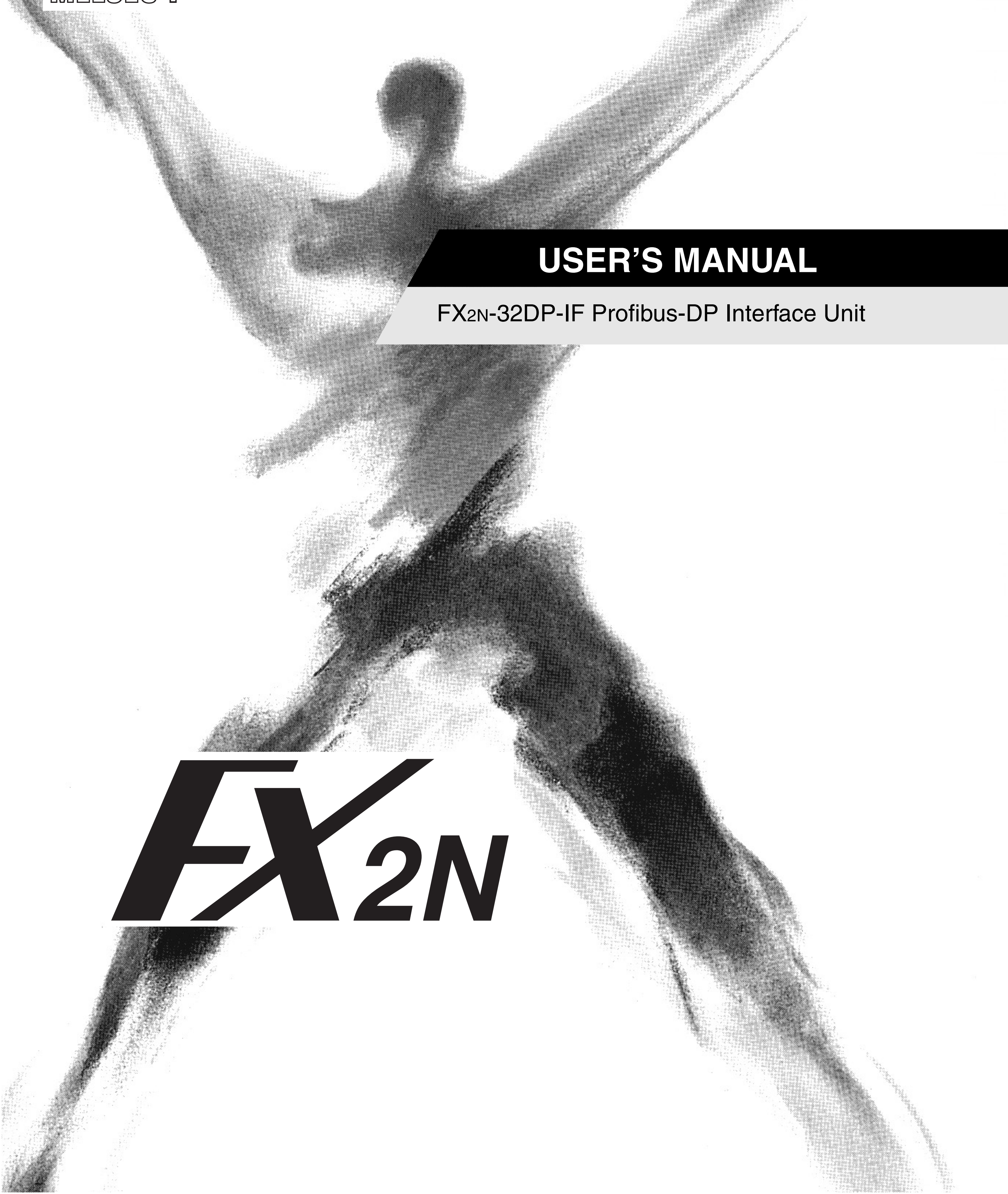
MITSUBISHI ELECTRIC

PROGRAMMABLE CONTROLLERS

MELSEC-F



USER'S MANUAL

FX$_{2N}$-32DP-IF Profibus-DP Interface Unit

FX2N

Foreword

- This manual contains text, diagrams and explanations which will guide the reader in the correct installation and operation of the FX2N-32DP-IF Profibus-DP Interface Unit. It should be read and understood before attempting to install or use the unit.
- Further information can be found in the FX2N Series and FX0/FX0N Series Hardware Manual, manuals for special function units/blocks and Profibus-DP master CPUs.
- If in doubt at any stage during the installation of the FX2N-32DP-IF Profibus-DP Interface Unit always consult a professional electrical engineer who is qualified and trained to the local and national standards.
- If in doubt about operation or use of the FX2N-32DP-IF Profibus-DP Interface Unit please consult your local Mitsubishi Electric representative.
- This manual is subject to change without notice.

