

OPERATING MANUAL

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

UTY-ASSX

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CAUTION

Please read the LICENSE AGREEMENT in the manual first.

PART NO. 9381051007

FUJITSU GENERAL LIMITED

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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*
 - * 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.

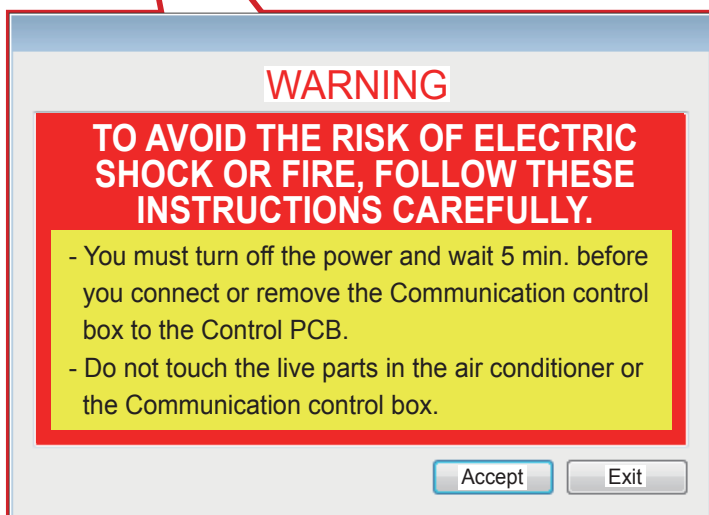
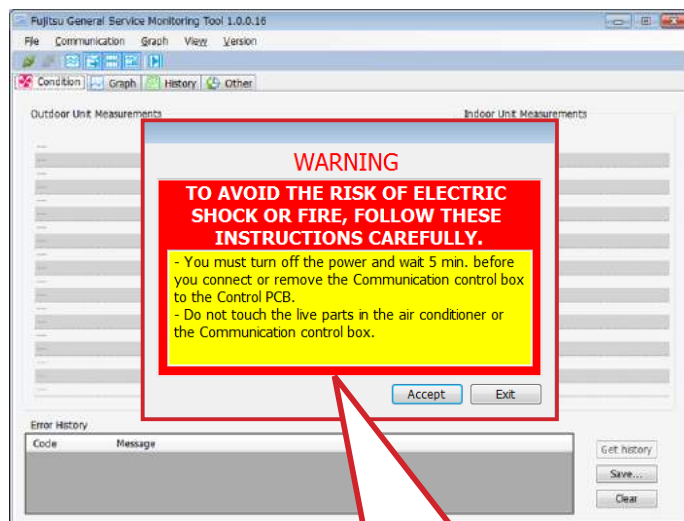
4. START-UP

