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98251B

FGS-VC Series Motorized Stand

Software Operation Manual

Read Manual thoroughly prior to operation.

Use instrument only after reading the complete manual.
Follow all safety precautions.

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Follow all safety precautions.

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1. Software Overview

Thank you for choosing the FGS-VC Series Motorized Stand; as an added feature the FGS-VC can be operated with the free software called FGT-VC.

What is FGT-VC?
FGT-VC is an Add-in tool for Microsoft Excel, allowing easy download and analysis of the data gathered during testing.

Read this operation manual carefully prior to use. It holds important information on how to properly install and use the Shimpo FGT-VC Software.

For additional updates and support our website at: http://www.nidec-shimpo.co.jp/en/support/office/index.htm or call local Shimpo office.

2. Software Requirements and Initial Information

The FGT-VC is an Add-in tool for Microsoft Excel 2003, 2007 or 2010.
This tool allows data to be collected and downloaded via USB cable, which in turn tabulates these data to useful information.

Software requirements:

- Microsoft Windows XP, Windows 7 or Windows 8 (32bit/64bit)
- Microsoft Excel 2003, Excel 2007 or Excel 2010 (32bit)

Software features:

- Download data in testing(MANU/SING/CONT/PROG mode)
- Set repeat count and sampling rate
- Graph function
- Judgment of upper and lower limit
- Statistic calculation
- Set trigger function
-

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

3. Reminders

Caution warning holds important safety information

Reminder: holds important key information for the product.

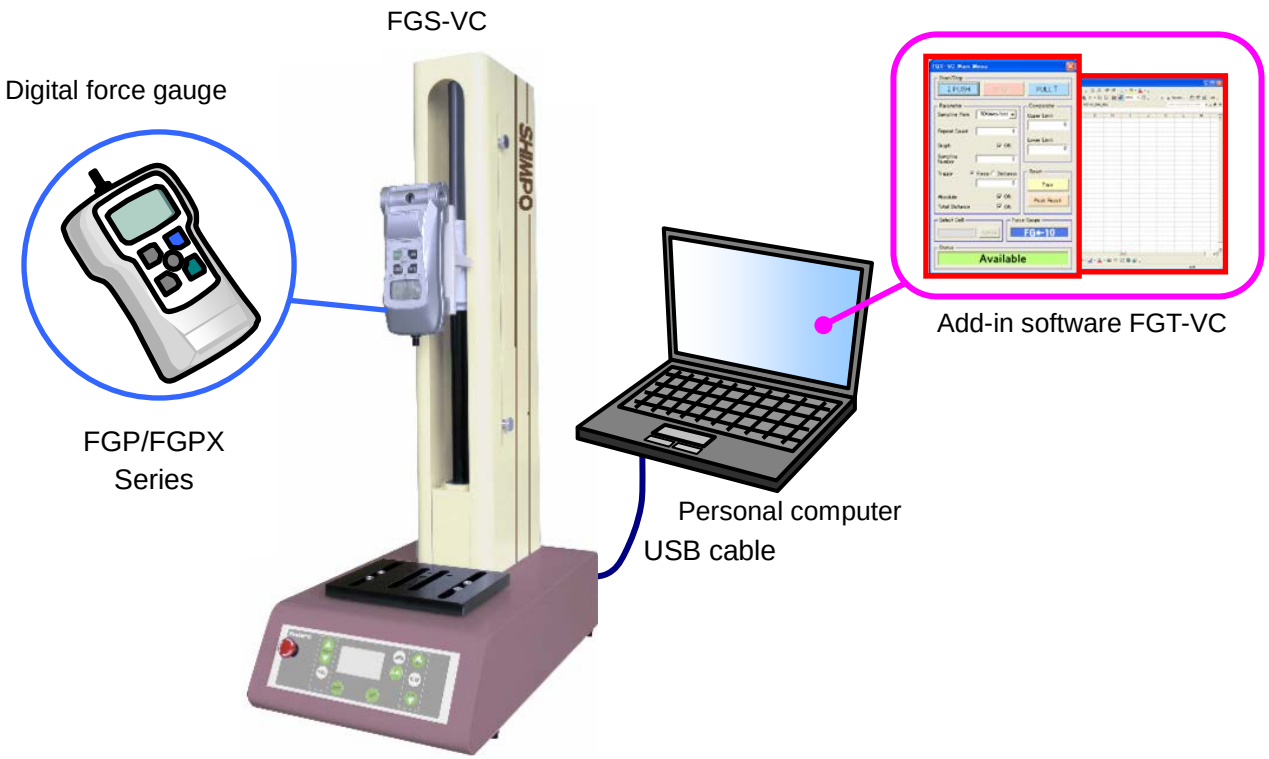
The copyright of the software and its documents belongs to Nidec-Shimpo America Corp.
The foregoing warranties are exclusive and in lieu of all other express and implied warranties (except of title including but not limited to implied warranties of merchantability, fitness for a particular purpose, performance, or otherwise), and in no event shall the Company be liable for claims (based upon breach of express or implied warranty, negligence, or otherwise) for any other damages, whether direct, immediate, incidental, foreseeable, consequential, or special.

4. Set Up Procedure

What will you need to get started?

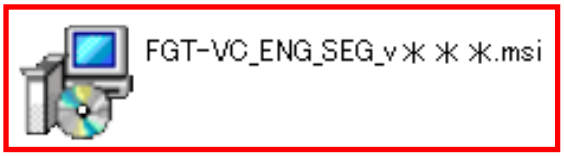
- A copy of the FGT-VC software, this software can be downloaded from http://www.nidec-shimpokeisoku.jp/en/
- Visit this website for future and additional updates.
- USB A to USB B cable plugged in to an open port from the Host PC.
- USB port 1.1 or higher
- Microsoft Excel 2003, Excel 2007or Excel 2010 (32bit) (these versions includes the necessary libraries needed to make the software works).

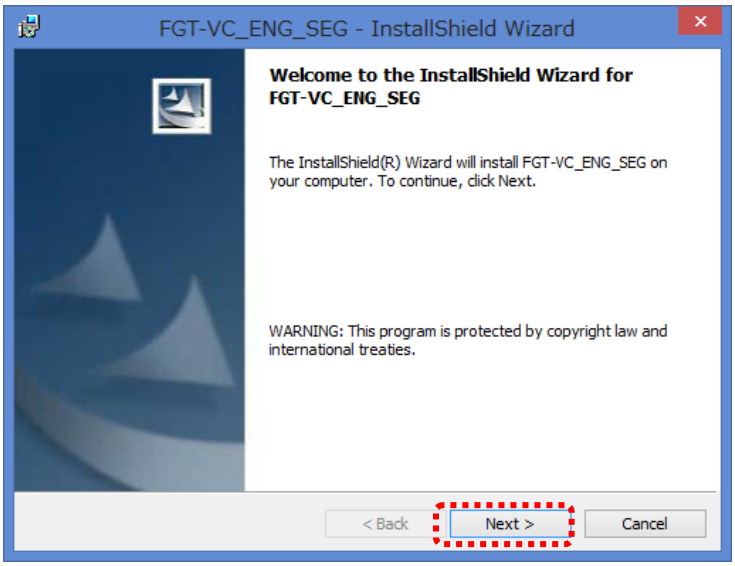
Structure



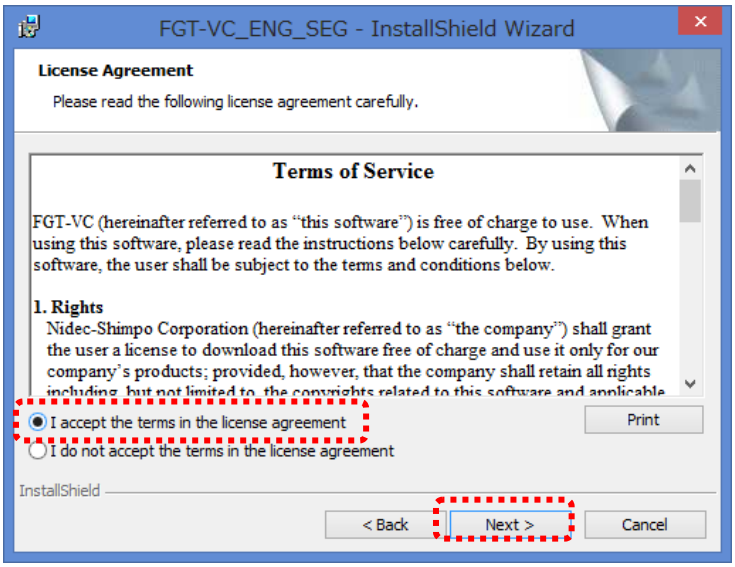
4.1. Install Procedure of FGT-VC Application Software

Double click the FGT-VC_ENG_SEG_v***.msi, the Windows installer is started.

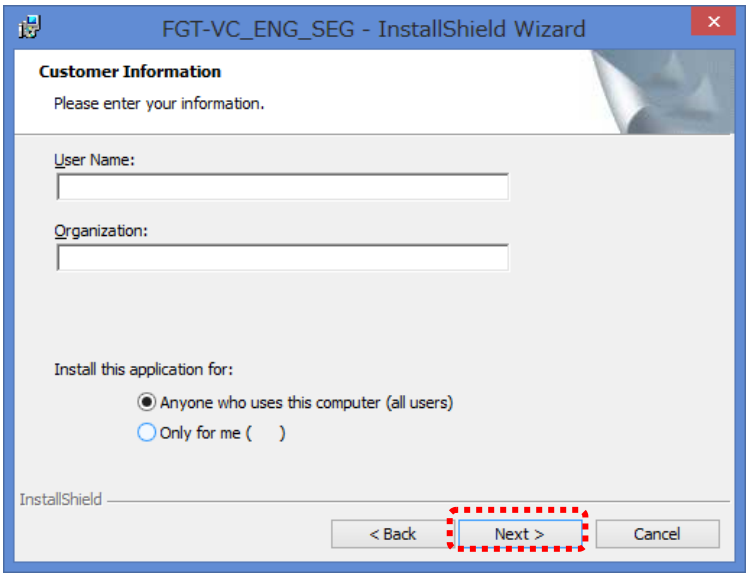




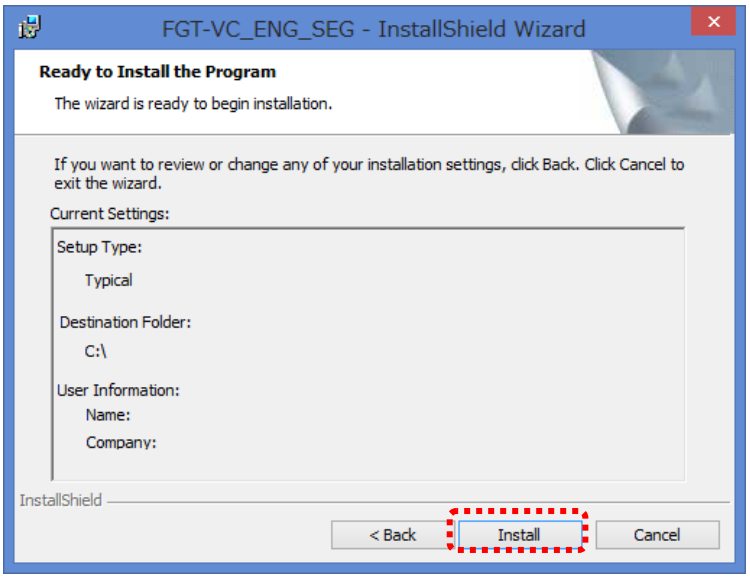
Click “Next >”.



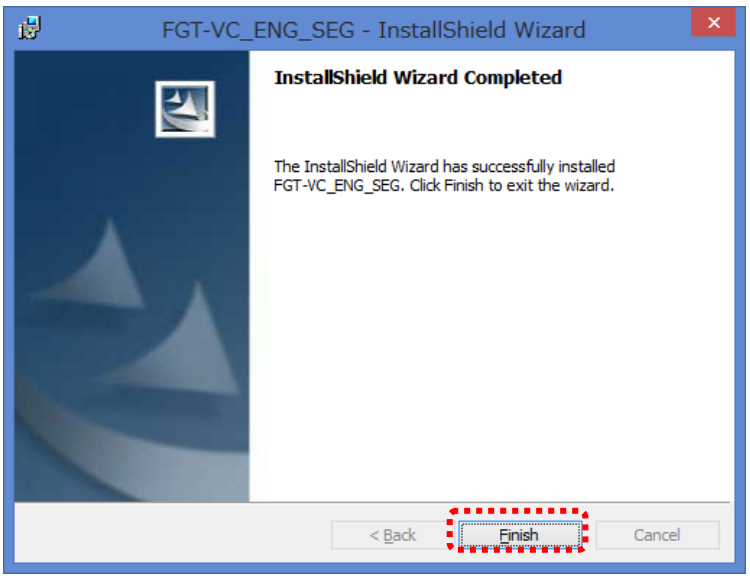
Read the Terms of Service.
If you agree, set the check button of “I accept……”, next click “Next >”.



Fill in User Name and Organization.
Click “Next >”.

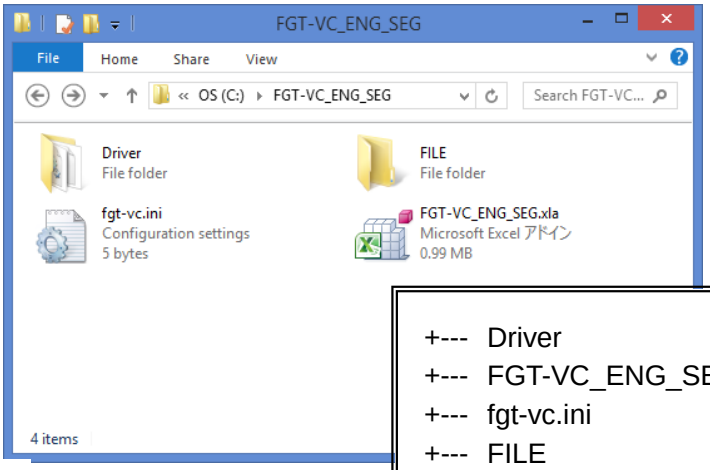


Confirm indicated items.
Click “Install”.



When complete to install, click “Finish”.

After completing the install, the folder of “c:\FGT-VC_ENG_SEG” is made, and the files and folder are stored as shown in below diagram.



+---	Driver	: USB driver folder
+---	FGT-VC_ENG_SEG.xla	: Excel Add-in software (FGT-VC)
+---	fgt-vc.ini	: FGT-VC ini file
+---	FILE	: Saving folder of measurement data file

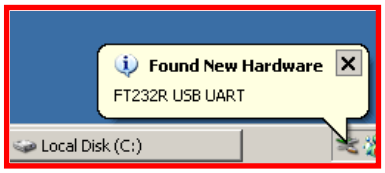
Do not change the content or move the Driver folder and fgt-vc.ini.
The software might not operate properly.

4.2. Install Procedure of USB Driver for FGT-VC

FGS-VC power on, the USB cable connects between FGS-VC and your PC.
The message balloon of detecting new hardware is displayed in lower right of screen.
After that, the USB driver starts to install.

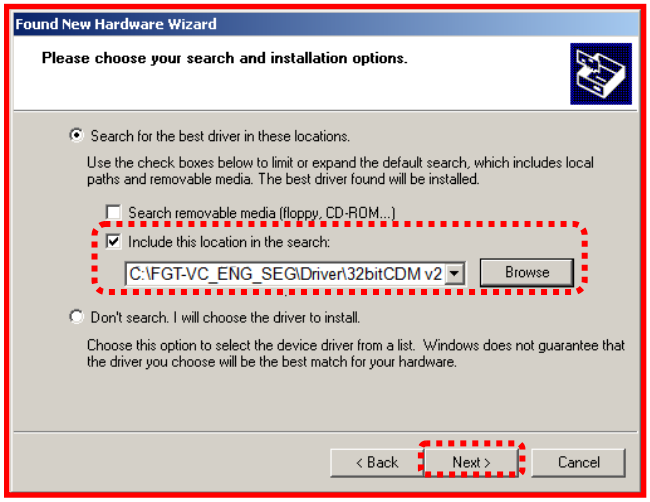
> The USB driver should be installed after 4.2. Install Procedure of FGT-VC Application Software.
> If the software of other Shimpo products has been installed, the message balloon of new hardware might not be displayed. In this case, the setup of this chapter is unnecessary.