FX2N-32DP-IF Profibus-DP Interface Unit

User's Manual

Manual number : JY992D79401

Manual revision : G

Date : April 2015

Guidelines for the Safety of the User and Protection of the FX2N-32DP-IF Profibus-DP Interface Unit.

This manual provides information for the use of the FX2N-32DP-IF Profibus-DP Interface Unit. The manual has been written to be used by trained and competent personnel. The definition of such a person or persons is as follows:

a) 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.

b) 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.

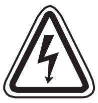
c) All operators of the completed equipment should be trained to use that product in a safe and coordinated manner in compliance to established safety practices. The operators should also be familiar with documentation which is connected with the actual operation of the completed equipment.

Note : the term ‘completed equipment’ refers to a third party constructed device which contains or uses the product associated with this manual.

Notes on the Symbols Used in this Manual

At various times through out this manual certain symbols will be used to highlight points of information which are intended to ensure the users personal safety and protect the integrity of the equipment. Whenever any of the following symbols are encountered its associated note must be read and understood. Each of the symbols used will now be listed with a brief description of its meaning.

Hardware Warnings



1) Indicates that the identified danger **WILL** cause physical and property damage.

2) Indicates that the identified danger could **POSSIBLY** cause physical and property damage.

3) Indicates a point of further interest or further explanation.

Software Warnings

4) Indicates special care must be taken when using this element of software.

5) Indicates a special point which the user of the associate software element should be aware of.

6) Indicates a point of interest or further explanation.

- Under no circumstances will Mitsubishi Electric be liable responsible for any consequential damage that may arise as a result of the installation or use of this equipment.
- All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.
- Please contact your local Mitsubishi Electric representative for more information concerning applications in life critical situations or high reliability.

Registration

The company name and the product name to be described in this manual are the registered trademarks or trademarks of each company.

Table of Contents

1. Introduction

The FX2N-32DP-IF(-D) Profibus-DP Interface Unit (hereafter called “32DP-IF”) can be used to connect FX2N/FX0N series extension blocks/units and special function blocks/units directly to an existing Profibus-DP network.

The 32DP-IF provides an intelligent slave function for decentralized control applications. Digital and analog data from a Profibus-DP master CPU (hereafter called “DP-master”) can be sent and received to/from any of the supported I/O blocks and special function blocks.

1.1 Features of the 32DP-IF

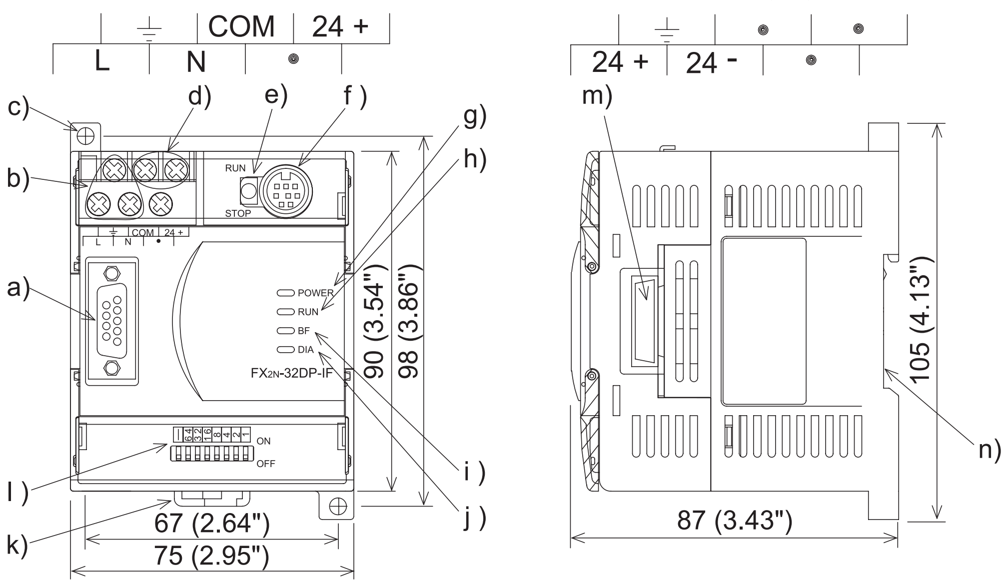
Using the 32DP-IF FX2N/FX0N series extension blocks/units or special function blocks/units can exchange data with any DP-master.

