### D-checker User Manual

Ver. 3.7.0.4

### DAIKIN INDUSTRIES, LTD.

**Global Service Department** 

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New

#### https://daikin-p.ru Overview

#### Caution

This software is designed to be used by Daikin authorized service engineers. Use by any other party is prohibited.

- D-checker is a software application used to record and monitor operation data from an air conditioner to which it has been connected with a cable. Be sure to read the User Manual before use.
- The software can monitor the status of sensors (temperature and pressure) and actuators (compressors, solenoid valves, etc.) on air conditioners.
- The data supported by the software vary by model.
- D-checker collects air conditioner operation data via control PCB connectors on outdoor units. Monitoring and recording of data from multiple outdoor unit circuits is not supported. The following table compares D-checker with the Type4 Checker:

	D-checker	Type4 Checker
Connection method	PCB connection	D3-NET connection
Maximum number of connections per record	1 circuit (cable connection)	D3-NET: All devices on same D3-NET
Recorded data	Sensor data, actuator stat	us, other
Extra sensors	Not supported	Not supported
Centralized control	Not supported	Setpoints can be changed, and indoor units can be turned on and off.

Supported products	D-checker	Type4 Checker
SkyAir	Models manufactured in 2003 and later*	Models manufactured in 1998 and later
Split	Models manufactured in 2002 and later*	Some models manufactured from 1992 to 1995
Chiller	Not supported Some models mar and later	
VRV**	Models manufactured in 2003 and later*	Models manufactured in 1990 and later
Altherma LT:BB,CA	Indoor unit models (2010 and later)	Not supported
Altherma HT	Not supported	AB models (2010 and later)
Altherma Flex	Not supported	All models

\* Exceptions may apply (even though applicable to this condition, some models do not support Dchecker protocol). VRVII M series or older models are not supported.

\*\* Maximum supported number of VRV indoor unit data is 59.

### https://daikin-p.ru You will need

#### You will need the following equipment:

1. A computer that satisfies the following requirements:

Operating system	WindowsXP, Vista, 7, 8, 8.1 <sup>*1</sup> , 10 <sup>*2</sup>					
RS-232C	D-sub 9-pin interface	D-sub 9-pin interface (faster than 9,600 bps)				
Other	.NET framework 4 or later <sup>*3</sup>					
	Windows 8, 8.1, 10	Already installed				
	Windows 7.NET Framework 4.5.1 is recommended.Windows Vista					
	Windows XP	Only .NET Framework 4 can be installed.				

\*1 The software has only been confirmed to work with 32-bit version.

\*2 The software has only been confirmed to work with 64-bit version.

\*3 If you do not have installation privileges, install from a user account with Administrator privileges.

Checking the .NET Framework version

Check the Microsoft .NET Framework version from the list of installed programs under Control Panel  $\rightarrow$  (Programs  $\rightarrow$ ) Programs and Functions (on Windows XP, under Control Panel  $\rightarrow$  Add or Remove Programs).

#### 2. Connection devices

D-checker cable (D-sub9 pin type)



D-checker cable (USB type)



<Equipment>

- 1: Cable
- 2: USB power supply for cable
- 3: Connection harness 1 (for split)
- 4: Connection harness 2 (for SkyAir)

\*Additional connecting harness is required for Altherma LT (BB type) indoor units (CA type or later models do not need for this).



STE-01 (TCP/IP connection)



With STE-01 (service tool expander by Raspberry-Pi platform, you can connect Dchecker by TCP/IP connection (Wi-Fi or internet) → please refer to manual for more details

#### Caution

Only use the cable shown above. Use of other cables may cause electric shock or damage to the AC power supply or computer.

## 1. Installing D-checker

#### This chapter describes how to install and launch D-checker.

#### 1-1. Installing D-checker

• Unzip the D-checker package into a folder of your choice (for example, on the desktop).



• Double-click D-checker.exe, which can be found in the unzipped folder, to launch D-checker.

			1. 1 <u>0</u> 1	
Organize 🔻 Include in	library ▼ Share with ▼ Burn Nev	w folder		
🔶 Favorites	Name	Date modified	Туре	Size DAIKIN
🧮 Desktop	🐌 ja	2014/05/27 23:06	File folder	
🐌 Downloads	Storage	2014/06/07 1:06	File folder	
📃 Recent Places	\mu жб4	2014/05/27 23:06	File folder	
퉬 SkyDrive	🌗 \mu x86	2014/05/27 23:06	File fold	Dchecker.
	Jan 2h	2014/05/0		exe
🔰 Libraries	Dchecker.exe	2014/05/18 15:16	Application	CAC
퉬 Apps	Dchecker.exe.config	2013/12/27 20:55	CONFIG File	1 KB
Documents	S Livet.dll	2013/12/30 6:24	Application extens	895 KB
J Music	Livet.xml	2013/12/30 6:24	XML Document	1,121 KB
Pictures	Microsoft.Expression.Interactions.dll	2013/12/30 5:01	Application extens	90 KB
Podcasts	System.Data.SQLite.dll	2013/09/28 14:26	Application extens	248 KB
📑 Videos	System.Data.SQLite.Linq.dll	2013/09/28 14:26	Application extens	179 KB
	System.Windows.Controls.DataVisuali	izati 2010/03/02 12:09	Application extens	273 KB
🖳 Computer	System.Windows.Interactivity.dll	2013/12/30 5:01	Application extens	39 KB
🚢 Local Disk (C:)	WPFToolkit.dll	2010/03/02 12:09	Application extens	457 KB
HP_TOOLS (D:)	<del>.</del>			

• When you launch D-checker for the first time, a firewall settings dialog box will be displayed. You can choose either "Allow access" or "Cancel."

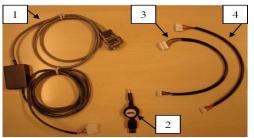
\*This dialog box may not be displayed on some computers.



#### As **https://daikin-p.ru** 2. Connecting D-checker to the air conditioner

#### Caution

Split air conditioners have two types of control PCB (isolated and non-isolated). All components on non-isolated PCBs are charged with a high voltage. Be sure to turn the air conditioner off before connecting the cable to the PCB.



<Equipment>

- 1: Cable
- 2: USB power supply for cable
- 3: Connection harness 1 (for split)
- 4: Connection harness 2 (for SkyAir)

\*Additional connecting harness is required for Altherma LT (BB type) indoor units (CA type or later models do not need for this).



D-checker cable (USB type)



#### STE-01 (TCP/IP connection)



With STE-01 (service tool expander by Raspberry-Pi platform, you can connect Dchecker by TCP/IP connection (Wi-Fi or internet) → please refer to manual for more details

<Connecting the cable>

1. Attach the connection harness (3 or 4) to the cable (1) as appropriate for the AC unit's connection type. → In case of USB type, skip to step2

• SkyAir

Since the cable can be connected to the blue 5-pin connector (CN-IF) on the outdoor unit's control PCB, choose the appropriate connector adapter.

• Split

The connector varies with the control PCB type (isolated or non-isolated).

• Altherma LT indoor units (BB type only)

A dedicated cable is required for this type of equipment (see note above).

2. Connect the cable to the computer's serial port.

(If the computer does not have a serial port, use the USB converter.)  $\rightarrow$  In case of USB type, connect USB cable (6) between USB type cable (5) and PC and skip to step4

- 3. Connect the DC connector on the USB power supply (2).
- 4. Connect the connection harness to the PCB connector.

### 3. Launching and Exiting D-checker

### This chapter describes how to launch and exit D-checker, how to use the menu window, and how to configure options.

#### 3-1. Launching D-checker for the first time

Available functionality is limited when you launch D-checker for the first time until you enter certain information. Register the service office name and person on the "Options" window. Once you have set this information, you will be able to use the "Recording (F1)," "Play (F2)," "Import legacy data (F3),""Mobile App Data Import (F4)," and "Customer info. (F5)" functions.

	l l	Options	— D	×
(Daikin Air Conditioner Monitoring Tool)		COM port	~	
Recording (F1)		Unit of measure	kgcm2/C v	
Play (F2)		Sampling rate	10sec v	
Import legacy data (F3)		Sampling time	<ul> <li>O0 → Days 00 → Hours 05 → Min.</li> <li>Manual stop</li> </ul>	
Mobile App Data import (F4)		Graph setting	Y1         Y2         Y3         X-axis range           Max.         100         1000         10 min. ~	
Customer info.(F5)		(default setting)	Min. 0 0 0	
Options (F6)	~	Service office Responsible person		
SS person / name has not assigned yet.		Language	English v	
Exit (F12)		Update data label defi	nition files OK (F1) Back (Esc)	

#### <u>3.2 Menu</u>

This section describes the menu window.

IKIN	D-Checker Version 3.6.2. (Daikin Air Conditioner Monitoring Tool)
	Recording (F1)
	Play (F2)
	Import legacy data (F3)
	Mobile App Data import (F4)
	Customer info.(F5)
	Options (F6)
	Exit (F12)

#### [Recording (F1)]

Records operation data.

(For more information, see "5. Recording operation data.")

#### [Play (F2)]

Plays recorded operation data. (For more information, see "6. Playing operation data.")

#### [Import legacy data (F3)]

Imports data gathered with D-checker Ver. 2.18 or earlier. (For more information, see "8. Importing legacy data.")

#### [Mobile App Data Import (F4)]

Imports data gathered with D-checker app for Android or iOS. (For more information, see "9. Importing mobile app data")

#### [Customer info. (F5)]

Provides customer-specific operations. (For more information, see "4. Setting customer information.")

#### [Options (F6)]

Configures COM port, units, and other settings. (For more information, see "3-3. Options.")

#### [Exit (F12)]

Exits D-checker.

### 3. Launching and Exiting D-checker

#### 3-3. Options

Click the "Options (F6)" button to display the "Options" window, which allows you to configure settings needed in order to record operation data and set visual information used when playing data.

D-Checker Version 3.6.2.1	P Options	
(Daikin Air Conditioner Monitoring Tool)	1 COM port COM14 V	
Recording (F1)	2 Unit of measure kgcm2/C v	
Play (F2)	3 Sampling rate	
Import legacy data (F3)	Sampling time	
Mobile App Data import (F4)	Y1         Y2         Y3         X-axis range           A         Graph setting         Max.         100         10000         10 min. ~	
Customer info.(F5)	Image: Contract of the setting         Min.         0         0         0           Service office	
Options (F6)	Responsible person	
Exit (F12)	7 Update data label definition files 8 OK (F1) Bac	ck (Esc)

#### 1. Set the COM port to use.

(You can choose any currently recognized port.)

NC_RPi	•	192.168.237.1	NextChecke	rRPi "NC_RPi". IP address information is automatically obtained from the tool.
TCP/IP	•	127.0.0.1	AndroidAP	If connected to other Wi-Fi (internet), enter IP address of USB modem connected to Raspberry-Pi tool

- 2. Choose the unit of measure (kgcm/C, MPa/C, bar/C, or psi/F).
- 3. Choose the sampling rate (5, 10, 20, 30, 60, 120, or 300 sec.).

If you need to automatically stop recording after a certain mount of time has elapsed, set the sampling time.

\*If you do not need to automatically stop recording, choose "Manual stop."

4. Set the length (in the form of minimum and maximum values) of the Y-axis (which displays analog data values) used on the "Graph view" tab.

Set the range for the X-axis (which displays the time axis range) used on the "Graph view" tab.

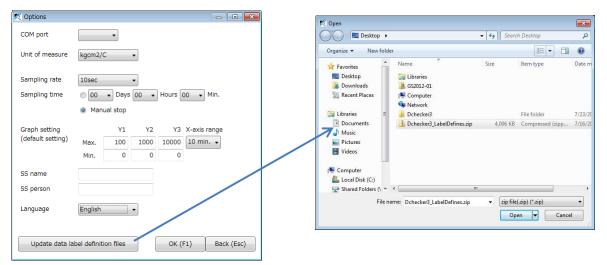
- 5. Enter the service office name and responsible person.
- 6. Choose preferred language as the display language.
- 7. Label definition files are used when importing data. (More details in next page)
- 8. Click "OK (F1)" to save changes.
- 9. Click "Back (Esc)" to discard changes.

## 3. Launching and Exiting D-checker

#### Update data label definition files

In Options screen, when [Update data label definition files] button is pressed, data label file (zip file) selection window will appear By locating correct data label file and pressing [Open] button, data label definition files in zip file will be imported.

- Existing data label definition files with same name as imported files will be overwritten by new files.
- Existing data label definition files with different names from imported files will be retained.



◆ What is data label definition file?

They are external files which lists names (meanings) of data transmit from products. If incorrect data label definition file was selected, incorrect data name could be listed in D-checker screen.

#### 3-4. Exiting D-checker

You can exit D-checker by clicking the "Exit (F12)" button.

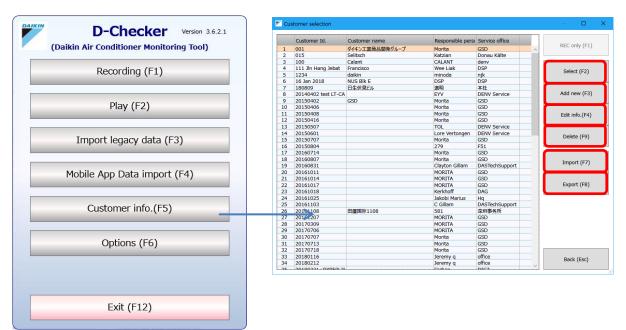
D-Checker Version 3.6.2.1 (Daikin Air Conditioner Monitoring Tool)				
Recording (F1)				
Play (F2)	6			
Import legacy data (F3)		Exit application?		
Mobile App Data import (F4)			OK (F1)	Cancel (Esc)
Customer info.(F5)				
Options (F6)				
Exit (F12)	<b> </b> ]			

When you exit the application, a confirmation dialog box will be displayed. Click "OK (F1)."

#### This chapter describes how to set customer information.

#### <u>4-1. Registering, choosing, editing, deleting, importing, and exporting customer</u> <u>information</u>

Click the "Customer info. (F5)" button to display the "Customer selection" window. This section describes the buttons used to handle customer information.



#### [Select (F2)]

Uses the customer information that has been selected in the list.

#### [Add new (F3)]

Registers new customer information.

#### [Edit info. (F4)]

Allows you to edit the customer information that has been selected in the list.

#### [Delete (F9)]

Deletes the customer information that has been selected in the list.

\*Exercise caution since when customer information is deleted, the network map and recorded data associated with the selected customer will also be deleted.

#### [Import (F7)]

Imports operation data recorded by another D-checker and the associated customer information. \*Import function only supports zip files exported by "Export(F8)" button (see 4-6 for details).

#### [Export (F8)]

Outputs the recorded operation data and the associated customer information as a ZIP file.

#### **Recommended practice**

It is recommended to create a new customer information file for each customer and equipment location. This approach will allow you to manage information appropriately for each customer and to maintain and check model data in an appropriate manner.

#### 4-2. Registering new customer information

Click the "Add new" button on the "Customer selection" window to start the customer information registration process. New customer information can be registered on this window.

🖉 Cust	omer selection				– 🗆 X	l	🐔 Customer info.			
	Customer Id.	Customer name	Responsible pers	Service office	pro esta (ra)		Customer Id.	ddd		
	001	ダイキン工業商品開発グループ	Morita	GSD	REC only (F1)		Customer Id.	aaa		
2	015	Selitsch	Katzian	Donau Kälte						
3	100	Calant	CALANT	denv			Customer name			
		Francisco	Wee Liak	DSP	Select (F2)					
5	1234	daikin	minoda	njk	Select (F2)		Div./Sec./Dept.			
6	16 Jan 2018	NUS BIK E	DSP	DSP			ым, бес, берс.			
7	180809	日生伏見ビル	道明	本社						
8	20140402 test LT-CA		EYV	DENV Service	Add new (F3)		Person name			
9	20150402	GSD	Morita	GSD						
10	20150406		Morita	GSD			Address			
	20150408		Morita	GSD	Edit info.(F4)		, address			
12	20150416		Morita	GSD	Loic mon(r i)					
13	20150507		TOL	DENV Service			Phone			
14	20150601		Lore Vertongen	DENV Service	Delete (F9)					
15	20150707		Morita	GSD		Fax				
16	20150804		279	F51			- ux			
17	20160714		Morita	GSD						
18	20160807		Morita	GSD			Mail			
19	20160831		Clayton Gillam	DASTechSupport	Import (F7) -					
20	20161011		MORITA	GSD						
21	20161014		MORITA	GSD						
22	20161017		MORITA	GSD	Export (F8)		D			
	20161018		Kerkhoff	DAG			Remarks			
24	20161025		Jakobi Marius	Hg						
	20161103		C Gillam	DASTechSupport			Last update			
26	20161108	田庫国际1108	581	深圳事务所						
	20161207		MORITA	GSD						
	20170309		MORITA	GSD					OK (F1)	Back (Esc)
	20170706		MORITA	GSD						
	20170707		Morita	GSD						
	20170713		Morita	GSD						
	20170718		Morita	GSD						
	20180116		Jeremy q	office						
	20180212		Jeremy g	office	Back (Esc)					

- The customer ID is used to identity customers. \*You must enter a customer ID.
- The customer ID and customer name are shown on the "Customer selection" window.
- Other information is for informational purposes.
- Click "OK (F1)" to register the customer.
- Click "Back (Esc)" to cancel the registration.

#### 4-3. Recording and playing operation data

Click the "Select" button on the "Customer selection" window to open the "Network map selection" window, which allows you to perform the operations described below.

Custo	mer selection					- 0
c	Customer Id.	Customer name	Responsible perso	Service office		
1 0	001	ダイキン工業商品開発グループ	Morita	GSD	~	REC only (F1)
2 0	15	Selitsch	Katzian	Donau Kälte		
3 1	.00	Calant	CALANT	denv		
4 1	11 Jin Hang Jebat	Francisco	Wee Liak	DSP		Select (F2)
5 1	234	daikin	minoda	njk		Select (F2)
6 1	6 Jan 2018	NUS BIK E	DSP	DSP		
7 1	80809	日生伏見ビル	道明	本社		
8 2	0140402 test LT-CA		EYV	DENV Service		Add new (F3)
9 2	0150402	GSD	Morita	GSD		
10 2	0150406		Morita	GSD		
11 2	0150408		Morita	GSD		Edit info.(F4)
12 2	0150416		Morita	GSD		
13 2	0150507		TOL	DENV Service		
14 2	0150601		Lore Vertongen	DENV Service		
15 2	0150707		Morita	GSD		Delete (F9)
16 2	0150804		279	F51		
17 2	0160714		Morita	GSD		
18 2	0160807		Morita	GSD		
19 2	0160831		Clayton Gillam	DASTechSupport		Import (F7)
20 2	0161011		MORITA	GSD		
21 2	0161014		MORITA	GSD		
22 2	0161017		MORITA	GSD		Export (F8)
23 2	0161018		Kerkhoff	DAG		
24 2	0161025		Jakobi Marius	Hq		
25 2	0161103		C Gillam	DASTechSupport		
26 2	0161108	田厦国际1108	581	深圳事务所		
27 2	0161207		MORITA	GSD		
28 2	0170309		MORITA	GSD		
29 2	20170706		MORITA	GSD		
30 2	0170707		Morita	GSD		
31 2	0170713		Morita	GSD		
32 2	0170718		Morita	GSD		
33 2	0180116		Jeremy q	office		Back (Esc)
34 2	0180212		Jeremy q	office		Back (ESC)
35	0100001.000000.01		Earban	DICZ	- in the second se	

	Map name	Protocol	Model	REC started	Period		
1	20150402-151155	e		2015/04/02 15:14:20	00.00:03:25	~	Play (F1)
2	20150402-152747	0		2015/04/02 15:29:30	00.00:01:45		
3	20150406-152658	0	VRV3	2015/04/06 15:30:50	00.00:01:05		
4	20150406-153217	0		2015/04/06 15:33:15	00.00:16:15		New (F2)
5	20150406-171433	0		2015/04/06 17:15:15	00.00:03:10		
≻	20150513-152714	0	VRV4R	2015/05/13 15:29:00	00.00:03:10		
7	20150513-154243	0	VRV4R(single)	2015/05/13 16:03:00	00.00:03:25		Edit MapName
8	20180802-182326	0	RQYQ	2018/08/02 18:24:15	00.00:21:15		(F3)

#### [Play (F1)]

Plays the operation data that has been selected in the list.

#### [New (F2)]

Registers new equipment information and records data.

#### [Edit MapName (F3)]

Allows you to edit the equipment information for the operation data that has been selected in the list.

#### [Delete (F9)]

Deletes the operation data that has been selected in the list.

#### 4-4. Importing customer information

Click the "Import" button on the "Customer selection" window to display the dialog box shown below, which is used to import previously recorded operation data and associated customer information.

🖉 Cu	stomer selection				– 🗆 ×	🕅 Open	
	Customer Id.	Customer name	Responsible perso	Service office		C→ → Dchecker3 →	✓ 4y Search Dchecker3
1	001	ダイキン工業商品開発グループ	Morita	GSD	REC only (F1)		ou
2	015	Selitsch	Katzian	Donau Kälte		Organize 🔻 New folder	🕮 🔻 🔟 🌘
3	100	Calant	CALANT	denv		A Name	
4		Francisco	Wee Liak	DSP	Select (F2)	Favorites Ame	Date modified Type
5	1234	daikin	minoda	njk	Select (F2)		
6	16 Jan 2018	NUS BIK E	DSP	DSP		💻 Desktop 🛛 🎍 ja	2014/05/27 23:06 File fold
7	180809	日生伏見ビル	道明	本社		🐌 Downloads 🛛 🔒 Storage	2014/06/07 1:06 File fold
8	20140402 test LT-CA			DENV Service	Add new (F3)		
9	20150402	GSD	Morita	GSD		🔛 Recent Places 🛛 🎍 x64	2014/05/27 23:06 File fold
10	20150406		Morita	GSD		🕌 SkyDrive 🍡 👪 x86	2014/05/27 23:06 File fold
11	20150408		Morita	GSD	Edit info.(F4)		
12	20150416		Morita	GSD		🗉 🔒 zh	2014/05/27 23:06 File fold
13	20150507		TOL	DENV Service		🔚 Libraries 🚯 GSD.zip	2014/06/07 1:11 Compre
14	20150601		Lore Vertongen	DENV Service	Delete (F9)		2014/00/07 1.11 Comple
15	20150707		Morita	GSD	Delete (19)	🎍 Apps	
16	20150804		279	F51		Documents	
17	20160714		Morita	GSD			
18	20160807		Morita	GSD	Import (F7)	🌙 Music 🥿	
19	20160831		Clayton Gillam	DASTechSupport	impore (r/)	Pictures	
20	20161011		MORITA	GSD			
21	20161014		MORITA	GSD		Podcasts	
22	20161017		MORITA	GSD	Export (F8)	Videos	
23	20161018		Kerkhoff	DAG		La videos	
24	20161025		Jakobi Marius	Hq			
25	20161103		C Gillam	DASTechSupport		🖳 Computer	
26	20161108	田厦国际1108	581	深圳事务所		r ← ← ←	III
27	20161207		MORITA	GSD			
28	20170309 20170706		MORITA	GSD GSD		File name: GSD.zip	<ul> <li>zip file(.zip) (*.zip)</li> </ul>
29	20170706 20170707		MORITA	GSD		And Name (050.2)p	(and conclusibly ( units)
30							Open 🗸 Cancel
31	20170713		Morita	GSD			open 🖓 Cancer
32 33	20170718 20180116			office			
33	20180116		Jeremy q	office	Back (Esc)		
	20180212		Jeremy q	office			

- Select a customer information file that has been saved as a ZIP file and click the "Open" button.
- If the information is successfully imported, a list of the customer information will be shown.