4- 1 Start-up application

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

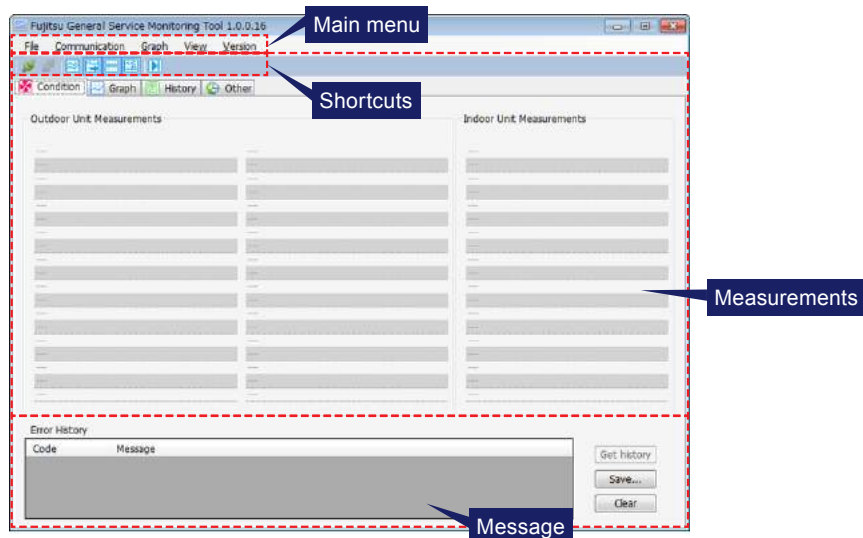
4- 2 Start-up screen

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

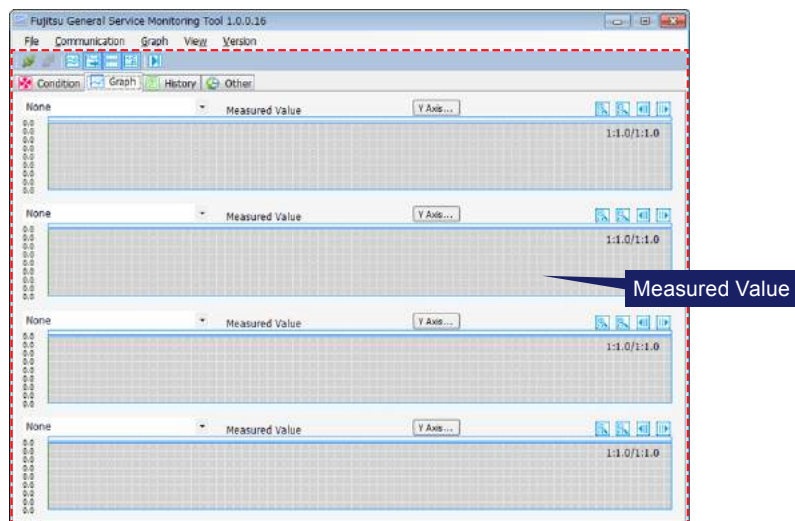


4-3 Screen layout

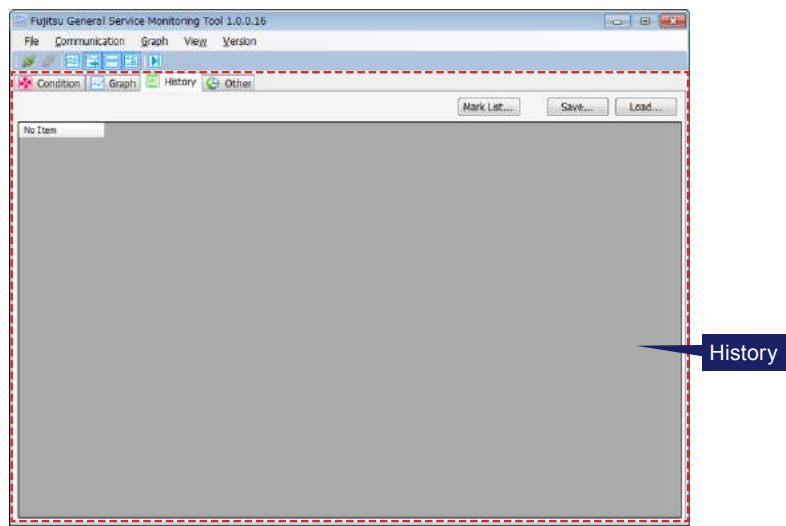
4-3-1 Condition display



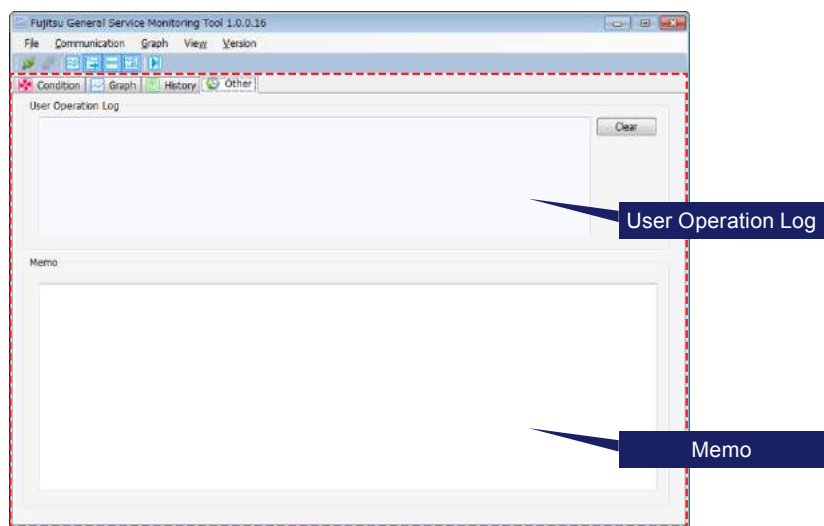
4-3-2 Graph display



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..

