

OPERATING MANUAL

SERVICE MONITORING TOOL for FUJITSU GENERAL INVERTER AND INVERTER MULTI AIR CONDITIONERS

UTY-ASSX

Contents

1. OVERVIEW	5
2. SYSTEM REQUIREMENTS	5
3. INSTALLATION.....	5
3-1 Install the device driver	5
3-2 Install the application	5
3-3 Uninstall	5
4. START-UP	6
4-1 Start-up application	6
4-2 Start-up screen	6
4-3 Screen layout.....	7
5. INITIAL SETTING.....	9
5-1 Application setting	9
6. CONNECTION	10
7. HOW TO USE	11
7-1 Start communication	11
7-2 Confirm running condition	12
8. MESSAGES	20
9. POTENTIAL OF IMPROPER DATA DISPLAY	22

CAUTION

Please read the LICENSE AGREEMENT in the manual first.

PART NO. 9381051007-03

FUJITSU GENERAL LIMITED

LICENSE AGREEMENT for “SERVICE MONITORING TOOL for FUJITSU GENERAL INVERTER AND INVERTER MULTI AIR CONDITIONERS”

IMPORTANT-READ CAREFULLY

This “SERVICE MONITORING TOOL for FUJITSU GENERAL INVERTER AND INVERTER MULTI AIR CONDITIONERS” License Agreement (LICENSE AGREEMENT) is a legal agreement between you and Fujitsu General Limited (FGL) for the use of SERVICE MONITORING TOOL products designated below, which includes computer software and printed materials, and may include online or electronic documentation (SOFTWARE PRODUCT or SOFTWARE). By installing, copying, or otherwise using the SOFTWARE PRODUCT, you accept to be bound by all of the terms and conditions of this LICENSE AGREEMENT. If you do not agree to all of the terms and conditions of this LICENSE AGREEMENT, you may not use the SOFTWARE PRODUCT and shall promptly return the SOFTWARE PRODUCT to the place from which you have obtained it.

1. SOFTWARE PRODUCT LICENSE

The SOFTWARE PRODUCT is protected by copyright laws and international copyright treaties, as well as by other intellectual property laws and treaties. The SOFTWARE PRODUCT is licensed to you, not sold. FGL owns the title, copyright, and other intellectual property rights in the SOFTWARE PRODUCT.

2. GRANT OF LICENSE

FGL hereby grants you the limited, non-exclusive and non-transferable rights only for the purpose of maintaining and testing inverter system products provided you comply with all terms and conditions of this LICENSE AGREEMENT.

3. COPYRIGHT

All right, title, and copyright in and to the SOFTWARE PRODUCT, and any copies of the SOFTWARE PRODUCT are owned by FGL. The SOFTWARE PRODUCT is protected by copyright laws and international treaty provisions. Therefore, you may copy the SOFTWARE PRODUCT solely for backup or archival purposes.

4. DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS

(1) USE OF SOFTWARE PRODUCT

You may install and use the enclosed SOFTWARE PRODUCT on a single terminal connected to a single computer.

You may not network the SOFTWARE or otherwise use it on more than one computer terminal at the same time.

The infrastructure necessary to use this software (PC, accessories, etc.), shall be prepared separately by you.

(2) LIMITATIONS ON REVERSE ENGINEERING, DECOMPILATION, AND DISASSEMBLY

You may not reverse engineer, decompile, or disassemble the SOFTWARE PRODUCT, except and only to the extent that applicable law expressly permits such activity notwithstanding this limitation.

(3) RENTAL

You may not rent or lease the SOFTWARE PRODUCT.

(4) SOFTWARE TRANSFER

You may not transfer the SOFTWARE PRODUCT to any person and/or entity (-ies) either payable or free of charge without the written consent of FGL.

(5) TERMINATION

Without prejudice to any other rights, FGL may terminate this LICENSE AGREEMENT if you fail to comply with the terms and conditions of this LICENSE AGREEMENT. In such an event, you shall promptly return all originals and copies of the SOFTWARE PRODUCT to FGL.

5. EXPORT RESTRICTIONS

You acknowledge that the SOFTWARE PRODUCT is of Japan origin. You agree that neither you nor your customers intend to or will, directly or indirectly, export or transmit the SOFTWARE PRODUCT to any country to which such export or transmission is restricted by any applicable regulation or statute, without the prior written consent, if required, of the authorized governmental entity as may have jurisdiction over such export or transmission.

6. NO WARRANTY

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, FGL EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE SOFTWARE PRODUCT. THE SOFTWARE PRODUCT AND ANY RELATED DOCUMENTATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OR MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK ARISING OUT OF USE OR PERFORMANCE OF THE SOFTWARE PRODUCT REMAINS WITH YOU.

