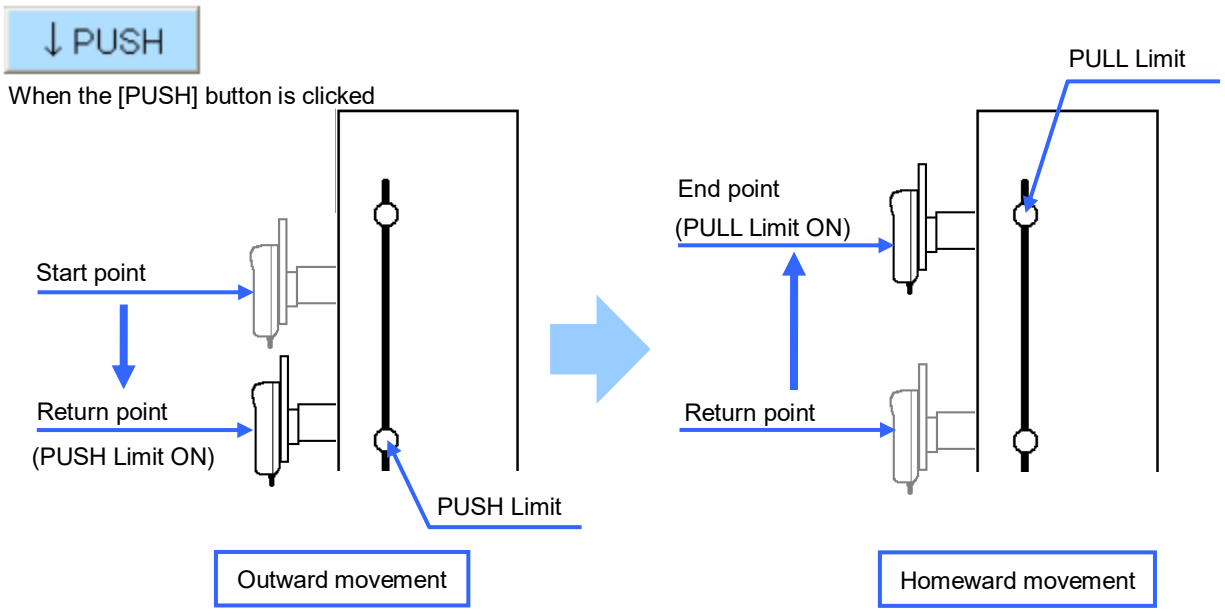
4.6. SING Mode

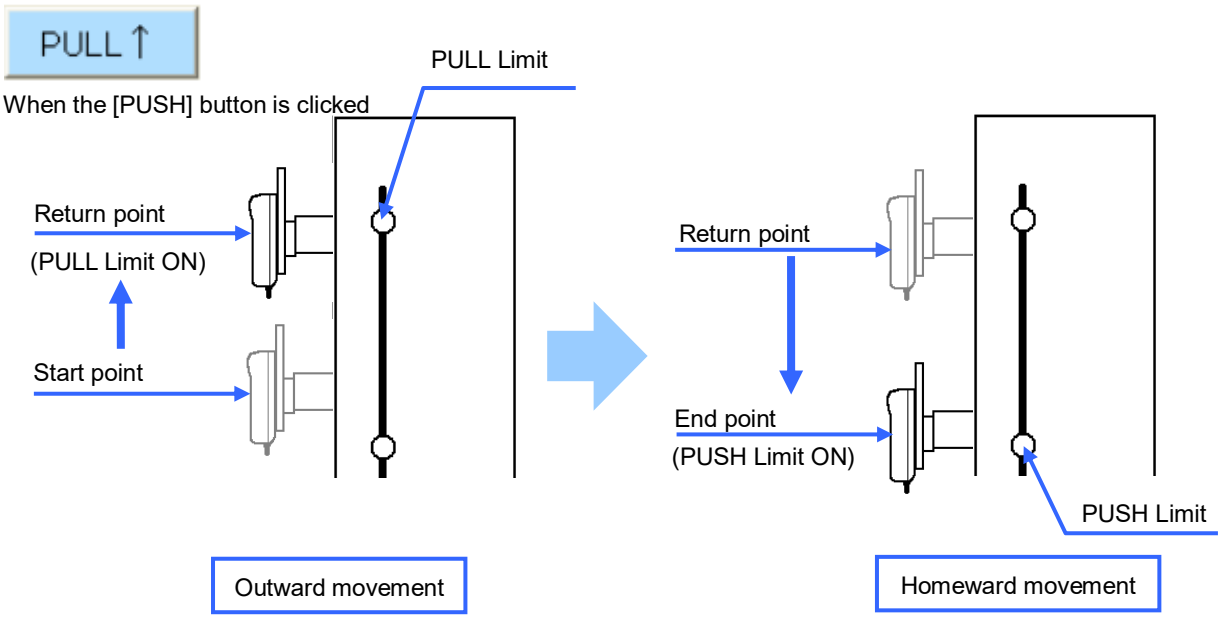
① FGS-VC Operation for SING mode

When the FGS-VC unit is set to SING mode, clicking the [↓ PUSH] or [PULL ↑] button in the Main Menu starts the operation and data import for SING mode.

If the [↓ PUSH] button is clicked, the unit moves in the PUSH direction until the PUSH limit switch turns ON, then moves in the PULL direction until the PULL limit switch turns ON.