▪ Horizontal axis configuration (Unit is second)

Fix time line ON — Relative time display and not scrolled.

Fix time line OFF — Absolute time display and scrolled.

Fig.5-1



6. CONNECTION

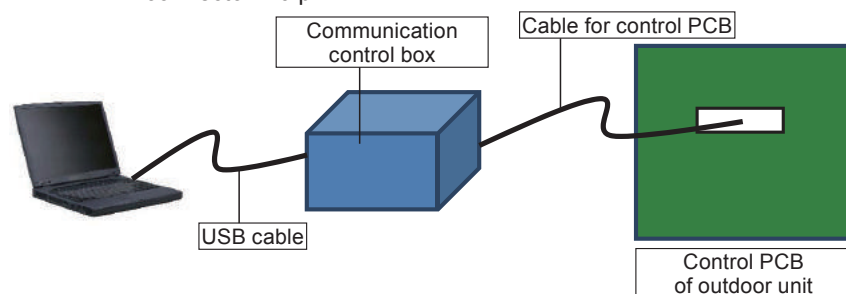
Connect the PC to the outdoor unit's PCB via the Communication control box (MA306 manufactured by Micro application).

There are two types of connectors on the control PCB.

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

TYPE1 : PA connector -6 pin

TYPE2 : PA connector -10 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

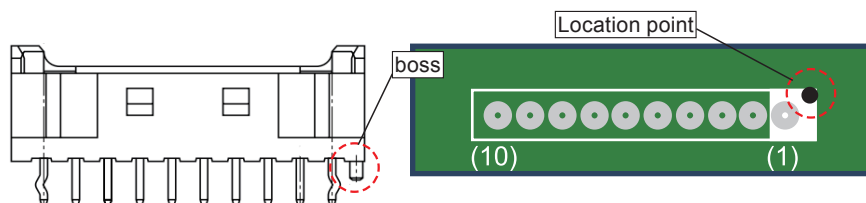
Manufacturer	Model number
JST	B10B-PASK-1

⚠ 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

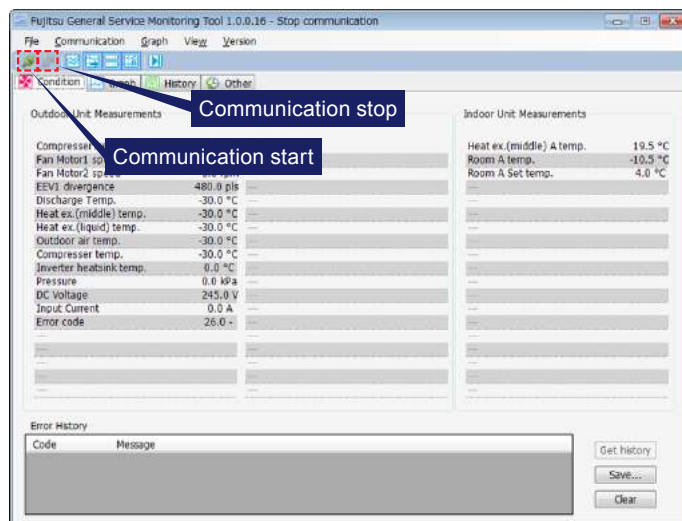
7-1 Start communication

Communication start

Click “communication start”  button.

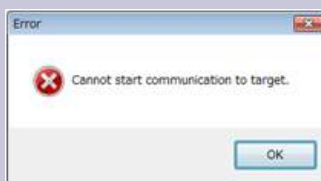
Communication stop

Click “communication stop”  button.