7. LIMITATION OF LIABILITY AND CUSTOMER REMEDIES

FGL'S ENTIRE LIABILITY AND YOUR EXCLUSIVE REMEDY UNDER THIS LICENSE AGREEMENT SHALL BE, AT FGL'S OPTION, REPLACEMENT OF THE SOFTWARE WHICH IS RETURNED TO FGL. THIS LICENSE AGREEMENT SHALL ALSO APPLY TO THE REPLACEMENT SOFTWARE SUPPLIED UNDER THIS SECTION 7.

8. NO LIABILITY FOR CONSEQUENTIAL DAMAGES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL FGL BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFIT, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) DIRECT OR INDIRECT, TO YOU OR TO ANY THIRD PARTY, ARISING OUT OF THE USE OR INABILITY TO USE THIS PRODUCT, EVEN IF FGL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

9. ENTIRE AGREEMENT

This LICENSE AGREEMENT (including any addendum or amendment to this LICENSE AGREEMENT included with the SOFTWARE PRODUCT) is the entire agreement between you and FGL relating to the SOFTWARE PRODUCT and supersedes all prior contemporaneous oral or written communications, proposals and representations with respect to the SOFTWARE PRODUCT or any other subject covered by this LICENSE AGREEMENT.

10. INDEMNITY

You agree to indemnify and hold FGL, and its subsidiaries, affiliates, officers, agents, co-branders or other partners, and employees, harmless from any damage, claim or demand, including without limitation reasonable attorneys' fees, made by any third party due to or arising out of your violation of the terms and conditions of this LICENSE AGREEMENT, or your violation of any rights of another person or entity.

11. GOVERNING LAW AND JURISDICTION

To the maximum extent permitted by applicable law, this LICENSE AGREEMENT is governed by the laws of JAPAN. To the maximum extent permitted by applicable law, you and FGL hereby irrevocably submit to the exclusive jurisdiction of the Tokyo District Court and other higher courts having jurisdiction in Japan for the settlement of disputes arising under or in connection with this LICENSE AGREEMENT.

1. OVERVIEW

This application is a service monitoring tool for Fujitsu General inverter and inverter multi air conditioners.

It has the following four functions:

- Operation Monitoring
- Operation History display
- Error History display
- Protection Condition display

2. SYSTEM REQUIREMENTS

To use this program, the PC must have the following minimum specifications:

- Microsoft Windows 7*, 8, 10.
 - * Machines upgraded from XP, Vista etc. are not assured.
- USB - 1.1 or higher. This is required for the Communication control box. Please refer to section 6. CONNECTION for further details.
- Screen resolution greater than 1024x768 pixels.

3. INSTALLATION

3-1 Install the device driver

Decompress MCP2200 Windows Driver and install it according to the attached instruction

3-2 Install the application

Run setup.exe in the application folder. The program will be automatically installed.

3-3 Uninstall

Control panel → Programs and features → run

Note: For details on installation, refer to the file "installation.txt" in the application CD-ROM.

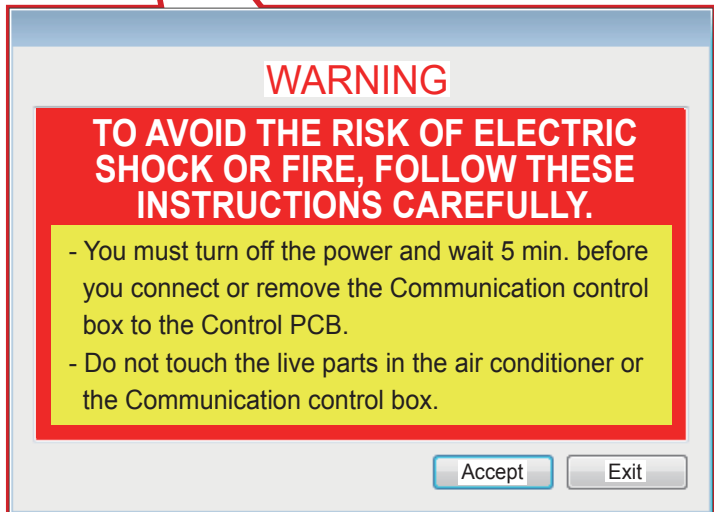
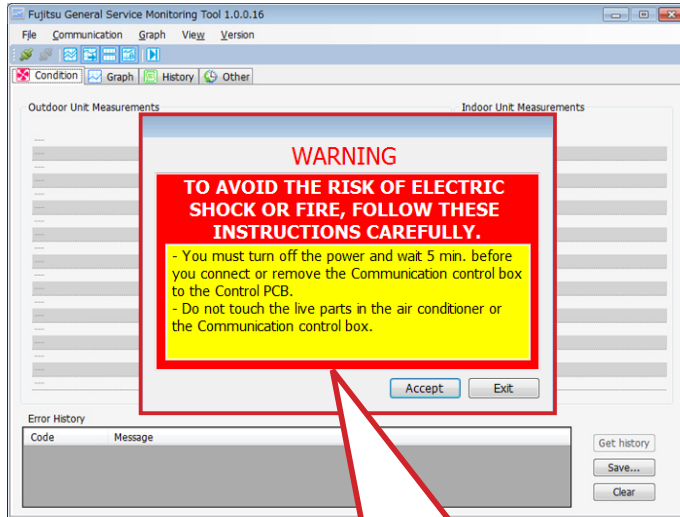
4. START-UP

4-1 Start-up application

Double-click “Service Monitoring Tool” icon in the start menu or desktop.