- Up to 256 I/O points and/or up to 8 special function blocks can be connected to the 32DP-IF. However, adjust total control I/O points to 256 or less. See section 1.3.
- The slave address of the 32DP-IF is adjusted by DIP switches. See chapter 6.
- The 32DP-IF can be connected to a Profibus-DP network via a standard 9-pin D-SUB connector and a shielded twisted pair cable complying with EN50170. Optional glassfiber adapters are supported by the 32DP-IF and are available from other vendors.
  See chapter 3.
- An FX-20P-E or personal computer can be used to monitor the status of the 32DP-IF and the data exchanged with the Profibus network. For operating instructions of the FX-20P-E or personal computer, refer to their respective operation manuals and to section 1.3.1. For device numbers and explanation, refer to Chapter 5. For parameter of 32DP-IF.

1.2 External Dimensions and Each Part Name

Dimensions: mm (inches) MASS (Weight): Approx. 0.4 kg (0.88 lbs)

Figure 1.1: External Dimensions



a) Profibus-DP communication port (D-SUB 9 pin)

b) Power supply terminals (screw terminal: M3.5 (0.14"))
FX2N-32DP-IF (AC power supply type): L, N and grounding terminal
FX2N-32DP-IF-D (DC power supply type): 24+, 24- and grounding terminal

c) Direct mounting hole (2-ϕ4.5 (0.18"))

d) 24 V DC power terminal (screw terminal: M3.5 (0.14"))
FX2N-32DP-IF-D does not have this terminal.

e) RUN/STOP switch: When this switch is in the RUN position, the 32DP-IF will exchange data with extension units/blocks and special function blocks. If this switch is in the STOP position, the 32DP-IF will exchange only input data with extension units/blocks.

f) Communication port for FX-20P-E or personal computer

g) POWER LED : ON when power is supplied.

h) RUN LED : ON when 32DP-IF is exchanging data with extension units/blocks and special function blocks.

i) BF LED : ON when a communication error is detected (No data exchange).

j) DIA LED : ON when diagnostic data is detected.

k) Hook for DIN rail mounting

l) DIP switches for slave address of this unit

m) Extension port

n) Groove for DIN rail mounting (DIN rail width: 35 mm (1.38"))

1.2.1 Pin Configuration

The connector is a 9-pin D-SUB type and the pin configuration is shown below.

Figure 1.2: Pin Layout 9-pin D-SUB

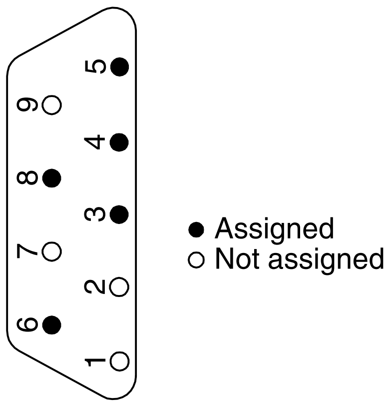
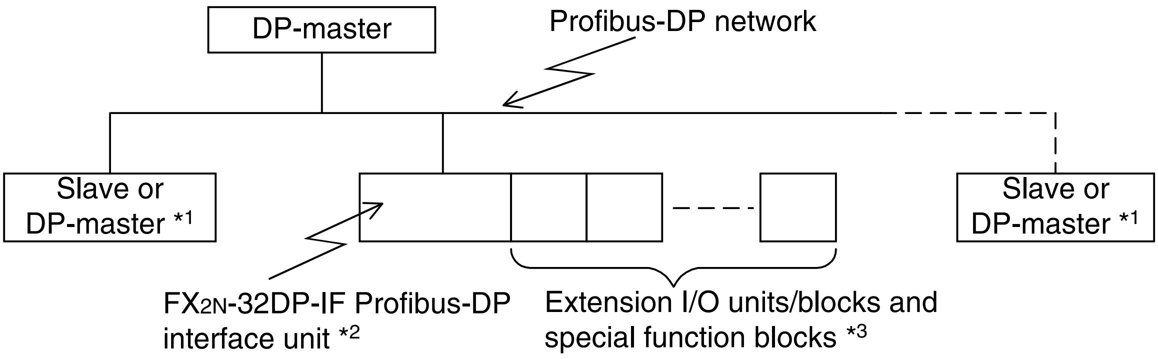


Table 1.1: Pin Configuration

Connector	Signal	Meaning
3	RXD/TXD-P	Receive/transmit-Data-P
4	RTS	Request to send
5	DGND	Data Ground
6	VP	Voltage-Plus
8	RXD/TXD-N	Receive/transmit-Data-N
1,2,7,9	NC	Pin not assigned

1.3 System Configuration

Figure 1.3: System Configuration



*1 The units at each end of the Profibus-DP network must have a terminating resistor. This will either be in the master, slave unit or in the Profibus connector.

