

PROGRAMMABLE CONTROLLERS

FX Configurator-FP

OPERATION MANUAL

Safety Precautions

(Read these precautions before using.)

Before installing, operating, maintenance or inspecting this product, thoroughly read and understand this manual and the associated manuals. Also pay careful attention to handle the module properly and safety.

This manual classifies the safety precautions into two categories: MARNING and CAUTION.

Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Depending on circumstances, procedures indicated by **CAUTION** may also be linked to serious results. In any case, it is important to follow the directions for usage.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

1. DESIGN PRECAUTIONS

		Reference
•	 Provide a safety circuit on the outside of the PLC so that the whole system operates to ensure the safety even when external power supply trouble or PLC failure occurs. Otherwise, malfunctions or output failures may result in an accident. 1) An emergency stop circuit, a protection circuit, an interlock circuit for opposite movements, such as normal and reverse rotations, and an interlock circuit for preventing damage to the machine at the upper and lower positioning limits should be configured on the outside of the PLC. 2) When the PLC CPU detects an error, such as a watch dog timer error, during self-diagnosis, all outputs are turned off. When an error that cannot be detected by the PLC CPU occurs in an input/output control block, output control may be disabled. Design external circuits and mechanisms to ensure safe operations of the machine in such a case. 2) When some cost of error occurs in a rolev, trice or transister of the output upit, output may he 	64
	 kept on or off. For output signals that may lead to serious accidents, design external circuits and mechanisms to ensure safe operations of the machine in such cases. 	

		Reference
• •	 Observe the following items. Failure to do so may cause incorrect data-writing by noise to PLCs and result the PLC failure, machine damage or an accident. 1) Do not lay close or bundle with the main circuit line, high-voltage line, or load line. Noise and Surge induction interfere with the system operation. Keep a safe distance of least 100 mm (3.94") from the above lines during wiring. 2) Ground the shield wire or shield of a shielded cable at one point on the PLC. However, do not ground at the same point as high voltage lines. Install in a manner which prevents excessive force from being applied to the built-in connectors dedicated to programming, power connectors and I/O connectors. Failure to do so may result in wire breakage or failure of the PLC. 	64

Safety Precautions

(Read these precautions before using.)

2. INSTALLATION PRECAUTIONS

	Reference
Make sure to cut off all phases of the power supply externally before starting the installation or viring work. Failure to do so may cause electric shock.	64
ACAUTION	Reference

•	Fit the extension cables, peripheral device connecting cables, input/output cables and battery	
	connecting cable securely to the designated connectors.	
	Contact failures may cause malfunctions.	64
•	Make sure to attach the terminal cover offered as an accessory to the product before turning on	04
	the power or starting the operation after installation or wiring work.	

Failure to do so may cause electric shock.

3. STARTUP AND MAINTENANCE PRECAUTIONS

	WARNING	Reference
• • •	 Do not touch any terminal while the PLC's power is on. Doing so may cause electrical shock or malfunctions. Before cleaning or retightening terminals, externally cut off all phases of the power supply. Failure to do so may expose you to shock hazard. Before modifying the program under operation or performing operation for forcible output, running or stopping, carefully read the manual, and sufficiently ensure the safety. An operation error may damage the machine or cause accidents. To test Zero-return, JOG operation and Positioning data, throughly read this manual, ensure the safe system operation An operation error may damage the machine or cause accidents. The response, such as the JOG operation, may be slow according to the running state of the personal computer at the time of the test operation. In the test operation, the PLC performance can be slower due to the busy state of personal computer. End all other applications running except FX Configurator-FP. At destination specification (refer to chapter 6), set the transmission speed at 38.4kbps or higher. 	65

	CAUTION	Reference
ſ	 Do not disassemble or modify the PLC. Doing so may cause failures, malfunctions or fire. For repair, contact your local Mitsubishi Electric distributor. 	
	Before connecting or disconnecting any extension cable, turn off power. Failure to do so may cause unit failure or malfunctions.	65
	 Before attaching or detaching the following devices, turn off power. Failure to do so may cause device failure or malfunctions. Peripheral devices, expansion boards and special adapters I/O extension blocks/units and terminal blocks 	

FX Configurator-FP

Operation Manual

Manual number	JY997D21801
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Date	4/2015

Foreword

This manual describes FX Configurator-FP Setting/Monitoring Tool and should be read and understood before attempting installation or operation of software.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Outline Precautions

- This manual provides information for the use of the FX Configurator-FP. The manual has been written to be used by trained and competent personnel. The definition of such a person or persons is as follows;
 - Any engineer who is responsible for the planning, design and construction of automatic equipment using the product associated with this manual should be of a competent nature, trained and qualified to the local and national standards required to fulfill that role. These engineers should be fully aware of all aspects of safety with regards to automated equipment.
 - 2) Any commissioning or service engineer must be of a competent nature, trained and qualified to the local and national standards required to fulfill that job. These engineers should also be trained in the use and maintenance of the completed product. This includes being completely familiar with all associated documentation for the said product. All maintenance should be carried out in accordance with established safety practices.
 - 3) All operators of the completed equipment should be trained to use that product in a safe and coordinated manner in compliance to established safety practices. The operators should also be familiar with documentation which is connected with the actual operation of the completed equipment.
 - **Note:** the term 'completed equipment' refers to a third party constructed device which contains or uses the product associated with this manual
- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine
 or passenger movement vehicles, consult with Mitsubishi Electric.
- This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.
- When combining this product with other products, please confirm the standard and the code, or regulations with which the user should follow. Moreover, please confirm the compatibility of this product to the system, machine, and apparatus with which a user is using.
- If in doubt at any stage during the installation of the product, always consult a professional electrical engineer who is qualified and trained to the local and national standards. If in doubt about the operation or use, please consult the nearest Mitsubishi Electric distributor.
- Since the examples indicated by this manual, technical bulletin, catalog, etc. are used as a reference, please use it after confirming the function and safety of the equipment and system. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.
- This manual content, specification etc. may be changed without a notice for improvement.
- The information in this manual has been carefully checked and is believed to be accurate; however, if you have noticed a doubtful point, a doubtful error, etc., please contact the nearest Mitsubishi Electric distributor.

Registration

- Microsoft[®] and Windows[®] are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Ethernet is a trademark of Xerox Corporation.
- The company name and the product name to be described in this manual are the registered trademarks or trademarks of each company.

19

25

30

Table of Contents

SAFETY PRECAUTIONS	(i)
Functions and Use of This Manual	
Associated Manuals	7
Generic Names and Abbreviations Used in Manuals	
Reading of the Manual	
Included items	

1. Introduction

1.1 Product Outline	12
1.2 Function List	12
1.3 System Configuration	13
1.3.1 System Configuration	13
1.3.2 Applicable models	17
1.3.3 Operating System Requirements	17

2. Installation, Uninstallation, Startup and Exit

2.1 Installation	. 19
2.2 Uninstallation	. 19
2.3 Starting FX Configurator-FP	. 20
2.3.1 Starting FX Configurator-FP from the start menu.	20
2.3.2 Starting FX-Configurator-FP from the tool menu in GX Developer.	21
2.3.3 Starting from GX Works2 [Supported Ver. 1.70 or later]	21
2.4 Closing FX Configurator-FP	. 24

3. Window configuration and basic operation

3.1 Window configuration253.2 Menu configuration253.3 Tool menus and tool button list273.4 Shortcut key list283.5 Basic operation283.5.1 Basic operations in the file data list283.5.2 Basic operations in dialog box293.6 Help29

4. Creating files

4.1 Creating a new file314.1.1 Creating a new file314.1.2 Creating a new file with the data inside 20SSC-H.324.2 Opening a stored file334.3 File storage354.3.1 Saving files354.3.2 Saving as files364.4 Closing files37

3

5. Data set

5.1 User unit and Converted pulse data	
5.1.1 User unit	
5.1.2 Converted pulse data	
5.1.3 Rotation and operation speed of servo motor (Converted pulse data)	
5.2 Setting positioning parameters	
5.3 Setting servo parameters	
5.4 Setting table information	
5.4.1 The common items in table information	
5.4.2 Setting X/Y-axis table information	
5.4.3 Setting XY-axis table information	
5.5 Error check	

6. Setting the connection destination

7. Read / Write / Verify / Initialize

7.1 Data type and storage location	
7.2 Reading [positioning/servo parameters and table information]	
7.3 Writing [positioning/servo parameters and table information]	
7.3.1 Writing to the BFM	
7.3.2 Writing to the Flash ROM	
7.4 Verifying [positioning parameters, servo parameters table information]	
7.5 Initializing the BFM and Flash ROM	61
7.6 Execute system reset of the 20SSC-H	62
7.7 Sets the servo parameter update stop	
7.8 The displayed messages and countermeasures	63

8. Debug in the positioning

8.1 Monitor	66
8.1.1 Monitoring the operation	66
8.1.2 Signal monitor	68
8.1.3 Operation status monitor	69
8.1.4 Monitoring table information	72
8.2 Testing the Operation	73
8.2.1 Switching into test mode	73
8.2.2 Operation test in the positioning (except JOG/MPG)	74
8.2.3 Changing the present value	77
8.2.4 Speed change	79
8.2.5 Zero return	81
8.2.6 JOG/MPG	83
8.2.7 Turning OFF m codes	85
8.2.8 Stopping all axis	85
8.2.9 Error rest	85
8.2.10 Servo ON/OFF	86

9. Print

9.1	Setting the printer.	87
9.2	Printing	88
	9.2.1 Setting the item to print	.88
9	9.2.2 Printing examples	91

38

51

53

64

10. Edit function in data setting

10.1 Cut / Copy / Paste / Select all 10.1.1 Cut/Copy	92 92
10.1.2 Paste	
10.2 Cursor jump	
10.3 Initializing rows/columns	95
10.4 Insert row	95
10.5 Delete row	96
10.6 Initializing data	97

Warranty	
Revised History	

Functions and Use of This Manual

FX Configurator-FP is the setting/monitor tool for use with a personal computer.

FX Configurator-FP is a setting/monitor tool for the FX₃U-20SSC-H positioning block and the servo amplifier applicable to SSCNETIII can perform the parameter setup, the table information setting, the monitor, and the test.





Associated Manuals

For detailed explanation of FX Configurator-FP Configuration Software, refer to this manual.

For the hardware information and instruction on the PLC main unit, other special function unit/block, etc., refer to it's respective manual.

For acquiring required manuals, contact the distributor from who you have purchased the product.

- Refer to these manuals
- O Refer to the manual required depending on the equipment used
- $\bigtriangleup\,$ For detail explanation, refer to an additional manual

		Title of manual	Document number	Description	Model code
Man	ual for the l	Main Module			
FX3	J Series PL	Cs Main Unit			
Δ	Supplied Manual	FX3U Series Hardware Manual	JY997D18801	Describes the FX ₃ U Series PLC specifications for I/O, wiring and installation extracted from the FX ₃ U User's Manual - Hardware Edition. For details, refer to FX ₃ U Series User's Manual - Hardware Edition.	-
٥	Additional Manual	FX₃∪ Series User's Manual - Hardware Edition	JY997D16501	Describes the FX ₃ U Series PLC specifications for I/O, wiring, installation and maintenance.	09R516
FX3	JC Series Pl	-Cs Main Unit			
	Supplied Manual	FX3UC-32MT-LT Hardware Manual (Japanese Only)	JY997D12701	Describes the FX3UC-32MT-LT PLC specifications for I/O, wiring and installation extracted from the FX3UC User's Manual - Hardware Edition. For details, refer to the FX3UC Series User's Manual - Hardware Edition (Japanese Only).	-
Δ	Supplied Manual	FX3UC-32MT-LT-2 Hardware Manual	JY997D31601	I/O specifications, wiring and installation of the PLC main unit FX3UC-32MT-LT-2 extracted from the FX3UC Series User's Manual - Hardware Edition. For detailed explanation, refer to the FX3UC Series User's Manual - Hardware Edition.	-
Δ	Supplied Manual	FX3UC (D, DS, DSS) Series Hardware Manual	JY997D28601	Describes the FX3UC-(D, DS, DSS) Series PLC specifications for I/O, wiring and installation extracted from the FX3UC User's Manual - Hardware Edition. For details, refer to the FX3UC Series User's Manual - Hardware Edition.	-
۲	Additional Manual	FX3UC Series User's Manual - Hardware Edition	JY997D28701	Describes the FX3UC Series PLC specifications for I/O, wiring, installation and maintenance.	09R519
Prog	gramming for	or FX3U/FX3UC Series		•	
٥	Additional Manual	FX3S/FX3G/FX3GC/FX3U/ FX3UC Series Programmin Manual - Basic & Applied Instruction Edition	JY997D16601	Describes FX3s/FX3G/FX3GC/FX3U/FX3UC Series PLC programming for basic/ applied instructions and devices.	09R517
Man	uals for FX	BU-20SSC-H Positioning B	lock		
\bigtriangleup	Supplied Manual	FX3U-20SSC-H Installation Manual	JY997D21101	Describes the FX3U-20SSC-H positioning block specifications for I/O, power supply extracted from the FX3U-20SSC-H User's Manual. For details, refer to the FX3U-20SSC-H User's Manual.	-
٥	Additional Manual	FX3U-20SSC-H User's Manual	JY997D21301	Describes the FX3U-20SSC-H Positioning block specifications.	09R622
\odot	Supplied Manual	FX Configurator-FP Operation Manual	JY997D21801	Describes the FX Configurator-FP Setting/ Monitoring Tool operation details.	09R916

Generic Names and Abbreviations Used in Manuals

Generic name or abbreviation	Description			
PLC				
FX3U series	Generic name for FX3U Series PLC			
FX3U PLC or main unit	Generic name for FX3U Series PLC main unit			
FX3UC series	Generic name for FX3UC Series PLC			
FX3UC PLC or main unit	Generic name for FX3UC Series PLC main unit			
Expansion board				
Expansion board	Generic name for expansion board The number of connectable units, however, depends on the type of main unit. To check the number of connectable units, refer to the User's Manual - Hardware Edition of main unit to be used for your system.			
Special adapter				
Special adapter	Generic name for high-speed input/output special adapter, communication special adapter, and analog special adapter The number of connectable units, however, depends on the type of main unit. To check the number of connectable units, refer to the User's Manual - Hardware Edition of main unit to be used for your system.			
Ethernet adapter	Generic name of Ethernet communication special adapter (having following model name): FX3U-ENET-ADP			
Special function unit/block				
Special function unit/block or Special extension unit	Generic name for special function unit and special function block The number of connectable units, however, depends on the type of main unit. To check the number of connectable units, refer to the User's Manual - Hardware Edition of main unit to be used for your system.			
Special function unit	Generic name for special function unit			
Special function block	Generic name for special function block The number of connectable units, however, depends on the type of main unit. To check the number of connectable units, refer to the User's Manual - Hardware Edition of main unit to be used for your system.			
Positioning special function block or 20SSC-H	Abbreviated name of FX3U-20SSC-H			
Optional unit				
Memory cassette	FX3U-FLROM-16, FX3U-FLROM-64, FX3U-FLROM-64L			
Battery	FX3U-32BL			
FX Series terminal block	FX-16E-TB, FX-32E-TB			
Input/output cable or Input cable	FX-16E-500CAB-S, FX-16E-□□□CAB, FX-16E-□□□CAB-R □□□ represents 150, 300, or 500.			
Input/output connector	FX2C-I/O-CON, FX2C-I/O-CON-S, FX2C-I/O-CON-SA			
Power cable	FX2NC-100MPCB, FX2NC-100BPCB, FX2NC-10BPCB1			
Peripheral unit				
Peripheral unit	Generic name for programming software, handy programming panel, and indicator			
Programming tool				
Programming tool	Generic name for programming software and handy programming panel			
Programming software	Generic name for programming software			
GX Developer	Generic name for SWDD5C-GPPW-J/SWD5C-GPPW-E programming software package			
FX-PCS/WIN(-E)	Generic name for FX-PCS/WIN or FX-PCS/WIN-E programming software package			
Handy programming panel (HPP)	Generic name for FX-20P(-E) and FX-10P(-E)			

Generic name or abbreviation	Description
Setting/Monitoring Tool	
Setting/monitoring tool or FX Configurator-FP	Abbreviated name of FX Configurator-FP Setting/Monitoring Tool
Indicator	
GOT1000 series	Generic name for GT16, GT15, GT14, GT11 and GT10
GOT-900 series	Generic name for GOT-A900 series and GOT-F900 series
GOT-A900 series	Generic name for GOT-A900 series
GOT-F900 series	Generic name for GOT-F900 series
ET-940 series	Generic name for ET-940 series Only manuals in Japanese are available for these products
Drive unit for servo motor and	l stepping motor
Servo motor	Generic name for servo motor or stepping motor Including servo amplifier corresponding to SSCNET III.
Servo amplifier	Generic name for servo amplifier corresponding to SSCNET III
MELSERVO series	Generic name for MELSERVO-J3 series and MELSERVO-J4 series
Other unit	
Manual pulse generator	Generic name for manual pulse generator (prepared by user)
Manual	
FX30 hardware Edition	FX3U Series User's Manual - Hardware Edition
FX3UC hardware Edition	This manual is available only in Japanese.
Programming manual FX3S/FX3G/FX3G/FX3U/FX3UC Series Programming Manual - Basic and Ap Instructions Edition	
Communication control Edition	FX Series User's Manual - Data Communication Edition
Analog control Edition	FX3S/FX3G/FX3GC/FX3U/FX3UC Series User's Manual - Analog Control Edition
Positioning control Edition	FX3S/FX3G/FX3GC/FX3U/FX3UC Series User's Manual - Positioning Control Edition

Reading of the Manual

Shows the manual title.	Shows the title of the chapter and t	ne title	Indexes the chapter number.
This area shows the	of the section.		The right side of each page
manual title for the page	This area shows the title of the chapter a	and the	indexes the chapter number
currently opened	title of the section for the page currently	opened.	for the page currently opened
currentity openicu.			for the page currently opened.
EX Configurator-EP		Print	
Operation Manual	9.2 P	inting	
		1	
9.2 Printing		Intro	I
		duction	
9.2.1 setting the item to p	rint		
r Printing the positioning pa	rameters, servo parameters and table information.	2	l 1→2→3
1 Follow any of the	procedures below	Install Unins Start&	Indicates the procedure steps.
		Exit	This manual differentiates
Click [Print].			the menu and items with
Select [File] → [Print].		3	parentheses
The [Print] dialog box a	ppears.	Opera	[]: Refers to the options
2 Set the item to prin	nt.	yw and	in the menu bars,
L _ J [Print] dialog box has [l	tem specification], [Servo parameters] and [table information] tabs.		I dialog box items or
Click the tab to set.	and Itable information) table, refer to the following pages	4	FX Configurator-FP
		Creatir	utility menu.
1. [item specification] ta	D	00 Di	< > : Refers to the dialog
Print	1× 0 × 0 × 1		box buttons or the
[tell specificator] Servo paramete	Is able information	i 5	PC keyboard.
Axis specification	Print data	lata se	i i
(All axis		-	
C Axis specification	C Item specification		1
	Positioning parameters	0 2∃%	i
IM 1×axis ∀ XY-axis	Servo parameters	onnect	1
	Table information	ion	1
		7	1
Printer setting Print	Print preview Close	258	1
		ta flow	
Item	Description		Shows the reference.
All axis	Prints X, Y and XY-axis data	¦	I The mark of " \rightarrow " is
	Prints the ticked axis data	828	expressing the reference
Axis specification	X-axis Y-axis	bug	destination and the
	• XY-axis	œ	i reference manual.
Print data All item	Specifies the data type to print Prints [Positioning parameters], [Servo parameters] and [Table information]	9_	
	Prints the ticked data item		
Item specification	Positioning parameters Servo parameters		1
	Table information		I
<printer setting=""></printer>	Displays [Printer setting] dialog box	n 9.1. 10	1
<print></print>	Outputs to printer depending on the specified contents		
<print preview=""></print>	Displays the print preview	t tata	i
~CI086>			1
		81	J

The above diagram differs from the actual page, as it is provided for explanation only.

