

Instruction Manual

Inverter Support Software

FRENIC Loader VG

(WPS-VG1-STR)

Thank you for purchasing our high-performance, vector control FRENIC-VG series of inverters.

- This manual provides all the information on Fuji's inverter support software FRENIC Loader VG.
 Read this manual carefully for correct use of FRENIC Loader VG
- This manual does not contain information on the inverter itself. Read the inverter user's manual, inverter instruction manual in conjunction with this manual.
- Incorrect handling may prevent Loader from operating correctly, shorten the inverter service life, or cause problems.

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Preface

This manual provides all the information on Fuji's inverter support software FRENIC Loader VG.

Read this manual carefully for correct use of FRENIC Loader VG

This manual does not contain information on the inverter itself. Read the inverter user's manual, inverter instruction manual in conjunction with this manual.

Incorrect handling may prevent Loader from operating correctly, shorten the inverter service life, or cause problems.

Safety Precautions

Read this manual thoroughly before proceeding with installation, connections (wiring), or operation. Ensure you have sound knowledge of the device and software and have familiarized yourself with all safety information and precautions before proceeding to operate the inverter via FRENIC Loader VG

Safety precautions are classified into the following two categories in this manual.

Failure to heed the information indicated by this symbol may result in death or serious injury.
Failure to heed the information indicated by this symbol may result in minor or light injury and/or substantial property damage.

Wiring and Connection of Cables

• Be sure to turn off the power to the inverters and related devices before making RS-485 connection.

Risk of electric shock if this warning is not heeded.

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Chapter 1 Before Using FRENIC Loader VG

This chapter gives an overview of the inverter support software FRENIC Loader VG and provisions for its installation and operation.

1.1. Overview

1.1.1. Features

- Loader enables a PC to support remote operation of inverters either individually or collectively via the RS-485 port or the USB port on the inverters.
- Simplified operation of Loader allows you to easily manage and set the function code data for the inverter.

1.1.2. Warranty

Limited Warranty	In no event will Fuji Electric Co., Ltd. be held liable for any damage (including, but not limited to lost profit, suspension or interruption of operations, loss of operational data or other monetary loss) whatsoever resulting from the use of the software or malfunction of the same or from information contained in this document.
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1.2. Connecting Inverters to a PC

1.2.1. Connection

PC: On PC On inverter Connection Inverters USB USB Using a USB cable USB **RS-485** Via a USB / RS-485 converter 1:1Via an RS-232C / RS-485 converter COM port **RS-485** (RS-232C) Via an RS-232C / RS-485 converter When using an RJ-45 connector, use a USB **RS-485** branch adapter for multi-drop connection 1 : n for each of the 2nd and the subsequent inverters. COM port Via an RS-232C / RS-485 converter **RS-485** (RS-232C)

The table below lists the connection methods available for connecting inverters to a PC.

1	
((Note
0	11010

- 1) For details about the RS-232C / RS-485 converter and USB / RS-485 converter, refer to Section 1.2.3.2. "Communications support devices for RS-485".
 - To minimize the effects of noise, separate the signal lines from the power lines. Refer to Section 1.2.3.2. " RS-485 Noise suppression.
 - 3) The inverter cannot be concurrently shared by the Loader-running PC and other host equipment (e.g., PLC). To use Loader, therefore, be sure to disconnect the cables of other host equipment from the RS-485 port on the inverter.
 - 4) For multi-drop connection of inverters, assign different station addresses to each of the inverters connected.

• Be sure to turn off the power to the inverters and related devices before making RS-485 connection.

Risk of electric shock if this warning is not heeded.

1.2.2. Configuring USB network

1.2.2.1. Example of networking

To configure a USB network connecting the inverter and a Loader-running PC, use a commercially available USB cable (mini B connector). (See Note below.)

Connection using the USB connector

For connection using the USB connector, refer to Section 1.4.4. "Setting up communications parameters."



Figure 1. 2. 2-1 USB Network Using a USB Cable (mini B)

	•
Specifications	USB 1.1 compliant
Transmission speed	12M bps
Wiring length	Max. 5 m
Connector	USB mini B connector

Table 1.2.2-1 Specifications of USB Network

Note

When connecting the inverter to a PC via the USB port, be sure to connect them, one to one. Do not use a USB hub.

1.2.3. Configuring an RS-485 communications network

1.2.3.1. Example of networking

To configure an RS-485 communications network connecting inverters and a Loader-running PC, use a Shielded twisted pair cable for long distance transmission. (See *Note* below.)



Figure 1.2.3-1 RS-485 Multi-drop Network (Terminal Block Connections)

Note When selecting communications support devices that protect parts on the printed circuit boards of inverters from damage or malfunction due to external electrical noise or to keep the network in high noise immunity level, carefully read through the descriptions in FRENIC-VG user's manual Section 5.1.4 "Communications support devices for RS-485".

1.2.3.2. Communications support devices for RS-485

Description of the equipment needed when connecting to a PC not equipped with an RS485 interface, refer to FRENIC-VG user's manual Section 5.1.4 "Communications support devices for RS-485".

1.2.3.3. Noise suppression

Depending on the operating environment, instruments may malfunction due to the noise generated by the inverter. Possible measures to prevent such malfunction are: separating the wiring, use of shielded cable, isolating the power supply, and adding an inductance component. Show below is an example of adding an inductance component.

Adding inductance components

To suppress or eliminate noise for keeping the network in high noise immunity level, insert inductance components such as choke coils in series in the signal circuit, or pass the RS-485 communications cable through a ferrite core ring or wind it around by 2 or 3 turns as shown below to keep the impedance of the signal lines high.



Pass the wiring through the ferrite core or wind the ferrite core with the wiring a few times

Figure 1.2.3-2 Adding an Inductance Component

1.3. Installation

1.3.1. Installing software

Before installation

Execute the following before installation.

Check items	Requirements
Windows OS	Microsoft Windows XP, Vista (32-bit), or 7 (32-bit / 64-bit)
Hard disk space	Free space of approx. 9 MB or more
Other applications	Terminate all the applications being in execution.
Uninstalling the Earlier version of Loader	If any earlier versions of FRENIC Loader VG have been installed on your PC, uninstall it.
Uninstalling the Message Manager of VG7 loader	If Message Manager of VG7 loader has been installed on your PC, uninstall it.

[FRENIC Loader VG Setup.exe] and [MsgMgr USB Setup. exe] are contained in the CD that comes with Fuji Inverter FRENIC VG. Copy these setup files to any folder.

Note To use FRENIC Loader VG, you need to install two setup files: the loader software main program [FRENIC Loader VG Setup.exe] and the message manager [MsgMgr USB Setup.exe] that manages communications.

To install the loader software, install with an account that has sufficient authority to install the software.

Paid version (WPS-VG1-PCL) and free version (WPS-VG1-STR) of FRENIC Loader VG can not be installed at the same time. Install the loader software of one or the other.

1.3.1.1. Installing FRENIC Loader VG

[1] Windows 7 / Windows Vista

Follow the wizard and install Loader as shown below.



User Account Control	* Windows Vista only
I An unidentified program wants access to your computer	
Don't run the program unless you know where it's from or you've used it before. FRENIC_Loader_VG_E_1007_setup.exe Unidentified Publisher Cancel I don't know where this program is from or what it's for.	
Allow I trust this program. I know where it's from or I've used it before.	
Details	— To continue, click Allow .
User Account Control helps stop unauthorized changes to your computer.	
B FRENIC Loader VG - InstallShield Wizard	
Welcome to the InstallShield Wizard for FRENIC Loader VG The InstallShield(R) Wizard will install FRENIC Loader VG on your computer. To continue, click Next. WARNING: This program is protected by copyright law and international treaties.	
	— To continue, click Next .
< Back Next > Cancel	
문 FRENIC Loader VG - InstallShield Wizard Eccense Agreement Please read the following license agreement carefully.	Carefully read the license agreement.
Software End User License Agreement This Software End User License Agreement (this "Agreement") is between you (both the individual installing the Software and any single legal entity on behalf of which such individual is acting) ("Licensee") and Fuji Electric Co.,Ltd. ("Fuji").	agreement, scroll the screen up and down using the Page Up/Down keys — or the scroll bar.
IT IS IMPORTANT THAT YOU READ CAREFULLY AND UNDERSTAND THIS AGREEMENT. BY CLICKING THE "I ACCEPT" BUTTON LOCATED ON THIS PAGE, LICENSEE AGREES TO BE BOUND BY THIS AGREEMENT.	
I accept the terms in the license agreement Print I do not accept the terms in the license agreement	 If you agree, click Next to proceed.
InstallShield <a>Back Cancel	

🔀 FRENIC Loader VG - InstallShield Wizard	n en
Customer Information	
Please enter your information.	
User Name:	
USER NAME	Enter your user name and company
Organization:	name.
1	After entry, click Next to present
	After entry, click Next to proceed.
InstallShield	
< <u>Back</u> <u>Mext > *</u> Calife	
당 FRENIC Loader VG - InstallShield Wizard	1
Destination Folder	
Click Next to install to this folder, or click Change to install to a different folder.	
	Select the destination folder to install.
Install FRENIC Loader VG to:	A default folder has appeared.
C:\Fujielectric\FRENIC_Loader_VG\	To poloot a different folder aligh
	Browse
	Click Next to proceed.
TestalChield	
< back Next > Cancel	
18 FRENIC Loader VG - InstallShield Wizard	1
The without is ready to begin installation	The screen confirming your selection
The wizard is ready to begin installation.	appears.
If you want to review or change any of your installation settings, click Back. Click Cancel to	
exit the wizard.	If you want to shange the colorian
Current Settings:	If you want to change the selection,
Setup Type:	click Back to return to the previous
Typical	screen.
Destination Folder:	
C:\Fujielectric\FRENIC_Loader_VG\	
User Information:	If OK, click Install to proceed.
Name: USER NAME	
Company: USER COMPANY	To should be look if it is it is
	To abort the installation, click
	Cancel.
< Back Vinstall Cancel	



[2] Windows XP

Follow the wizard and install Loader as shown below.





To continue, click Next.

icense Agreement Please read the following license ag	preement carefully.	2	1
oftware End User Licen	ase Agreement		
his Software End User Agreement") is between nstalling the Software ehalf of which such in nd Fuji Electric Co.,L	License Agreemen 4 you (both the i 2 and any single dividual is acti .td. ("Fuji").	t (this ndividual legal entity on ng) ("Licensee")	
T IS IMPORTANT THAT YO HIS AGREEMENT. BY CLIC	U READ CAREFULLY KING THE "I ACCE	AND UNDERSTAND PT" BUTTON	~
) I accept the terms in the license agr	reement	Print	
I do not accept the terms in the licer	nse agreement		

Carefully read the license agreement. To view the entire contents of the agreement, scroll the screen up and down using the Page Up/Down keys – or the scroll bar.

- If you agree, click **Next** to proceed.

Customer Information Please enter your information.	3	
User Name:	 Enter ye name.	our user name and compan
	 After er	try, click Next to proceed.
Instal/Shield		



InstallShield Wizard Completed The InstallShield Wizard has successfully installed FRENIC	Upon completion of the installation, the screen at left appears.
Loader VG. Click Finish to exit the wizard.	
	To exit the installation wizard and return to Windows, click Finish .
<back cancel<="" einish="" th=""><th></th></back>	
	-
FRENIC Loader VG Installer Information	
You must restart your system for the configuration changes made to FRENIC Loader VG to take effect. Click Yes to restart now or No if you plan to restart	
iduer.	When it is ready to restart, click Yes .
Yes No	*If you do not restart FRENIC Loader VG, the program cannot be normally installed.

1.3.1.2. Installing Message Manager

Follow the wizard and install Message Manager as shown below.



		1 March		
Please read the following license agreement carefully				
Press the PAGE DOWN key to see the rest of the ag	eement.			
Software End User License Agreement			-	- Carefu
This Software End User License Agreement (this "Ag	reement") is between	1		To vie
you (both the individual installing the Software and ar entity on behalf of which such individual is acting) ("L	ty single legal Licensee'') and			agreer
Fuji Electric Co.,Ltd. ("Fuji").				down
IT IS IMPORTANT THAT YOU READ CAREFULLY AGREEMENT, BY CLICKING THE "LACCEPT" BUT	AND UNDERSTAND	THIS THIS		or the
PAGE, LICENSEE AGREES TO BE BOUND BY TH	S AGREEMENT.	in as	-	or the
Do you accept all the terms of the preceding License	Agreement? If you	Print		
select No, the setup will close. To install Message M accept this agreement.	anager, you must			- If you
				2

Carefully read the license agreement. To view the entire contents of the agreement, scroll the screen up and down using the Page Up/Down keys or the scroll bar.

If you agree, click Yes to proceed.



Message Manager - InstallShield Wizard	
Select Program Folder Please select a program folder.	Select the start menu folder that the shortcut to FRENIC Loader is to be
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.	added to. You can select one from existing
Program Folder:	folders in the list or create a new one.
Existing Folders: Accessories Administrative Tools Games Maintenance Startup Tablet PC mtallSheld	— After entry, click Next to proceed.

Start Copving Files	neld Wizard	
		No. of Concession, Name
Review settings before cop	oying files.	A State of the second s
Setup has enough informat change any settings, click copying files.	ion to start copying the program files. If you want to re Back. If you are satisfied with the settings, click Next	The screen confirming your selection
Current Settings:		appears.
Destination Folder C:\Program Files	s\Common Files\Fuji Electric Shared\Message Manag	If you want to change the selection,
Destination Program Folde Message Manag	r Jer	screen.
		If OK, click Next to proceed.
		To abort the installation, click
mtallShield.		Cancel
14	24346224	
Message Manager - InstallSh	iield Wizard InstallShield Wizard Complete The InstallShield Wizard has successfully installe Manager. Click Finish to exit the wizard.	Upon completion of the installation, the screen at left appears.

1.3.1.3. Installing USB driver

Using the USB interface for accessing the inverter(s) requires installing the USB driver to your PC. The driver installation is required only once at the first use of the USB interface.



If the USB driver has not been installed correctly, no communication via the USB interface is possible.

First of all, connect the USB connector (A) on the PC and the USB connector (mini B) on the inverter's keypad with each other using a USB cable.

Note Before installation of the USB driver, install Loader and Message Manager.

[3] Windows 7

When the OS finds a USB device of the Loader, it displays the following.



The system-supplied driver setup wizard does not run automatically. Install the USB driver as shown below.







[4] Windows Vista

When the OS finds a USB device of the Loader, it displays the following. Follow the wizard and install Loader as shown below.







[5] Windows XP

When the OS finds a USB device of the Loader, it displays the following. Follow the wizard and install Loader as shown below.





1.3.1.4. Checking the installation of the USB driver

To check whether the USB driver has been installed correctly, open Device Manager. If **FRENIC** is added to the sub-tree of Loader USB device, the driver has been installed correctly.



Installation finished successfully

Installation failed



1.3.2. Uninstallation

1.3.2.1. Uninstalling FRENIC Loader VG

[1] Windows 7 / Windows Vista

From the Start menu, select All Programs | FRENIC Loader VG | FRENIC Loader VG Uninstall.

Default Programs Deskton Gadget Gallery		
C Internet Explorer		
4 Windows Anytime Upgrade Windows DVD Maker	USER NAME	
🙀 Windows Fax and Scan 🚱 Windows Media Center	Documents	
Windows Media Player Windows Update	Pictures	
XPS Viewer	Music	
Fujielectric	Computer	
FL FRENIC Loader VG Start	Control Panel	
Games	Devices and Printers	
Maintenance Message Manager	Default Programs	
🦀 Startup	Help and Support	
4 Back		
Search programs and files	Shut down	
	(second	
Windows Installer	8	The confirmation screen at left appears.
Are you sure you want to uning	stall this product?	
		— Click Yes .
Yes	No	
		1
Do you want to allow the follow	ing program from an	The confirmation screen at left
unknown publisher to make cha	nges to this computer?	
Program name: C:\Windows\Installer\8 Publisher: Unknown		
File origi <mark>n:</mark> Hard drive on this com	puter	
Show details	Yes • No	
Change	when these notifications appear	



In the above procedure, perform the uninstallation.

[2] Windows XP

From the Start menu, select All Programs | FRENIC Loader VG | FRENIC Loader VG Uninstall.



In the above procedure, perform the uninstallation.

1.3.2.2. Before uninstalling Message Manager

Before uninstalling Message Manager, be sure to quit both Loader and Message Manager.

Note Quitting Message Manager

Message Manager is software that manages communication between the PC and inverters. To make sure that Message Manager has quitted, check that no Message Manager icon is displayed in the task tray. If the icon is displayed, right-click it to quit Message Manager. If doing so cannot quit it, shut down or log off Windows.