*2 For connecting a monitoring tool, refer to subsection 1.3.1

*3 For connecting units/blocks, refer to subsection 1.3.2.

Caution

The parameter data of the 32DP-IF must be set correctly in the DP-master, if the parameter data is not correct, the operation of the module may be affected. For a detailed overview of the parameter of 32DP-IF, refer to chapter 7.

1.3.1 Connected Programming Tools

An FX-20P-E or personal computer can be used to monitor the 32DP-IF and the data exchanged with the Profibus-DP. For operating instructions of the FX-20P-E or personal computer, refer to their respective operation manuals. For device numbers and explanation, refer to chapter 5.

Connecting cable is same as FX2N MPU.

Table 1.2: Connected Programming Tools

Monitoring Tools	Description
FX-20P-E	Device monitor
Personal Computer (MELSEC MEDOC PLUS)	

Caution

For monitoring the 32DP-IF with a personal computer the PLC setting must be adjusted as for the FX series PLC type.

1.3.2 Connected Extension Units/Blocks

The tables below shows extension units/blocks and their data lengths when connected to a 32DP-IF. Data is exchanged between the 32DP-IF and DP-master during every cycle. The maximum amount of data that can be exchanged with the 32DP-IF is total 200 bytes of input data + output data, and user parameter is maximum 193 bytes. Please check the specification of the DP-master, it may limit the total amount of exchanged data.

For the exchange data length, refer to table 1.9.

Table 1.3: Connected Extension Units/Blocks

Items			Description	Supported Version
Extension I/O Units		FX2N-32ER-ES/UL	AC power supply type, Digital DC Input = 16 points, Relay Output = 16 points	Model: V1.00 ~ GSD file[*1]: V1.00 ~
		FX2N-32ET-ESS/UL	AC power supply type, Digital DC Input = 16 points, Transistor Output = 16 points	
		FX2N-48ER-ES/UL	AC power supply type, Digital DC Input = 24 points, Relay Output = 24 points	
		FX2N-48ET-ESS/UL	AC power supply type, Digital DC Input = 24 points, Transistor Output = 24 points	
		FX2N-48ER-UA1/UL	AC power supply type, Digital AC Input = 24 points, Relay Output = 24 points	
		FX2N-48ER-DS	DC power supply type, Digital DC Input = 24 points, Relay Output = 24 points	Model: V2.10 ~ GSD file[*1]: V2.10 ~
		FX2N-48ET-DSS	DC power supply type, Digital DC Input = 24 points, Transistor Output = 24 points	
Extension I/O Blocks	FX2N Series	FX2N-16EX-ES/UL	Digital DC Input = 16 points Output = 0 point	Model: V1.00 ~ GSD file[*1]: V1.00 ~
		FX2N-16EYR-ES/UL	Input = 0 point Relay Output = 16 points	
		FX2N-16EYT-ESS/UL	Input = 0 point Transistor Output = 16 points	
	FX0N Series	FX0N-8EX-UA1/UL	Digital AC Input = 8 points Output = 0 point	
		FX0N-8EX-ES/UL	Digital DC Input = 8 points Output = 0 point	
		FX0N-16EX-ES/UL	Digital DC Input = 16 points Output = 0 point	
		FX0N-8ER-ES/UL[*2]	Digital DC Input = 4 points (8 points)[*2] Relay Output = 4 points (8 points)[*2]	