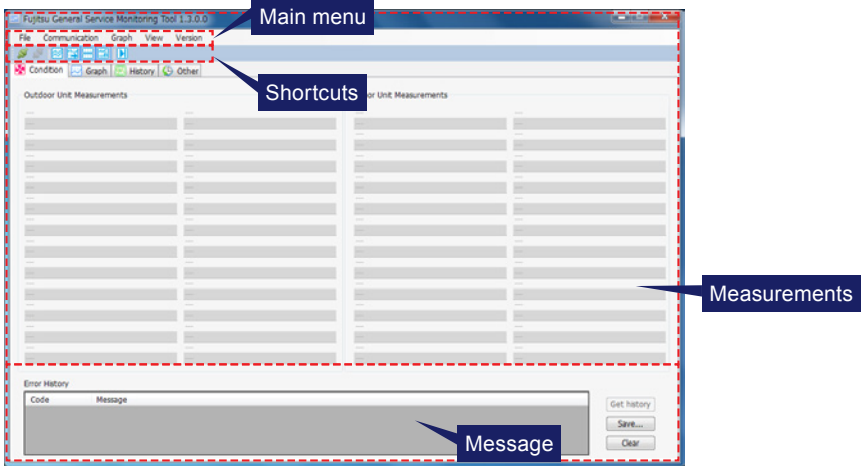
4-2 Start-up screen

WARNING will appear as follows. Read it and press “Accept”.