Included items

Type (model name)	Product Name		
	FX Configurator-FP Version 1(1-license product) (CD-ROM)	1	
FX Configurator-FP	END-USER SOFTWARE LICENSE AGREEMENT	1	
(SW1D5C-FXSSC-E)	License Certificate	1	
	FX Configurator- FP Operation Manual (this manual)	1	

1. Introduction

1.1 Product Outline

The FX Configurator-FP is a personal computer software for FX₃U-20SSC-H and servo amplifiers, applicable to SSCNET III.

- Setting, monitoring and testing the parameters and table information of FX3U-20SSC-H.
- · Setting the parameters of servo amplifiers, applicable to SSCNET III.

1.2 Function List

Function		nction	Contents	Reference	
File	New/Open/Save/Print		Reads, saves and prints the contents	Chapter 4, 9	
	Setting positioning parameters in 20SSC-H		Sets the operation parameter, pulse rate, feed rate, MAX/JOG speed	Section 5.1	
Edit	Setting parameters in servo amplifiers		Sets the basic, extension, gain/filter and I/O parameters	Section 5.2	
	Setting tab	le information	Sets the X/Y/XY-axis Table information	Section 5.3	
Online	Read/Write/Verify the module data		Reads, writes and verifies the parameter information in positioning modules	Chapter 7	
	Monitoring table information		Monitors the present address, status info and servo status	Section 8.1	
Monitor	Operation	Operation monitor	Monitors the present address, present speed, axis status of all axis		
		Signal	Monitors the module status and servo status	Section 8.1	
			Operation status monitor	Monitors the parameters and operation status of all axis	
		Positioning starting	Specifies the table number and tests the operation		
Test	Operation test	Present value change	Tests the feed present value change		
		Speed change	Tests the speed change	Section 8.2	
		OPR	Tests the OPR		
		JOG/MPG Operation	Tests the operation by JOG/MPG	1	

Introduction

2

3

indow and

4

Creating Files

5

Data set

6

7

8

9

Print

10

eration

1.3 System Configuration

1.3.1 System Configuration

The personal computer can be connected to the FX3U-20SSC-H in three ways.

- 1) **Direct PLC connection** The personal computer is connected to the PLC main unit directly.
- 2) Connection via Ethernet adapter Only Ethernet directly connect is supported.
- 3) Connection via GOT
 - The personal computer is connected via the GOT's Transparent mode^{*1} to the PLC main unit.
- *1. Connection via GOT supported by GOT1000 Series only.

1. Direct PLC connection

This subsection shows the system configurations for direct PLC connection.



- *2. Expansion boards (FX3U-***-BD) can not be attached to the FX3UC-DDMT/D(SS) and FX3UC-16MR/ D(S)-T PLC.
- The FX3UC-DIMT/D(SS) and FX3UC-16MR/D(S)-T PLC can be attached to the FX3U-232ADP *3. without an expansion board (FX_{3U}-***-BD).

1) The equipment for RS-422 connection

Personal	Co	nverter/Cable		
Computer Connector	RS-232C Cable	Converter (interface)	RS-422 Cable	PLC Connector
D-SUB 9Pin	F2-232CAB-1[3m(9'10")]	FX-232AWC-H	FX-422CAB0[1.5m(4'11")]	Built-in dedicated programming connector of the main unit
	(D-SUB 9Pin ⇔ D-SUB 25Pin)		(D-SUB 25Pin ⇔ MINI DIN 8Pin)	FX3U-422-BD

- \rightarrow When using FX₃U-422-BD, refer to the cautions on communication settings
- 2) The equipment for RS-232C connection



- \rightarrow When using FX3U-232-BD, FX3U-232ADP, refer to the cautions on communication settings
- *1. An expansion board is necessary when using FX3U-232ADP except the FX3UC-DDMT/D(SS) and FX3UC-16 MR/D(S)-T PLC.
- 3) The equipment for USB connection

Personal Computer	Converte	er/Cable	PLC Connector
Connector	USB Cable ^{*2}	Converter (interface)	
			Built-in dedicated programming connector of the main unit
			FX3∪-422-BD
USB		FX-USB-AW*3	
	(USB connector A plug [male] ⇔ MINI B plug [male])		FX3U-USB-BD*3

 \rightarrow When using FX3U-USB-BD, refer to the cautions on communication settings \rightarrow When using FX3U-422-BD, refer to the cautions on communication settings

- *2. The USB cable comes with FX-USB-AW and FX_3U-USB-BD.
- *3. For the applicable Windows® Operating Systems, refer to each manual.

Data set

6

7

8

Print

Data flow And Procedure

Setting The Connection

Cautions on communication setting

Do not change the communication settings for outside modules via parameters or sequence program. If changed, a communication error occurs between FX Configurator-FP and PLC (20SSC-H).

 4) Check that the format of the communication connector to be used is correct. (D8120, D8400, D8420 = K0)
 Also, with peripheral devices, check that parameters for communication setting are correct.

How to check parameters with GX Developer

A check mark to [Operate communication setting] on [PLC system (2)] tab in [PLC parameter] of GX Developer disables the communication through the selected port between FX Configurator-FP and PLC(20SSC-H). When the communication fails, write the parameter that clears the check box [Operate communication setting] to the PLC via the built-in dedicated programming connector with GX Developer.

Operate (When GX Develope communication parameters and D812 setting	Ked, the parameters will be cleared. r transfer the program to the communication board, 20 values in the PLC must be cleard upon program
Protocol	Control line
Data length	H/W type
Parity	Control mode
Stop bit	Sum check
Transmission speed	Transmission control procedure
F Header	Station number setting
☐ Terminator	Time out judge time

When the PLC type of the project is the FX3U(C), the channel specification (CH1/ CH2) combo box appears. When using the FX3U-422-BD, FX3U-232-BD, FX3U-USB-BD or the first FX3U-232ADP connected to the FX3U-CNV-BD, set CH1 and check the settings.

When using the FX3U-232ADP connected to other than the FX3U-CNV-BD or the second FX3U-232ADP connected to the FX3U-CNV-BD, set CH2 and check the settings.

5) Check that RS and RS2 instructions are not programmed for the corresponding communication connector.

Do not execute RS and RS2 instructions in this case.

6) When an inverter communication instruction is programmed for the corresponding communication connector, delete the instruction first, and reboot the PLC's power.

2. Connection via Ethernet adapter [Supported Ver. 1.70 or later]

This subsection shows the system configurations for Connection via Ethernet adapter from the Ethernet port in the personal computer.



3. Connection via GOT

This subsection shows the system configurations for Connection via GOT.

\rightarrow For the connection equipment for the personal computer, GOT1000 Series and PLC, refer to the GOT1000 series Manual.



1 Introduction 2 Insta Ň and

1.3.2 Applicable models

- FX3U-20SSC-H type positioning module
- Servo amplifier, applicable to SSCNET III (up to 2pcs) Connect these servo amplifiers to the FX3U-20SSC-H via SSCNET III.

1.3.3 **Operating System Requirements**

Item	Description		XI III
	32 bit version		
OS	 Microsoft[®] Windows[®] 95 English version (Service Pack 1 or later) 		3
	Microsoft [®] Windows [®] 98 English version		େଟି≦
	Microsoft [®] Windows [®] Millennium Edition Eng	lish version	ndow
	Microsoft [®] WindowsNT [®] 4.0 Workstation Englished and the second	glish version (Service Pack 3 or later)	on
	Microsoft [®] Windows [®] 2000 professional English version		
	Microsoft [®] Windows [®] XP English version (Home Edition or Professional)		4
	 Microsoft[*] Windows Vista[*] English Versio Liltimate or Enterprise)^{*1} 	n (Home Basic, Home Premium, Business,	Fie
	Microsoft [®] Windows [®] 7 English version	(Ultimate, Enterprise, Professional, Home	eating es
	Premium or Starter) ^{*2}		
	Microsoft [®] Windows [®] 8 English version (8, P	ro, Enterprise) ^{*3}	
	Microsoft [®] Windows [®] 8.1 English version (8.	1, Pro, Enterprise) ^{*3}	5
	<u>64 bit version</u>		Dat
	 Microsoft[®] Windows[®] 7 English version (Premium)^{*2} 	Ultimate, Enterprise, Professional or Home	a set
	Premium) ~		
	 Microsoft[®] Windows[®] 8.1 English version (8, 	1. Pro. Enterprise) ^{*3}	
	Microsoft [®] Windows [®] 95:	CPU Pentium 133MHz or higher	6
	Microsoft [®] Windows [®] 98:	CPU Pentium 133MHz or higher	Settir Conn
	Microsoft [®] Windows [®] Millennium Edition:	CPU Pentium 150MHz or higher	ng ectior
	 Microsoft[®] WindowsNT[®] 4.0: 	CPU Pentium 133MHz or higher	_
DC main hady	Microsoft [®] Windows [®] 2000:	CPU Pentium 133MHz or higher	7
PC main body	Microsoft [®] Windows [®] XP:	CPU Pentium 300MHz or higher	- Pro
	 Microsoft[®] Windows Vista[®]: 	CPU Pentium 1GHz or higher	ia flov
	Microsoft [®] Windows [®] 7:	CPU Pentium 1GHz or higher	re <
	 Microsoft[®] Windows[®] 8: 	CPU Pentium 1GHz or higher	•
	Microsoft [®] Windows [®] 8.1:	CPU Pentium 1GHz or higher	8
Required memory	Microsoft [®] Windows [®] 95:	64MB or more	Debu In the Positi
	Microsoft [®] Windows [®] 98:	64MB or more	g oning
	Microsoft [®] Windows [®] Millennium Edition:	64MB or more	
	 Microsoft[®] WindowsNT[®] 4.0: 	64MB or more	9
	 Microsoft[®] Windows[®] 2000: 	64MB or more	P
	Microsoft [®] Windows [®] XP:	128MB or more	Ĭ
	Microsoft [®] Windows Vista [®] :	1GB or more	
	 Microsoft[®] Windows[®] 7: 	1GB or more	
	 Microsoft[®] Windows[®] 8: 	1GB or more	10
	Microsoft [®] Windows [®] 8.1: 1GB or more		Edit Func
Hard disk capacity	65MB or more		ta

ltem	Description	
Disk drive	CD-ROM drive	
Display	SVGA (800 $ imes$ 600) or higher ^{*4}	
Interface	RS-232C port or USB port	
Printer	Printer, applicable to those OS above	
Others	Mouse or other pointing device	

*1. This Operating System is supported in FX Configurator-FP Ver.1.30 or later.

*2. This Operating System is supported in FX Configurator-FP Ver.1.50 or later.

*3. This Operating System is supported in FX Configurator-FP Ver.1.70 or later.

*4. When using Microsoft[®] Windows Vista[®], Microsoft[®] Windows[®] 7, Microsoft[®] Windows[®] 8 or Microsoft[®] Windows[®] 8.1 the recommended resolution is 1024×768 or more.

2. Installation, Uninstallation, Startup and Exit

2.1 Installation

- **1** Insert the FX Configurator-FP CD-ROM into the CD-ROM drive.
- **Execute SETUP.EXE in the CD-ROM.**

3 Follow the guidance on the PC display to complete the installation.

FX Configurator-FP requires the following version of GX Developer (SWDD5C-GPPW-E) or later: FX Configurator-FP must be reinstalled if it was first installed prior to the applicable version of GX Developer.

Operating System	GX Developer (SW□D5C-GPPW-E) Version
$\label{eq:windows} \begin{array}{ll} Windows^{\circledast} \ 95, \ Windows^{\circledast} \ 98, \ Windows^{\circledast} \ Millennium \ Edition, \\ WindowsNT^{\circledast} \ 4.0, \ Windows^{\circledast} \ 2000, \ Windows^{\circledast} \ XP \end{array}$	Ver.8.23Z or later
Windows Vista®	Ver.8.62Q or later
Windows [®] 7 32/64 bit version	Ver.8.91V or later
Windows [®] 8 32/64 bit version	Ver.8.114U or later

2.2 Uninstallation

1 Double-click [Add or Remove Programs] in the control panel.

Note

- [Add/Remove Programs] appears in Windows[®] 95, Windows[®] 98, Windows[®] Millennium Edition, Windows NT[®] 4.0 and Windows[®] 2000.
- [Programs] appears in Windows Vista[®], Windows[®] 7, Windows[®] 8 or Windows[®] 8.1.
- 2 Select [Change or Remove Programs] in [Add or Remove Programs] window. Note
 - Click [Add/Remove] on [Add/Remove Programs] property in Windows[®] 95, Windows[®] 98, Windows[®] Millennium Edition, Windows NT[®] 4.0 and Windows[®] 2000.
 - Double-click [Uninstall a program] of [Programs and Features] in Windows Vista[®], Windows[®] 7, Windows[®] 8 or Windows[®] 8.1.

3 Click [FX Configurator-FP] to uninstall.

Note

Double-click [FX Configurator-FP] to uninstall in Windows Vista[®], Windows[®] 7, Windows[®] 8 or Windows[®] 8.1, and go to step 5.

4 Click [Remove] button.

5 Follow the guidance on the PC display to complete the uninstallation.

1

Introduction

3

8

7

9

Prini

2.3 Starting FX Configurator-FP

To start up FX Configurator-FP, follow the 3 procedures below.

2.3.1 Starting FX Configurator-FP from the start menu.

Click $[Start]^{*1} \rightarrow [All Programs]^{*2} \rightarrow [MELSOFT Application].$ Select [FX Configurator-FP].

Note

1

- *1. When $Windows^{(\! R\!)}$ 8 is used, click the [Windows] key on the keyboard.
- *2. [Programs] appears in Windows[®] OS versions other than When Windows[®] XP, Windows Vista[®], Windows[®] 7, Windows[®] 8 or Windows[®] 8.1.



2 FX Configurator-FP starts up.



2.3.2 Starting FX-Configurator-FP from the tool menu in GX Developer.

Select [Tools] at the menu bar in GX Developer, click [FX special function utility] \rightarrow [FX Configurator-FP] to start FX Configurator-FP.



- **2** FX Configurator-FP starts up.
- 2.3.3 Starting from GX Works2 [Supported Ver. 1.70 or later]
 - **1** Select [Project] at the menu bar in GX Works2, click [Intelligent Function Module] \rightarrow [New Module] to start FX Configurator-FP.



2 When the "New Module" dialog box appears, set "Module Type", "Module Name" and "Module No.".

New Module	
Module Selection	
Module Type(<u>K</u>)	Positioning Module
Module Name(<u>T</u>)	FX3U-20SSC-H
Mount Position	
Mod <u>u</u> le No.	0 🗄
Title Setting	
Title(<u>Y</u>)	
The special module an intelligent func	e of FX series is displayed as tion module in GX Works2. OK Cancel

3 Click the [OK] button.

The module set in "Special Module (Intelligent Function Module)" in the Project view is added.



Introduction

3

Files

5

Data set

6

7

Print

Data flow And Procedure

Setting The Connection

4 Select [Special Module (Intelligent Function Module)] in the Project view, and double-click [(Module)].

FX Configurator-FP starts up.

KELSOFT Series GX Works2 (Untitle	d Project) - [[PRG]Write MAIN (1)Step *]	
[‡] <u>Project</u> <u>Edit</u> <u>Eind/Replace</u> <u>Compile</u> <u>y</u> e	aw Qnline Debug Diagnostics Iool Window Help	_ 5 ×
	🔏 🖻 🖆 🗠 🗠 💷 🖼 🖼 🖼 🖛 💷 👧 🛃 🔜 🐘	N. P. \$P. \$P. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19
🔁 🔳 📰 🖼 🐨 🖬 🕄 • 🗛 • 🔇	Parameter	÷‱‱‱a,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Navigation	* × http://www.commons.com/programmers/http://www.commons.com/programmers/prog	AIN (1)Step * 🗙 4 🕑 👻 🗙
Project	(0)	END END
📑 🔁 🖄 🖓 🕲 🦣	Bi cy c c	
Parameter Special Module/Intelligent Exerction Module	Ele Edit View Online Tool Window Help	
E-0 0:FX3U-2055C-H		
Positioning Module Setting Global Device Comment		
🗉 💑 Global Label	👗 🏭 🚟 🕮	
Program secong		
E C Program	Temp_0001 / FX3U-20SSC-I	
Program		
Local Label		
Structured Data Types		
E Cocal Device Comment		
-		
Project		
🗛 User Library		
Connection Destination		
	*	~
Er	ngish Simple	PX3U/FX3UC Host NUP

Note

- The special module of FX series is displayed as an intelligent function module in GX Works2.
- Starting FX Configurator-FP from GX Works2 is supported in GX Works2 Ver. 1.507D or later and FX Configurator-FP Ver. 1.70 or later.
- Saving and loading the special function unit data The FX Configurator-FP setting data of GX Works2 can be saved in the FX Configurator-FP format. Files of FX Configurator-FP can be load as the setting data of GX Works2. Refer to the following manuals for the details: GX Works2 Version 1 Operating Manual (Common) GX Works2 Version 1 Operating Manual (Intelligent Function Module)
- The following functions are invalid when FX Configurator-FP is started from GX Works2:
 - "New", "Open", "Save as" and "Opens recent file" in the "File" menu are displayed in the invalid status.
 - The "Connection setup" in the "Online" menu is displayed in the invalid status.
 - Connection setup items shown below are not displayed.
 - "Read from module" in online menu "Write to module" in online menu "Verify module" in online menu "Flash ROM request" in online menu
 - "Initialize module" in online menu

2.4 Closing FX Configurator-FP

Note

When closing files or the application while online, i.e. Monitor Mode, Test Mode, the message bellow appears. Close the application while offline.



1 Select [File] \rightarrow [Exit].



2 FX Configurator-FP closes.

How to close the application from the title bar

• Right-click on the title bar and select [Close].



• Click 🔀 on the right edge of the title bar.

3. Window configuration and basic operation

3.1 Window configuration



3.2 Menu configuration

1) File

File	
New	Ctrl+N
Open	Ctrl+O
Close	
Save	Ctrl+S
Save as	
Print	Ctrl+P
Printer setup	
Newest file	
E×it	Alt+F4

2) Edit

Edit	
Cut	Ctrl+X
Сору	Ctrl+C
Paste	Ctrl+V
Select all	Ctrl+A
Jump	Ctrl+J
Clear row	
Clear column	
Insert row	
Delete row	

Creates a new file, reads a stored file and prints a content being edited.

Also shows the history of the files recently opened.

Cuts, copies, pastes and clears row/column, etc.

8

9 Print

10

Debug In the Positioning

1

Introduction

3) View

4) Online

Online		
Conr	nection setup	
Read	d from module	
Writ	e to module	Ctrl+T
Verif	y module data	
Flast	h ROM request	
Initia	alize module	
Moni	itor	•
Test		•
Syst	em reset	
Serv	o parameter update stop	

5) Tool

Tool	
Err	or check
Initialize data	

6) Window

Window	
Casca	de
Tile ve	etically
Arrang	ge icons
All clos	se
🗸 1 Unse	et file / FX3U-2055C-H / X-axis Table information (module:0)

7) Help



Shows product information.

Shows /hides the tool bar, status bar and file data list.

Reads/Writes/Verifies, monitors and tests the module data, etc.

Enables Error check and data initialization.

Cascades multiple windows and arranges icons.