Table 1.3: Connected Extension Units/Blocks

Items			Description	Supported Version
Extension I/O Blocks	FX0N Series	FX0N-8EYR-ES/UL	Input = 0 point Relay Output = 8 points	Model: V1.00 ~ GSD file*1: V1.00 ~
		FX0N-8EYT-ESS/UL	Input = 0 point Transistor Output = 8 points	
		FX0N-16EYR-ES/UL	Input = 0 point Relay Output = 16 points	
		FX0N-16EYT-ESS/UL	Input = 0 point Transistor Output = 16 points	
Special Function Blocks		FX2N-2DA	2ch digital to analog converter block	Model: V1.10 ~ GSD file*1: V1.10 ~
		FX2N-4DA	4ch digital to analog converter block	Model: V1.00 ~ GSD file*1: V1.00 ~
		FX0N-3A	2ch analog to digital converter and 1ch digital to analog converter block	Model: V1.10 ~ GSD file*1: V1.10 ~
		Fx2N-2AD	2ch analog to digital converter block	
		FX2N-4AD	4ch analog to digital converter block	Model: V1.00 ~ GSD file*1: V1.00 ~
		FX2N-4AD-PT	4ch Pt100 probe interface block	
		FX2N-4AD-TC	4ch Thermo-couple interface block	
Special Function Blocks		FX2N-8AD	8ch analog to digital converter block (voltage input, current input and temperature input)	Model: V2.10 ~ GSD file*1: V2.10 ~
		FX2N-2LC	2ch temperature control block	
		FX2N-1HC	High speed counter block	Model: V1.10 ~ GSD file*1: V1.10 ~
		FX2N-1PG	1 axis simple positioning control block (maximum speed: 100kHz)	Model: V1.10 ~ GSD file*1: V1.10 ~
		FX2N-10PG	1 axis simple positioning control block (maximum speed: 1MHz)	Model: V2.10 ~ GSD file*1: V2.10 ~
		FX2N-10GM	1 axis positioning control unit (maximum speed: 200kHz)	Model: V1.10 ~ GSD file*1: V1.10 ~
		FX2N-20GM	2 axis positioning control unit (maximum speed: 200kHz)	
		FX2N-232IF	No protocol RS-232C communication interface block	
		FX2N-32ASI-M	AS-interface master block	

*1 Please ask your vendor for the GSD files.

*2 FX0N-8ER's Total I/O points is 8 points. However, this block's occupation I/O points is 16 points.

1.3.3 Configuration Rules

1) Total I/O points on the system ≤ 256 points
The 256 I/O maximum point includes all the categories below in addition to the I/O of the extension module.

a) I/O points for the extension I/O units/blocks (including additional occupied points)
Refer to Table 1.7 for I/O point allocation for each extension unit/block.

b) I/O points for the special function units/blocks
A 32DP-IF can connect a Maximum of 8 special function units/blocks.
Refer to Table 1.7 for I/O point allocation for each special function unit/block.

c) I/O points for FX2N-32ASI-M's active slaves

2) Supply 24V DC (total internal and service power supply) and 5V DC to the extension I/O blocks and special function units/blocks from the 32DP-IF or extension I/O unit.
Use the same configuration rules for the FX2N-48ER-UA1/UL, FX2N-48ER-DS and FX2N-48ET-DSS as applies to the FX2N-48ER-ES/UL.
If 24V DC and/or 5V DC is insufficient for the extension I/O units/blocks and special function units/blocks in this rule, the hardware configuration should include a powered extension I/O unit.
For power consumption, refer to Table 1.5 ~ 1.14 and Figure 1.4 ~ 1.7. However, information concerning Table 1.11 ~ 1.14 is same as Figure 1.4 ~1.7.

a) Check the loading on the 5V DC bus supply. Consumption values for special function blocks can be found in Table 1.7. See the Table 1.4 for maximum available current.

b) Check the loading on the internal 24V DC supply for FX0N-3A, FX2N-2AD and FX2N-2DA. Consumption values for these blocks can be found in Table 1.7. See the Table 1.5 for maximum available current.
Use the same configuration limits for the FX2N-48ER-UA1/UL, FX2N-48ER-DS and FX2N-48ET-DSS as applies to the FX2N-48ER-ES/UL.

c) Check the loading on the 24V DC service supply and internal 24V DC supply. Check the number of expansion I/O in Figure 1.4 ~ 1.7 or Table 1.11 ~ 1.14. Find the residual current.
When using the FX2N-2AD, FX2N-2DA or FX0N-3A, 24V DC service power supply must retain the current consumption for those blocks' internal 24V DC supply. (Refer to Table 1.7)
Use the same configuration rules for the FX2N-48ER-UA1/UL, FX2N-48ER-DS and FX2N-48ET-DSS as applies to the FX2N-48ER-ES/UL.

Table 1.4: 24V and 5V DC Supply Capacity

Model	Power Supply	
	Max. 5V DC Bus Supply (mA)	Total 24V DC Service Supply and Internal 24V DC Supply (mA)*1
FX2N-32DP-IF	220	500
FX2N-32DP-IF-D	220	300*2
FX2N-32ER-ES/UL, FX2N-32ET-ESS/UL	690	250
FX2N-48ER-ES/UL, FX2N-48ET-ESS/UL	690	460
FX2N-48ER-UA1/UL	690	0*3
FX2N-48ER-DS, FX2N-48ET-DSS	690	0*3

*1 When using the FX0N-3A, FX2N-2AD or FX2N-2DA, total internal 24V DC supply for those blocks is limited to the values listed in Table 1.5 below.