*Installation for Windows XP



If confirmation window of “Windows Update Communication” is appeared, please select “No, do not connect this time (T)”.

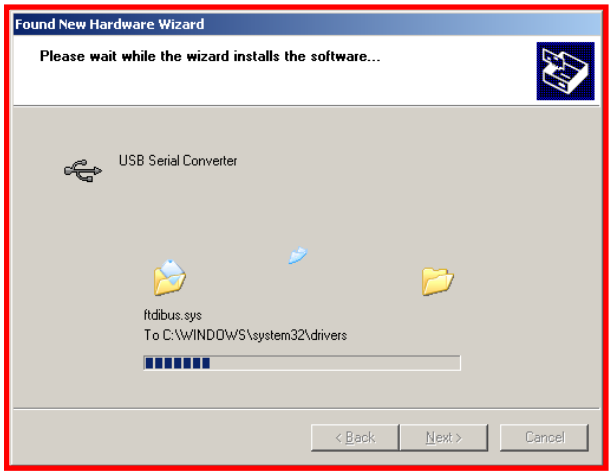
Set the check button of “Install from a list or specific location (Advanced).
Click “Next >”



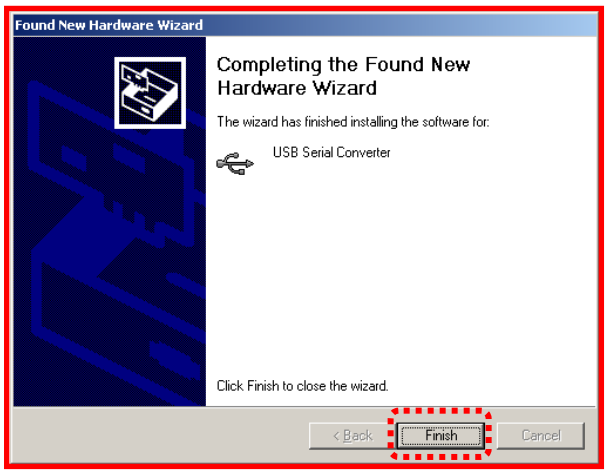
Set the check button of “Search for ….”, and set the check box of “Include …”.
Select the following folders according to the type of the OS.

- 32bit OS: C:\FGT-VC_ENG_SEG\Driver\32bitCDM v2.08.28 Certified
- 64bit OS: C:\ FGT-VC_ENG_SEG\Driver\64bitCDM v2.08.28 Certified

Click “Next >”.

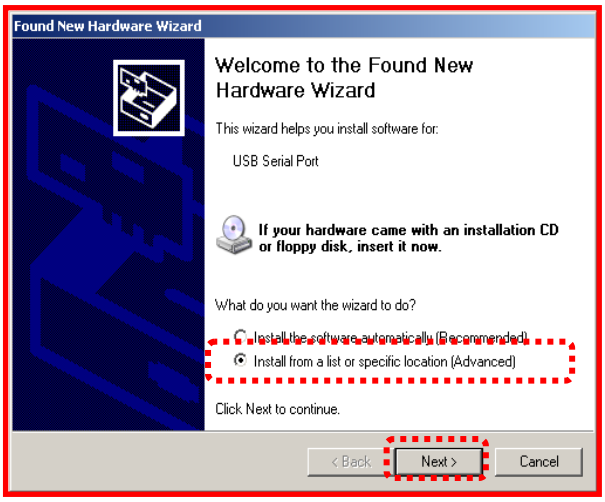


Installing USB driver



Completing to install USB driver.
Click “Finish”.
Next process is the installation of USB serial port.

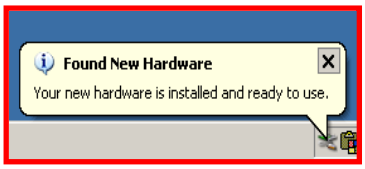
If confirmation window of “Windows Update Communication”, please select “No, do not connect this time (T)”.



Install the USB serial Port same as the previous procedure of the FT232R USB UART.

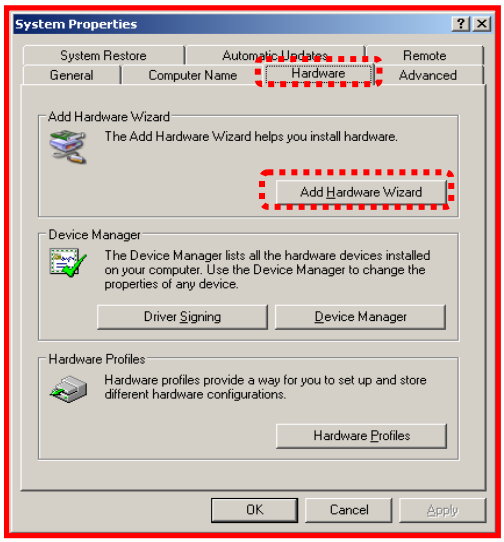
Completing to install USB serial port.
Click “Finish”.

Windows will confirm the presence of a new hardware (dialog box will appear on the lower part of the screen).
All installation is finished.

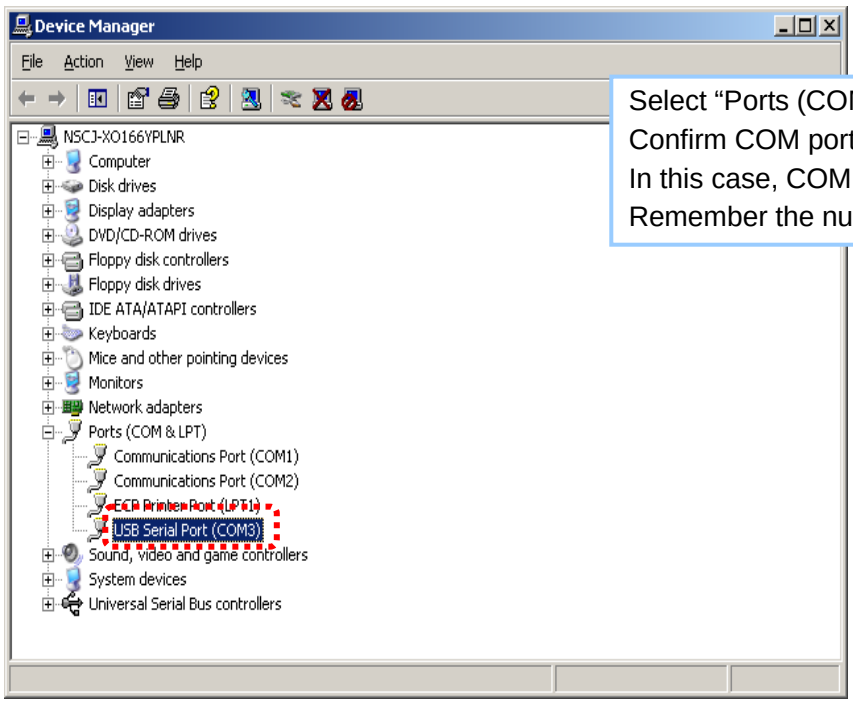


4.3. Confirmation of COM Port

After the installation (4.1, 4.2, 4.3), finally confirm the COM port or set COM port.
Open the Control Panel", then double click the System.



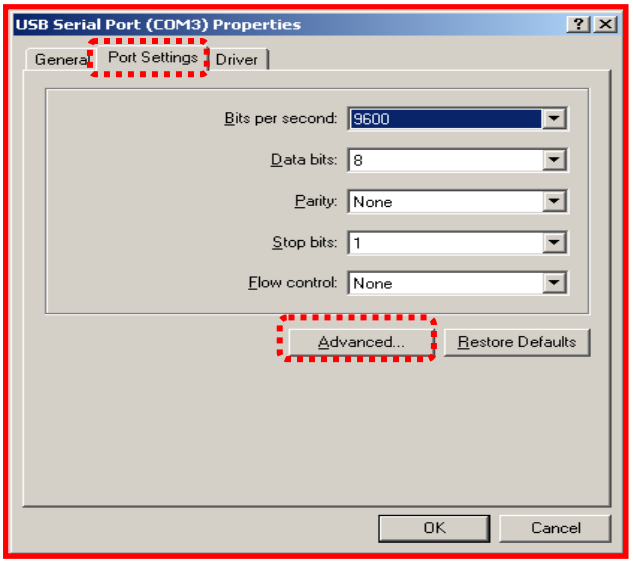
Select "Hardware" tab.
Click "Device Manager".



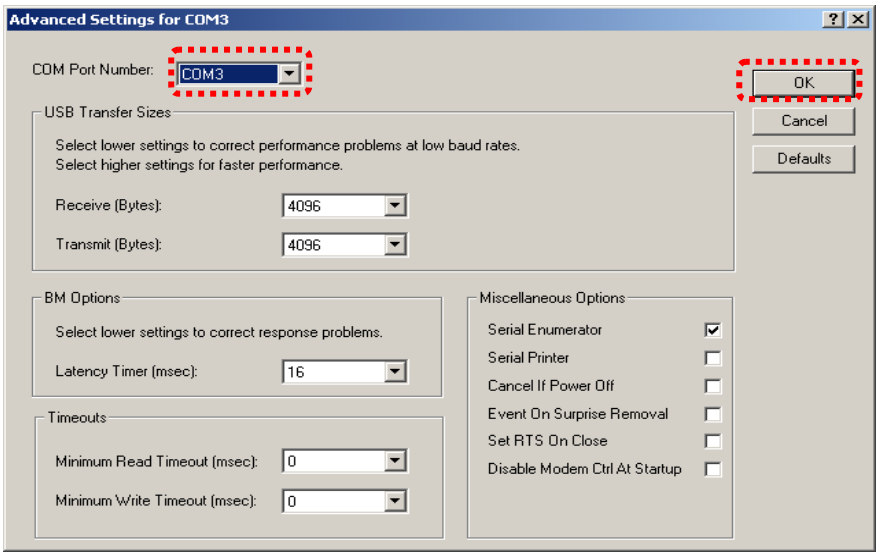
Select "Ports (COM & LPT).
Confirm COM port No.
In this case, COM port No. is 3.
Remember the number.

If COM port No. is not from 1 to 15, it is necessary to search the empty port of 1 to 15 and change the COM port.

Go to "USB Serial Port (COM)" by left mouse button.
Right click and click "Properties".



Select “Port Settings” tab.
Click “Advanced...”.

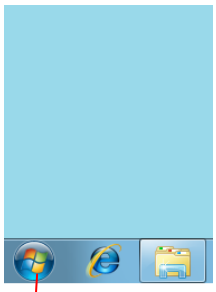


In the list box of “COM Port Number”, select a COM port without “[in use]” from COM1 to COM15.
Click “OK”.
Remember the number.

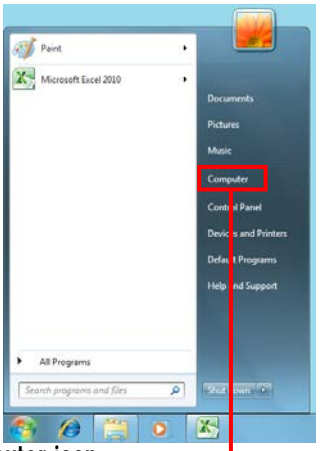
*Installation for Windows 7,Windows8

After turning on FGS-VC, connect the USB cable between the stand and the PC. Then go to the Device manager.

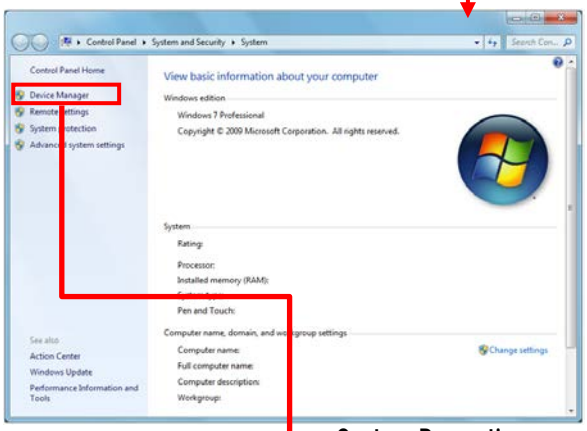
Windows7



Click



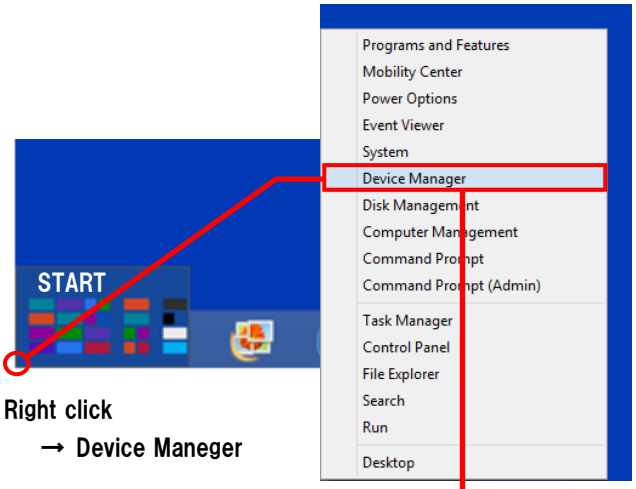
Right click on the Computer icon
→ Properties



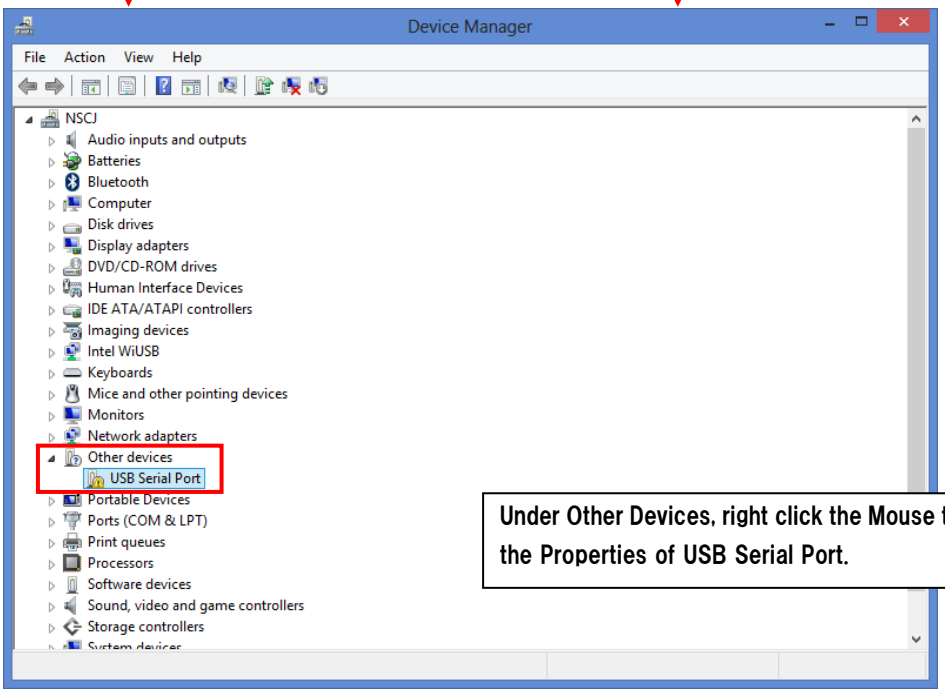
System Properties

Open " Device Manager "