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

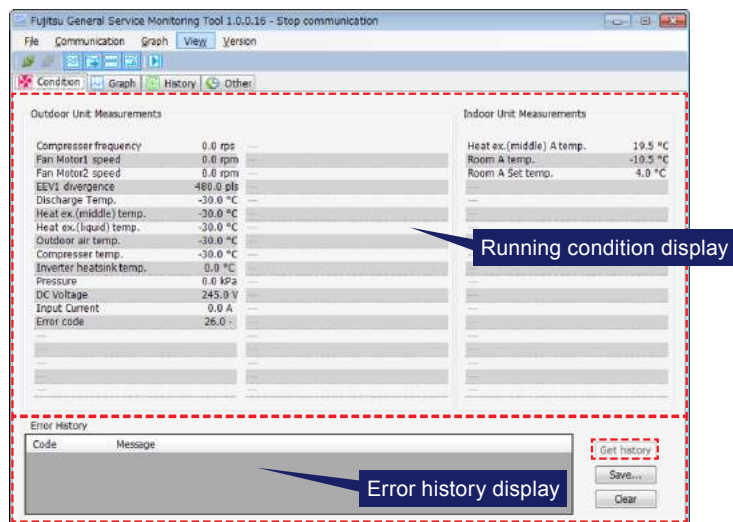
- Is the power of target on?
- Is the cable correctly connected?
- Is the connector correctly connected?



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.

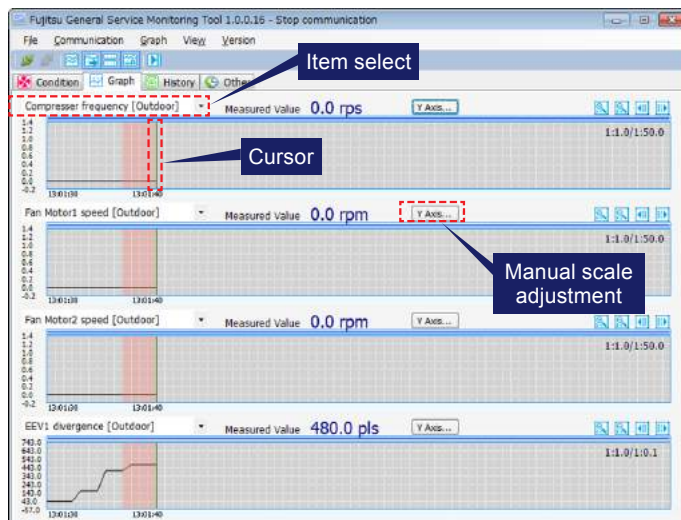
- Save error history

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.

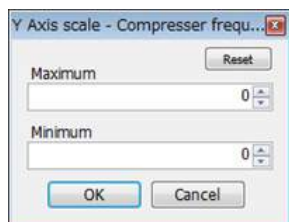
● Scaling adjustment feature (vertical axis)

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 delete the Maximum and Minimum values, 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.

Manual adjustment (Scale up/down)

Scale of vertical axis can be changed.



... Scale up



... Scale down

When automatic adjustment is valid, button operation becomes disabled.

- Scaling adjustment feature (horizontal axis)

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


 ... Scale up

 ... Scale down

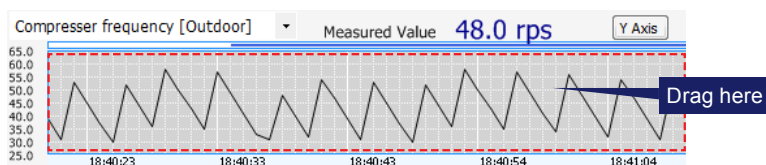
- Scroll feature (horizontal axis)


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.