Table 1.5: Limited Internal 24V DC Supply for FX0N-3A, FX2N-2AD and FX2N-2DA

Model	Limited Internal 24V DC Supply for FX0N-3A, FX2N-2AD and FX2N-2DA (mA)
FX2N-32DP-IF	300
FX2N-32DP-IF-D	190
FX2N-32E*-E**/UL	190
FX2N-48E*-*****	300

*2 The 24V DC power supply capacity for the FX2N-32DP-IF-D is used for only internal 24V DC power source because it does not have a 24V DC service power supply.

*3 Use the same configuration rules for the FX2N-48ER-UA1/UL, FX2N-48ER-DS and FX2N-48ET-DSS as applies to the FX2N-48ER-ES/UL.

3) Total exchange data length ≤ 200 bytes
(or DP master's maximum exchange data length if ≤ 200 bytes)
The following (a, b) exchange data must be a total of 200 bytes (or DP master's maximum exchange data length if ≤ 200 bytes) or less.
For DP-master's maximum exchange data length, please see manual of DP-master.

a) Total exchange data for extension I/O units/blocks.
For exchange data for each extension I/O unit/block, refer to Table 1.9.

b) Total exchange data for special function units/blocks.
For exchange data for each special function unit/block, refer to Table 1.9.

4) Total user parameter length ≤ 193 bytes
(or DP master's maximum user parameter length if ≤ 193 bytes)
The user parameter length must be a total of 200 bytes (or DP master's maximum exchange data length if ≤ 193 bytes) or less. For DP-master's maximum exchange data length, please see manual of DP-master.
There is the global user parameter and special function's parameter in user parameter.
For user parameter for each special function unit/block, refer to Table 1.9.

Table 1.6: User Parameter Length

Item	User parameter length
Global user parameter	2 bytes
User parameter for special function block	For user parameter of special function unit/block, refer to Table 1.9.

Table 1.7: Power Consumption for Special Function Blocks

<table>
<tr><th rowspan="2">Model</th><th colspan="2">Number of I/O points</th><th colspan="3">Power Consumption</th></tr>
<tr><th>Input</th><th>Output</th><th>Internal 5 V DC (mA)</th><th>Internal 24 V DC (mA)</th><th>External 24 V DC (mA)</th></tr>
<tr><td>FX2N-32ER-ES/UL[*1]</td><td rowspan="2">16</td><td rowspan="2">16</td><td rowspan="7">-</td><td rowspan="7">-</td><td rowspan="5">-</td></tr>
<tr><td>FX2N-32ET-ESS/UL[*1]</td></tr>
<tr><td>FX2N-48ER-ES/UL[*1]</td><td rowspan="5">24</td><td rowspan="5">24</td></tr>
<tr><td>FX2N-48ER-UA1/UL[*2]</td></tr>
<tr><td>FX2N-48ET-ESS/UL[*1]</td></tr>
<tr><td>FX2N-48ER-DS[*3]</td><td rowspan="2">1250</td></tr>
<tr><td>FX2N-48ET-DSS[*3]</td></tr>
<tr><td>FX2N-16EX-ES/UL</td><td rowspan="2">16</td><td rowspan="2">-</td><td rowspan="6">-</td><td rowspan="2">-</td><td rowspan="2">100[*4]</td></tr>
<tr><td>FX0N-16EX-ES/UL</td></tr>
<tr><td>FX2N-16EYR-ES/UL</td><td rowspan="4">-</td><td rowspan="4">16</td><td rowspan="4">150</td><td rowspan="4">-</td></tr>
<tr><td>FX0N-16EYR-ES/UL</td></tr>
<tr><td>FX2N-16EYT-ESS/UL</td></tr>
<tr><td>FX0N-16EYT-ESS/UL</td></tr>
<tr><td>FX0N-8EX-ES/UL</td><td rowspan="2">8</td><td rowspan="2">-</td><td rowspan="5">-</td><td>-</td><td>50[*4]</td></tr>
<tr><td>FX0N-8EX-UA1/UL</td><td>50</td><td rowspan="3">-</td></tr>
<tr><td>FX0N-8EYR-ES/UL</td><td rowspan="2">-</td><td rowspan="2">8</td><td rowspan="2">75</td></tr>
<tr><td>FX0N-8EYT-ESS/UL</td></tr>
<tr><td>FX0N-8ER-ES/UL</td><td>4 (8)[*5]</td><td>4 (8)[*5]</td><td>37.5</td><td>25[*4]</td></tr>
<tr><td>FX2N-2DA</td><td colspan="2">8</td><td>30</td><td>85</td><td>-</td></tr>
<tr><td>FX2N-4DA</td><td colspan="2">8</td><td>30</td><td>-</td><td>200</td></tr>
<tr><td>FX0N-3A</td><td colspan="2">8</td><td>30</td><td>90</td><td>-</td></tr>
<tr><td>FX2N-2AD</td><td colspan="2">8</td><td>20</td><td>50</td><td>-</td></tr>
<tr><td>FX2N-4AD</td><td colspan="2">8</td><td>30</td><td>-</td><td>55</td></tr>
<tr><td>FX2N-4AD-PT</td><td colspan="2">8</td><td>30</td><td>-</td><td>50</td></tr>
<tr><td>FX2N-4AD-TC</td><td colspan="2">8</td><td>30</td><td>-</td><td>50</td></tr>
<tr><td>FX2N-8AD</td><td colspan="2">8</td><td>50</td><td>-</td><td>80</td></tr>
<tr><td>FX2N-2LC</td><td colspan="2">8</td><td>70</td><td>-</td><td>55</td></tr>
<tr><td>FX2N-1HC</td><td colspan="2">8</td><td>90</td><td>-</td><td>-</td></tr>
<tr><td>FX2N-1PG</td><td colspan="2">8</td><td>55</td><td>-</td><td>40</td></tr>
<tr><td>FX2N-10PG</td><td colspan="2">8</td><td>120</td><td>-</td><td>*7</td></tr>
<tr><td>FX2N-10GM</td><td colspan="2">8</td><td>-</td><td>-</td><td>5W</td></tr>
<tr><td>FX2N-20GM</td><td colspan="2">8</td><td>-</td><td>-</td><td>10W</td></tr>
<tr><td>FX2N-232IF</td><td colspan="2">8</td><td>40</td><td>-</td><td>80</td></tr>
<tr><td>FX2N-32ASI-M</td><td colspan="2">*6</td><td>150</td><td>-</td><td>*8</td></tr>
</table>