If the [PULL ↑] button is clicked, the unit moves in the PULL direction until the PULL limit switch turns ON, then moves in the PUSH direction until the PUSH limit switch turns ON.





② Data Import for SING mode

In SING mode, measurement sheet files are imported as follows.

	A	B
1	Date	2024/12/19 17:37
2		
3	Direction	PUSH
4	Test mode	SING mode
5	Force Gauge	FG*-5
6	Force Unit	N
7	Sampling Rate	50 times/sec
8	Trigger (Force)	0
9	Number of data	6475
10	Maximum	17.48
11	Minimum	0
12	Average	5.97
13	Return point	3264
14		
15	Upper limit	0
16	Lower limit	0
17	Result	Invalid
18		
19	Distance(mm)	Force(N)
20	0	0
21	0	0

Header

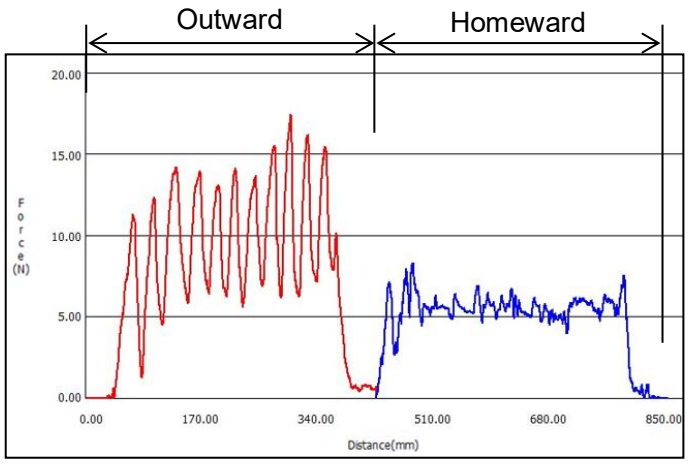
Measurement data

The header displays information such as settings configured in the Main Menu.

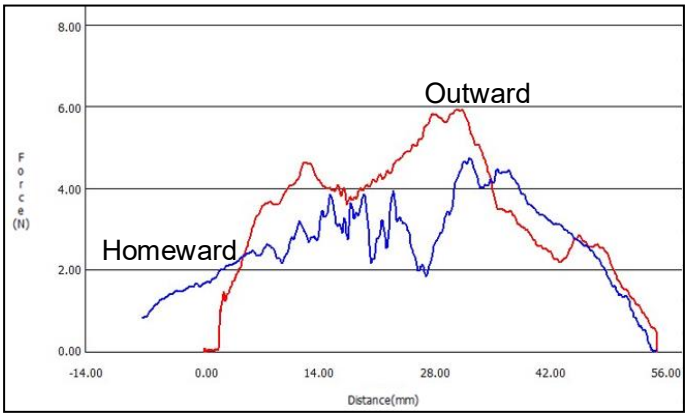
③ Graph

A measurement graph file is created after the measurement is completed, only if the Graph is set to ON in the Main Menu.

With the horizontal axis as the distance (mm) and the vertical axis as the force (Unit) for the graph, a red line indicates measurement data from the start point of the operation for SING mode (or from the data import commencement if the trigger is enabled) to the end of the outward movement, while a blue line indicates measurement data from the start of the homeward movement to the end point of the operation.



Distance (mm) - Force Graph (Total Distance: ON)



Distance (mm) - Force Graph (Total Distance: OFF)

④ Creating a File

Creating a file follows the same procedure as in MANU mode. *The {Mode} field is set to "SING" for SING mode.

⑤ MAX-S Sheet File

A MAX-S sheet file is created only during SING mode.

The MAX-S sheet file records the Maximum Force for each SING mode operation, with one entry per line.

• File Name: VC {Test Date} -MAX-S.csv

	A	B	C	D
1	Date	2024/12/19		
2				
3	Force Gauge	FG*-5		
4	Force Unit	kg		
5				
6	Maximum	17.47		
7	Minimum	1.777		
8	Average	9.623		
9	Standard Deviation	7.846		
10				
11	Count	File name	Distance(mm)	Maximum Force
12	1	VC20241219-SING-0001.csv	331.92	17.47
13	2	VC20241219-SING-0002.csv	-323.08	1.777

Header

Measurement data

Statistical results against maximum force.

(Maximum, Minimum, Average, Standard Deviation)

Calculated based on the maximum force recorded for each test cycle.

(Measurement data)

For each test cycle, the Maximum Force and the corresponding Distance at that moment are displayed.