#### 4-5. Exporting customer information

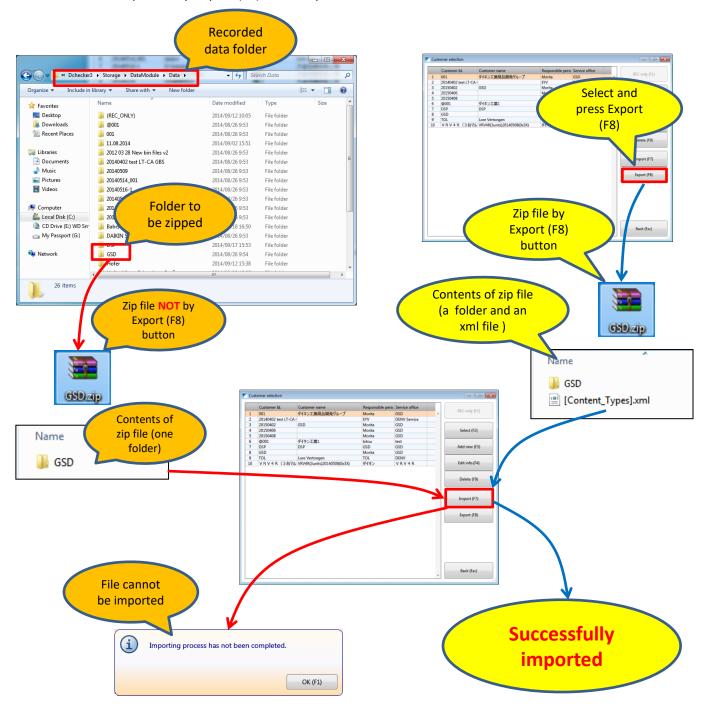
Click the "Export" button on the "Customer selection" window to display the dialog box shown below, which is used to output recorded operation data and associated customer information as a ZIP file.

C	Customer Id.	Customer name	Responsible pers	Service office			
1 0	01	ダイキン工業商品開発グループ	Morita	GSD	REC only (F1)		
	15	Selitsch	Katzian	Donau Kälte		C	
3 1	00	Calant	CALANT	denv		Browse For Folder	
	11 Jin Hang Jebat	Francisco	Wee Liak	DSP		Browse For Folder	
	234	daikin	minoda	njk	Select (F2)		
		NUS BIK E	DSP	DSP			
	80809	日生伏見ビル	道明	本社		Please select the destination folder.	
8 2	0140402 test LT-CA		EYV	DENV Service	Add new (F3)	001.zip file will be created.	
9 2	0150402	GSD	Morita	GSD		out.zip nie will be created.	
10 2	0150406		Morita	GSD			
11 2	0150408		Morita	GSD	Edit info.(F4)		
12 2	0150416		Morita	GSD	2010 100 (14)		
13 2	0150507		TOL	DENV Service		E Desktop	
14 2	0150601		Lore Vertongen	DENV Service			
	0150707		Morita	GSD	Delete (F9)	Dibraries	
16 2	0150804		279	F51			
17 2	0160714		Morita	GSD			
18 2	0160807		Morita	GSD		Image:	
19 2	0160831		Clayton Gillam	DASTechSupport	Import (F7)		
20 2	0161011		MORITA	GSD		D State Computer	
21 2	0161014		MORITA	GSD			
22 2	0161017		MORITA	GSD	Export (F8)	🔜 🔍 🖣 Network	
23 2	0161018		Kerkhoff	DAG		IN INCLINIC	
24 2	0161025		Jakobi Marius	Hq			
25 2	0161103		C Gillam	DASTechSupport		Control Panel	
26 2	0161108	田厦国际1108	581	深圳事务所			
27 2	0161207		MORITA	GSD		🗑 Recycle Bin	
	0170309		MORITA	GSD		mecycle bill	
29 2	0170706		MORITA	GSD			
30 2	0170707		Morita	GSD			
31 2	0170713		Morita	GSD			
	0170718		Morita	GSD			
33 2	0180116		Jeremy q	office	Deals (Fee)		
34 2	0180212		Jeremy g	office	Back (Esc)		
35	0100001.000000.00		Cashan	DIC7		Make New Folder OK	Cancel

- Select the customer information you wish to output from the list and click the "Export" button.
- When the dialog box is displayed, select the destination folder and click "OK." (The customer ID will be used as the filename.)

#### 4-6. Caution regarding importing recorded files

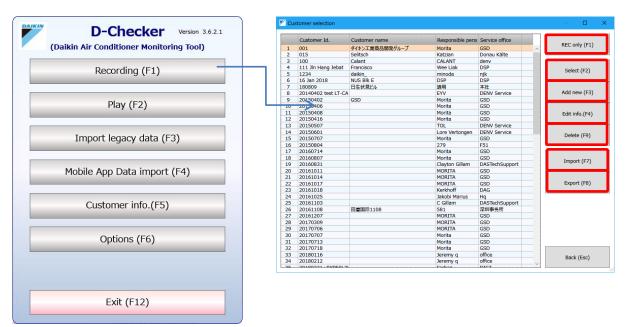
Import (F7) button function in "Customer selection" screen only works if you locate compressed (zipped) files which was made by Export (F8) button function. If you made zip file directly from saved recordings folder by general file compression software such as Winzip, etc, those zip files cannot be imported by Import (F7) button operation.



#### This chapter describes how to record operation data.

### 5-1. Registering, selecting, editing, deleting, importing, and exporting customer information

Click the "Recording (F1)" button to display the "Customer selection" window. This section describes the functionality provided by each button for recording operation data.



#### [REC only (F1)]

Records data without using customer information.

#### [Select (F2)]

Uses the customer information that has been selected in the list.

#### [Add new (F3)]

Opens the "Customer info." window.

#### [Edit info. (F4)]

Allows you to edit the customer information that has been selected in the list of registered customer information.

#### [Delete (F9)]

Deletes the customer information that has been selected in the list of registered customer information.

\*Exercise caution since when customer information is deleted, the network map and recorded data associated with the selected customer will also be deleted.

#### [Import (F7)]

Imports operation data recorded by another D-checker and the associated customer information. \*Import function only supports zip files exported by "Export(F8)" button (see 4-6 for details).

#### [Export (F8)]

Outputs the recorded operation data and the associated customer information as a ZIP file.

#### 5-2. Registering new customer information

Click the "Add new" button on the "Customer selection" window to start the customer information registration process. New customer information can be registered on this window.

🚩 Cus	omer selection				– 🗆 X	🚩 Customer info.		×
	Customer Id.	Customer name	Responsible pers	C Service office				
1	001	ダイキン工業商品開発グループ	Morita	GSD	REC only (F1)	Customer Id.	- 4.1	
		Selitsch	Katzian	Donau Kälte		customer Id.	Daikin	
3	100	Calant	CALANT	denv				
4	111 Jin Hang Jebat	Francisco	Wee Liak	DSP	n 1 + (mn)	Customer name		
5	1234	daikin	minoda	njk	Select (F2)	Customer nume		
6		NUS BIK E	DSP	DSP				
7	180809	日生伏見ビル	道明	本社		Div./Sec./Dept.		
8	20140402 test LT-CA		EYV	DENV Service	Add new (F3)			
9	20150402	GSD	Morita	GSD				
10	20150406		Morita	GSD		Person name		
11	20150408		Morita	GSD	Edit info.(F4)			
12	20150416		Morita	GSD	cont morter by			
13	20150507		TOL	DENV Service		Address		
14	20150601		Lore Vertongen	DENV Service	D-1-1- (50)			
15	20150707		Morita	GSD	Delete (F9)	Phone		
16	20150804		279	F51		Priorie		
17	20160714		Morita	GSD				
18	20160807		Morita	GSD	True and (FT)	Fax		
19	20160831		Clayton Gillam	DASTechSupport	Import (F7)	1 dA		
20	20161011		MORITA	GSD				
21	20161014		MORITA	GSD		Mail		
22	20161017		MORITA	GSD	Export (F8)			
23	20161018		Kerkhoff	DAG				
24	20161025		Jakobi Marius	Hq				
25	20161103		C Gillam	DASTechSupport				
26	20161108	田厦国际1108	581	深圳事务所		Demonstration (1997)		
27	20161207		MORITA	GSD		Remarks		
28	20170309		MORITA	GSD				
29	20170706		MORITA	GSD		Last update		
30	20170707		Morita	GSD		Lust update		
31	20170713		Morita	GSD				
32	20170718		Morita	GSD				
33	20180116		Jeremy g	office	Back (Esc)		OK (F1) Back (Es	SC)
34	20180212		Jeremy q	office	BdCk (ESC)			
25	20100221 ADX0E0L2	L	Carban	DIC7	· .			

- The customer ID is used to identity customers. \*You must enter a customer ID.
- The customer ID and customer name are shown on the "Customer selection" window.
- Other information is for informational purposes.
- Click "OK (F1)" to register the customer.
- Click "Back (Esc)" to cancel the registration.

#### 5-3. Configuring equipment information

Select a customer on the "Customer selection" window to display the "Network map selection" window, which allows you to register new equipment information and edit or delete existing equipment information.

Map name	Protocol	Model	REC started	Period	
20150402-151155	0		2015/04/02 15:14:20	00.00:03:25	Record (F1)
20150402-152747	0		2015/04/02 15:29:30	00.00:01:45	
20150406-152658	0	VRV3	2015/04/06 15:30:50	00.00:01:05	
20150406-153217	0		2015/04/06 15:33:15	00.00:16:15	New (F2)
20150406-171433	0		2015/04/06 17:15:15	00.00:03:10	
20150513-152714	0	VRV4R	2015/05/13 15:29:00	00.00:03:10	
20150513-154243	0	VRV4R(single)	2015/05/13 16:03:00	00.00:03:25	Edit MapName
20180802-182326	0	RQYQ	2018/08/02 18:24:15	00.00:21:15	(F3)

#### [Record (F1)]

Records data using the equipment information that has been selected in the list.

#### [New (F2)]

Registers new equipment information and records data.

#### [Edit MapName (F3)]

Allows you to edit the equipment information that has been selected in the list.

#### [Delete (F9)]

Deletes the equipment information that has been selected in the list.

#### 5-4. Entering equipment information

Click the "New" button on the "Network map selection" window to open the "Protocol detection" window, which allows you to register and configure information about the connected equipment.

#### 1. Before detection

🌮 Protocol detection			×
Map name	20200413-141255		
System name			
Model			
Data label file			~
	Revert to the original	text file used for recording.	
Protocol	-		
Indoor units	0		
	COM port	COM14	
Auto select (F2)	With BTSC/V	Vi-Fi	
SkyAir, VRV, Refrigeration (F3)			
Split (F4)			
Chiller (F5)			
Altherma (F6)	OK (F1)	Back (Esc)	

- To detect the connected equipment, choose "Auto select," "SkyAir, VRV, Refrigeration," "Split," "Chiller," or "Altherma."
- Once the connection to the equipment is detected, the map name, system name, protocol, and indoor units will be displayed.
- The default value for the map name and system name is "yyyymmdd-hhmmss." Edit the map name as necessary.
  - To make it easier to manage recorded operation data later, change the map name to a more descriptive phrase. Choose "Indoor" when registering outdoor models.
- If you use STE-01 (Wi-Fi connection) or BTSC (Bluetooth COM port), "With BTSC/Wi-Fi" check box must be ticked.

#### Caution

If a "Protocol detection failure" message is displayed, verify that the cable is securely connected and check the system settings to verify that the proper COM port has been selected. Then click "Auto select." In case of "standby electricity saving function" activated for Split products, it is necessary to cancel this mode by switch on indoor unit by remote controller (fan mode, etc.).

#### 2. After detection

Protocol detection				×
Map name	20200413-141255			
System name	20200413-141255			
Model				
Data label file				~
	Revert to the original	text file u	sed for recording.	
Protocol	@			
Indoor units	1			
	COM port	COM14		
Auto select (F2)	With BTSC/V	Vi-Fi		
SkyAir, VRV, Refrigeration (F3)				
Split (F4)				
Chiller (F5)				
Altherma (F6)	OK (F1)		Back (Esc)	

- If you know the model name for the connected equipment, select it from the "Data label file" drop-down menu. If not, choose "Default."
  - \* If you choose the wrong data label file, the data may not be displayed properly.
- If the target equipment is a Split AC, choose "MULTI\_SPLIT" or "SINGLE\_SPLIT."
- Click the "OK (F1)" button to proceed to the "Network map display" window.
- If D-checker is connected to an Altherma LT indoor unit, do not click any button other than "Altherma." Doing so may prevent the data from being displayed properly. If the outdoor unit is compatible, outdoor unit data will be displayed properly.

#### 5-5. Displaying the network map

Once the equipment information has been entered, the "Network map" tab for the connected equipment will be displayed. This tab displays connection information for indoor and outdoor units.

🚩 Data viewer (20150402)					– 🗆 X								
Network map (F1) Graph view (F2) Op.	All data (F3) Op. Selected	data (F4) Label editor (F5	i)		Err: 0								
Map name : 20200413-141255 Data label file : VRV3Q(RQYQ_RQQ-PY1_1UNIT)													
Unit address Model RQYQ10P	If there are undetected uni	ts, please retry from protoc	col detection screen.										
Unit address 0													
Model Location													
Elapsed time	Edit model/loc.(F6)	Record setting (F7)	Start Rec. (F8)	Print Screen (F9)	Back (Esc)								

#### [Edit model/loc. (F6)]

Allows you to enter and edit the model name and location.

#### [Record setting (F7)]

Opens the "Options" window.

#### [Start Rec. (F8)]

Starts recording.

#### [Print Screen (F9)]

Saves a screenshot of the currently displayed window as a JPEG image file.

#### Caution

Do not change the computer's time setting after the network map has been displayed. If the time is changed to a time that is later than the current time, the order of recorded data will be lost, and data will not play properly. If there are units which are not listed in the network map, please go back to protocol detection screen and execute unit scan again (if number of units are different from existing network map due to addition of indoor units, carry out same process).

#### 5-6. Starting and stopping recording of operation data

This section describes how to record operation data for the connected equipment.

🌮 Data viewer (20150402)					– <b>D</b> X
Network map (F1)         Graph view (F2)         Op.           Map name         :         20200413-141255         Data I					Err: 0
Unit address Model RQYQ10P Location	If there are undetected uni	ts, please retry from protoc	ol detection screen.		
Unit address 0 Model Location					
Elapsed time	Edit model/loc.(F6)	Record setting (F7)	Start Rec. (F8)	Print Screen (F9)	Back (Esc)

- Click the "Start Rec. (F8)" button to start recording operation data.
- The label of the "Start Rec. (F8)" button will change to "Stop Rec. (F8)" while recording is in progress. Click "Stop Rec. (F8)" to stop recording of operation data.

\*Recording of operation data cannot be stopped with the "X" button at the top right corner of the window.

#### **Troubleshooting**

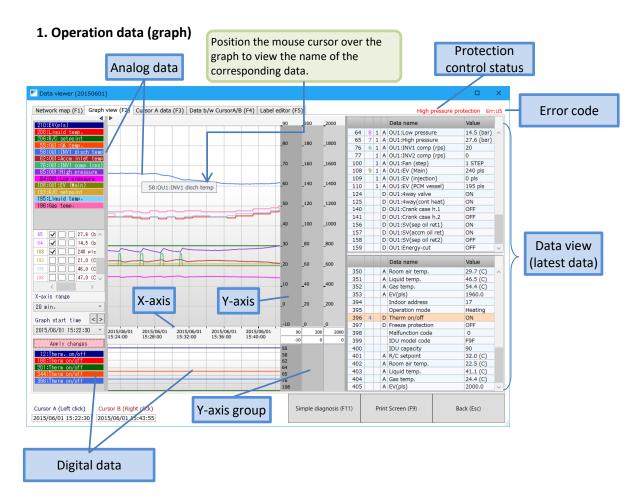
If D-checker freezes while recording data, you can click the "X" button at the top right corner of the window while pressing Shift+Ctrl on the keyboard.

#### Caution

Do not disconnect cable between equipment and PC <u>BEFORE</u> completion of recording process (until "Back" button will be active again). By this action, data saving process could hang and recorded data will be lost.

#### 5-7. Displaying operation data

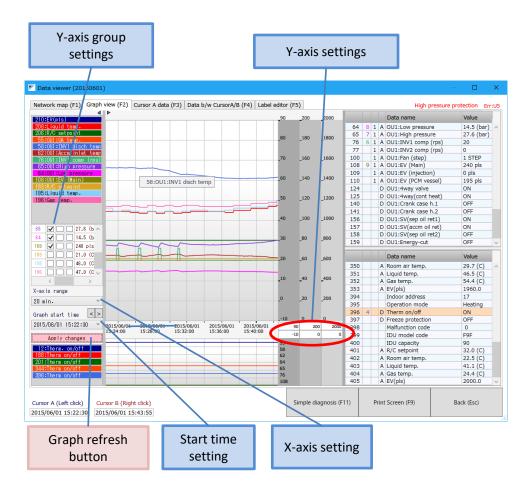
Operation data can be viewed using three methods: "Graph view (F2)," "Op. All data (F3)," and "Op. Selected data (F4)."



• Position the mouse cursor over the graph to display the name of the corresponding data.

#### For your reference

EV pulse data for indoor units connected to BP unit is displayed in VRV indoor unit value range (0-2000pls), it is necessary to convert reading value to split indoor EV value range (0-480pls).



- X-axis setting (time display interval) Set the X-axis (time axis) display interval with the drop-down menu. (Choose from 10 min., 20 min., 30 min., and 60 min.)
- Y-axis settings Set the upper and lower limits for the Y-axis (analog data value). You can set three Y-axis values (Y1, Y2, and Y3, from the top).
- Y-axis group settings Set the Y-axis used to display graph data from 1 to 3.
- Once any setting has been changed, the color of the "Apply changes" button will change. Click the "Apply changes" button to apply the settings to the graph.