Note:

*1 These extension I/O units can connect to FX2N-32DP-IF (AC power supply type). They cannot connect to FX2N-32DP-IF-D (DC power supply type).

*2 This extension I/O unit can connect to FX2N-32DP-IF-D (DC power supply type). It cannot connect to FX2N-32DP-IF (DC power supply type).

*3 These extension I/O units can connect to FX2N-32DP-IF-D (DC power supply type). They cannot connect to FX2N-32DP-IF (AC power supply type).

*4 When connecting FX2N-32DP-IF or extension I/O unit of AC power supply type (marked "*1" module), those extension input blocks should be supplied from the FX2N-32DP-IF or extension I/O unit (marked "*1" module).
However, when connecting FX2N-32DP-IF-D or extension I/O unit of DC power supply type (marked "*3" module), those extension input blocks should be supplied from same external DC power source as the FX2N-32DP-IF-D or extension I/O unit (marked "*3" module).

*5 FX0N-8ER has 4 DC inputs and 4 Relay outputs. However, this block is counted 8 inputs and 8 outputs when counting total I/O points.

*6 This value = 8 + 8 × (number of active slave)

*7 FX2N-10PG's power consumption for the following terminals is shown below.

Table 1.8: FX2N-10PG's Power Consumption from Extension Power Supply

Terminals		Power Consumption
START		≤ 32 mA / 24V DC
DOG		
X0, X1		
PG0		≤ 20 mA / 3 to 5V DC
VIN	5V DC	≤ 100 mA
	24V DC	≤ 70 mA

*8 An external 24 V DC power supply is not necessary. However, the external power consumption is 70mA from the AS-interface power supply.