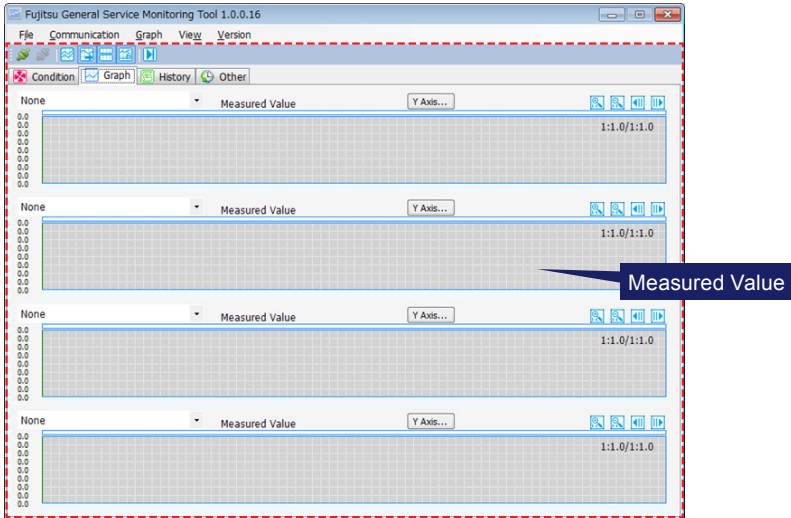


4-3 Screen layout

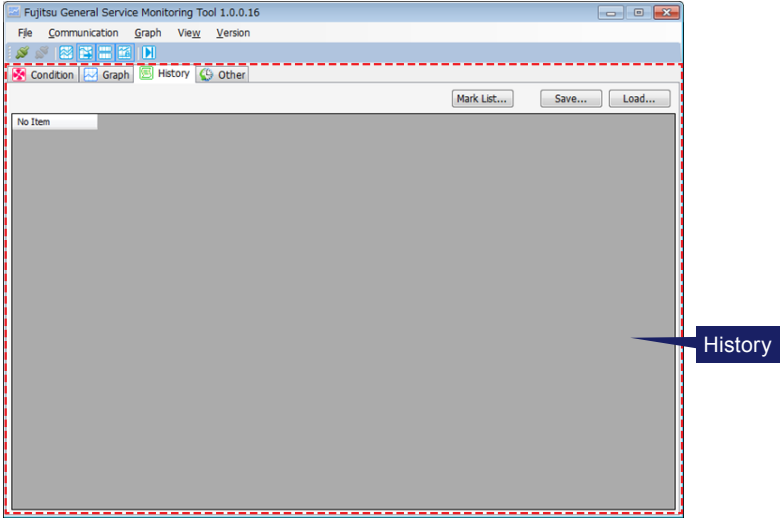
4-3-1 Condition display



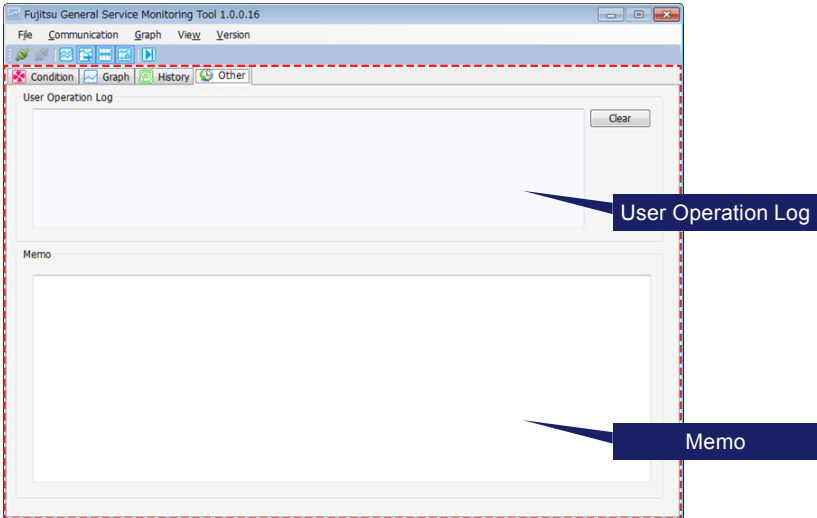
4-3-2 Graph display



4-3-3 History display



4-3-4 Other display



5. INITIAL SETTING

5-1 Application setting

From Main menu, go to Communication → Setup, to open Setup window.

5-1-1 COM port setting (Fig. 5-1)

- Normally, it is configured automatically.
- If your PC has more than one COM port, select the COM port to be used under Available COM port.
- By checking Save COM port, the selected COM port is saved. During the next startup, the saved COM port is configured.
 - * When the USB port is switched, the COM port number may change. In that case, set the COM port number again.

5-1-2 Unit setting (Fig. 5-1)

The units for temperature and pressure can be selected.

Temperature:Celsius ↔ Fahrenheit,

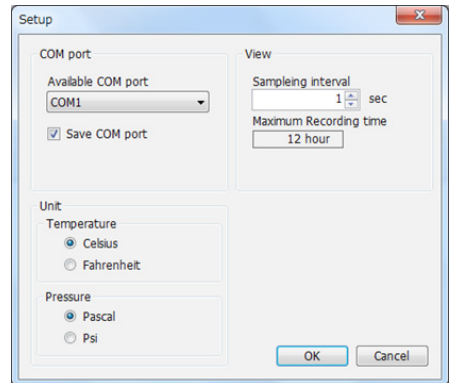
Pressure:Pa ↔ Psi

5-1-3 View setting (Fig. 5-1)

▪ Sampling interval setting

It can be configured in the range of 1sec. - 60sec..

Fig. 5-1



6. CONNECTION

Connect the PC to the outdoor unit's PCB via the Communication control box (MA306 manufactured by Micro application).

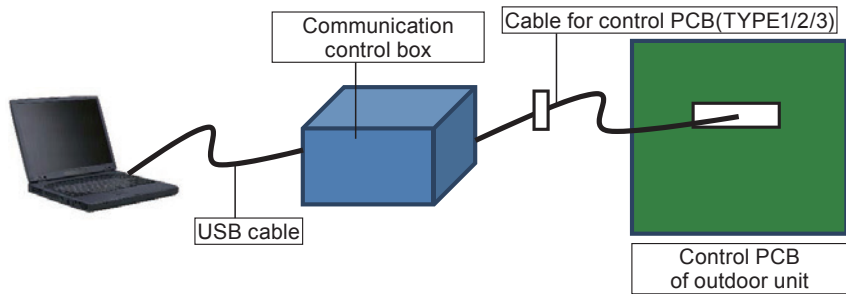
There are three types of connectors on the control PCB.

Choose the cable required based on the three types listed below:

TYPE1 : PA connector -6 pin

TYPE2 : PA connector -10 pin

TYPE3 : PA connector -12 pin



⚠ WARNING

You must turn off the power and wait 5 min. before you connect or remove the Communication control box to the Control PCB.

* When there is no connector on the control PCB.

The connector for communication may not be soldered onto the control PCB. In this case please use the following connector:

Connector

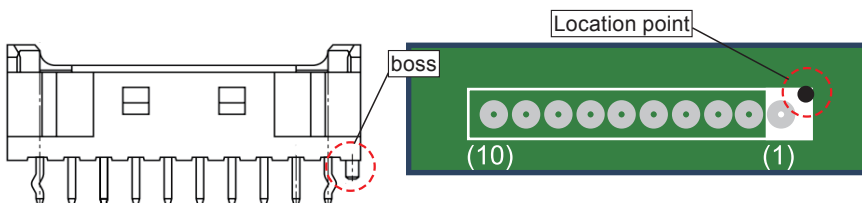
Manufacturer	Model number
JST	B10B-PASK-1

⚠ Caution

You must turn off the power supply, before mounting the connector on the control PCB. (There is a possibility of electric shock.)