#### 2. Op. All data

_			(20150402) F1) Graph view (F2) Op	. All data (F3)	Op. Selected d	lata (F4) Label editor (F5)		N	o protection contro Err:U1
			Data name	Value		Data name	Value	Data name	Value
1 2 3 4 5 6 7 8 9 10 11 12 13 14		D	*Refrigerant type Sensor Data Qty INV compressor Qty STD compressor Qty Expansion Valve Data Qty Crank Case Heater Qty Valve Qty Solenoid valve Qty Max. connectable Indoor un compressor Notes Operation Mode Thermostat ON/OFF Restart Standby	R410A 16 1 2 1 3 2 3 9 9 nit 65 Fan Only OFF OFF	57         1           58         1           59         1           60         1           61         1           62         1           63         1	A DU1:R1T (air) A DU1:R2T (receiver) A DU1:R2T (receiver) A DU1:R3T (M2C dischart A DU1:R3T (M2C dischart A DU1:R3T (M2C dischart A DU1:R4T (receiver liq.) A DU1:R4T (receiver liq.) A DU1:R4T (liq. pipe) A DU1:R5T (suction) A	ge) 22.5 (C) ge) -34.7 (C) -34.7 (C) et) -47.5 (C) -47.5 (C) -47.5 (C)	80         5         1         A OUI:NV1 (reque           88         1         D OUI: STD1 Com           92         D OUI: STD2 Com           94         D OUI:STD2 Com           95         1         A OUI:FN (reque           96         1         A OUI:STD2 Com           96         1         A OUI:STD2 Com           96         3         A OUI:FV (wind)           105         3         A OUI:FV (wind)           106         3         A OUI:FV (wind)           102         D OUI:Crank case         D           123         D OUI:Crank case         D           131         D OUI:SV (mit m)         D           132         D OUI:SV (mit m)         D	pressor         OFF           OFF         0           0         0           hex)         0           hexel         0           hexel         0           hexter         0           hexter         0           0         0           hexter         0           0         0           hexter         0           0         0           0         0           0         0           0         0           in)         0
15 16		D	Startup Control Defrost Operation	OFF OFF	71 7 72	A OU1:High Pressure(T) A OU1:High Pressure(Iiq.)	-323.1 (C) 1.0 (kgcm2 ~	134 D OU1:SV (bypass) 136 D OU1:SV (return of	) OFF
147 148 149 150			Data name [0]Indoor Unit Address [0]Indoor Operation Mode [0]Thermostat ON/OFF [0]Freeze Protection	Value 0 Fan Only OFF OFF	151 152 153 154 1	Data name [0]Error Code [0]Indoor Unit Model Coi [0]Indoor Unit Capacity A [0]R/C Setpoint	Value 0 ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^	Data name           155         1         A         [0]Indoor Suction           156         1         A         [0]Indoor Liquid           157         1         A         [0]Indoor Case Pi           158         3         A         [0]Indoor EV (pls)	Pipe Temp. 0.0 (C) pe Temp. 0.0 (C)
					~		~		~
Elaps	ed tii	ne					Start Rec. (F8)	Print Screen (F9)	Back (Esc)
]						Record setting (F7)	Start Net. (PS)		
ļ	,	Ţ	Data name					Right-click w	
	,			essure (k	(g/cm2)	Value			ith the mou
_	, 0		A QU1:Low Pr			Value 14.2 (kgcm	statt Rec. (ro)	Right-click w on the graph	ith the mou
1	1	1	A <mark>QU1:Low Pr</mark> A OU1:High P	ressure (	kg/cm2	Value 14.2 (kgcm	stat her. (re)	Right-click w on the graph	ith the mou n. choose eithe
1 : 7 (	1 6	1	A <mark>QU1:Low Pr</mark> A OU1:High P A OU1:INV1 F	ressure ( requency	(kg/cm2 y (rps)	Value 14.2 (kgcm ) 14.2 (kgcm	solt net. (re)	Right-click w on the graph * You can c	ith the mou n. choose eithe
4 : 7 ( 3	1 6	1	A OU1:Low Pr A OU1:High P A OU1:INV1 F	ressure ( requency requency	(kg/cm2 y (rps) y (rps)	Value 14.2 (kgcm ) 14.2 (kgcm	stat net. (re)	Right-click w on the graph * You can c "Digital d	rith the mou n. choose eithe ata."
4 : 7 ( 3 1	1	1	A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F	ressure ( requency requency equency	(kg/cm2 y (rps) y (rps)	Value 14.2 (kgcm ) 14.2 (kgcm 0 0	Sidi Nec. (79)	Right-click w on the graph * You can c "Digital d Right-click w	ith the mou n. choose eithe ata." ith the mou
4 : 7 ( 8 1 9 ;	1 6 2	1 1 1 1 1 1 1	A QU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre	ressure ( requency requency equency	(kg/cm2 y (rps) y (rps)	Value 14.2 (kgcm ) 14.2 (kgcm 0 0 OFF STEP	Soft Net. (79)	Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t	ith the mount has been been been been been been been bee
4 : 7 ( 8 1 9 : 0	1 6 2	1 1 1 1 1 1	A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma	ressure ( requency equency ain) ection)	(kg/cm2 y (rps) y (rps)	Value 14.2 (kgcm ) 14.2 (kgcm 0 OFF STEP 0 pls	Soft Net. (76)	Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 ) 1 ) 9 ; 5 (	1 6 2 3	1 1 1 1 1 1	A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Inje	ressure ( requency requency ain) ection) Valve	kg/cm2 y (rps) y (rps) (step)	Value 14.2 (kgcm ) 14.2 (kgcm 0 0 0 0 0 0 0 0 0 0 0 0 0	Sidi Lee. (76)	Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mount has been been been been been been been bee
4 : 7 ( 8 .1 .9 : 20 :	1 6 2 3	1 1 1 1 1 1	A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Inje D OU1:4 Way	ressure ( requency requency ain) ection) Valve	kg/cm2 y (rps) y (rps) (step)	Value 14.2 (kgcm ) 14.2 (kgcm 0 0 0 0 0 0 0 0 0 0 0 0 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 ) 1 ) 9 ; 5 (	1 6 2 3	1 1 1 1 1 1	A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Inje D OU1:4 Way	ressure ( requency requency ain) ection) Valve	kg/cm2 y (rps) y (rps) (step)	Value 14.2 (kgcm ) 14.2 (kgcm 0 0 0 0 0 0 0 0 0 0 0 0 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 1 9 2 5 ( 6 2	1 6 2 3 0 1		A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Ma A OU1:EV (May D OU1:4 Way D OU1:4 Way	ressure ( requency equency in) ection) Valve Valve (C	(kg/cm2 y (rps) y (rps) (step) ontinuo	Value 14.2 (kgcm 0 0FF STEP 0 pls 0 pls 0FF 0 pls 0FF 0 pls 0FF 0 pls 0FF		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 1 9 2 5 ( 6 : 3 (	1 6 2 3 0 1 1 0 1		A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Ma A OU1:EV (May D OU1:4 Way D OU1:4 Way D OU1:4 Way D OU1:4 Way D OU1:4 Way D OU1:4 Way	ressure ( requency requency aguency aguency aguency aguency aguency aguency Valve Valve Valve Valve Valve Valve Valve Valve	(kg/cm2 y (rps) y (rps) (step) ontinuo	Value 14.2 (kgcm 0 0 0FF STEP 0 pls 0 pls 0 pls 0FF 0 pls 0FF 0 pls 0FF 0 pls 0FF 0 pls 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 - 9 : 5 ( 6 : 3 ( 4 :	1 6 2 3 0 1 1 0 1		A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Ma A OU1:EV (May D OU1:4 Way D OU1:4 Way	ressure ( requency requency aguency aguency aguency aguency aguency aguency Valve Valve Valve Valve Valve Valve Valve Valve	(kg/cm2 y (rps) y (rps) (step) ontinuo	Value 14.2 (kgcm 0 0 0FF STEP 0 pls 0 pls 0 pls 0FF 0 pls 0FF 0 pls 0FF 0 pls 0FF 0 pls 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 1 9 2 5 ( 6 : 3 ( 4 : 7 (	1 6 2 3 0 1 1 0 1 6		A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Ma A OU1:EV (May D OU1:4 Way D OU1:4 Way D OU1:4 Way D OU1:4 Way D OU1:4 Way D OU1:4 Way	ressure ( requency equency sin) valve Valve (Cu valve (Cu ressure (K ressure (K ressure (K	(kg/cm2 y (rps) y (rps) (step) ontinuo (g/cm2) kg/cm2) y (rps)	Value 14.2 (kgcm ) 14.2 (kgcm 0 0 0 0 0 0 0 0 0 0 0 0 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 1 9 2 5 ( 6 : 3 ( 4 : 7 ( 8	1 6 2 3 0 1 1 6		A OU1:Low Pr A OU1:High P A OU1:INV1 F A OU1:INV2 F A OU1:Fan Fre A OU1:EV (Ma A OU1:EV (Ma D OU1:EV (Inje D OU1:4 Way D OU1:4	ressure ( requency aquency ain) Valve Valve (Cu valve (Cu ressure (k ressure (k ressure (k requency requency	(kg/cm2 y (rps) y (rps) (step) ontinuo (g/cm2) kg/cm2) y (rps) y (rps)	Value 14.2 (kgcm 0 0 0 0 0 0 0 0 0 0 0 0 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap
4 : 7 ( 8 9 : 9 : 9 : 9 : 9 : 9 : 9 : 9 : 9 : 9 :	1 6 2 3 0 1 1 6 2 2		A OUI:Low Pr A OUI:High P A OUI:INV1 F A OUI:INV2 F A OUI:Fan Fre A OUI:EV (Ma A OUI:EV (Ma A OUI:EV (Ma D OUI:A Way D OUI:A W	ressure ( requency requency in) Valve Valve (Co valve (Co valve (Co requency requency ( in)	(kg/cm2 y (rps) y (rps) (step) ontinuo (g/cm2) kg/cm2) y (rps) y (rps)	Value 14.2 (kgcm 0 0 0 0 0 0 0 0 0 0 0 0 0		Right-click w on the graph * You can c "Digital d Right-click w Y-axis used t also be set o	ith the mou h. choose eithe ata." ith the mou o display gra n the "Grap

A: Analog data (Up to 16 can be displayed.) D: Digital data (Up to 6 can be displayed.)

- e to display data
  - "Analog data" or

e to choose the h data. (This can view" tab.)

Analog data."

#### 3. Op. Selected data

		Data name	Value					Data name	Value	- 1				Data name	Value	
2	Т	Sensor Data Qty	16	^	56	0	ιA	OU1:R1T (air)	21.3 (C)	~	80	5	1 /	OU1:INV1 frequency (rps)	0	
3		INV compressor Qty	1		57		L A	OU1:R2T (receiver)	-47.5 (C)		88	1		OU1: STD1 Compressor	OFF	
4		STD compressor Qty	2		58	1	L A	OU1:R31T (M1C discharge)	-47.5 (C)		89	2	[	OU1: STD2 Compressor	OFF	
5		Fan Data Qty	1		59		L A	OU1:R32T (M2C discharge)	22.7 (C)		96		1 /	OU1:Fan (step)	OFF	
6		Expansion Valve Data Qty	3		60		L A	OU1:R33T (M3C discharge)	-34.7 (C)		104		3 /	OU1:EV (main)	0	
7		4 Way Valve Data Qty	2		61		L A	OU1:R4T (receiver liq.)	-34.7 (C)		105		3 /	OU1:EV (main2)	0	
8		Crank Case Heater Qty	3		62		L A	OU1:R5T (heat exc. outlet)	-47.5 (C)		106		3 /	OU1:EV (subcool hex)	0	
9		Solenoid valve Qty	9		63		L A	OU1:R6T (liq. pipe)	-47.5 (C)		114		[	OU1:4 way valve	OFF	
10		Max. connectable indoor unit	65		64			OU1:R8T (suction)	-47.5 (C)		122		1	OU1:Crank case heater 1	ON	
11		Connected Indoor Unit Oty	1		65		L A	OU1:R9T (heat exc. deicer)	-47.5 (C)		123		1	OU1:Crank case heater 2	OFF	
12		Operation Mode	Fan Only		67		A	OU1:R7T (receiver outlet)	-47.5 (C)		124		1	OU1:Crank case heater 3	OFF	
13 0	0	Thermostat ON/OFF	OFF		68	3	A	OU1:Low Pressure	-2.8 (kgcm		130		[	OU1:SV (mix in)	OFF	
14	E	Restart standby	OFF		69	6	A	OU1:Low Pressure(T)	-117.5 (C)		131		1	OU1:SV (ref. gas in)	OFF	
15	C	Startup Control	OFF		70	4	A	OU1:High Pressure	-6.9 (kgcm		132		1	OU1:SV (main EV bypass)	OFF	
16	0	Defrost Operation	OFF		71	7	A	OU1:High Pressure(T)	-323.1 (C)		134		0	OU1:SV (bypass)	OFF	
17	0	Oil Return Operation	OFF	~	72		A	OU1:High Pressure(liq.)	1.0 (kgcm2	~	136		[	OU1:SV (return oil)	OFF	
		Data name	Value					Data name	Value	Т				Data name	Value	
47	Т	[0]Indoor Unit Address	0	~	151		Т	[0]Error Code	0	$\sim$	155		1 /	[0]Indoor Suction Air Temp.	0.0 (C)	
48		[0]Indoor Operation Mode	Fan Only		152			[0]Indoor Unit Model Code			156		1 /	[0]Indoor Liquid Pipe Temp.	0.0 (C)	
49	0	[0]Thermostat ON/OFF	OFF		153			[0]Indoor Unit Capacity			157		1 /	[0]Indoor Gas Pipe Temp.	0.0 (C)	
50	0	0 [0]Freeze Protection	OFF		154		L A	[0]R/C Setpoint	0.0 (C)		158		3 /	[0]Indoor EV (pls)	0	

- The necessary data is extracted from all operation data and displayed.
- This tab is useful when you only need to display a subset of the data.
- You can choose which data to display on the "Label editor" tab.

#### <"Label editor" tab>

Network map (E1) Create days (E2) C. All C. All	Dr. Colonand June (E4) abol editor (E5)		
Network map (F1) Graph view (F2) Op. All data (F3) O Data name (Origin Data name	Dp. Selected data (F4) abel editor (F5) Data name (Origin Data name	No protection contre Err.U1	
1         0         +Refrigerant type           2         ✓         Sensor Data Qty           3         ✓         INV compressor Q           4         ✓         STO compressor Q           5         ✓         Fan Data Qty           6         ✓         Expansion Valve D.           7         ✓         Way Valve Data i           8         ✓         Crank Case Heater           9         ✓         Solenoid valve Qty           10         ✓         Max. connectable i           11         ✓         Operation Mode           13         ✓         0         D Termostat ON/OF           14         ✓         D Restart standby         To           15         ✓         D Solycot Operation         ✓	56         √         0         1         A OUI;R1T (ar)           57         √         1         A OUI;R2T (receiver           58         √         1         A OUI;R2T (MC d           59         √         1         A OUI;R3T (MC d           59         √         1         A OUI;R3T (MC d           60         √         1         A OUI;R3T (MC d           61         √         1         A OUI;R3T (MC d           62         √         1         A OUI;R3T (MC d           63         √         1         A OUI;R3T (MC d           64         √         1         A OUI;R3T (MC d           65         √         1         A OUI;R3T (MC d           66         √         1         A OUI;R3T (MC d           67         A         A OUI;R3T (MC d)         Pressure           68         √         3         A OUI;M3T (MC exervity)           70         √         4         A OUI;High Pressure           70         √         4         A OUI;High Pressure           72         ✓         A OUI;High Pressure	80         ✓         5         1         A DU1:INVI frequen           88         ✓         1         D OUI: STD1 Compr           99         ✓         20         D OUI: STD1 Compr           99         ✓         20         D OUI: STD1 Compr           90         ✓         1         A OUI: STD1 Compr           90         ✓         1         A OUI: STD1 Compr           90         ✓         1         A OUI: STO1 Compr           101         ✓         3         A OUI: StV (mein)           105         ✓         3         A OUI: StV (mein)           114         ✓         D OUI: Crank case h           123         ✓         D OUI: Crank case h           133         ✓         D OUI: StV (mki h)           134         Ø         D OUI: StV (mki h)           132         Ø         D OUI: StV (mki h)           134         Ø         D OUI: StV (mki h)           134         Ø         D OUI: StV (mki h)           135         Ø <th< th=""><th></th></th<>	
Data name (Origin Data name       47 ✓     [O]Indoor Unit Adc       48 ✓     [O]Indoor Operatic       49 ✓     D [0]Thermostat ON,       50 ✓     D [0]Freeze Protectic	Data name (Origin: Data name)           151         Image: Imag	Data name (Örigir Data name           155 II A (Ölindoor Suction           156 II A (Ölindoor Lqud P           157 II A (Ölindoor Cas Pipe           158 II A (Ölindoor Ev (pis)	
Elapsed time Restore all la	bels (F6) Record setting (F7) Start Rec. (		
63       ☑       0       1       A       OU1:Low Pres         64       ☑       1       1       A       OU1:High Pre         87       ☑       6       1       A       OU1:INV1 Fre         88       ☑       1       A       OU1:INV2 Fre         111       ☑       1       A       OU1:Fan Freq	equen equen uuenci	<ul> <li>Right-click with the mouse to togg state of the checkboxes. Data who checkbox is not selected will not b on the "Op. Selected data" tab.</li> <li>Right-click with the mouse to disp data on the graph.</li> <li>You can choose either "Analog "Digital data."</li> </ul>	ose be show blay the
59         ✓         1         A         QU1:Comp. S           60         ✓         1         A         QU1:Heat Exc	ition) alve alve ( Drigin Data name urface :h. Liq	<ul> <li>Right-click with the mouse to cho axis used to display graph data. (T also be set on the "Graph view" ta * You can only choose "Analog of Right-click with the mouse to cop name (original). To edit manually, with the mouse and enter the data name odited here will be a set of the data name odited here will be a set of the data name o</li></ul>	This can ab.) data." y the da , left-clic ta name
61 🗷 1 A OU1:Accumu	lator I	The data name edited here will be to other windows.	a applie

A: Analog data (Up to 16 can be displayed.) D: Digital data (Up to 6 can be displayed.)

- checkboxes. Data whose not selected will not be shown Selected data" tab. vith the mouse to display the
  - graph. choose either "Analog data" or data."
- vith the mouse to choose the Ydisplay graph data. (This can on the "Graph view" tab.)
  - only choose "Analog data."
  - vith the mouse to copy the data nal). To edit manually, left-click buse and enter the data name. me edited here will be applied ndows.

- Click "Restore all labels (F6)" to delete all currently set data names.
- \* This action cannot be undone.

63 🔽 0 1 A OU1:Low Pressure 64 📝 1 1 A OU1:High Pressure

#### 5-8. Editing equipment information

You can change the map name, system name, and label definition file for registered equipment information. If you registered the information with the wrong label definition file, you can choose the correct label definition file to enable operation data to be recorded correctly.

Protocol detection		$\times$
Map name	20150406-152658	
System name	VRV 64IDU	
Model	VRV3	
Data label file	+VRV4(1UNIT)	~
	Revert to the original text file used for recording.	
Protocol	_ @	
Indoor units	64	
	COM port COM14	
	With BTSC/Wi-Fi	
	OK (F1) Back (Esc)	

- Change the label definition file.
   (For example, if you discover that the model name of equipment registered as "DEFAULT" is actually "LRDYP10C," changing the label definition file to "LRDYP10C" will allow operation data to be recorded correctly.)
- Select the "Revert to the original text file used for recording" checkbox will revert to the label definition file used to record data. You can change data label language by this option if you received data in other language which is different from the language option of your D-checker software.
- \* The "IMPORTED\_DATALABEL" label definition file is the default setting for legacy data.

#### Caution

- Selecting the "Revert to the original text file used for recording" checkbox with the label definition file set to "IMPORTED\_DATALABEL" and then clicking "OK" will cause "IMPORTED\_DATALABEL" to be deleted.
- Once you have deleted "IMPORTED\_DATALABEL," the operation cannot be undone.
- If "IMPORTED\_DATALABEL" is deleted, no label definition file will be selected. Click "Edit MapName" again and choose a label definition file.

#### This chapter describes how to play previously recorded operation data.

#### 6-1. Playing operation data

Click the "Play (F2)" button to display the "Recorded data selection" window. Following are descriptions of each button related to playback of recorded operation data.

	20	Recorded data selection							3
D-Checker Version 3.4.3.1		Customer Id.	Customer name	Map name	System name	REC started	Period	Responsible pe	4
		1 001	ダイキン工業商品開発グループ	20140422115156	20140422115156	2014/04/22 11:53:40	00.00:02:50	Morita	
(Daikin Air Conditioner Monitoring Tool)	1	2 20140402 test LT-C	A I	20140402152614	20140402152614	2014/04/02 15:26:40	00.00:06:30	EYV	
(	1	3 20150402	GSD	20150402-151155	20150402-151155	2015/04/02 15:14:20	00.00:03:25	Morita	
		4 20150402	GSD	20150402-152747	20150402-152747	2015/04/02 15:29:30	00.00.01.45	Morita	41
	5	5 20150402	GSD	20150406-152658	VRV 64IDU	2015/04/06 15:30:50	00.00:01:05	Morita	6
Recording (F1)		5 20150402	GSD	20150406-153217	20150406-153217	2015/04/06 15:33:15	00.00:16:15	Morita	41
Recording (F1)	1	7 20150402	GSD	20150406-171433	VRV4	2015/04/06 17:15:15	00.00:03:10	Morita	41
		8 20150406		20150406165039	20150406165039	2015/04/06 16:51:15	00.00:01:55	Morita	41
		20150406		20150406165945	20150406165945	2015/04/06 17:06:00	00.00:08:35	Morita	
	1	0 20150406		20150406171921	20150406171921	2015/04/06 17:19:40	00.00:06:50	Morita	41
	1	1 20150408		20150408123018	20150408123018	2015/04/08 12:31:05	00.00:14:45	Morita	41
PL (52)	1	2 20150408		20150408125945	20150408125945	2015/04/08 13:00:25	00.00-01:10	Morita	411
Play (F2)	1	3 20150408		20150408130222	20150408130222	2015/04/08 13:02:40	00.00-00-10	Morita	41
	1	4 20150408		20150408130725	20150408130725	2015/04/08 13:07:45	00.00:18:40	Morita	41
		5 20150408		20150408133951	20150408133951	2015/04/08 13:40:40	00.00:03:20	Morita	11
		6 20150408		20150408134612	20150408134612	2015/04/08 13:48:15	00.00.00.00	Morita	411
		7 @001	ダイキン工業1	20140505-101832	20140506-101832	2014/05/06 10:19:40	00.00.10.00	bitou	411
		8 DSP	DSP	20140915-122948	20140915-122948	2014/09/15 12:31:05	00.00:15:00	GSD	41
Import legacy data (F3)		9 DSP	DSP	20140915-125205	20140915-125205	2014/09/15 13:00:40	00.00:29:30	GSD	41
import reguly data (15)		0 GSD	D3F	20140422-172251	R32 Ururu	2014/04/22 17:23:45	00.00:01:40	Morita	11
		1 GSD		20140422-172231	R32_Ururu	2014/04/22 17:23:43	00.00:01:00	Morita	41.1
		2 GSD		20140422-172812		2014/04/22 17:29:10	00.00:01:00	Morita	11
					R32_Ururu_Sarara				11
		3 GSD		20140430-094708	VRV4R 3unit	2014/04/30 09:47:35	00.00:05:15	Morita	41
Mobile App Data import (F4)		4 GSD		20140430-095300	VRV4R 3unit	2014/04/30 09:53:25	00.00:04:15	Morita	
Mobile App Data Import (F4)		5 GSD		20140430-100738	VRV4R single	2014/04/30 10:08:15	00.00:05:55	Morita	411
	2	6 GSD		20140430-101419	VRV4R single	2014/04/30 10:14:50	00.00:06:35	Morita	4
Customer info.(F5)			Op. Data dis	ip. (F1) CSV output	(F2) Edit MapNam	e (F3) Delete (F5	0	Back (Esc)	IJ
Options (F6)				header na	me area, b	splay order by first clicl order, by s	k data	will be	
Exit (F12)				data will b	e in desce vorks in "C	nding orde	er. Sor	t	

#### [Op. Data disp. (F1)]

Plays the operation data that has been selected in the list.

#### [CSV output (F2)]

Outputs the data that has been selected in the list as a CSV file.

#### [Edit MapName (F3)]

Allows you to edit the equipment information for the operation data that has been selected in the list.

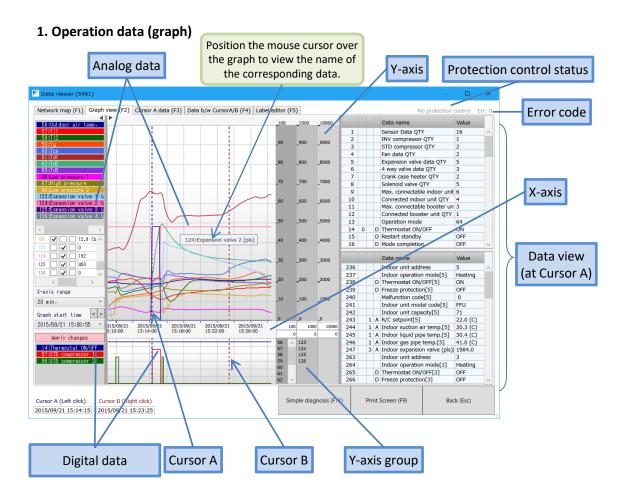
#### [Delete (F9)]

Deletes the operation data that has been selected in the list.