3.3 Tool menus and tool button list

The tool bar has the menus below. Click the toolbar to show (checked)/hide (unchecked).

🏭 FX C	onfigu	rator-F	P - Ur	
File Edit	View	Online	Tool	. Shows the file data list
DB	🖌 🗸 File	🗸 File data list 🦳		
	V To	olbar —		Shows the tool bar
🖀 🖀	🗸 On	line toolb	ar —	— Shows the online tool bar
	🗸 Te	st toolba	r —	— Shows the test tool bar
	🖌 🗸 Sta	atus bar ·		Shows the status bar

Tool button list

Tool bar menu	Tool button	Name	Description	/ and on	
		New	Creates a new file	4	
		Open	Opens an existing file		
		Save	Saves the file being edited	ting	
Tool bar	₩	Cut	Cuts		
		Сору	Copies	5	
	e	Paste	Pastes	Data se	
	6	Print	Prints	, t	
	*	Read from module	Reads from the module	6	
Online tool bar	1	Write to module	Writes to the module	C The	
		Verify module data	Verifies the module data	tting e nnectic	
	6	Monitor On/Off switch	Switches the table information window into monitor mode/edit mode	ā	
	Þ	Test On/Off switch	Switches into test mode	7	
	9	All axis stop	Stops all axis	Data And Proce	
	8	Error reset X-axis	Resets errors at X-axis	flow	
	0	Error reset Y-axis	Resets errors at Y-axis		
Test tool bar	X	m code off X-axis	Turns off the m code at X-axis	8	
	M	m code off Y-axis	Turns off the m code at Y-axis	Debug n the Position	
	* ×	Operation test X-axis	Test-operates X-axis	ing	
	×	Operation test Y-axis	Test-operates Y-axis	٩	
	BESET	System reset	Execute system reset	J Pri	

9 Print

10

1

3.4 Shortcut key list

Item			Shortcut key
	D	New (N)	Ctrl + N
File	Å	Open (O)	Ctrl + O
		Save (S)	Ctrl + S
	4	Print (P)	Ctrl + P
	ж	Cut (T)	Ctrl + X
		Copy (C)	Ctrl + C
Edit	æ	Paste (V)	Ctrl + V
	_	Select all (A)	Ctrl + A
	_	Jump (J)	Ctrl + J
Online	4	Write to module (W)	Ctrl + T
		Monitor On/Off (S)	Ctrl + M

3.5 Basic operation

3.5.1 Basic operations in the file data list

[File data list] shows the currently opened file. To open the window, operate as follows. Right-click menu does not appear for all items below.

- To display functions, double-click the file name, or click <+>. (In keyboard operation, select the file name and press <→>)
- 2) To display the windows, double-click the function name, or click <+>. (In keyboard operation, select the function name and press $<\rightarrow>$)
- 3) To open the window, double-click the window name.(In keyboard operation, select the window name and press <Space> bar)







Double-click to open the window

[File name (e.g. unset file)]

Double-click [Edit]



7

8

9

Print

Ω

Bull

Data flow And Procedure

Basic operations in dialog box 3.5.2



Note

In keyboard operations, select the item with $\langle Tab \rangle$ key. To select more items, use $\langle \leftrightarrow \rangle$, $\langle \rightarrow \rangle$, $\langle \uparrow \rangle$, $\langle \downarrow \rangle$ keys.

3.6 Help

This function shows FX Configurator-FP version in the product information.

1 Select [Help] \rightarrow [Product information].

The product information appears.



4. Creating files

FX Configurator-FP sets and controls the data in the table below.

Data	Description
Positioning parameter	Parameters for positioning operations, i.e. pulse rate, feed rate and maximum speed of 20SSC-H
Table information	Setting data for table operations of X/Y/XY-axis
Servo parameter	Data to be transferred from 20SSC-H to servo amplifiers, including servo amplifier series, gain/ filter, expansion, I/O, basic setting parameters.

Caution

When creating and saving-as files, the characters and symbols below are not available for the file paths and names.

/ , : ; * " < > | \ COM LPT AUX CON PRN NUL CLOCK

Introduction

2

3

ndow and

4

Creating Files

5 Data

set

6

7

flow

8

the Bull

> 9 Prini

Ω

Data fl And Procedu

Setting The Connection

4.1 Creating a new file

4.1.1 Creating a new file

This subsection shows how to create a new file.

Caution

When creating a new file while other files are opened, the following messages appear.

1) When the opened file is not changed



- Click <Yes> to close the current file, and to create a new file.
- Click <No> to cancel the operation.

2) When the opened file is changed



- · Click <Yes> to close the current file without saving, and to create a new file.
- Click <No> to cancel the operation.

1 Follow any of the procedures below to create a new file.

• Click 🗋 (New).

• Select [File] → [New]. FX Configurator-FP creates a new file.



4.1.2 Creating a new file with the data inside 20SSC-H.

Creating a new file with the data stored in 20SSC-H.

1 Create a new file.

 \rightarrow For the details, refer to Subsection 4.1.1.

2 Connect FX3U/3UC PLC with Personal Computer.

 \rightarrow For the connection cables configuration, refer to Subsection 1.3.1

3 Select [Online] \rightarrow [Connection setup].

Set the destination in [Connection setup] dialog box.

Connection setup		
PC side © RS-232C (FX-USB-AW/FX3U-USB-BD Included)	Module Module No. 0	OK Cancel
C USB(GOT Transparent)		Comm. Test
Transmission speed 115.2kbps		
Time check		

 \rightarrow For the details, refer to Chapter 6.

4 Click <Comm. Test>.

Check that the communication is properly executed.

5 Click <OK>.

[Connection setup] dialog box closes.

6

Select [Online] \rightarrow [Read from module], and specify the data to be read.

 \rightarrow For the details, refer to Section 7.2.

Read from module				
COM port 1 Transmission	n speed 1	15.2 kbps 🔥	Nodule No.	0
✓ Positioning parameters	🔽 X-axis			
	🔽 Y-axis			
🔽 Servo parameters	☑ X-axis			
	✓ Y-axis			
Table information	✓ X-axis	0	- 299	
	XY-axis	0	- 299	
			_	
		OK	Cancel	



Click <OK>.

The specified data is read out.
1

Introduction

2

3

Window and Operation

4

Creating Files

5

Data set

6

7

8

9 Print

Π

guil

Data flow And Procedure

Setting The Connection

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4.2 Opening a stored file

Opening a stored file.

Caution

When opening a stored file while other files are opened, the following messages appear.

1) When the opened file is not changed



- Click <Yes> to close the current file, and to open a stored file.
- Click <No> to cancel the operation.

2) When the opened file is changed



- Click <Yes> to close the current file without saving, and to open a stored file.
- Click <No> to cancel the operation.

Other messages

Messages	Conditions
The allowable No. of characters has been exceeded. Set to less than 150 characters	The total amount of the character in the file path and name exceeded 150 characters
Selected file type is not supported	The extension of the selected file is not supported
Failed to open the file. Because the module-type is not supported	Can't read the file when the module type is not supported
This file has been made with a newer product version. There is a possibility the data may not be read correctly.	The file was saved by different FX Configurator-FP version. The file can be opened by clicking <ok> but will not be opened properly <countermeasures> Use the FX Configurator-FP version that is the same as or later than the FX Configurator-FP version used to create the file.</ok>
 Failed to open the file. The following causes are thought The specified file does not exist The data in the file is completely damaged The data is created by other S/W 	Could not open the file. The following causes are thought • The specified file does not exist • The data in the file is completely damaged • The data is created by other S/W

Follow any of the procedures below to open a stored file.

• Click 🖻 (Open).

1

• Select [File] \rightarrow [Open].

The dialog box to open a file appears.

2 Select a file to open.

Open			? 🗙
Look in: 🔎	Positioning_control	- + 🗈	-111 *
Positioning	.fsn		
File <u>n</u> ame:	*.fsn		<u>O</u> pen
Files of type:	FX Configurator-FP FILE(*.fsn)	•	Cancel

Item	Description
Look in	Select a file location
File name	Enter the file name to open
Files of type	Select the files of type to open FX Configurator-FP FILE (*.fsn) : opens data for FX Configurator-FP

3 Click [Open].

The selected file opens.

👪 FX Configurator-FP - C:\MELSEC\FXSSC\Positioning_control\Positioning.fsn		
<u>File Edit View Online T</u> ool <u>W</u> indow <u>H</u> elp		
Positioning / FX3U-20SSC-H		
, Ready	Data range	NUM

Opening a file in Recent file history

A file in Recent file history can be opened. The history shows the latest 4 files. [Recent file] appears at the default setting. The number of files simultaneously opened is a single file only.

👪 FX Configurator-FP - (
File	Edit	View	Online	Too	
N	ew		Ctrl+N		
0	pen		Ctrl+O		
C	ose				
S	ave		Ctrl+S		
Save as					
PI	rint		Ctrl+P		
Printer setup					
1	Line_C				
2	2 Line_B				
3	3 Line_A				
4	Positio	ning			
E	×it		Alt+F4		

4.3 File storage

Storable information

- Versions of files
- Module type
- · Positioning parameters
- Servo parameters
- Table information
- Connection Destination

Messages

Messages	Conditions
The allowable No. of characters has been exceeded. Set to less than 150 characters	The total amount of the character in the file path and name exceeded 150 characters
Failed to save data to the file in selected drive.	Could not save the file.
The following causes are thought.	The following causes are thought
 The error occurred while saving project. 	 The specified file does not exist
 The target Memory is low. 	 The data in the file is completely damaged
The medium of selected drive is incorrect.	 The data is created by other S/W

4.3.1 Saving files

Saving stored files after editing.

1

Follow any of the procedures below to save as files.

- Click 🖬 (Save).
- Select \rightarrow [File] \rightarrow [Save].

The currently opened file is saved.

When using a floppy disk (FD).

When saving a file in a floppy disk, Floppy disk itself needs the same amount of another free space with the file to be saved, so floppy disk sometimes does not save the file due to the out of disk space. When the file cannot be saved in floppy disk, save the file once in the hard drive of PC, and copy the file to floppy disk.

4.3.2 Saving as files

Saving newly created files, and stored files in different names.

1 Select [File] \rightarrow [Save as].

The dialog box to save as files appears.

2

Select a file location and file name to save as.

Save As				? 🛛
Save jn: 🗀 Po	sitioning_control	• +	È (1	* 🎟 -
Positioning.fsr	1			
File <u>n</u> ame: 🛛 📕	fsn			<u>S</u> ave
Save as <u>t</u> ype: F	X Configurator-FP FILE(*.fsn)		•	Cancel

Item	Description
Look in	Select a file location
File name	Enter the file name to open
Files of type	Select the files of type to open FX Configurator-FP FILE (*.fsn) : opens data for FX Configurator-FP

Caution

• Set the total amount of the character in the file path and name at 150 characters or below.

• The characters and symbols below are not available for file names.

/ , : ; * " < > | \ COM LPT AUX CON PRN NUL CLOCK

3 Click [Save].

Files are saved as in the specified name.

2

1

Introduction

2

Install Uninstall Start&Exi

4.4 Closing files

Closing currently opened files.

1 Select [File] \rightarrow [Close].

A message appears depending on the situation. Follow the message.

٠

1) When the opened file is not changed



- Click <Yes> to close the current file.
- Click <No> to cancel the operation.
- 2) When the opened file is changed

FX Configurator-FP			
Changes have been made. Discard data and end editing?			
Yes	No		

- Click <Yes> to close the current file without saving.
- Click <No> to cancel the operation.



5. Data set

This chapter explains the procedures to set and error-check Positioning parameters, Servo parameters and Table information.

 \rightarrow For the detail on Positioning parameters and Table information, refer to FX₃U-20SSC-H user's manual. \rightarrow For the detail on Servo parameters, refer to the manual of servo amplifier to be used.

5.1 User unit and Converted pulse data.

5.1.1 User unit

User units appear as follows, depending on the unit setting and position data magnification.

Position data	Unit settings (Positioning units)			U	Init setting	gs (Velocity	units)		
magnification	PLS	μ m	0.0001 inch	mdeg	Hz	cm/min	inch/min	10deg/min	
1 times	PLS	μm	×0.0001 inch	mdeg					
10 times	×10PLS	×10µm	×0.001 inch	×10mdeg	Hz	Hz cm	cm/min	inch/min	v10dog/min
100 times	×100PLS	×100µm	×0.01 inch	×100mdeg				CITI/TITIT	
1000 times	×1000PLS	mm	×0.1 inch	deg					

5.1.2 Converted pulse data

For items within a data set range, make sure to set the value does not overlap the range of converted pulse data.

Pulse conversion procedures are as follows.

1) Travel distance

Travel distance by converted pulse data =

Travel distance(μ m, 10⁻⁴inch, mdeg) × Position data magnification × (Pulse rate ÷ Feed rate)

- 2) Operation speed
 - Operation speed by converted pulse data = Operation speed(cm/min, inch/min, 10deg/min) × 10⁴ × (Pulse rate ÷ Feed rate) ÷ 60

5.1.3 Rotation and operation speed of servo motor (Converted pulse data)

When setting operation speed (incl. Maximum speed, JOG speed, Zero return speed), make sure to set the value within the Max. rotation speed range of servo motor. The formula to calculate the rotation speed of servo motor from the operation speed (Converted pulse data) is as follows.

Rotation speed of the servo motor (r/min) =

operation speed by converted pulse data \times 60 \div resolution per servo motor rotation.

Servo amplifier	Resolution per servo motor rotation
MR-J3B	262144
MR-J4B (J3 compatibility mode)	262144

1

5.2 Setting positioning parameters

Setting parameters (positioning parameters) for positioning control.

Double-click [File name] \rightarrow [Edit] \rightarrow [Positioning parameters] in the file data list.

An edit window for positioning parameters appears.

2 Set the items for positioning parameters.

To enter texts and select items, double-click the cell. \rightarrow For positioning parameter details, refer to FX3U-20SSC-H User's Manual.

👪 Unset file / FX3U-20SSC-H / Positioning parameters (module:0)				
tem		X-axis	Y-axis	
System of units		0:Motor(PLS,Hz)	0:Motor(PLS,Hz)	
Pulse rate	Pulse rate Pulse per rotation		262144 PLS/REV	
Feed rate	Travel per rotation	52428800 PLS/REV	52428800 PLS/REV	
Position data magnification	·	0:X 1 times	0:X 1 times	
Ring counter setting		0:Invalid	0:Invalid	
Ring counter upper limit value		359999 PLS	359999 PLS	
Maximum speed		4000000 Hz	4000000 Hz	
JOG speed		2000000 Hz	2000000 Hz	
JOG instruction evaluation time		300 ms	300 ms	
ACC/DEC mode		0:Trapezoid ACC/DEC	0:Trapezoid ACC/DEC	
ACC time		200 ms	200 ms	
ACC time 2		200 ms	200 ms	
DEC time		200 ms	200 ms	
DEC time 2		200 ms	200 ms	
Interpolation time constant		100 ms	100 ms	
Sudden stop deceleration time		200 ms	200 ms	
Sudden stop interpolation time of	constant	100 ms	100 ms	
Sudden stop selection (STOP c	ommand)	0:Normal deceleration stop	0:Normal deceleration stop	
Sudden stop selection (Softwa	re limit)	0:Normal deceleration stop	0:Normal deceleration stop	
Sudden stop selection (PLC limi	0	0:Normal deceleration stop	0:Normal deceleration stop	
Sudden stop selection (Servo a	mplifier limit)	0:Normal deceleration stop	0:Normal deceleration stop	
Interpolation gear ratio selection	1	0:X-axis		
Stop mode		0:Positioning end	0:Positioning end	
Software limit(upper)		0 PLS	0 PLS	
Software limit(lower)		0 PLS	0 PLS	
FLS,RLS External input	Signal selection	0:Use signal via FX3U(C)	0:Use signal via FX3U(C)	
selection	Signal logic	1:B-contact(servo amplifier)	1:B-contact(servo amplifier)	

1 Introduction 2 Install Uninstall Start&Exit 3 Window and Operation Config 4 Creating Files 5 Data set 6 Setting The Connection 7

8 Debug In the Positioning

> 9 Print

Data flow And Procedure

Torque limit		3000 ×0.1 %	3000 ×0.1 %
Servo ready check		1:∀alid	1:Valid
Servo end check		1:Valid	1:∀alid
Servo end evaluation time		5000 ms	5000 ms
Servo startup ON/OFF selection	1	0:Servo startup ON	0:Servo startup ON
Positioning completion signal ou	tput waiting time	0 ms	0 ms
OPR mode		0:DOG	0:DOG
OPR direction		0:Decrease present value	0:Decrease present value
Machine zero point address		0 PLS	0 PLS
OPR speed(High speed)		4000000 Hz	4000000 Hz
OPR speed(Creep)		100000 Hz	100000 Hz
OPR torque limit value		3000 ×0.1 %	3000 ×0.1 %
OPR interlock setting		1:∀alid	1:∀alid
Zero signal count start timing		0:Backward end of DOG	0:Backward end of DOG
Zero signal count		1 PLS	1 PLS
Signal selection		0:Use signal via 20SSC-H	0:Use signal via 20SSC-H
Dog External input selection	Signal logic	0:A-contact(servo amplifier)	0:A-contact(servo amplifier)
DOG switch input logic		0:A-contact(20SSC-H)	0:A-contact(20SSC-H)
Servo parameter transfer mode selection		0:Flash ROM -> Servo amp	0:Flash ROM -> Servo amp

Item	l	Description	Default value
System of unit		 Sets the system of units for positioning for the X/Y-axis. 0: Motor (PLS, Hz) 1: Mechanical (μm, cm/min) 2: Mechanical (0.0001inch, inch/min) 3: Mechanical (mdeg, 10deg/min) 4: Composite (μm, Hz) 5: Composite (0.0001inch, Hz) 6: Composite (mdeg, Hz) 	0: Motor (PLS, Hz)
Pulse rate	Pulse per rotation	Sets the pulse rate for the X/Y-axis. Set the resolution per servo motor rotation. Setting range : 1~200,000,000 PLS/REV	262,144 PLS/REV
Feed rate	Travel per rotation	Sets the feed rate for the X/Y-axis. Setting range : 1~200,000,000 [User unit]*1/REV	52,428,800 PLS/REV
Position data m	agnification	Sets the position data magnification for the X/Y-axis. 0: ×1 times 1: ×10 times 2: ×100 times 3: ×1000 times	0: ×1 times
Ring counter se	tting	Sets the Ring counter to valid/invalid for the X/Y-axis. 0: Invalid 1: Valid	0: Invalid
Ring counter value	upper limit	Sets the Ring counter upper limit value for the X/Y-axis. Setting range : 1~359,999,999 [User unit] ^{*1}	359999PLS