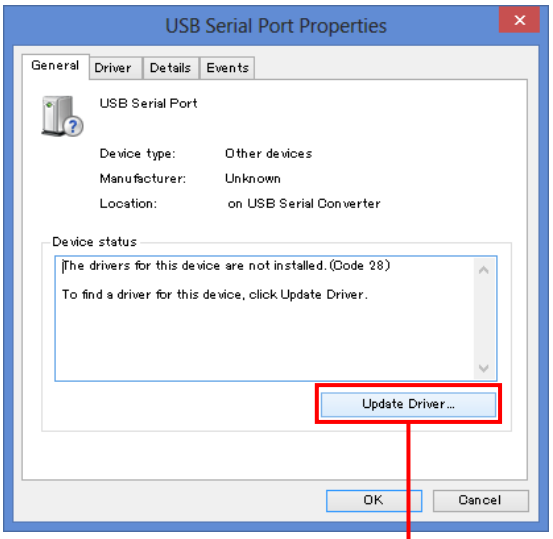
Windows8



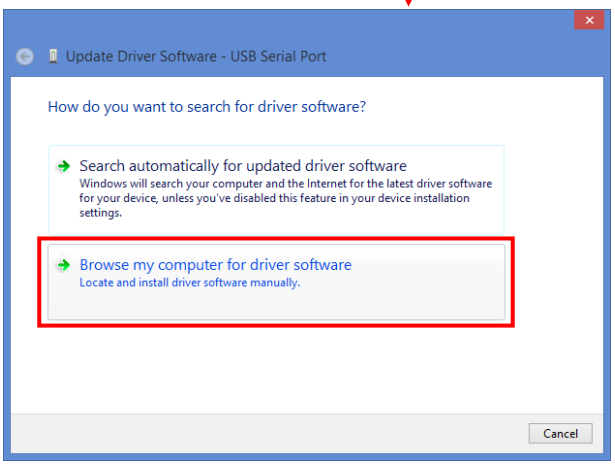
Right click
→ Device Maneger



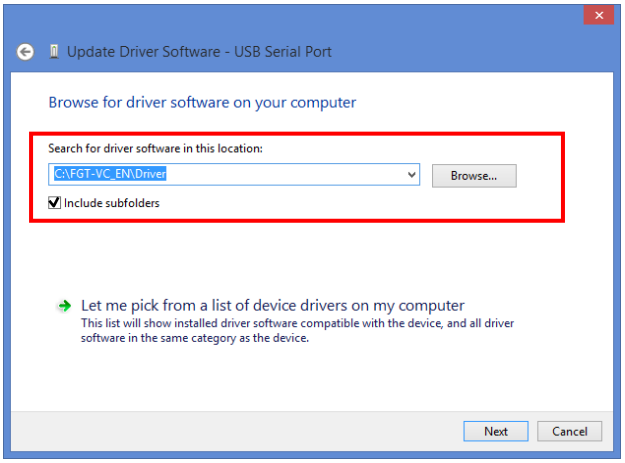
Under Other Devices, right click the Mouse to open the Properties of USB Serial Port.



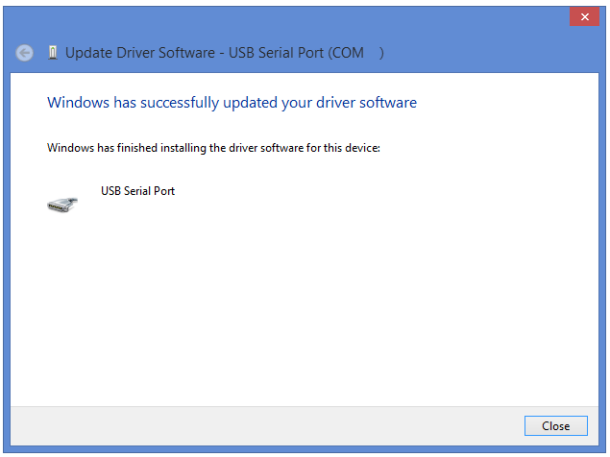
Select Update Driver icon.



Choose Browse my computer for driver software.



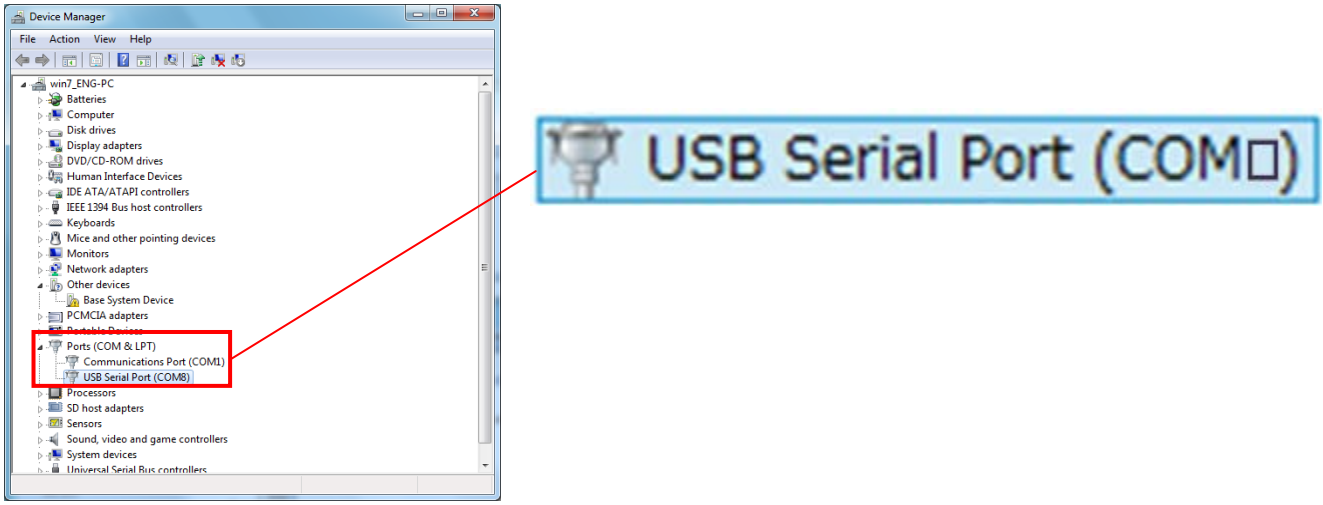
Click 「Browse」 and choose 「C:\FGT-VC_ENG_SEG\Driver」
Select 「Include subfolders」.



Installation is complete.

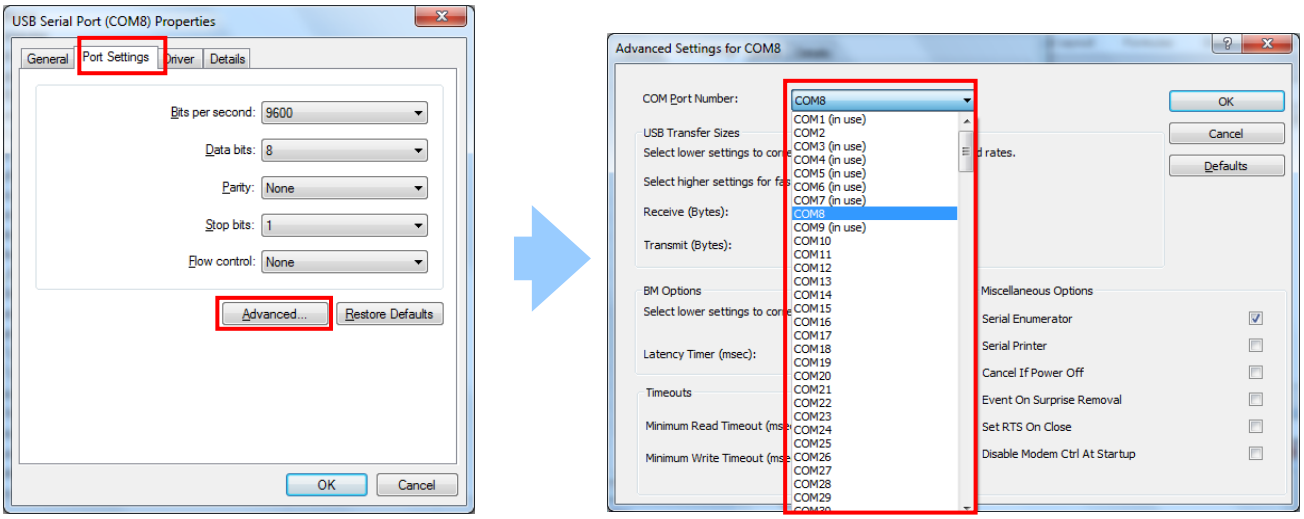
●Confirming COM port number

Check the assigned COM port on the device manager.



●Changing the COM port number

If you desire to change the COM port number, please refer to the screen shots below.

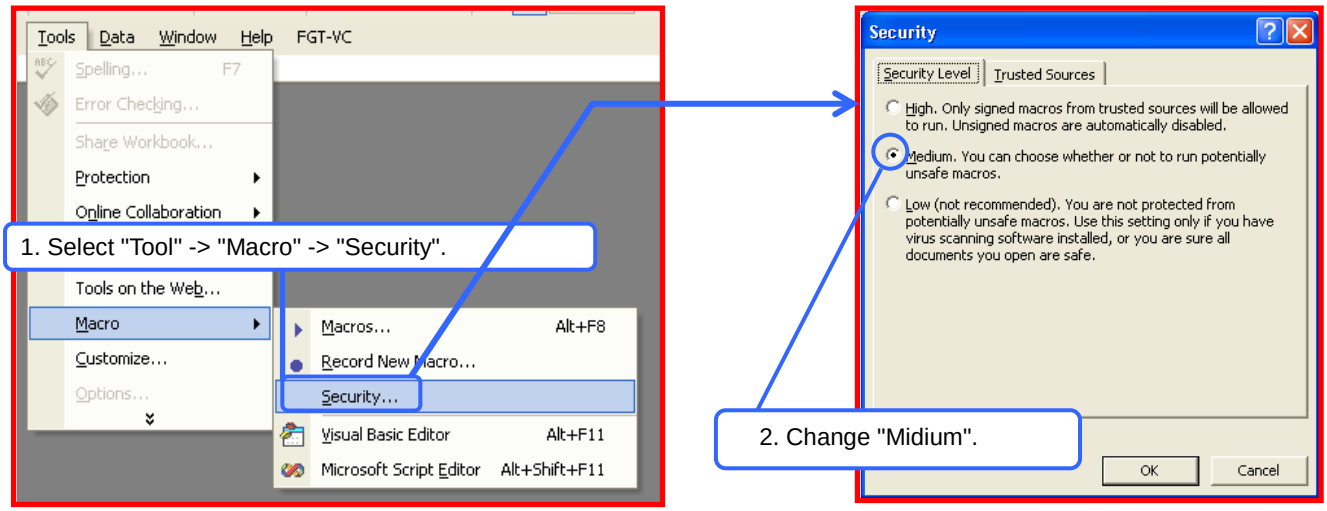


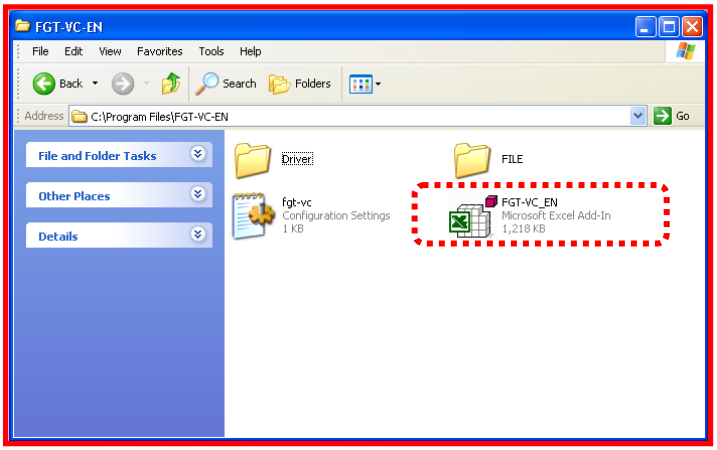
5. Adding the FGT-VC Software

5.1. Startup

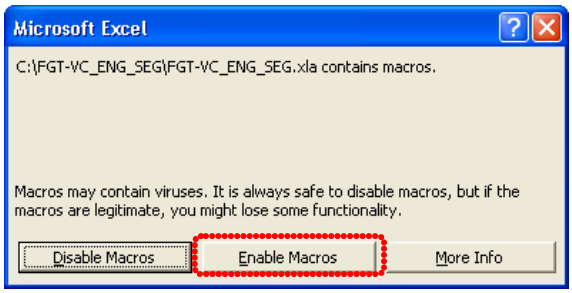
The security level of Excel should be changed "Midium", before beginning the application.

＊Installation for Excel 2003





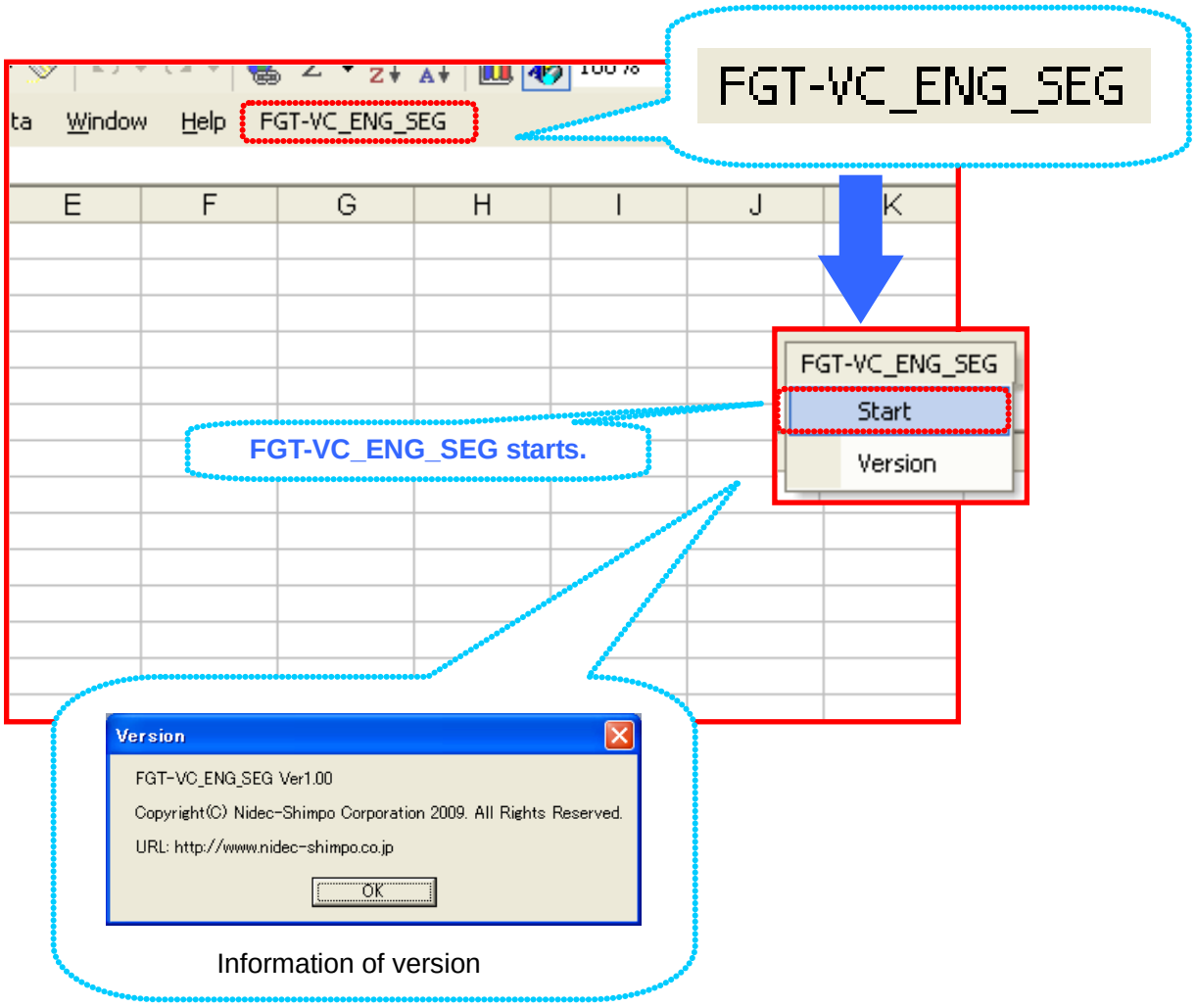
Double click “FGT-VC_ENG_SEG.xla” in the folder of “c:\ FGT-VC_ENG_SEG”.