4.7. CONT Mode

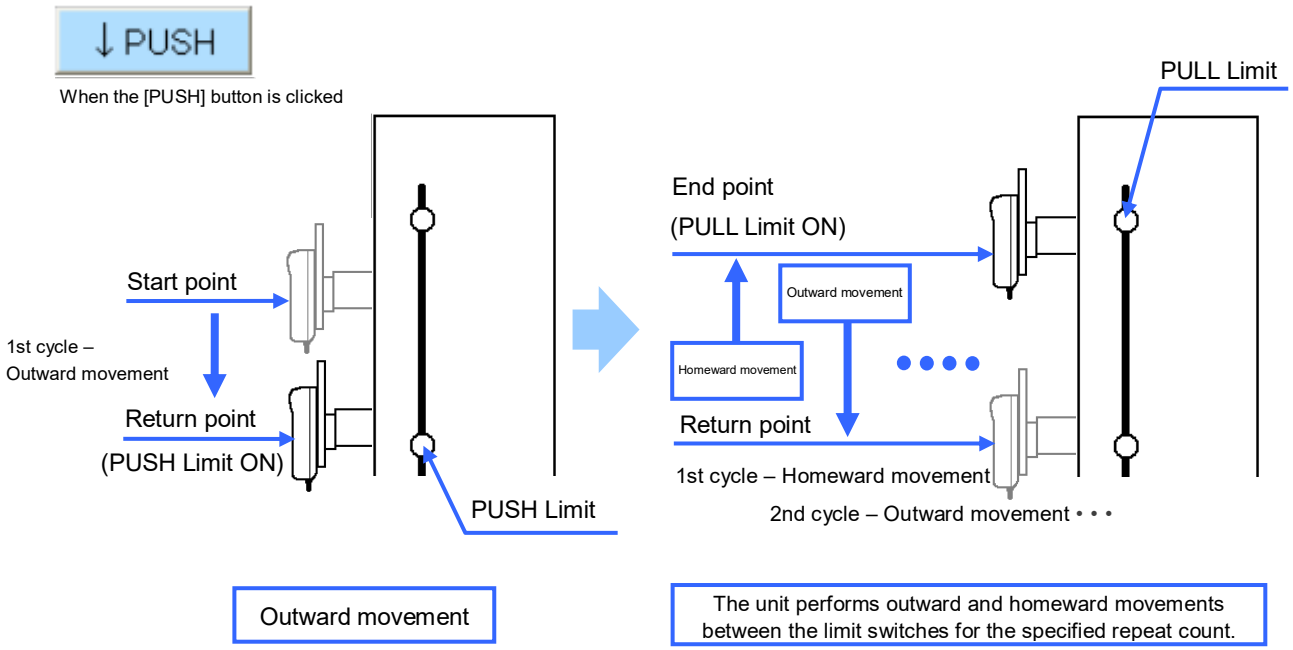
① FGS-VC Operation for CONT mode

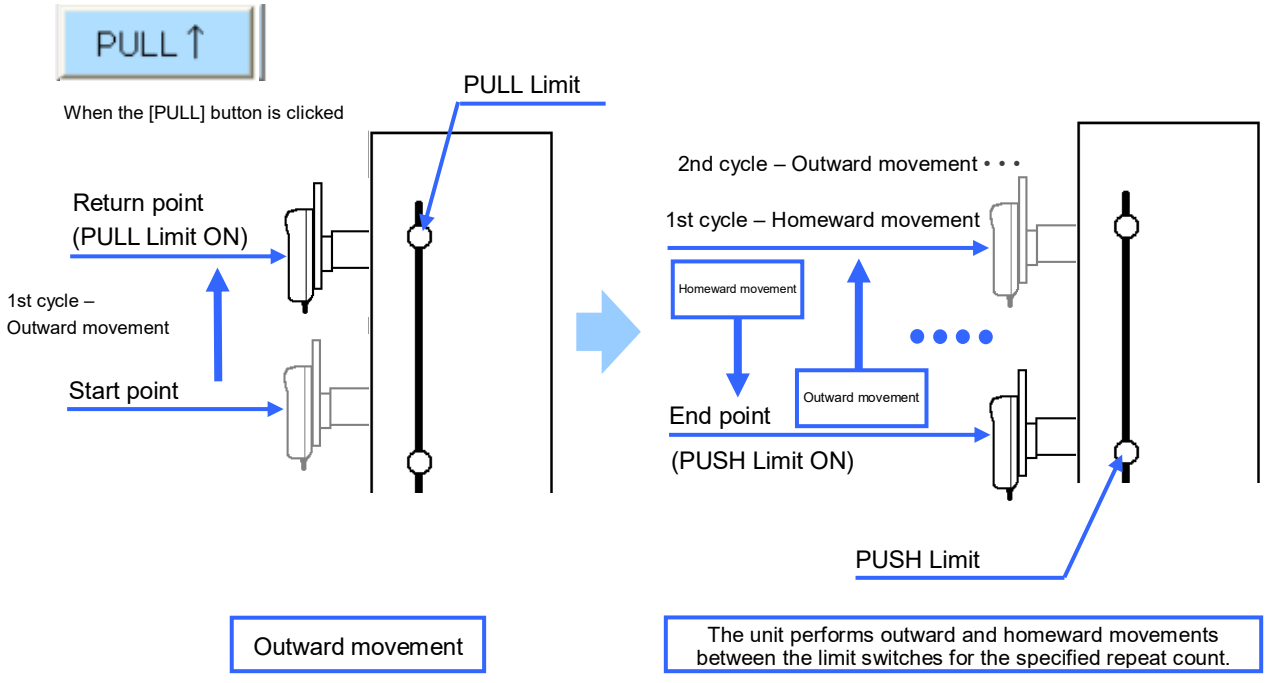
When the FGS-VC unit is set to CONT mode, clicking the [↓ PUSH] or [PULL ↑] button in the Main Menu starts the operation and data import for CONT mode.

If the [↓ PUSH] button is clicked, the unit starts moving in the PUSH direction and repeats with outward and homeward movements between the PUSH limit switch ON and the PULL limit switch ON for the specified repeat count.

If the [PULL ↑] button is clicked, the unit starts moving in the PULL direction and repeats with outward and homeward movements between the PULL limit switch ON and the PUSH limit switch ON for the specified repeat count.