Please make sure the boss lines up with the locating point on the PCB.


Please be cautious when connecting the connector as it can cause damage if not fitted correctly.




7. HOW TO USE

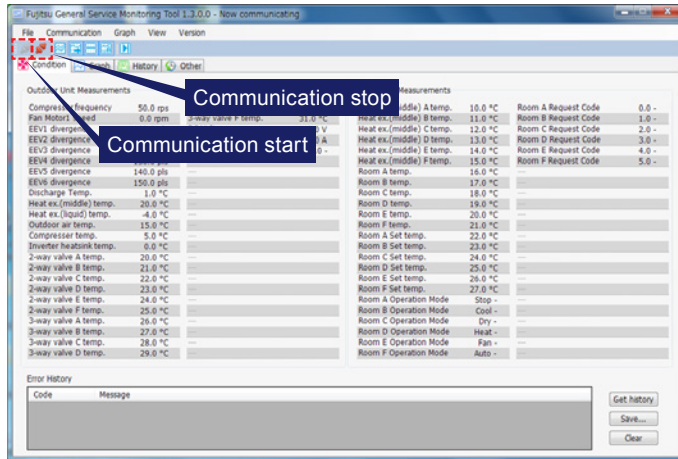
7-1 Start communication

Communication start

Click "communication start"  button.

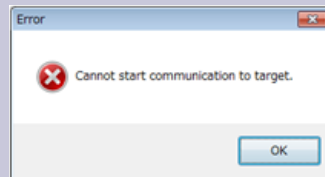
Communication stop

Click "communication stop"  button.



This error message means there is a communication error. Confirm the followings.

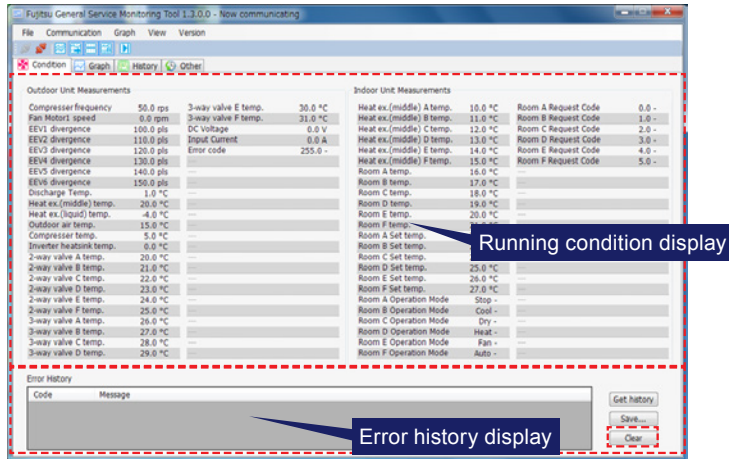
- Is the power of target on?
- Is the cable correctly connected?
- Is the connector correctly connected?



If the above alert message is shown in the upper right hand side of window, target model is not supported. Although communication and data reading is available, the data may not be correct.

7-2 Confirm running condition

7-2-1 Running condition display



- See running condition

Running conditions of the outdoor unit and the indoor unit are shown in a table.

Screen is updated according to the interval time configured in 5-1-3.

Changes occurred in between intervals are not recorded and therefore will not be shown.

- Confirm error history

By pressing "Get History" during communication with air conditioner, error history saved in the internal memory of the air conditioner can be read.

This history includes errors occurred before the service monitoring tool is connected.

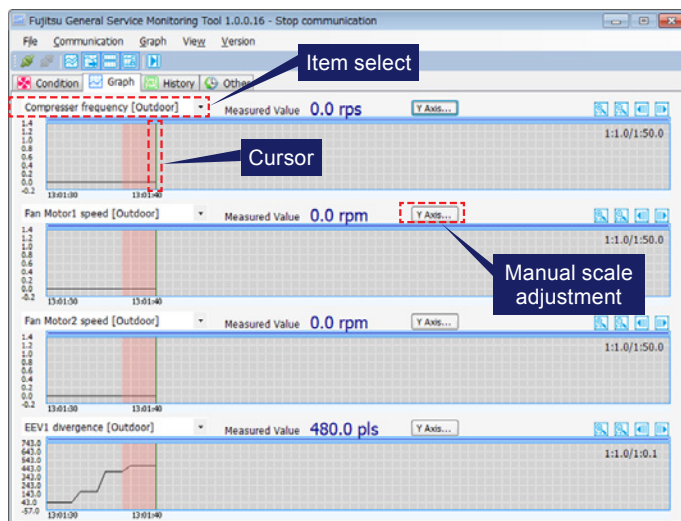
- Save error history

You can save error history into a file by pressing "Save".