After starting the “FGT-VC”, the below screed is displayed.
Click “Enable Macros”, “FGT-VC” will be added at menu bar of Excel.

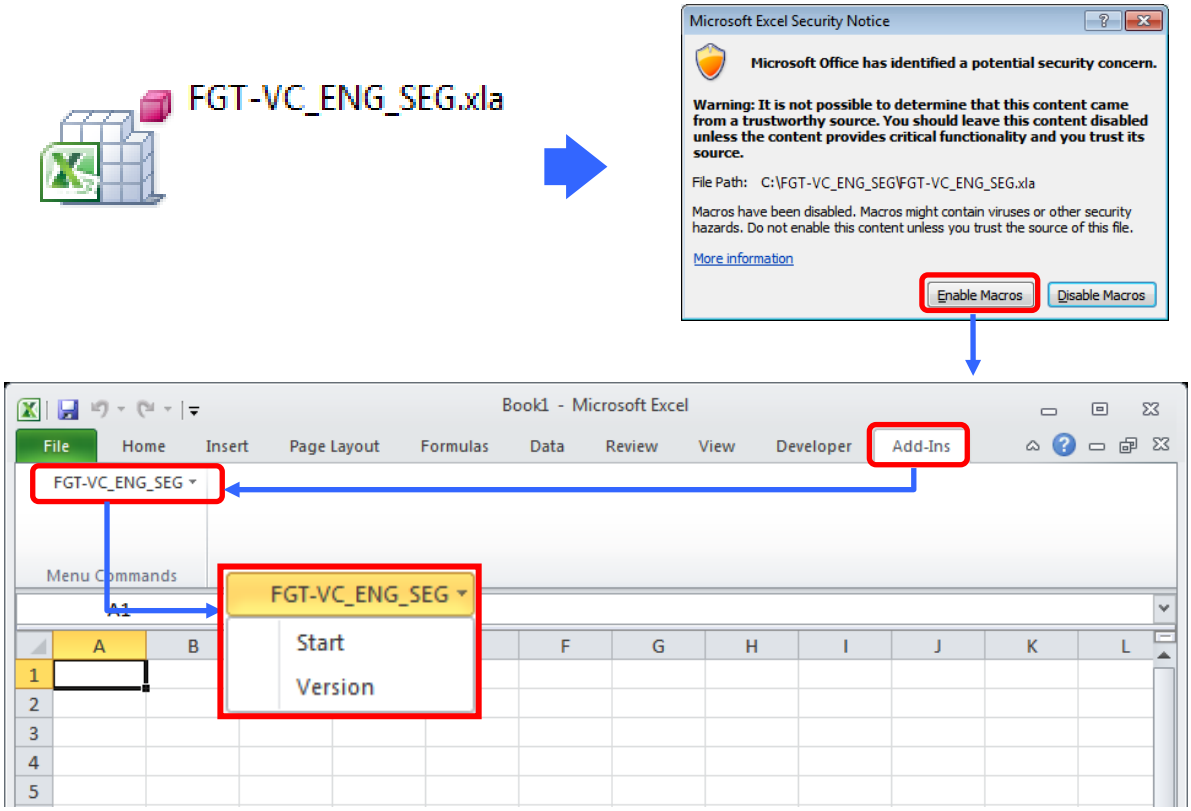
The software might not operate normally when the Add-in software for our measurement equipment other than this software use or the macro of other Excel is enable.
Make other neither software nor macro enable when the software uses.

The power of the FGS-VC turns on.
The FGT-VC starts when the Start in the menu is clicked.
Also clicking the Version in the menu, the version information is indicated.



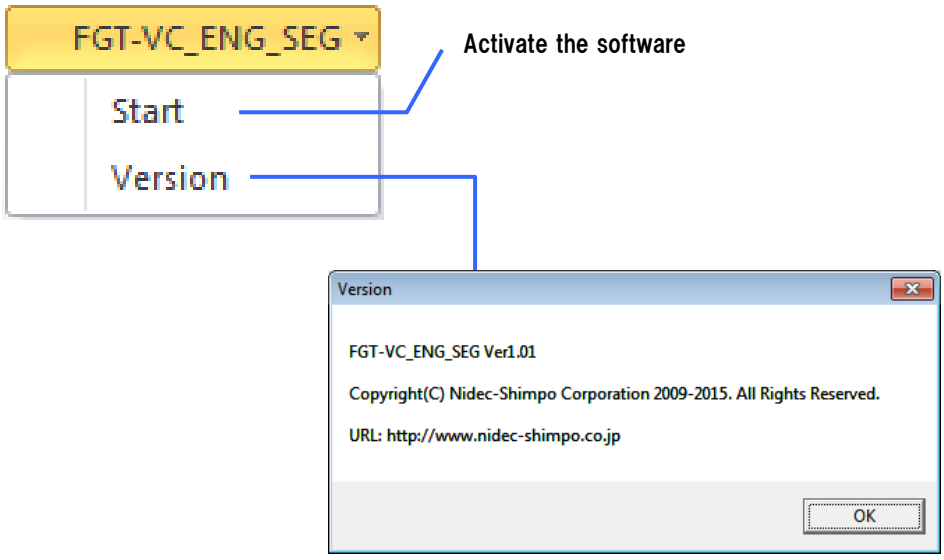
*Installation for Excel 2007 & 2010

- After starting the FGT-VC software, make sure that the macro setting shows Enable Macros.
  Then, FGT-VC menu appears in Add-Ins.



- After connecting the FGS-VC with a PC, open a new sheet and activate the software by clicking Start on the FGT-VC_ENG_SEG add-in software.

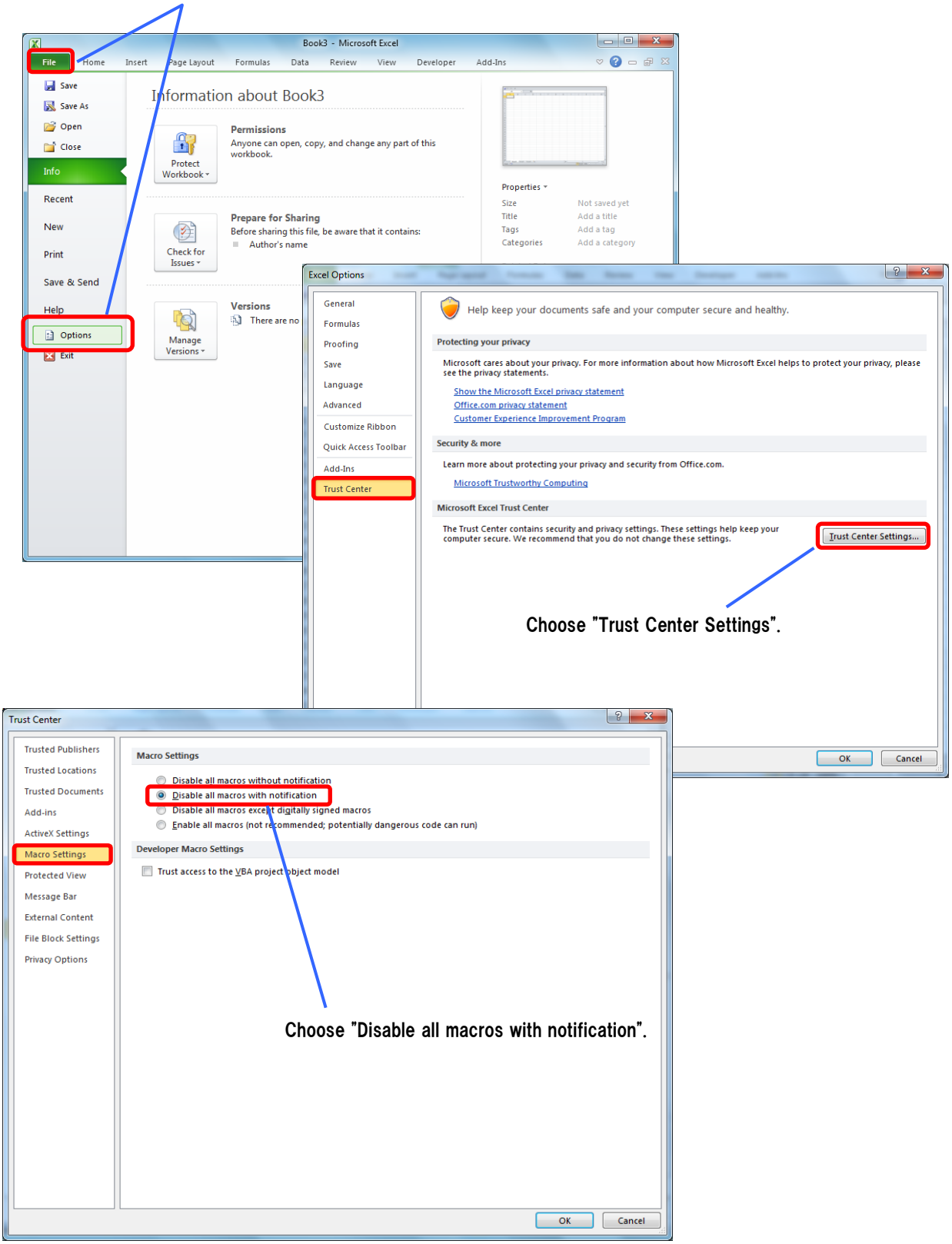
- Version information can be checked as shown below.



Version information

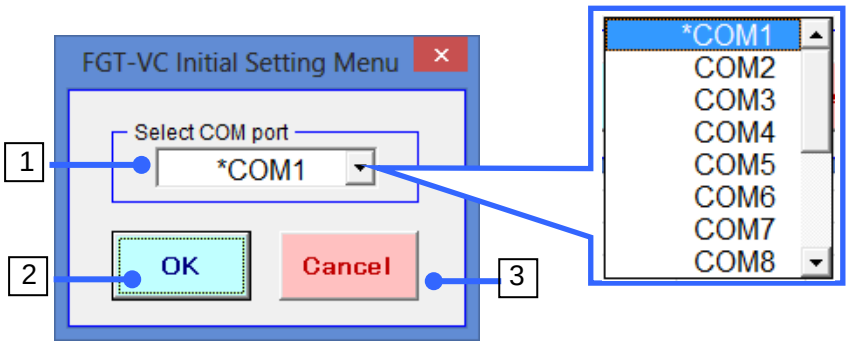
● If the macro setting does not appear, change the settings manually by following the procedure below.

Click File on the Excel tool bar and open Options.



5.2. Initial Dialog

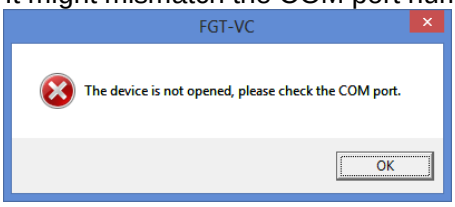
When the software starts normally, the initial screen will appear at first.



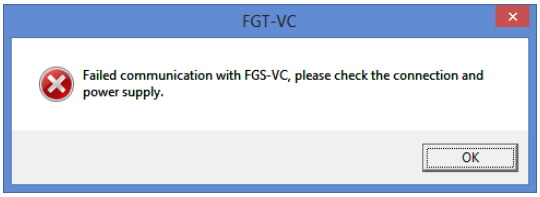
1	Selection COM port	Select the COM port number in the list box. It should select the number which is confirmed or set at Section 4.4 Confirmation of COM port. The available COM port is marked.
2	OK button	Go to main menu.
3	Cancel button	Exit the software.

After clicking the OK button, if the PC can not communicate with the FGS-VC, it does not go to main menu.

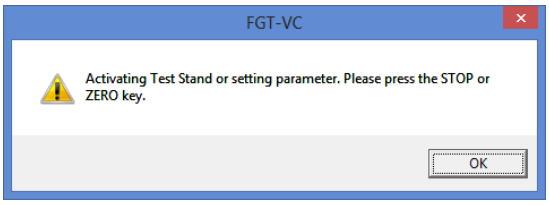
1. It might mismatch the COM port number, or PC is not connected with FGS-VC.



2. FGS-VC might turn off. Or other than those above errors happen.



3. The FGS-VC is moving, or the operation mode is parameter setting.



5.3. Measurement Data File

In the FGT-VC, the measurement data file is named automatically and is stored in the c:\FGT-VC_ENG_SEG\FILE.

Save the measurement data file manually because the file is not saved automatically.

File Name

"VC" + Year/Month/Day(8 digits) + "-" + Sequential number + ".xls"

Example: **VC20090401-2.xls**

The file made at the 2nd time in 2009 April the 1st.

Sheet Name

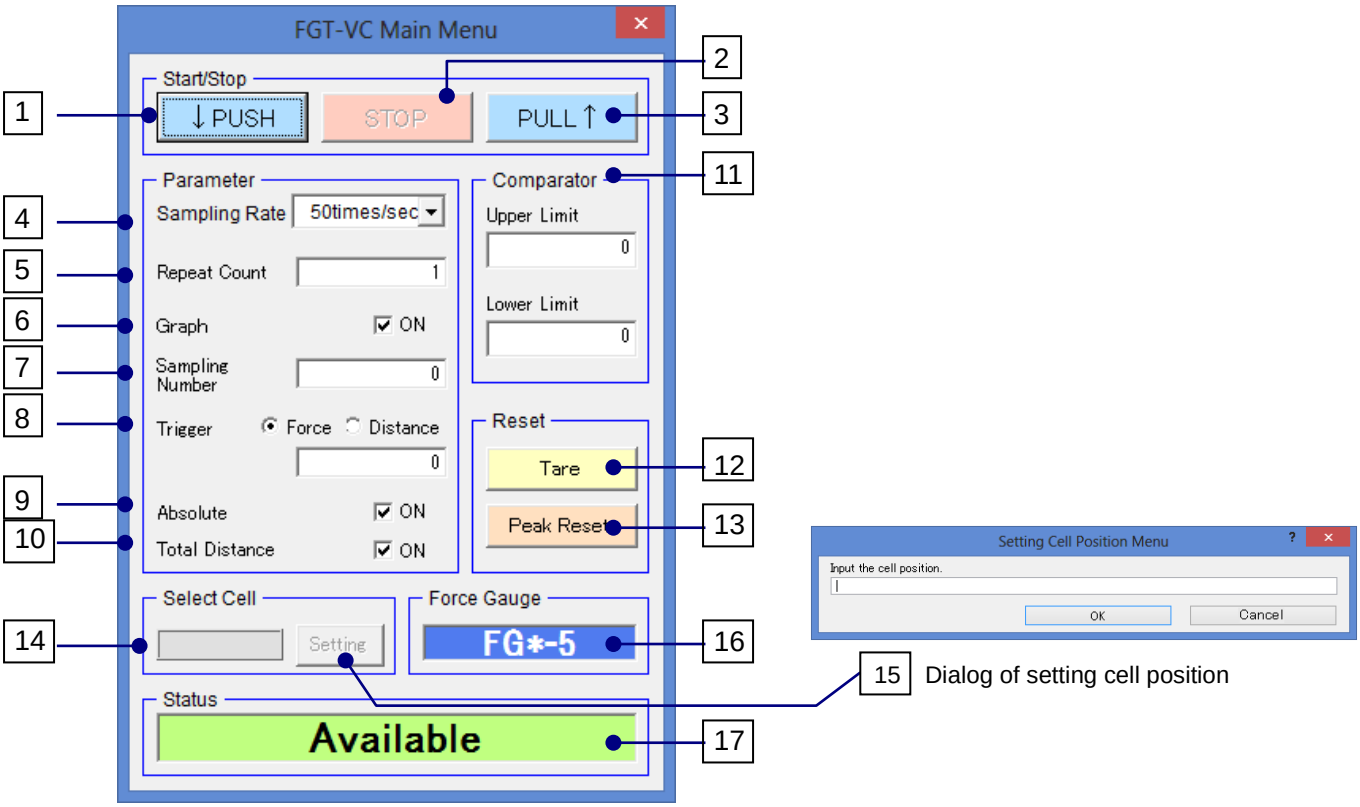
The name of the sheet of Excel is “VC-" + Sequential number.