Once you uninstall Loader when Message Manager is running, a new version of Loader installed after that cannot run properly, that is, it may no longer be able to recognize inverters. If this happens, first delete the folder (including its contents) named Fuji Electric Shared in the file path as shown below, and then reinstall Loader.

C:¥Program Files¥Common Files¥Fuji Electric Shared

(In the file path shown above, "C" represents the drive letter of the partition or hard disk where Windows is installed. If Windows is installed on a different drive in your system, replace "C" with the letter corresponding to that drive.)

Quitting Message Manager

[3] Windows 7



Click this to display the hidden icons as shown below.

Right-click this icon to display **Exit MessageManager**, then click it. The confirmation window appears. Click **Yes** to quit Message Manager.



[4] Windows Vista / XP

Right-click the Message Manager icon to display **Exit MessageManager**, then click it. The confirmation window appears. Click **Yes** to quit Message Manager.



1.3.2.3. Uninstalling Message Manager

[1] Windows 7 / Windows Vista

From the Start menu, select All Programs | Message Manager | Message Manager Uninstall.




In the above procedure, perform the uninstallation.



[2] Windows XP

From the Start menu, select All Programs | Message Manager | Message Manager Uninstall.



The uninstallation confirmation screen appears as shown left.

To proceed and uninstall Loader, click **Yes**.

In the above procedure, perform the uninstallation.

Message Manager - Inst	allShield Wizard	
	Uninstall Complete InstallShield Wizard has finished uninstalling Message Manager. To complete the uninstallation, you must restart your computer.	
4	 Yes, I want to restart my computer now. No, I will restart my computer later. Remove any disks from their drives, and then click Finish to 	
	complete setup.	 When it is ready to restart, click Finish.
	c Back Finish Ganeel	

1.4. Configuring the Settings for Inverter(s) and Loader

1.4.1. Configuring communication-related function codes in the inverter (Case of RS-485 connection)

The table below lists inverter's function codes related to Loader. Configure those codes before connecting Loader to the inverter

Function code	Name	Setting range	Factory default
H31	Station address	1~255	1
H34	Baud rate	0 : 2400 bps 1 : 4800 bps 2 : 9600 bps 3 : 19200 bps 4 : 38400 bps 3 : 19200 bps	4
H40	Protocol	0 : Modbus RTU protocol 1 : SX protocol (Loader protocol) 2 : Fuji general-purpose inverter protocol	1

H31 : Station address

Set the H31 data to the same value as the RS-485 Station address. setting made in Loader's Device connection list. (see Section 1.4.5. , [2])

H34 : Baud rate

Set the H34 data to the same value as the baud rate setting made in Loader's Communication Setting window. (see Section 1.4.4.)

H40 : Protocol

Set the H40 data to "1" (FRENIC Loader protocol).

Note

In the case of USB connection, the above function code setting is not required.

1.4.2. Checking the COM port on the PC (when using a communications level converter)

Loader running on the PC uses the RS-232C communications port (COM) to interface with inverters.

When an **RS-232C / RS-485 converter** is connected to the PC, check what COM port number (COM#) on the PC is assigned to the RS-232C / RS-485 converter.

To use the USB interface, select a **USB / RS-485 converter** that functions as a virtual RS-232C communications port (COM). When a USB / RS-485 converter is connected, Windows automatically assigns a free COM port on the PC to the converter. To check the assignment, follow the procedure below.

Windows 7 / Windows Vista

From the Start menu, select Control Panel | Hardware and Sound | Device Manager.

Windows XP

From the Start menu, select Control Panel | System | Hardware | Device Manager.

er neemanoger	
File Action View Help	
🕑 💘 Batteries	8
E Gomputer	
🗄 🥪 Disk drives	
🗄 😼 Display adapters	
DVD/CD-ROM drives	
🗄 🔁 Floppy disk controllers	
🗄 退 Floppy disk drives	
🗄 🔁 IDE ATA/ATAPI controllers	
🗄 🍉 Keyboards	
Mice and other pointing devices	
🛞 🕮 Network adapters	
E S Ports (COM & LPT)	
Communications Port (COM1)	
Communications Port (COM2)	
🤰 Printer Port (LPT1)	
🥥 USB Serial Port (COM3)	
🗄 🕽 Processors	
E SCSI and RAID controllers	
E Sound, video and game controllers	
🗄 🕎 System devices	
🗄 🙀 Universal Serial Bus controllers	4

Click preceding **Ports (COM & LPT)** to show details.

Check the number "n" in **USB Serial Port (COMn)**. This example shows that **COM3** is assigned to the **USB Serial Port**.

1.4.3. Configuring Loader

When Loader has been installed on your PC, selecting **All Programs** | **FRENIC Loader VG** | **FRENIC Loader VG Start** from the **Start** menu starts Loader.



If Loader starts, the Quick Access Menu first appears as shown below.

This menu contains the 4 quick-start icons for the programs contained in Loader. To start a program, simply click the corresponding icon.

Details of the programs are described in Chapter 2.

When using Loader for the first time or after having changed the supporting inverter(s), you need to configure the operating environment by setting up the communications parameters (**COM Setting**).

Click the **COM Setting** icon to open the **Communication Setting** dialog or **Device connection list** window.



Note

If the Quick Access Menu is not displayed, click the 🚺 icon on the toolbar (shown below) at the bottom of the Loader top window to open the menu.



1.4.4. Communication Settings

Click [**COM.Setting.**] icon in the left row in Simple Menu to display the screen which sets the methods to connect the loader, targets to be connected and communication conditions. Enter the data by referring to the following descriptions. Alternatively, by selecting **Setup** | **Communication Settings** from Main Menu, you can display the communication setting screen without using Simple Menu.

Connection Methods				
Connect Loader	Directly to Invert	er		
Communicate via	MICREX-SX	S <u>X</u> bus	address 1	*
Port				
RS <u>4</u> 85				
COM port	COM1	-		
Baud rate	[38400[bps]	*		
Flow control	RTS	*		
Data length	8bit	*		
Parity	Even	-		
<u>S</u> top bit	1bit	*		
USB	Data in Inve	erter	Ŧ	
(_) Communication b	oard			
Туре	Ethemet	Ŧ		
Parameter				
Port <u>n</u> umber	507			
Communication Cond	ditions			
Retry count	3 times	•	Connection	n setting
Timeout	[1.0 [s]	•	ОК	
	1.		C	

[1] Connection Methods

Select the method to connect the loader.

Connect Loader Directly to Inverter

Select this method when connecting your PC to the inverter directly, not via MICREX-SX Controller.

(You can select one of the two communication types: RS485 or USB.)

Communicate via MICREX-SX

Select this method when communicating with the inverter via MICREX-SX Controller.

(You can select one of the three communication types: RS485, USB or communication board (Ethernet)).

SX bus address

This entry becomes available when "Communicate via MICREX-SX" is selected. You should select the SX bus address.

[2] Port

You can do settings on communications. (In the initial status, you can establish communications without changing any setting because the PC initial settings are well matched with those of the inverter.)

<u>RS-485</u>

Select this method when connecting your PC to the inverter via RS-485.

Port setting

Select the communication port of the PC to which the RS-232C / RS-485 converter is connected.

Baud rate

Set the transmission rate. You must select the transmission rate same as the one for the inverter.

Flow control

Since the recommended converter manages the flow control by automatic switching through transmission data monitoring, you do not have to change this setting. The flow control is a method that uses RS-232C control signals to control RS-485 transmission/reception switching.

Data length

Set the data length per frame. However, regardless of the setting is fixed to "8bit".

Parity

Set the parity type. However, regardless of the setting is fixed to "Even".

Stop bit

Set the stop bit length per frame. However, regardless of the setting is fixed to "1bit".

<u>USB</u>

Select this method when connecting your PC to the inverter directly via USB.

Communication board

This entry becomes available when "Communicate via MICREX-SX" is selected. You should do settings on the communication board.

• Type

Set the communication board type. Currently, you can select "Ethernet" only.

Parameter

Set the parameter to be used for the communication board. Currently, Ethernet IP address is set as the parameter.

Port number

Set the port number that will be used on Ethernet to be connected.

When using MICREX-SX, the port No is fixed to 507.

Port No. 507 = Loader command interface server port 251 + Own standard port 256

[3] Communication Conditions

Do the settings on the communication retry.

Retry count

This sets how many times communication allows retry in case of failure. As the retry count increases, the possibility to succeed communications may increase. However, it will take time until the error dialog appears. The count of one or so is recommended.

Timeout

If no response is received from the inverter within the time limit set here, the communication error dialog will open. A shorter timeout setting allows sooner display of the error dialog. However, an extremely short timeout may cause a communication error even during normal operation, for example, when taking long time to handle the inverter rather than the communication errors.

[4] Perform Connection Check

Connection Check is a function to always monitor the communication status between your PC and the inverter that is registered through the connection settings. By clicking the check box to the left of [Perform Connection Check] and checking the box, the PC will automatically check the status of connection with the inverter and displays the communication status on the status bar. If one of the previously registered inverters disables to communicate due to disconnection or other problem, the response performance will become very slow. Be sure to remove the disabled inverter from the connection settings.

1.4.5. Connection settings

Click **COM setting** | **Connection Setting** to display the Connection Settings screen.

[1] For connection to USB port

When "USB: Data in inverter" is selected

Only a single line appears as shown below. After making sure that the equipment name and RS-485 num. (station address) are correct, click the **Browse** button to monitor the current communications link status.

	No.	Status	Model	Equipment	Address
7	1	Unknown	Unknown Model	INV1	1

Selection of inverters to be monitored

To make an inverter enable to be monitored, put a check mark (\checkmark) in the box located at the left end column of the list.

Browse

Clicking this button checks whether a link between Loader and the inverter is established. The result appears in the Status column.

Status column

- Unknown
- : The communications status has been unknown.
- Connecting : The communications link has been established.
- Disconnected : The communications link has not yet been established.

Advance...

Clicking the row to be modified and clicking this **Advance** button calls up the **Advanced** dialog shown at the right.

Clicking the **OK** button returns to the **Device connection list** window.

Advanced	×
Inveret No.	No.1
Equipment name	INV1
<u>R</u> S485 station adress	1
ОК	Cancel

After completion of data entry, check the settings again and click **OK** to exit the device connection operation.

[2] For connection to RS-485 port

When "RS-485: Data in inverter" is selected

The Device connection list window shows the inverters available for RS-485 communication.

Double-clicking (or use the **Advance...** button) the row where the inverter to be modified or added is listed calls up **Advanced** dialog shown below.

	No.	Status	Model	Equipment	Address	
V	1	Unknown	Unknown Model	INV1	1	
	2	Unknown	Unknown Model	INV2	2	1
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10			14.4	-	-
	11					
	12	1				
۰ [m		- P	

Selection of inverters to be monitored

To make an inverter enable to be monitored, put a check mark (\checkmark) in the box located at the left end column of the list.

Delete

Clicking the row to be deleted and clicking this **Delete** button deletes the inverter listed in that row. Use this for the inverter(s) that has been disconnected from Loader.

Browse

Clicking this button checks whether a link between Loader and the inverter(s) (marked with \checkmark) is established. The result appears in the Status column.

Status column

- Unknown : The communications status has been unknown.
- Connecting : The communications link has been established.
- Disconnected : The communications link has not yet been established.

Advance...

Clicking the row to be modified or added and clicking this **Advance** button calls up the **Advanced** dialog shown at the right.

Fill in the **Equipment name** and **RS-485** address (station address) boxes in the dialog and click **OK**. To cancel your entry or selection, click **Cancel**.

Advanced	X
Inveret No.	No.1
Equipment name	INV1
<u>R</u> S485 station adress	1
ОК	Cancel

Clicking the **OK** button returns to the **Device connection list** window.

After completion of data entry, check the settings again and click **OK** to exit the device connection operation.

[3] For connection to Communication board (Ethernet)

When " Communication board (Ethernet)" is selected

Only a single line appears as shown below. After making sure that the equipment name and RS-485 num. (station address) are correct, click the **Browse** button to monitor the current communications link status.



Browse

Clicking this button checks whether a link between Loader and the inverter is established. The result appears in the Status column.

Status column

- Unknown : The communications status has been unknown.
- Connecting : The communications link has been established.
- Disconnected : The communications link has not yet been established.

Advance...

Clicking the row to be modified and clicking this **Advance** button calls up the **Advanced** dialog shown at the right.

Clicking the **OK** button returns to the **Device connection list** window.

Advanced	×
Inveret No.	No.1
Equipment name	INV1
<u>R</u> S485 station adress	1
ОК	Cancel

After completion of data entry, check the settings again and click **OK** to exit the device connection operation.

Chapter 2 Description of Functions

2.1. Main Window

Main Window is the first screen appearing after starting the loader. Simple Menu is displayed on Main Window. (The following example omits the display.)

Main Menu

Tool Bar

You can select all the Loader functions.

You can select primary Loader functions.



Status Bar

This shows the outline of the function to be selected. It also displays the status of connection with the inverter in the upper right box.

Main Menu

It contains six selectable functions: [File], [Menu], [Setup], [View], [Window] and [Help].

Tool Bar

This allows you to select common functions quickly and easily. For example, to open a file which contains the function code data, you should normally click [File] on Main Menu and then click [Open] under [File] menu; accordingly two actions are required. Using Tool Bar, you can open the file simply by clicking icon.

Status Bar

Place the mouse pointer on the function icon or menu being displayed. Then, the statement appears, describing the meaning of the function or menu.

When "Perform Connection Check" is selected in Communication Setting (see "1.4.3 Communication Settings and Connection Settings of Loader"), the status of connection with the inverter is displayed in the upper right box. (In the above example, "Unknown" is displayed.)

2.2. File

This section describes main functions of File.

2.2.1. Create New File

This function creates a new file of function code data.

Default setting	Select the following parameters	Function selection tab This tab displays the type of the Inverter model selected. FRENIC VG : VG1 FRENIC VG7 : VG7
Model	VG1 •	
Region spec.	J:JAPAN 🔻	Area Specification
Cagacity	0 : 0.75-2 (1-2)	You can select the specification by area.
		Currently, only J: JAPAN is supported.
Read date	3/19/2012 - 2:56:55	Invertor Canacity
<u>D</u> efinition file	fnc_E_vg_1_0000b33.csv Change OK Cancel	You can select the inverter capacity and voltage.

You can also open a list of function code data defaulted by the loader.

Therefore, you can edit the function code data even if the inverter is not connected to your PC

2.2.2. Open

This function reads a file of Function code data, Traceback data, Realtime trace data or Historical trace data that has been already created and saved in your PC and opens the window to edit the file data.



File type

- 1) Function code data : [*.FN1] (VG1/VG7), [*.FNC] (VG7)
- 2) Traceback data : [*.TB1] (VG1)

2.2.3. Close

This function closes the active window.

2.2.4. Save

This function overwrites and saves the active function code setting. If the data has not been saved before, the Save function does the same operation for the data as "5) Save As...".

2.2.5. Save As ...

This function opens the following dialog, which allows you to enter the name of the active file and save it under the name.

FL Save As			17	llasia	×.
	raries 🕨	Documents •	▼ + j	Search Documents	q
Organize 🕶 Nei	w folder			8==	• 0
🜟 Favorites	Â	Documents library Includes: 2 locations		Arrange by: F	older 🔻
😝 Libraries		Name		Date modified	Туре
Documents	E	Function1.FN1		3/19/2012 3:01 PM	FN1 File
Music Dictures					
Videos					
👰 Computer					
	+ 4				
File name:	Functio	n2			-
Save as type:	Function	n code setting data file (*.FN1)			•
Hide Folders				Save	Cancel

* The types of files you can save are as below:

1) Function code data	: [*.FN1] (VG1/VG7)
2) Traceback data	: [*.TB1] (VG1)
3) Comma delimiter	: [*.CSV] (VG1/VG7)
4) trace data (Graph image)	: [*.JPG] (VG1)

2.2.6. Print

This function sets the printer used to print the data.

Name:	Microsoft XPS Document Writer	✓ Properties
Status: Type: Where: Comment	Ready Microsoft XPS Document Writer XPSPort:	C Drinter Ma
Print range	8	Copies
All		Number of copies: 1
Pages	s from: to:	11 22 33 Colla

2.2.7. Print Preview

This function displays the print preview of the printable data of the active function code setting.