- Delete error history

History screen can be deleted by pressing "Clear". (Internal memory is not deleted.)

7-2-2 Running condition graph display screen (Individual)




- Select display item


By clicking “Item select” shown above, you can select a display content to be shown in the graph pane.

- Confirm display

The value at the current cursor position is displayed in “Measured Value”. During communication, the cursor automatically moves along to the end of the curve.

The cursor can be moved by double-clicking onto the graph and the measured value at that point is displayed in “Measured Value”.


- Graphs are synchronized and are scrolled together. By switching off the sync of multiple graphs using the  button, they are no longer synchronized and are able to be scrolled individually.

Also, when the “auto scroll”  button is pressed, the graphs automatically scroll to the right.

To stop, press the “auto scroll”  button to release automatic scroll.

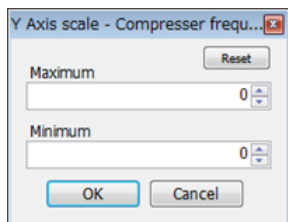
- Scaling adjustment feature (vertical axis)

Automatic adjustment

When  is pressed, the scale of the vertical axis is automatically adjusted.

Manual adjustment (Maximum/Minimum)

By pressing the **Y Axis...** button, the Y Axis scale window is shown.



Maximum/ Minimum of configured value is as below.

	Configured (Max)	Configured (Min)
Maximum	2000	-100
Minimum	100	-100

Also, if you configure Maximum or Minimum to zero, this configuration is cancelled. When you configure Maximum or Minimum to a value other than zero, the button **Y Axis...** turns orange and configuration becomes effective.

If you switch graph type (See 7-2-3), configuration is **reset**.

If you press the button **Reset**, configuration is **reset**.

If Minimum is bigger than Maximum, Maximum is automatically changed to Minimum+1.

- Scaling adjustment feature (horizontal axis)


Scale of horizontal axis (time axis) can be changed.

 ... Scale up

 ... Scale down

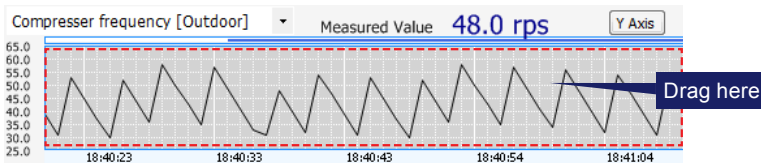
- Scroll feature (horizontal axis)


Horizontal axis (time axis) can be scrolled.

 ... Scroll to left

 ... Scroll to right

Also, by dragging screen, scrolling is available.



By pressing  Move to head button, you can move to the head of the graph.

- Load a record file

Record file is loaded. Graph is displayed.

Protection display (See 7-2-4) is not loaded.

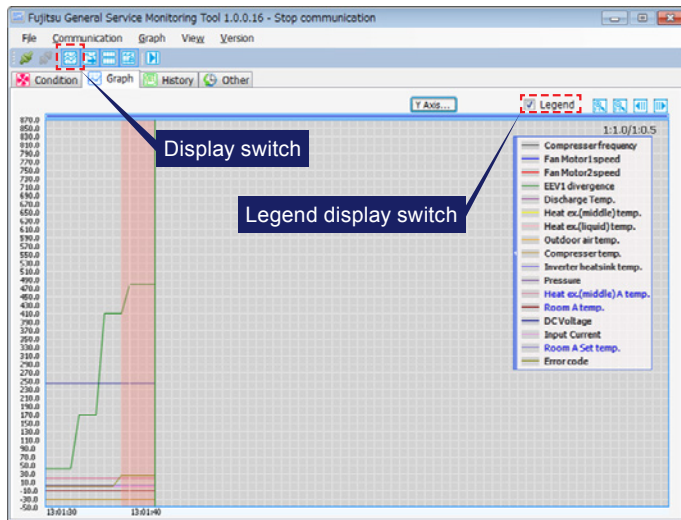
- Maximum record time

It can be configured in 5-1 application setting. Maximum record time is changed depending on the sampling interval configuration.

When it is over the maximum record time, communication stops and the message below is shown.



7-2-3 Running condition graph display screen (collective)



● Display switch

By processing the display switch button, the graph type can be switched from individual to collective.

Basic operation method is the same as individual display.

● Legend display

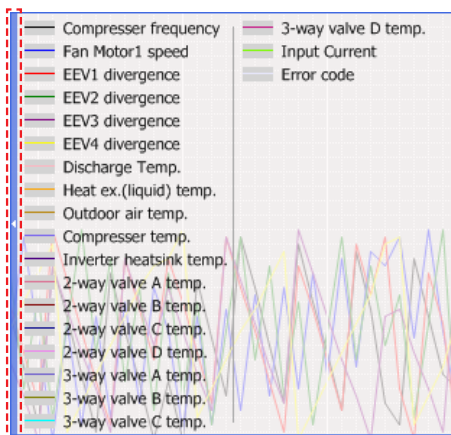
Legend display can be switched on/off by Legend check box.