Example: **VC-17**

It is the 17th measurement data.

5.4. Main Menu

The buttons and boxes are described following table.



No.	Items	Description		Input range	
1	PUSH button	Move to PUSH direction and start to measure. *1 The operation of FGS-VC depends on the present mode.			
2	STOP button	Stop to move and measure.			
3	PULL button	Move to PULL direction and start to measure. *1 The operation of FGS-VC depends on the present mode.			
4	Sampling Rate	List box consists of 10, 20 and 50 times/sec.			
5	Repeat Count	Set the repeat count at CONT and PROG mode.		1 – 9999	
6	Graph check button	The graph of force vs. distance is generated if the check is on.			
7	Sampling Number	Set the available measurement times in CONT or PROG mode. Because the measurement time of these modes is maximum 9999, all measurement data can not obtain by the limitation of sheet. So it is necessary to thin out the taken data. The setting data is number of thinning out.		Graph on Graph off	0-250 0-9999
8	Trigger	Force	If $\lvert Force \rvert \geq Trigger$, start to measure.	0.00 – 15.75”	
		Distance	If $\lvert Distance \rvert \geq Trigger$, start to measure.	Depend on the mounted force gauge.	

9	Absolute check button	If the check is on, the force data indicates absolute value.	
10	Total Distance check button	If the check is on, the distance indicates total moving mode. If the check is off, the distance indicates absolute mode, i.e., round trip mode.	
11	Comparator Upper limit Lower limit	The maximum value is compared with upper and lower limit. Can not input the following equation. $(Upper_Limit) < (Lower_Limit)$ If Upper and Lower limit both are zero, the comparator does not work.	Depend on the mounted force gauge.
12	Tare button	Operate to tare.	
13	Peak Reset button	Reset the peak of the connected force gauge.	
14	Select Cell	The start cell position is displayed. It is available when the Graph check box is off.	
15	Setting Cell Position Menu	Clicking the Setting button in Select Cell, the menu indicates. Can input the start cell position.	
16	Force Gauge	The model name of the connected force gauge is displayed.	
17	Status	Indicate the status of FGS-VC.	

*1: In case of PROG mode, the operation moves to the direction of PROG parameter regardless of clicked button(PUSH/PULL).
In case of JOG mode, the buttons do not work.

5.5. Measuring

Clicking PUSH or PULL button in the main menu, FGS-VC starts and measures.

Measuring data

When FGS-VC starts, the Excel sheet is taken measurement data which is distance and force data.
The taking number of measurement data depends on the parameter of Sampling Rate.

10 times/sec	Get 10 measurement data per second.
20 times/sec	Get 20 measurement data per second.
50 times/sec	Get 50 measurement data per second.

> The Sampling Rate is a rough value.
> The setting parameter data is not guarantee accurately.

Maximum measurement data

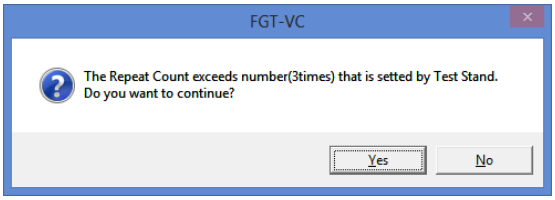
The maximum measurement data of one operation (count) is 32,000 data at Graph on and 65,000 data at graph off respectively. When the input cell in Excel exceeds the limitation, the error message occurs and can not measure.

> When the user saves huge measurement data into a file, the operating speed might be very slow or the PC might freeze.
> Save to new BOOK file or overwrite frequently for solving the problems.

Repeat Count

When the operation is continuously done in CONT or PROG mode, the Repeat Count is available.
The parameter is able to set maximum 9,999 countsin Graph off, 250 counts in Graph on respectively.

The repeat count can be set respectively of FGS-VC and PC.
When the setting value of PC is larger than FGS-VC, the following message is displayed.



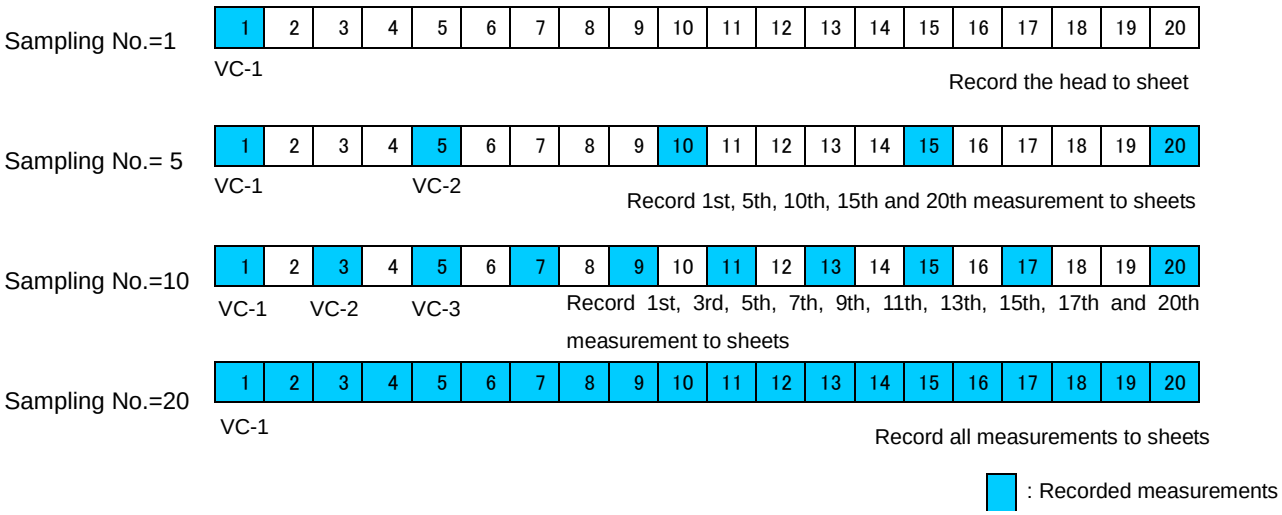
In this case FGS-VC starts to measure, however please note that the repeat count can be executed only until the setting repeat count of FGS-VC.

Sampling Number

Set the available measurement times in CONT or PROG mode. Because the measurement time of these modes is maximum 9,999, all measurement data can not obtain by the limitation of sheet. So it is necessary to thin out the taken data. The setting data is number of thinning out.

When the Sampling Number is set apart from 0, the pick-upped measurement data is as follows.

Example: Repeat Count = 20 (Start VC-1)



How to select from all measurement

- When the Sampling Number is 1, record the 1st measurement data.
- When the Sampling Number is more than 2, the record method is as follows.

$$A = \frac{y-1}{x-1} \qquad (1)$$

Define

A: Interval of recording
x: Sampling Number
y: Repeat Count

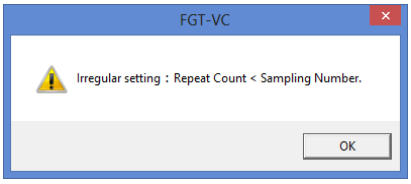
According to equation (1), let the recorded measurement be $B(1), B(2), \cdots, B(x)$, $B(c)$th measurement data is:

$$B(c) = A \times c + 1 \qquad (2)$$

c: 1 to *x*

A first and last measurement is always recorded.
If the Sampling Number is 0, all measurement is recorded.

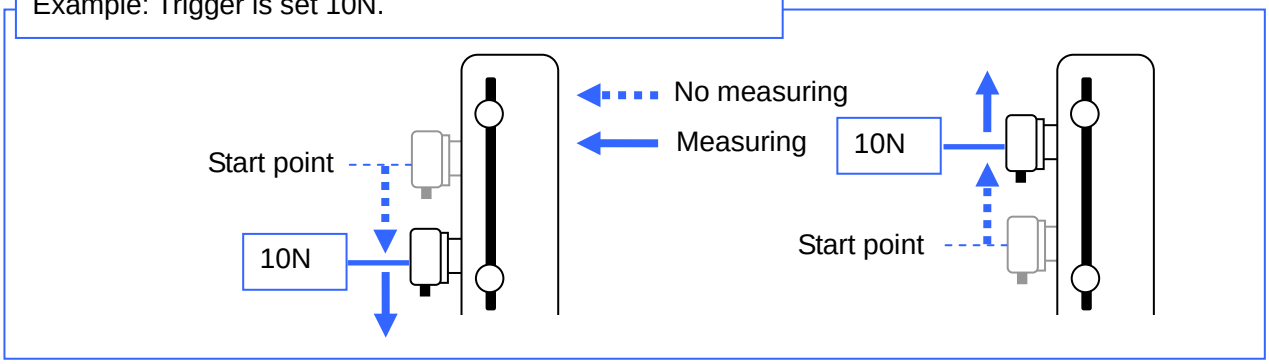
The Sampling Number can not input the value larger than the Repeat Count.
If the wrong value is set, the following message box will be opened.



Trigger

The timing to the acquisition starting the measurement data can be decided by the Trigger.
The Trigger is able to select force or distance. The trigger detects by the absolute force or distance data.
If the Total Distance check button is ON, the trigger detects by total distance.

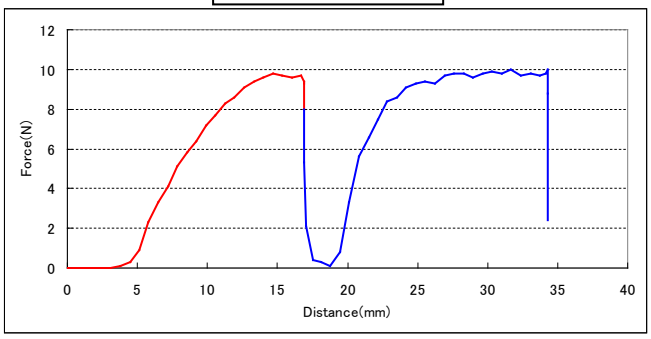
Example: Trigger is set 10N.



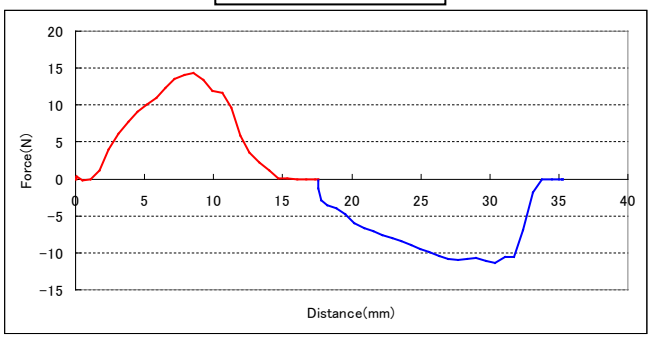
Absolute

If the Absolute check button is ON, the force data indicates absolute value.

Absolute ON

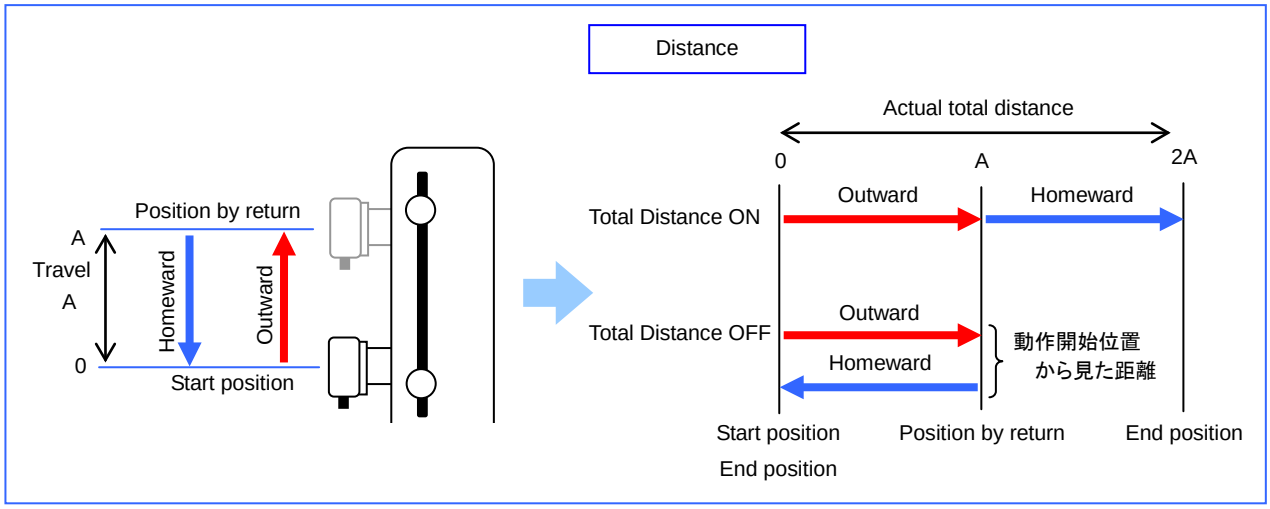


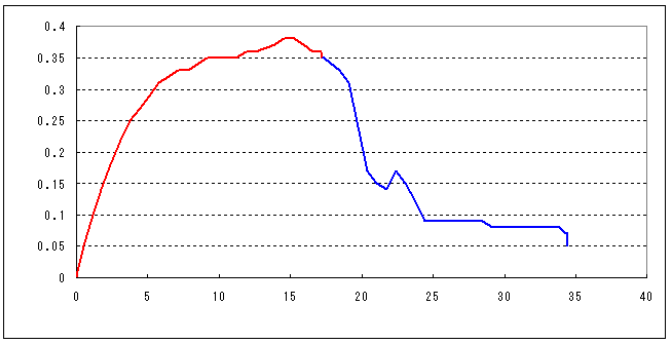
Absolute OFF

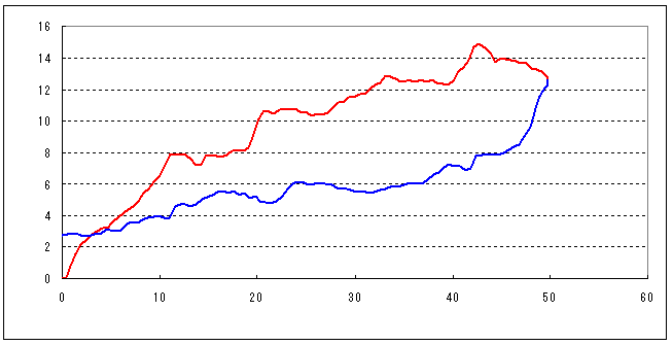


Total Distance

If the Total Distance check button is ON, the distance indicates total moving mode.
If the check is OFF, the distance indicates absolute mode, i.e., round trip mode.
The check is available in SING, CONT and PROG mode.