<text></text>			-	Eag
<text></text>	File	ume : Function2 or Noce1 : FMNC, WV015-24		
No. Particle Scie Marie Lat. Value Partury Tarting No. Cara privation 0	Defin Read (tion File : fnc_E_vg_1_0000b32.cev Wata : 3/19/2012 - 16:06:21 FW		
F01 Ext protection 0 0 F02 Generation method 0 0 F03 Bin as used 1600 1600 F04 Bin rabid seads 1600 1600 F05 Bin rabid seads 1600 1600 F04 Bin rabid seads 1600 1600 F05 Bin rabid seads 1600 1600 F06 Bin rabid seads 1600 1600 F07 Bin staturation from an overlad relay (Saiset) 0 0 F07 Bin staturation from an overlad relay (Saiset) 0 0 F07 Bin staturation from set overlad relay (Saiset) 0 0 F07 Bin staturation from set overlad relay (Saiset) 0 0 F07 Bin staturation from set overlad relay (Saiset) 0 0 F07 Bin staturation from set overlad relay (Saiset) 0 0 F07 Bin staturation from set overlad relay (Bin Staturation Saiset) 0 0 F07 Bin staturation set from set overlad relay (Bin Staturation Saiset) 0 0 F07 Bin staturation set from set overlad relay (Bin Staturation Saiset) 0 0 F07 Bin staturation set from set overlad relay (Bin Staturation Set overlad relay (Bin Statura	Ric.	Function Gode Name	Set Value	Factory Setting
ni basis desting H 0 0 Ni bisis desting H 0 <td>FOD</td> <td>Data protection</td> <td>0</td> <td>0</td>	FOD	Data protection	0	0
Top Oversid markfold 0 0 TOP Has speci H00 H00 TOP Has special	FOI	Speed setting Mi	0	0
no. no. no. no. no. no. no.	FOZ	Operation method	0	0
Normal status Normal status Normal status 100 District status 100 100 101 District status 100 100 102 District status 100 100 103 District status 100 100 103 District status 100 100 103 District status 100 100 104 District status<	F04	WI rated gread	1600	1600
Construction time 1 E. 00 E. 00 F0 Accidention time 1 E. 00 E. 00 F0 Main intervalue time of table (Sauce) E. 00 E. 00 F1 Main intervalue time of table (Sauce) E. 00 E. 00 F1 Main intervalue time of table (Sauce) E. 00 E. 00 F1 Main intervalue time of table (Sauce) E. 00 E. 00 F1 Main intervalue time of table (Sauce) E. 00 E. 00 F1 Main intervalue time (Sauce) E. 00 E. 00 F1 Main intervalue time (Sauce) E. 00 E. 00 F2 E. Earling time (Sauce) E. 00 E. 00 F2 E. Earling time (Sauce) E. 00 E. 00 F2 E. Earling time (Sauce) E. 00 E. 00 F3 E. Earling time (Sauce) E. 00 E. 00 F4 Earling time (Sauce) E. 00 E. 00 F3 Earling time (Sauce) E. 00 E. 00 F4 Earling time (Sauce) E. 00 E. 00 </td <td>FOS</td> <td>W1 wated woltage</td> <td>188</td> <td>188</td>	FOS	W1 wated woltage	188	188
n produktivní tele v svol svol svol svol svol svol svol sv	F07	Acceleration time 1	6.00	6.00
11 Misistering several series (several files) 0.0 4.5 11 Misistering several series (misser) 0.0 5.5 12 Missering (missering files) 0.0 0.0 13 Missering (missering files) 0.0 0.0 14 Missering (missering files) 0.0 0.0 15 Missering (missering files) 0.0 0.0 15 Missering (missering files) 0.0 0.0 15 Missering (missering files) 0.0 0.0 16 Missering (missering files) 0.0 0.0 17 Missering (missering files) 0.0 0.0 18 Missering (missering files) 0.0 0.0 19 Missering (missering files) 0.0 0.0 19 Missering (missering files) 0.0 0.0 19 Missering (missering files) 0.0 0.0 10 Missering (missering files) 0.0 0.0	FOR	Deceleration time 1	6.00	6.00
10. Historton Bernel Cortad size (Themas Like contact) 50 50 11. Historta cost ante constrainty pour fillence (Like Contact) 50 50 11. Historta cost ante constrainty pour fillence (Like Contact) 50 50 12. Historta Cost ante constrainty pour fillence (Like Contact) 50 50 13. Historta Cost ante constrainty pour fillence (Like Contact) 50 50 13. Historta Cost ante Cost and Cos	FIL	Wi electronic thermal overload relay (Sevect)	3. 60	3. 60
If # Returt est after exemptory power failure (bilect) 0 0 17 Bills för sverd etting aften 12 0 0 17 Bills för sverd etting aften 12 0 0 17 Bills för sverd etting aften 12 0 0 17 Bills för sverd etting aften 12 0 0 17 Bills för sverd etting aften 12 0 0 17 Bills för sverd etting aften 1 0 0 17 Bills för sverd etting aften 1 0 0 17 Bills för sverd helding ting 1 0 0 17 Bills etting aften 1 0 0 17 Bills sverd helding ting 1 0 0 17 Bills sverd helding ting 1 0 0 18 Bills sverd helding ting 1 0 0 19 Bills sverd helding ting 1 0 0 19 Bills sverd helding ting 1 0 0 19 Bills sverd helding ting 1 0 0 10 Bills sverd	FLZ	WI electronic thermal overload relay (Thermal time constant)	6.0	6.0
Implementation 1000 1000 1000 Implementation 1000 1000 1000 Implementation 0 0 0 Implementinterrint 0 0	F14	Restart mode after momentary power failure (Select)	0	0
100 Dist was Starting south (min to) 0 0 101 Dist was Starting south (min to) 0 0 102 Dist was Braining theil 0.0 0.0 103 Dist was Braining theil 0.0 0.0 103 Dist thing avaid 0.0 0.0 103 Dist was dist (min to) 0 0.0 103 Dist was dist (min to) 0 0 104 Dist was dist (min to) 0 0 105 Dist was dist (min to) 0 0 104 Dist was dist (min to) 0 0 105 Dist was dist (min to) 0 0 104 Dist was dist (min to) 0 0	F17	Gain (for speed setting signal 12)	100.0	100.0
10 Có tradas Brating Istell 0 0 172 Có tradas Brating Istell 0 0 0 173 Barting avail 100 0 0 0 174 Barting avail 100 0 <td>F10</td> <td>Eise (for speed setting signal 12)</td> <td></td> <td></td>	F10	Eise (for speed setting signal 12)		
12 0.0 tradus Braining Steal 0.0 0.0 13 0.00 pask of Status Braining Steal 0.0 0.0 13 0.00 pask of Status Braining Steal 0.0 0.0 14 0.00 pask of Status Braining Steal 0.0 0.0 14 0.00 pask of Status Braining Steal 0.0 0.0 14 0.00 pask Braining Steal 0.0 0.0 14 0.00 pask Braining Steal 0.0 0.0 14 0.00 pask Braining Steal 0.0 0.0 0.0 14 0.00 pask Braining Steal 0.0 0.0 0.0 14 0.00 pask Braining Steal 0.0 0.0 <td>F21</td> <td>DC brake (Braking level)</td> <td>ò</td> <td>0</td>	F21	DC brake (Braking level)	ò	0
Fig. Durting word C.O. C.O. Fig. Butting word C.O.	F22	DC brake (Braking time)	0.0	0.0
12 Starting seed (helding time) 0.00 0.00 12 Starting seed (helding time) 0 0 12 Starting seed (helding time) 0 0 13 Star seed (helding time) 0 0 13 Star seed (helding time) 0 0 13 Star seed (helding time) 0.00 0 14 Torse (helding time) 10 0 14 Torse (helding time) 10 10 14 Torse (helding time) 0.00 0.00 16 Torse (helding time) 1.00 1.00	F23	Starting greed	0.0	0.0
65 207 Section mode 0 0 67 550 Section mode 0 0 68 550 Section mode 0 0 69 550 Section mode 0 0 69 550 Section mode 0 0 69 550 Section mode 0 0 60 150 Section mode 0 0 61 150 Section mode 0 0 62 1500 Section mode 0 0 64 1500 Section mode 0 0 64 1500 Section mode 0 0 64 1500 Section mode 10 10 64 1500 Section mode 0 0 0 64 1500 Section mode 10 10 10 64 1500 Section mode 10 10 0 64 1500	F24	Starting speed (Holding time)	C. CC	0.00
P70 Disp sead 5 IL.0	F36	30RY operation mode	ō	
FIG Disp sevid (Sevider Molding Head) 0 0 0 FIG Disp sevid (Sevider Molding Head) 0 0 0 FIG Disp sevid (Sevider Molding Head) 0 0 0 FIG Disp sevid (Sevider Molding Head) 0 0 0 FIG Disp sevid (Sevider Molding Head) 0 0 0 FIG Torgen Heller value (Sevid H) 10 Alexander 0 0 FIG Torgen Heller value (Sevid H) 10 10 10 FIG Torgen Heller value (Sevid H) 10 10 10 FIG Torgen Heller value (Sevid H) 0 0 0 0 0 0 0 0 0 10	F37	Stop speed	10.0	10.0
High Stop Stop< Stop< Stop< Stop< Stop Stop Stop	FJ8	Stop speed (Detection method)	0	0
1 Torgan Histor visus (level 2) 0 0 F41 Torgan Histor visus (level 2) selection 0 0 F43 Torgan Histor visus (level 2) selection 0 0 F44 Torgan Histor visus (level 2) selection 0 0 F44 Torgan Histor visus (level 2) 10 10 F46 Torgan Histor visus (level 2) 10 10 F47 Torgan Histor visus (level 2) 10 10 F48 Torgan Histor visus (level 2) 10 10 F49 Torgan Histor visus (level 2) 10 10 F44 Torgan Histor Visus (level 2) 0 0 0 F47 Torgan Histor Visus (level 2) 0<	F39	Stop speed (Zero speed holding time)	0.60	0.60
r42 Tordes intervision (level 1) allocation 0 0 r43 Tordes intervision (level 1) allocation 0 0 r44 Tordes intervision (level 1) 800 100 r44 Tordes intervision (level 1) 800 100 r44 Tordes intervision (level 1) 800 100 r44 Tordes intervision (level 1) 10 10 r44 Tordes intervision (level 1) 10 10 r44 Tordes intervision (level 1) 10 10 r44 Tordes intervision (level 1) 0 0 0 r44 Tordes intervision (level 1) 0 0 0 0 r44 Tordes intervision (level 1) 0	F41	Torque limiter mode 1		
F43 Torges Initiary values (level 2) aslection 0 0 F44 Torges Initiary values (level 2) 10 160 F46 Torges Initiary values (level 2) 10 10 F47 Torges Initiary values (level 2) 10 10 F48 Torges Initiary values (level 2) 10 10 F47 Torges initiary values (level 2) 10 10 F48 Torges initiary values (level 2) 0 0.00 F47 Torges initiary values (level 2) 0.00 0.00 F47 Torges initiary values (level 4) 0.00 0.00 F48 Edit ensitity (level 4) 1.00 1.00 F44 Edit ensity (level 4) villes (level 4) 0.00 1.00 F44 Edit ensity (level 4) villes (level 4) 0.00 0.00 F45 Edit en	F42	Torque limiter value (level 1) selection	0	
F44 Torgen Intervision (level 1) H50 H50 H50 F44 Torgen Intervision (level 2) 10 10 10 F44 Torgen Intervision (level 2) 10 10 10 F44 Torgen Intervision (level 2) 10 10 10 F44 Torgen Intervision (level 2) 0 0 0 F44 Torgen Intervision (there 0.00 0.00 0 F44 Torgen F44 contrastantism (F44) 0 0 0 0 F44 Torgen F44 contrastantism (F44) 0	F43	Torque limiter value (level 2) selection	0	0
Here Togge intervalue (seel 4.) To To To Hel Michael Totac comparison values 0.00 0.00 0.00 Hel Totava kime TI 0.00 0.00 0.00 0.00 Hel Totava kime TI 0.00	F44	Torque I faiter value (level 1)	160	160
147 Torpus bills T1 0.0 0.0 148 Torpus bills T2 0.0 0.00 149 Torpus bills T3 0.0 0.00 140 Torpus bills T3 0.0 0.00 141 Torpus bills contents 0.0 0.00 142 Extended bills contents 0.00 0.00 143 Extended bills contents 0.00 0.00	F46	Horque Limiter value (level 2) Nachanical Loss commansation value	10	10
F41 Toruss Bial T2 0.00 0.00 F43 Foruss Bial T2 0.00 0.00 F44 Foruss Bial T2 0.00 0.00 F45 Foruss Bial T2 0.00 0.00 F46 Foruss Bial T2 0.00 0.00 F47 Edit entropy Chipsing control entropy Bial T2 0.00 0.00 F47 Edit entropy Chipsing control entropy Bial T2 1.00 1.00 F42 Edit entropy Chipsing ritistri) 0.2 0.2 F44 Lift entropy Chipsing ritistri) 0 0 F45 Lift entropy Chipsing ritistri) 0 0	F40	Torque blas TI	0.00	0.00
Feb Torque bias 17 0.00 0.00 FIO Torque references position 0 <td< td=""><td>F48</td><td>Torque blas T2</td><td>0.00</td><td>0.00</td></td<>	F48	Torque blas T2	0.00	0.00
PEO Torque bias activation timer C.00 C.00 PEI Torque bias activation timer 0 0 PEI Torque bias activation (Plainty selection) 0 0 PEI Torque bias activation (Plainty selection) 0 0 PEI LEB enotes (Display catridient b) 1.00 1.00 PEI LEB enotes (Display relieve) 0.2 0.2 PEI LEB enotes (Display relieve) 0 0	F49	Torque blas T3	0.00	0, 00
HE LEE monitor Collipsing control (monitor) 1.00 1.00 1.00 HE LEE monitor Display control (monitor) 1.00 1.00 1.00 HE LEE monitor Display control (monitor) 0.00 0 0 HE LEE monitor Display velocition) 0 0 0	P50	Torque blas activation timer Torque reference woulton (Relarity selection)	0.00	0.00
FG1 LED monitory Display confficient (E) 1.00 1.00 FG4 LED monitory Display collection) 0.2 0.2 FG6 LED monitory Display collection) 0 0 FG6 LED monitory Display collection) 0 0	FSZ	LED monitor (Display coefficient A)	1.00	1.00
PF4 LBE monitor (Display filter) 0.2 0.2 0.2 0	F63	LED monitor (Display coefficient 8)	1.00	1.00
FEG LEB manitar (Display selection) 0 0	F64	LED monitor (Display filter)	G 2	0.2
1/19	FEE	LED monitor (Display selection)	0	0
		1/19		

2.2.8. Page Setup

Make settings for the paper.

	Construction C			
Paper				
Size:	A.4			+
Source:	Automatically Se	lect	_	÷
Orientation	Margins (in	iches)		
Portrait	Left:	1	Right:	1
				-

2.2.9. End

This function terminates the loader.

2.3. Menu

You can select Function Code Setting or Simple Menu Function.

2.3.1. Function Code Setting

Click [Menu] -> [Function Code Setting] or select Simple Menu and click [simple Menu] -> [Function Code Setting]. Then, [Select Edit Data] dialog will open.



Select the items to be read from [Select Edit Data] dialog.

Select funct	ion code data to edit	×
?	Select editing data source	
	Create New Function Setting	
	Read from the <u>file</u>	
	Read from the Inverter	
<u>S</u> elect ir	werter : No. 1[1] INV1	•
	Cancel	

2.3.1.1. Create New Function Setting

Use this function to open a new function code setting. See "2.2.1 Create New File".

2.3.1.2. Read File from the file

Use this function to open the function code setting file which has been previously saved. See "2.2.2 Open".

2.3.1.3. Read from the Inverter

Use this function to read the function code setting from the connected inverter and open the function code setting.

2.3.1.4. Edit List

This function allows you to list the function code setting values and setting ranges and edit them.

You can display the function codes by various classifications. [Edit] menu on Menu Bar is displayed only when the Edit List window opens.



[1] Read the function code setting values from the inverter

When you want to update the function code setting values read from the inverter

Click [Read] button to open the following dialog. Click [OK] to read the function code setting values from the inverter again.



[2] Write the function codes from the loader to the inverter

To write the function codes to the inverter, use [Write] button displayed at the lower bottom of the List Edit window appearing when editing function codes.

Select fu	nction code data write operation	×
Write Selec	function code data to the inverter. t function code data write operation.	OK Cancel
0	Editing function code data (blue part) only	
0	Registered user definition function code data only	
0	Different from the factory default function code data (with *) of	only
0	All function code data	
	After writing, read out the function code data from the inverte	er.

Editing function code data (blue part) only

This function writes to the inverter only the setting values of the function codes that are edited by the loader and have not been written to the inverter yet (displayed in blue).

<u>Registered user definition function code data only</u>

This function writes only the setting values of the function codes registered to the user definition on the List Edit window.

Different from the factory function code data (with *) only

This function writes the setting values to the inverter only when those of function codes are different from the factory-set values (excluding communication codes).

<u>All function code data</u>

This function writes all the function code setting values in the <u>table</u> (excluding communication codes).

[3] Change the setting value

The method to change the setting values varies depending on the function code.

(1) For the function codes which set speed, time, voltage or other numeric values, double-click the field of the function code setting value to be changed. When [Set Values] dialog appears, set the new value.