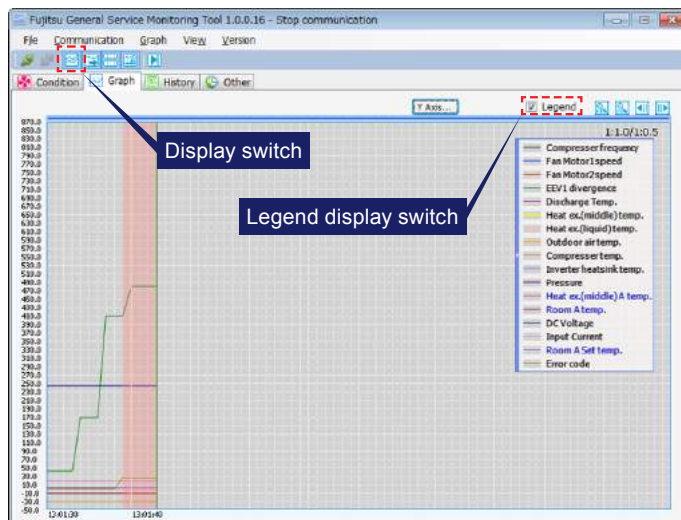
- Maximum record time

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

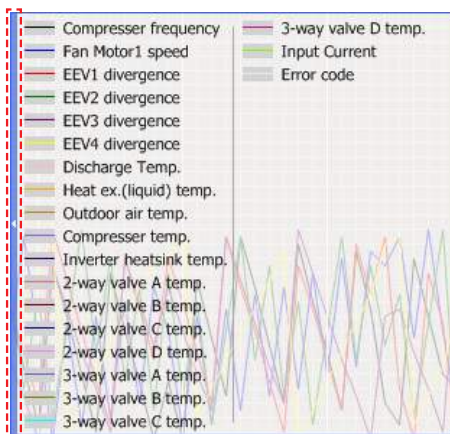
Legend display can be switched on/off by Legend check box.

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

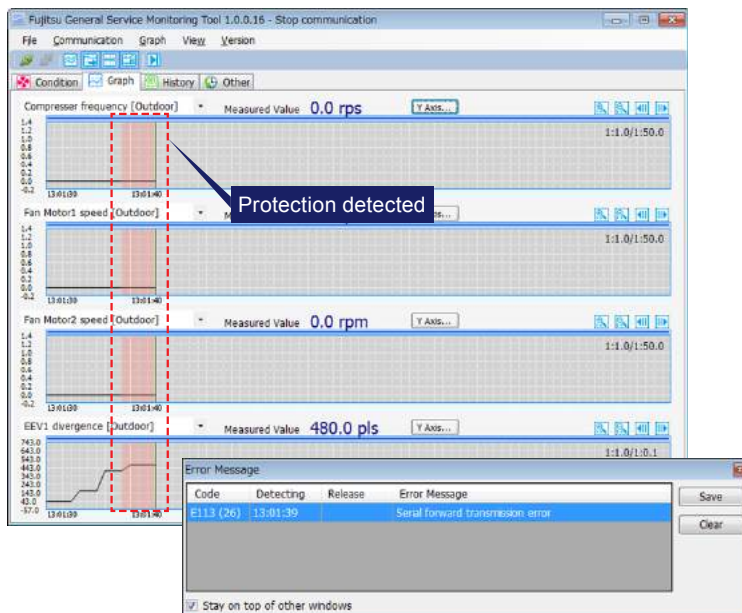
Also, by clicking on each item, graph display can be switched on/off.