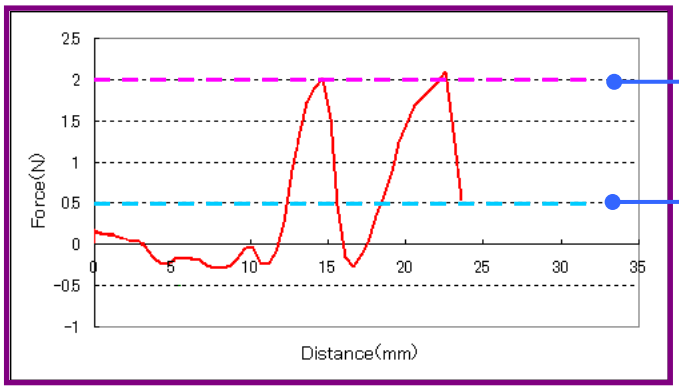


Comparator

The maximum value is compared with upper and lower limit.
If Upper and Lower limit both are zero, the comparator does not work.

Condition	Result
$(Lower_Limit) \le (Maximum_Value) \le (Upper_Limit)$	OK
$(Upper_Limit) < (Maximum_Value)$	HIGH
$(Lower_Limit) > (Maximum_Value)$	LOW

In case of graph, the Upper and Lower Limit are displayed as follows:

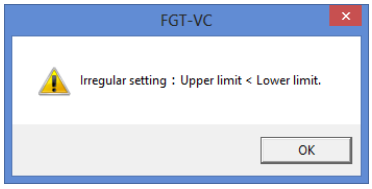


Upper Limit: Short dashed line of pink

Lower Limit: Short dashed line of light blue

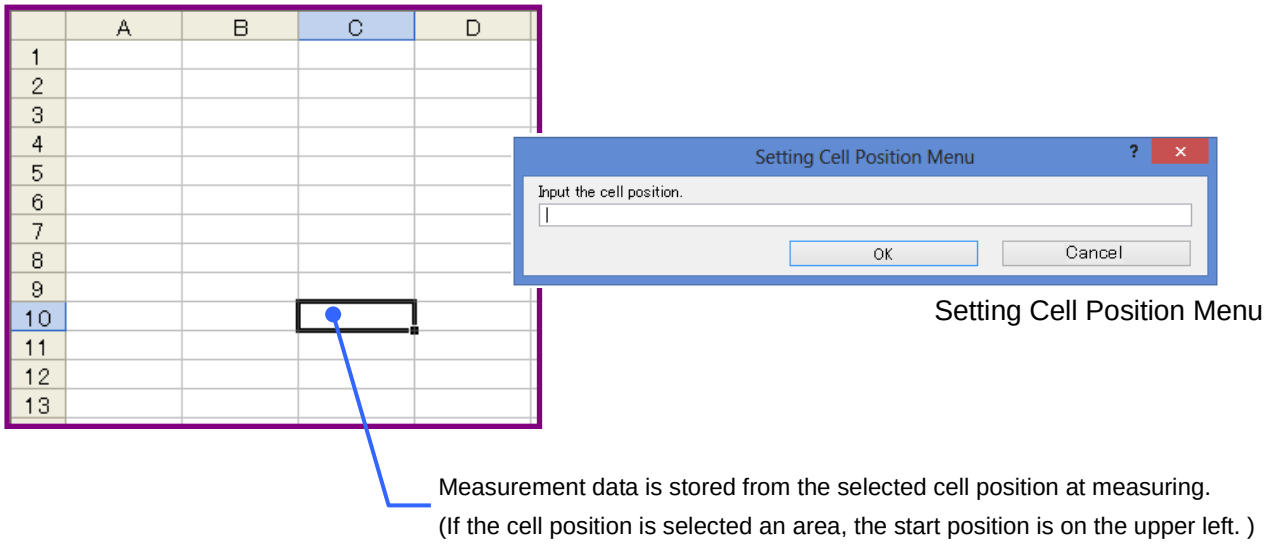
The Upper and Lower Limit can not input $(Upper_Limit) < (Lower_Limit)$.

If the wrong value is set, the following message box will be indicated.



Select Cell

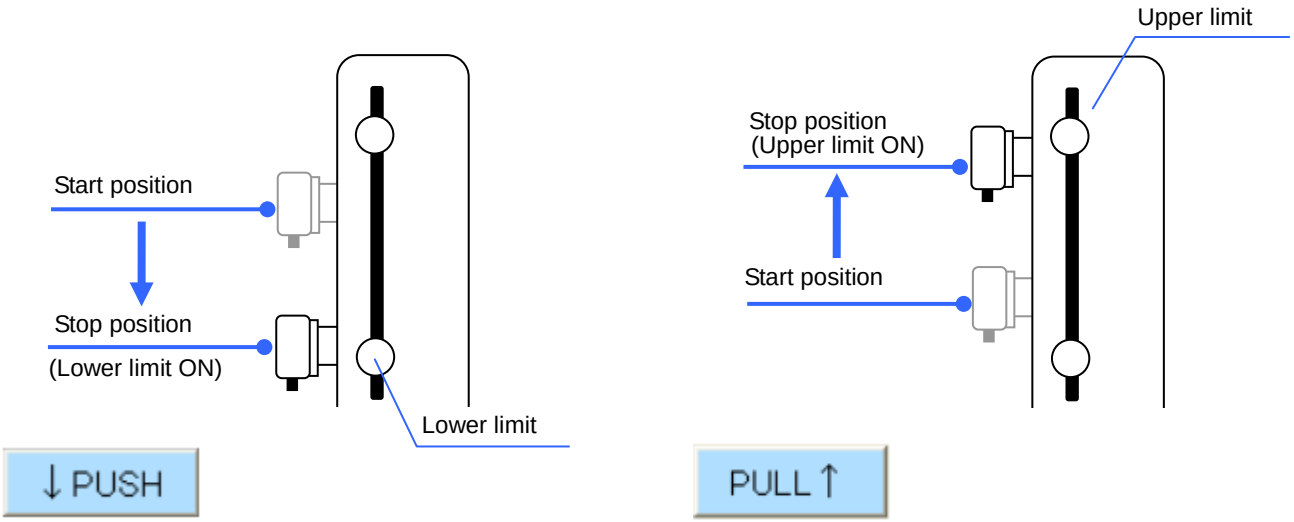
The Select Cell is available when the Graph check box is OFF.
If the Graph is ON, the cell position fixes (A1).
When the Setting button is clicked at Graph OFF, the following input dialog is displayed.



5.6. MANU mode

5.6.1. Operation

The test stand will move in the downward or upward direction when the respective PUSH or PULL button is clicked. The stand will continue to move in the selected direction until one of the following occurs: STOP button is clicked, one of the manual limit switches is tripped, the emergency reset button is pushed.



5.6.2. Record of Measurement Data

The record sheet is as follows:

Graph ON

	A	B
1	Date	2012/10/26 14:39:56
2		
3	Direction	PUSH
4	Test mode	MANU mode
5	Force Gauge	FG*-10
6	Force Unit	N
7	Sampling Rate	50times/sec
8	Trigger(Force)	0
9	Number of data	93
10	Maximum	0
11	Minimum	0
12	Average	0
13		
14	Upper limit	0
15	Lower limit	0
16	Result	Invalid
17		
18		
19		
20	Distance(mm)	Force(N)
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0

Header

Measured data

Graph OFF

	A	B
1	Distance(mm)	Force(N)
2	0	0.4
3	0	0.4
4	0	0.4
5	0	0.4
6	0	0.4
7	0.01	0.4
8	0.07	0.5
9	0.14	0.5
10	0.22	0.5
11	0.31	0.5
12	0.41	0.5
13	0.52	0.5
14	0.63	0.4
15	0.75	0.4

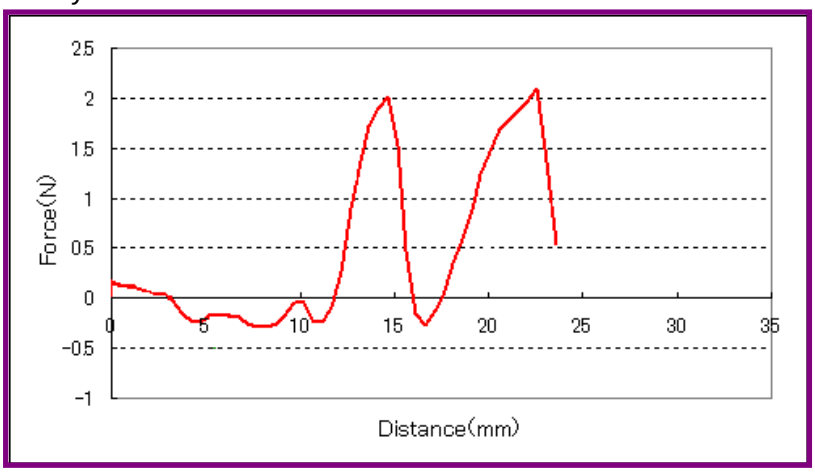
Header

Measured data

5.6.3. Graph

After the measurement is finished, the graph is made when the Graph check is ON.

The horizontal axis is distance, the vertical axis is force. The measurement data is recorded from start to end position, the data is indicated by red line.

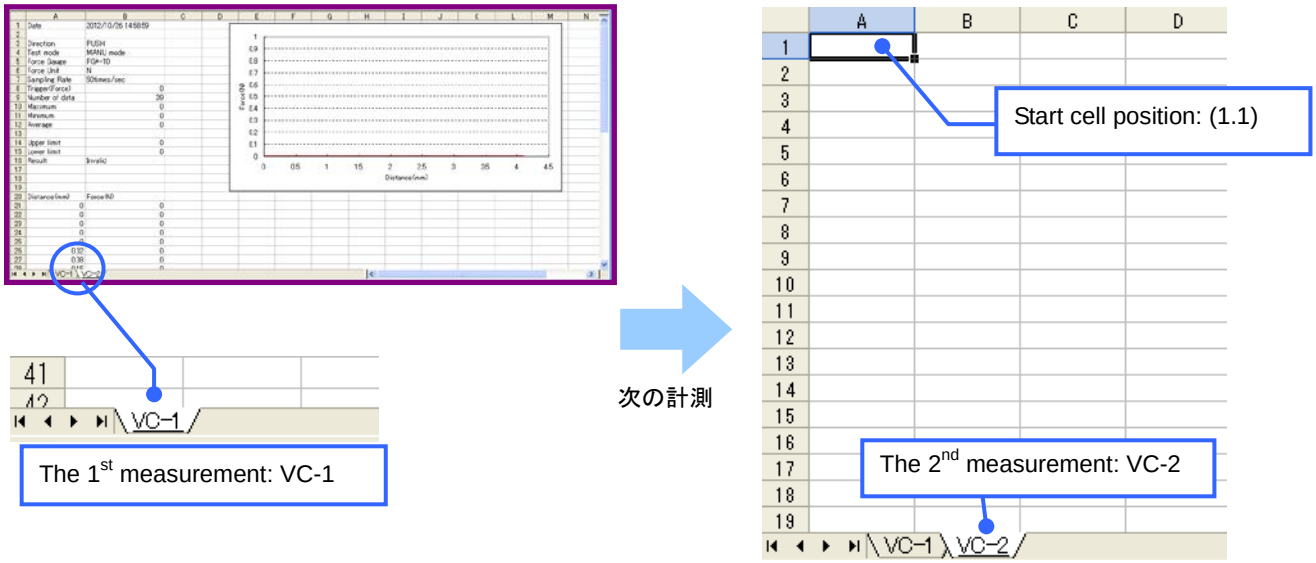


5.6.4. Sheet of each test

Graph ON

One test is assigned one sheet.

The sheet is named automatically "VC-(serial number)".



Graph OFF

Two or more tests are allocated in one sheet.

After a test is completed, the next row cell position is recorded for next test. If test is recorded at right end row, next test will make a new sheet, the sheet is named automatically "VC-(serial number)".

The 1st test

	A	B	C	D
1				
2				
3		Distance(mm)	Force(N)	
4		0	0	
5		0	0	
6		0	0	
7		0	0	
8		0	0	
9		0.02	0	

The 2nd test

	IS	IT	IU	IV
1				
2	Distance(mm)	Force(N)	Distance(mm)	Force(N)
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0.01	0
9	0.06	0	0.07	0
10	0.12	0	0.13	0
11	0.23	0	0.22	0
12	0.3	0	0.31	0
13	0.42	0	0.41	0
14	0.5	0	0.52	0
15	0.61	0	0.64	0
16	0.73	0	0.76	0
17	0.88	0	0.88	0
18	0.98	0	1	0
19	1.13	0	1.13	0

If test is recorded at right end row, next test will make a new sheet, the sheet is named automatically "VC-(serial number)".

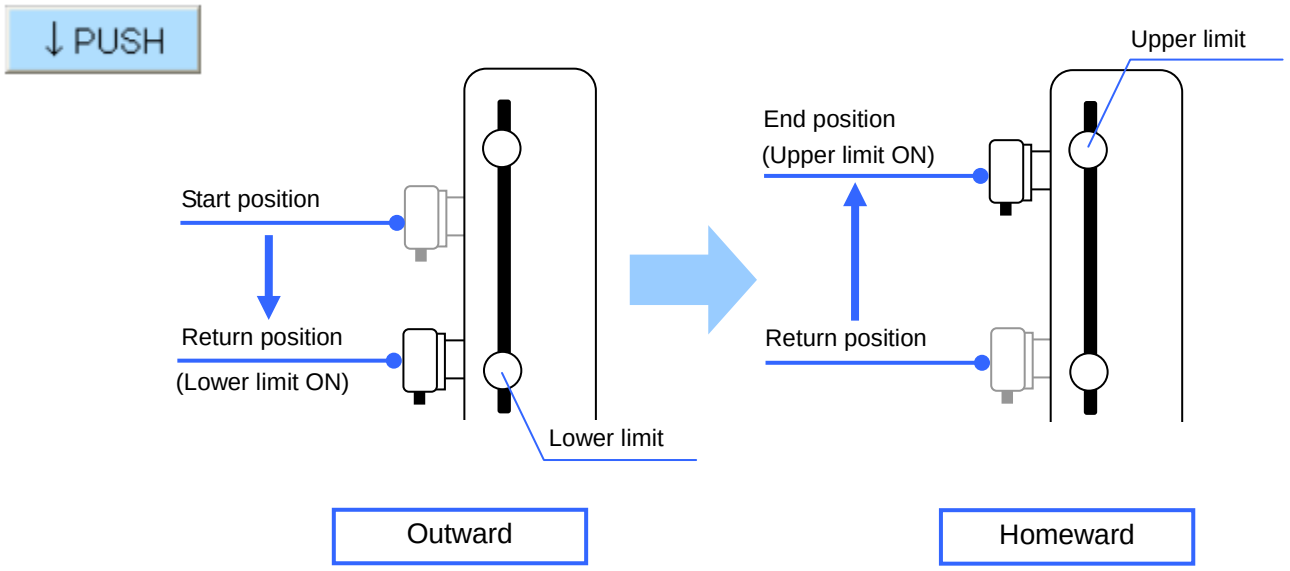
5.7. SING mode

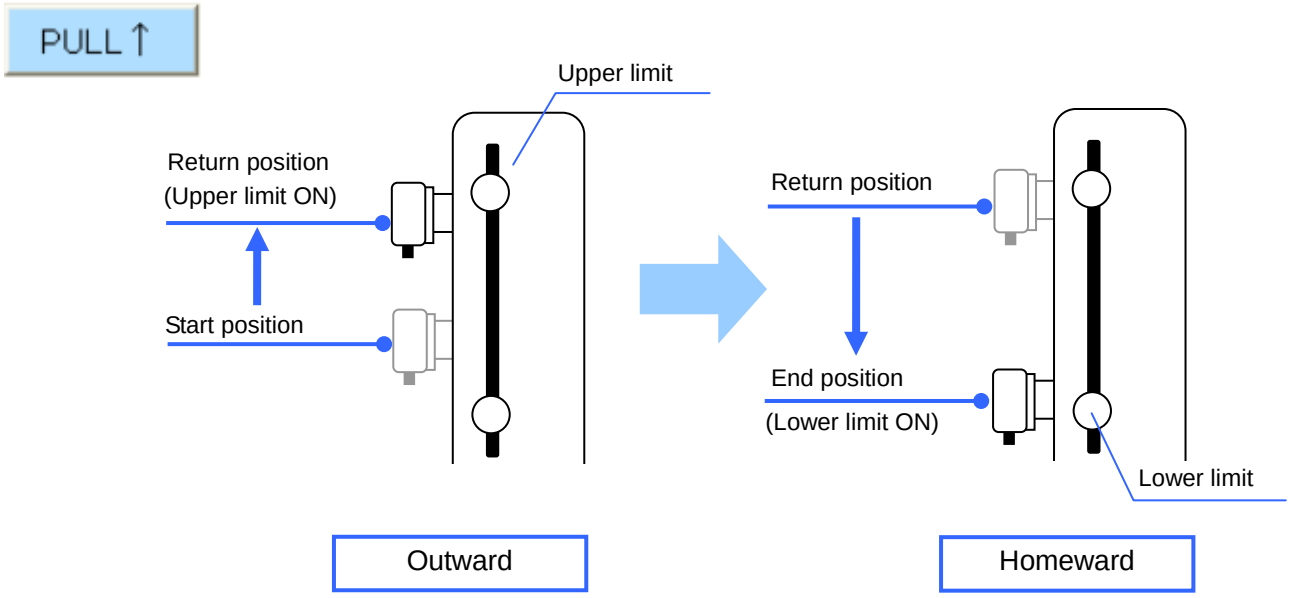
5.7.1. Operation

This mode of operation is ideal for completing one cycle between manual distance limits. The test stand will only operate between the limits that are set by the test stand user.