Legend display can be changed by clicking the part indicated in the figure.

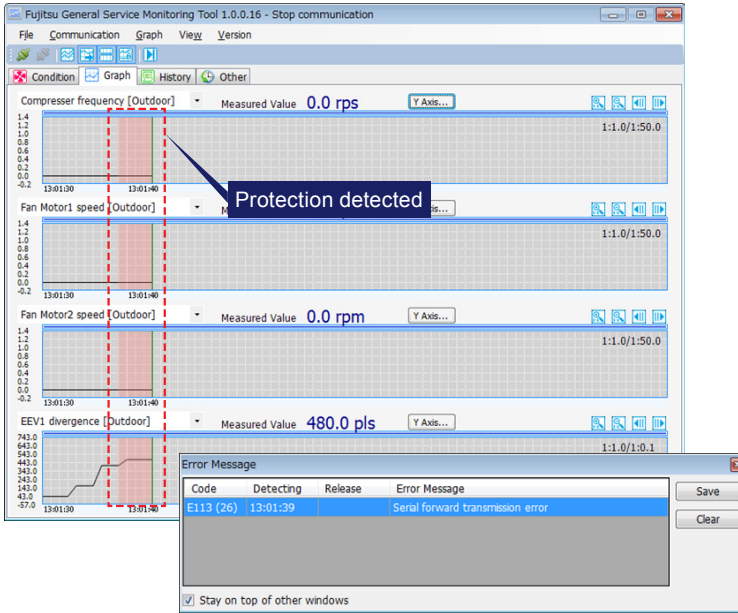
Also, by clicking on each item, graph display can be switched on/off.

* When display of a particular item is switched off, it becomes gray.

If abnormal data is received (such as communicating with wrong model), communication data is not updated.



7-2-4 Confirm status of Protective function.



● Confirming the Protective function activation time

When the stop for protection is activated, the Error message window pops up and the detected protection is shown.

Detecting indicates the time the protection detecting started. Release indicates the time the protection is was terminated. (deactivated).

In the graph, the detected protection is coloured.

- Graph is moved to the point of protection detecting by double-clicking Error Message Window.

● Save protection condition

You can save protection status into a file by pressing "Save".

7-2-5 Check History

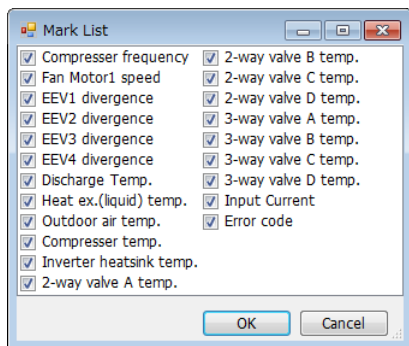
Time	Compressor_freq	Fan_Motor1_speed	EEV1_divergence	Discharge_Temp. [°C]	Heat_ex.(liquid)_te [°C]	Outdoor_air_temp [°C]	Heat_ex.(m... [°C]
2013/05/16 20:...	0.0	0.0	46.0	2.7	-2.5	3.6	-1.8
2013/05/16 20:...	28.0	22.0	23.0	-3.0	-4.5	4.9	1.5
2013/05/16 20:...	2.0	22.0	0.0	1.3	3.6	-3.8	4.8
2013/05/16 20:...	2.0	28.0	0.0	-4.3	1.6	-2.5	-1.9
2013/05/16 20:...	2.0	28.0	0.0	0.0	-0.3	-1.1	1.4
2013/05/16 20:...	24.0	33.0	32.0	4.3	-2.2	0.2	4.7
2013/05/16 20:...	24.0	33.0	10.0	-1.4	-4.2	1.5	-2.0
2013/05/16 20:...	24.0	38.0	10.0	2.9	3.9	2.8	1.3
2013/05/16 20:...	46.0	38.0	10.0	-2.8	2.0	4.2	4.6
2013/05/16 20:...	20.0	43.0	42.0	1.5	0.0	-4.5	-2.1
2013/05/16 20:...	20.0	43.0	19.0	-4.2	-1.9	-3.2	1.2
2013/05/16 20:...	20.0	49.0	19.0	0.1	-3.8	-1.9	4.5
2013/05/16 20:...	42.0	1.0	19.0	4.5	4.2	-0.6	-2.2
2013/05/16 20:...	15.0	1.0	19.0	-1.2	2.3	0.8	1.1
2013/05/16 20:...	15.0	7.0	29.0	3.1	0.4	2.1	4.4
2013/05/16 20:...	15.0	7.0	6.0	-2.6	-1.6	3.4	-2.3
2013/05/16 20:...	37.0	12.0	6.0	1.7	-3.5	4.7	1.0
2013/05/16 20:...	11.0	12.0	6.0	-4.0	4.6	-3.9	4.3
2013/05/16 20:...	11.0	17.0	38.0	0.3	2.6	-2.6	-2.4
2013/05/16 20:...	11.0	17.0	16.0	4.6	0.7	-1.3	0.9

- Check running history

You can check the hourly running condition of each actuator and values detected by sensors in this table.