The repeat count can be set in the Main Menu.





② Data Import for CONT mode

In CONT mode, measurement sheet files are imported as follows.

	A	B
1	Date	2024/12/19 8:17
2		
3	Direction	PUSH
4	Test mode	CONT mode
5	Force Gauge	FG*-5
6	Force Unit	N
7	Sampling Rate	50 times/sec
8	Repeat Count	3
9	Sampling Number	2
10	Trigger (Force)	0
11	Number of data	4454
12	Maximum	35.13
13	Minimum	0
14	Average	4.27
15	Return point	1245
16		
17	Upper limit	0
18	Lower limit	0
19	Result	Invalid
20		
21	Count	1
22	MAX File	VC20241219-MAX-0001.csv
23		
24	Distance(mm)	Force(N)
25	0	0
26	0	0

Header

Measurement data

The header displays information such as settings configured in the Main Menu.

● Sampling Number and Measurement Sheet File

In CONT mode, setting the sampling number makes it possible to create the number measurement sheet files for the sampling number in the continuous operations. If no measurement sheet file remains, only the maximum force value at that time is recorded in the MAX sheet.

● Count

The “Count” displays the number of consecutive outward and homeward movements performed.

● MAX Sheet File

When performing consecutive test operations, the maximum force value for each test cycle is recorded line by line on a sheet file (MAX Sheet File) separate from the measurement sheet file.

③ MAX Sheet File

The maximum force value for each consecutive test cycle performed consecutively in CONT mode is recorded line by line on the MAX sheet.

The MAX sheet created in CONT mode follows the format below.

• File Name: VC{Test Date}-MAX-{Serial Number}.csv

	A	B	C	D
1	Date	2024/12/19		
2				
3	Force Gauge	FG*-5		
4	Force Unit	N		
5				
6	Maximum	31.51		
7	Minimum	0		
8	Average	21.59		
9	Standard Deviation	8.25		
10				
11	Repeat Count	3		
12	Sampling Number	3		
13				
14	Count	File name	Distance(mm)	Maximum Force
15	1	VC20241219-CONT-0001.csv	257.74	31.51
16	2	VC20241219-CONT-0002.csv	353.99	21.94
17	3	VC20241219-CONT-0003.csv	184.68	11.31

Header

Measurement data

Statistical results against maximum force.

(Header)

(Maximum, Minimum, Average, Standard Deviation)

Calculated based on the maximum force recorded for each test cycle.

(Repeat Count, Sampling Number)

The values set in the Main Menu will be displayed.

(Measurement data)

For each test cycle, the Maximum Force and the corresponding Distance at that moment are displayed.

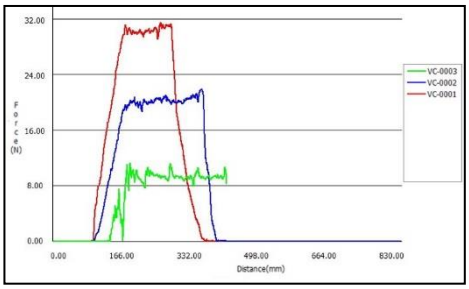
④ MAX Sheet Graph File

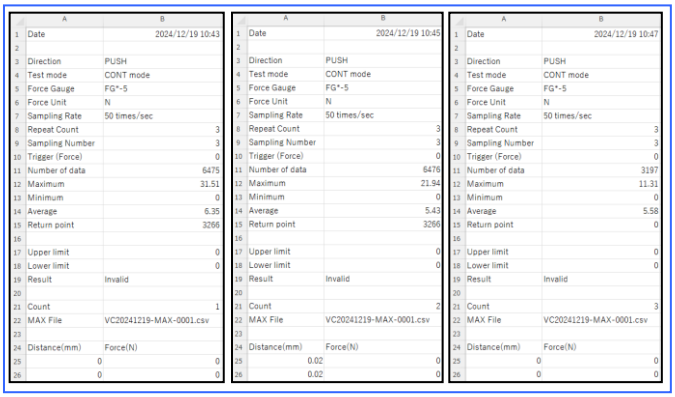
Only if the Graph is set to ON in the Main Menu, overlay graphs are created on the MAX sheet graph file.

The overlay graph reflects measurement values from the first 10 measurement sheets created after the commencement of operation.

The measurement data used for the graph is recorded in the measurement file sheet.