1

Item	Description	Default value	- Intr
Maximum speed	Sets the maximum speed for the X/Y-axis. Set the speed at or below the maximum rotation speed ^{*2} of servo motor. Setting range : 1~2,147,483,647 [User unit] ^{*1} Set the value within 1~50,000,000Hz in the	4,000,000Hz	oduction
JOG speed	converted pulse data. Sets the JOG speed for the X/Y-axis. Set the speed at or below the maximum rotation speed ^{*2} of servo motor. Setting range : 1~Maximum speed [User unit] ^{*1}	2,000,000Hz	Install Uninstall Start&Exit
JOG instruction evaluation	Set the value within 1~50,000,000Hz in the converted pulse data. Sets the JOG instruction evaluation time for the X/Y-axis.	200	
time ACC/DEC mode	Setting range : 0~5000ms Sets the ACC/DEC mode for the X/Y-axis. 0: Trapezoid ACC/DEC	300ms 0: Trapezoid ACC/DEC	ndow and eration nfig
ACC time	1: Approximate S curve ACC/DEC Sets the ACC time for the X/Y-axis. Setting range : 1~5000ms	200ms	4 File
ACC time 2	Sets the ACC time for the X/Y-axis. Setting range : 1~5000ms	200ms	ating s
DEC time	Sets the DEC time for the X/Y-axis. Setting range : 1~5000ms	200ms	5
DEC time 2	Sets the DEC time for the X/Y-axis. Setting range : 1~5000ms	200ms	ດ Data
Interpolation time constant	Sets the interpolation time constant for the X/Y-axis. Setting range : 1~5000ms	100ms	a set
time	Sets the sudden stop deceleration time for the X/Y-axis. Setting range : 1~5000ms	200ms	C
Sudden stop interpolation time constant	Sets the sudden stop interpolation time constant for the X/Y- axis. Setting range : 1~5000ms	100ms	Setting The Conner
Sudden stop selection (STOP command)	for the X/Y-axis. 0: Normal deceleration stop 1: Sudden stop	0: Normal deceleration stop	ction 7
Sudden stop selection (Software limit)	Set the stop method when the software limit turns ON for the X/Y-axis. 0: Normal deceleration stop 1: Sudden stop	0: Normal deceleration stop	Data flow And Procedure
Sudden stop selection (PLC limit)	Set the stop method when the PLC limit turns ON for the X/Y-axis. 0: Normal deceleration stop 1: Sudden stop	0: Normal deceleration stop	8 עבע
Sudden stop selection (Servo amplifier limit)	Set the stop method when the Servo amplifier limit turns ON for the X/Y-axis. 0: Normal deceleration stop 1: Sudden stop	0: Normal deceleration stop	ebug the ositioning
Interpolation gear ratio selection	Sets the interpolation gear ratio selection 0: X-axis 1: X-axis, Y-axis	0: X-axis	9 Print
STOP mode	Sets the STOP mode for the X/Y-axis. 0: Positioning end 1: Remaining distance operation	0: Positioning end	t
Software limit (upper)	Sets the software limit (upper) address for the X/Y-axis. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data ^{*1} .	0 PLS	10 Edit In data

ltem		Description	Default value
Software limit (le	ower)	Sets the software limit (lower) address for the X/Y-axis. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data. ^{*1}	0 PLS
FLS,RLS selection External input		Sets the FLS and RLS signals to be used/not used in the servo amplifier. The FLS and RLS on PLC side are always used. 0: Use signal via FX3U(C) 1: Use signal via FX3U(C) & servo amp	0: Use signal via FX3U(C)
	Signal logic	Sets the FLS and RLS signal logic in the servo amplifier. 0: A-contact (servo amplifier) 1: B-contact (servo amplifier)	1: B-contact (servo amplifier)
Torque limit		Sets the torque limit for the X/Y-axis. Setting range : 1~10000×0.1%	3000×0.1%
Servo ready che	eck	Sets the servo ready check valid/invalid for the X/Y-axis. 0: Invalid 1: Valid	1: Valid
Servo end chec	k	Sets the servo end check valid/invalid for the X/Y-axis. 0: Invalid 1: Valid	1: Valid
Servo end evalu	ation time	Sets the ON/OFF status in the servo at startup. Setting range : 1~5000ms	5000ms11
Servo startup ON/OFF selection	on	Sets the ON/OFF in the servo for startup. 0: Servo ON at startup. 1: Servo OFF at startup.	0: Servo ON at startup
Positioning completion signal output waiting time		Sets the positioning completion signal output waiting time for the X/Y-axis. Setting range : 0~5000ms	0ms
OPR mode		Sets the OPR mode for the X/Y-axis. 0: DOG 1: Data set 2: Stopper #1 3: Stopper #2	0: DOG
OPR direction		Sets the OPR direction for the X/Y-axis. 0: Decrease present value 1: Increase present value	0: Decrease present value
Machine zero point address		Sets the OPR address for the X/Y-axis. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data. ^{*1}	0 PLS
OPR speed (High speed)		Sets the OPR speed (High speed) for the X/Y-axis. Set the speed at or below the maximum rotation speed ^{*2} of the servo motor. Setting range : 1~Maximum speed [User unit] ^{*1} Set the value within 1~50,000,000Hz in the converted pulse data. ^{*1}	4,000,000Hz
OPR speed (Creep)		Sets the OPR speed (Creep) for the X/Y-axis. Set the speed at or below the maximum rotation speed ^{*2} of the servo motor. Setting range : 1~OPR speed (High speed) [User unit] ^{*1} Set the value within 1~50,000,000Hz in the converted pulse data. ^{*1}	100,000Hz
OPR torque limi	t value	Sets the torque limit for the X/Y-axis in during OPR. Setting range : 1~10000×0.1%	3000×0.1%
OPR interlock s	etting	Sets the OPR interlock to valid/invalid. 0: Invalid 1: Valid	1: Valid

ltem		Description	Default value
Zero signal c timing	count start	Sets the Zero signal count start timing for the X/Y-axis. 0: Backward end of DOG 1: Forward end of DOG	0: Backward end of DOG
Zero signal cour	nt	Sets the Zero signal count for the X/Y-axis. Setting range : 0~32767PLS	1 PLS
DOG External	Signal selection	Sets the DOG signal to be used. 0: Use signal via 20SSC-H 1: Use signal via Servo Amplifier	0: Use signal via 20SSC-H
input selection	Signal logic	Sets the DOG signal logic for the servo amp. 0: A-contact (servo amplifier) 1: B-contact (servo amplifier)	0: A-contact (servo amplifier)
DOG switch inp	ut logic	Sets the DOG switch input logic for the X/Y-axis. 0: A-contact (20SSC-H) 1: B-contact (20SSC-H)	0: A-contact (20SSC-H)
Servo parameter transfer mode selection		Sets the Servo parameter transfer mode selection for the X/Y-axis. 0: Flash ROM \rightarrow Servo amp 1: BFM \rightarrow Servo amp	0: Flash ROM Servo amp

*1. For the user unit and the converted pulse data, refer to the following.

 \rightarrow Refer to Section 5.1.

*2. For the servo motor rotation speed and the operation speed (converted pulse data), refer to the following.

 \rightarrow Refer to Subsection. 5.1.3

Display colors of the positioning parameters edit window

Display colors of the positioning parameters edit window have meanings as follows.

Display color of the characters and frame	Description			
Blue	Default settings.	D		
Black	londefault settings with no error.			
Red	The content has a setting range error.	ng 1ectic		
 NA items. When [System of units] is [Motor], [Pulse rate] and [Feed rate] are not available. When [Ring counter setting] is [0: Invalid], [Ring counter upper limit value] is available. Sets the [Interpolation gear ratio selection] for the X-axis only. The Y-axis is not available. Gray When [Signal selection] in [FLS,RLS External input selection] is [0: Use signal FX3U(C)]. [Signal logic] is not available. 		n 7 Data flow And Procedure		
	 When [Signal selection] in [DOG External input selection] is [0: Use signal via 20SSC-H], [Signal logic] is not available. When [Signal selection] in [DOG External input selection] is [1: Use signal via Servo Amplifier], [DOG switch input logic] is not available. 	8 Debug In the Positionin		

4

Creating Files

5

Data set

9 Print

10

Bulu

1

5.3 Setting servo parameters

Setting the parameters (servo parameters) to transfer from 20SSC-H to servo amplifiers via SSCNET III.

1 Double-click [File name] \rightarrow [Edit] \rightarrow [Servo parameters] in the file data list. An edit window for servo parameters appears.

2 Set the items of servo parameters.

To enter texts and select items, double-click the cell. \rightarrow For servo parameter details, refer to the FX3U-20SSC-H User's Manual and Servo Amplifier Instruction Manuals.

Servo series [Servo parameters (Basic setting)]

This parameter must be set to transfer information between 20SSC-H and the servo amplifier. Set the servo parameters according to the servo amplifier being used.

<mark>ಚ</mark> Unset file	/ FX3U-20SSC-H / Se	ervo parameters (m	odule:0)	
Kind	Ite	m	X-axis	Y-axis
Servo amplifier series	Servo amplifier series		0:Not used	0:Not used
	Control mode	Control loop composition selection	0:standard control 350 maximum torque setting of HF-KP servo motor(Invalid)	0:standard control 350 maximum torque setting of HF-KP servo motor(Invalid)
	Regenerative brake option Selection of regenerative brake option		00: Regenerative brake option is not used	00: Regenerative brake option is not used
	Absolute position detection system	Selection of absolute position detection system	0:Used in incremental system	0:Used in incremental system
Basic setting parameters	Function selection A-1	Function selection A-1 Servo forced stop selection		00:Forced stop 2 (EM2) The electromagnetic brake interlock(MBR) turns off after the forced stop deceleration. /0:Valid (Forced stop (EM1) is used.) /00:Forced stop 1 (EM1) The electromagnetic brake interlock(MBR) turns off without the forced stop deceleration.
	Auto tuning	Gain adjustment mode setting	1:Auto tuning mode 1	1:Auto tuning mode 1
	Auto tuning response		12:37.0Hz	12:37.0Hz
	In-position range		100 pulse	100 pulse
	Rotation direction selection		0:Forward rotation (CCVV) with the increase of the positioning address.	0:Forward rotation (CCVV) with the increase of the positioning address.
	Encoder output pulse		4000 pulse/rev	4000 pulse/rev
	Adaptive tuning mode (Adaptive filter II)	Filter tuning mode selection	0:Filter OFF	0:Filter OFF
	vibration suppression control filter tuning mode (Advanced vibration suppression control)		0: Vibration suppression control OFF	0:Vibration suppression control OFF
	Feed forward gain		0 %	0%
Gain/filter	Ratio of load inertia mom inertia moment	ent to servo motor	7.0 times	7.0 times
parameters	Model loop gain		24 rad/s	24 rad/s
	Position loop gain		37 rad/s	37 rad/s
	Speed loop gain		823 rad/s	823 rad/s
	Speed integral compense	ation	33.7 ms	33.7 ms
	Speed differential compe	insation	980	980
	Overshoot amount compensation		1500 Hz	4500 Hz
	Machine resonance suppression filter 1		0:Deep(-40dB)	0:Deep(-40dB)
	Notch form selection 1	Notch width selection	0:Standard(a=2)	0:Standard(a=2)
	Machine resonance suppression filter 2		4500 Hz	4500 Hz
		Machine resonance suppression filter 2 selection	0:Invalid	0:Invalid
	Notch form selection 2	Notch depth selection	0:Deep(-40dB)	0:Deep(-40dB)
		Notch width selection	0:Standard(a=2)	0:Standard(a=2)

	Low-pass filter		3141 rad/s	3141 rad/s
	Vibration suppression co frequency setting	ontrol vibration	100.0 Hz	100.0 Hz
	Vibration suppression co	ontrol resonance	100.0 Hz	100.0 Hz
	Low pass filter	Low pass filter	0:Automatic setting	0:Automatic setting
Gain/filter parameters	Olisituliustiss	Slight vibration	Othyalid	Othyslid
	suppression control selection	selection PI-PID control	0.117410	0.17410
		switch-over	0:PI control is always valid.	0:PI control is always valid.
	Gain changing selection	selection	0:Invalid	0:Invalid
	Gain changing condition		10	10
	Gain changing time cons	tant	1 ms	1 ms
	Gain changing ratio of los servo motor inertia mome	ad inertia moment to ent	7.0 times	7.0 times
	Gain changing position lo	op gain	37 rad/s	37 rad/s
	Gain changing speed loo	p gain	823 rad/s	823 rad/s
	Gain changing speed inte	egral compensation	33.7 ms	33.7 ms
	Gain changing vibration s vibration frequency setti	suppression control	100.0 Hz	100.0 Hz
	Gain changing vibration s resonance frequency se	suppression control tting	100.0 Hz	100.0 Hz
		Notch depth selection	0:-40.0dB	0:-40.0dB
	Vibration suppression control filter 2	Vibration suppression control filter 2 setting frequency selection	00:Invalid	00:Invalid
	Error excessive alarm le	vel	3 rev	3 rev
	Electromagnetic brake se	equence output	0 ms	0 ms
	Encoder output pulses	Encoder pulse output phase changing	0:CCW progress to A phases 90 degree	0:CCVV progress to A phases 90 degree
	selection	Encoder output pulse setting selection	0:Output pulse setting	0:Output pulse setting
	Function selection C-1	Encoder cable communication system selection	0:Two-wire type	0:Two-wire type
	Function selection C-2	Motor-less operation selection	0:Invalid	0:Invalid
	Function selection C-3	Error excessive alarm level setting selection	0:1(rev)unit	0:1(rev)unit
	Zero speed		50 r/min	50 r/min
	Analog monitor output 1	Analog monitor (MO1) output selection	0:Servomotor speed(+/-8V/Max.speed)	0:Servo motor speed(+/-8V/Max. speed)
	Analog monitor output 2	Analog monitor (MO2) output selection	1:Torque(+/-8V/Max. torque)	1:Torque(+/-8V/Max. torque)
Extension setting	Analog monitor 1 offset		0 m V	0 mV
parameters	Analog monitor 2 offset		0 m V	0 m V
	Analog monitor feedback position output standard data Low	Feedback standard position settings	0 PLS	0 PLS
	Analog monitor feedback position output standard data High	Feedback standard position settings	0 X10000PLS	0 X10000PLS
	Function selection C-4	OPR set condition selection	1:It is not necessary to pass through the Z phase after the power on.	1:It is not necessary to pass through the Z phase after the power on.
	Function selection C-7	Setting when undervoltage alarm occurs	0:Waveform of power supply voltage is not distorted.	0:Waveform of power supply voltage is not distorted.
	Alarm history clear		0:Invalid	0:Invalid
	Forced stop deceleration time constant		0 ms	0 ms
	Vertical axis freefall prev amount	vention compensation	0 X0.0001rev	0 X0.0001rev
	Output signal device selection 1	Output signal 1 function selection	5:MBR	5:MBR
1/0 setting	Output signal device selection 2	Output signal 2 function selection	4:INP	4:INP
parameters	Output signal device selection 3	Output signal 3 function selection	3:ALM	3:ALM
	Function selection D-3	ALM output signal at warning occurrence Selection	0:ALM output signal is not turned off.	0:ALM output signal is not turned off.



10

Edit Functior In data

Display colors of the servo parameters edit window

Display color of the characters and frame	Description		
Blue	Default settings.		
Black	Nondefault settings with no error.		
Red	The content has a setting range error.		
Gray	 NA items. Depending on the [Gain Changing Selection] content, [Gain Changing Condition] is not available. Depending on the [Servo amplifier series] content, [Forced stop deceleration time constant] and [Vertical axis freefall prevention compensation amount] are not available. 		

Display colors of the servo parameters edit window have meanings as follows.

5.4 Setting table information

5.4.1 The common items in table information.

Setting the table information at X, Y, XY-axis. Set the contents below for each axis. \rightarrow For table information details, refer to the FX3U-20SSC-H user's manual.

1. The number of table information available for X, Y, XY-axis is as follows.

	Table information	The available table information number
Independent operation	X-axis table information	300
independent operation	Y-axis table information	300
Simultaneous operation at XY-axis	XY-axis table information	300

2. Items of each operation information for table information

 \checkmark : Available –: Not available Arc Jump Arc Available axis Wait time **Operation info** Address Speed m code center radius destination Positioning at 1-step ~ \checkmark \checkmark X, Y, XY-axis _ _ _ speed*1 Interrupt stop at 1-step X, Y, XY-axis \checkmark \checkmark \checkmark _ _ _ _ speed*1 Positioning at 2-step \checkmark X, Y, XY-axis \checkmark ./ _ speed*1*2 Positioning at 2-step \checkmark X, Y, XY-axis \checkmark _ _ _ speed (Paired line)*1*2 Interrupt stop at 2-step \checkmark X, Y, XY-axis \checkmark \checkmark _ _ _ speed^{*1*2} Interrupt stop at 2-step X, Y, XY-axis \checkmark _ _ _ _ _ speed (Paired line)*1*2 Interrupt stop*1 X, Y, XY-axis \checkmark \checkmark \checkmark Operation at multi-step \checkmark ./ X, Y, XY-axis \checkmark _ _ _ speed*4 Linear interpolation √*3 XY-axis \checkmark _ _ _ _ \checkmark Linear interpolation √*3 \checkmark XY-axis _ _ _ _ (interrupt) Circular interpolation √*3 ~ ~ XY-axis ~ _ _ _ (CNT,CW) Circular interpolation √*3 \checkmark 1 XY-axis \checkmark _ _ _ (CNT,CCW) Circular interpolation \checkmark XY-axis √*3 ~ ~ _ _ (RAD,CW) Circular interpolation **√***3 \checkmark XY-axis ~ \checkmark (RAD,CCW) X, Y, XY-axis Machine zero return*1 _ \checkmark _ _ _ Present address X, Y, XY-axis ~ _ _ _ _ changing*1 Absolute address 1 X, Y, XY-axis specification Incremental address \checkmark X, Y, XY-axis _ _ _ _ _ _ specification Dwell X, Y, XY-axis _ \checkmark \checkmark _ _ _ _ Jump X, Y, XY-axis _ _ _ _ _ \checkmark _ m code X, Y, XY-axis \checkmark _ _ _ _ _ _ No processing X, Y, XY-axis _ _ _ End X, Y, XY-axis

*1. XY-axis table information also sets X-axis and Y-axis independently.

*2. [Positioning at 2-step speed] and [Interrupt stop at 2-step speed] occupy 2 lines in table information.
*3. Available at X-axis only.

When selecting the items only for X-axis or Y-axis at the operation information in the XY-axis table information, the items for the other axis are not available.

*4. XY-axis table information is available only for operation at multi-step speed of the X-axis and operation at multi-step speed of the Y-axis. It is not available for operation at multi-step speed of the XY-axis. Install Uninstall Start&Exi

1

Introduction

2

Data set

4

Creat

Bui

8

Debug In the Positioning

7

47

5.4.2 Setting X/Y-axis table information

Setting X/Y-axis table information

1 Double-click [File name] \rightarrow [Edit] \rightarrow [X-axis table information] or [Y-axis table information] in the file data list.

The selected X or Y-axis table information edit window appears.

2

Set each item for the table information.

To enter texts and select items, double-click the cell.

 \rightarrow For table information details, refer to FX3U-20SSC-H User's Manual.

👪 Un	👪 Unset file / FX3U-20SSC-H / X-axis Table information (module:0)						
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code	
0	Positioning at 1-step speed	10000	5000000			-1	
1	Positioning at 1-step speed	20000	5000000			-1	
2	Positioning at 1-step speed	30000	5000000			-1	
3	Positioning at 1-step speed	40000	5000000			-1	
4	Positioning at 1-step speed	0	1			-1	
5	Positioning at 1-step speed	0	1			-1	
6	Dwell			100		-1	
7	Positioning at 1-stan speed	10000	5000000			-1	\sim

This window displays [X-axis table information] edit window.

ltem	Description	Note	
No.	Table information number	ightarrow Refer to Subsection 5.4.1	
Command code	Sets command code		
Address [PLS]	Sets the address. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data.	[User unit] varies depending on	
Speed [Hz]	Sets the operation speed. Set the speed at or below the maximum rotation speed ^{*2} of servo motor. Setting range : 1~Maximum speed [User unit] ^{*1} Set the value within 1~50,000,000Hz in the converted pulse data.		
Time [10ms]	Sets the wait time. Setting range : 0~32767×10ms		
Jump No.	Sets the jump No. Setting range : 0~299		
m code	Sets the m code. Setting range : -1~32767 ^{*3}		

*1. For the user unit and the converted pulse data, refer to the following.

\rightarrow Refer to Section 5.1.

*2. For the servo motor rotation speed and the operation speed (converted pulse data), refer to the following.