The test stand will move downward or upward when the respective PUSH or PULL button is clicked.

The stand will continue to move until one of the following events occurs: the STOP button is clicked, one of the manual limit switches is tripped, the emergency reset button is pushed.





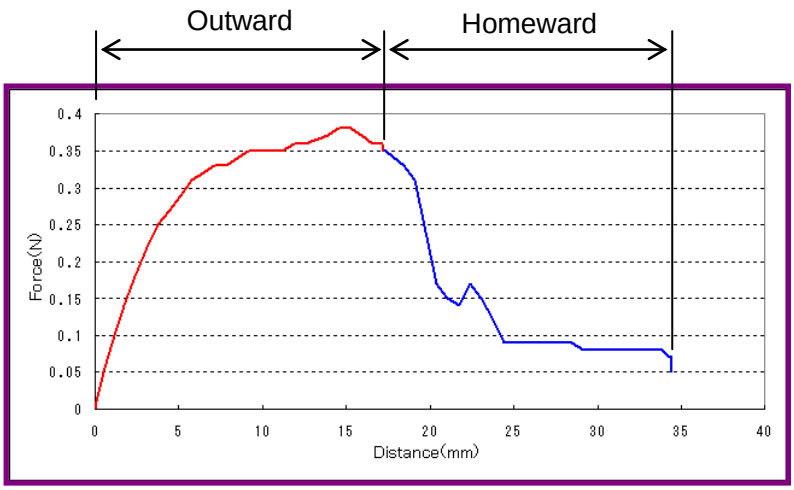
5.7.2. Record of Measurement Data

The record sheet is same as the previous MANU mode.

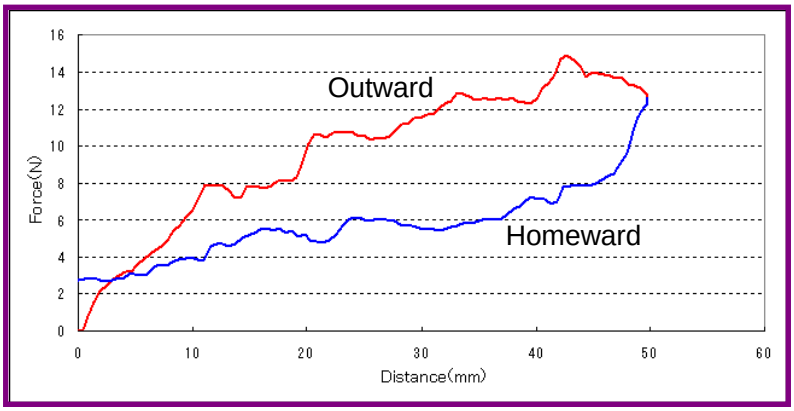
5.7.3. Graph

After the measurement is finished, the graph is made when the Graph check is ON.

The horizontal axis is distance, the vertical axis is force. The measurement data is recorded from start to end position, the data is indicated by red line in outward, blue line in homeward respectively.



Total Distance check button ON



Total Distance check button OFF

5.7.4. Sheet of each test

The record sheet is same as the previous MANU mode.

5.7.5. MAX-S Sheet

Only when the SING mode operates, the MAX-S seat is generated. The maximum force data of each operation is recorded in each line of MAX-S sheet. When the SING mode is operated at first time with the BOOK, a MAX-S sheet is made ahead current sheet. Only one MAX-S seat is made for one BOOK file.

	A	B	C	D
1	Date	2012/10/26		
2				
3	Force Gauge	FG*-10		
4	Force Unit	N		
5				
6	Maximum	7.9		
7	Minimum	0		
8	Average	2.52		
9	Standard Deviation	2.93		
10				
11	Count	Sheet name	Distance(mm)	Maximum Force
12	1	VC-1	42.17	12.2
13	2	VC-2	28.74	10.68
14	3	VC-3	51.13	10.85
15	4	VC-4	23.92	6.9
16	5	VC-5	42.7	8.61

The mounted force gauge type and the force unit

The statistical result against max force values

The indicated Maximum, Minimum, Average and Standard deviation are calculated by the maximum values of each test.

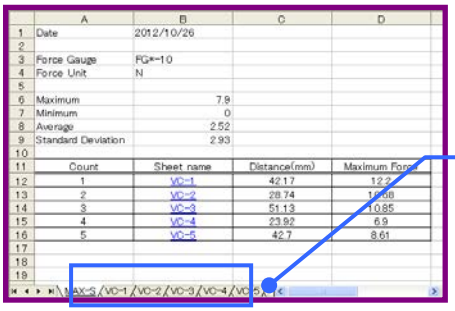
The maximum force value and the distance at that time

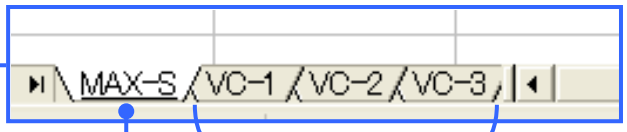
Maximum force value of each test

Test No.	Sheet	Distance(mm)	Maximum Value
1	VC-1	42.17	12.2
2	VC-2	28.74	10.68
3	VC-3	51.13	10.85
4	VC-4	23.92	6.9
5	VC-5	42.7	8.61

The sheet name of the corresponding measurement
Because the cell links the corresponding measurement sheet, it is possible to jump to the sheet by clicking.

The number of consecutive test





Each measurement sheet of SING mode

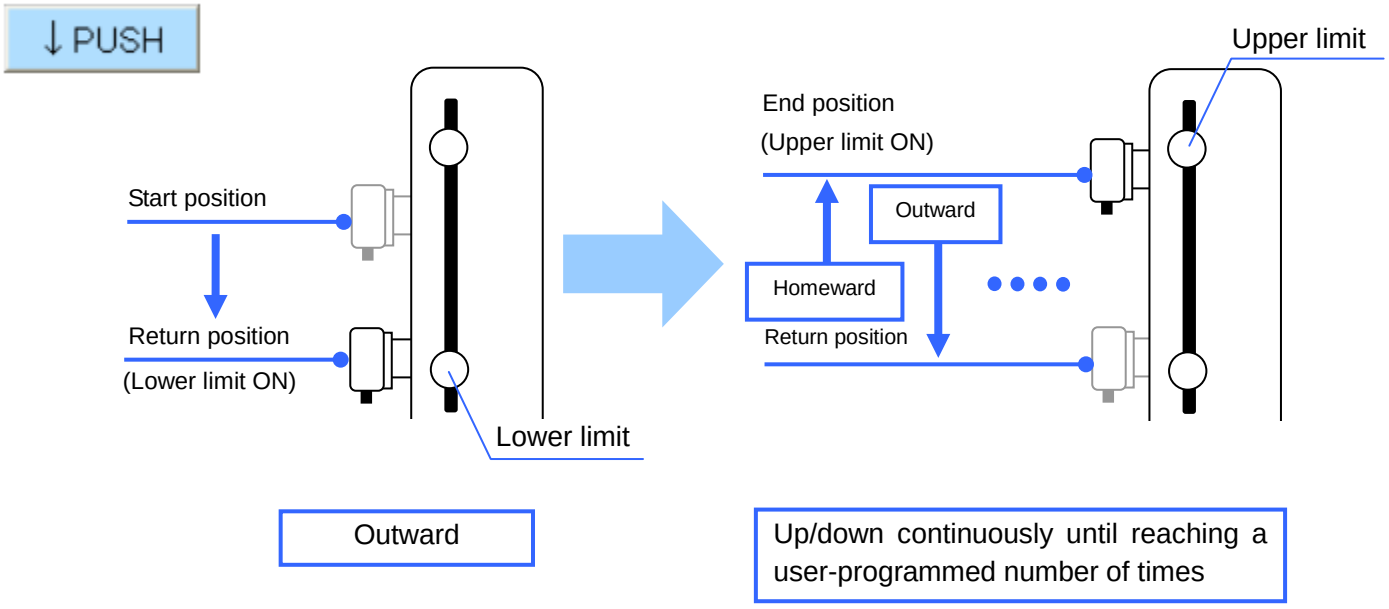
The "MAX-S" sheet is made for the head of the measurement sheets of SING mode

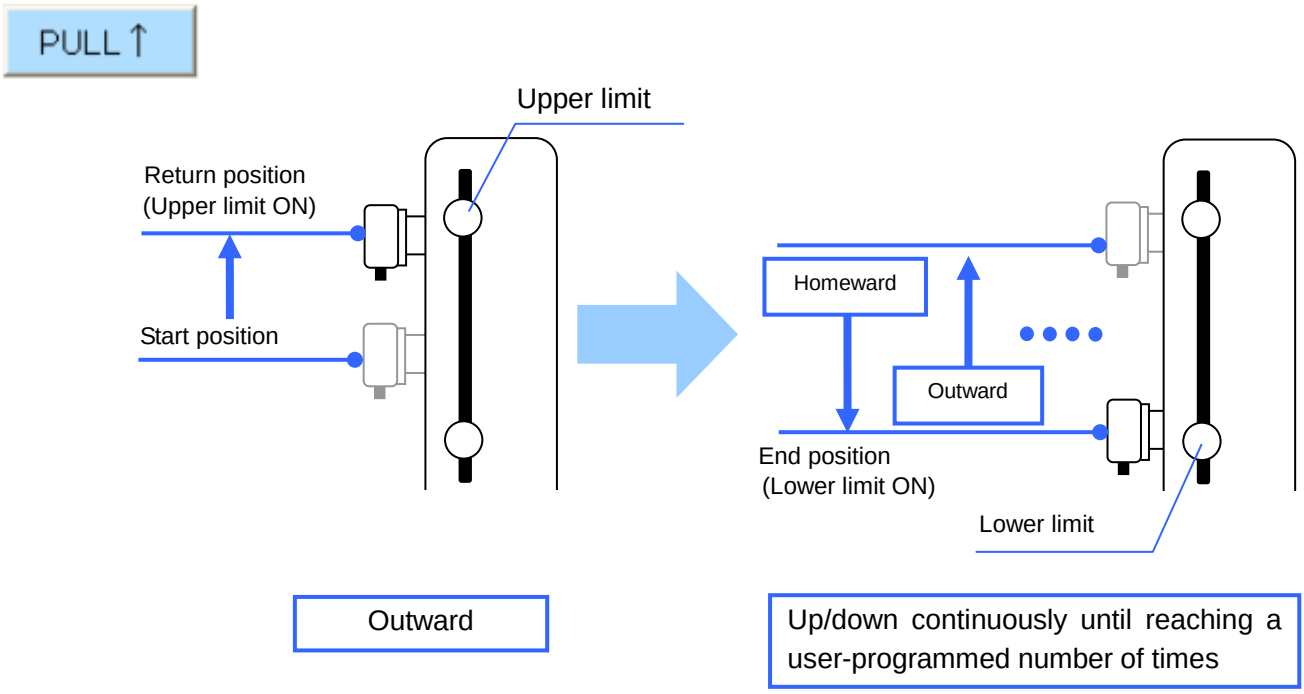
5.8. CONT mode

5.8.1. Operation

This mode of operation is ideal if the user wants the test stand to repeatedly cycle up and down continuously or for a user-programmed number of times. The stand will start in either direction depending on whether PUSH or PULL button is clicked.

The test stand will start to move downward or upward when the respective PUSH or PULL button is clicked. The stand will continue to move until one of the following events occurs: the STOP button is clicked, the emergency reset button is pushed.





5.8.2. Record of Measurement Data

The record sheet is as follows:

Graph ON

	A	B
1	Date	2012/10/26 15:54:05
2		
3	Direction	PUSH
4	Test mode	CONT mode
5	Force Gauge	FG*-10
6	Force Unit	N
7	Sampling Rate	50times/sec
8	Repeat Count	5
9	Sampling Number	5
10	Trigger(Force)	0
11	Number of data	392
12	Maximum	1.8
13	Minimum	0
14	Average	0.44
15		
16	Upper limit	0
17	Lower limit	0
18	Result	Invalid
19		
20	Count	1
21	MAX Sheet	MAX-1
22		
23		
24	Distance(mm)	Force(N)
25	0	0
26	0	0
27	0	0
28	0	0

Header

Measurement data

Graph OFF

	A	B	C
1	Distance(mm)	Force(N)	
2	0	0	
3	0	0	
4	0	0	
5	0	0	
6	0	0	
7	0.01	0	
8	0.07	0	
9	0.14	0	
10	0.22	0	
11	0.31	0	
12	0.41	0	
13	0.52	0	
14	0.64	0	
15	0.75	0	

Header

Sampling Number

The measurement sheets are made by the setting of the Sampling Number which is explained at chapter 5.5. measuring. In case of the measurement which is not recorded in the sheet, the maximum value only is recorded in the MAX sheet.

Count

The Count which is displayed in the header at Graph ON is how many times testing continuously.

MAX sheet

When the test is continuously done, the maximum value at each test is recorded in the MAX sheet line by line. The MAX sheet can be jumped because the measurement sheet links the MAX sheet.

Refer to the following clause for a detailed content.

Graph

In CONT mode, the graph is not made in the measurement sheet regardless of the setting of Graph ON/OFF.

5.8.3. MAX sheet

When the test is continuously done, the maximum value at each test is recorded in the MAX sheet line by line. The MAX sheet in the CONT mode is as follows.

	A	B	C	D
1	Date	2012/10/26		
2				
3	Force Gauge	FG*-10		
4	Force Unit	N		
5				
6	Maximum	3.5		
7	Minimum	1.8		
8	Average	2.68		
9	Standard Deviation	0.64		
10				
11	Repeat Count	5		
12	Sampling Number	5		
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26	Count	Sheet name	Distance(mm)	Maximum Force
27	1	VC-1	50.73	10.16
28	2	VC-2	49.66	14.05
29	3	VC-3	44.31	8.12
30	4	VC-4	47.52	8.48
31	5	VC-5	51.21	5.73

The mounted force gauge type and the force unit

The statistical result against max force values

The indicated Maximum, Minimum, Average and Standard deviation are calculated by the maximum values of each test.

The Count and the Sampling Number are indicated by user-programmed value in FGS-VC.