### 6. Playing operation data

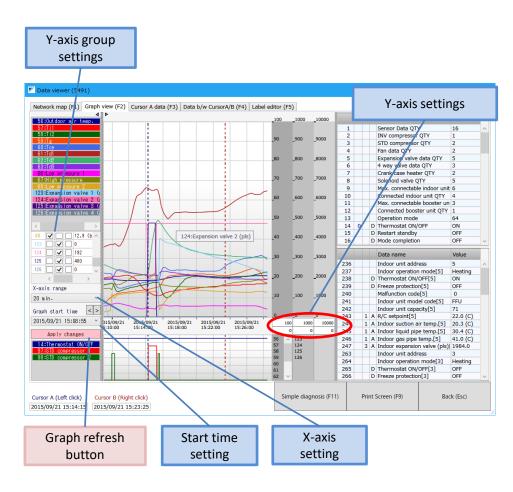
#### 6-2. Displaying operation data

Operation data can be viewed using three methods: "Graph view (F2)," "Cursor A data (F3)," and "Data b/w CursorA/B (F4)."



- Left-click with the mouse inside the graph to set the position of cursor A.
- Right-click with the mouse inside the graph to set the position of cursor B.
- Position the mouse cursor over the graph to display the name of the corresponding data.

### 6. Playing operation data



- X-axis setting (time display interval) Set the X-axis (time axis) display interval with the drop-down menu. (Choose from 10 min., 20 min., 30 min., and 60 min.)
- Y-axis settings

Set the upper and lower limits for the Y-axis (analog data value). You can set three Y-axis values (Y1, Y2, and Y3, from the top).

• Y-axis group settings

Set the Y-axis used to display graph data from 1 to 3.

• Start time setting

Set the start time using the "<" and ">" buttons and the drop-down menu. (The drop-down menu provides a series of settings that are 5 minutes apart, and the "<" and ">" buttons move the time axis range by the set time.) For example, if the time-axis range were set to 30 minutes, the buttons would move the time backwards and forwards in 30-minute increments.

• Once any setting has been changed, the color of the "Apply changes" button will change. Click the "Apply changes" button to apply the settings to the graph.

#### 2. Operation data (cursor A)

	Data name	Value				D.	ata name	Value					Data name	Value	-
1	Sensor Qty	11		55	0 1		J1:Outdoor Air Temp.	29.7 (C)		89	6 1	•	OU1:INV1 Frequency (rps)	66	٩
2	INV compressor Qty	2	-	56			J1:Outdoor Heat Exch. Tem			90			OU1:INV2 Frequency (rps)	0	
3	STD compressor Qty	0		57			J1:Subcool. Heat Exch. Gas			113			OU1:Fan Frequency (step)	7 STEP	
4	Fan Data Oty	1		58			J1:INV1 Discharge Pipe Ter			121			OU1:EV (Main)	3000 pls	
5	Expansion Valve Qty	3	Ε	59			J1:INV2 Discharge Pipe Ter			122			OU1:EV (Injection)	0 pls	
6	4 Way Valve Qty	2		60			J1:Comp. Surface Temp.	65.1 (C)		123			OU1:EV (Storage Vessel)	37 pls	
7	Crankcase Heater Oty	2		61			J1:Heat Exch. Liquid Pipe Te			137	0		OU1:4 Way Valve	OFF	
8	Solenoid valve Otv	4	-	62			J1:Accumulator Inlet Temp.			138	1		OU1:4 Way Valve (Continuous		
9	Max. connectable indoor unit	64		63			J1:Subcool, Heat Exch, Liqu				2		OU1:Crankcase Heater 1	OFF	
10	Connected Indoor Unit Oty	6		64			J1:Low Pressure	0.8 (MPa)		154	-		OU1:Crankcase Heater 2	OFF	
11	Operation Mode	Cooling		65			J1:High Pressure	2.1 (MPa)			3	D	OU1:SV (Oil separator oil retu	ON	
12	Thermostat ON/OFF	ON					,			170	4	D	OU1:SV (Accumulator oil retu	ON	
13	Restart Standby	OFF								171	5	D	OU1:SV (Oil separator oil retu	OFF	
14	Startup Control	OFF								172		D	OU1:Energy Cut	OFF	
15	Defrost Operation	OFF	-						-				-		
	Data name	Value				Da	ata name	Value					Data name	Value	I
253	*Indoor Unit Address*	2		344		*In	ndoor Unit Address*	9		409		Τ	*Indoor Unit Address*	14	
254	[2]Indoor Operation Mode	Cooling		345		[9]	Indoor Operation Mode	Cooling		410			[14]Indoor Operation Mode	Cooling	
255	[2]Thermostat ON/OFF	ON		346		[9]	Thermostat ON/OFF	ON		411			[14]Thermostat ON/OFF	ON	
256	[2]Freeze Protection	OFF		347		[9]	Freeze Protection	OFF		412			[14]Freeze Protection	OFF	
257	[2]Malfunction Code	0		348		[9]	Malfunction Code	0	-	413			[14]Malfunction Code	0	
258	[2]Indoor Unit Model Code	L34	=	349		[9]	Indoor Unit Model Code	F6F	1	414			[14]Indoor Unit Model Code	FU1	
259	[2]Indoor Unit Capacity	140		350		[9]	Indoor Unit Capacity	22		415			[14]Indoor Unit Capacity	112	
260	[2]R/C Setpoint	23.0 (C)		351		[9]	R/C Setpoint	19.0 (C)		416			[14]R/C Setpoint	16.0 (C)	
261	[2]Indoor Suction Air Temp.	23.0 (C)		352		[9]	Indoor Suction Air Temp.	17.8 (C)		417			[14]Indoor Suction Air Temp.	18.1 (C)	
262	[2]Indoor Liquid Pipe Temp.	4.6 (C)		353		[9]	Indoor Liquid Pipe Temp.	4.8 (C)		418			[14]Indoor Liquid Pipe Temp.	4.6 (C)	
263	[2]Indoor Gas Pipe Temp.	7.0 (C)		354		[9]	Indoor Gas Pipe Temp.	8.3 (C)		419			[14]Indoor Gas Pipe Temp.	9.5 (C)	
264	[2]Indoor Exv(pls)	150.0		355		[9]	Indoor Exv(pls)	303.0		420			[14]Indoor Exv(pls)	281.0	
266	*Indoor Unit Address*	3		383		*In	ndoor Unit Address*	12		513			*Indoor Unit Address*	22	
267	[3]Indoor Operation Mode	Cooling		384		[12	2]Indoor Operation Mode	Cooling		514			[22]Indoor Operation Mode	Cooling	
268	[3]Thermostat ON/OFF	ON	Ŧ	385		[12	2]Thermostat ON/OFF	ON	Ŧ	515			[22]Thermostat ON/OFF	ON	
268	[3]Thermostat ON/OFF		Ŧ	385			· · ·		*	515					

- The data at the position of cursor A will be shown. •
- All recorded data will be shown.

Netwo	ork map (F1) Graph view (I	F2) Cursor A	data (F3) Data b/w 0	CursorA/B (F4)	Label editor (F5)			
_	Loggea time	1:Sensor Qty	2:INV compressor Qty	3:STD compres	ssor Qty 4:Fan Data Q	ty 5:Expansion Valve Qt	y 6:4 Way Valve Qty	7:Crankcase Heate
1	2014/06/06 22:26:55	11	2	0	1	3	2	2
2	2014/06/06 22:27:00	11	2	0	1	3	2	2
3	2014/06/06 22:27:05	11	2	0	1	3	2	2
4	2014/06/06 22:27:10	11	2	0	1	3	2	2
5	2014/06/06 22:27:15	11	2	0	1	3	2	2
6	2014/06/06 22:27:20	11	2	0	1	3	2	2
7	2014/06/06 22:27:25	11	2	0	1	3	2	2
8	2014/06/06 22:27:30	11	2	0	1	3	2	2
9	2014/06/06 22:27:35	11	2	0	1	3	2	2
10	2014/06/06 22:27:40	11	2	0	1	3	2	2
11	2014/06/06 22:27:45	11	2	0	1	3	2	2
12	2014/06/06 22:27:50	11	2	0	1	3	2	2
13	2014/06/06 22:27:55	11	2	0	1	3	2	2
14	2014/06/06 22:28:00	11	2	0	1	3	2	2
15	2014/06/06 22:28:05	11	2	0	1	3	2	2
16	2014/05/05 22 20 10	**	<u>^</u>	^		3	2	2
1	Curser	A +:	e that has	h	<b>a</b> t	3	2	2
1	Cursor	A um	e that has	been se	el	3	2	2
1			-			3	2	2
20	2014/06/06 22:28:20	11	2	0	1		2	2
21	2014/06/06 22:28	<u> </u>	mean D time	a that	hachac	a a t	2	2
22	2014/06/06 22:28	C	ursor B tim	e that	nas been	set	2	2
23	2 014/06/06 22:28	_					2	2
24	2014/06/06 22:28:50	1	2	0	1	3	2	2

- Operation data between cursor A and cursor B as set in the graph view will be shown on a • time axis.
- Chose which data items to display on the "Label editor" tab.

### 6. Playing operation data

#### <"Label editor" tab>

🚩 Data	viewe	(GSD)									
Netw	ork m	ap (F1)	Graph	view (F2) Cursor A data (F3	3) Data b/v	w CursorA/B (F4) Label editor (	F5)				
				ne (Origin Data name		Data name (Origin	Data name				rigin Data name
	J		ensor Q NV com	ty pressor Qt	56	<ul> <li>✓ 0 1 A OU1:Outdoor Air T</li> <li>✓ 1 1 A OU1:Outdoor Heat</li> </ul>				1 A OU1:INV1 Free 1 A OU1:INV2 Free	
3	1		TD com	pressor Q	57	2 1 A OU1:Subcool. Heat		11	3 🖌 11	1 A OU1:Fan Frequ	ienc
5	7	E	an Data xoansio	n Valve Q	= 58	3         2         A         OU1:INV1 Discharc           I         A         OU1:INV2 Discharc				3 A OU1:EV (Main) 1 A OU1:EV (Inject	
6	<b>v</b>	4	Way Va	alve Qty	60	4 3 A OU1:Comp. Surface			3 🗸	1 A OU1:EV (Storag	ge V
7	<b>J</b>			e Heater ( valve Oty	61	✓ 5 3 A OU1:Heat Exch. Liq ✓ 7 1 A OU1:Accumulator I		13	7 V 0 8 V 1	D OU1:4 Way Va D OU1:4 Way Va	
0		N	lax. con	nectable i	63	✓ 8 1 A OU1:Subcool. Heat		15	3 🗹 2	D OU1:Crankcase	He
10 11	<b>v</b> <b>v</b>			ed Indoor n Mode	64	<ul> <li>✓ 9 2 A OU1:Low Pressure</li> <li>✓ 10 2 A OU1:High Pressure</li> </ul>			4 V 9 V 3	D OU1:Crankcase D OU1:SV (Oil se	
12	-	T	hermos	tat ON/OF		CE 10 2 A OUTAIGHTICSUIC		17	0 🗸 4	D OU1:SV (Accur	nula
13 14	J		estart S tartup (		-				1 <b>J</b> 5 2 <b>J</b>	D OU1:SV (Oil se D OU1:Energy Cu	
15				Operation	*			-	- 102.4	o oonenergy et	
		C	ata nan	ne (Origin Data name		Data name (Origin	Data name			Data name (Or	rigin Data name
253				Jnit Addre	<u>^</u> 344	Indoor Unit Addre			9 🗸	*Indoor Unit A	
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256	1	L.	]Freeze	Protectio	347	[9]Freeze Protectio		41	2 🗸	[14]Freeze Pro	tecti
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259	V	[2	]Indoo	r Unit Cap	350	[9]Indoor Unit Cap		41	5 🗸	[14]Indoor Uni	t Ca
260 261	<b>J</b>		2]R/C Se	tpoint r Suction /	351				6 J 7 J	[14]R/C Setpoi [14]Indoor Suc	
262	1	[2	]Indoo	r Liquid Pi	353	[9]Indoor Liquid Pi		41	8 🗸	[14]Indoor Liqu	uid F
263 264	1			r Gas Pipe r Exv(pls)	354	[9]Indoor Gas Pipe     [9]Indoor Exv(pls)		41		[14]Indoor Gas [14]Indoor Exv	
266	1			Jnit Addre	383	Indoor Unit Addre		51	3 🗸	*Indoor Unit A	
267 268	J			r Operatio ostat ON/	- 384 - 385			51	4 V 5 V	[22]Indoor Op [22]Thermosta	erati
200		ŀ	grinerin	Ustat UN/	- 305			. 51		[22]Thermosta	r on
		ft click)		sor B (Right click) 4/06/06 22:43:05			Restore all la	bels (F6)	Pr	int Screen (F9)	Back (Esc)
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4 7 8 1	/	1 1 6 1 1 1	A A A A	OU1:Low Pre OU1:High Pre OU1:INV1 Fre OU1:INV2 Fre OU1:Fan Free	essure essure equen equen				•	state c checkl on the Right- data o * You	of the ch box is no "Data b click with n the gra
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#### A: Analog data (Up to 16 can be displayed.) D: Digital data (Up to 6 can be displayed.)

- Click "Restore all labels (F6)" to delete all currently set data names.
- \* This action cannot be undone.

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- Right-click with the mouse to toggle the state of the checkboxes. Data whose checkbox is not selected will not be shown on the "Data b/w CursorA/B" tab.
- Right-click with the mouse to display the data on the graph.
  - You can choose either "Analog data" or "Digital data."
- Right-click with the mouse to choose the Y-axis used to display graph data. (This can also be set on the "Graph view" tab.)
  - You can only choose "Analog data."
     Right-click with the mouse to copy the data name (original). To edit manually, left-click with the mouse and enter the

will be applied to other windows.

data name edited here

#### 6-3. Editing equipment information

You can change the map name, system name, and label definition file for registered equipment information. If you registered the information with the wrong label definition file, you can choose the correct label definition file to enable operation data to be recorded correctly.

Protocol detection	
Map name	20150406-171433
System name	VRV4
Model	
Data label file	*DEFAULT •
	Revert to the original text file used for recording.
Protocol	@
Indoor units	1
	OK (F1) Back (Esc)

- Change the label definition file.
   (For example, if you discover that the model name of equipment registered as "DEFAULT" is actually "LRDYP10C," changing the label definition file to "LRDYP10C" will allow operation data to be recorded correctly.)
- Select the "Revert to the original text file used for recording" checkbox will revert to the label definition file used to record data. You can change data label language by this option if you received data in other language which is different from the language option of your D-checker software.
- \* The "IMPORTED\_DATALABEL" label definition file is the default setting for legacy data.

# Caution Selecting the "Revert to the original text file used for recording" checkbox with the label definition file set to "IMPORTED\_DATALABEL" and then clicking "OK" will cause "IMPORTED\_DATALABEL" to be deleted. Once you have deleted "IMPORTED\_DATALABEL," the operation cannot be undone. If "IMPORTED\_DATALABEL" is deleted, no label definition file will be selected. Click "Edit

 If "IMPORTED\_DATALABEL" is deleted, no label definition file will be selected. Click "Edit MapName" again and choose a label definition file.

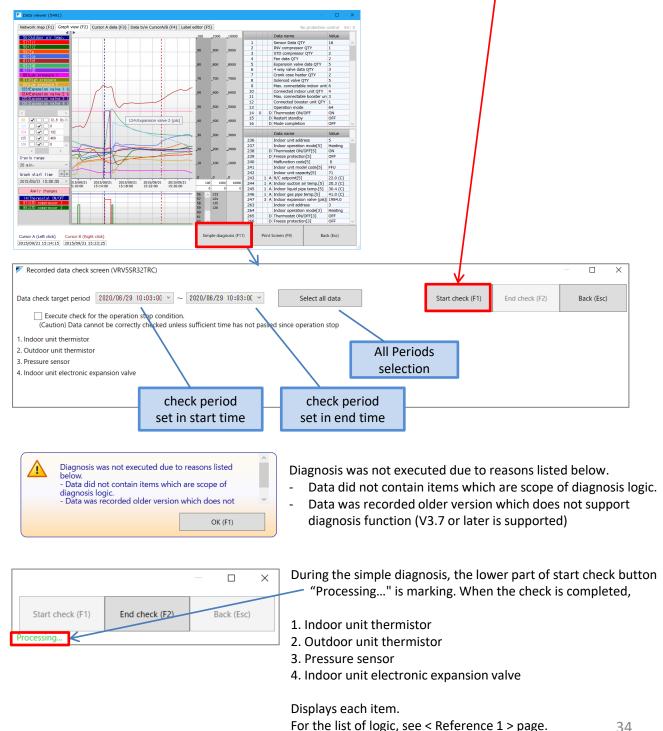
#### This chapter describes how to use Simple diagnosis feature.

#### <u>outline</u>

Supports the user to determine operation data. Analyzes D-Checker data with simple logic and displays the results.

7. Simple diagnosis

Press [Simple diagnosis (F11)] button on graphic chart marking screen of operation data to display record data check screen in marking. Set the check period and press the [Start check(F1)] button to start the simple diagnosis of the target data.



### 7. Simple diagnosis

《Recorded data check screen (石川眼科)							
ata check target period 2016/07/15 13:	54:35 × ~ 2016/07/19	12:55:00 ~		Select all data	Start check (F1) End check (F2)		Back (Esc
Execute check for the operation sto (Caution) Data cannot be correctly cl		me has not pa	ussed si 2	eration s 3			
Indoor unit thermistor			<u> </u>		4		5
Condition: Regardless of running, stop, th	nermo-ON/OFF						<u> </u>
Item	Detected time	Value	Result	Value range of normal operation condition		Hit	View
1: In Gas Pipe Temp(0)	Detected time	Value	OK	-20°C - 90°C	Indoor unit gas pipe temp >90 OR <-20	THE .	VIEW
2: In Liquid Pipe Temp(0)			OK	-20°C - 60°C	Indoor unit liquid pipe temp >50 OR <-20		
3: In Suction Air Temp(0)			OK	-20°C - 60°C	Indoor unit suction air temp >60 OR <-2		
Condition: Indoor unit thermo-ON						1	
Item	Detected time	Value	Result	Value range of normal operation conditi		Hit	View
7: In Gas Pipe Temp(0)	2016/07/17 21:56:50	24.9 (C)		Indoor unit gas pipe temp $\geq$ Indoor unit			View
7. In Gas ripe temp(o)	2010/01/11/21:50:50	24.5 (C)	NOTOR	indoor unit gas pipe temp = indoor unit	mador ant gas pipe temp < mador ant	10	VICW
Condition: Regardless of running, stop, th	Detected time	Value	Result	Value range of normal operation condition	Diagnosis logic	Hit	View
10: Suction Pipe Temp			ОК	Evaporating temp +2°C <suction td="" temp<e<=""><td>Outdoor unit suction pipe temp&gt;80 OR -</td><td></td><td></td></suction>	Outdoor unit suction pipe temp>80 OR -		
11: Discharge Pipe Temp 1			OK	Condensing Temp +20°C <discharge td="" tem<=""><td>Outdoor unit discharge pipe temp 1&gt;160</td><td></td><td></td></discharge>	Outdoor unit discharge pipe temp 1>160		
12: Outdoor heat exchanger temp.			OK	-20°C - 30°C	Outdoor unit liquid pipe temp (other tha		
12: Outdoor heat exchanger mid temp.			OK	-20°C - 30°C			
			UK	-20 C - 30 C	Outdoor unit liquid pipe temp (other tha		
12: Outdoor heat exchanger liquid temp.			OK	-20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha		
12: Outdoor heat exchanger liquid temp. 12: INV fin temp.			OK OK	-20°C - 30°C -20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha		
12: Outdoor heat exchanger liquid temp. 12: INV fin temp. 12: Fan1 Fin temp.	· · · · · · · · · · · · · · · · · · ·		OK OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha		
<ol> <li>12: Outdoor heat exchanger liquid temp.</li> <li>12: INV fin temp.</li> <li>12: Fan1 Fin temp.</li> <li>12: Fan2 Fin temp.</li> </ol>	· · · · · · · · · · · · · · · · · · ·		OK OK OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha		
12: Outdoor heat exchanger liquid temp. 12: INV fin temp. 12: Fan1 Fin temp.			OK OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha		
<ol> <li>12: Outdoor heat exchanger liquid temp.</li> <li>12: INV fin temp.</li> <li>12: Fan1 Fin temp.</li> <li>12: Fan2 Fin temp.</li> </ol>			OK OK OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha Outdoor unit liquid pipe temp (other tha		
12: Outdoor heat exchanger liquid temp. 12: INV fin temp. 12: Fan1 Fin temp. 12: Fan2 Fin temp. 13: Out air temp	Detected time	Value	OK OK OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 30°C	Outdoor unit liquid pipe temp (other tha Outdoor unit air temp>60 OR <-30		View
12: Outdoor heat exchanger liquid temp. 12: INV fin temp. 12: Fant Fin temp. 12: Fant Fin temp. 13: Out air temp Condition: Compressor running (INV>0)		Value 35.1 (C)	OK OK OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 50°C -20°C - 50°C Value range of normal operation conditi Evaporating temp +2°C <suction td="" temp<e<=""><td>Outdoor unit liquid pipe temp (other tha Outdoor unit air temp&gt;60 OR &lt;-30 Diagnosis logic Outdoor unit suction pipe temp&gt;TC+10</td><td></td><td>View</td></suction>	Outdoor unit liquid pipe temp (other tha Outdoor unit air temp>60 OR <-30 Diagnosis logic Outdoor unit suction pipe temp>TC+10		View
12: Outdoor heat exchanger liquid temp. 12: INV fin temp. 12: Fant Fin temp. 12: Fant Fin temp. 13: Out air temp Condition: Compressor running (INV>0) Item 14: Suction Pipe Temp 15: Suction Pipe Temp	Detected time		OK OK OK OK Result Not OK OK	-20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 30°C -20°C - 50°C Value range of normal operation conditi Evaporating temp +2°C - Suction temp <e Evaporating temp +2°C - Suction temp <e< td=""><td>Outdoor unit liquid pipe temp (other tha Outdoor unit air temp&gt;60 OR &lt;-30 Diagnosis logic Outdoor unit suction pipe temp&gt;TC+10 Outdoor unit suction pipe temp<te-10< td=""><td>Hit 8</td><td></td></te-10<></td></e<></e 	Outdoor unit liquid pipe temp (other tha Outdoor unit air temp>60 OR <-30 Diagnosis logic Outdoor unit suction pipe temp>TC+10 Outdoor unit suction pipe temp <te-10< td=""><td>Hit 8</td><td></td></te-10<>	Hit 8	
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#### 1. Detected time

Displays the date and time of the first fault detection within the check period.