 \rightarrow Refer to Subsection. 5.1.3

*3. When the operation information is m code, the setting range is $0\sim32767$.

1

1

Introduction

2

3

Window and Operation

Files

5

Data set

6

7

Proc

Setting The Connection

Uninstall Start&Ex

5.4.3 Setting XY-axis table information

Setting XY-axis table information.

Double-click [File name] \rightarrow [Edit] \rightarrow [XY-axis table information] in the file data list.

XY-axis table information edit window appears.

2 Set each item for the table information.

To enter texts and select items, double-click the cell.

ightarrow For table information details, refer to FX3U-20SSC-H User's Manual.

🛃 Uns	Unset file / FX3U-20SSC-H / XY-axis Table information (module:0)								
No.	Command code	Address x:[PLS] y:[PLS]	Speed fx:[Hz] fy:[Hz]	Arc center i:[PLS] j:[PLS]	Arc radius r:[PLS]	Time [10ms]	Jump No.	m code	
0	XY-axis positioning at 1-step speed	x: 0 y: 0	fx: 50000000 fy: 50000000					-1	
1	XY-axis positioning at 1-step speed	x: 0 y: 0	fx: 50000000 fy: 50000000					-1	
2	XY-axis positioning at 1-step speed	x: 0 y: 0	fx: 50000000 fy: 50000000					-1	
3	XY-axis positioning at 1-step speed	x: 0 y: 0	fx: 50000000 fy: 50000000					-1	
4	XY-axis positioning at 1-step speed	x: 0 y: 0	fx: 50000000 fy: 50000000					-1	
5	Dwell					80		-1	~

Item	Description	Note
No.	Table information number	\rightarrow Refer to Subsection
Command code	Sets command code	5.4.1
Address x: [PLS] (Upper) y: [PLS] (Lower)	Sets the address. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data.	
Speed fx: [Hz] (Upper) fy: [Hz] (Lower)	Sets the operation speed. Set the speed at or below the maximum rotation speed ^{*2} of servo motor. Setting range : 1 ~ Maximum speed [User unit] ^{*1} Set the value within 1~50,000,000Hz in the converted pulse data.	[User unit] varies depending on positioning parameters.
Arc center i: [PLS] (Upper) j: [PLS] (Lower)	Sets the arc center. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data.	\rightarrow Refer to Section 5.2
Arc radius r: [PLS]	Sets the arc radius. Setting range : -2,147,483,648~2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648~ 2,147,483,647PLS in the converted pulse data.	
Time [10ms]	Sets the wait time. Setting range : 0~32767×10ms	
Jump No.	Sets the jump No. Setting range : 0~299	
m code	Sets the m code. Setting range : -1~32767 ^{*3}	

*1. For the user unit and the converted pulse data, refer to the following.

 $\rightarrow\,$ Refer to Section 5.1.

*2. For the servo motor rotation speed and the operation speed (converted pulse data), refer to the following. \rightarrow Refer to Subsection. 5.1.3

*3. When the operation information is m code, the setting range is 0~32767.

5.5 Error check

Checking the consistency and the incomplete settings in positioning parameters, servo parameters and table information.



Select [Tool] \rightarrow [Error check].

Error check dialog box appears.



Select the item to be checked.

Fror check Error check item Positioning par Servo paramet Table informati	rameters ters	Close Jump		
Item	Axis N	o Error item	~	Error check resul

ltem		Description
Error check items		Select the item targeted for Error check
Positioning para	ameters	Checks the positioning parameters when ticked off here
Servo paramete	ers	Checks the servo parameters when ticked off here
Table information	on	Checks the table information when ticked off here
Error check result		Displays the items, axis, No. and error items after the error check
Item		Displays the positioning parameter, servo parameter or table information with errors
Axis		Displays X, Y, XY-axis with errors
No.		Displays the table information No. with errors It is blank here when any error in the positioning parameter or servo parameter
Error items		Displays the details of the error items
<action></action>		Executes [Error check]
<close></close>		Closes the dialog box
<jump></jump>		Displays the selected error location Enabled only with error detection

3

Click <Action>.

The error check result of the selected item appears.

6. Setting the connection destination

Setting the connection destination (COM port, transmission speed and the 20SSC-H module No.).

Cautions on communication

- When connecting the personal computer interfaces to the same COM port in FX Configurator-FP and GX Developer, set the same baud rate for both. When FX Configurator-FP and GX Developer are running simultaneously, the baud rate that was set first has priority.
- An error may occur in the communication with FX PLC when used with the resume function, suspend setting, power-saving function and standby mode of the peripheral device. For this reason, do not set the functions above when communicating with the 20SSC-H.
- A communication error may occur depending on the combination of the personal computer model, USB cable and so on. In that case, refer to the message displayed and perform the operation again.
- When the baud rate changes for the fast communication at the serial port of the personal computer, it may disable the communication, or communication may delay due to too many retries depending on the personal computer spec. When the fast communication is not enabled, reduce the baud rate and restart communication.

1 Select [Online] \rightarrow [Connection setup].

Connection setup dialog box appears.

2 Set each item.

С	Connection setup			
	PC side	Module	OK	
	• RS-232C	Module No. 0	Cancel	
	(FX-USB-AW/FX3U-USB-BD Included)			
	USB(GOT Transparent)		Comm. Test	
	C Ethernet directly connect			
	COM port			
	Transmission speed 115.2kbps 💌			
	Time check			

Item		Description	Default setting
Ρ	C side	Sets the COM port and transmission speed at PC side.	
	PC side	 Selects the personal computer to PLC connection method. (Ver.1.30 or later) RS-232C: Select this connection method when connecting via RS-232C, RS-422, or USB (FX-USB-AW / FX_{3U}-USB-BD only). USB (GOT transparent): Select this connection method when connecting via the GOT1000 USB transparent mode. Ethernet directly connect: Select this connection method when connecting via Ethernet. 	RS-232C
	COM port	Sets the COM port at PC side. Setting range: COM1 to 10	COM1
	Transmission speed	Sets the transmission speed. Setting range: 9.6kbps to 115.2kbps	115.2kbps

Print

1

Introduction

2

3

Window and Operation

4

Creating Files

5

Data set

6

Setti

7

Uninstall Start&Exi

ltem		Description	Default setting
Module		Sets the module No. for 20SSC-H.	
	Module No.	Sets the module No. for 20SSC-H. Setting range: 0 to 7	0
Time check		Sets the timeout determination time. Unit: second Setting range: 1 to 9999 seconds	5 seconds
<comm. test=""></comm.>		Executes the communication test.	

Displayed messages

The message below appears depending on the communication setting.

Displayed Message	Description
Cannot communicate with the PLC. Execute again after checking the connections with the PLC. <es: code="" error=""></es:>	A communication error has occurred. Check the connection with PLC, and the communication settings at the destination.
The connected PLC does not support this function. Please execute again after confirming the version of the PLC.	The connected PLC is not supported. Confirm the version of the PLC.
The module which supported this function is not found. Please execute again after confirming the module.	The special function block with assigned module No. is not 20SSC-H. Confirm the module No. and the connection between PLC and 20SSC-H.
Don't change connection data while online.	User has selected [Connection setup] menu while monitoring. (displaying operation monitor or the table information edit window for monitoring). Select [Connection setup] menu after disrupting the monitoring.
Module No. is range over.	User set the value outside the module No. range. Confirm the module No.
Time check is range over.	User set the value outside the time check range. Confirm the time check setting.

7. Read / Write / Verify / Initialize

Reading, Writing and Verifying the data (positioning parameters, servo parameters and table information) for each axis, and initializing the 20SSC-H.

Caution

When reading or writing data, use the FX Configurator-FP version that is the same as or later than the FX Configurator-FP used to write data to the 20SSC-H.

Using FX Configurator-FP of earlier version may clear the setting data or change the setting data to invalid values.

7.1 Data type and storage location

1. Data type and Description

Data type	Description	Storage location
Positioning parameters	 The parameters required for positioning control. → For positioning parameters details, Refer to FX₃U-20SSC-H User's manual. → For setting procedures of positioning parameters, refer to Section 5.2. Positioning parameters for X-axis. Positioning parameters for Y-axis 	 The BFM in 20SSC-H Flash ROM in 20SSC-H
Servo parameters	 The parameters of servo amp. 20SSC-H transfers servo parameters to servo amps via SSCNET III at power on. → For servo parameters details, refer to the manual of the servo amp to be used. → For setting procedures of servo parameters, refer to Section 5.3. • Servo parameters for X-axis. • Servo parameters for Y-axis 	 The BFM in 20SSC-H Flash ROM in 20SSC-H
Table information	 The data for table operation. Table information for X-axis. Table information for Y-axis. Table information for XY-axis. 	The BFM in 20SSC-HFlash ROM in 20SSC-H

2. Data flow



No.	Description
0	Read/Write/Monitor/Test the sequence programs with GX Developer.
2	 Read out the following data from the 20SSC-H BFM to FX Configurator-FP. Positioning parameters Servo parameters Table information Monitor data (Operation status, motion status and input signal status, etc.)
3	 Write the following data from FX Configurator-FP to the 20SSC-H BFM. Positioning parameters Servo parameters Table information Control data (The present value change, speed change and operation test command, etc.)
4	 Read/Write the following data in BFM with sequence program. Positioning parameters Servo parameters Table information Monitor data (Operation status, motion status and input signal status, etc.) Control data (The present value change, speed change and operation test command, etc.)
\$	 Store the following BFM data to the Flash ROM by the store command from the sequence program or FX Configurator-FP. Positioning parameters Servo parameters Table information
6	Positioning/servo parameters and table information transfer from the Flash ROM to the BFM in 20SSC-H at power ON, simultaneously servo parameters transfer to servo amps.
\bigcirc	Servo parameters transfer to servo amps at power ON. \rightarrow For transfer procedure, refer to the next page.
8	20SSC-H retrieves servo parameters changed at servo amp sides, and updates the servo parameters in its BFM.

How to transfer (write) servo parameters to servo amplifiers

When the power is turned ON or when the system is reset^{*1}, servo parameters stored in the flash ROM are transferred to the buffer memory. After that, when the servo series (BFM #15000 and #15200) are set to the corresponding values for the connected servo amplifiers, servo parameters are transferred from the buffer memory to the servo amplifiers.

The following two transfer methods are available:

- · Method to transfer servo parameters stored in the flash ROM to the servo amplifiers
- Method to transfer servo parameters set in the sequence program to the servo amplifiers (Available in 20SSC-H Ver. 1.10 or later)
- *1. System reset is supported in FX3U-20SSC-H Ver. 1.10 or later.

\rightarrow Refer to the FX₃U-20SSC-H User's Manual for more details on transfer methods and system reset.

Note

When turning OFF and then ON the servo parameter transfer command [BFM #519 b9 (X-axis), #619 b9 (Y-axis)], the following parameters in BFM transfer to servo amps.

- 1) Servo parameters to be transferred.
 - Auto tuning
 - Auto tuning response
 - Feed forward gain
 - Ratio of load inertia moment to servo motor inertia moment.
 - Model loop gain
 - Position loop gain
 - Speed loop gain
 - Speed integral compensation
 - Speed differential compensation
- 2) The execution condition of the servo parameter transfer command [BFM #519 b9 (X-axis), #619 b9 (Y-axis)] 20SSC-H ignores the servo parameter transfer command during positioning motion.
- Servo parameters in transmission [BFM #28 b10 (X-axis), #128 b10 (Y-axis)] [Servo parameters in transmission] in status information turns ON during servo parameters in transmission.

\rightarrow For details, refer to the FX3U-20SSC-H User's Manual.

Data set

6

The

8

Print

1

7.2 Reading [positioning/servo parameters and table information]

Reading [positioning/servo parameters and table information] from the 20SSC-H BFM.

1 Operate any of the following procedures

- Click 👔 [Read from module].
- Select [Online] \rightarrow [Read from module].

[Read from module] dialog box appears.

2 Select the data to be read.

Read from module			
COM port 1 Transmission	speed 11	5.2 kbps Mod	dule No. 0
Positioning parameters	✓ X-axis ✓ Y-axis		
l vervo parameters	✓ X-axis		
✓ Table information	✓ Y-axis✓ X-axis	0	- 299
	V-axis	0	- 299
	I✔ XY-axis		- 299
		ок	Cancel

ltem	Description
COM port	Displays [COM port] in [Connection setup] dialog box
Transmission speed	Displays [Transmission speed] in [Connection setup] dialog box
Module No.	Displays [Module No.] in [Connection setup] dialog box
Item	Ticks off the data to be read
Positioning parameters	Ticks off the axis of positioning parameters to be readX-axisY-axis
Servo parameters	Ticks off the axis of servo parameters to be read X-axis Y-axis
Table information	 Sets the reading range after ticking off the axis of table information to be read Setting range : 0 to 299 X-axis Y-axis XY-axis
<0K>	Reads the selected data from the BFM
<cancel></cancel>	Cancels selecting and closes the dialog box

3 Click <OK>.

FX Configurator-FP reads out the selected data from the 20SSC-H BFM.

 \rightarrow For the displayed messages, refer to Section 7.6.

7.3 Writing [positioning/servo parameters and table information]

Data writing procedures comprise of [Write to module] and [Flash ROM write].

7.3.1 Writing to the BFM

Writing [positioning parameters, servo parameters table information] to the 20SSC-H BFM.

1 Operate any of the following procedures

- Click 🛃 [Write to module].
- $\bullet \quad \text{Select [Online]} \rightarrow [\text{Write to module]}.$

[Write to module] dialog box appears.

2 Select the data to be written.

Write to module			
COM port 1 Transmission	speed 115.2 kbps Mo	dule No. 0	
✓ Positioning parameters	I✓ X-axis I✓ Y-axis		
🔽 Servo parameters	I X-axis I Y-axis		
V Table information	✓ X-axis 0	- 299	
	✓ XY-axis 0	- 299	
✓ Flash ROM write	ОК	Cancel	

ltem	Description
COM port	Displays [COM port] in [Connection setup] dialog box
Transmission speed	Displays [Transmission speed] in [Connection setup] dialog box
Module No.	Displays [Module No.] in [Connection setup] dialog box
Item	Ticks off the data to be read
Positioning parameters	Ticks off the axis of positioning parameters to be writtenX-axisY-axis
Servo parameters	Ticks off the axis of servo parameters to be writtenX-axisY-axis
Table information	 Sets the writing range after ticking off the axis of table information to be written Setting range : 0 to 299 X-axis Y-axis XY-axis
Flash ROM write*1	Ticks off when writing the data selected in [Item] to Flash ROM
<0K>	Writes the selected data to the BFM
<cancel></cancel>	Cancels selecting and closes the dialog box

*1. For the flash ROM write, refer to the following.

3 Click <OK>.

FX Configurator-FP writes the selected data to the 20SSC-H BFM.

 \rightarrow For the displayed messages, refer to Section 7.6.

 \rightarrow For the flash ROM write, refer to Subsection 7.3.2.

10

Edit Functior In data

1

Introduction

2

3

and

Files

5

Data set

6

Setti The Conr

> Data And

7.3.2 Writing to the Flash ROM

Storing [positioning parameters, servo parameters and table information written beforehand in the 20SSC-H BFM] in the Flash ROM. After setting up and adjusting the system, it is handy when storing [positioning parameters, servo parameters and table information] in the BFM.

1 Select [Online] \rightarrow [Flash ROM write].

[Flash ROM write (BFM -> Flash ROM)] appears.

2 Select the data to be stored in the Flash ROM.

Flash ROM write(BFM -> Flash ROM)			
COM port 1 Transmission	n speed 115.2 kbps Module No. 0		
✓ Positioning parameters	🔽 X-axis		
	☑ Y-axis		
🔽 Servo parameters	🔽 X-axis		
	✓ Y-axis		
Table information	🔽 X-axis		
	✓ Y-axis		
	VY-axis		
	OK Cancel		

-			
Item		Description	
COM port		Displays [COM port] in [Connection setup] dialog box	
Transmission speed		Displays [Transmission speed] in [Connection setup] dialog box	
Module No.		Displays [Module No.] in [Connection setup] dialog box	
Item		Ticks off the data to be stored	
	Positioning parameters	Ticks off the axis of positioning parameters to be storedX-axisY-axis	
	Servo parameters	Ticks off the axis of servo parameters to be storedX-axisY-axis	
	Table information	Ticks off the axis of table information to be stored • X-axis • Y-axis • XY-axis	
<0K>		Store the selected data in the BFM	
<cancel></cancel>		Cancels selecting and closes the dialog box	

3 Click <OK>.

FX Configurator-FP stores the selected 20SSC-H BFM data in the Flash ROM.

Caution

While data on the X- or Y-axis cannot be written, data on both the X- and Y-axes cannot be written to the flash ROM.

Wait until data on both the X- and Y-axes can be written, and then write data to the flash ROM.

7.4 Verifying [positioning parameters, servo parameters table information]

Verifying the following FX Configurator-FP data with the 20SSC-H BFM.

- Positioning parameters
- Servo parameters
- Table information

Operate any of the following procedures

- Click 🔠 [Verify module data].
- Select [Online] \rightarrow [Verify module data].

[Verify module data] dialog box appears.

2

1

Select the data to be verified.

Verify module data				
COM port 1 Transmissio	on speed 115	i.2 kbps Module M	lo. 0	
✓ Positioning parameters	✓ X-axis ✓ Y-axis			
Servo parameters	▼ X-axis			
✓ Table information	I♥ Y-axis I♥ X-axis	0 - [299	
	✓ Y-axis✓ XY-axis	0 - 0	299 299	
	[ок	Cancel	

ltem		Description	
СС	DM port	Displays [COM port] in [Connection setup] dialog box	
Tra	ansmission speed	Displays [Transmission speed] in [Connection setup] dialog box	
Module No.		Displays [Module No.] in [Connection setup] dialog box	Proc
Item		Ticks off the data to be verified	edure
	Positioning parameters	Ticks off the axis of positioning parameters to be verifiedX-axisY-axis	U
	Servo parameters	Ticks off the axis of servo parameters to be verifiedX-axisY-axis	Positionin
		Sets the verifying range after ticking off the axis of table information to be verified Setting range : 0 to 299	g
	Table information	 X-axis Y-axis XY-axis 	
<ok> verifies the selected data by FX Configurator-FP and the BFM</ok>		verifies the selected data by FX Configurator-FP and the BFM	
<cancel> Cancels selecting and closes the dialog box</cancel>			

Debug 9 Print

flow

8

1

Introduction

2

3

dow and

4

Creating Files

5

Data set

6

Setting The Connectio

3 Click <OK>.

The verification result of selected data appears.

When the verification result agrees.	When the verification result disagrees.
Verify result	Verify result
Completed the verification.	Completed the verification.
Verify FX3U-20SSC-H	Verify FX3U-20SSC-H
Axis Data name No. Item	Axis Data name No. Item
No difference in data	X Positioning parameters Maximum speed X Positioning parameters ACC time
<	K
Close	Close

ltem	Description	
Verify	Displays the special function unit/block name of verifying destination	
Verification result	Displays the item, axis, No. and error item when completing the verification	
Axis	Displays the disagreed axis by X, Y or XY	
Data name	Displays the positioning parameter, servo parameter or table information as a disagreed data name	
No.	Displays the disagreed table information No. It is blank here when any disagreement in positioning parameters and servo parameters	
Item	Displays the details of the disagreed positioning parameter, servo parameter or table information	
<close></close>	Closes the dialog box	

Initializing the BFM and Flash ROM 7.5

Initializing [positioning parameters, servo parameters and table information] in the 20SSC-H BFM and Flash ROM.

1 Select [Online] \rightarrow [Initialize module].

[Initialize module] dialog box appears.