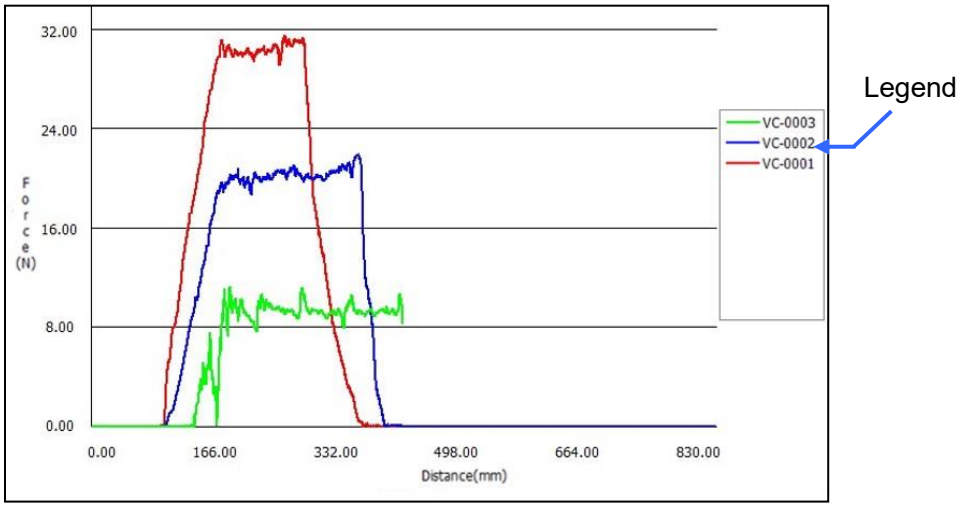
	A	B	C	D
1	Date	2024/12/19		
2				
3	Force Gauge	FG*-5		
4	Force Unit	N		
5				
6	Maximum	31.51		
7	Minimum	0		
8	Average	21.59		
9	Standard Deviation	8.25		
10				
11	Repeat Count	3		
12	Sampling Number	3		
13				
14	Count	File name	Distance(mm)	Maximum Force
15	1	VC20241219-CONT-0001.csv	257.74	31.51
16	2	VC20241219-CONT-0002.csv	353.99	21.94
17	3	VC20241219-CONT-0003.csv	184.68	11.31





Measurement file sheet

- Displays with overlaying graphs for the first 10 measurement sheets created.



Overlay graph

⑤ Creating a File

Creating a file follows the same procedure as in MANU mode.　* The {Mode} field is set to “CONT” for CONT mode.

4.8. PROG Mode

① FGS-VC Operation for PROG mode

When the FGS-VC unit is set to PROG mode, clicking the [↓ PUSH] or [PULL ↑] button in the Main Menu starts the operation and data import for PROG mode.

In PROG mode, clicking either the [PUSH] or [PULL] button starts the operation as set on the unit.

The unit operates in the following sequence in PROG mode.

(1) Contact Force Detection

The unit moves until it detects the "Contact Force".

(2) Zero-Point Force Detection

Once the contact force is detected, the unit moves in the decompression direction until the force value reaches the zero-point force.

(3) P1 Movement

The unit moves from the zero-point force detection position to P1.

(4) P2 Movement

The unit moves from P1 to P2.

(5) P3 Movement

The unit moves from P2 to P3.

(6) P4 Movement

The unit moves from P3 to P4.

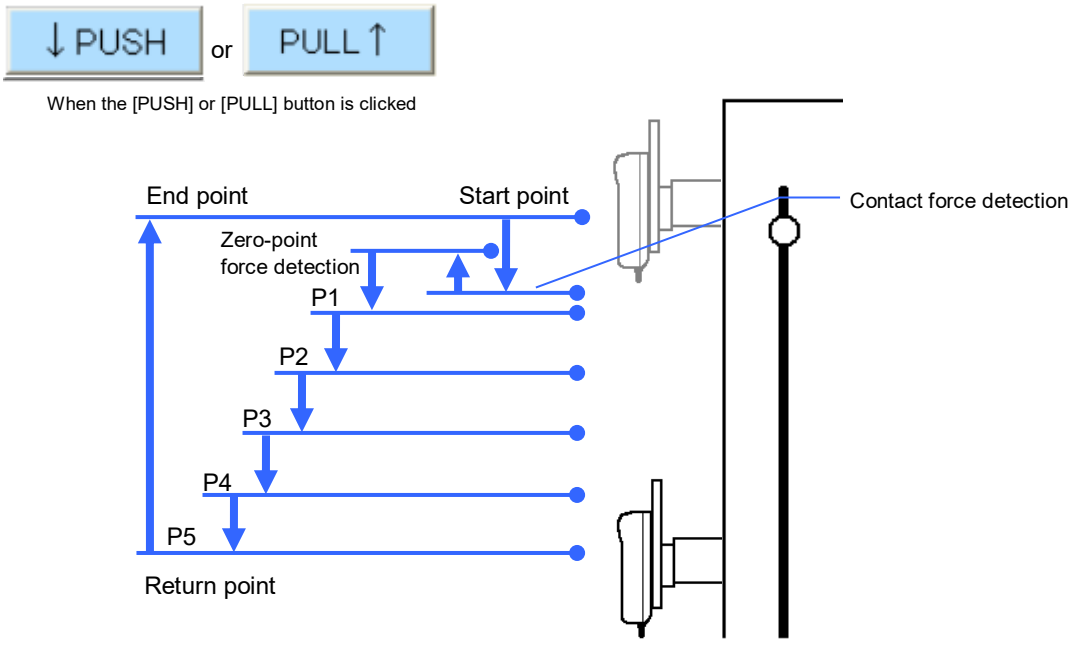
(7) P5 Movement

The unit moves from P4 to P5.

(8) Return Movement

The unit moves back from P5 to the starting point of the test operation.

* For details on parameter settings, refer to the Instruction Manual for “FGS-VC” Series.



② Data Import for PROG mode

In PROG mode, measurement sheet files are imported as follows.

In PROG mode, measurement data during movement from the zero-point detection position to P5 are imported.

③ Upper/Lower Limit Comparator Judgement

The upper/lower limit judgement in PROG mode follows the same criteria as MANU mode.

In PROG mode, the maximum force value is calculated from the measurement data recorded during a single operation cycle (from the zero-point detection point to P5) and then the judgement is performed.

④ MAX Sheet File

The content of the MAX sheet in PROG mode follows the same structure as CONT mode.