#### 2. Value

Displays the value when fault is detected.

#### 3. Result

The display will be green during normal operation and red during faulty operation.

#### 4. Diagnosis logic

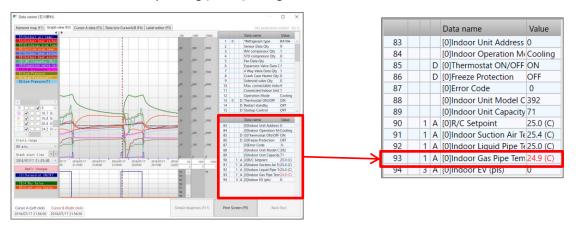
Displays the logic when it determines that it is Not OK.

#### 5. Hit

Number of times Not OK was detected within the check period.

#### 6. View

Press the [View] button to display graph with the cursor positioned at the date and time when a Not OK was detected. The corresponding [Value] changes to red.

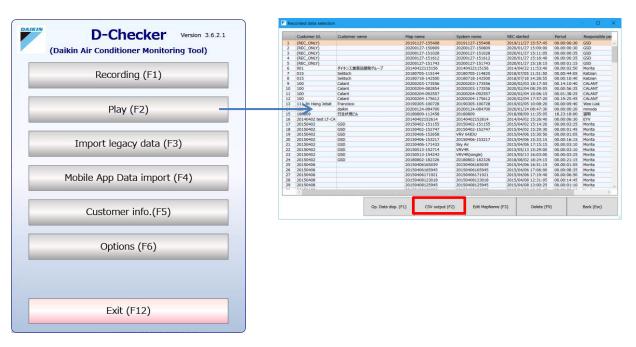


### 8. Outputting operation data as a CSV file

This chapter describes how to output operation data as a CSV file.

#### 8-1. Outputting data as a CSV file

Click the "Play (F2)" button to display the "Recorded data selection" screen. Recorded operation data can be output as a CSV file.



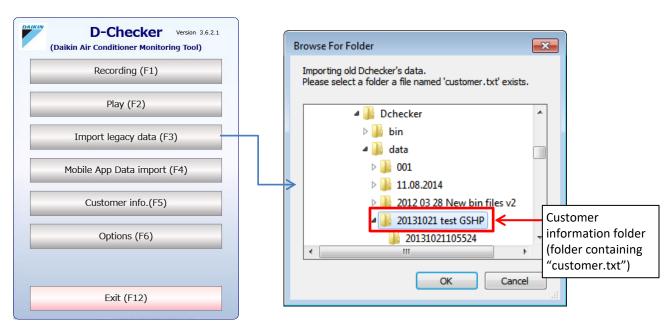
- Select the operation data you wish to output in the list and click the "CSV output (F2)" button.
- When the dialog box is displayed, select the save destination and click "OK."

# 9. Importing legacy data

#### This chapter describes how to import legacy data.

#### 9-1. Procedure for importing legacy data

Click the "Import legacy data (F3)" button to import data recorded with Version 2.18 or earlier of the software.



- Select the folder containing the legacy data and click the "OK" button.
   \* Verify that the file "customer.txt" exists in the folder.
- If the import operation is successful, the imported data will appear in the "Customer info." and "Data viewer" windows.
- The default installation folder for older versions of D-checker is "C:\Users\Public\Documents\D-checker."
- The "customer.txt" file can be found in the customer information folder.

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#### <Default installation folder for older versions of D-checker>

# 10. Importing mobile app data

#### This chapter describes how to import recorded data by mobile apps (Android, iOS).

#### 10-1. Procedure for importing mobile app data

Click the "Mobile App Data Import (F4)" button to import data recorded by mobile app version of D-checker software (Android/iOS).

D-Checker Version 3.6.2.1 (Daikin Air Conditioner Monitoring Tool)	♥ Open ♥ ♥ ♥ ♥ Computer → SD Card (D:)	<b>×</b>
Recording (F1)		
Play (F2)	★ Favorites     Name     Date modified       ■ Desktop     ■ 2015/04/09 11:33       ₩ Recent Places     ■ Downloads	Type WinRAR 書庫
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Mobile App Data import (F4)	Music     Pictures     Videos	
Customer info.(F5)	Computer	
Options (F6)	File name: 20150408.tgz	► Cancel
Exit (F12)		H.

- Select the recorded file by mobile app and click the "Open" button.
- If the import operation is successful, the imported data will appear in the "Customer info." and "Data viewer" windows.
- The default file name of mobile app data is "YYYYMMDD.tgz"

### For Excel data graphing

• From Excel menu, select "Insert">"Scatter"

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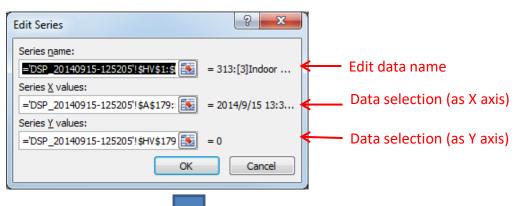
• Right click on the chart, then choose "Select Data"

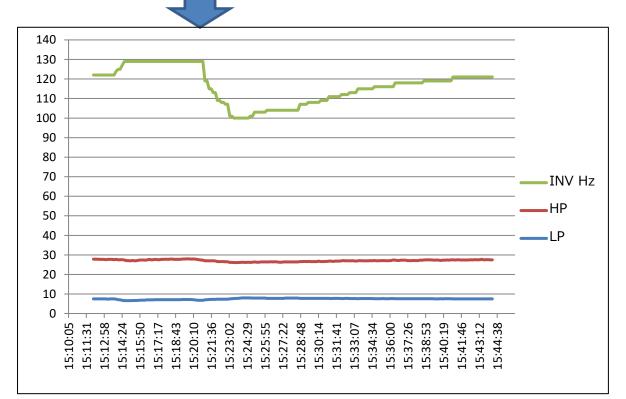
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Click "Add", "Edit", "Delete" to process data

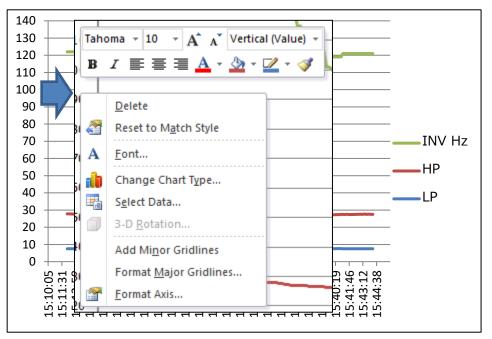
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• Select the appropriate data





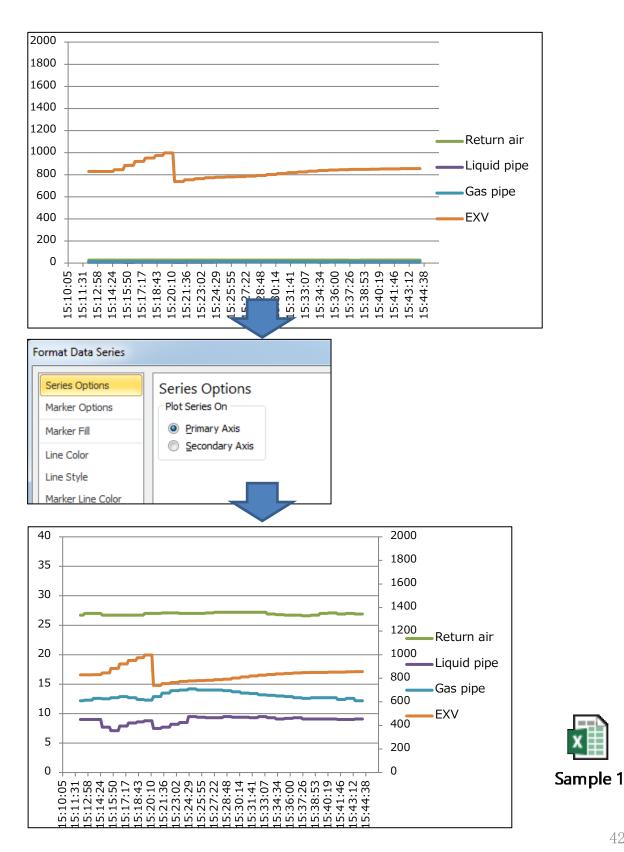
• Right click on the Y axis scale value numbers to show the menu and select "Format Axis" to set axis options



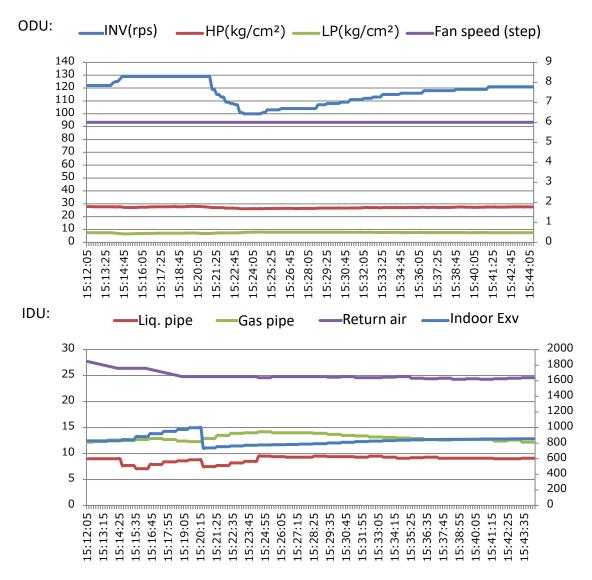
Select "Axis options" to scale units, adjust max/min values

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	Close

If value scale of data does not match in the same graph, they can belong to 2nd axis. By double clicking the line, "Set data series format" will appear, then select 2nd axis.



### 12-1. Normal data (VRV4 heat pump 12HP data as a sample)

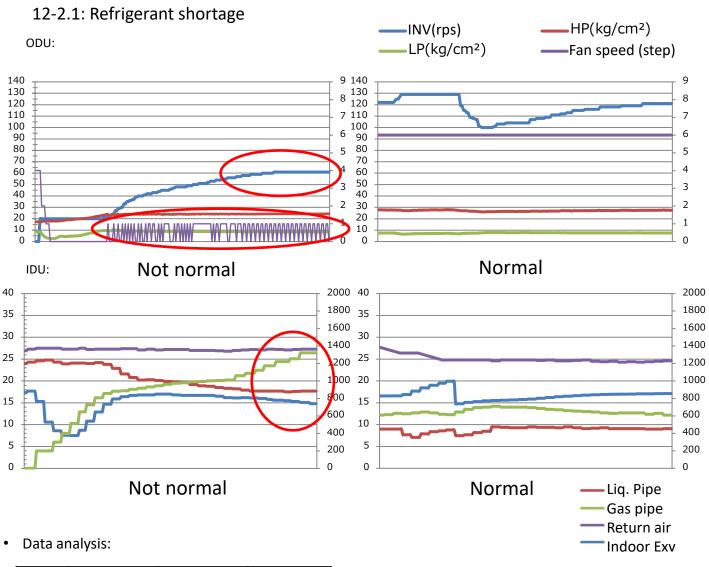


- Operating conditions: In/out distance=10m, level difference=3m, 3 IDU connected, connection ratio=100%, outdoor temp.=30deg, indoor temp.=30deg (when unit stops)
- Normal data:

	Comp (rps)	129
ODU	Fan step	6
	НР	27.7kg
	LP	8.2kg
	Return temp.	24.3
	Liquid pipe	9.1
IDU	Gas pipe	12.2
	Exv pulse	850



Sample data is for reference only due to the special conditions for test purpose. 43

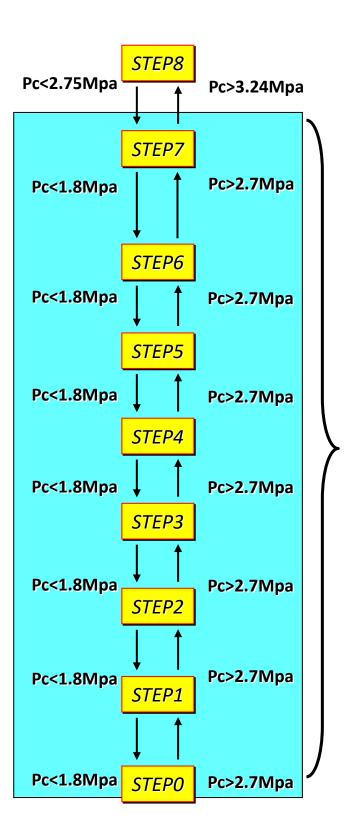


- Comp(rps) 61 129 6 Fan step 1 24.2kg 🗸 ΗP 27.7kg ODU LP 8.4kg 8.2kg Disch. 58.3 73.4 Return 27.1 24.3 Liquid pipe 15.1 9.1 IDU 17.7 Gas pipe 12.2 Exv pulse 1330 850
  - Probable cause: refrigerant shortage

- Anomalies:
- 1. When fan speed is low, HP is still low
- 2. Compressor speed is limited at 50% of normal
- 3. IDU EXV keeps wide open, but return air temp is still high, superheat is high.



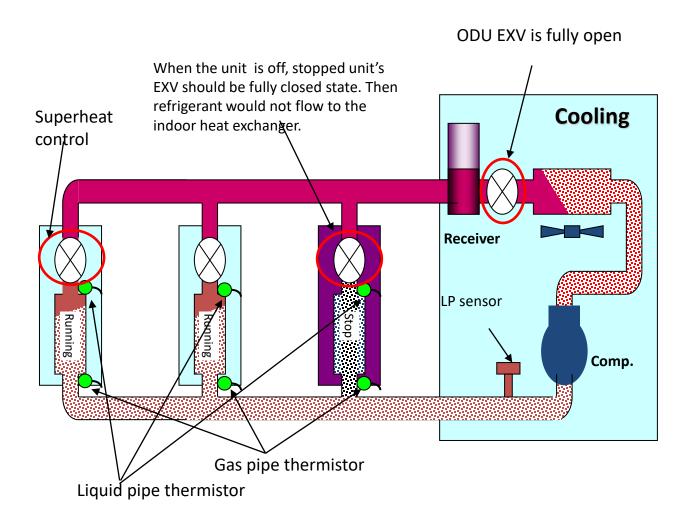
## Fan speed control



Pc: pressure sensor feedback value

Each step is kept for 20sec after the check, then condition matches fan speed increases or decreases by 1 step and remains.

## VRV system refrigerant control points (cooling mode)



#### Compressor capacity control

In response to the evaporator capacity, load changes in order to satisfy overall cooling capacity of the system according to the outdoor unit. Detected pressure value of LP sensor controls the capacity of the compressor to make the system's equivalent saturation refrigerant temperature of low pressure (evaporation temperature=Te) close to the target value.

#### Indoor EXV superheat control

To keep superheat of the evaporator and to distribute the appropriate refrigerant flow with respect to the different loads of each indoor unit, indoor unit expansion valve is controlled to keep superheat value close to the target based on the detected indoor unit liquid/gas pipe thermistor readings.

● Superheat (SH) = indoor gas pipe temp. – indoor liquid pipe temp.

# 12. Data analysis

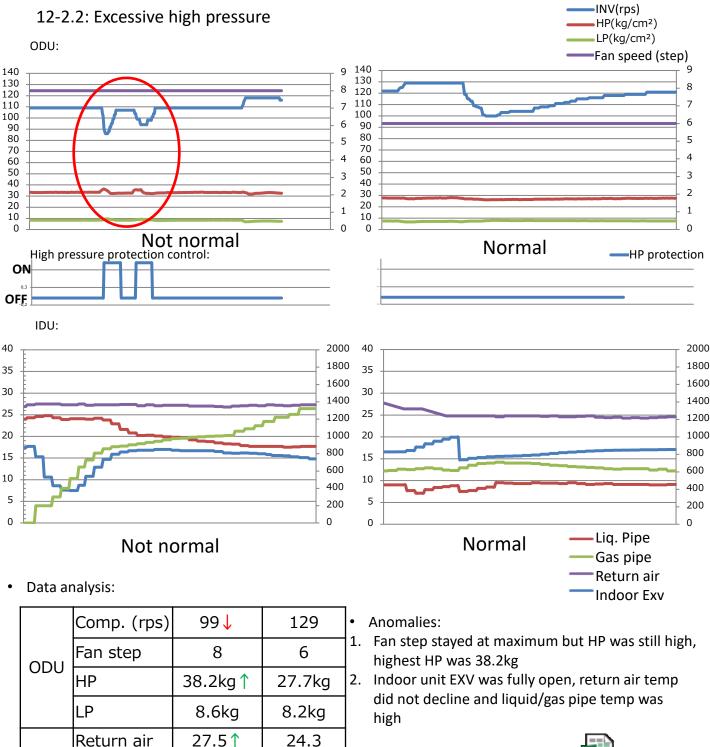
#### 12-2. Anomaly data

Liquid pipe

Gas pipe

Exv pulse

IDU



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Sam	nle	4 د

• Probable cause: faulty outdoor unit heat exchange, dirtiness of outdoor 47 unit heat exchanger, outdoor unit fan motor failure

9.1

12.2

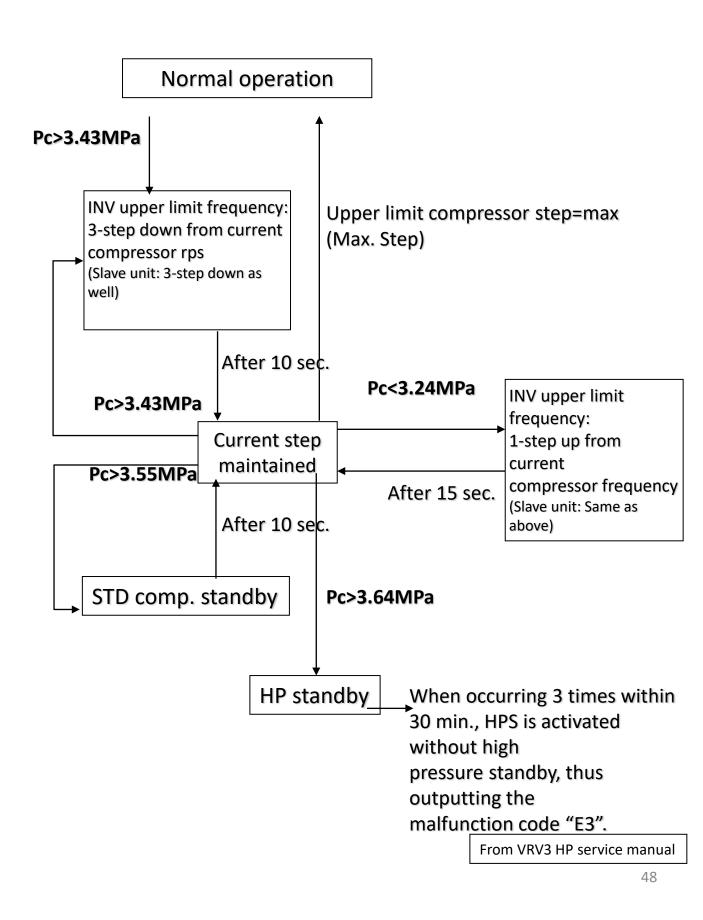
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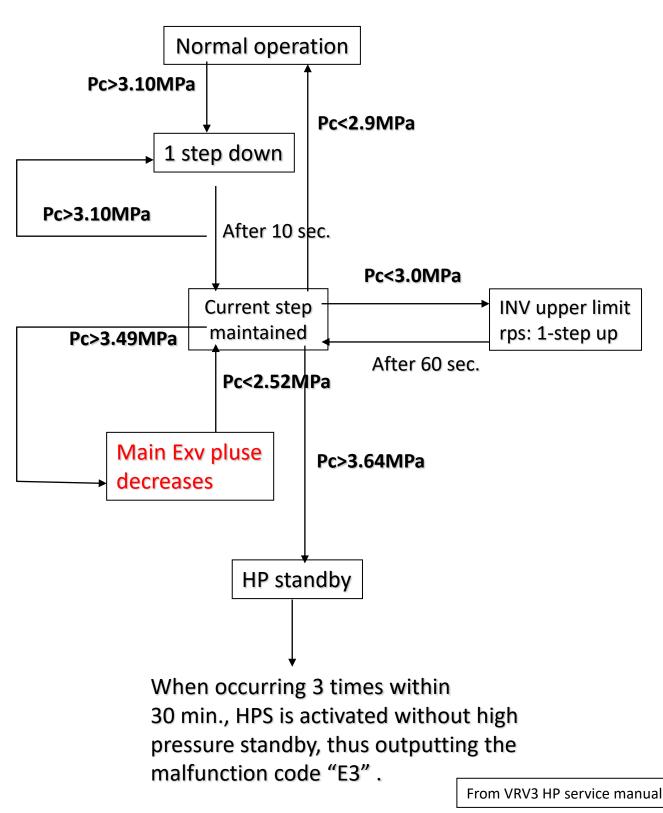
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1330

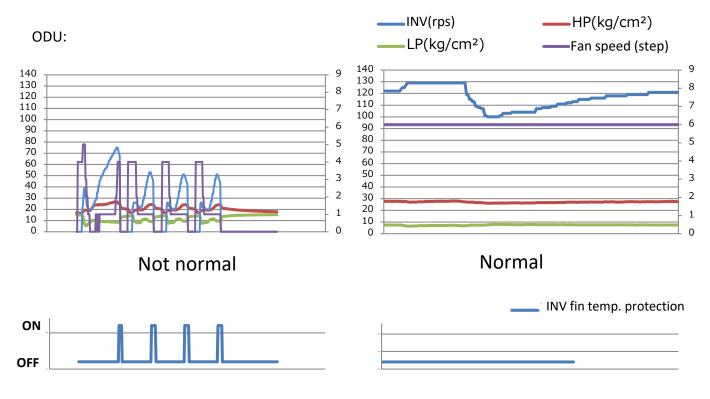
# High pressure protection control (cooling)



# High pressure protection control (heating)







#### • Data analysis:

ODU	Comp (rps)	47↓	129
	Fan step	4	6
	НР	28kg	27.7kg
	LP	8.6kg	8.2kg

Anomalies:

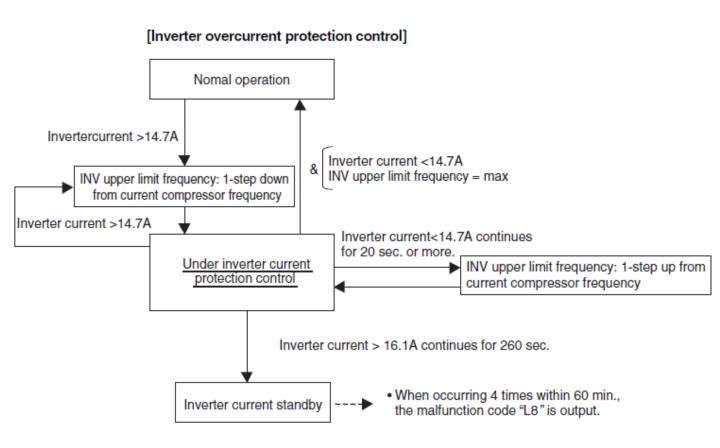
- 1. Compressor starts/stops frequently
- 2. INV temp. protection control activated

• Probable cause: Faulty heat exchange of INV fin, INV fin failure

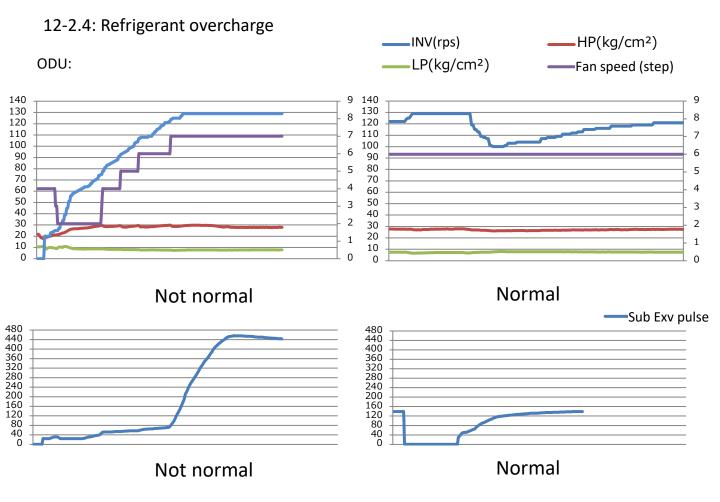


### Sample 5

## Inverter protection control



From VRV3 HP service manual



• Data analysis:

ODU	Comp (rps)	129	129	A 1
	Fan step	7	6	2
	НР	28.7kg <b>↑</b>	27.7kg	
	LP	8.6kg	8.2kg	
	Sub Exv pulse	430 <b>个</b>	139	

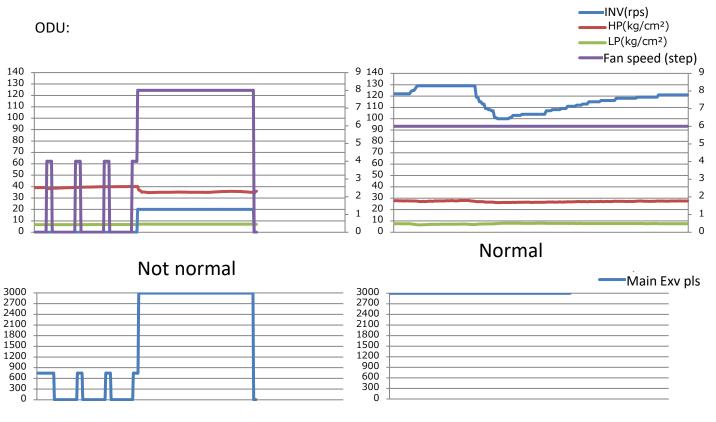
Anomalies:

- . Fan step is high, HP is high
- 2. ODU sub-Exv is wide open close to full



• Probable cause: Refrigerant overcharge

#### 12-2.5: Pressure sensor error



#### • Data analysis:

ODU	Comp (rps)	129	129
	Fan step	8	6
	НР	38.7kg <b>↑</b>	27.7kg
	LP	7.1kg↓	8.2kg
	Main Exv pls	3000	3000

#### Anomalies:

- 1. Pressure differential is high when the unit stops
- 2. Fan step is maximum at main Exv is fully open, but the unit cannot level the pressure.

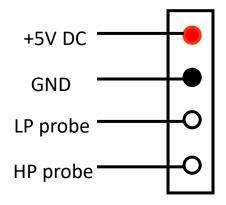
• Probable cause: pressure sensor failure, control PCB failure

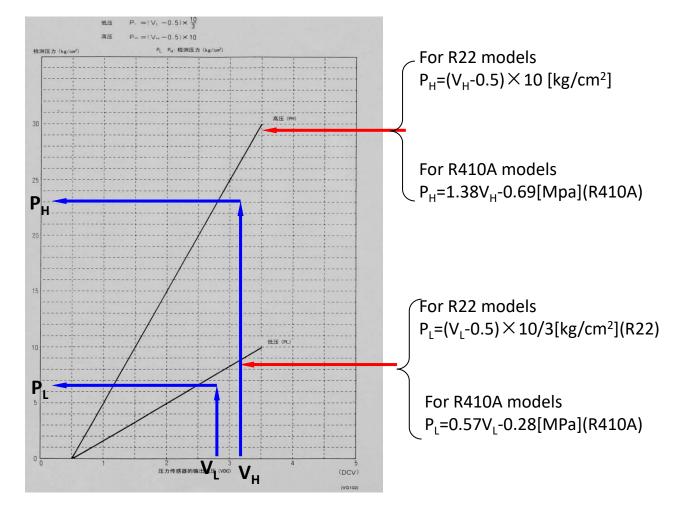


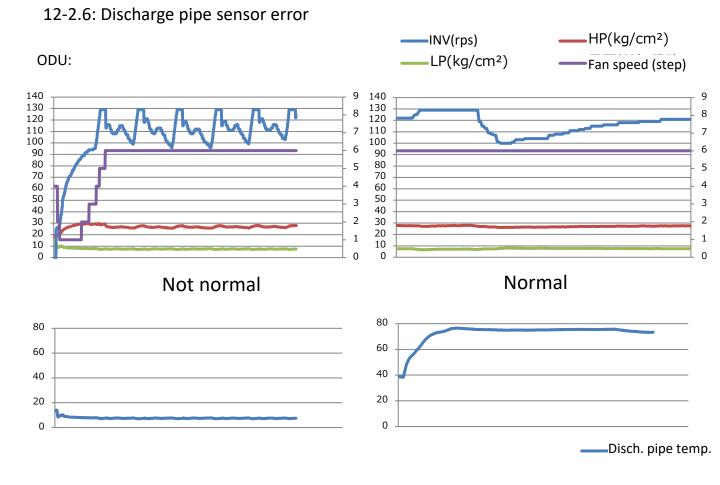
## Pressure sensor check

Check points:

- Measure voltage from pressure sensor red/black line not normal → PCB failure
- Compare pressure value/voltage chart value during the machine stops and there is pressure differential →sensor failure







#### • Data analysis:

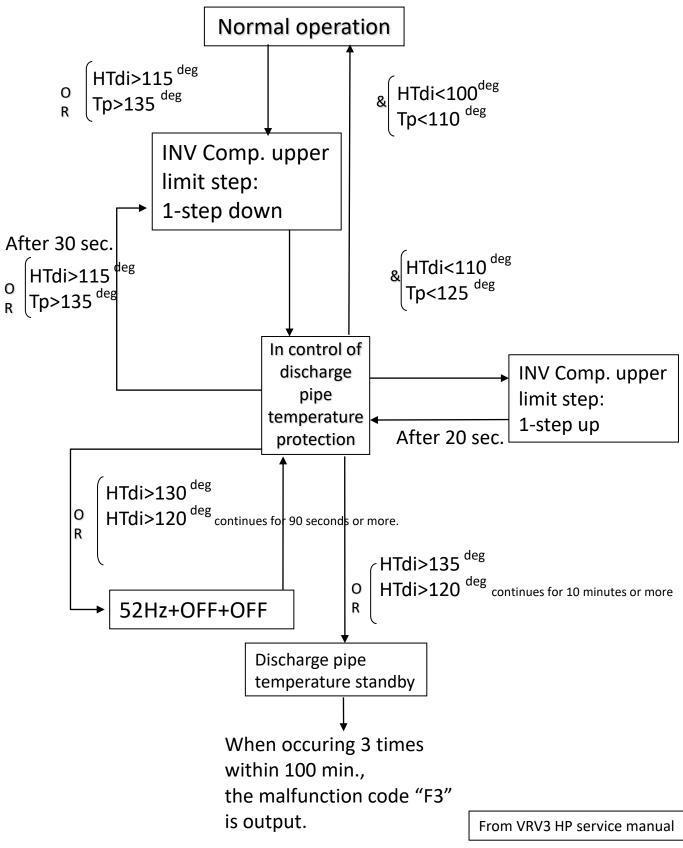
ODU	Comp (rps)	119	129				
	Fan step	6	6				
	НР	27.7kg	27.7kg				
	LP	7.6kg	8.2kg				
	Discharge temp.	7.3	75.2				

Anomalies:

- 1. Compressor rps repeatedly up/down
- 2. Discharge pipe temp. is strangely low

• Probable cause: discharge pipe sensor failure

## **Discharge Pipe Protection Control**



## **Thermistor Resistance / Temperature Characteristics**

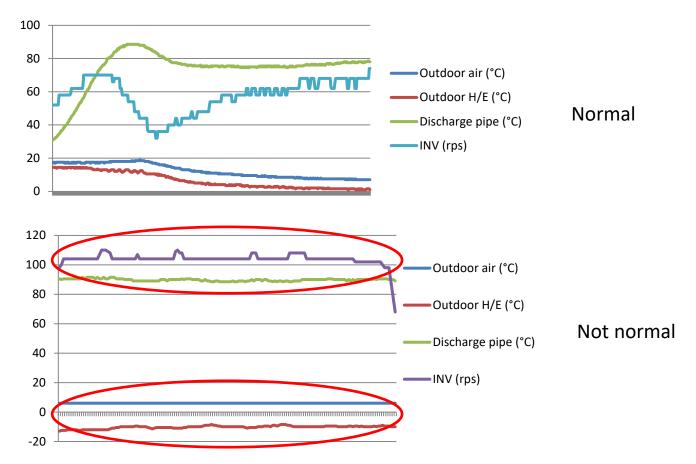
Outdoor unit thermistors for discharge pipe

Air, heat exchanger

т°С	kΩ
-30	3257.371
-25	2429. 222
-20	1827.883
-15	1387.099
-10	1061.098
-5	817.9329
0	635. 0831
5	496. 5712
10	391.0070
15	309.9511
20	247.2696
25	198. 4674
30	160. 2244
35	130.0697
40	106. 1517
45	87.0725
50	71.7703
55	59.4735
60	49.5180
65	41.4168
70	34.7923
75	29.3499
80	24.8586
85	21.1360
90	18.0377
95	15.4487
100	13.2768
105	11.4395
110	9.8902
115	8. 5788
120	7.4650
125	6.5156
130	5. 7038
135	5.0073
140	4.4080
145	3.8907
150	3.4429

19
04
98
87
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10
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49
96
60
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08
26
81
97
64
07
39
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57
49
94
05
38
75
25
14





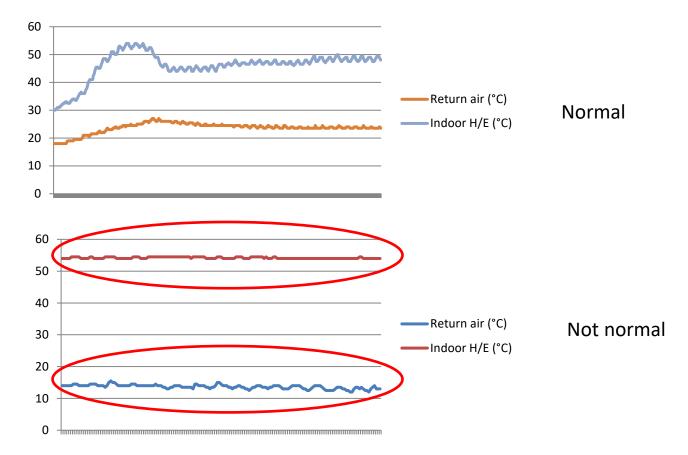
• Data analysis:

ODU		Normal operation	Not normal operation				
	Outdoor air	7	5				
	Outdoor H/E	2	-12 🚽				
	Discharge pipe	75	90				
	Inverter	70	105				

Anomalies:

- 1. Compressor frequency at maximum and high compressor discharge
- 2. Large temperature difference between outdoor ambient and H/E temperature
- Probable cause: Clogged or blocked outdoor heat exchanger



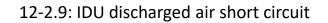


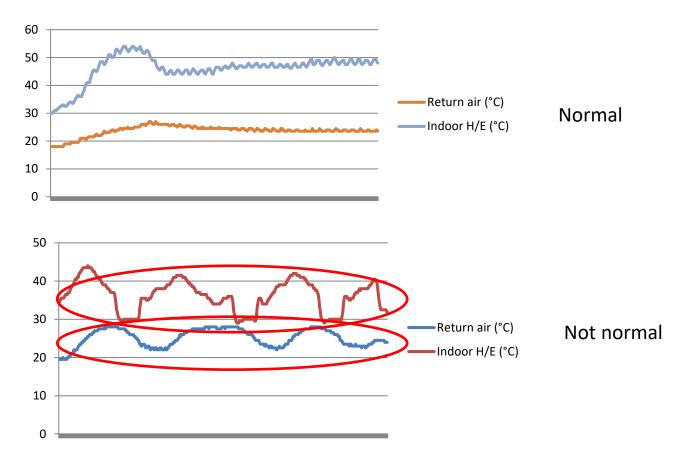
• Data analysis:

IDU		Normal operation	Not normal operation
	Return air temp.	24	14 🗤
	Indoor heat exchanger	48	54 🔺

Anomalies:

- 1. Indoor heat exchanger temperature remains very high
- 2. Return air temperature remains low and thermo off is not reached
- Probable cause: Clogged or blocked indoor heat exchanger





• Data analysis:

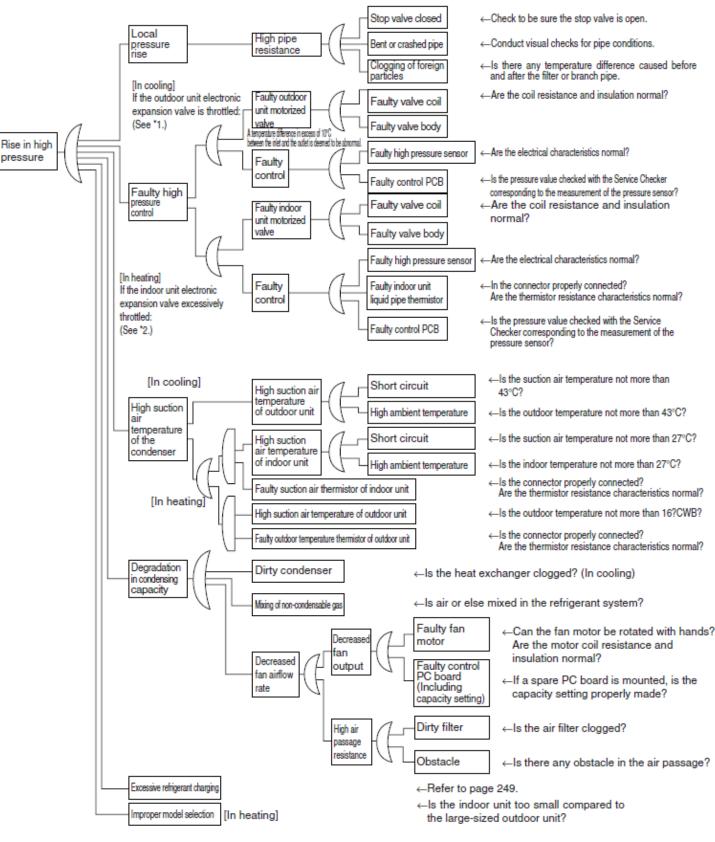
IDU		Normal operation	Not normal operation			
	Return air temp.	24	Strongly fluctuating 🔶			
	Indoor heat exchanger	48	Strongly fluctuating   🚽			

Anomalies:

- 1. Average indoor heat exchanger temperature is low and strongly fluctuating
- 2. Return air temperature is high and also strongly fluctuating.
- Probable cause: Short circuit of indoor air

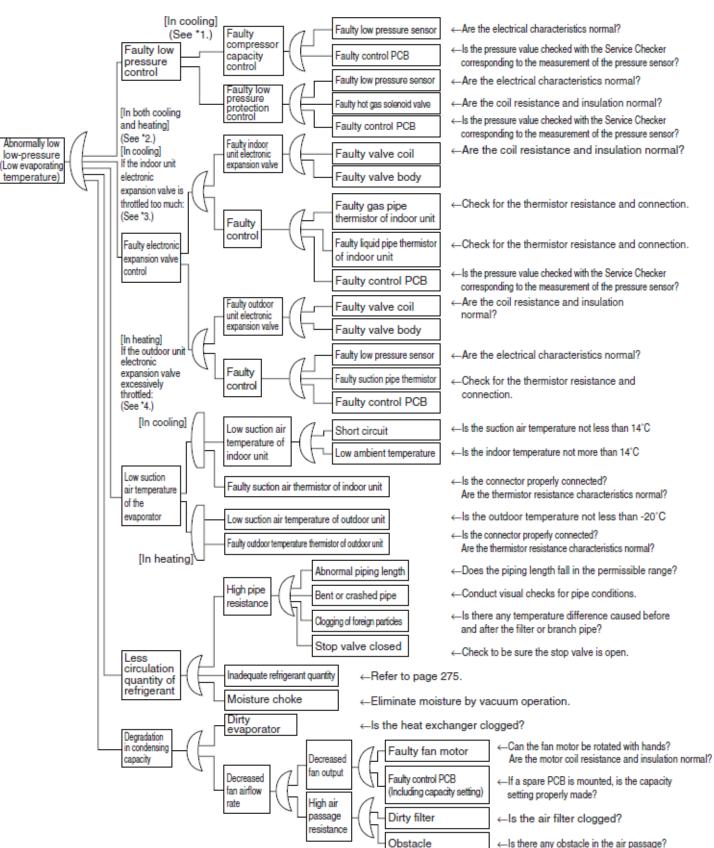
# 13. Fault tree analysis (FTA)

## Check for causes of rise in high pressure

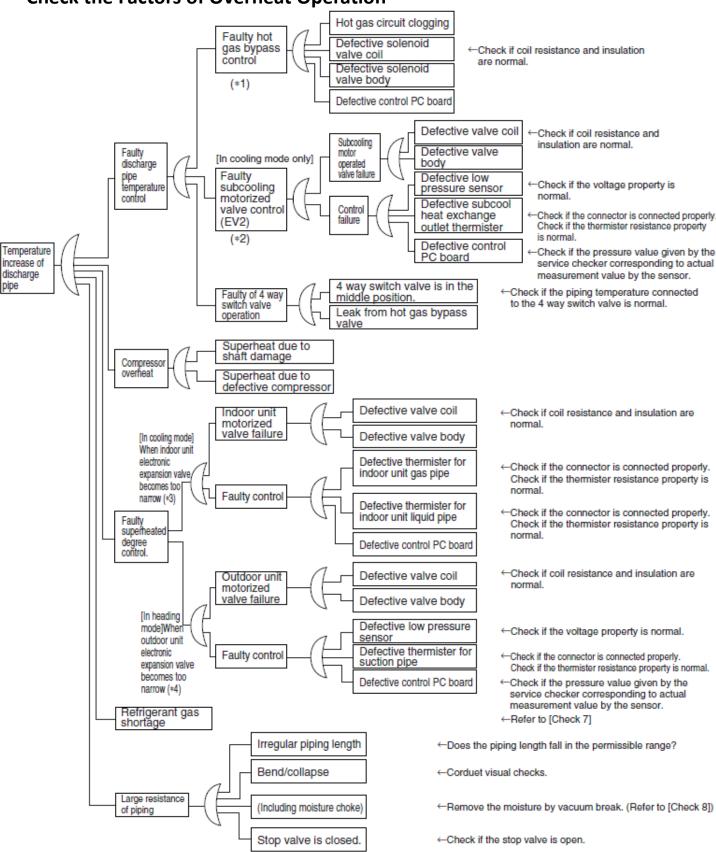


From VRV3 HP service manual

## Check for causes of drop in low pressure



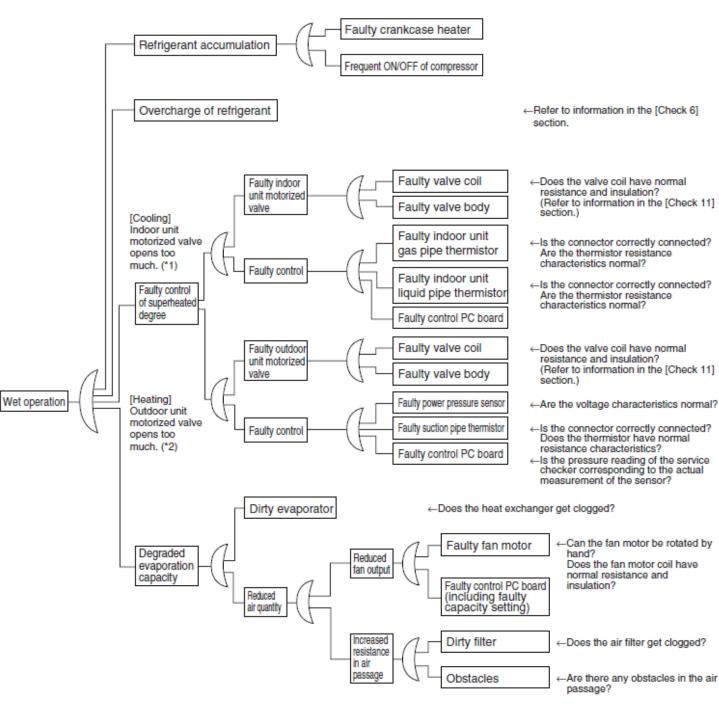
## **Check the Factors of Overheat Operation**



Note 1: Refrigeration is controlled by the indoor electronic expansion valve Note 2: "Superheat control of outdoor unit heat exchanger" by outdoor unit electronic expansion valve during heating,