2 Select the data to be initialized.

Initialize module		
COM port 1 Transmission speed 115.2 kbps Module No. 0		
▼ Positioning parameters ▼ X-axis		
✓ Y-axis		
✓ Servo parameters ✓ X-axis		
✓ Y-axis		
Table information V-axis		
V-axis		
VY-axis		
✓ Flash ROM write OK Cancel		

	ltem	Description	
СО	0M port	Displays [COM port] in [Connection setup] dialog box	6
Tra	insmission speed	Displays [Transmission speed] in [Connection setup] dialog box	
Мо	dule No.	Displays [Module No.] in [Connection setup] dialog box	ne onne
Iter	n	Ticks off the data to be initialized	ction
	Positioning parameters	Ticks off the axis of positioning parameters to be initialized X-axis 	
	3	• Y-axis	7
	Servo parameters	Ticks off the axis of servo parameters to be initializedX-axisY-axis	Data flow And Procedure
	Table information	 Ticks off the axis of table information to be initialized X-axis Y-axis XY-axis 	जू न ए जू न ए
Flash ROM write		Ticks off when initializing the Flash ROM data selected in [Item]	
<0K>		Initializes the selected data	ling
<cancel></cancel>		Cancels selecting and closes the dialog box	

3 Click <OK>.

FX Configurator-FP initializes the selected data in the 20SSC-H BFM.

 \rightarrow For the displayed messages, refer to Section 7.6.

Caution

While data on the X- or Y-axis cannot be initialized, data on both the X- and Y-axes stored in the unit cannot be initialized.

Wait until data on both the X- and Y-axes can be initialized, and then initialize the unit.

5

Data set

9

Print

7.6 Execute system reset of the 20SSC-H

 \rightarrow For more details on system reset details, Refer to the FX3U-20SSC-H User's manual.

1 Operate any of the following procedures

- Click 👸 [System reset].
- Select [Online] → [System reset].

Executing system reset displays the following message.

FX Configurator-FP		
System reset request. Are you sure?		
Yes No		

Click <Yes> to execute system reset.
Click <No> to cancel the operation.

7.7 Sets the servo parameter update stop

Sets the servo parameter update stop valid/invalid at X/Y-axis.

ightarrow For more details on servo parameter update stop details, Refer to the FX3U-20SSC-H User's manual.

1 Select [Online] \rightarrow [Servo parameter update stop].

Servo parameter update stop dialog box appears.

Servo parameter update stop		
X-axis	C Valid (Stop updating)	
- Y-axis	C Valid (Stop updating)	
	OK Cancel	

Item	Description
Servo parameter update stop	 Sets the servo parameter update stop valid/invalid at X/Y-axis. X-axis : Invalid (Allow updating) / Valid (Stop updating) Y-axis : Invalid (Allow updating) / Valid (Stop updating)
<0K>	Changes the servo parameter update stop
<cancel></cancel>	Cancels selecting and closes the dialog box

2 Click <OK>.

The setting of servo parameter update stop is changed to "valid" or "invalid".

7.8 The displayed messages and countermeasures

This section explains the countermeasures for error messages.

	•
Displayed Message	Description
Cannot communicate with the PLC. Execute again after checking the connections with the PLC. <es: code="" error=""></es:>	A communication error has occurred. Check the connection with PLC, and the communication settings at the destination.
The connected PLC dose not support this function. Please execute again after confirming the version of the PLC.	The connected PLC is not supported. Confirm the version of the PLC.
The module which supported this function is not found. Please execute again after confirming the module.	The special function block with assigned module No. is not 20SSC-H. Confirm the module No. and the connection between PLC and 20SSC-H.
It is range over. Check that the value is correct, and execute again.	It is range over.
Because data disagreement has exceeded 100 items, the verify processing is interrupted.	The disagreement in verification has exceeded 100.



Window and Operation

4

Creating Files

1

6

7

9 Print

10 []@

Data flow And Procedure

Debug in the positioning 8.

DESIGN PRECAUTIONS

WARNING

Provide a safety circuit on the outside of the PLC so that the whole system operates to ensure the safety even when external power supply trouble or PLC failure occurs.

Otherwise, malfunctions or output failures may result in an accident.

- 1) An emergency stop circuit, a protection circuit, an interlock circuit for opposite movements, such as normal and reverse rotations, and an interlock circuit for preventing damage to the machine at the upper and lower positioning limits should be configured on the outside of the PLC.
- 2) When the PLC CPU detects an error, such as a watch dog timer error, during self-diagnosis, all outputs are turned off. When an error that cannot be detected by the PLC CPU occurs in an input/output control block, output control may be disabled.

Design external circuits and mechanisms to ensure safe operations of the machine in such a case.

3) When some sort of error occurs in a relay, triac or transistor of the output unit, output may be kept on or off. For output signals that may lead to serious accidents, design external circuits and mechanisms to ensure safe operations of the machine in such cases.

CAUTION

DESIGN PRECAUTIONS

Observe the following items. Failure to do so may cause incorrect data-writing by noise to PLCs and result the PLC failure, machine damage or an accident.

- 1) Do not lay close or bundle with the main circuit line, high-voltage line, or load line. Noise and Surge induction interfere with the system operation. Keep a safe distance of least 100 mm (3.94") from the above lines during wiring.
- 2) Ground the shield wire or shield of a shielded cable at one point on the PLC. However, do not ground at the
- same point as high voltage lines.
- Install in a manner which prevents excessive force from being applied to the built-in connectors dedicated to programming, power connectors and I/O connectors.

Failure to do so may result in wire breakage or failure of the PLC.

INSTALLATION PRECAUTIONS

WARNING

Make sure to cut off all phases of the power supply externally before starting the installation or wiring work. Failure to do so may cause electric shock.

INSTALLATION PRECAUTIONS

CAUTION

- Fit the extension cables, peripheral device connecting cables, input/output cables and battery connecting cable securely to the designated connectors.
- Contact failures may cause malfunctions.
- Make sure to attach the terminal cover offered as an accessory to the product before turning on the power or starting the operation after installation or wiring work.
 - Failure to do so may cause electric shock.



- Click 👜 [All axis stop command].
- Click [Online] \rightarrow [Test] \rightarrow [All axis stop].

Prini

8.1 Monitor

1

8.1.1 Monitoring the operation

Monitoring the operation status along each axis.

Double-click [File name] \rightarrow [Monitor] \rightarrow [Operation monitor] in the file data list.

[Operation monitor] dialog box appears.

👪 Unset file / FX3U	-20SSC-H / Operati	on monitor (module:0)			
Signal	-axis Operation status	Y-axis Operation status	Monitoring	itor Start Monitor Stop	<u> </u>
The present addr	ress	Operation speed present value	READY/BUSY	Torque limit storing value	
X-axis	0 PLS	0 Hz	BUSY	3000 ×0.1 %	
Y-axis	0 PLS	0 Hz	BUSY	3000 ×0.1 %	
- X-axis Pattern		Table No. being executed	Command code		
ACC time(ms)	DEC time(ms)	Error BFM Error code	m code		
ACC time 2(ms)	DEC time 2(ms)				
Y-axis					
Pattern		Table No. being executed	Command code		
ACC time(ms)	DEC time(ms)	Error BFM Error code	m code		
ACC time 2(ms)	DEC time 2(ms)				•

ltem	Description
The present address	Displays the present address of X/Y-axis [Unit : User unit ^{*1}]
Operation speed present value	Displays the operation speed present value along X/Y-axis [Unit : User unit ^{*1}]
READY/BUSY	Displays READY/BUSY status along X/Y-axis READY : Standby BUSY : Active
Torque limit storing value	Displays the value stored in the X/Y-axis torque limit
Pattern	Displays the pattern along X/Y-axis
Table No. being executed	Displays the X/Y-axis table No. in execution It is blank here at other than table operation
Command code	Displays the X/Y-axis command code in table operation It is blank here at other than table operation
ACC time (ms)	Displays the ACC time set in the X/Y-axis positioning parameter
DEC time (ms)	Displays the DEC time set in the X/Y-axis positioning parameter
ACC time 2(ms)	Displays the ACC time 2 set in the X/Y-axis positioning parameter
DEC time2 (ms)	Displays the DEC time 2 set in the X/Y-axis positioning parameter
Error BFM	Displays the error BFM numbers along the X/Y-axis It is blank here with no error

8 Debug in the positioning

8.1 Monitor

1

Creating Files

5

Data set

6

7

8 ² Z Ž the Bulu

> 9 Print

10 Edi

Data flow And Procedure

Setting The Connection

ltem	Description	Intro	
Error code	Displays the X/Y-axis error code Displays 0 with no error	oduction	
m code	Displays the X/Y-axis ON-state m code Displays -1 with no ON-state m code	•	
Flash ROM write count	Displays the writing count to Flash ROM	2	
<signal></signal>	Opens the signal monitor window, available only while monitoring \rightarrow For the signal monitor window, refer to Section 8.1.2		
<x-axis operation="" status=""></x-axis>	Opens the X-axis Operation status monitor window, available only while monitoring \rightarrow For the X-axis Operation status monitor window, refer to 8.1.3	<u>4</u> ; −	
<y-axis operation="" status=""></y-axis>	Opens the Y-axis Operation status monitor window, available only while monitoring \rightarrow For the Y-axis Operation status monitor window, refer to 8.1.3	3	
Monitoring	Displays [Monitoring] when monitoring	Ope	
<monitor start=""></monitor>	Monitor Start> Starts operation monitor, validating [Signal], [X-axis Operation status], [Y-axis Operation status] and [Monitor Stop].		
<monitor stop=""></monitor>	Stops the operation monitor, closing the signal, X/Y-axis operation status monitor widow		
*1. For the user unit and the converted pulse data, refer to the following.			

 \rightarrow Refer to Section 5.1.

2

The operation monitor starts

Click < Monitor Start>.

8.1.2 Signal monitor

Monitoring the status information and servo status information.

1 Double-click [File name] \rightarrow [Monitor] \rightarrow [Operation monitor] \rightarrow [Signal] in the file data list.

[Status signal] tab in [Signal] dialog box appears.

2 Click the status tab to be monitored.

- Click [Status signal] tab to display the status signal.
- Click [Servo status signal] tab to display the servo status signal.

1. Status signal tab

tatus signal Servo status signal		
	X-axis	Y-axis
Unit ready flag	on	on
READY/BUSY flag	off	off
Zero point return completion flag	off	off
Positioning completion flag	off	off
Present value overflow	off	off
Error flag	off	off
Forward rotation pulse outputting flag	off	off
Reverse rotation pulse outputting flag	off	off
Table operation flag	off	off
In m code ON flag	off	off
In remaining distance operation standby flag	off	off
In speed change processing flag	off	off
In target address change processing flag	off	off
In servo parameters transfer flag	off	off
In saving flag	off	off
Initializing flag	off	off
Positioning parameter change completion flag	off	off

Item	Description
Unit ready flag	
READY/BUSY flag	
Zero point return completion flag	
Positioning completion flag	
Present value overflow	
Error flag	
Forward rotation pulse outputting flag	
Reverse rotation pulse outputting flag	Displays each
Table operation flag	along X/Y-axis
In m code ON flag	as follows
In remaining distance drive standby flag	on : ON off : OFF
In speed change processing flag	
In target address change processing flag	
In servo parameter transfer flag	
In saving flag	
Initializing flag	
Positioning parameter change completion flag	

2. Servo status signal tab

Zeroing over off off Zero speed off off Ready ON off off Servo ON off off Alarm off off	off off off	off		ng over	Zeroing ov
Zero speed off off Ready ON off off Servo ON off off Alarm off off	off off	off			
Ready ON off off Servo ON off off Alarm off off	off			Zero speed	
Servo ON Off Off Off		off		y ON	Ready ON
Alarm off off	off	off	Servo ON		
	off	off	Alarm		
In-position off off	off	off		In-position	
Torque control off off	off	off		Torque control	
Absolute position lost off off	off	off		Absolute position lost	
Warning off off	off	off		Warning	

ltem	Description
Zeroing over	
Zero speed	
Ready ON	Displays each
Servo ON	flag status
Alarm	along X/ r-axis
In-position	on : ON
Torque control	off : OFF
Absolute position lost	
Warning	
1 8.1.3 **Operation status monitor** Introduction Monitoring the detailed operation status along X/Y-axis. 1 Double-click [File name] \rightarrow [Monitor] \rightarrow [Operation monitor] \rightarrow [X-axis Opera-2 tion status] / [Y-axis Operation status] in the file data list. [Axis control data] tab in [X/Y-axis Operation status] dialog box appears. 2 Click the tab to be monitored. · Click [Axis control data] tab to display the axis control data. 3 · Click [JOG/MPG] tab to display the JOG/MPG. · Click [Servo monitor] to display the servo monitor and 1. Axis control data tab X-axis Operation status This window displays [X-axis Operation status] dialog box. 4 Axis control data Axis monitor data JOG/MPG Servo monitor 120000 PLS Target address 1 Override setting 1000 Files Operation speed 1 20000 Hz Torque output setting value 100 v0.1.2 Target address 2 250000 PLS Velocity change value 30000 Hz Operation speed 2 25000 Hz Target position change value(address) 400000 PLS Target position change value(speed) Hz 35000 5 Data set Item Description Note Target address1 Displays target address1 [Unit : User unit] **Operation speed1** Displays operation speed1 [Unit : User unit] 6 \rightarrow For [user unit], refer to Section 5.1 Target address2 Displays target address2 [Unit : User unit] Setting The Connection **Operation speed2** Displays operation speed2 [Unit : User unit] Override setting Displays the override setting [Unit : 0.1%] Torque output setting value Displays the torque output setting value [Unit : 0.1%] Velocity change value Displays the Velocity change value [Unit : User unit] 7 Target position change Displays Target position change value (address) \rightarrow For [user unit], refer Data flow And Procedure value (address) [Unit : User unit] to Section 5.1 Target position change Displays Target position change value (speed) [Unit : User unit] value (speed)

8

9 Prini

2. Axis monitor data tab

X-ax	is Operation status	This window displays [X-axis			
Axi	s control data Axis monitor data JDG/MPG Serv	o monitor Operation status dialog box.			
	Real current value monitor Real current address 0 PLS	Received target value monitor Received target address 0 PLS			
	<u> </u>	Received target speed 0 Hz			
Γ	Current address when an interrupt occurs				
	Address at interrupt INTU 0 PLS Address at interrupt INT1 0 PLS				
	Item	Description			
Re	al current value monitor	Displays the Real current value monitor			
	Real current address	Displays the Real current address [Unit : User unit ^{*1}]			
Received target value		Displays the Received target value monitor			
mc	nitor				
	Received target address	Displays the Received target address [Unit : User unit ^{*1}]			
	Received target speed	Displays the Received target speed [Unit : User unit ^{*1}]			
Current address when		In interrupt operation, the current address is stored and displayed when an interrupt			
an interrupt occurs		occurs.			
	Address at interrupt INT0	Displays the address at interrupt INT0. [Unit : User unit ^{*1}]			
	Address at interrupt INT1	Displays the address at interrupt INT1. [Unit : User unit ^{*1}]			

*1. For user units and the converted pulse data, refer to the following.

3. JOG/MPG tab

\rightarrow Refer to Section 5.1.

X-axis Operation status		This window displays [X-axis			
Axis control data Axis monitor dat	Operation status dialog box.				
_JOG		MPG			
Reverse JOG	Forward JOG	Operation status:	Invalid		
L O	(²	NDC insultantian			
		MPG input selection	U:X input - X opr/ Y input - Y opr		
JOG speed	JOG ACC time	MPG input magnification	1 / 1	times	
2000000 Hz	200 ms				
IOC second limit uphus	IOC DEC line	MPG response	10		
	JUG DEC une	ND0 1 1 1	0 0 0		
400000 Hz	200 ms	MPG input present value	V PLS		
Operating using acceler	ation and deceleration time 2	MPG input frequency	0 Hz		
JOG speed 2000000 Hz JOG speed limit value 4000000 Hz Operating using acceler	JOG ACC time 200 ms JOG DEC time 200 ms ation and deceleration time 2	MPG input magnification MPG response MPG input present value MPG input frequency	1 / 1 10 0 PLS 0 Hz	times	

ltem Description JOG Displays the JOG monitor Forward JOG, Reverse Displays the JOG rotation direction JOG JOG speed Displays the JOG speed [Unit : User unit^{*1}] JOG ACC time Displays the JOG ACC time [Unit : ms] JOG speed limit value Displays the JOG speed limit value [Unit : User unit^{*1}] JOG DEC time Displays the JOG DEC time [Unit : ms] Operating using acceleration Indicates operation using acceleration and deceleration time 2. and deceleration time 2 MPG Displays the MPG monitor Operation status Displays the Operation status MPG input selection Displays the MPG input selection MPG input magnification Displays the MPG input magnification MPG response Displays the MPG response Displays the MPG input present value [Unit : PLS] MPG input present value MPG input frequency Displays the MPG input frequency [Unit : Hz]

*1. For user units and the converted pulse data, refer to the following.

\rightarrow Refer to Section 5.1.

1

Introduction

2

3

4

Creating Files

5

Data set

6

Setting The Connection

7

Data flow And Procedure

8

9 Print

10

Edit Functior In data

Debug In the Positioning

Window and Operation Config

Install Uninstall Start&Exit

4. Servo monitor tab

X-axis Operation status		This window displays [X-axis		
X-axis Operation status Axis control data Axis monitor data JOG/MPG Sen Servo status Deviation counter value 20000 PLS Motor revolution speed 500000 x0.1 Motor current value 30000 x0.1	vo monitor t/min Revival load proportion 40 % t/min Execution load proportion 50 % Peak load proportion 80 %	This window displays [X-axis Operation status] dialog box.		
Servo warning code				
ltem	Description			
Servo status	Displays Servo status			
Deviation counter value	Displays the deviation counter value [Unit : PLS]			
Motor revolution number	Displays the motor revolution number [Unit : 0.1r/min]			
Motor current value	Displays the motor current value [Unit : 0.1%]			
Load ratio				
Revival load proportion	Displays the revival load proportion [Unit : %]			
Execution load proportion	Displays the execution load proportion [Unit : %]			
Peak load proportion	Displays the peak load proportion [Unit : %]			
Error/Warning				
Servo parameter error	Displays the servo parameter error			
Servo warning code	Displays the servo warning code			

8.1.4 Monitoring table information

Monitoring the table information in execution, from the table information edit window.

Caution

Monitor mode doesn't allow each item to change. Change/set the value after switching the window into the edit mode.

1 Display the X-axis, Y-axis and XY-axis edit window.

 \rightarrow To display the windows, refer to Section 5.4.

🚼 Uns	Unset file / FX3U-20SSC-H / X-axis Table information (module:0)						
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code	<u> </u>
0	Positioning at 1-step speed	10000	5000000			-1	
1	Positioning at 1-step speed	20000	5000000			-1	
2	Positioning at 1-step speed	30000	5000000			-1	
3	Positioning at 1-step speed	40000	5000000			-1	
4	Positioning at 1-step speed	400000	5000000			-1	
5	Positioning at 1-step speed	500000	5000000			-1	
6	Dwell			100		-1	
	Destates the state second	E0000	E0000000			1	▲

This window displays [X-axis table information edit window].

2 Follow any of the procedures below.

- Click P [Monitor On/Off].
- Select [Online] \rightarrow [Monitor] \rightarrow [Monitor On/Off].

X, Y, XY-axis table information edit window changes into monitor mode.

The items in table information edit window of each axis is the same as those in the table information edit window.

- X or Y-axis table information changes into monitor mode when operating from the X-axis table information or Y-axis table information edit window.
- Only XY-axis table information changes into monitor mode when operating from XY-axis table information edit window.