Setting value	×
Function code No.	F03
1500	ОК
	Cancel

(2) For the function codes which set the code data values (for example, F00 Data Protection, F01 Speed setting N1, F02 Operation method), click the field of the function code setting value to be changed to check that button appears. Click the button to display the selection menu which lists the function data that can be set and the meaning of each function.

0. KEYPAD operation (Up and Down key) 1. Analog input 12 (0 to +=10\/DC)	0 : KEYPAD 🔹 0 to 9	0
2 : Analog input 12 (0 to +10VDC) 3 : UP/DOWN control 1 (initial speed = 0 r/min) 4 : UP/DOWN control 2 (initial speed = last value) 5 : UP/DOWN control 3 (initial speed = Creep speed 1 or 2) 6 : DIA card input 7 : DIB card input 8 : Ai(N-REFV) input	 0. KEYPAD operation (Up and Downkey) 1 : Analog input 12 (0 to +-10VDC) 2 : Analog input 12 (0 to +10VDC) 3 : UP/DOWN control 1 (initial speed = 0 r/min) 4 : UP/DOWN control 2 (initial speed = last value) 5 : UP/DOWN control 3 (initial speed = Creep spee 6 : DIA card input 7 : DIB card input 8 : Ai(N-REFV) input 	:d 1 or 2)

Note

- When the changed function code data has not been written to the inverter yet, the data is displayed in blue.
- When the changed function code data is different from the factory-set values, it is marked with * leftmost on the Edit List window.

[4] Save

To save the function code settings opening on the loader, select [File] -> [Save] or [Save As ...] from Main Menu.

File	Menu Setup
	New
2	Open
	Close
	Save
	Save As
8	Print
0	Print Preview
	Page Setup
	Recent File
	Exit

When selecting [Save] for the data for the first time, the following dialog will open in the same manner as when selecting [Save As ...].

Select [Save to ...] and enter the file name under which the data is saved in [File Name]. Click [Save] and confirm the entry.

Organize 👻 New	folde	1		=
🔆 Favorites	-	Documents library Includes: 2 locations	Arrange	by: Folder 🔻
libraries		Name	Date modified	і Туре
Documents				
J Music		No items m	latch your search.	
Pictures				
Videos				
🖳 Computer				
		< III		
File name:	Functi	on1		
Save as type	unctio	on code setting data file (*.EN1.)		_

After selecting [Save to ...] and select the file type from [File Type], click [Save] to save the data to the specified type of file.

	aries	Documents	•	Search Documents	
Organize 👻 Nev	v folde				#= • (
🔆 Favorites	Â	Documen Includes: 2 loc	its library	Arrange by:	Folder 🔻
Cibraries		Name	*	Date modified	Туре
Documents	E		and the second second	and the second	
J Music			No items mat	tch your search.	
Pictures					
Videos					
👰 Computer					
		•	III		
File <u>n</u> ame:	Functi	on1			
Save as type:	Functio	on code setting da	ata file (*.FN1)		
	Functio	on code setting da	ata file (*.FN1)		

- *.FN1: File format specific to the loader. Files in this format can be opened only on the FRENIC Loader VG.
- *.CSV: Comma delimiter format. Files in this format can be opened on Microsoft Excel or equivalent. However, they cannot be opened on the general-purpose inverter loader.

[5] Print

The items selected from the tree in the left pane on the Edit List tab are target to be printed.

When selecting "Function" or "Code group" from the tree in the left pane on the Edit List tab, function codes such as F, E, C, ... or the group name will appear.

Click [Print] button displayed at the lower right of the [Edit List] window or select [File] -> [Print] from Main Menu to display [Print] window.

Print			
Printer			
Name:	Microsoft XPS Document Writer	•	Properties
Status:	Ready		
Type:	Microsoft XPS Document Writer		
Where:	XPSPort:		
Comment			Print to file
Print range		Copies	
() Al		Number of co	opies: 1 📥
Pages	from to:		
		11 22	33 Collate
Select	10N		3-
		01	
		OK	Cancel

Set the printer to be used, printing range and number of copies and click [OK] button.

How to set simple printing

To print only the function code numbers and setting values from among the items in the Edit List window, click [Detail Setting] at the bottom of that window to open the Detail Setting dialog and click [Print Setting]. When the [Print Setting] dialog appears, check the box of [Simple Printing] and click [OK]. Note that this operation determines the setting only and does not actually print the setting.

dvanced	
<u>S</u> elect	Select the items to be displayed on the editing list.
Print setting	Set prints in simplified way.
<u>E</u> rror clear	Clear the error information of Function code.
Close]
Close	
rint setting	
Prints in s	implified way
ОК	Cancel

5

How to check the printed appearance before actually printing Select [File] -> [Print Preview] from Main Menu.

[6] Compare

You can compare the function code setting data being edited to the data saved in the file or the data set in the inverter that is selected in [Target Inverter] and display the results.

Setting of comparison	Compared with inverter
Select destination comparison	Compare the function code setting data being edited to the function code setting data in the inverter.
	Compared with File
Compared with inverter, •	Compare the function code setting data being edited to the function code setting data saved in the file.
Compared with File	Comparison results include
	ReadOnly
 Comparison results include <u>R</u>eadOnly Comparison results include Communication code 	By marking the check BOX, ReadOnly function codes are included in the comparison target.
	Comparison results include
	Communication code
Gose	By marking the check BOX, "communication code" function codes are included in the comparison target.
	Close
	Close the Select Comparison Target dialog.

* You should select the inverters to be compared in advance by clicking Solution of [Select Inverter] displayed at the bottom of the [Edit List] window.

By selecting "Comparison Results" in the tree in [Edit List], you can check the same contents.

Comparison source : Function1			Comparison destination	: FRN0.75VG	1S-2J	Differenc	e 43 poi
- Function	Change	No.	Function code name	Setting value	Comparision destination	Setting range	Factory sl
Code group	-	F05	M1 rated voltage	188	376	80 to 999 V	
- Contents of change(Blue)		F07	Acceleration time 1	5.00	2.00	0.01 to 99.99	1
- R/W failure(Pink)		F08	Deceleration time 1	5.00	2.00	0.01 to 99.99	
User definition Code for communication	1	F26	Motor sound (Carrier freq.)	8	10	2 to 15 kHz	
Comparison result	·	E01	X1 function selection	0	49	0 to 79	
Search resul		E14	X function normally open / norma	0×0	0×10C	Setting of st	
r III F	4	r + r	been as a second		•	a. 35	- ř
Read Write	Fact	ory set	Func. code set Func. code inf	o Initializa	tion Advanced	<u>Print</u> Co	mparison.

[7] User Definition (Display desired function codes only)

Select the function code from the Edit List window and right-click it to display the window related to "User Definition". Select one of User Definition 1 to 5 and left-click it to register the selected function code to "User Definition".

F	F00	Data protection		1					
	1000	and showing the second states of		_	0	0 to 1		0	
	F01	Speed setting N1	1	1		a a	-	0	
F	F02	Operation method	_	Factor	ysetting	_		0	
F	F03	M1 max. speed	~	User D	efinition 1		0000 r	1500	
F	F04	M1 rated speed	~	User D	efinition 2		0000 r	1500)
F	F05	M1 rated voltage		User D	efinition 3		9 V	188	
F	F07	Acceleration time 1	~	User D	efinition 4		99.99	5.00	0.
F	F08	Deceleration time 1		User D	efinition 5		99.99	5.00	0.
F	F 10	M1 electronic thermal		Releas	e User Definition			0	
F	F11	M1 electronic thermal	overloa	ad re	3.60	0.01 to	99.99	3.60	0.
F	F12	M1 electronic thermal	overloa	ad re	5.0	0.5 to 7	5.0 min	5.0	í.
F	F14	Restart mode after mo	menta	y po	0	0 to 5		0	
F	F17	Gain (for speed setting	signa	1 12)	100.0	0.0 to 2	00.0 %	100.0	(
F	F18	Bias (for speed setting	signa	12)	0	-30000	to 30	0	-300
F	F20	DC brake (Starting spe	eed)		0	0 to 360	00 r/	0	
F	F21	DC brake (Braking leve	el)	-	0	0 to 100) %	0	
F	F22	DC brake (Braking tim	e)		0.0	0.0 to 3	0.0 s	0.0	(
F	F23	Starting speed			0.0	0.0 to 1	50.0 r	0.0	0
F	F24	Starting speed (Holding	g time)		0.00	0.00 to	10.00 s	0.00	0.
-	-	-							
		F03 F04 F05 F07 F08 F10 F11 F12 F14 F14 F17 F18 F20 F21 F22 F23 F24	F03 M1 max. speed F04 M1 rated speed F05 M1 rated voltage F07 Acceleration time 1 F08 Deceleration time 1 F10 M1 electronic thermal F11 M1 electronic thermal F12 M1 electronic thermal F14 Restart mode after mo F17 Gain (for speed setting F18 Bias (for speed setting F18 DC brake (Braking lew F20 DC brake (Braking lew F22 DC brake (Braking lew F23 Starting speed F24 Starting speed (Holdin	F03 M1 max. speed F04 M1 rated speed F05 M1 rated voltage F07 Acceleration time 1 F08 Deceleration time 1 F10 M1 electronic thermal overloo F11 M1 electronic thermal overloo F12 M1 electronic thermal overloo F14 Restart mode after momental F17 Gain (for speed setting signa F18 Bias (for speed setting signa F20 DC brake (Starting speed) F21 DC brake (Braking leve) F22 DC brake (Braking time) F23 Starting speed (Holding time) F24 Starting speed (Holding time)	F03 M1 max. speed User D F04 M1 rated speed User D F05 M1 rated voltace User D F07 Acceleration time 1 User D F08 Deceleration time 1 User D F10 M1 electronic thermal overload re Releas F11 M1 electronic thermal overload re F14 F14 Restart mode after momentary po F17 Gain (for speed setting signal 12) F18 Bias (for speed setting signal 12) F20 DC brake (Braking level) F22 F23 Starting speed F24 F24 Starting speed (Holding time)	F03 M1 max. speed Gas Definition 1 F04 M1 rated speed User Definition 2 F05 M1 rated voltage User Definition 3 F07 Acceleration time 1 User Definition 3 F08 Deceleration time 1 User Definition 5 F10 M1 electronic thermal overload re 380 F11 M1 electronic thermal overload re 50 F12 M1 electronic thermal overload re 50 F14 Restart mode after momentary po 0 F17 Gain (for speed setting signal 12) 100.0 F18 Bias (for speed setting signal 12) 0 F20 DC brake (Braking time) 0.0 F22 DC brake (Braking time) 0.0 F23 Starting speed 0.0 F24 Starting speed (Holding time) 0.00	F03 M1 max. speed User Definition 1 F04 M1 rated speed ✓ User Definition 2 F05 M1 rated voltage User Definition 3 F07 Acceleration time 1 ✓ User Definition 5 F08 Deceleration time 1 ✓ User Definition 5 F10 M1 electronic thermal ✓ User Definition 5 F11 M1 electronic thermal overload re. 3.80 0.01 to F12 M1 electronic thermal overload re. 5.0 0.5 to 7 F14 Restart mode after momentary po. 0 0 to 5 F17 Gain (for speed setting signal 12) 100.0 0.0 to 380 F20 DC brake (Starting speed) 0 0 0 to 100 F22 DC brake (Braking lime) 0.00 0.0 to 380 F23 Starting speed 0.00 0.00 to 10 F24 Starting speed 0.00 0.00 to 10	F03 M1 max. speed ✓ Ger Definition 1 000 r F04 M1 rated speed ✓ User Definition 2 000 r F05 M1 rated voltage ✓ User Definition 3 99 V F07 Acceleration time 1 ✓ User Definition 3 99 V F08 Deceleration time 1 ✓ User Definition 5 99.99 F10 M1 electronic thermal overload re 300 001 to 99.99 510 05 to 750 min F14 Release User Definition 7 90 to 5 510 05 to 750 min F14 Restart mode after momentary po 0 0 to 5 F17 Gain (for speed setting signal 12) 0 -30000 to 30 F20 DC brake (Starting speed) 0 0 to 100 % F22 DC brake (Braking level) 0 0 to 100 % F23 Starting speed 0.0 0.00 to 150.0 r F24 Starting speed (Holding time) 0.00 0.00 to 10.00 s	F03 M1 max. speed ✓ User Definition 1 µ000 r_ 1500 F04 M1 rated speed ✓ User Definition 2 µ000 r_ 1500 F05 M1 rated voltage User Definition 3 № V 188 F07 Acceleration time 1 ✓ User Definition 4 99.94 580 F08 Deceleration time 1 ✓ User Definition 5 99.94 580 F10 M1 electronic thermal overload re. 3.60 0.01 to 39.99 3.60 F11 M1 electronic thermal overload re. 5.00 50 0.5 to 55.6 min 5.0 F14 Restart mode after momentary po

Select any one of User Definition 1 to 5 from the tree in the left pane of the Edit List tab. Then, the registered function codes will be listed.

Function	Change	No.	Function code name	Setting value	Setting range	Factory shipping value	Minimum
Code group Change/Eactor setting value		F01	Speed setting N1	0	0 to 9	0	
- Contents of change(Blue)		F02	Operation method	0	0 to 1	0	1
- R/W failure(Pink)		F03	M1 max. speed	1500	50 to 30000 r	1500	5
E User definition	1	C05	Multistep speed 1	0	0 to 30000r/	0	
- User definition 2	1	C06	Multistep speed 2	0	0 to 30000r/	0	
→ User definition 5 → Code for communication → S code → M code → M code → M code → M code → Comparison result → Search resul							
└── User definition 5 □ Code for communication └── Socie └── Micode └── Micode └── Comparison result ── Search resul							
User definition 5 Code for communication Scode M code M1 code Comparison result Search resul	*		11				

To unregister the function code, select the target one and right-click it to display the window related to "User Definition". Then, select Reset User Definition and left-click it to unregister the target function code from "User Definition".

To unregister the function code from all the user definition groups (1 to 5), select "Relese User Definition" and left-click it. Then, the function code will be unregistered from all the user definition groups.

-I FURCTION	Change	Ma	Equation and a name		Catting uplus	Catting same	Eastawy shinning years	Minimum
⊕ Code group	Onlange	140.	T unction code name				ractory simpping value	
- Change(Factry setting value		500	Operation method		Factory setting		0	
- R/W failure(Pink)		F 02	M1 may arread	-	II. D.C.Y. I		1500	50
E- User definition		0.05	Multistep opend 1		User Definition 1	1	0	00
User definition 1	-	000	Multistep speed 1		User Definition 2		0	0
User definition 2	-	000	Multiatop apeeu 2		User Definition 3		0	
- User definition 4				~	User Definition 4			
User definition 5	1.00			-	User Definition 5	A		
S code					Release User Defi	nition		
- M code								
- M1 code								
M2 code								
Comparison result								
Search resul								
F	4		10					
	•		111					

Name change of User definition

"User definition" name for the tree view can be Changed.

Select "User definition" on the tree view \rightarrow Right click \rightarrow Select "Name change", the character input is possible.



Send Limited function code information

Only the function code selected by "User definition" displayed on the touch panel of the inverter. By "User definition", Select the function code to be limited display on the touch panel, Select "User definition" on the tree view \rightarrow Right click \rightarrow Select "Send Limited function code information".

- Code group	Change	No.	Function code name	Setting value	Setting range	Factory shipping value	Minimum
E CONTRACTOR		F01	Speed setting N1	U)	U to 4	1	
- F code	-	F02	Operation method	0	0 to 1	0	0
- E1 code		F03	M1 max. speed	1500	50 to 30000 r	1500	50
C code		C01	Jump speed 1	0	0 to 30000 r/	0	0
- P code		Cfl2	Jump speed 2	0	0 to 30000 r/	0	0
- A1 code - o code - L code - L code - U code - U1 code - SF code - Change(Factry setting v							
Contents of change(Blu R/W failure(Pink) G-User definition							
Contents of change(Blu R/W failure(Pink) User definition User definition User definition 1 User definition 2	Name cha	nge					
Contents of change(Blu) R-W failure(Fink) User definition User definition 2 User definition 3 User definition 4 User definition 5 Code for communicatior S code M code	Name cha Send Limit	nge ed fun	ction code information				
 Contents of change(Blu R/W failure(Pink) User definition 							

Click the [OK] button, and send "Limited function code information" to the inverter.



If it is sent successfully, the following dialog will be displayed.



Note

About the operation of the touch panel of the inverter, Refer to FRENIC-VG user's manual Section 3.4.4.13 Limiting function codes to be displayed -- Menu #14 "LIMITED FC".

[8] Search (Search function code terminologically)

Select [Edit] -> [Search] from Main Menu to display [Search] dialog.