# 13. Fault tree analysis (FTA)

## Check for causes of wet operation



Note 1: Refrigeration is controlled by the indoor electronic expansion valve Note 2: "Superheat control of outdoor unit heat exchanger" by outdoor unit electronic expansion valve during heating,

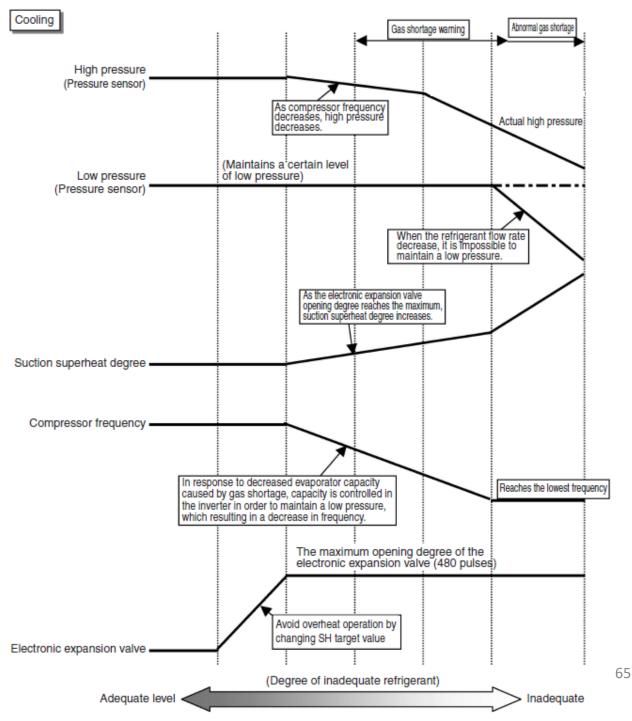
AS0090-R

## **Check for Inadequate Refrigerant**

As criteria for judging whether refrigerant is inadequate or not, refer to the following operating conditions. <Diagnosis of inadequate refrigerant>

In cooling operation

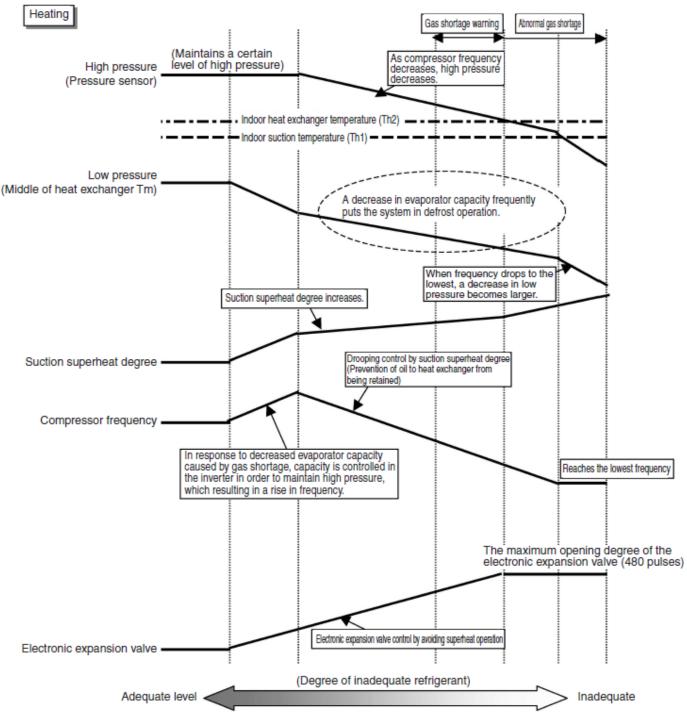
- ① As suction superheat degree increases due to gas shortage, the electronic expansion valve tends to open (opens fully) in order to avoid overheat operation.
- ② In response to decreased evaporator capacity caused by gas shortage, capacity is controlled in the inverter in order to maintain low pressure, which results in a decrease in frequency.
- ③ Because of (1) and (2) above, the compressor frequency decreases despite a large difference (large load) between temperature set by the remote controller and indoor suction temperature, resulting that cooling capacity becomes unavailable.
- ④ If gas shortage worsens, the electronic expansion valve remains fully open and suction superheat degree further increases. In addition, because the compressor frequency drops to the level of the lowest frequency (52 Hz) and the refrigerant flow rate decrease, low pressure cannot be maintained.



AS0090-R

<Diagnosis of inadequate refrigerant>

- In heating operation
- ① As suction superheat degree increases due to gas shortage, the electronic expansion valve tends to open (opens fully) to avoid overheat operation.
- ② As suction superheat degree increases due to gas shortage, compressor frequency decreases because suction superheat degree is controlled in order to prevent oil to the outdoor heat exchanger from being retained.
- ③ Because of (1) and (2) above, evaporator capacity and compressor frequency decrease despite a large difference (large load) between temperature set by the remote controller and indoor suction temperature, resulting that high pressure cannot be maintained and heating capacity becomes unavailable. Also a decrease in evaporator capacity frequently puts the system in defrost operation.
- ④ If gas shortage worsens, high pressure becomes smaller than saturated pressure equivalent to indoor heat exchanger temperature (or indoor suction temperature).



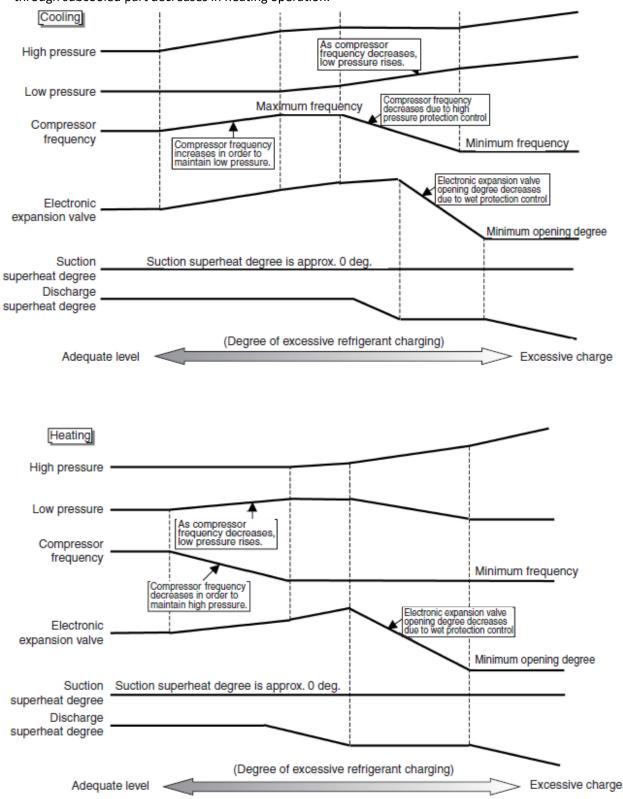
14. Points to check upon symptoms

## **Check for Excessive Refrigerant Charging**

As criteria for judging whether refrigerant is excessively charged or not, refer to the following operating conditions. <Diagnosis of excessive refrigerant charging>

In cooling operation

- ① Because high pressure rises due to excessive charging, overload control is carried out and capacity tends to run short.
- ② Considering pressure load, compressor discharge pipe temperature is low.
- ③ Subcooled degree of condensate liquid becomes large. Therefore, temperature of blown air passing through subcooled part decreases in heating operation.



May 30, 2014 **English version** Initial version July 22, 2014 **1st revision** September 18, 2014 2nd revision **3rd revision** May 12, 2015 July 17, 2015 4th revision August 26, 2015 5th revision October 26, 2015 6th revision July 14, 2016 7th revision September 27, 2016 8th revision June 08, 2017 9th revision 10th revision August 10, 2017 January 12, 2018 11th revision April 11, 2018 12th revision May 14, 2019 13th revision September 2, 2019 14th revision April 13, 2020 15th revision February 02, 2021 16th revision April 4, 2022 17th revision

D-checker (Ver. 3.0.0.0) D-checker (Ver. 3.0.0.1) D-checker (Ver. 3.0.0.1A) D-checker (Ver. 3.2.0.2) D-checker (Ver. 3.2.0.4) D-checker (Ver. 3.2.0.4) D-checker (Ver. 3.2.0.4) D-checker (Ver. 3.3.0.3) D-checker (Ver. 3.4.0.0) D-checker (Ver. 3.4.0.0) D-checker (Ver. 3.4.1.0) D-checker (Ver. 3.4.2.0) D-checker (Ver. 3.4.3.1) D-checker (Ver. 3.5.0.1) D-checker (Ver. 3.5.1.0) D-checker (Ver.3.6.2.1) D-checker (Ver.3.6.3.1) D-checker (Ver.3.7.0.4)

# https://daikin-p.ru

#### [Reference 1] Simple diagnosis Logic list

### Indoor unit group

C	Condition	No.	Target	Logic condition
		1	Higher read value than actual	Indoor unit gas pipe temp >90 (C)
	Regardless of running,	1	Lower read value than actual	Indoor unit gas pipe temp <-20 (C)
	stop, thermo-ON/OFF	2	Higher read value than actual	Indoor unit liquid pipe temp >60 (C)
	status	2	Lower read value than actual	Indoor unit liquid pipe temp <-20 (C)
	status	3	Higher read value than actual	Indoor unit suction air temp >60 (C)
		5	Lower read value than actual	Indoor unit suction air temp <-20 (C)
		4	Higher read value than actual	Other indoor unit gas pipe temp average+5 (C)
Indoor unit thermistor		4	Lower read value than actual	Other indoor unit gas pipe temp average-5 (C)
thermistor	With user's confirmation of sufficient time elapse	_	Higher read value than actual	Other indoor unit liquid pipe temp average+5 (C)
	after operation stop	5	Lower read value than actual	Other indoor unit liquid pipe temp average-5 (C)
		6	Higher read value than actual	Other indoor unit suction air temp average+5 (C)
		0	Lower read value than actual	Other indoor unit suction air temp average-5 (C)
	Indoor unit thermo-ON status	7	Cross piping	Indoor unit gas pipe temp < Indoor unit liquid temp
Indoor unit	Regardless of running, stop, thermo-ON/OFF	8	capacity shortage, gas shortage	Indoor unit expansion valve opening (VRV)>1700
valve	status	9	capacity shortage, gas shortage	Indoor unit expansion valve opening (RA, SA)>480

#### Outdoor unit group

Condition		No.	Target	Logic condition
		10	Higher read value than actual	Outdoor unit suction pipe temp >80 (C)
		10	Lower read value than actual	Outdoor unit suction pipe temp <-30 (C)
			Higher or lower value than actual	Outdoor unit discharge pipe temp 1>160 (C) OR <-15 (C)
	Degardlass of supping	11	Higher or lower value than actual	Outdoor unit discharge pipe temp 2>160 (C) OR <-15 (C)
	Regardless of running, stop, thermo-ON/OFF		Higher or lower value than actual	Outdoor unit discharge pipe temp 3>160 (C) OR <-15 (C)
	status	12	Higher read value than actual	Outdoor unit liquid pipe temp (other than discharge, suction and outdoor air) >80 (C)
		12	Lower read value than actual	Outdoor unit liquid pipe temp (other than discharge, suction and outdoor air) <-30 (C)
		13	Higher read value than actual	Outdoor unit air temp >60 (C)
Outdoor unit		15	Lower read value than actual	Outdoor unit air temp <-30 (C)
thermistor		14	Higher read value than actual	Outdoor unit suction pipe temp>TC+10 (C) AND >Outdoor unit air temp+10 (C)
		15	Lower read value than actual	Outdoor unit suction pipe temp <te-10 (c)<="" td=""></te-10>
	Compressor running (INV>0)	16	Higher read value than actual	Outdoor unit discharge pipe temp 1>160 (C)
		17	Lower read value than actual	Outdoor unit discharge pipe temp 1 <tc-10 (c)<="" td=""></tc-10>
		18	Lower read value than actual	Outdoor unit discharge pipe temp 2 <tc-10 (c)<="" td=""></tc-10>
	Compressor running	19	Higher read value than actual	Outdoor unit discharge pipe temp 2>160 (C)
	(STD1=ON)	20	Lower read value than actual	Outdoor unit discharge pipe temp 2 <tc-10 (c)<="" td=""></tc-10>
	Compressor running	21	Higher read value than actual	Outdoor unit discharge pipe temp 3>160 (C)
	(STD2=ON)	22	Lower read value than actual	Outdoor unit discharge pipe temp 3 <tc-10 (c)<="" td=""></tc-10>
		23	Lower read value than actual	TC <outdoor (c)<="" -5="" air="" td="" temp="" unit=""></outdoor>
	Regardless of running,	24	Higher read value than actual	TC>Outdoor unit discharge pipe temp1 +5 (C)
	stop, thermo-ON/OFF status	25	Higher read value than actual	TC>Outdoor unit discharge pipe temp2 +5 (C)
	Status	26	Higher read value than actual	TC>Outdoor unit discharge pipe temp3 +5 (C)
		27	Higher read value than actual	TE>Outdoor unit air temp +5 (C)
	Compressor rupping	28	Lower read value than actual	TC <outdoor (c)<="" -5="" air="" td="" temp="" unit=""></outdoor>
<b>D</b>	Compressor running	29 30	Higher read value than actual	TC>Outdoor unit discharge pipe temp1 TC>Outdoor unit discharge pipe temp2
Pressure sensor	(INV>0)	30	Higher read value than actual Higher read value than actual	TE>Outdoor unit discharge pipe temp
	Compressor running			
	(STD1=ON)	32	Higher read value than actual	TC>Outdoor unit discharge pipe temp2
	Compressor running (STD2=ON)	33	Higher read value than actual	TC>Outdoor unit discharge pipe temp3
	With user's confirmation	34	Lower read value than actual	TC <outdoor (c)<="" -5="" air="" td="" temp="" unit=""></outdoor>
	of sufficient time elapse	35	Higher read value than actual	TC>Outdoor unit air temp +5 (C)
	after operation stop	36	Lower read value than actual	TE <outdoor (c)<="" -5="" air="" td="" temp="" unit=""></outdoor>
		37	Higher read value than actual	TE>Outdoor unit air temp +5 (C)

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#### [Reference 2] Conversion table for expansion valve pulse value of indoor units being connected to BP unit