\rightarrow For table information edit windows, refer to Section 5.4.

<mark>ដ្</mark> ឋ Uns	et file / FX3U-20SSC-H / X-axis 1	able information	on (module:0)	[моніто	R MODE]	Operatio	
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code	<u>^</u>
0	Positioning at 1-step speed	10000	5000000			-1	
1	Positioning at 1-step speed	20000	50000000				
2	Positioning at 1-step speed	30000	50000000			-1	
3	Positioning at 1-step speed	40000	5000000			-1	
4	Positioning at 1-step speed	400000	5000000			-1	
5	Positioning at 1-step speed	500000	5000000			-1	
6	Dwell			100		-1	
7	n	50000	5000000			1	

This window displays [X-axis table information edit window].

ltem	Description
Title bar	Displays X/Y/XY-axis status information Operation Standby Stopped
	Highlights table No. line in execution

1

Introduction

2

3

Window and Operation

4

Creating Files

5

Data set

6

The

8

8.2 Testing the Operation



- Do not touch any terminal while the PLC's power is on.
- Doing so may cause electrical shock or malfunctions.
- Before cleaning or retightening terminals, externally cut off all phases of the power supply.
- Failure to do so may expose you to shock hazard.
- Before modifying the program under operation or performing operation for forcible output, running or stopping, carefully read the manual, and sufficiently ensure the safety.

- An operation error may damage the machine or cause accidents.
- To test Zero-return, JOG operation and Positioning data, throughly read this manual, ensure the safe system operation
- An operation error may damage the machine or cause accidents.

The response, such as the JOG operation, may be slow according to the running state of the personal computer at the time of the test operation. In the test operation, the PLC performance can be slower due to the busy state of personal computer.

- End all other applications running except FX Configurator-FP.
- At destination specification (refer to chapter 6), set the transmission speed at 38.4kbps or higher.

Testing each operation in the position start, Feed present value change, velocity change, zero return, JOG and MPG, switching the 20SSC-H into the test mode while operation monitoring.

8.2.1 Switching into test mode

Switching into FX Configurator-FP into test mode.

1 Follow any of the procedures below.

- Click 🐺 [Test On/Off].
- Select [Online] \rightarrow [Test] \rightarrow [Test On/Off].

FX Configurator-FP switches into test mode.

When switching test mode into monitor mode

- 1) Follow any of the procedures below when switching the test mode into monitor mode.
 - Click 🌄 [Test On/Off].
 - Select [Online] \rightarrow [Test] \rightarrow [Test On/Off].
- 2) FX Configurator-FP starts monitoring

8.2.2 Operation test in the positioning (except JOG/MPG)

Testing the operation in the 20SSC-H positioning (except into JOG/MPG) by test mode. \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1.

1 Follow any of the procedures below when switching the test mode into monitor mode.

- Click >> [Operation test X-axis] / >> [Operation test Y-axis].
- Select [Online] → [Test] → [Operation test] → [Operation test X-axis] / [Operation test Y-axis].

The position start tab in [Operation test X-axis] / [Operation test Y-axis] dialog box appears.

- \rightarrow For Feed present value CHG tab, refer to Subsection 8.2.3.
 - \rightarrow For velocity change tab, refer to Subsection 8.2.4.
 - \rightarrow For zero return tab, refer to Subsection 8.2.5.
 - \rightarrow For JOG/MPG tab, refer to Subsection 8.2.6.

2 Set the items below.



	ltem	Description
Monitor item		Displays present address, Operation speed present value, status information and Error code
	Present address	Displays the present address [Unit : User unit ^{*1}]
	Operation speed present value	Displays the operation speed present value [Unit : User unit ^{*1}]
	READY/BUSY	Displays status information READY : ON BUSY : OFF
	Table No. being executed	Displays X/Y-axis table No. in execution It is blank here at other than table operation
	Error code	Displays error codes Displays 0 with no error

	ltem	Description	∎ 5
X/N		Sets the positioning operation along X/V-axis	trodu
λ	Sync start	Ticks off to start X and Y-axis simultaneously [Operation test X-axis] dialog box displays the check box in the Y-axis item [Operation test Y-axis] dialog box displays the check box in the X-axis item	Laction
		Sets/displays the operation pattern Available in [X-axis operation test] only • Positioning at 1-step speed • Interrupt stop at 1-step speed • Positioning at 2-step speed • Interrupt stop at 2-step speed	2 Install Uninstall Start&Exit
	Patterns	 Interrupt stop Variable speed operation MPG operation*² Linear interpolation*² Linear interpolation(interrupt)*² X-axis table operation (available in [Operation test X-axis] dialog box) Y-axis table operation (available in [Operation test y-axis] dialog box) 	3 Window and Operation Config
	Table operation start No.	 XY-axis table operation^{*2} Reciprocal movement instruction^{*3} Sets the table operation No. to start table operation Setting range : 0 to 299 	4 Creating Files
	Mode selection	Select the mode of interruption Interrupt stop at 1-step speed Rel ring counter INT stop mode Abs ring counter INT stop mode 	5
	Target address1 ^{*4}	Sets the Target address1 Setting range : -2,147,483,648 to 2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648 to 2,147,483,647PLS in the converted pulse data ^{*1}	Data set
	Operation speed1 ^{*4}	Sets the Operation speed1 Set the speed at or below the maximum rotation speed ^{*5} of servo motor Setting range : 1 to Maximum speed[User unit] ^{*1} Set the value within 1 to 50,000,000Hz in the converted pulse data ^{*1}	6 Setting The Connect
	Start using acceleration and deceleration time 2	Starts using with acceleration and deceleration time 2.	tion
	Target address2 ^{*4}	Sets the Target address2 Setting range : -2,147,483,648 to 2,147,483,647 [User unit] ^{*1} Set the value within -2,147,483,648 to 2,147,483,647PLS in the converted pulse data ^{*1}	7 And Proced
	Operation speed2 ^{*4}	Sets the Operation speed2 Set the speed at or below the maximum rotation speed ^{*5} of servo motor Setting range : 1 to Maximum speed[User unit] ^{*1} Set the value within 1 to 50.000.000Hz in the converted pulse data ^{*1}	ure 8
<start></start>		Starts the positioning operation with the pre-set contents	Del Pog
<pre><cancel distance="" operation="" remaining=""></cancel></pre>		Cancels the standby in remaining distance operation, and ends the positioning operation	bug :he sitioning
<a>	ii axis stop>	Stops all axis	
<8		Stops the axis in operation test	9
<close></close>		Cancels the setting, and closes the dialog box	P

*1. For the user unit, refer to the following.

 \rightarrow Refer to Section 5.1.

- *2. Not available when ticking off [Simultaneous start].
- *3. Reciprocal movement instruction is supported in the 20SSC-H Ver.1.10 or later.
- *4. Not available depending on the operation pattern
- *5. For the servo motor rotation speed and the operation speed (converted pulse data), refer to the following.

 \rightarrow Refer to Section 5.1.3.

9 Print

10

Edit Functior In data

3 Click <Start>

20SSC-H starts the table operation with the pre-set contents.

8 Debug in the positioning 8.2 Testing the Operation



Item		Description
Monitor item		Displays present address, Operation speed present value, status information and Error code
	Present address	Displays the present address [Unit : User unit ^{*1}]
	Operation speed present value	Displays the operation speed present value [Unit : User unit ^{*1}]
	READY/BUSY	Displays status information READY: ON BUSY : OFF
	Error code	Displays error codes Displays 0 with no error
Pre	esent value change	Changes the present address to the specified one
	Address	Sets the present address to be changed Setting range : -2,147,483,648 to 2,147,483,647 [User unit] ^{*1}
	<present change="" value=""></present>	Executes the present value change
<all axis="" stop=""></all>		Stops all axis
<stop></stop>		Stops the axis in operation test
<close></close>		Cancels the setting, and closes the dialog box

*1. For the user unit, refer to the following.

 \rightarrow Refer to Section 5.1.

4 Click <Present value change>.

FX Configurator-FP changes the present address to the specified value.

1

8.2.4 Speed change

Changing the operation speed and speed override setting in the following operations, by test mode. \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1. \rightarrow For more details on each operation and the speed override function, refer to the FX3U-20SSC-H

user's manual.

1

Introduction

2

3

dow and

4

Creating Files

5

Data set

6

7

Data tiov And Procedu

Setting The Connection

Function	Applicable operation pattern
Operation speed change	Mechanical zero return (High speed), JOG operation, Positioning at 1-step speed, Interrupt stop at 1-step speed, Positioning at 2-step speed, Interrupt stop at 2-step speed, Interrupt stop, Multi-speed operation, Linear interpolation, Linear interpolation (interrupt), Circular interpolation, Reciprocal movement instruction
Speed override	Mechanical zero return (High speed), JOG operation, Positioning at 1-step speed, Interrupt stop at 1-step speed, Positioning at 2-step speed, Interrupt stop at 2-step speed, Interrupt stop, Variable speed operation, Multi-speed operation, Linear interpolation, Linear interpolation (interrupt), Circular interpolation, Reciprocal movement instruction

Follow any of the procedures below.

- Click >> [Operation test X-axis] / >> [Operation test Y-axis].
- Select [Online] → [Test] → [Operation test] → [Operation test X-axis] / [Operation test Y-axis].

The position start tab in [Operation test X-axis] / [Operation test Y-axis] dialog box appears.

- ightarrow For position start tab, refer to Subsection 8.2.2.
- \rightarrow For Feed present value CHG tab, refer to Subsection 8.2.3.
 - \rightarrow For zero return tab, refer to Subsection 8.2.5.
 - ightarrow For JOG/MPG tab, refer to Subsection 8.2.6.

2 Click [Speed CHG] tab.

The display switches into [Speed CHG] tab.

3 Set each item for [Speed CHG].

C-axis Operation test	This window displays
Position start Feed present value CHG Speed CHG OPR JOG/MPG	[X-axis Operation status]
Monitor item	dialog box.
Present address Operation speed present value	
20000 PLS 3000 Hz	
READY/BUSY BUSY Table No. being executed	
Error code 0 X-axis Y-axis	
Speed CHG	
30000 Hz	
REQ, present value	
Speed override	
1000 ×0.1 %	
REQ. speed override	
All axis ston Ston Close	

8 8

> 9 Prini

Item		Description
Monitor item		Displays present address, Operation speed present value, status information and Error code
	Present address	Displays the present address [Unit : User unit ^{*1}]
	Operation speed present value	Displays the operation speed present value [Unit : User unit ^{*1}]
	READY/BUSY	Displays status information READY: ON BUSY : OFF
	Table No. being executed	Display X/Y-axis table No. in execution This item is blank when using an operation pattern other than table operation
	Error code	Displays error codes Displays 0 with no error
Speed CHG		Changes the speed to the specified one
	Speed change	Sets the Operation speed When setting the speed at or above the maximum speed, the speed is set to the maximum speed. Set the speed at or below the maximum rotation speed ^{*2} of servo motor
		Set the value within 1 to 50,000,000Hz in the converted pulse data
	<req. present="" value<br="">change value></req.>	Executes the speed change
Sp	eed override	Changes the operation speed override setting
	Speed override	Sets the speed override ratio Setting range : 1 to 30000 [×0.1%]
	<req. override="" speed=""></req.>	Executes the speed override change
<a< td=""><td>II axis stop></td><td>Stops all axis</td></a<>	II axis stop>	Stops all axis
<s< td=""><td>top></td><td>Stops the axis in operation test</td></s<>	top>	Stops the axis in operation test
<close></close>		Cancels the setting, and closes the dialog box

*1. For the user unit, refer to the following.

 \rightarrow Refer to Section 5.1.

*2. For the servo motor rotation speed and the operation speed (converted pulse data), refer to the following.

\rightarrow Refer to Section 5.1.3.

4 Click <REQ. present value change value> / <REQ. speed override>.

1. <REQ. present value change value>

FX Configurator-FP changes the operation speed to the specified value.

2. <REQ. speed override>

FX Configurator-FP changes the operation speed at the specified ratio.

8 Debug in the positioning 8.2 Testing the Operation

8.2.5 Zero return

Executing the mechanical zero return by the OPR mode specified in test mode. \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1.

1 Follow any of the procedures below.

- Select [Online] \rightarrow [Test] \rightarrow [Operation test] \rightarrow [Operation test X-axis] / [Operation test Y-axis].

The position start tab in [Operation test X-axis] / [Operation test Y-axis] dialog box appears.

- → For position start tab, refer to Subsection 8.2.2. → For Feed present value CHG tab, refer to Subsection 8.2.3. → For velocity change tab, refer to Subsection 8.2.4.
 - \rightarrow For JOG/MPG tab, refer to Subsection 8.2.6.

2 Click [OPR] tab.

The display switches into [OPR] tab.

Position start Feed present value CHG Speed CHG OPR JOGMPG	[X- dia
Present address Operation speed present value	
0 PLS 0 Hz	
READY/BUSY BUSY	
Error code 0	
OPR type OPR mode DOG DOG	
OPR speed OP address PLS	
REQ. OPR	
All axis stop Stop Close	

This window displays [X-axis Operation status] dialog box.



nstai

3

Window and Operation Config

4

Creating Files

5

Data set

6

Setting The Connection

7

8

9 Print

10

Data tiov And Procedu

1

ltem		Description		
Monitor item		Displays present address, Operation speed present value, status information and Error code		
Present address		Displays the present address [Unit : User unit ^{*1}]		
	Operation speed present value	Displays the operation speed present value [Unit : User unit ^{*1}]		
	READY/BUSY	Displays status information READY: ON BUSY : OFF 		
	Error code	Displays error codes Displays 0 with no error		
OPR type		Displays the machine OPR as an OPR type		
OPR mode		Displays the OPR mode (Displays the OPR mode in the 20SSC-H positioning parameter) • DOG • Data set • Stopper #1 • Stopper #2		
OPR speed		Displays the OPR speed(High speed) stored in the positioning parameter [Unit : User unit ^{*1}]		
OP address		Displays the OP address stored in the positioning parameter [Unit : User unit ^{*1}]		
<req. opr=""></req.>		Executes the mechanical OPR by the specified OPR type		
<all axis="" stop=""></all>		Stops all axis		
<stop></stop>		Stops the axis in operation test		
<close></close>		Cancels the setting, and closes the dialog box		

*1. For the user unit, refer to the following.

 \rightarrow Refer to Section 5.1.

3 Click <REQ. OPR>.

20SSC-H starts the OPR.

1

Introduction

2

3

dow and

4

Creating Files

5

Data set

6

7

hd

8

9 Prini

Settii Conr

Install Uninstall Start&Exi

8.2.6 JOG/MPG

1

Executing the JOG/MPG in test mode, also confirming the following operations, by JOG/MPG in the positioning control debug.

 \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1.

- Forward/Reverse rotation direction
- ON/OFF of the external input signals, i.e. Upper/Lower limit switch, zero signal and near-point DOG. signal
- Operation speed test(JOG only)
- · Correction of Forward/Reverse rotation Backlash
- Travel distance

Follow any of the procedures below.

- Click >> [Operation test X-axis] / >> [Operation test Y-axis].
- Select [Online] → [Test] → [Operation test] → [Operation test X-axis] / [Operation test Y-axis].

The position start tab in [Operation test X-axis] / [Operation test Y-axis] dialog box appears.

 \rightarrow For position start tab, refer to Subsection 8.2.2.

- \rightarrow For Feed present value CHG tab, refer to Subsection 8.2.3.
 - \rightarrow For velocity change tab, refer to Subsection 8.2.4.
 - ightarrow For zero return tab, refer to Subsection 8.2.5.

2 Click [JOG/MPG] tab.

The display switches into [JOG/MPG] tab.

3 Set each item for JOG/MPG.

xis Operation test	This window displays
osition start Feed present value CHG Speed CHG OPR JOG/MPG	dialog box.
Monitor item	
Present address Operation speed present value	
0 PLS 0 Hz	
READY/BUSY BUSY	
Error code 0	
JOG operation	
JOG speed 2000000 Hz	
JOG instruction evaluation time 300 ms	
Start using acceleration and deceleration time 2	
Manual nuise operation	
MPG input selection	
Manual pulse input magnification 1 / 1 times	
MPG response 10	
MPG Enable flag	
All evic ston	
Mill division Stop Close	

ltem	Description		
Monitor item	Displays present address, Operation speed present value, status information and Error code		
Present address	Displays the present address [Unit : User unit ^{*1}]		
Operation speed present value	Displays the operation speed present value [Unit : User unit ^{*1}]		
READY/BUSY	Displays status information READY: ON BUSY : OFF 		
Error code	Displays error codes Displays 0 with no error		
JOG operation	Executes the JOG at the specified JOG speed and JOG instruction evaluation time		
JOG speed	Sets the JOG speed in 20SSC-H positioning parameter Setting range : 1 to Maximum speed [User unit ^{*1}] Set the value within 1 to 50,000,000Hz in the converted pulse data.		
JOG instruction evaluation time	Sets the JOG instruction evaluation time in 20SSC-H positioning parameter Setting range : 0 to 5000ms		
Start using acceleration and deceleration time 2	Starts using with acceleration and deceleration time 2.		
<rvs jog=""></rvs>	Executes reverse JOG while held		
<fwd jog=""></fwd>	Executes forward JOG while held		
Manual pulse operation	Sets the MPG operation		
MPG input selection ^{*2}	Sets the MPG input selection 0: X input - X opr / Y input - Y opr 1: X input / Y opr 2: X input - X and Y opr		
Manual pulse input magnification	Sets the manual pulse input magnification (numerator/denominator) Setting range : (Numerator) 1 to 1,000,000 (Denominator) 1 to 1,000,000		
MPG response	Sets the MPG response Setting range : 1 to 32767		
MPG Enable flag	Enables the MPG operation when ticked off		
<setup></setup>	Sets the MPG Enable flag and manual pulse input magnification (numerator/ denominator)		
<all axis="" stop=""></all>	Stops all axis		
<stop></stop>	Stops the axis in operation test		
<close></close>	Cancels the setting, and closes the dialog box		

*1. For the user unit, refer to the following.

*2. Available at X-axis operation test only.

 \rightarrow Refer to Section 5.1.

4 Click <RVS JOG>, <FWD JOG> or <Setup>.

1. <RVS JOG>

20SSC-H executes the reverse JOG operation at the specified JOG speed and JOG instruction evaluation time.

2. <FWD JOG>

20SSC-H executes the forward JOG operation at the specified JOG speed and JOG instruction evaluation time.

3. <Setup>

FX Configurator-FP sets the MPG Enable flag and manual pulse input magnification (numerator/ denominator).

8.2.7

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8.2.8

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8 Debug in the positioning 8.2 Testing the Operation

1 **Turning OFF m codes** Introduction Turning off the m code while monitor/test mode. \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1. 2 Follow any of the procedures below. • Click [m code off X-axis] / [m code off Y-axis]. • Select [Online] → [Test] → [m code off] → [m code off X-axis] / [m code off Y-axis]. The m code at the selected axis turns OFF. 3 Stopping all axis Window and Operation Stopping all axis while test mode. \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1. Follow any of the procedures below. 4 Files Click <a>[All axis stop command].

• Select [Online] \rightarrow [Test] \rightarrow [All axis stop].

All axis stops.

8.2.9 Error rest

Resetting the errors in monitor/test mode.

ightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1.

1 Follow any of the procedures below.

- Click S [Error reset X-axis] / S [Error reset Y-axis].
- Select [Online] → [Test] → [Error reset] → [Error reset X-axis] / [Error reset Y-axis].

The errors are reset at the selected axis.

5

Data set

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8

9 Prini

Settir Conn

8.2.10 Servo ON/OFF

Executing servo ON/OFF while test mode. By servo ON/OFF, the servo motor turns into the state in the following table. \rightarrow For the procedure to switch into test mode, refer to Subsection 8.2.1.