* 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_frequ	Fan_Motor1_speed	EEV1_divergence	Discharge_Temp	Heat_ex.(liquid)_temp	Outdoor_air_temp	Heat_ex.(m...)
2013/05/16 20:00	0.0	0.0	46.0	2.7	-3.5	3.6	-1.8
2013/05/16 20:01	28.0	22.0	23.0	-3.0	-4.5	4.9	1.5
2013/05/16 20:02	2.0	22.0	0.0	1.3	3.6	-3.8	4.8
2013/05/16 20:03	2.0	28.0	0.0	-4.3	1.6	-2.5	-1.9
2013/05/16 20:04	2.0	28.0	0.0	0.0	-0.3	-1.1	1.4
2013/05/16 20:05	24.0	33.0	32.0	4.3	-2.2	0.2	4.7
2013/05/16 20:06	24.0	33.0	10.0	-1.4	-4.2	1.5	-2.0
2013/05/16 20:07	24.0	38.0	10.0	2.9	3.9	2.8	1.3
2013/05/16 20:08	46.0	38.0	10.0	-2.8	2.0	4.2	4.6
2013/05/16 20:09	20.0	43.0	42.0	1.5	9.0	-4.5	-2.1
2013/05/16 20:10	20.0	43.0	19.0	-4.2	-1.9	-3.2	1.2
2013/05/16 20:11	20.0	49.0	19.0	6.1	-3.8	-1.9	4.5
2013/05/16 20:12	42.0	1.0	19.0	4.5	4.2	-0.6	-2.2
2013/05/16 20:13	15.0	1.0	19.0	-1.2	2.3	0.8	1.1
2013/05/16 20:14	15.0	7.0	29.0	3.1	0.4	2.1	4.4
2013/05/16 20:15	15.0	7.0	6.0	-2.6	-1.6	3.4	-2.3
2013/05/16 20:16	37.0	12.0	6.0	1.7	-3.5	4.7	1.0
2013/05/16 20:17	11.0	12.0	6.0	-4.0	4.6	-3.9	4.3
2013/05/16 20:18	11.0	17.0	38.0	0.3	2.6	-2.6	-2.4
2013/05/16 20:19	11.0	17.0	16.0	4.6	9.7	-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.

Mark List

- ☒ Compressor frequency
- ☒ Fan Motor1 speed
- ☒ EEV1 divergence
- ☒ EEV2 divergence
- ☒ EEV3 divergence
- ☒ EEV4 divergence
- ☒ Discharge Temp.
- ☒ Heat ex.(liquid) temp.
- ☒ Outdoor air temp.
- ☒ Compressor temp.
- ☒ Inverter heatsink temp.
- ☒ 2-way valve A temp.
- ☒ 2-way valve B temp.
- ☒ 2-way valve C temp.
- ☒ 2-way valve D temp.
- ☒ 3-way valve A temp.
- ☒ 3-way valve B temp.
- ☒ 3-way valve C temp.
- ☒ 3-way valve D temp.
- ☒ Input Current
- ☒ Error code

OK Cancel

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

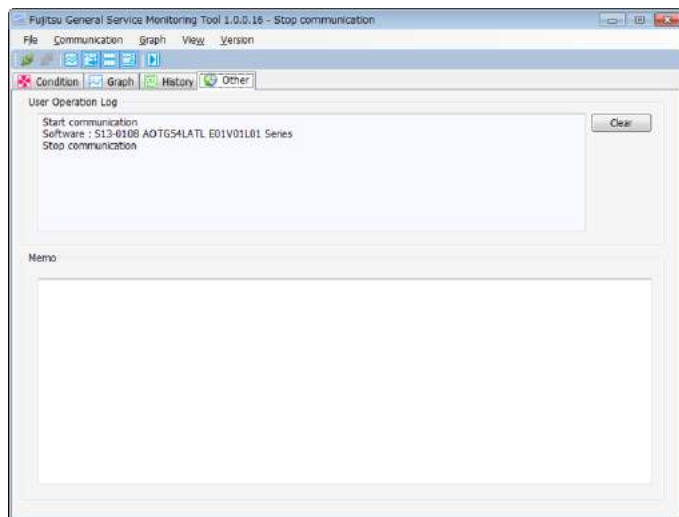
● Save data into a file

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	<p>Saved COM port is not found. So configuration is changed to port X.</p> <p>→ This can be caused by changing the port connected to the communication box. (Because of COM number change)</p>	<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.
Bad License key	<ul style="list-style-type: none"> ▪ License key is not input. ▪ License key is incorrect. 	Input correct license key.
An unexpected error has occurred	Undefined application error occurs.	Reboot application.

Message	Meaning	Solution
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). ▪ Check other noises (Car, big motor etc.).
Communication Error (CS illegal)	Communication error (checksum abnormal)	
Communication Error (Error response)	Communication error (there is error response).	<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.
Cannot start communication to target.	Unable to start communication with the target.	
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.