Search string		_
Speed Gain		ОК
Search condition	18	Cancel
AND	© <u>o</u> r	Carlos
Capital letter	/ small letter is distinguished.	
1 byte chara	cter / 2 byte character is distinguished.	
Use the space d	elimiter	

From among words on the Edit List window, enter the key word to be searched, for example, speed or gain, and click [OK] button. If the entry is correct, the program automatically moves to [Search Results] in the tree in the left pane of the Edit List tab and the function codes including the entered key word are listed. The following figure shows the example of search results with "Speed" and "Gain" as the key word.

		1					
E Function	Change	No.	Function code name	Setting value	Setting range	Factory shipping value	Minimum val
⊡-Code group		F17	Gain (for speed setting signal 12)	100.0	0.0 to 200.0 %	100.0	
- E code		H55	Zero speed control (Gain)	5	0 to 100 times	5	
- C code - P code - H code - H1 code - H2 code - A code - A code - A code - a code - a code - a code - b code - L code - U code - U code - SF code - Change(Facty setting value - Contents of change(Blue)							
 − R/W failure (Pink) (B) User definition Code for communication → S code → M code → M code → M code → M2 code → Comparison result Search result 							
R/W failure (Pink) Code for communication Code for communication Goode M code M code M code M code Comparison result Search resul			m				

- Note The search target range covers all items (changes, No., function code names, setting values, etc.) However, the items set to be "hidden" by [Advanced] -> [Display Item] are also included in the search target.
 - The contents of function code information are not included in the search target.

2.3.1.5. Auto Tuning

This function automatically measures the motor constants and saves them to the inverter as parameters of Motor 1 to Motor 3. Function code H01: Function to perform motor auto tuning using the tuning operation selection and display the tuning results.



 Be sure to refer to the inverter user's manual (FRN-VG1) "[4.3.5] HO1:tuning operation selection" before executing motor parameter auto tuning.

elect which motor constant is I be tuned.	Current Display th progressio	Process	Tuning F Read the after tunir	Results values be g and dis	fore and play them. — — — — — — — —
unction1					
Function code edit Auto-tuning File information					
Matortuning (Select)		Tuned results			
			1000		
2 : Motor automatic tuning ; R1 Ls	•	Function code name	Before	After	
Motor Now doing		P06 M1 %R1		2.55 3.37	
Motor 1(M1) 1 Tuning end	•	P07 M1 %X	1.	2.16 17,02	
		P08 M1 exciting current	2	25,74	
Note		PUS MI Torque current	5.		
Occurrition annual day		P11 M1 elip on braking	0.	548 0.640	
1. Select the inverter to be tuned.		P15 M1 magnetic esturati	on coeffi	4.4 94.4	
 Specify tuning operation. Select the material direction of the material 		P16 M1 magnetic saturati	on coeffi	74.0 74.0	
(Tuning will not start unless any run command is input to the	e inverter.	P17 M1 magnetic saturati	on coeffi	9.5 59.5	
Upon completion, the result of tuning will be displayed.		P18 M1 magnetic saturati	on coeffi	18.9 <u>40.0</u>	
		P19 M1 magnetic saturati	on coeffi	8.0 39.0	
Motor constant		P20 M1 Secondary time of	onstant 0	173 0.173	
Number of motor poles	4 poles	P21 M1 Induced voltage	coefficient	331 331	
	20.00 10.	P22 M1 R2 correction cor	efficient 1 2.	268 2.268	
wiotor capacity	-30.00 NW	P23 M1 R2 correction cor	efficient 2 2	078 2.078	
Moter rated current	58.00 A	P24 M1 R2 correction cor	efficient 3 1.	000 1.000	7
		P25 M1 exciting current c	orrection 0.	070 0.070	
		Select Inver	ter [No. 1[1] IN	V1 -	Glose
Motor Constant	uto Tuning art the tuning	All Save	ing results	Selec	ct Inverter
and display it.	peration.	to the inverte	er EPROM.	targe	t inverter.
arget Motor splay Motor 1 (M1), Motor 2 (M2) a	nd Motor 3 (M3)	 			
arget Motor splay Motor 1 (M1), Motor 2 (M2) a elect tuning operation	nd Motor 3 (M3)				
arget Motor splay Motor 1 (M1), Motor 2 (M2) a elect tuning operation 1: ASR (speed control) tuning 2: Motor constant tuning (for Motor stop status : R1, I 3: Motor constant tuning (for Motor stop status : %R	disabled dur (disabled dur VG standard n Lσ non-standard 1. %X. exciting	ing v/f control) notors) motors) (disab	(to be supp led during kidding, ma	ported soc v/f contro gnetic sa	on) ol) turation coeffi
arget Motor splay Motor 1 (M1), Motor 2 (M2) a elect tuning operation 1: ASR (speed control) tuning 2: Motor constant tuning (for Motor stop status : R1, 3: Motor constant tuning (for Motor stop status : %R indu	(disabled dur (disabled dur VG standard n Lσ non-standard 1, %X, exciting uctive voltage, se	ing v/f control) notors) motors) (disab current, rated sl econdary consta	(to be supp led during kidding, ma	oorted soo v/f contro gnetic sa	on) ol) turation coeffi
arget Motor splay Motor 1 (M1), Motor 2 (M2) a elect tuning operation 1: ASR (speed control) tuning 2: Motor constant tuning (for Motor stop status : R1, 3: Motor constant tuning (for Motor stop status : %R indu 4: Motor constant tuning (for Motor stop status : %R	(disabled dur (disabled dur VG standard n Lσ non-standard 1, %X, exciting uctive voltage, se non-standard I, %X	ing v/f control) notors) motors) (disab current, rated sl econdary consta motors) (disab	(to be supp led during kidding, ma nt led during	oorted soo v/f contro gnetic sa v/f contro	on) ol) turation coeffi ol)

When H01 = 1 or 4, the motor rotates during tuning. Make sure that there is no danger in rotating the motor. **Injuries could occur.**

2.3.1.6. File Information

This function displays the information which may affect the function codes. You can change "Type", "Voltage", "Capacity" and "Definition File" as you want.

- When reading the information codes from the inverter, the information on that inverter is displayed.
- When creating a new code, the default information by machine type is displayed.

nction code edit	Auto-tuning File information		
Property		Comments	
Change			
File name	Function 1		
Model	VG1		
Resion spec.	J:JAPAN		
Voltage	200 V		
Capacity	0.75 kW		
Read date	4/23/2012 - 21:28:13 PM		
Current definiti	on file fnc_E_vg_1_0000b30a.csv		
Saved definition	on file.		
Note) Even if the It does not v	'Region spec', voltage' and 'capacity', " are chang write it in the inverter.	ed on this screen.	

When clicking on the file information [Change] button, the Settings dialog is displayed.

?	Select the following parameters	
<u>M</u> odel	[VG1 ▼	
Region spec.	J:JAPAN 👻	
Capacity	0:0.75-2(1-2)	
Definition file	fnc_E_vg_1_0000b33.csv (C <u>h</u> ange
F	OK <u>C</u> ancel	

[1] Change models (VG7 \rightarrow VG1, or VG1 \rightarrow VG7)

To use the function code data read from the inverter of "FRENIC-VG7" for the inverter of "FRENIC-VG", it is necessary to change a "model" into "VG1" from "VG7."

It is also the same as when using the function code data of "VG1" for "VG7."

etting		×
2	Select the following parameters	
Model	VG1 -	
Region spec.	VG1 VG7	
Capacity	0 : 0.75-2 (1-2)	
Definition file	fnc_E_vg_1_0000b33.csv.	Change
	OK <u>C</u> ancel	

The function code which exists in the model before conversion and does not exist in the model after conversion is displayed on the dialog of a file reading error.

Num.	Function code name	Error code	-
F72	Pre-excitation selection	The address of the function is wrong. Refer to the comparison result in the tree.	-
F81	Offset (for speed setting signal 12)	The address of the function is wrong. Refer to the comparison result in the tree.	
F82	Blind zone (for speed setting sig	The address of the function is wrong. Refer to the comparison result in the tree.	
F83	Filter (for speed setting signal 12)	The address of the function is wrong. Refer to the comparison result in the tree.	
F84	Electric power data display coeff	The address of the function is wrong. Refer to the comparison result in the tree.	
F85	Calculated torque value filter	The address of the function is wrong. Refer to the comparison result in the tree.	
E101	Ai1 offset	The address of the function is wrong. Refer to the comparison result in the tree.	
E102	Ai2 offset	The address of the function is wrong. Refer to the comparison result in the tree.	
E103	Ai3 offset	The address of the function is wrong. Refer to the comparison result in the tree.	
F104 ∢	Ai4 offset	The address of the function is wrong. Refer to the comparison result in the tree	+

(The following figure is a case where it changes into "VG1" from "VG7".)

Note

· Change models (VG7 \rightarrow VG1/VG1 \rightarrow VG7) is only possible if the standard or semi-standard (CC, SX, FB) products.

[2] Change of inverter capacity

Change the "capacity inverter" of the current function code list.

Setting			×
?	Select the following p	arameters	
Model	VG1	•	
<u>R</u> egion spec.	J:JAPAN	*	
Cagacity	0 : 0.75-2 (1-2)	*	
Definition file	$\begin{array}{c} 0 & 0.75-2 & (1-2) \\ 1 : 1.5-2 & (2-2) \\ 2 : 2.2-2 & (3-2) \\ 3 : 3.7-2 & (5-2) \\ 4 : 5.5-2 & (7.5-2) \\ 5 : 7.5-2 & (10-2) \\ 6 : 11-2 & (15-2) \\ 7 : 15-2 & (20-2) \\ 8 : 18.5-2 & (25-2) \\ 9 : 22-2 & (30-2) \\ (10 : 30-2 & (40-2) \\ 11 : 37-2 & (50-2) \\ 12 : 45-2 & (60-2) \\ 13 : 55-2 & (75-2) \\ 14 : 75-2 & (100-2) \\ 15 : 90-2 & (125-2) \\ \end{array}$	E	C <u>h</u> ange

Note

It will be changed into the value of the capacity as which the "preset value" of the following function code and the "factory-shipments value" were chosen if "Inverter capacity" is changed.

Function code	Name	Function code	Name
F04	M1 Maximum Speed	P15	M1 Magnetic Saturation Factor 1
F05	M1 Rated Voltage	P16	M1 Magnetic Saturation Factor 2
F11	M1 Electronic Thermal Overload Protection (Detection level)	P17	M1 Magnetic Saturation Factor 3
F12	M1 Electronic Thermal Overload Protection (Thermal time constant)	P18	M1 Magnetic Saturation Factor 4
F26	Motor Sound (Carrier frequency)	P19	M1 Magnetic Saturation Factor 5
P02	M1 Motor Selection	P20	M1 Secondary Time Constant
P03	M1 Rated Capacity	P21	M1 Induced Voltage Factor
P04	M1 Rated Current	P22	M1 R2 Correction Factor 1
P05	M1 Number of Poles	P23	M1 R2 Correction Factor 2
P06	M1 %R1	P24	M1 R2 Correction Factor 3
P07	M1 %X	P25	M1 Exciting Current Correction Factor
P08	M1 Exciting Current/Magnetic Flux Weakening Current (-Id)	P33	M1 Maximum Output Voltage/ Maximum Voltage Limit
P09	M1 Torque Current	H15	Restart Mode after Momentary Power Failure (Continuous running level)
P10	M1 Slip Frequency (For driving)	H51	Observer (M1 load inertia)
P11	M1 Slip Frequency (For braking)		
P12	M1 Iron Loss Factor 1		
P13	M1 Iron Loss Factor 2		
P14	M1 Iron Loss Factor 3		

[3] Change of definition file

"Definition file" of the function code list is a one-to-one correspondence to the inverter ROM version. The inverter ROM version is displayed in the "MAIN" on the fifth page of the Key pad of the "5. Maintenance". (Refer to the operation manual "3.4.6 See maintenance information" of the main part of an inverter for operation.)

When checking by a loader, Check an "M25 : Inverter ROM (main control) version" after reading function code data from an inverter.

- Function	Change	No.	Function code name	Setting value	Setting range	Factory shipping value	
Code group Change (Factor setting value	*	M22	Motor temperature	30	1deg C / 1d	Ó	Ĩ
- Contents of change(Blue)	*	M23	Type code	0×1313	0x0000 to 0x	0×0	
- R/W failure(Pink)	*	M24	Capacity code	4	0 to 34	0	L
User definition Code for communication	*	M25	Inverter ROM (main control) version	0×12	x0000 to 0x	0×0	
S code		M26	Communication error code	U×0	0 to 65535	0×0	
M code	*	M27	Speed setting on alarm	6994	-32000 to 32	0	Ī
- M1 code M2 code	*	M28	Torque reference on alarm	-268.56	0.01% / 1d	0.00	
Comparison result	*	M29	Torque current reference on alarm	-265.35	0.01% / 1d	0.00	
Search resul	*	M30	Magnetic-flux reference on alarm	100.01	0.01% / 1d	0.00	١.
e m P	*		m				

Shows the relationship between the "Inverter ROM version" and "Definition file" below.

Inverter ROM version		Definition file
Key pad display Loader M25 display	: H10011 : 0x11	fnc_E_vg_1_0000b30a.csv
Key pad display Loader M25 display	: H10012 : 0x12	fnc_E_vg_1_0000b33.csv

When changing the "definition file" of the current function code list, click [change] button and displays the dialog "Open file."

Setting		×
2	Select the following parameter	8
Model	VG1 +]
<u>R</u> egion spec.	J:JAPAN +]
Capacity	0 : 0.75-2 (1-2)]
Definition file	fnc_E_vg_1_0000b33.csv OKQancel	Change

Select the definition file that corresponds to the ROM version of the inverter. Then, click the [Open] button.

Organize 💌 New fo	older	IEE -	- 🗖 🙆
🔆 Favorites	Name	Date modified	Туре
	📙 Driver	4/23/2012 8:20 PM	File folder
词 Libraries	🕌 en	4/23/2012 8:20 PM	File folder
Documents	🍶 ja-JP	4/23/2012 8:20 PM	File folder
J Music	fnc_E_vg_1_0000b30a.csv	4/23/2012 9:24 PM	CSV File
Pictures Videos	[1] fnc_E_vg_1_0000b33.csv	12/20/2011 4:24 PM	CSV File
📮 Computer			
📭 Network			
	< III		

The function code which exists in the definition file before conversion and does not exist in the definition file after conversion is displayed on the dialog of a file reading error.

(The following figure is a case where it changes into "fnc_vg_1_0000b28a.csv" from "fnc_vg_1_0000b33.csv".)

Num.	Function code name	Error code	1
P51	M1 Torque correction gain 7	The address of the function is wrong. Refer to the comparison result in the tree	
H134	Delay timer of speed decrease d	The address of the function is wrong. Refer to the comparison result in the tree	
H135	Speed reference detection level	The address of the function is wrong. Refer to the comparison result in the tree	-
H136	Speed reference detection level	The address of the function is wrong. Refer to the comparison result in the tree	
H137	Speed decrease detection level	The address of the function is wrong. Refer to the comparison result in the tree	
H138	Speed decrease detection delay	The address of the function is wrong. Refer to the comparison result in the tree	
H140	Start delay detection level	The address of the function is wrong. Refer to the comparison result in the tree	
H141	Start delay detection timer	The address of the function is wrong. Refer to the comparison result in the tree	
H144	Toggle error timer	The address of the function is wrong. Refer to the comparison result in the tree	
H145 ∢	I ower limited frequency operatio	The address of the function is wrong. Refer to the comparison result in the tree	1

Note

After changing the definition file, the setting of function code other than an error reading the file is transferred intact.

2.3.2. Read and write (SF code) code safety functions

In order to conform to the functional safety standards, writing of code safety functions, you must follow the instructions in the instruction manual of functional safety card.

For details, Refer to "INR-SI47-1541-JE OPC-VG1-SAFE instruction manual."



e To read or write properly safety function codes, must be attached a functional safety card (OPC-VG1-SAFE) to the inverter.

2.3.2.1. Read

Read of a safety function code can be performed by the same operation as read of the usual function codes other than safety function code. (Refer to "2.3.1 Setting function code.")

2.3.2.2. Write (Unlock Functional safety password)

The writing of a safety function code needs to open the list display of a function code edit, and unlock Functional safety password.

Select the "menu" -> "Functional safety", then the functional safety password entry screen is opened.

Menu	Setup	Edit	View
Tr	ace		,
Op	eration N	Aonitor.	
Fu	nction co	de edit.	
Fu	nctional s	afety	
Qu	lick acces	s Menu	

Enter functional safety password the 8-digit characters (0 to 9, A to F). And, click the [OK] button.



The following dialog is displayed after the safe password is unlocked.



If Functional safe password is unlocked, the writing of a safety function code can carry out by the same operation as the writing of the usual function codes other than the safety function codes. (Refer to "2.3.1.4 List edit.")

Note

Write the safety function codes after unlocking the functional safety password.