- Select display items

Press Mark List to open the following window.



You can select display items by clicking check boxes (on/off).

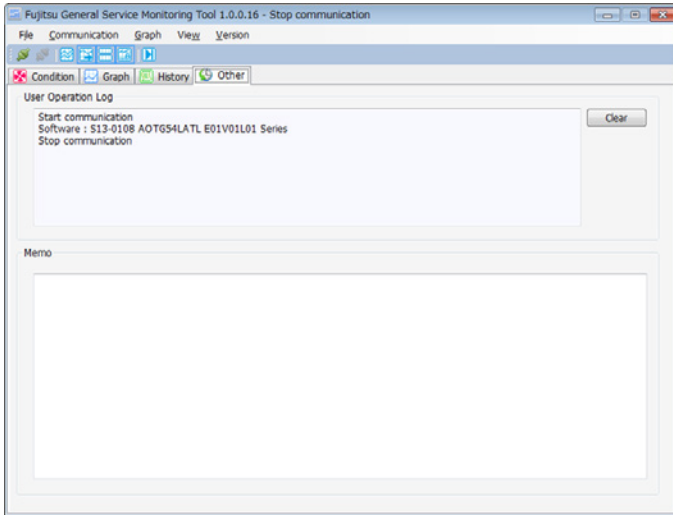
- Save data into a file

You can save history data by pressing “Save”.

- Load data from a file

You can load history data from a file by pressing “Load”.

7-2-6 Other



- Confirm User Operation Log

This is a record of your operation in this application.
It can be deleted by pressing “Clear”.

- About Memo

You can make notes of the air conditioner such as condition.
It is saved into the file that you have created by recording History.

8. MESSAGES

Message	Meaning	Solution
Cannot find COM port	COM port is not found.	<ul style="list-style-type: none"> ▪ Confirm if communication box driver is correctly installed. ▪ Confirm if communication box is connected. ▪ Confirm if the COM port assigned to communication box is selected in Setup.
Missing COM port has changed to port X	Saved COM port is not found. So configuration is changed to port X. → This can be caused by changing the port connected to the communication box. (Because of COM number change)	<ul style="list-style-type: none"> ▪ If communication box is assigned to port X (usable smallest number), you can continue. ▪ If it is not assigned to port X, you need to change configuration.
Cannot find setting file	Application's config file is missing.	<ul style="list-style-type: none"> ▪ Re-install the application.
Checksum disagreement	Application's config file is broken.	
Communication driver is busy. Please wait a few minutes	Communication driver is communicating. Wait a for a few minutes and retry.	<ul style="list-style-type: none"> ▪ If the same message remains for a long time, reboot application.
An unexpected error has occurred	Undefined application error occurs.	Reboot application.
Communication Time Out	Communication is not established for a period	Communication with target is not stable. This can be due to noise, try the following countermeasures. <ul style="list-style-type: none"> ▪ Shorten communication cable. ▪ Separate communication cable from power line (compressor lead, power line).
Communication Error (CS illegal)	Communication error (checksum abnormal)	
Communication Error (Error response)	Communication error (there is error response).	

Message	Meaning	Solution
Cannot start communication to target.	Unable to start communication with the target.	<ul style="list-style-type: none"> ▪ Stop the air conditioner from operating and start communication. Then, if communication does not start, the followings are possible. <ol style="list-style-type: none"> 1. Communication cable or communication box may be broken. Please replace the broken part. 2. Target PCB may be broken. Please replace the broken PCB.
Do not find model data. Indicative data may be inaccurate.	Target model is not registered in the model configuration file. Therefore, default communication parameter is used. In that case, analysis result may not be correct.	To confirm analysis result, save the data and inform FUJITSU GENERAL.
Recording data is over maximum time range. Stop communication.	Communication stops due to exceeding the maximum record time.	To continue communication, save the current record into a file and start communication again.

9. POTENTIAL OF IMPROPER DATA DISPLAY

On a graph display or history display, abnormal value (compressor revolution suddenly vanishes and recovers in a few seconds etc.) can be displayed rarely. This can be caused by noise on the communication line etc. This does not cause abnormal operation to the air conditioner.

This can be reduced by shortening communication line or separating communication line from power line, but difficult to eliminate.