⑤ MAX Sheet Graph File

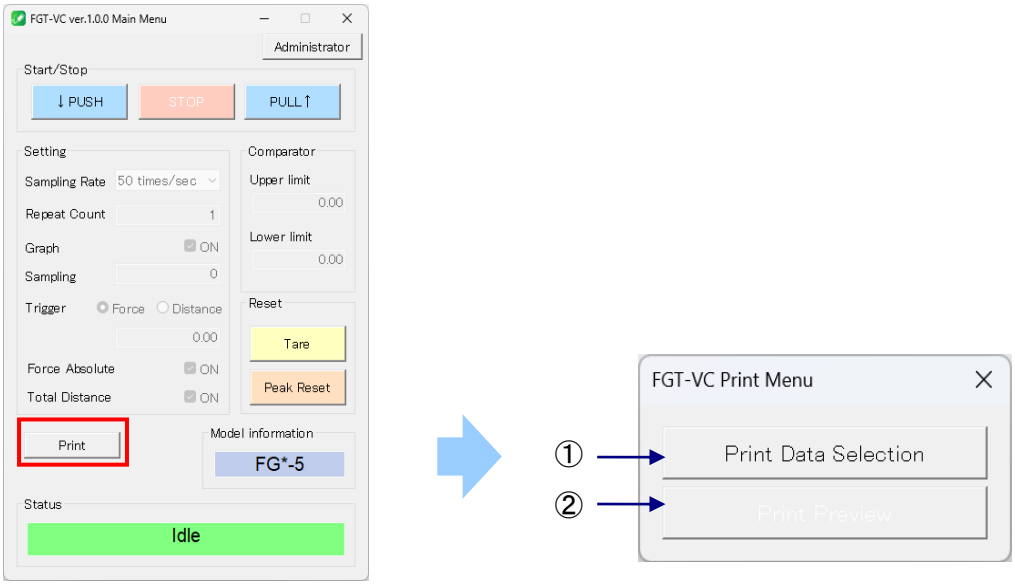
The content of the MAX sheet graph in PROG mode follows the same as CONT mode.

⑥ Creating a File

Creating a file follows the same procedure as in MANU mode. * The {Mode} field is set to “PROG” for PROG mode.

4.9. Print Menu

Click the [Print] button in the Main Menu to display the Print Menu.

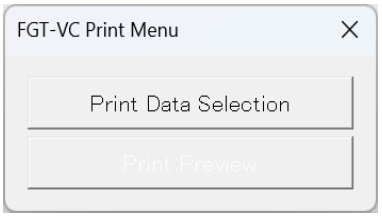


Item	Description
① Print Data Selection Button	Select the file to print.
② Print Preview Button	Select the checkbox to display the total distance (excluding MANU mode).

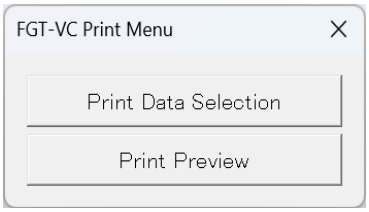
① Print Data Selection

In the Print Menu, select the file to print. (Once a file is selected, the [Print Preview] button becomes available.)

Before File Selection

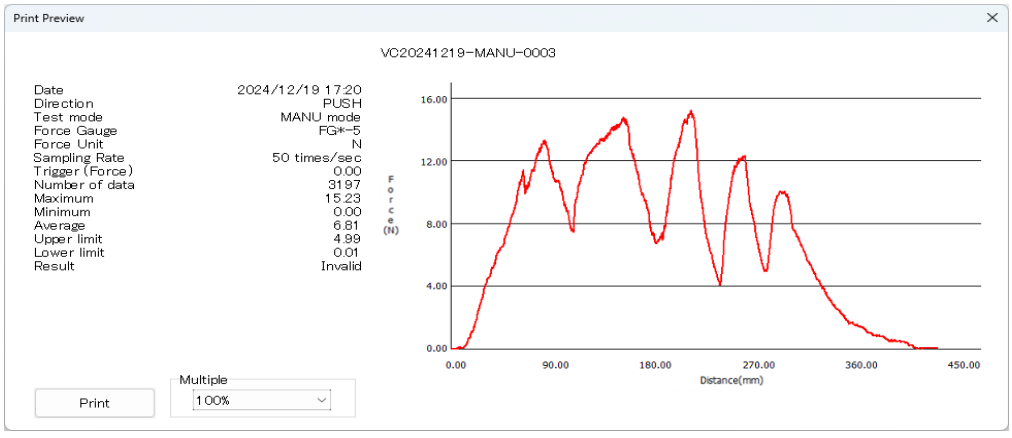


After File Selection



② Print Preview

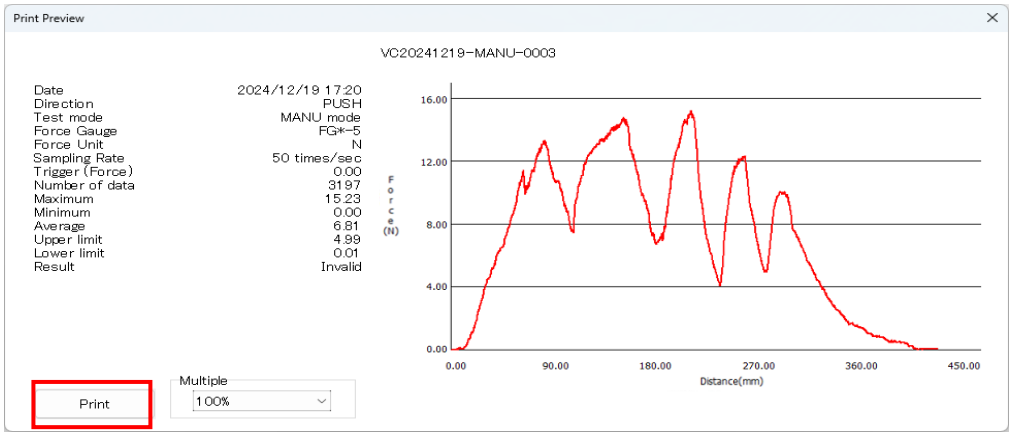
Click the [Print Preview] button to display a preview of the selected file.