Num.	Function code name	Error code
SF02	SS1 timer	(Protection of PASSWORD) Unable to write. Select menu (M) -> safe function, and
SF03	SS1/SLS deceleration time	(Protection of PASSWORD) Unable to write. Select menu (M) -> safe function, and
SF04	SLS level	(Protection of PASSWORD) Unable to write. Select menu (M) -> safe function, and
SF05	SLS timer	(Protection of PASSWORD) Unable to write. Select menu (M) -> safe function, and
SF06	SLS upper limmiter	(Protection of PASSWORD) Unable to write. Select menu (M) -> safe function, an
SF07	Maximum speed	(Protection of PASSWORD) Unable to write, Select menu (M) -> safe function, and
SF08	Upper limit monitoring waiting time	(Protection of PASSWORD) Unable to write. Select menu (M) -> safe function, and

Note

Safety function codes are only temporarily stored in the functional safety card (OPC-VG1-SAFE). To save the safety function codes even when the power is turned off, Select "Send all save command" when closing a list edit display. then click "OK".

(Tore tell	3 1 1	o monique						
U1 code SF code - Change(Facty setting v - Contexts of change(Blu - R/W fallure(Pink) B- User definition - G code for communication		Change	No.	Function code name	Setting value	Setting range	Factory shipping value	Minimum 4
			SF00	Password status monitor	0	0 to 1	0	E
		-	SF01	SS1 level	150	0 to 30000 r/	150	
			SF02	SS1 timer	10.00	0.01 to 3600 s	10.00	0.0
			SF03	SS1/SLS deceleration time	5.00	0.01 to 3600 s	5.00	0,0
- Comparison result	E		SF04	SLS level	300	0 to 30000 r/	300	
- Search resul 🖕			SF05	SLS timer	10.00	0.01 to 3600 s	10.00	0.0 .
C 111	•	*		, m				۲
<u>R</u> ead Write		Fact	ory set	Func. code set Func. code	info	tion Advar	iced <u>Print</u> C <u>o</u>	mparison
	_	_						\langle



Make a selection of whether to save settings to a file function code.

FRENIC L	oader 🔀
▲	Function 1 : Do you send All save command before you close
	Inverter (There is Data that hasn't been transmitted.) Changed Data is transmitted in the inverter.
	File (it hasn't been saved after the changed.)
	Yes No Cancel

Completes the write operation (SF code) Safety functions codes using the loader.

Steps continue, refer to the "INR-SI47-1541-JE OPC-VG1-SAFE instruction manual".

2.3.2.3. Change of the functional safety password

Select the "menu" -> "Functional safety", then the functional safety password entry screen is opened. And, Click the "Change" button.

UK
Cancel
Change

Note

In order to change the functional safe password, it is necessary to unlock the password.

Enter functional safety password the 8-digit characters (0 to 9, A to F). Moreover, Enter the same password also into the check of a new password. And, click the [OK] button.

Input New password	
•••••	<u>O</u> K
Confirm New Password	Cancel

If the input password is incorrect, the following dialog will be displayed.

Try again to enter the password.



After the successful password change, the following dialog will be displayed.



Note

If the password is changed, it will return to the password lock state. Write the safety function codes after unlocking the functional safety password again.
2.3.2.4. Safety function code initialization

To initialize the safety function code, open the edit screen of function code list, click the [Initialization...] button, display the dialog of initialization selection. Then, select the "Initialization the safety function code", click the [OK] button.



- Note
- Safety function code will be initialized even if the functional safety password is not unlocked.
- When the safety function code are initialized, functional safety password will return to the default setting.

2.3.3. Trace back

The operation status of an inverter can be observed as continuous waveform data. The trace (shown below) provides the following three types functions.

The inverter operation status at occurrence of alarm is saved into the memory in the inverter as waveform data. Trace Back is a function to read the saved waveform data and display it in the graph. This is suitable to reference for troubleshooting.

The waveform data for the last 3 times including the latest alarm is saved. The waveform data before the last 3 alarm is cleared.

Item	Trace Back
Sampling time	Current detection, Electrical angle : 50us to 83.36us 100us to 166.72us Others : 400us to 666.88us 1ms to 1s
Number of samplings	1100 point/Ch Before trigger :1000 point/Ch After trigger : 100 point/Ch
Number of displayed data	Analog : 8 Digital : 16
Number of selectable data	Analog : 26 Digital : IN : 16 OUT : 16 x 8 blocks

Click [Menu] -> [Trace] -> [Trace Back] or select Simple Menu and click [Simple Menu] -> [Trace Back] . Then, [Select Edit Data] dialog will open.

FL FRE	NIC Loader		[Trace back]:
File	Menu Setup View Window	Help Trace back	To graphically view the status of the inverter in the event of an alarm
	Function code edit		
	Quick access Menu		Trace Back



VG7 does not support the each trace.

- When using trace, do not assign the function code (E01 to E13 : X function selection) "23 : Write enable through link". When you assign 23, set to "Allow".
- If you want to keep the data for the trace back, when you turn off the inverter power supply, you need a battery for memory backup(22kW or less : Options, more than 30kW : Standard accessories). For more information about the battery for memory backup, refer to the inverter's instruction manual (FRN-VG1) "7.4.2 battery".
- Trace back data saved in VG loader free version "1.1.0.0" can not be opened in earlier versions loader. Do the version up to "1.1.0.0".

2.3.3.1. Trace back screen

The following shows the Trace Back window.



2.3.3.2. Read Waveform Data

You can read the trace back waveform data saved in the memory within the inverter.

Follow the steps below:

- (1) Select [Bank Setting] tab.
- (2) Select the alarm to be read from [Select Trace Back Data] up to the past three times and click [Update] button.
- (3) The alarm information saved in the inverter appears. If the contents are OK, click [Read Waveform] button.

2.3.3.3. Read Function Code Settings (during Trace Back)

You can read the function code setting values when trace back waveform data is saved.

Follow the steps below:

- (1) Select [Bank Setting] tab and select the alarm to be read from [Select Trace Back Data] up to the past three times.
- (2) Click [Update] button.
- (3) The alarm information saved in the inverter appears. If the contents are OK, click [Read Function Code] button.



2.3.3.4. Save Trace Data

To save each trace data, click [Save] button in the upper center in the trace window or select [File] -> [Save As...].

Save

When selecting [Save] for the data for the first time, the following dialog will open in the same manner as when selecting [Save As ...]. Select [Save to...] and [File Type], enter the file name under which the file is saved in [File Name] and then click [Save] to determine the entry.

	NIC_LOBUEL_VG P DATA	• •7	SEVICIERAIA	
Organize 👻 New	/ folder			• • • •
	* Name		Date modified	Туре
Computer Co	Trace back.TB1		4/24/2012 7:35 PM	TB1 Fil
🙃 Mada	+ -	m		
File name:	Trace back			-
Save as type:	Trace back waveform data File (*.TB	31)		-
 Hide Folders 	Trace back waveform data File (*.TB Trace back waveform data File (*.CS Trace back graph image(* IPG)	1) V)		

- · Trace back data is saved as *.TB1 file. (VG1)
- The comma delimiter format is saved as *.CSV (VG1)
- Trace data (Graph image) is saved as *.JPG file. (VG1)

2.3.3.5. Copy Trace Back Data Screen

To copy each trace data screen, click [Copy] button in the upper center in the trance screen. Then, the screen is copied in the clip board. You can paste it onto the target document.



2.3.3.6. Print Trace Data

To print the trace data, set the trace screen in the active state and select [File] -> [Print]. The trace data is printed as shown below.



2.3.3.7. Sub Window

[1] Cursor

Each box in the cursor sub window shows the channel setting values or status at each cursor position.

Idee Dack		
Inter Graph position adjustment Bank setting Unser Cursor A Cursor B Cursor AB CH1 Speed setting 4/ASR input/(r/min 100	Trace back Stop Save Copy 652 Stat/Stop monitoring Signrs.2ms Signrs.2ms	Cursor (ms)
CCH2 Speed detected value[Low] r/min 1200 1200 0 CCH1 FWD(Forward nun command) ON ON DCH2 REV(Reverse nun command) OFF OFF	A-CH1 0 Speed setting 4(ASR i nput)[Low] 1500[r/min/div] Speed detected value] Low] 1500[r/min/div] D-CH1 0 FWD(Forward run comma nd) D-CH2 0 REV(Reverse run comma nd) -998ms -898ms -798ms	s -698ms -498ms -398ms -298ms -198ms -98ms 2ms
	•	,

Select cursor display

Vertical: Two cursors (Cursor A, Cursor B, Cursors A and B) Horizontal: Two cursors (Cursor A, Cursor B, Cursors A and B) No display

Cursor value monitor

Analog channel: 8 channels Digital channel: 16 channels (You can display the hidden portions using the cursor value monitor vertical slide bar.)

Use the scroll bar to move to the waveform screen to be analyzed and click the point to be observed in the graph. The cursor will move to that position. The cursor movement position is the sampling point (time point) closest to the clicked point. The trace data of all channels on the cursor appears in the measurement monitor.

Alternatively, you can move the cursor using the cursor movement bar or by dragging the mouse.

The cursor keys on the keyboard are also available.

However, while tracing, neither waveform screen nor cursor can be moved.

[2] Adjust graph position

Each box in the cursor sub window shows the channel setting values or status at each cursor position.

sitioning		Select Chan	nel	
(-avis	100	1	Visible	*
Chao -		A-CH1	-	-
(-axis	U	A-CH2	V	
mplitude	1.00	A-CH3		
cale		1.0114		
000	/DIV	A-CH4		
Reset p	ositioning	C A-CH5		
0.0.1	v .]	O A-CH6		
Optimiz	e t-axis	A-CH7		
Peak d	etection	A-CH8		
meframe p	per 1 DIV	O D-CH1	V	
00ms	✓ /DIV	D-CH2	V	
lumber of	auxiliary lines	D-CH3		
0 4	() 5	D-CH4		
		D-CH5		
Styl	e line	D-CH6		
		D-CH7		
		D-CH8		

You can use the boxes to adjust the graph position at each channel.

Select CH

Select the channel at which the graph position is adjusted.

Display

Display only the channels with checked mark. Hide the channels without checked mark.

Y axis display position

Set the Y axis display position of the selected channel. The upper end comes to 0 point (50 points each at grid).

X axis display position

Set the X axis display position of the selected channel. The leftmost end comes to 0 point (200 points each at grid).

Amplitude

Set the amplitude of the selected channel by magnification (in increments of 0.25).

Change the magnification using 0 point for reference.

As changing the amplitude input value, Scale/DIV value changes in unison and the graph display also changes according to the Scale/DIV value.

Scale

Set the scale of the selected channel.

Enter the numeric value per DIV. This setting covers the analog setting channels only.

Graph position reset

Reset the display position and amplitude setting of the selected channel to the initial values.

- Y axis display position: Ch1 = 50 and the value increments by +50 for the subsequent channels.
- X axis display position: Each Ch = 0
- Amplitude: 1.00

Optimize Y axis graph

Arrange the Y axis display position and scale of the displayed channels without overlapping by channel. Reset the amplitude setting to the initial value.

- Y axis display position: Ch1=100 and the value increments by +100 for the subsequent channels.
- Scale: Set the scale value so that the maximum value can be within two grids. (Minimum unit: 50)

Detect waveform peak

Move Cursor A to the maximum value of the selected channel automatically. If there are two or more peaks, the cursor moves to the earliest one.

Display range in one DIV

Select Item to change the line property

Chanel
 Cursor A

Cursor B

Trigger

O Grid

OK

Background

Cancel

Set the time to be displayed in one waveform monitor screen.

×

Ttrace back:

(1ms, 5ms, 10ms, 20ms, 50ms, 100ms, 200ms, 500ms, 1s, 2s, 5s, 10s, 20s, 30s, 1min, 5min, 10min)

Color setting

Line property

The color setting data is held. When obtaining the waveform, you can change the color setting.

Ch line

Line color and line type of the trace data of the selected channel

Cursor line A

Select the line color, line type and line thickness of Cursor line A.

Color line B

Select the line color, line type and line thickness of Cursor line B.

Trigger line

Select the line color, line type and line thickness of the trigger line.

Grid line

Select the line color, line type and line thickness of the grid line.

Graph background color setting

Select the waveform monitor background color.

The settings of the trace line of each CH are as below:

	• <u>Color</u>	 Type of line 	 Thickness
Style line	Color 💽		
Color			
			Thickness
Type of line		Type of line	
Thickness			
	Custom colors:		
Caution : Dashed line is a thin line.			
	Define Custom Colors >>		
UK	OK Cancel		

2.3.3.8. Waveform Detail Settings

[1] Channel configuration setting

You can set the configuration of analog channels and digital channels to be traced. See [2] to [5] for detail settings of each channel.

iguration	Analog Ch	Digital Ch	Analog Ch check	Digital Ch check	Other		
Ch cor	nfiguration se	ttings					
	Anal	og Ch					
			© 1	◎ 2	3	© 4	
			© 5	© 6	© 7	8	
	Digita	al Ch					
	0	Disable	© 1	© 2	© 3	© 4	
			© 5	© 6	© 7	8	
			© 9	© 10	© 11	12	
			© 13	14	© 15	16	
Sele	ect Inverter			-			
(No.	1[1]1NV1						
							-

Target inverter

Select No. of the inverter registered in Connection Setting.

[2] Ch1 to Ch8 (analog setting)

You can set the analog channels.

Signal Select Signal [Speed setting 4(ASR input)[Low]	Fiter Fiter setting OFF Manual fiter Time constant Time constant Set the fiter time constant to twice or more the sampling time	Trigger exting Diable Enable Trigger level 32767 32768 Value Trigger edge Up Down

Filter setting

You can do settings on filters of each channel.

Filter	setting
0 0	FF
) M	lanual filter
Time 1	constant

Not used

Select this when no file is used.

Manual filter

Low path filter with filter time constant freely set. Set the filter time constant using numeric values. The setting range is from 1 [ms] to 1 [s]. (Common to historical/real time/trace back)

<u>Trigger</u>

In Trace-back, this setting is disabled.

Triggersetting	
(i) Disable	
🔿 Enablé	
Tiggerlevel	
Te	32767
9	
	-32768
Value 0	<u> *</u> <u>▼</u> [r/min]
Trigger edge	
C.Up	C Down

Signal selection

The information items of the inverters that can be monitored are as shown below.

No	Item	Fast	Note
	Speed setting 2 (before calculating	/Lower	
0	acceleration/deceleration)	Lower	
1	Speed setting 4 (ASR input)	Lower	
2	Speed detected value	Lower	
3	Torque command	Lower	100%:Rated motor torque
4	Torque current command	Lower	100%:Rated motor torque (P09,A11,A111)
5	Torque current calculation value	Lower	100%:Motor rated torque current (P09,A11,A111)
6	Exciting current command	Lower	100%:Motor rated excitation current (P08,A10,A110)
7	Exciting current detection	Lower	100%:Motor rated excitation current (P08,A10,A110)
8	Magnetic-flux calculation	Lower	
9	Output current effective value	Lower	
10	Output voltage effective value	Lower	
11	DC intermediate voltage	Lower	
12	Motor temperature	Lower	
13	Line speed detected value	Lower	
14	U phase voltage detected value	Lower	100%: Motor rated voltage (F05,A04,A104)
15	V phase voltage detected value	Lower	100%: Motor rated voltage (F05,A04,A104)
16	W phase voltage detected value	Lower	100%: Motor rated voltage (F05,A04,A104)
17	Cooling fin temperature	Lower	
18	PID output	Lower	
19	Torque bias	Lower	
20	Ai1 adjusted value	Lower	10000/10V
21	Ai2 adjusted value	Lower	10000/10V
22	U phase current detected value	Fast	100%: Motor rated current (P04,A03,A103)
23	V phase current detected value	Fast	100%: Motor rated current (P04,A03,A103)
24	W phase current detected value	Fast	100%: Motor rated current (P04,A03,A103)
25	Electric angle	Fast	8192/360°
26	Reserve 1 (No polarity)	Fast	* Do not set.
27	Reserve 1 (With polarity)	Fast	* Do not set.
28	Reserve 2 (No polarity)	Fast	* Do not set.
29	Reserve 2 (With polarity)	Fast	* Do not set.
30	Reserve 3 (No polarity)	Lower	* Do not set.
31	Reserve 3 (With polarity)	Lower	* Do not set.

Analog channel signal selection items (trace back)

Note

If you choose a mixture of high-speed data and low-speed data, displays only part of the low-speed data that was retrieved for the time axis to the length of the high-speed data side.