The maximum force value and the distance at that time

Maximum force value of each test

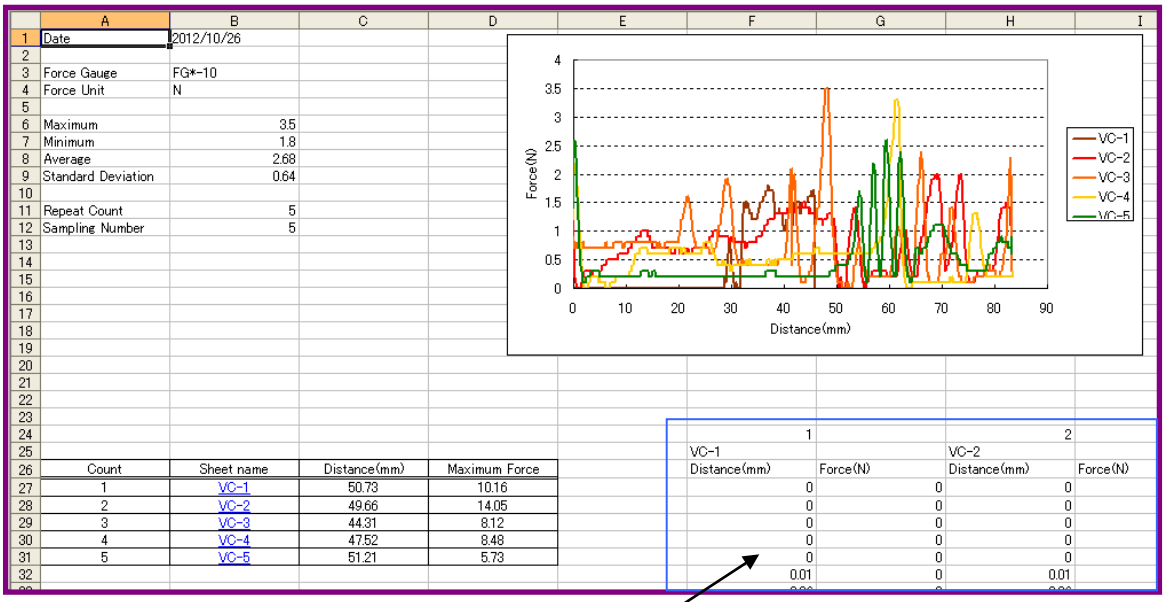
Test No.	Sheet	Distance(mm)	Maximum Value
1	VC-1	50.73	10.16
2	VC-2	49.66	14.05
3	VC-3	44.31	8.12
4	VC-4	47.52	8.48
5	VC-5	51.21	5.73

The sheet name of the corresponding measurement
Because the cell links the corresponding measurement sheet, it is possible to jump to the sheet by clicking.

The number of consecutive test

5.8.4. Graph of MAX sheet

When the Graph is ON, each measurement graphs is overwritten in the MAX sheet. In the graph, only ten measurement data from the first measurement is overwritten. The measurement data used for the graph is written under the graph (Measurement data for the overwritten graph).



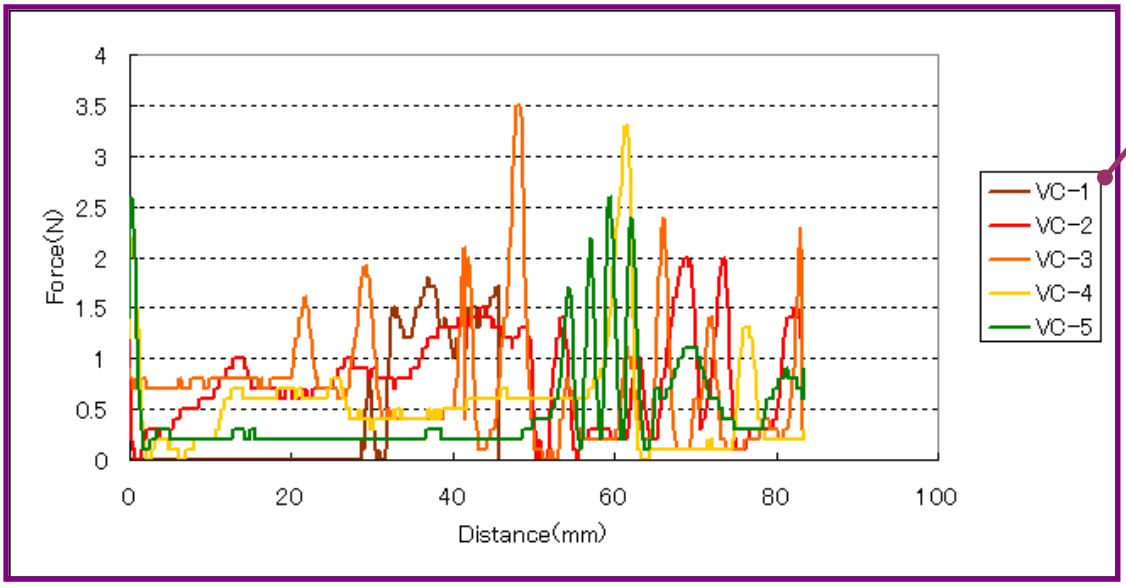
Date	2012/10/26	
Force Gauge	FG*-10	
Force Unit	N	
Maximum	3.5	
Minimum	1.8	
Average	2.68	
Standard Deviation	0.64	
Repeat Count	5	
Sampling Number	5	

Count	Sheet name	Distance(mm)	Maximum Force
1	VC-1	50.73	10.16
2	VC-2	49.66	14.05
3	VC-3	44.31	8.12
4	VC-4	47.52	8.48
5	VC-5	51.21	5.73

1		2	
VC-1		VC-2	
Distance(mm)	Force(N)	Distance(mm)	Force(N)
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0.01	0	0.01	

Measurement data for the overwritten graph

Ten measurement data from the first measurement is overwritten



Explanation

5.8.5. Sheet of each test

It is almost same as MANU mode, refer to 5.6.4. Sheet of each test.

However, when beginning to operate in CONT mode, the MAX sheet is newly made.

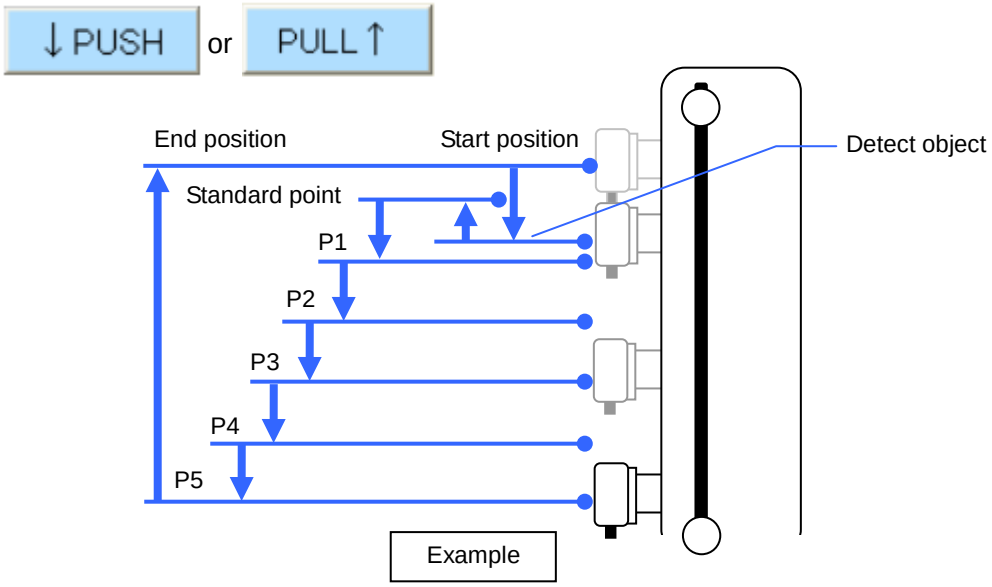
5.9. PROG mode

5.9.1. Operation

This mode of operation is ideal if user wants the test stand to programmed complex moving (Refer to the FGS-VC instruction manual.)

The test stand will start to move and download measurement data when PUSH or PULL button is clicked.

The parameter of the PROG mode can not be set in this software. The users should set the parameter by FGS-VC.



5.9.2. Record of Measurement Data

The record of the measurement data is same as CONT mode. In PROG mode, the measurement data is recorded from Standard point to P5.

5.9.3. Comparator

The comparator function is same as MANU mode. In PROG mode, the comparator is judged by the maximum force from Standard point to P5.

5.9.4. MAX sheet

The MAX sheet is same as CONT mode.

5.9.5. Graph of MAX sheet

It is same as CONT mode.

5.9.6. Sheet of each test

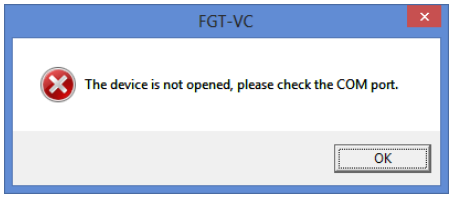
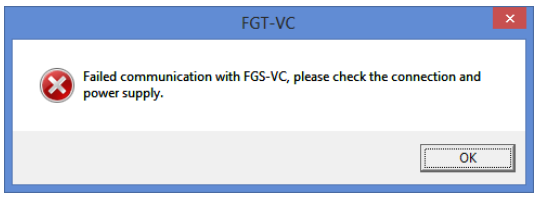
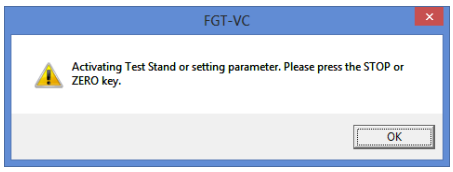
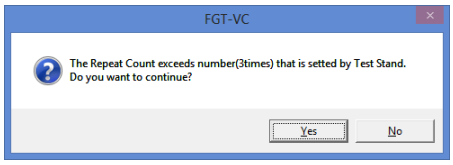
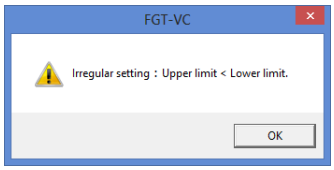
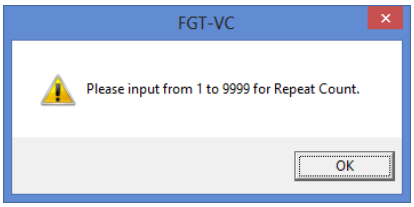
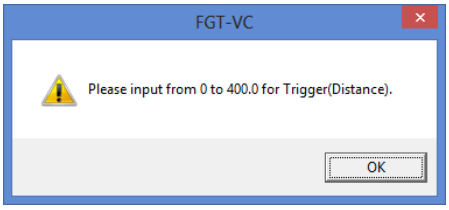
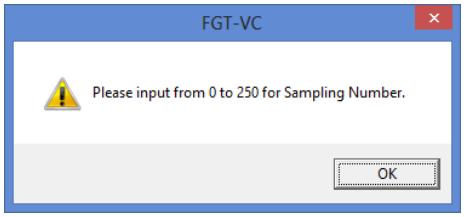
It is almost same as MANU mode, refer to 5.6.4. Sheet of each test. However, the MAX sheet is newly made at each completing repeat count.

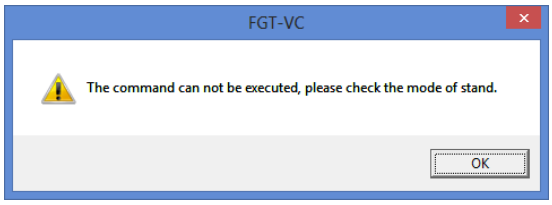
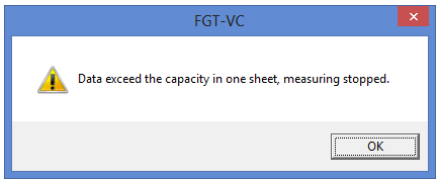
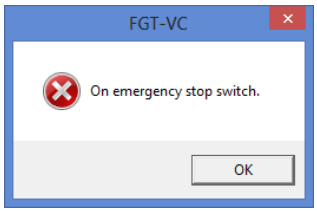
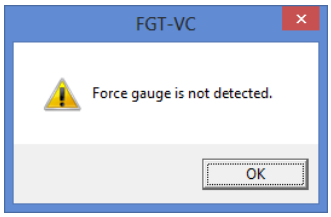
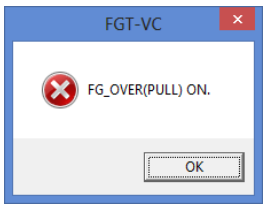
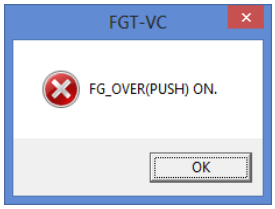
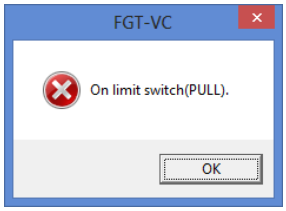
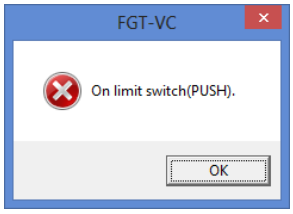
6. Input Range

The input range of force depends on the mounted force gauge.
The range of each force gauge is follows:

Model	Unit	Upper limit	Lower limit	Trigger
FG∗-0.2	N	0 – 2.000		
	gf	0 – 200.0		
	lbf	0 – 0.500		
	ozf	0 – 8.000		
FG∗-0.5	N	0 – 5.000		
	gf	0 – 500.0		
	lbf	0 – 1.000		
	ozf	0 – 16.00		
FG∗-1	N	0 – 10.00		
	gf	0 – 1000		
	lbf	0 – 2.000		
FG∗-2	N	0 – 20.00		
	kgf	0 – 2.000		
	lbf	0 – 5.000		
FG∗-5	N	0 – 50.00		
	kgf	0 – 5.000		
	lbf	0 – 10.00		
FG∗-10	N	0 – 100.0		
	kgf	0 – 10.00		
	lbf	0 – 20.00		
FG∗-20	N	0 – 200.0		
	kgf	0 – 20.00		
	lbf	0 – 50.00		
FG∗-50	N	0 – 500.0		
	kgf	0 – 50.00		
	lbf	0 – 100.0		
FG∗-100	N	0 – 1000		
	kgf	0 – 100.0		
	lbf	0 – 200.0		
FGPX-250H	N	0 – 2500		
	kgf	0 – 250.0		
	lbf	0 – 500.0		

7. Message of Error

	The device is not opened. Please check the COM port. Refer to 4.4. Confirmation of COM Port.
	Failed communication with FGS-VC and your PC. Please check the connection of the USB cable. Please check the power ON of the stand.
	The stand is operating in alone or the mode of the stand is the parameter setting mode. Please stop the operation of the stand by STOP, or exit the parameter setting mode.
	The repeat count of PC is larger than FGS-VC. In this case FGS-VC starts to measure, however please note that the repeat count can be executed only until the setting repeat count of FGS-VC.
	The Upper limit is smaller than the Lower limit. The Upper limit should be equal or larger than the Lower limit.
	Exceeding the input range of the Repeat Count. The range is from 1 to 9999.
	The Trigger is wrong. The setting value of trigger distance should be from 1 to 400.0.
	When the Graph is ON, the Sampling Number should be from 0 to 250.

	The stand can not be operated. Please confirm the operation mode of the stand. The mode should be MANU, SING, CONT or PROG mode.
	The number of measuring data that can be recorded on the sheet is exceeded. Please make a new Book file or sheet.
	The emergency switch of the stand is turning on. Please conform be safe even if the emergency turns off. Then please turn the emergency switch off.
	Please check the force gauge is power on. Please confirm the connection with the stand and the force gauge.
	The overload of PULL direction is occurred. Please move to PUSH direction to release the overload.
	The overload of PUSH direction is occurred. Please move to PULL direction to release the overload.
	The PULL limit switch is turning on. Please move to PUSH direction, or adjust the position of the PULL limit switch.
	The PUSH limit switch is turning on. Please move to PULL direction, or adjust the position of the PULL limit switch.

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