	The servo motor state
Servo ON	Locks servo motors and turns them into the standby state
Servo OFF	Unlocks servo motors, and also turns OFF the servo motor electromagnetic brake

The execution conditions for servo ON/OFF

Servo ON/OFF is executable when the execution conditions in the following table are fulfilled.

Menu	Operation	Execution conditions	
All axis Servo ON/OFF	Servo ON all axis	 All axis (X and Y-axis) are executable for servo ON 	
	Servo OFF all axis	X or Y-axis are executable for servo OFF	
X-axis servo ON/OFF	Servo ON X-axis	 X-axis status information in 20SSC-H is READY X-axis servo status is READY ON and servo OFF 	
command	Servo OFF X-axis	 X-axis status information in 20SSC-H is READY X-axis servo status is servo ON 	
Y-axis servo ON/OFF	Servo ON Y-axis	 Y-axis status information in 20SSC-H is READY Y-axis servo status is READY ON and servo OFF 	
command	Servo OFF Y-axis	 Y-axis status information in 20SSC-H is READY Y-axis servo status is servo ON 	

- Follow any of the procedures below depending on the content to be executed.
- When executing all axis servo ON/OFF Select [Online] → [Test] → [All axis Servo On/Off].
- When executing servo ON/OFF along the specified axis Select [Online] → [Test] → [Tool] → [X-axis Servo On/Off command] / [X-axis Servo On/Off command]

Note

1

✓ mark appears on the left of the menu items while the servo is ON.

9. Print

9.1 Setting the printer

Setting the printer, paper and orientation.

1 Select \rightarrow [File] \rightarrow [Printer setup].

[Print Setup] dialog box appears.

2 Set each item for the print setup.

 \rightarrow For print setup details, refer to the OS manual to be used. \rightarrow For the printer property, refer to the printer manual to be used.

Pri	int Setup	j	?	×
Г	Printer			
	<u>N</u> ame:	*****	Properties	
	Status:	Ready		
	Туре:	*****		
	Where:	*****		
	Comment:			
Г	Paper		- Orientation	
	Size:	A4 💌	Portrait	
	<u>S</u> ource:	Automatically Select	A C Landscap	e
	Net <u>w</u> ork		OK Cancel	

1

9.2 Printing

9.2.1 Setting the item to print

Printing the positioning parameters, servo parameters and table information.

1 Follow any of the procedures below.

- Click 🞒 [Print].
- Select [File] \rightarrow [Print].

The [Print] dialog box appears.

2 Set the item to print.

[Print] dialog box has [Item specification], [Servo parameters] and [table information] tabs. Click the tab to set.

For [Servo parameters] and [table information] tabs, refer to the following pages.

1. [Item specification] tab

Print				
Item specification Servo parameters Table information				
Axis specification	Print data			
All axis	All item			
C Axis specification	C Item specification			
🔽 X-axis	Positioning parameters			
V-axis	Servo parameters			
💌 XY-axis	V. Table information			
I able information				
Printer setting Print Print preview Close				

ltem	Description
Axis specification	Specifies the axis data to print
All axis	Prints X, Y and XY-axis data
	Prints the ticked axis data X-axis
Axis specification	Y-axisXY-axis
Print data	Specifies the data type to print
All item	Prints [Positioning parameters], [Servo parameters] and [Table information]
Item specification	 Prints the ticked data item Positioning parameters Servo parameters Table information
<printer setting=""></printer>	Displays [Printer setting] dialog box \rightarrow Refer to Section 9.1.
<print></print>	Outputs to printer depending on the specified contents
<print preview=""></print>	Displays the print preview
<close></close>	Closes the dialog box without printing

1

Introduction

7

8

Debug In the Positioning

9 Print

10

Edit Functior In data

Data flow And Procedure

2. [Servo parameters] tab

Print Item specification Servo paramete	ers Table information	troduction
Servo parameters C All item C Item specification V Servo amplifier series		2 Install Uninstall Start&Exit
 Basic setting paramet Gain/filter setting Extension setting parameter I/O setting parameter 	ers ameters s	3 Window and Operation Config
Printer setting Print	Print preview Close Description	4 Creati Files
Servo parameters All item	Specifies the axis data to print Prints X, Y and XY-axis data	Bu
Item specification	 Prints the ticked items Servo amplifier series Basic setting parameters Gain/filter setting Extension setting parameters I/O setting parameters 	5 Data set
<printer setting=""></printer>	Displays [Printer setting] dialog box \rightarrow Refer to Section 9.1.	6
<print></print>	Outputs to printer depending on the specified contents	Con
<print preview=""></print>	Displays the print preview	inecti
<close></close>	Closes the dialog box without printing	9



3. [Table information] tab

Print
Item specification Servo parameters Table information
Table information No
All range
C Range specification
X-axis 0 - 299
Y-axis 0 / 299
XY-axis 0 - 299
Printer setting Print Print preview Close

	ltem	Description	
Table information No.		Specifies the axis data to print	
	All range	Prints all range of the table information	
	Range specification	 Sets the table information printing range for each axis Each axis setting range : 0 to 299 X-axis Y-axis XY-axis XY-axis 	
<p< td=""><td>rinter setting></td><td>Displays [Printer setting] dialog box</td><td>ightarrow Refer to Section 9.1.</td></p<>	rinter setting>	Displays [Printer setting] dialog box	ightarrow Refer to Section 9.1.
<p< td=""><td>Print></td><td>Outputs to printer depending on the specified contents</td><td></td></p<>	Print>	Outputs to printer depending on the specified contents	
<print preview=""></print>		Displays the print preview	
<close></close>		Closes the dialog box without printing	

9.2.2 Printing examples



Parameter nam	•	Data set range	Data
System of units		0: Botor (PLS, Hm) 1: Bechanical (um, cm/min) 2: Mechanical (0.000 linch, inch/min) 3: Bechanical (ndeg, 100 eg/min) 4: Combine d(um, Hm) 5: Combine d(0.000 linch, Hm) 6: Combine d(mdeg, Hm)	0
Pulse rate	Pulse per ro tation		
Feed rate	Travel per r otation		
Position data on	. magnifirati	0:X 1 times 1:X 10 times 2:X 100 times 3:X 1000 times	0
Ring counter	setting	0:Invalid 1:Valid	0
Ding comter	menee linit		

2. Servo parameters printing examples

Parameter name	Data set range	Data
Output signal 1 function s election	0,1,2,3,4,5,6,7,8,9,A,C,F,11	5:MBR
Output signal 2 function s election	0,1,2,3,4,5,6,7,8,9,A,C,F,11	4:INP
Output signal 3 function s election	0,1,2,3,4,5,6,7,8,9,A,C,F,11	3:ALM

3. Table information printing examples

No.	Command code	Address	Speed	Time	Jump No.	m code
0	Positioning at 1-step speed	10000	80000			
1	Positioning at 1-step speed	15000	80000			
2	Positioning at 1-step speed	30000	4000000			
3	Positioning at 1-step speed	4000	20000			
4	Dwell			100		
5	Positioning at 1-step speed	0	400000			
б	End					
7	Positioning at 1-step speed	10000	1			
8	Positioning at 1-step speed	15000	1			
9	Positioning at 1-step speed	30000	1			
10	Positioning at 1-step speed	4000	1			
11	Dwell			100		
12	Positioning at 1-step speed	10000	80000			
13	Positioning at 1-step speed	15000	80000			
14	Positioning at 1-step speed	3000	4000000			
15	Positioning at 1-step speed	4000	20000			
16						

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dow and

4

Creating Files

1

8

9 Print

10

Edit

Debug In the Positioning

Setting The Connection

10. Edit function in data setting

10.1 Cut / Copy / Paste / Select all

Partially cutting/copying/pasting the positioning parameter settings. Also Cutting/copying the value in a table of Microsoft[®] Excel or Word, and pasting the data cut/copied onto the FX Configurator-FP positioning parameters.

10.1.1 Cut/Copy

2

1 Select cells to cut/copy.

Unset file / FX3U-20SSC-H / X-axis Table information (module:0)							
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code	
0	Positioning at 1-step speed	10000	4000			-1	
1	Positioning at 1-step speed	20000	50000			-1	
2	Positioning at 1-step speed	300000	100000			-1	
3	Positioning at 1-step speed	500000	500000			-1	
4	Dwell			100		-1	
5	Positioning at 1-step speed	0	500000			-1	
6	End						
7							
l 0							

Follow any of the procedures below.

- Click 👗 [Cut] / 🗎 [Copy].
- Right-click to select [Cut] / [Copy].
- Select [Edit] \rightarrow [Cut] / [Copy].

🛃 Uns	👪 Unset file / FX3U-20SSC-H / X-axis Table information (module:0)							
No.	Command code	Address (PLS)	Speed [Hz]	Time [10ms]	Jump No.	m code		
0	Positioning at 1-step speed	0	4000			-1		
1	Positioning at 1-step speed	0	50000			-1		
2	Positioning at 1-step speed		100000			-1		
3	Positioning at 1-step speed	500000	500000			-1		
4	Dwell			100		-1		
5	Positioning at 1-step speed	0	500000			-1		
6	End							
7								
0								

Caution on cutting

The selected range is treated as default value.

10.1.2 Paste

1

Select cells to paste.

👪 Unset file / FX3U-20SSC-H / X-axis Table information (module:0)								
No.	Command code	Address (PLS)	Speed [Hz]	Time [10ms]	Jump No.	m code		
0	Positioning at 1-step speed	0	4000			-1		
1	Positioning at 1-step speed	0	50000			-1		
2	Positioning at 1-step speed	0	100000			-1		
3	Positioning at 1-step speed	500000	500000			-1		
4	Dwell			100		-1		
5	Positioning at 1-step speed	0	500000			-1		
6	Positioning at 1-step speed	0	1			-1		
7	Positioning at 1-step speed	0	1			-1		
8	Positioning at 1-step speed	0	1			-1		
9	Positioning at 1-step speed	0	1			-1		
10								
11							\sim	

2 Follow any of the procedures below.

- Click 🛍 [Paste].
- Right-click to select [Paste].
- Select [Edit] \rightarrow [Paste].

👪 Uns	Unset file / FX3U-20SSC-H / X-axis Table information (module:0)							
No.	Command code	Address (PLS)	Speed [Hz]	Time [10ms]	Jump No.	m code		
0	Positioning at 1-step speed	0	4000			-1		
1	Positioning at 1-step speed	0	50000			-1		
2	Positioning at 1-step speed	0	100000			-1		
3	Positioning at 1-step speed	500000	500000			-1		
4	Dwell			100		-1		
5	Positioning at 1-step speed	10000	500000			-1		
6	Positioning at 1-step speed	20000	1			-1		
7	Positioning at 1-step speed	300000	1			-1		
8	Positioning at 1-step speed	0	1			-1		
9	Positioning at 1-step speed	0	1			-1		
10								
11								

10.1.3 Select all

Cutting/copying all range of table information, and pasting. The data items inconsistency between axis disables all-range-paste.

1 Select [Edit] \rightarrow [Select all].

👪 Uns	et file / FX3U-20SSC-H / X-axis 1	able information	on (module:0)				$\mathbf{\times}$
No.	Command code	Address (PLS)	Speed [Hz]	Time [10ms]	Jump No.	m code	
0	Positioning at 1-step speed	10000	4000			-1	
1	Positioning at 1-step speed	20000	50000			-1	
2	Positioning at 1-step speed	300000	100000			-1	
3	Positioning at 1-step speed	500000	500000			-1	
4	Dwell			100		-1	
5	Positioning at 1-step speed	10000	4000			-1	
6	Positioning at 1-step speed	20000	50000			-1	
7	Positioning at 1-step speed	300000	100000			-1	
8	Dwell			100		-1	
9	End						
10							
11							

2 Paste the all range data.

 \rightarrow For the procedure to paste, refer to Section 10.1.2.

10.2 Cursor jump

The cursor jumps to the table information No. specified by the table information edit window.

1 Select [Edit] \rightarrow [Jump].

[JUMP] dialog box appears.

2

Set the destination table information No. in the table information edit window.



ltem	Description
Jump No.	Sets the destination table information No. in the table information edit window Setting range : 0 to 299

The Displayed message

When the value input is out of range, the following message appears.



3 Click <OK>.

The cursor jumps to the table information No. specified by JUMP No.

10.3 Initializing rows/columns

Initializing the rows/columns selected in the table information edit window. Multiple rows/columns are selectable to initialize.

1 Select the part of rows/columns to initialize.

2

Follow any of the procedures below.

- Right-click to select [Clear row] / [Clear column].
- Select [Edit] → [Clear row] / [Clear column].

10.4 Insert row

Insert rows by the number of rows selected on the table information edit window.

1 Select cells to Insert row

👪 Unset file / FX3U-20SSC-H / X-axis Table information (module:0)							
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code	
0	Positioning at 1-step speed	0	4000			-1	
1	Positioning at 1-step speed	0	500000			-1	
2	Positioning at 1-step speed	0	1000000			-1	
3	Positioning at 1-step speed	500000	5000000			-1	
4	Dwell			100		-1	
5	Positioning at 1-step speed	0				-1	
6	Positioning at 1-step speed	0	1			-1	
7	Positioning at 1-step speed	0	1			-1	
8	Positioning at 1-step speed	0	1			-1	
9	Positioning at 1-step speed	0	1			-1	
10							
11							
12							

2 Follow any of the procedures below.

- Right-click to select [Insert row].
- Select [Edit] \rightarrow [Insert row].

👪 Uns	Unset file / FX3U-20SSC-H / X-axis Table information (module:0)							
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code		
0	Positioning at 1-step speed	0	4000			-1		
1	Positioning at 1-step speed	0	500000			-1		
2	Positioning at 1-step speed	0	1000000			-1		
3	Positioning at 1-step speed	500000	5000000			-1		
4	Dwell			100		-1		
5								
6	Positioning at 1-step speed	0	1			-1		
7	Positioning at 1-step speed	0	1			-1		
8	Positioning at 1-step speed	0	1			-1		
9	Positioning at 1-step speed	0	1			-1		
10	Positioning at 1-step speed	0	1			-1		
11								
12							_	

Print

10.5 Delete row

1

Delete rows by the number of rows selected on the table information edit window.

Select cells to Delete row.

👪 Unset file / FX3U-20SSC-H / X-axis Table information (module:0)							
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code	
0	Positioning at 1-step speed	0	4000			-1	
1	Positioning at 1-step speed	0	500000			-1	
2	Positioning at 1-step speed	0	1000000			-1	
3	Positioning at 1-step speed	500000	5000000			-1	
4	Dwell			100		-1	
5							
6	Positioning at 1-step speed	0	1			-1	
7	Positioning at 1-step speed	0	1			-1	
8	Positioning at 1-step speed	0	1			-1	
9	Positioning at 1-step speed	0	1			-1	
10	Positioning at 1-step speed	0	1			-1	
11							
10							\mathbf{M}

2

Follow any of the procedures below.

- Right-click to select [Delete row].
- Select [Edit] \rightarrow [Delete row].

👪 Unset file / FX3U-20SSC-H / X-axis Table information (module:0)								
No.	Command code	Address [PLS]	Speed [Hz]	Time [10ms]	Jump No.	m code		
0	Positioning at 1-step speed	0	4000			-1		
1	Positioning at 1-step speed	0	500000			-1		
2	Positioning at 1-step speed	0	1000000			-1		
3	Positioning at 1-step speed	500000	5000000			-1		
4	Dwell			100		-1		
5	Positioning at 1-step speed	0				-1		
6	Positioning at 1-step speed	0	1			-1		
7	Positioning at 1-step speed	0	1			-1		
8	Positioning at 1-step speed	0	1			-1		
9	Positioning at 1-step speed	0	1			-1		
10								
11								
10							×	

1

Introduction

2

3

ndow and

4

Creating Files

Uninstall Start&Exi

10.6 Initializing data

Initializing the positioning parameters, servo parameters and table information along each axis.



[Initialize data] dialog box appears.

2 Set the data to initialize.

Data initialize 🛛 🛛 🛛
Positioning parameters
T X-axis
Servo parameters
🗖 X-axis 🔲 Y-axis
Table information
🗖 X-axis 🥅 Y-axis 🗖 XY-axis
OK Cancel

		5
ltem	Description	
Positioning Parameters	Initializes the positioning parameters along the ticked axis X-axis Y-axis 	ata set
Servo Parameters	Initializes the servo parameters along the ticked axis X-axis Y-axis 	6
Table Information	 Initializes the table information along the ticked axis X-axis Y-axis XY-axis 	ne onnection

7

8

Data flow And Procedure

MEMO

Warranty

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company. However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

- The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
- 2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
 - a) Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
 - Failure caused by unapproved modifications, etc., to the product by the user.
 - c) When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
 - Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
 - Relay failure or output contact failure caused by usage beyond the specified Life of contact (cycles).
 - f) Failure caused by external irresistible forces such as fires or abnormal voltages, and failure caused by force majeure such as earthquakes, lightning, wind and water damage.
 - g) Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
 - Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

 Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued.

Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user or third person by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

- In using the Mitsubishi MELSEC programmable logic controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable logic controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
- 2) The Mitsubishi programmable logic controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the programmable logic controller applications.

In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation, equipment for recreation and amusement, and safety devices, shall also be excluded from the programmable logic controller range of applications.

However, in certain cases, some applications may be possible, providing the user consults their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

Revised History

Date	Revision	Description
12/2005	A	First Edition
1/2007	В	 Added items for Ver.1.10 Supports FX3U-20SSC-H (Ver.1.10) Ring counter setting was added. Servo parameter transfer mode selection was added. Mode selection added to the Interrupt stop at 1-step speed Reciprocal movement instruction was added. Add the following function of MPG operation. MPG input selection MPG response System Reset was added. Servo parameter update stop was added. New features Insert row / Delete row was added.
7/2007	C	 Added items for Ver.1.20 Supports FX3U-20SSC-H (Ver.1.20) Sudden stop deceleration time was added. Sudden stop interpolation time constant was added. Sudden stop selection was added. Interpolation gear ratio selection was added. Positioning completion signal output waiting time was added. Positioning parameter change completion flag was added. Real current value monitor was added. Received target value monitor was added. Received target address Received target address Received target speed
1/2008	D	 Added items for Ver.1.30 Microsoft[®] Windows Vista[®] added to the applicable Operating Systems of the personal computer. Connection via GOT1000 (GT15, GT11) series transparent mode was added.
9/2009	E	 Added items for Ver.1.40 Servo startup ON/OFF selection was added. In interrupt operation, current address storing and display was added. Acceleration and deceleration time 2 setting is was added.
1/2010	F	Setting range for positioning parameter (Ring counter upper limit value) changed.
2/2011	G	Added items for Ver.1.50 Supports FX3U-20SSC-H (Ver.1.40) • Servo parameter was added. Microsoft [®] Windows [®] 7 32 bit version added to the applicable Operating System of the personal computer.
7/2012	Н	Added items for Ver.1.50 Microsoft [®] Windows [®] 7 64 bit version added to the applicable Operating System of the personal computer. Added items for Ver.1.60 MELSERVO-J4 for MELSERVO series was added.
2/2014	J	 Added items for Ver.1.70 Microsoft[®] Windows[®] 8 and Microsoft[®] Windows[®] 8.1 were added to the applicable Operating System of the personal computer. The start from GX Works2 was added to the starting method. Ethernet directly connect was added.
4/2015	К	A part of the cover design is changed.

FX Configurator-FP

OPERATION MANUAL

MITSUBISHI ELECTRIC CORPORATION

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MODEL	SW-FXSSC-O-E
MODEL CODE	09R916