[3] Ch1 to Ch16 (digital setting)

You can set the digital channels.

dvanced set	tting												2
Configuration	Analog (Ch Digital C	h Anal	og Ch check	Digital Ch	check Ot	her						
D-Ch1 D	-Ch2 D-C	h3 D-Ch4	D-Ch5	D-Ch6 D	-Ch7 D-Ch8	D-Ch9	D-Ch10	D-Ch11	D-Ch12	D-Ch13	D-Ch14	D-Ch15	DI
Sign	nal				Ţı	rigger setting	g						
Se Inp	lect signal t out terminal	olock (FWD,REV,)	<1-X14,R	ST) 👻]	Dise Dise	able						
Se FV	lect signal VD(Forward	l run comma	nd)]	(_) Low	lebel						
						(°) High	nt lebel						
						Upe	adga						
						(Dow	in edge						
									ок		Cancel		

<u>Trigger</u>

In Trace-back, this setting is disabled.

Trigger setting	
Diseable	
Cow lebel	
Hight lebel	
🔘 Up edge	
Down edge	

Signal selection block

Signal selection block	High speed / low speed
Input terminal (FWD, REV, X1 – X14, RST)	1: Low speed
Operation status	1: Low speed
Output terminal (Y1 – Y4, RY, X11 – X18)	1: Low speed
Output 1 Y terminal function (0 – 15)	1: Low speed
Output 2 Y terminal function (16 – 31)	1: Low speed
Output 3 Y terminal function (32 – 47)	1: Low speed
Output 4 Y terminal function (48 – 63)	1: Low speed
Output 5 Y terminal function (64 – 79)	1: Low speed
Output 6 Y terminal function (80 – 95)	1: Low speed

Signal selection

The information items of the inverters that can be monitored are as shown below. Signal selection block "Input terminal (FWD, REV, X1 - X14, RST)" items

No	ltem
0	FWD (Forward run command)
1	REV (Reverse run command)
2	X1
3	X2
4	X3
5	X4
6	X5
7	X6
8	X7
9	X8
10	Х9
11	X11
12	X12
13	X13
14	X14
15	RST (RESET command)

Signal selection block "Operation status" items

No	Item
0	FWD (forward running)
1	REV (reverse running)
2	EXT (DC controlling, pre-exciting)
3	INT (inverter shutoff)
4	BRK (braking)
5	NUV (DC intermediate voltage established)
6	TL (torque limiting)
7	VL (voltage limiting)
8	IL (current limiting)
9	ACC (accelerating)
10	DEC (decelerating)
11	ALM (overall trouble)
12	-
13	•
14	•
15	-

No	Item
0	Y1
1	Y2
2	Y3
3	Y4
4	RY
5	Y11
6	Y12
7	Y13
8	Y14
9	Y15
10	Y16
11	Y17
12	Y18
13	•
14	-
15	-

Signal selection block "Output terminal (Y1 - Y5, Y11 - Y18)" items

Signal selection block "Output 1 Y terminal function (0 - 15)" items

No	Item
0	0: Inverter running [RUN]
1	1: Speed existence signal [N-EX]
2	2: Speed agreement signal 1 [N-AG1]
3	3: Speed arrival signal [N-AR]
4	4: Speed level detection 1 [N-DT1]
5	5: Speed level detection 2 [N-DT2]
6	6: Speed level detection 3 [N-DT3]
7	7: Stopping on undervoltage [LU]
8	8: Detected TRQ. polarity(Brake/Drive) [B/D]
9	9: Torque limiting [TL]
10	10: Torque detection 1 [T-DT1]
11	11: Torque detection 2 [T-DT2]
12	12: KEYPAD operation mode [KP]
13	13: Inverter stopping [STOP]
14	14: Operation ready output [RDY]
15	15: Magnetic-flux detection [MF-DT]

Signal selection block "Output 2 Y terminal function (16 - 31)" items

No	ltem
0	16: Motor M2 selected [SW-M2]
1	17: Motor M3 selected [SW-M3]
2	18: Brake release signal [BRK]
3	19: Alarm content [AL1]
4	20: Alarm content [AL2]
5	21: Alarm content [AL4]
6	22: Alarm content [AL8]
7	23: Cooling fan running [FAN]
8	24: Retry function running [TRY]
9	25: Universal DO [U-DO]
10	26: Cooling fin OH. forecast [INV-OH]
11	27: Synchronization completed [SY-C]
12	28: Service life forecast [LIFE]
13	29: Under acceleration [U-ACC]
14	30: Under deceleration [U-DEC]
15	31: Inverter OL. forecast [INV-OL]

Signal selection block "Output 3 Y terminal function (32 - 47)" items

No	Item
0	32: Motor temperature OH. forecast [M-OH]
1	33: Motor OL. forecast [M-OL]
2	34: DB OL. forecast [DB-OL]
3	35: Transmission error [LK-ERR]
4	36: Load adaptive control under limit [ANL]
5	37: Load adaptive control under calc. [ANC]
6	38: Analog torque bias hold [TBH]
7	39:Custom Do1[C-DO1]
8	40:Custom Do2[C-DO2]
9	41:Custom Do3[C-DO3]
10	42:Custom Do4[C-DO4]
11	43:Custom Do5[C-DO5]
12	44:Custom Do6[C-DO6]
13	45:Custom Do7[C-DO7]
14	46:Custom Do8[C-DO8]
15	47:Custom Do9[C-DO9]

Signal selection block "Output 4 Y terminal function (48 - 63)" items

No	Item
0	48:Custom Do10[C-DO10]
1	49: -
2	50: Z phase detect completed [Z-RDY]
3	51: Multiplex sys. com. establishment [MTS]
4	52: Multiplex sys. cansel response [MES-AB]
5	53: Master selected [MSS]
6	54: Multiplex system self-alarm [AL-SF]
7	55: Communication error stop [LES]
8	56: Overall alarm [ALM]
9	57: Slight trouble [L-ALM]
10	58: Maintenance forecast [MNT]
11	59: Brake transistor error [DBAL]
12	60: DC fan lock signal [DCFL]
13	61: Speed match 2 [N-AG2]
14	62: Speed match 3 [N-AG3]
15	63: Electric motor fan stop [MFAN]

Signal selection block "Output 5 Y terminal function (64 - 79)" items

No	Item
0	64: Assign ready[AS-RDY]
1	65: -
2	66: Droop select response [DSAB]
3	67: TRQ.(current) ref. cansel response [TCL-C]
4	68: TRQ. limit 1 cansel response [F40-AB]
5	69: -
6	70: -
7	71: 73-on reference[PRT-73]
8	72: Y terminal test output ON [Y-ON]
9	73: Y terminal test output OFF [Y-OFF]
10	74: -
11	75: Clock battery life [BATT]
12	76: Tune in Pole position [TUN-MG]
13	77: SPGT battery warning [SPGT-B]
14	78: -
15	79: -

No	Item
0	80: EN terminal detected circuit Err. [DECF]
1	81: EN terminal OFF [ENOFF]
2	82: Safety func. operating [SF-RUN]
3	83: -
4	84: STO test by safety func. [SF-TST]
5	85: -
6	86: -
7	87: -
8	88: -
9	89: -
10	90: -
11	91: -
12	92: -
13	93: -
14	94: -
15	95: -

Signal selection block "Output 6 Y terminal function (80 - 95)" items

Note • Item of "Output terminal function 6 Y (80 - 95)" is only supported with the inverter (VG1) rom number after H0020.

[4] Ch setting check (analog/digital)

The data set in each channel is listed. To reflect the setting, click OK button. To cancel the setting, click Cancel button.

nfiguration / W A-Ch1 S A-Ch2 S A-Ch3 T A-Ch3 E	Analog Ch Digital Ch Vaveform name	Analog Ch check	Digital Chiahaa			
A-Ch1 S A-Ch2 S A-Ch3 T A-Ch4 E	Vaveform name		Digital chichec	k Other		
A-Ch1 S A-Ch2 S A-Ch3 T A-Ch4 E			Visible	Filter	Trigger	INV No.
A-Ch2 S A-Ch3 T A-Ch4 E	Speed setting 4(ASR inpu	ut)[Low]	ON	OFF	Disable	1
A-Ch3 T A-Ch4 E	Speed detected value[Lo	w]	ON	OFF	Disable	1
A-Ch4 E	Forque current command	[Low]	ON	OFF	Disable	1
	Excitation current comma	nd[Low]	ON	OFF	Disable	1
A-Ch5 C	Output current[Low]		ON	OFF	Disable	1
A-Ch6 C	Output voltage[Low]		ON	OFF	Disable	1
ACh7 D			ON	OFF	Dieable	4
A CHR			ON	OFF	Disable	4
					ОК	Cancel
anced settin	ig					(
anced settin	ig Analog Ch Digital Ch	Analog Ch check	Digital Ch chec	< Other		
anced settin nfiguration / / W	ig Analog Ch Digital Ch Vaveform name	Analog Ch check	Digital Ch chec Visible	k Other	Trigger	INV No.
anced settin nfiguration / / W D-Ch1 F	ng Analog Ch Digital Ch Vaveform name FWD(Forward run comma	Analog Ch check	Digital Ch chec Visible ON	K Other	Trigger Disable	INV No. 1
anced settin nfiguration / / W D-Ch1 F D-Ch2 F	ig Analog Ch Digital Ch Vaveform name FWD(Forward run comma REV(Reverse run comma	Analog Ch check and) ind)	Digital Ch chec Visible ON ON	k Other	Trigger Disable Disable	INV No. 1
anced settin nfiguration / D-Ch1 F D-Ch2 F D-Ch3 S	rg Analog Ch Digital Ch Vaveform name FWD(Forward run comma REV(Reverse run comma Speed existence signal[N	Analog Ch check and) ind) I-EX]	Digital Ch chec Visible ON ON ON	k Other	Trigger Disable Disable Disable	INV No. 1 1 1
nfiguration / Vi D-Ch1 F D-Ch2 F D-Ch3 S D-Ch3 S D-Ch4 S	ng Analog Ch Digital Ch Vaveform name EWD(Forward run comma REV(Reverse run comma Speed existence signal[N Speed agreement signal]	Analog Ch check and) ind) i-EX] N-AG1	Digital Ch chec Visible ON ON ON	k Other	Trigger Disable Disable Disable Disable	INV No. 1 1 1 1
nfiguration / M D-Ch1 F D-Ch2 F D-Ch3 S D-Ch3 S D-Ch4 S D-Ch5 S	Ig Analog Ch Digital Ch Vaveform name FWD(Forward run comma REV(Reverse run comma Speed existence signal[N Speed agreement signal]	Analog Ch check and) ind) i-EX] N-AG] N-AR]	Digital Ch chec Visible ON ON ON ON	K Other	Trigger Disable Disable Disable Disable Disable	INV No. 1 1 1 1
anced settin nfiguration / D-Ch1 F D-Ch2 F D-Ch3 S D-Ch4 S D-Ch4 S D-Ch5 S	Ig Analog Ch Digital Ch Vaveform name EWD(Forward run comma REV(Reverse run comma Speed existence signal[N Speed agreement signal[Speed equivarent signal]	Analog Ch check and) .red) .reX] .r-AG] .r-AG] .r-AR]	Digital Ch chec Visible ON ON ON ON ON	< Other	Trigger Disable Disable Disable Disable Disable	INV No. 1 1 1 1 1 1
anced settin nfiguration / / D-Ch1 F D-Ch2 F D-Ch3 S D-Ch4 S D-Ch4 S D-Ch5 S D-Ch6 S D-Ch6 S	Analog Ch Digital Ch Vaveform name WD(Forward run comma REV(Reverse run comma Speed existence signal[N Speed agreement signal[Speed equivarent signal[Speed level detection 1[] Decembra and was to 15	Analog Ch check and) -rex] -rex] N-AG] N-AG] V-DT1] DV1	Digital Ch chec Visible ON ON ON ON ON ON	k Other	Trigger Disable Disable Disable Disable Disable Disable	INV No. 1 1 1 1 1 1 1
anced settin nfiguration / / D-Ch1 F D-Ch2 F D-Ch3 S D-Ch4 S D-Ch5 S D-Ch6 S D-Ch6 S D-Ch7 C	Analog Ch Digital Ch Vaveform name EWD(Forward run comma REV(Reverse run comma Speed existence signal[N Speed agreement signal[Speed equivarent signal[Speed level detection 1[1 Operation ready output[R	Analog Ch check and) I-EX] N-AG] N-AR] V-DT1] DY]	Digital Ch chec Visible ON ON ON ON ON ON ON	k Other	Trigger Disable Disable Disable Disable Disable Disable Disable	INV No. 1 1 1 1 1 1 1 1 1

[5] Other settings (including sampling time setting)

In the Trace Back operation, you can change the sampling time only.

Sampling Time	Set trace start time and date	
Fast sampling Time set 1 Lower sampling Tms	Start at specified time and date. Time 6:22:00 PM Date 3/26/2012	
	Auto Save	trigger.
 Detects on <u>Q</u>R conditions. Detects on AND conditions. 	File name Note : This setting does not take effect it trace	Browse
	- File size of saving - Divide saving file - Sampling counts of one file - Total file size	2 (A) counts

Sampling time setting

Sampling time setting is as shown below:



Sampling time setting	Trace back	Real-time	Historical
Time set 1 * (50.00 to 83.36us)	Y : Fast	N	Y
Time set 2 * (100.00 to 166.72us)	Y : Fast	Ν	Y
Time set 3 * (400.00 to 666.88us)	Y : Lower	N	Y
1ms	Y : Lower	Y	Y
2ms	Y : Lower	Y	Y
5ms	Y : Lower	Y	Y
10ms	Y : Lower	Y	Y
20ms	Y : Lower	Y	Y
30ms	Y : Lower	Y	Y
50ms	Y : Lower	Y	Y
100ms	Y : Lower	Y	Y
200ms	Y: Lower	Y	Y
500ms	Y : Lower	Ý	Y
1s	Y : Lower	Y	Y

Y: Available, N: Not available

* The sampling time of the Time set 1 to 3 is varied by the setting of F26 : Motor sound(Carrier freq.).

Trigger position

In Trace-back, this setting is disabled.

100 🚔

Detection conditions

In Trace-back, this setting is disabled.

Detec	tion conditions of trigger
0	Detects on <u>OR</u> conditions.
0	Detects on AND conditions.

Set trace start date and time

In Trace-back, this setting is disabled.

et trace start time	e and <u>d</u> ate	
V Start at spe	cified time and date.	
Ti <u>m</u> e	4:07:00 PM	
<u>D</u> ate	1/13/2012	

Auto Save

In Trace-back, this setting is disabled.



Save data file size

In Trace-back, this setting is disabled.

Divide saving file	
Sampling counts of one file	7500 counts
Total file size	1 🗮 MB

2.4. Setup

2.4.1. Communication Setup

Refer to "1.4.4 Communication Settings".

2.4.2. Language

Sets the language of the loader. Select the [Setup] \rightarrow [Language] \rightarrow [Japanese] or [English], then exit the loader.

You can select "English" and "Japanese" language.

FL FREI	VIC Loade	er				
File	Menu	Setup	View	Window	Help	
		Co	ommuni	cation Setup	har	FC TB RT HT OM CS
		Br	owse			
		La	nguage		•	Japanese
		Da	ite time			English

After you have selected a language, exit the loader and restart the loader.

Switches to the selected language when restart the loader.

* If you do not exit the loader and restart the loader, language is not changed.

2.4.3. Date time

Allow the setting of the date and time of the inverter from the loader. Select the [Setup] \rightarrow [Date time], then setting dialog is opened.

FRENIC Load	er				
File Menu	Setup	View	Window	Help	
	Co	ommuni	cation Setup	D	FC TB RT HT OM CS
	Br	owse			
	La	nguage		•	
	Da	ite time			

Setting the date and time, perform from the following dialog.

Date and Time	Settings 🔀
Date	4/24/2012
Time	8:37:00 PM
📝 Transm	it the same date and time as OS.
	OK Cancel

* If you check the rank of "send the date and time of the OS", the date and time which is managed by OS are sent to the inverter.

Date and Time Settings	Date and Time S	Settin	gs				×	
Date 4/24/2012	Date	4/24	/2012	(-			
		4		A	pril, 20	12		
Time 8:37:00 PM	Time	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		25	26	27	28	29	30	31
		1	2	3	4	5	6	7
Transmit the same date and time as OS.	Transm	8	9	10	11	12	13	14
		15	16	17	18	19	20	21
		22	23	24	25	26	27	28
OK Cancel	0	29	30	1	2	3	4	5
			C		Today	4/24/	2012	

* If you remove the 🗹 mark of "Send the date and time of the OS", any date and time are sent to the inverter.

After mounting a memory backup battery (option for inverters of 22 kW or below, attached as standard for those of 33 kW or above), set the date and time. When a memory backup battery is not mounted, the calendar clock does not work correctly. For more information about the battery for memory backup, refer to the inverter's (FRN-VG1) instruction manual "7.4.2 Battery".

Note

2.5. View

Selecting View | Toolbar | Main shows or hides the toolbar.

Selecting View | Status Bar shows or hides the status bar.