4.10. Print Preview Screen

① Print

Click the [Print] button to print the content displayed on the Print Preview Screen.



② Print Scaling

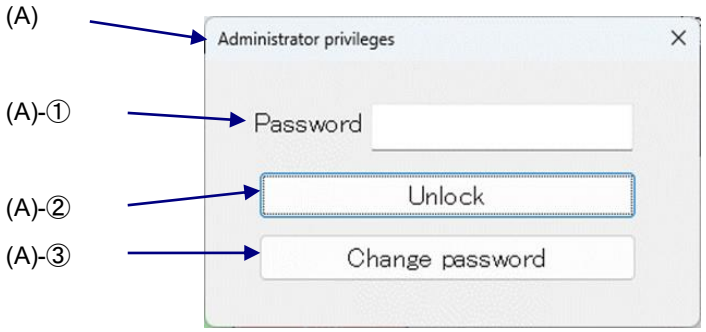
Printing is performed at the scaling ratio set in Multiple.

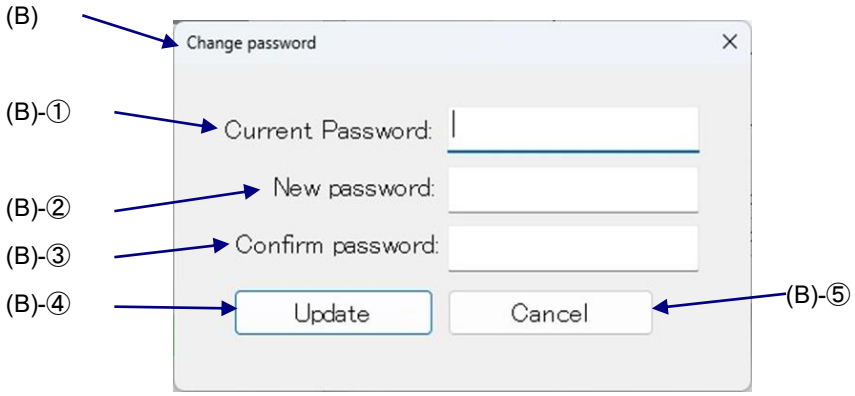
The scaling ratio can be adjusted in 5% increments from 75% to 200%.

4.11. Administrator Privileges

Clicking the [Administrator] button in any tab to display the window shown below.

Switching to Administrator Privileges enables modification of settings.





(A) Password Entry

① Password

Enter the Administrator Privileges password.
The default password upon installation is “password”.
It is recommended that the password be changed upon first use.
The password must consist of at least one alphanumeric character or symbol.
If the password is forgotten, reinstalling the software will reset it to the default password.
During reinstallation, both the password and all other settings will be reset. Hence, ensure that the current settings are recorded beforehand and reconfigure them afterward.

② Unlock

When the entered password is correct, the settings in each tab will become editable.

③ Change password

Navigates to the Change password screen.

(B) Change Password

① Current Password

Enter the currently set password.

② New Password

Enter the new password to be registered.

③ Confirm Password

Re-enter the new password. It must match the value entered in (B)-② New Password.

④ Update

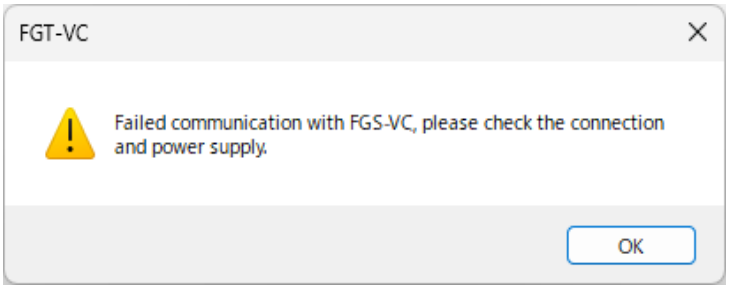
Updates the password. The password will only be updated if the New Password and Confirm Password fields match.

⑤ Cancel

Close the window without changing the password.

4.12. Handling Communication Errors

If the force gauge unit is turned OFF or disconnected from the PC while using FGT-VC, and an operation requiring communication with the force gauge (e.g., clicking the import [Start] button) is attempted, the following error message will appear. Additionally, the status will indicate “Failed Communication”.