0         0         200         60         275         100         1016         400         173         401         2488         441           7         2         031         07         101         02         101         041         101         <			C	onv	ersion	table	("СНК"	=LEFT:	value	listed	by check	er soft	ware	"EV"=	RIC	GHT: cor	verte	d value)			
3         1         202         61         271         121         212         121         55         121         75         101         120         121         41         426         541           11         3         205         67         300         121         403         843         564         203         126         126         403         421         204         843         2468         541           18         5         208         65         303         125         433         855         602         245         768         305         1082         365         178         407         404         2488         544           27         6         306         127         408         127         408         127         408         128         4248         448 <td>СНК</td> <td>EV</td> <td>CHK EV</td> <td>/</td> <td>СНК</td> <td>EV</td> <td>СНК</td> <td>EV</td> <td>СНК</td> <td>EV</td> <td>СНК</td> <td>EV</td> <td>СН</td> <td>&lt; E\</td> <td>/</td> <td>СНК</td> <td>EV</td> <td>СНК</td> <td>EV</td> <td>СНК</td> <td>EV</td>	СНК	EV	CHK EV	/	СНК	EV	СНК	EV	СНК	EV	СНК	EV	СН	< E\	/	СНК	EV	СНК	EV	СНК	EV
1         2         203         62         122         123         124         124         126         126         126         128         124         124         124         124         124         124         124         124         124         124         124         124         126         126         128	0	0	200 60	)	295	120	419	180	586	240	752	300	101	6 36	0	1731	420	2178	480	2468	540
11         3         205         63         200         122         428         123         700         301         1056         831         100         422         129         481         2465         546           18         5         208         65         303         125         433         455         600         245         768         305         102         365         1078         362         1278         425         2465         546         178         426         2464         446         446         446         446         446         446         447         120         661         240         771         306         1125         360         1185         360         1185         360         1185         360         1185         360         1185         360         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380         1185         380	3	1	202 61	L	297	121	422	181	588	241	755	301	102	9 36	1	1741	421	2183	481	2468	541
14         4         207         64         303         124         503         124         763         324         763         355         172         632         179         425         129         425         129         425         129         425         129         425         129         425         129         425         129         425         129         425         129         445         126         126         126         126         126         127         127         127         127         127         127         127         127         127         127         127         127         127         127         128         141         127         136         112         120         141         127         136         120         146         120         131         130         140         130         141         131	-			_	-				-				104	_	_						542
18         5         208         65         303         125         433         135         600         246         769         505         178         426         2204         485         2468         544           22         7         10         66         305         127         439         137         605         247         771         907         1108         557         1797         421         687         2425         687         2425         687         2425         687         2425         687         2425         687         2426         681         2426         681         2426         681         2468         551           44         12         129         72         314         133         451         151         151         151         142         217         313         154         181         1421         144         132         1464         136         127         788         313         141         143         141         134         141         134         141         124         731         144         1426         147         277         134         1246         14264         463         1446         146				_										_	-						543
122         6         101         66         105         115         105         115         105         115         105         115         116         117				_										_	-						544
125         7         71         11         67         1308         677         1308         1308         677         1308         1308         1308         1308         1308         1308         1308         1308         1308         1308         1308         1308         1308         1308         1308         1318         1308         1318         1308         1318         1308         1318         1308         1318         1308         1318         1308         1318         1328         1318         1328         1328         1328         1328         1328         1328         1328         1328         1328         1328         1328         1328         1328														_	-						
129         8.         131         6.6         308         122         485         142         135         395         112         2365         1306         428         2207         488         2468         546           33         9         11         661         101         135         395         1456         429         2207         488         2468         546           44         112         131         131         450         151         616         251         786         131         1148         370         1825         430         2206         488         566         55         151         224         73         316         143         224         73         316         143         224         74         317         144         58         146         145         227         755         152         124         75         130         135         464         145         127         755         151         124         375         137         435         127         348         426         2267         453         126         363         127         351         124         375         1372         452         1267														_							
3         9         124         66         310         129         177         90         1135         399         186         430         222         489         2468         456           37         10         215         71         311         130         447         190         613         250         780         311         1161         371         1835         431         2236         431         2246         432         2446         432         2446         432         2446         432         2446         432         2446         432         2446         432         2446         432         2446         432         2446         433         4468         555         55         55         52         743         151         144         120         77         321         135         444         196         630         256         796         116         1212         376         1881         437         2226         487         4468         555           55         15         227         77         321         138         449         1468         387         799         171         120         371         1881         437 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_										_							
37         10         126         70         311         130         447         190         151         250         780         311         140         2468         555           40         11         213         72         314         132         453         192         612         785         312         1174         372         1883         433         2246         491         2468         555           51         14         222         74         311         34         458         198         622         253         788         311         1180         374         1883         433         2246         484         2468         555           55         15         224         75         319         466         197         633         257         79         317         1220         376         1881         436         2226         486         2468         555           66         180         237         783         138         461         1260         807         310         181         436         226         486         555           71         1223         780         3123         148				_										_	-						
40         11         218         7.1         313         131         450         191         616         251         722         111         1174         372         1884         432         2246         493         2468         555           44         13         221         73         314         132         453         192         622         253         788         313         1184         372         1843         433         2246         483         2466         555           55         15         224         78         131         464         196         620         256         796         112         120         376         1881         432         224         494         2468         555           56         15         220         77         321         137         464         197         632         287         799         124         378         1901         433         2278         499         2468         555           70         19         200         793         310         1240         377         1910         433         2484         426         426         426         426         426				_										_	-						
14         12         121	-													_							-
48         13         221         73         316         733         455         193         622         253         778         113         1188         73         1853         433         2246         433           55         15         222         74         317         134         458         194         624         254         791         134         11201         377         1878         434         2252         494         2468         55           55         16         226         76         311         136         464         196         630         256         796         116         1227         77         181         437         1873         436         2267         497         4468         555           66         18         229         78         321         196         636         258         800         310         1277         781         130         438         2278         498         4268         556           77         21         234         801         321         1280         301         1427         1486         366         2278         498         4248         526         4241				_					-					_	_						
51         14         222         74         317         134         458         194         624         254         791         316         1201         374         1863         434         2252         494         2468         555           55         15         224         75         319         135         466         197         630         256         796         310         1224         375         1881         436         2262         496         2468         555           66         18         227         78         321         134         466         197         633         257         799         310         1224         377         189         130         433         2278         499         2468         556           70         19         230         79         330         142         478         200         644         201         644         201         647         267         813         321         1306         321         1393         841         2284         500         2468         566           88         24         238         333         144         480         204         651				_										_	_						553
55         15         224         75         319         451         927         255         794         151         1214         75         1872         435         227         445         2287         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2267         445         2278         448         2278         448         2278         448         2278         448         2278         448         2278         448         2278         448         2278         448         2278         448         2278         448         2288         500         2288         500         2288         500         2288         500         2288         500         2288         500         2288         500         2288         500         2288         500         2288				_										_	_						554
95         16         226         76         211         132         446         196         633         257         799         317         1240         377         1881         435         2267         497         2468         555           66         18         223         78         324         138         446         196         636         258         805         318         1247         378         1900         438         2273         499         2468         555           70         19         230         79         325         139         472         100         472         200         641         261         800         1910         440         2284         630         2468         565           81         22         235         82         330         142         480         202         647         262         133         384         1928         441         2288         501         2468         562           82         23         230         143         483         206         652         264         819         441         229         600         2468         562           92														_	-				495		555
66         18         229         78         324         138         469         189         638         259         805         319         1267         379         190         438         2273         498         2468         555           70         13         230         79         325         139         472         109         430         2278         499         2468         555           74         20         234         81         322         140         478         201         644         261         810         321         1293         841         2284         501         2468         566           85         23         237         83         3124         480         204         652         264         819         324         1333         844         229         503         2468         566           92         25         240         85         336         146         491         206         653         266         824         326         1359         366         177         3173         387         1205         446         2310         506         2468         566         107         29	59	16			321		464		630		796	316	122	7 37	6	1881	436		496	2468	556
TO         19         230         73         325         139         472         199         638         259         805         319         1267         379         1910         439         2278         499         2468         555           77         21         232         80         327         140         475         200         644         261         810         321         1283         381         1928         441         2288         500         2468         566           81         22         235         82         330         142         480         202         647         262         813         322         1330         441         2286         500         2468         565           88         24         238         84         333         144         486         204         652         266         821         325         1346         485         1966         444         2304         500         2468         566           92         27         243         87         338         147         494         207         666         266         830         238         1300         142         2300	62	17	227 77	7	322	137	466	197	633	257	799	317	124	0 37	7	1891	437	2267	497	2468	557
1         1	66	18	229 78	3	324	138	469	198	636	258	802	318	125	4 37	8	1900	438	2273	498	2468	558
77       21       234       81       329       141       478       201       644       261       810       321       1233       381       1928       441       2288       501       2468       66.6         82       23       237       83       332       144       480       203       644       263       816       323       1323       381       1936       442       2294       502       2468       56.5         82       24       238       84       333       144       486       204       652       264       819       324       1333       384       1956       444       2304       504       2468       566         92       25       240       85       336       146       491       206       652       264       821       325       386       1966       448       2310       505       2468       566         92       27       243       87       338       144       494       207       666       266       832       328       1386       388       2009       448       2325       506       2468       567         103       244	70	19	230 79	)	325	139	472	199	638	259	805	319	126	7 37	9	1910	439	2278	499	2468	559
B1         22         235         82         330         142         480         202         647         662         813         322         1306         882         1938         442         2294         502         2468         656           88         24         237         83         331         144         483         203         652         648         1333         184         1966         444         230         504         2468         56           92         243         86         335         144         489         206         655         266         824         326         1359         88         1975         446         2315         506         2468         566           103         28         245         88         340         148         497         208         666         267         832         239         1389         389         2003         447         2331         509         2468         566         103         1412         390         245         2331         590         2468         567         1332         381         1422         391         245         2468         57         2468         57 </td <td>74</td> <td>20</td> <td>232 80</td> <td>)</td> <td>327</td> <td>140</td> <td>475</td> <td>200</td> <td>641</td> <td>260</td> <td>807</td> <td>320</td> <td>128</td> <td>0 38</td> <td>0</td> <td>1919</td> <td>440</td> <td>2283</td> <td>500</td> <td>2468</td> <td>560</td>	74	20	232 80	)	327	140	475	200	641	260	807	320	128	0 38	0	1919	440	2283	500	2468	560
85         23         237         83         332         143         483         203         649         263         816         323         1320         383         1947         443         2299         503         2468         563           92         25         240         85         333         144         486         204         652         266         819         324         1333         384         1956         444         230         505         2468         562         565         265         827         327         1346         385         1966         445         2315         506         2468         566           103         28         87         338         147         494         200         666         269         332         1336         388         2004         448         233         500         2468         566          103         248         89         341         149         500         209         666         269         332         139         389         2014         441         2331         509         2468         567           110         30         248         303         1452	77	21	234 81	L	329	141	478	201	644	261	810	321	129	3 38	1	1928	441	2288	501	2468	561
88         24         238         84         333         144         486         204         652         264         819         324         1333         384         1956         444         2304         504           92         25         240         85         335         146         491         206         658         266         824         325         1336         1359         346         445         2315         506         2468         566           99         27         243         87         338         147         494         207         661         267         824         327         1372         387         2003         447         2320         507         2468         566           100         30         248         90         343         150         503         211         672         271         833         311         1423         390         2014         449         2347         512         2468         577           114         31         249         31         513         511         213         677         273         843         331         1452         393         2036         453				_					647					_	_						562
92         25         240         85         335         145         489         205         655         265         821         325         1346         385         1966         445         2310         505         2468         566           99         27         243         87         388         144         491         206         658         266         824         326         1395         346         1200         447         2320         507         2468         566           103         28         245         88         340         148         497         208         663         268         330         1412         390         2014         449         2331         509         2468         566           110         30         248         90         339         151         505         211         672         271         838         331         1425         391         2024         451         2341         511         2468         572           122         33         345         153         151         215         677         273         843         334         1452         393         1526         2365 <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>563</td>				_										_	-						563
96         26         241         86         336         146         491         206         658         266         824         326         1359         386         1975         446         2315         506         2468         566           103         28         72         243         87         338         147         494         207         661         267         827         327         1372         387         2003         447         2320         507         2468         566           107         29         246         89         341         149         500         209         666         269         832         329         1399         389         2014         449         2331         502         2468         566           114         31         249         91         342         150         508         110         674         272         841         332         1438         392         2034         452         2347         512         2468         572           122         33         254         94         347         154         514         216         682         276         852         336	-			_					-					_	-					_	564
99         27         243         87         338         147         494         207         661         267         827         327         1372         387         2003         447         2320         507         2468         560           103         28         245         89         341         149         900         209         666         260         832         329         1386         388         2009         448         2331         509         2468         567           114         31         249         91         339         151         505         211         672         771         838         331         1425         391         2014         450         2334         511         213         677         773         843         332         1438         392         2035         453         2352         514         2468         577           122         33         255         95         350         155         516         216         682         277         843         334         1465         394         2040         454         2362         515         2468         577           122         35 <td>-</td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>_</td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-			_	-								-	_	_						
103         28         245         88         340         148         497         208         663         268         830         328         1386         388         2009         448         2325         508         2468         566           107         29         246         89         341         149         500         200         666         260         832         320         139         389         2014         449         2331         500         2468         567           114         31         249         91         339         151         505         211         672         271         883         331         1425         391         2024         451         2341         511         2468         577           122         33         253         93         345         153         516         215         683         277         843         333         1478         395         2046         455         2362         515         2468         577           136         37         150         157         522         217         688         371         1504         397         2056         457         2373 <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_										_	-						
107         29         246         89         341         149         500         209         666         269         832         329         139         389         2014         449         233         509         2468         566           110         30         248         90         339         151         505         211         676         270         831         330         1412         390         2014         450         2336         510         2468         577           118         32         251         92         342         152         508         212         677         273         843         333         1452         393         2035         453         2347         511         2468         577           122         33         255         95         350         155         515         578         349         334         1465         344         1468         347         1465         342         246         575         516         2365         515         2365         516         2375         516         2368         516         2468         577           133         36         252         97 <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_										_	-						
110         30         248         90         343         150         503         210         669         270         835         330         1412         390         2019         450         2336         510         2468         570           114         31         249         91         339         151         505         211         672         271         838         331         1425         391         2030         452         2347         511         2468         577           122         33         345         153         511         213         674         272         844         333         1455         391         2030         452         2347         512         2468         577           122         33         256         95         350         155         151         216         682         276         852         336         1491         396         2051         456         2362         515         2468         577           136         37         259         97         356         157         522         176         682         336         151         318         2468         510         2378 <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>														_	-						
114         31         249         91         339         151         505         211         672         271         838         331         1425         391         2024         451         2341         511         2468         571           118         32         253         93         345         153         511         213         677         273         843         332         1438         392         2035         453         2357         512         2468         577           122         34         254         94         347         154         514         213         677         273         843         334         1452         393         2035         453         2357         514         2668         577           129         35         256         95         350         155         516         215         683         277         855         337         1504         397         2056         457         2375         124         2468         577           140         38         260         98         358         158         237         129         694         279         860         339         1531					-									_	_						
118       32       251       92       342       152       508       212       674       272       841       332       1438       392       2030       452       2347       512       2468       572         122       33       253       93       345       153       511       213       667       273       843       333       1452       393       2035       453       2352       513       2468       572         129       35       256       95       350       155       516       215       685       276       852       366       1491       396       2046       455       2368       516       2468       577         136       37       259       97       356       157       522       217       688       277       855       337       1504       397       2056       457       2373       517       2468       577         140       38       260       98       351       159       522       217       688       340       1544       400       2077       4686       339       1238       151       2486       577         144       99				_										_	_						
122       33       253       93       345       153       511       213       677       273       843       333       1452       393       2035       453       2352       513       2468       572         125       34       254       94       347       154       514       214       680       274       846       334       1455       394       2046       454       2357       514       2468       572         133       36       257       96       353       156       519       216       688       276       855       337       1504       397       2056       457       2368       516       2468       577         136       37       259       97       356       157       522       217       688       277       855       337       1504       397       2056       457       2334       519       2468       577         144       39       262       99       361       159       527       219       694       279       860       339       1531       399       2067       459       2384       519       2468       577         144				_										_	-						572
125       34       254       94       347       154       514       214       680       274       846       334       1465       394       2040       454       2357       514       2468       577         129       35       256       95       350       155       516       215       683       275       849       335       1478       395       2046       455       2362       515       2468       577         133       36       257       97       356       157       522       217       688       277       855       337       1504       397       2056       457       2373       517       2468       577         140       38       260       98       358       158       522       217       684       279       860       339       1518       398       2061       458       2378       518       2468       577         144       39       262       99       361       150       527       219       694       279       866       340       1544       400       2072       460       2389       520       2468       582         154				_							843			_	-						573
133         36         257         96         353         156         519         216         685         276         852         336         1491         396         2051         456         2368         516         2468         576           136         37         259         97         356         157         522         217         688         277         855         337         1504         397         2056         457         2373         517         2468         577           140         38         260         98         358         158         522         218         691         278         857         338         1518         398         2061         458         2378         518         2468         572           144         30         264         100         364         160         530         220         697         280         1534         300         1544         400         2077         461         2394         521         2468         582           155         42         267         102         369         162         536         227         702         282         868         342         1553 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>680</td> <td></td> <td>846</td> <td></td> <td>-</td> <td>_</td> <td></td> <td>2040</td> <td></td> <td></td> <td></td> <td>2468</td> <td>574</td>									680		846		-	_		2040				2468	574
136       37       259       97       356       157       522       217       688       277       855       337       1504       397       2056       457       2373       517       2468       577         140       38       260       98       358       158       525       218       691       278       857       338       1518       398       2061       458       2378       518       2468       577         144       39       262       99       361       159       527       219       694       279       860       339       1531       399       2067       459       2384       519       2468       567         147       40       264       100       364       160       530       220       697       280       863       340       1544       400       2077       460       2389       520       2468       583         155       42       267       102       369       162       536       227       702       282       866       341       1553       402       2083       462       2399       522       2468       582         156	129	35	256 95	;	350	155	516	215	683	275	849	335	147	8 39	5	2046	455	2362	515	2468	575
140       38       260       98       358       158       525       218       691       278       857       338       1518       398       2061       458       2378       518       2468       577         144       39       262       99       361       159       527       219       694       279       860       339       1531       399       2067       459       2384       519       2468       579         147       40       264       100       364       160       530       220       697       280       863       340       1544       400       2077       461       2399       520       2468       587         151       41       265       101       367       161       533       221       702       828       866       341       1553       401       2077       461       2399       521       2468       583         155       42       267       102       378       165       541       224       708       284       877       343       1571       403       2088       463       2415       525       2468       582         166 <td>133</td> <td>36</td> <td>257 96</td> <td>5</td> <td>353</td> <td>156</td> <td>519</td> <td>216</td> <td>685</td> <td>276</td> <td>852</td> <td>336</td> <td>149</td> <td>1 39</td> <td>6</td> <td>2051</td> <td>456</td> <td>2368</td> <td>516</td> <td>2468</td> <td>576</td>	133	36	257 96	5	353	156	519	216	685	276	852	336	149	1 39	6	2051	456	2368	516	2468	576
144       39       262       99       361       159       527       219       694       279       860       339       1531       399       2067       459       2384       519       2468       579         147       40       264       100       364       160       530       220       697       280       863       340       154       400       2072       460       2389       520       2468       580         155       42       267       102       369       162       536       222       702       282       868       342       1553       401       2077       461       2394       521       2468       582         159       43       268       103       372       163       539       223       705       283       871       343       1572       403       2088       463       2405       523       2468       583         162       44       270       104       375       164       544       226       710       285       877       345       1591       405       2405       525       2468       583         170       46       273	136	37	259 97	7	356	157	522	217	688	277	855	337	150	4 39	7	2056	457	2373	517	2468	577
147       40       264       100       364       160       530       220       697       280       863       340       1544       400       2072       460       2389       520       2468       580         151       41       265       101       367       161       533       221       699       281       866       341       1553       401       2077       461       2394       521       2468       581         155       42       267       102       369       162       536       222       702       282       868       342       1563       402       2083       462       2399       522       2468       582         159       43       268       103       372       163       541       224       708       284       871       343       1551       404       2093       464       2410       524       2468       582         166       45       272       105       378       165       544       225       710       285       877       345       1591       405       2415       525       2468       582         170       46       273 <td>140</td> <td>38</td> <td>260 98</td> <td>3</td> <td>358</td> <td>158</td> <td>525</td> <td>218</td> <td>691</td> <td>278</td> <td>857</td> <td>338</td> <td>151</td> <td>8 39</td> <td>8</td> <td>2061</td> <td>458</td> <td>2378</td> <td>518</td> <td>2468</td> <td>578</td>	140	38	260 98	3	358	158	525	218	691	278	857	338	151	8 39	8	2061	458	2378	518	2468	578
151       41       265       101       367       161       533       221       699       281       866       341       1553       401       2077       461       2394       521       2468       581         155       42       267       102       369       162       536       222       702       282       868       342       1563       402       2083       462       2399       522       2468       583         162       44       270       104       375       164       541       224       708       284       871       343       1572       403       2088       463       2405       523       2468       584         166       45       272       105       378       165       544       225       710       285       877       345       1591       405       2098       465       2415       525       2468       584         170       46       273       106       381       166       552       228       719       288       882       347       1610       407       2109       467       2426       527       2468       582         177 </td <td>144</td> <td>39</td> <td>262 99</td> <td>)</td> <td>361</td> <td></td> <td>527</td> <td></td> <td>694</td> <td>279</td> <td>860</td> <td>339</td> <td></td> <td>_</td> <td>9</td> <td>2067</td> <td>459</td> <td>2384</td> <td></td> <td>2468</td> <td>579</td>	144	39	262 99	)	361		527		694	279	860	339		_	9	2067	459	2384		2468	579
155       42       267       102       369       162       536       222       702       282       868       342       1563       402       2083       462       2399       522       2468       583         159       43       268       103       372       163       539       223       705       283       871       343       1572       403       2088       463       2405       523       2468       583         162       44       270       104       375       164       541       224       708       284       871       343       1572       403       2098       464       2410       524       2468       583         166       45       272       105       378       165       544       225       710       285       877       345       1591       405       2098       465       2415       525       2468       586         170       46       273       106       381       165       547       226       713       286       880       346       1600       406       2104       466       2420       526       2468       586         177 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>580</td>				_										_	-						580
159       43       268       103       372       163       539       223       705       283       871       343       1572       403       2088       463       2405       523       2468       583         162       44       270       104       375       164       541       224       708       284       874       344       1581       404       2093       464       2410       524       2468       584         166       45       272       105       378       165       544       225       710       285       877       345       1591       405       2098       465       2415       525       2468       584         170       46       273       106       381       166       547       226       713       286       880       346       1600       406       2104       466       2420       526       2468       586         177       48       276       108       386       168       552       229       722       289       888       349       1628       409       2120       469       2436       529       2468       589         184 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>581</td>				_										_	-						581
162       44       270       104       375       164       541       224       708       284       874       344       1581       404       2093       464       2410       524       2468       584         166       45       272       105       378       165       544       225       710       285       877       345       1591       405       2098       464       2410       524       2468       584         170       46       273       106       381       166       547       226       713       286       880       346       1610       407       2104       466       2420       526       2468       587         177       48       276       108       386       168       552       228       719       288       885       348       1619       408       2114       468       2431       528       2468       588         181       49       278       109       389       169       555       229       722       289       888       349       1628       409       2120       469       2448       589       2468       589         184 </td <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>582</td>														_							582
166       45       272       105       378       165       544       225       710       285       877       345       1591       405       2098       465       2415       525       2468       585         170       46       273       106       381       166       547       226       713       286       880       346       1600       406       2104       466       2420       526       2468       587         177       48       276       108       386       168       552       228       719       288       885       348       1610       407       2109       467       2426       527       2468       588         181       49       278       109       389       169       555       229       722       289       888       349       1628       409       2120       469       2436       529       2468       588         184       50       279       110       392       170       558       230       724       290       893       351       1647       411       2130       471       2448       530       2468       592         186 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>583</td>									-				-	_	-						583
170       46       273       106       381       166       547       226       713       286       880       346       1600       406       2104       466       2420       526       2468       588         173       47       275       107       383       167       550       227       716       287       882       347       1610       407       2109       467       2426       527       2468       588         181       49       278       109       389       169       555       229       722       289       888       349       1619       408       2114       468       2431       528       2468       588         184       50       279       110       392       170       558       230       724       290       891       350       1638       410       2125       470       2442       530       2468       592         186       51       281       111       394       171       561       231       727       291       893       351       1647       411       2130       471       2448       592       2468       592         188 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_										_	-						
173       47       275       107       383       167       550       227       716       287       882       347       1610       407       2109       467       2426       527       2468       587         177       48       276       108       386       168       552       228       719       288       885       348       1619       408       2114       468       2431       528       2468       588         181       49       278       109       389       169       555       229       722       289       888       349       1628       409       2120       469       2436       529       2468       589         184       50       279       110       392       170       558       230       724       290       891       350       1638       410       2120       469       2442       530       2468       597         186       51       281       111       394       171       561       231       727       291       893       351       1647       411       2130       471       2442       530       2468       597         188 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_										_	-						
177       48       276       108       386       168       552       228       719       288       885       348       1619       408       2114       468       2431       528       2468       588         181       49       278       109       389       169       555       229       722       289       888       349       1619       408       2114       468       2431       528       2468       588         184       50       279       110       392       170       558       230       724       290       891       350       1638       410       2125       470       2442       530       2468       591         186       51       281       111       394       171       561       231       727       291       893       351       1647       411       2130       471       2443       531       2468       592         188       52       283       112       397       172       564       232       730       292       896       352       1656       412       2135       472       2452       532       2468       592         189 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_									-		-						
181       49       278       109       389       169       555       229       722       289       888       349       1628       409       2120       469       2436       529       2468       589         184       50       279       110       392       170       558       230       724       290       891       350       1638       410       2125       470       2442       530       2468       591         186       51       281       111       394       171       561       231       727       291       893       351       1647       411       2130       471       2442       530       2468       592         188       52       283       112       397       172       564       232       730       292       896       352       1656       412       2130       471       2452       532       2468       592         189       53       284       113       400       173       566       233       733       293       924       353       1666       413       2141       473       2457       533       2468       592         191 </td <td>-</td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-			_	-				-					_	-						
184       50       279       110       392       170       558       230       724       290       891       350       1638       410       2125       470       2442       530       2468       592         186       51       281       111       394       171       561       231       727       291       893       351       1647       411       2130       471       2442       530       2468       592         188       52       283       112       397       172       564       232       730       292       896       352       1656       412       2135       472       2442       530       2468       592         189       53       284       113       400       173       566       233       733       293       924       353       1666       413       2141       473       2457       533       2468       592         191       54       286       114       403       174       569       234       735       294       937       354       1675       414       2146       474       2463       534       2468       592         192 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td>_</td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				_					-				-	_	_						
186       51       281       111       394       171       561       231       727       291       893       351       1647       411       2130       471       2447       531       2468       592         188       52       283       112       397       172       564       232       730       292       896       352       1656       412       2135       472       2452       532       2468       592         189       53       284       113       400       173       566       233       733       293       924       353       1666       413       2141       473       2457       533       2468       592         191       54       286       114       403       174       569       234       735       294       937       354       1675       414       2146       474       2453       534       2468       592         192       55       287       115       406       175       572       235       738       295       950       355       1685       415       2151       475       2468       535       2468       592         194 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>589</td>				_										_	-						589
188       52       283       112       397       172       564       232       730       292       896       352       1656       412       2135       472       2452       532       2468       592         189       53       284       113       400       173       566       233       733       293       924       353       1666       413       2141       473       2452       532       2468       592         191       54       286       114       403       174       569       234       735       294       937       354       1666       413       2141       473       2452       532       2468       592         192       55       287       115       406       175       572       235       738       295       950       355       1685       416       2146       474       2468       534       2468       592         194       56       289       116       408       176       575       236       741       296       953       356       1694       416       2156       476       2468       536       2468       592         194 </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>591</td>				_										_	-						591
189       53       284       113       400       173       566       233       733       293       924       353       1666       413       2141       473       2457       533       2468       593         191       54       286       114       403       174       569       234       735       294       937       354       1675       414       2146       474       2463       534       2468       594         192       55       287       115       406       175       572       235       738       295       950       355       1685       416       2146       474       2468       534       2468       594         194       56       289       116       408       176       575       236       741       296       950       355       1685       416       2156       476       2468       536       2468       596         195       57       291       117       411       177       577       237       744       297       976       357       1703       417       2162       477       2468       537       2468       597         195 </td <td></td> <td>_</td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>592</td>														_	_						592
191       54       286       114       403       174       569       234       735       294       937       354       1675       414       2146       474       2463       534       2468       594         192       55       287       115       406       175       572       235       738       295       950       355       1685       415       2151       475       2468       535       2468       596         194       56       289       116       408       176       575       236       741       296       950       355       1694       416       2151       476       2468       536       2468       596         195       57       291       117       411       177       577       237       744       297       976       357       1703       417       2162       477       2468       537       2468       597         195       57       291       117       411       177       577       237       744       297       976       357       1703       417       2162       477       2468       537       2468       597	-				-								-	_	_						593
192       55       287       115       406       175       572       235       738       295       950       355       1685       415       2151       475       2468       535       2468       595         194       56       289       116       408       176       575       236       741       296       963       356       1694       416       2156       476       2468       536       2468       596         195       57       291       117       411       177       577       237       744       297       976       357       1703       417       2162       477       2468       537       2468       597														_	_						594
194       56       289       116       408       176       575       236       741       296       963       356       1694       416       2156       476       2468       536       2468       596         195       57       291       117       411       177       577       237       744       297       976       357       1703       417       2162       477       2468       536       2468       597	192	55	287 11	5	406	175	572	235	738	295	950	355		_	5		475		535	2468	595
															-						596
197 58 292 118 414 178 580 238 746 298 990 358 1713 418 2167 478 2468 520 2469 500	195	57	291 11	7	411	177	577	237	744	297	976	357	170	3 41	7	2162	477	2468	537	2468	597
	197	58	292 11	8	414	178	580	238	746	298	990	358	171	3 41	8	2167	478	2468	538	2468	598
199         59         294         119         417         179         583         239         749         299         1003         359         1722         419         2172         479         2468         539         2468         599	199	59	294 11	9	417	179	583	239	749	299	1003	359	172	2 41	9	2172	479	2468	539	2468	599