2.5.1. Toolbar

The toolbar, which is usually located at the top of the Loader window, contains program icons and allows you to access the desired function (program) with a single click.

2.5.2. Status bar

The status bar, which is usually located at the bottom of the Loader window (as shown above), shows the running status of the currently selected inverter and the program execution status.

2.6. Window

Specify how to display the Loader windows on the Loader top window. This facility becomes active only if any window is opened on the top window.

FL FRENIC Loader		
<u>File M</u> enu <u>S</u> etup <u>V</u> iew	Window Help	
i D 📽 🖬 🎼 🖪 🖷 🛛 🎔	Cascade	TB RT HT OM CS
	Tile	a second second second
	<u>A</u> rrange lcons	
	Tile <u>v</u> ertically	1

2.6.1. Cascade windows

Selecting Window | Cascade arrange multiple windows, overlapping each other. You can call an inactive window up by clicking its title bar.

Eur	n2						- • ×	
F	Function4	3 File	e informatio	n				
	E-Function	*	Change	No.	Function code name	Setting value	Setting range Fac	tor *
	E code			F00	Date protection	į	0 to 1	
	- E code			F01	Speed setting N1	0	0 to 9	
	E1 code	Ε		F02	Operation method	Q	0 to 1	
				F03	M1 max. speed	1500	50 to 30000 r	
	- H code		1	F04	M1 rated speed	1500	50 to 30000 r	
	- H1 code		1	F05	M1 rated voltage	188	80 to 999 V	
	H2 code		1	F07	Acceleration time 1	5.00	0.01 to 99.99	
	-A code		1	F08	Deceleration time 1	5.00	0.01 to 99.99	
	- A1 code		1	F10	M1 electronic thermal overload re	0	0 to 2	
	o code		i	F11	M1 electronic thermal overload re	3.60	0.01 to 99.99	
	L code		1	F12	M1 electronic thermal overload re	5.0	0.5 to 75.0 min	
	··· U code			F14	Restart mode after momentary po	0	0 to 5	
	e III onde	1	*	C 17	M	100.0	0.0. 000.0 M	5
4	Read Write]	Fact	or <u>v</u> set	Func. code set Func. code in	fọ	ation	
L					Seject Invert	er [No. 1[1) INV1 •	lose
ļ								

2.6.2. Tile windows

Function code edit Auto-tuning P		T diffed of D	
	le information	Function code edit Auto-tuning File	e information
E Function	Change No. Function code name	E-Function	Change No. Function code name
E Code group	F00 Data protection	E-Code group	FUI Data protection
E code	F01 Speed setting N1	- E code	F01 Speed setting N1
- E1 code	F02 Operation method	- E1 code	F02 Operation method
- C code	F03 M1 max. speed	- C code	F03 M1 max. speed
- H code	F04 M1 rated speed	- H code	F04 M1 rated speed
- H1 code 🗸	F05 M1 rated voltage	-H1 code	F05 M1 rated voltage
4 III +	4 m	∢ III ►	4 III
Read Write Se	Factory.set Func. code set Func. code ject Inveter No. 1[1] INV1	Bead Write Set	Factory set Func. code set Func. code
Read Write Se inction2 Function code edit Autotuning F	Factory.set Func.code set Func.code ject Inveter No. 1[1] INV1 Qose If the set of the	Eead Write Set Function4 Function code edt Autoruning File	Factory set Func. code set Func. code set Inveter No. 1[1] INV1
Elead Write Se inction2 Function code edit Autotuning F	Factory set Func. code set Func. code lect Inverter No. 1[1] INV1 Quee le information Change No. Function code name	Eeed Write Set Function4 Function code edit Auto-tuning Fili	Factory set Fyinc, code set Fujic, cod act inverter No. 1[1] INV1 V Qose e information
Bead Write Se inction2 Function code edit Autetuning F Punction Code group Foreite	Factory.set Func.code set. Func.code ject Inveter No. 1[1] INV1 Gose information Change No. Function code name F00 Data protection	Eeed Write Sey Function4 Function code edit Autoruning Fil Code group	Factory set Func. code est Func. code ext Inverter No. 1[1] INV1 Qose and formation Change No. Function code name FUID Data protection
Bead Write sec Sec innction2 Function code edit Function Auto-turing Function - Foode - Foode - Foode - Foode - Foode	Factory.set Func.code set Fugo.code ject Inverter No. 1[1] INV1	Eeed Write Sey Function4 Function code edit Autosuning Fil Code group Code group Code group	Factory set Func. code set Func. code set Func. code set Func. code set Function Chance No. Function code name F00. Data protection F01. Speed settine N1
Eved Write Se Inction2 Function code edt Auto-turing F Function Foode Foode Foode Foode	Factory.set Func.code set. Fugo.code lect Invester No. 1[1] INV1	Eeed Write Set Function4 Function code edt Autosuning Fil Code group Function Code group Fil code Fil code	Factory set Func. code set Func. code ext inveter No. 1[1] INV1 COde e information Change No. Function code name FUE Data protection FOI Speed setting N1 FO2 Operation method
Eead Write Se inction2 Function code edit Auto-turing F Punction Foode group Foode Foode Coode Coode Coode	Factory_set Func.code set Fugo.code lect Inverter No. 1[1] INV1	Eeed Write Set Function Code edit Auto-tuning Fai Code group Code group Code group E code E code Code Ponde	Factory set Func. code set Fugc. code act Inveter No. 1[1] INV1 • Qose e information • • Change No. Function code name • FUE Data protection • F01 Speed setting N1 • F02 Operation method • F03 M1 max. speed
Elead Wrte Se Inction code edt Autotuning F Function code edt Autotuning F Code group Foode Foode Code group Foode Foode Code group Foode Foode Foode Foode Foode Foode Foode	Factory.set Func.code set. Fugo.code ject Inveter No. 1[1] INV1 Gose ie information Change No. Function code name F00 Data protection F01 Speed setting N1 F02 Operation method F03 M1 max.speed F04 M1 rated speed	Eeed Write Sel Function Function code edit Auto-tuning Fil Code group Code group Code group E code - E locale - E locale	Factory set Func. code set Fugc. code set invester No. 1[1] INV1 Qose change No. Function code name FBUE Data protection F01 Speed setting N1 F02 Operation method F03 M1 max. speed F04 M1 rated speed
Elead Write Se unction 2 Function code edit Auto-turing F Code group Foode Foode El code Poode H toode H toode	Factory.set Func.code set. Fugo.code lect Invener No. 1[1] INV1 Qose Information Change No. Function code name F00 Dela protection F01 Speed settine N1 F02 Operation method F03 M1 rated speed F05 M1 rated speed F05 M1 rated speed	Eeed Write Sey Function4 Function code edit Autotuning Fui Exaction Ecode group Ecode group Ecode El code El code - E code - E code - E code - H code - H code	Factory set Func. code set Fugo. code ect Inveter No. 1[1] INV1 • Qose e information • • Chance No. Function code name • F00 Data protection • F01 Speed settine N1 • F02 Operation method • F03 M1 rated speed • F05 M1 rated speed •
Bead Write Se inction2 Function code edit Auto-turing F Code group Focde	Factory set Func. code set. Fugo. code ject Inverser No. 1[1] INV1	Eeed Write Set Function4 Function code edt Autotuning Fui Code group Foode E Code group E Code E Code E Code H code H code H code	Factory set Func. code set Fugo. code set Inveter No. 1[1] INV1 Qose sinformation Change No. Function code name F01 Data protection F01 Speed settine N1 F02 Operation method F03 M1 max. speed F04 M1 rated speed F05 M1 rated voltage € m

Selecting **Window** | **Tile** tiles multiple windows so that all windows are seen together.

2.6.3. Tile windows vertically

Selecting Window | Tile vertically tiles multiple windows vertically.

ction1					Function2			0 0	
inction code edit Auto-tuning	File	information			Function code edit Auto-tuning F	le informatio	n		
E Function		Change	No.	Function code name	- Function	Change	No.	Function code name	
E Code group			E00	Data protection	E Code group		ENO	Data protection	
- F code		-	E01	Speed setting N1	F code E code E1 code		E01	Sneed setting N1	
El code		_	E02	Operation method			F02	Operation method	
C code			F03	M1 max speed	- C code		F03	M1 max speed	
- P code			F04	M1 rated speed	- + code	-	F04	M1 rated speed	
-H1 code			F05	M1 rated voltage	-H1 code		F05	M1 rated voltage	
H2 code		-	F07	Acceleration time 1	H2 code		F07	Acceleration time 1	
-H3 code	- ≓ - gv -		F08	Deceleration time 1	- H3 code - A code - A code - o code - o code - L code - U code - U1 code		F08	Deceleration time 1	
-A1 code		-	F10	M1 electronic thermal overload		-	F10	M1 electronic thermal overloa	
o code			F11	M1 electronic thermal overload			F11	M1 electronic thermal overloa	
- o1 code			F12	M1 electronic thermal overload			F12	M1 electronic thermal overloa	
- U code			F14	Restart mode after momentary			F14	Restart mode after momentar	
			F17	Gain (for speed setting signal			F17	Gain (for speed setting signa	
SF code Chance/Factor setting v				F18	Bias (for speed setting signal	- SF code		F18	Bias (for speed setting signa
- Contents of change (Blu		F20 /	DC brake (Starting speed)	- Contents of change(Blu		F20	DC brake (Starting speed)		
··· R/W failure(Pink)			F21 DC brake (Braking level) R/W failure(Pink)		F21	DC brake (Braking level)			
User definition			F22	DC brake (Braking time)	User definition		F22	DC brake (Braking time)	
User definition 2			F23	Starting speed	- User definition 2	100.00	F23	Starting speed	
- User definition 3			F24	Starting speed (Holding time)	- User definition 3		F24	Starting speed (Holding time)	
User definition 4			F26	Motor sound (Carrier freq.)	User definition 4		F26	Motor sound (Carrier freg)	
E Code for communication		-	F36	30RY operation mode	El-Code for communication		F36	30RY operation mode	
- S code		_	F37	Stop speed	- S code		F37	Stop speed	
M code	-	-	F38	Stop speed (Detection method 🖕	- M code	-	F38	Stop speed (Detection metho	
(m +		4 III		•	K III F	< III	1	•	
ReadWrite		Facto	ory set	Func, code set Func. code i	Read Write	Fac	tory set	Func. code set Func.	

2.6.4. Arrange icons

Selecting **Window** | **Arrange Icons** arranges icons of the active windows or programs at the bottom of the Loader top window.

12 FRENIC Loader - Function1	_ 0 🗙
Eile Menu Setup Edit View Window Help	
🗅 📽 🖬 🚑 🖪 🖤 9 🥙 🖏 🐇 🤋 🖬 FC 116 🕅 HT (M (S	
	No1:Unknown

2.7. Help

2.7.1. Version Information

Version Information shows the Loader version, copyright.



Chapter 3 Frequently asked questions (FAQ)

3.1.1. Cannot communicate with inverter (Failed to get inverter information)

3.1.1.1. Message Manager not installed correctly

Message Manager is software that manages communication between the PC and inverter.

If Message Manager has not been installed correctly, your PC cannot communicate with the inverter. The installation state can be checked in the task bar of Windows OS (see the Message Manager icon sample given below). If no Message Manager icon is displayed in the task bar, Message Manager has not been installed correctly.

Delete the folder (including its contents) named Fuji Electric Shared in the file path as shown below, and then <u>Uninstall Loader</u>.

C:\Program Files\Common Files\Fuji Electric Shared

(In the file path shown above, "C" represents the drive letter of the partition or hard disk where Windows is installed. If Windows is installed on a different drive in your system, replace "C" with the letter corresponding to that drive.)

Message Manager icon sample



Click here to show the hidden icon.



[2] Windows Vista/ Windows XP/ Windows 2000



3.1.1.2. USB driver not installed correctly

To communicate with the inverter via the USB connector, the USB driver (Loader USB device) should be installed.

If the USB driver has not been installed correctly, **Unknown device** appears as shown below.



Installation finished successfully



[1] Windows 7

Refer to Section 1.3.1.3. "Installing the USB driver, [1] Windows 7."

[2] Windows Vista

Follow the wizard and install the USB driver as shown below.



Update Driver Software - Unknown Device Browse for driver software on your computer Search for driver software in this location: Cubersuser name(Documents) Discusser software in this location: Discusser software software in this location: Discusser software sof	— Click Browse…
Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device.	
Browse For Folder	
Local Disk (C:) Eujielectric FRENIC_Loader_VG	
DATA Driver MICREXSX Win2000 en T	
To view subfolders, click the symbol next to a folder.	In the folder in which FRENIC Loader has been installed, select ¥Driver¥MICREXSX and then click OK . The default folder is C: ¥Fuji Electric ¥FRENIC Loader3 EN¥Driver¥

e)	Found New Hardware - Unknown Device			X	
	Browse for driver software on your computer				
	Search for driver software in this location:				
	C:\Fujielectric\FRENIC_Loader_VG\Driver\MICREXSX	*	Browse		
	V Include subfolders				
					Talana Casa a KabuNaa



[3] Windows XP

Follow the wizard and install the USB driver as shown below.



3.1.1.3. USB driver installed correctly

Although the USB driver has been installed correctly, Loader cannot communicate with the inverter. This problem is considered to be caused by installing the USB driver when Message Manager is running.

In this case, Message Manager is no longer able to recognize the USB driver, so it is necessary to quit both Loader and Message Manager and then start Loader again.

Quitting Message Manager

[1] Windows 7



Click this to display the hidden icons as shown below.

Right-click this icon to display **Exit MessageManager**, then click it. The confirmation window appears. Click **Yes** to quit Message Manager.



[2] Windows Vista / Windows XP

Right-click the Message Manager icon to display **Exit MessageManager**, then click it. The confirmation window appears. Click **Yes** to quit Message Manager.



3.1.1.4. USB communication impossible after the PC has gone standby or to sleep)

If Windows 7 or Windows Vista goes standby or to sleep, Loader cannot recognize the USB driver so that it cannot communication with the inverter. Follow the instructions given below.

[1] Windows 7

Turn the PC power OFF and ON, then restart Loader.

Note: Unplugging and plugging the USB connector <u>cannot</u> enable the OS to recognize the USB driver again.

[2] Windows Vista / Windows XP

Unplug and plug the USB connector, then restart Loader.

Note: Unplugging and plugging the USB connector enables the OS to recognize the USB driver again.

Chapter 4 Specifications

ltem		Specifications	Remarks		
Name of software		FRENIC Loader VG			
Supported inverter		FRENIC-VG, FRENIC-VG7			
No. of supported		For USB connection: Only one inverter			
inverters		For RS-485 connection: Up to 31 inverters			
		USB : USB cable (mini B connecter)	Refer to Section 1.2.3.2		
Recommended cable		RS-485 : Shielded twisted pair cable for long distance transmission	"Communications support devices for RS-485"		
		Microsoft Windows XP(SP2 or later)			
	OS *	Microsoft Windows Vista	***		
ent		Microsoft Windows 7			
vironm	Memory	512MB or more RAM	2GB or more is recommended		
g en	Hard disk	8.5MB MB or more free space			
Operatinę	COM port	RS-232C or USB	Conversion to RS-485 communications required to connect inverters		
	Monitor resolution	800 × 600 or higher	XGA (1024 × 768)/32-bit color is recommended		
	COM port **	<u>COM1</u> to COM255	PC COM ports assigned to Loader		
	Transmission rates	USB connection : Fixed at 12 Mbps			
ŝ		RS-485 connection :	384000ps or more is recommended		
nen		<u>38400</u> , 19200, 9600, 4800 and 2400 bps			
uirer	Character length	8 bits	Prefixed		
requ	Stop bit length	1 bit	Prefixed		
ion	Parity	Even	Prefixed		
Transmissi	No. of retries **	None or 1 to <u>3</u> to 10	No. of retry times before detecting communications error		
	Timeout setting **	100ms, 300ms, 500ms, <u>1.0s</u> to 1.9s, 2.0 to 9.0s, 10.0 to 60.0s	This setting should be longe than the response interval time specified by the function code H39.		

* Use on the PC downgraded to Windows XP from Windows7 or Windows Vista is not recommended.

** **Bolded, underlined** values are factory defaults.

*** Only support 32bit version of Windows XP, Windows Vista.Support both 32bit and 64bit version of Windows 7.

Inverter Support Software FRENIC Loader VG

(WPS-VG1-STR)

Instruction Manual

First Edition, August 2012 2nd Edition, Nomvember 2012

Fuji Electric Co., Ltd.

The purpose of this instruction manual is to provide accurate information in handling, setting up and operating of the FRENIC-VG series of inverters. Please feel free to send your comments regarding any errors or omissions you may have found, or any suggestions you may have for generally improving the manual.

In no event will Fuji Electric Co., Ltd. be liable for any direct or indirect damages resulting from the application of the information in this manual.
Fuji Electric Co., Ltd.

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