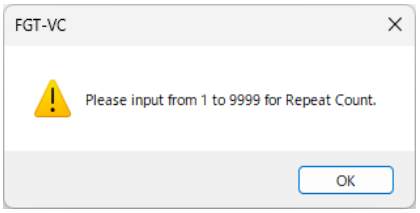
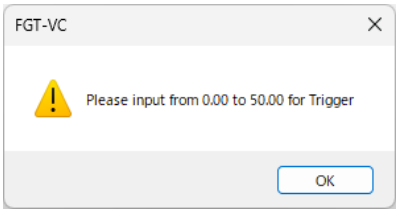
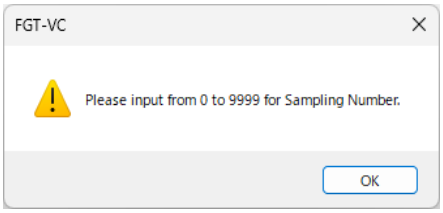
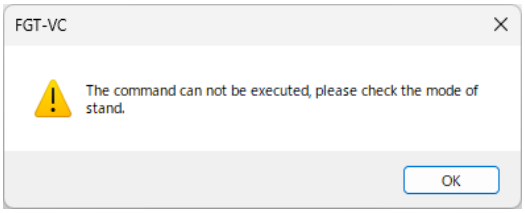
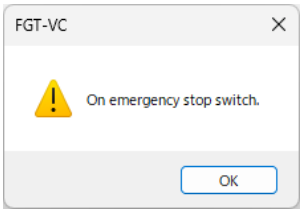
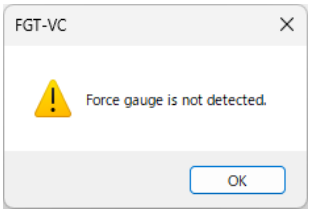
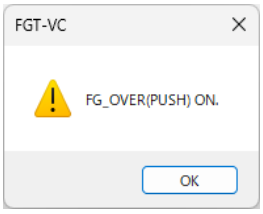
If this occurs, verify the connection of the force gauge or ensure the power is ON. Once a stable connection is established, initiate an operation in FGT-VC that requires communication with the force gauge to restore normal functionality.
If the issue persists after these actions, exit FGT-VC, disconnect the serial cable from the PC, reconnect it properly, and restart FGT-VC.

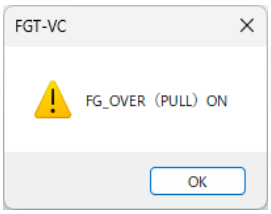
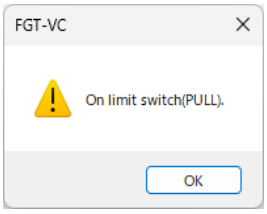
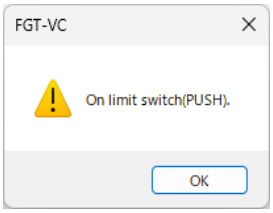
5. Variable Input Range Reference Table

The input range for force-related values varies depending on the connected FG (force gauge) model, as shown in the table below.

Model	Unit	Upper limit	Lower limit	Trigger
FG✱-0.5	N	0 - 2.000		
	g	0 - 200.0		
	lb	0 - 0.500		
	oz	0 - 8.000		
FG✱-0.1	N	0 - 5.000		
	g	0 - 500.0		
	lb	0 - 1.000		
	oz	0 - 16.00		
FG✱-2	N	0 - 10.00		
	g	0 - 1000		
	lb	0 - 2.000		
FG✱-5	N	0 - 20.00		
	kg	0 - 2.000		
	lb	0 - 5.000		
FG✱-10	N	0 - 50.00		
	kg	0 - 5.000		
	lb	0 - 10.00		
FG✱-20	N	0 - 100.0		
	kg	0 - 10.00		
	lb	0 - 20.00		
FG✱-50	N	0 - 200.0		
	kg	0 - 20.00		
	lb	0 - 50.00		
FG✱-100	N	0 - 500.0		
	kg	0 - 50.00		
	lb	0 - 100.0		
FG✱-200	N	0 - 1000		
	kg	0 - 100.0		
	lb	0 - 200.0		
FG✱-500HXY	N	0 - 2500		
	kg	0 - 250.0		
	lb	0 - 500.0		

6. Common Error Messages and Troubleshooting List

	The entered repeat count exceeds the allowed input range. Follow the instructions in the message and adjust the input value accordingly.
	The entered trigger exceeds the allowed input range. Follow the instructions in the message and adjust the input value accordingly. The allowed input range varies depending on the force gauge model.
	The entered sampling number exceeds the allowed input range. Follow the instructions in the message and adjust the input value accordingly.
	The stand cannot operate. Ensure that the unit is set to MANU, SING, CONT, or PROG mode. (Operation is not possible in Setting Mode.)
	The [Emergency Stop] switch on the FGS-220VC unit is ON. Disable the [Emergency Stop] switch before starting operation.
	The force gauge is not connected to the FGS-220VC unit. Verify the connection.
	An overload has occurred on the PULL direction. Perform a PUSH movement operation to clear the PULL direction overload.

	An overload has occurred on the PUSH direction. Perform a PULL movement operation to clear the PUSH direction overload.
	The PULL limit switch is ON. Operate the main unit or adjust the position of the limit dog so that the limit switch does not turn ON.
	The PUSH limit switch is ON. Operate the main unit or adjust the position of the limit dog so that the limit switch does not turn ON.

NIDEC DRIVE TECHNOLOGY CORPORATION

〈Web Page Information〉 Please scan the QR code or access the URL below.

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NIDEC DRIVE TECHNOLOGY CORPORATION

Nidec Shimpo Corporation change its company name to Nidec Drive Technology Corporation on April 1, 2023.