Table 1.9: Exchange Data Length

Module Type		Exchange Data Length (Bytes)		
		Input Data	Output Data	User Parameter
FX2N-32ER-ES/UL		2	2	-
FX2N-32ET-ESS/UL				-
FX2N-48ER-ES/UL		3	3	-
FX2N-48ER-UA1/UL				-
FX2N-48ET-ESS/UL				-
FX2N-48ER-DS				-
FX2N-48ET-DSS				-
FX2N-16EX-ES/UL		2	-	-
FX2N-16EYR-ES/UL		-	2	-
FX2N-16EYT-ESS/UL		-	2	-
FX0N-8EX-UA1/UL		1	-	-
FX0N-8EX-ES/UL		1	-	-
FX0N-16EX-ES/UL		2	-	-
FX0N-8ER-ES/UL		1	1	-
FX0N-8EYR-ES/UL		-	1	-
FX0N-8EYT-ESS/UL		-	1	-
FX0N-16EYR-ES/UL		-	2	-
FX0N-16EYT-ESS/UL		-	2	-
FX2N-2DA*1		0	4	4
FX2N-4DA*1	Extended configuration *2	0	8	50
	Short configuration*2			14
FX0N-3A*1		4	4	4
Fx2N-2AD*1		4	0	4
FX2N-4AD*1	Extended configuration*2	8	0	41
	Short configuration*2			11
FX2N-4AD-PT*1	Extended configuration*2	10	0	24
	Short configuration*2			12
FX2N-4AD-TC*1	Extended configuration*2	10	0	30
	Short configuration*2			18
FX2N-8AD*1		20	0	47
FX2N-2LC*1		6	6	70

Table 1.9: Exchange Data Length

Module Type		Exchange Data Length (Bytes)		
		Input Data	Output Data	User Parameter
FX2N-1HC*1	Extended configuration*2	4	4	41
	Short configuration*2	16	16	35
FX2N-1PG*1		18	18	70
FX2N-10PG*1		20	20	78
	6 W-IF	12	12	58
FX2N-10GM*1		12	12	4
FX2N-20GM*1		12	12	4
FX2N-232IF*1		6	6	46
FX2N-32ASI-M*1		26	26	33

*1 These special function blocks can exchange data with a DP-master by the simple communication interface*2. The exchanged data length in simple communication interface mode is shown in the Table 1.10. For a detailed description of the simple communication interface, refer to chapter 6.

Table 1.10: Exchange Data Length by Simple Communication Interface

Simple Communication Interface Type	Exchange Data Length (Bytes)		
	Input Data	Output Data	User Parameter
3 words interface	6	6	4
6 words interface	12	12	4
9 words interface	18	18	4
12 words interface	24	24	4
15 words interface	30	30	4

*2 The extended configuration, short configuration and simple communication interface are name of the user parameter type for each extension units/blocks on the GX-Configurator-DP (or ProfiMap) application.

Figure 1.4: 24V DC Service Supply Capacity After Connecting Extra I/O to FX2N-32DP-IF <AC Power Supply Type> (mA)

Number of additional output (points)										
> 32										
32	200	150	100	50	0		Invalid configuration			
24	275	225	175	125	75	25				
16[*1]	350	300	250[*1]	200	150	100	50	0		
8	425	375	325	275	225	175	125	75	25	
0	500	450	400	350	300	250	200	150	100	
	0	8	16[*1]	24	32	40	48	56	64	> 64

Number of additional input (points)

*1 For example; when connecting an FX2N-16EX and an FX2N-16EYR to the FX2N-32DP-IF, 24V DC service power supply capacity is 250mA.

Figure 1.5: 24V DC Service Supply Capacity After Connecting Extra I/O to FX2N-32DP-IF-D <DC Power Supply Type> (mA)

Number of additional output (points)								
> 32								
32	0				Invalid configuration			
24	75	25						
16	150	100	50	0				
8	225	175	125	75	25			
0	300	250	200	150	100	50	0	
	0	8	16	24	32	40	48	> 56

Number of additional input (points)

Figure 1.6: 24V DC Service Supply Capacity After Connecting Extra I/O to FX2N-32E*-/UL (mA)***

Number of additional output (points)						
> 24						
24	25		Invalid configuration			
16	100	50	0			
8	175	125	75	25		
0	250	200	150	100	50	
	0	8	16	24	32	> 32

Number of additional input (points)

Figure 1.7: 24V DC Service Supply Capacity After Connecting Extra I/O to FX2N-48E*-*** (mA)***

Number of additional output (points) / **Number of additional input (points)**

	0	8	16	24	32	40	48	56	64	> 64
> 48										
48	10									
40	85	35				**Invalid configuration**				
32	160	110	60	10						
24	235	185	135	85	35					
16	310	260	210	160	110	60	10			
8	385	335	285	235	185	135	85	35		
0	460	410	360	310	260	210	160	110	60	

Table 1.11: Connecting Extension I/O Blocks to the FX2N-32DP-IF <AC Power Supply Type>

Extension I/O Block			Possible use Service Power Supply (mA)
Total I/O	Input	Output	
0	0	0	500
8	0	8	425
	4	4	437
	8	0	450
16	0	16	350
	4	12	362
	8	8	375
	12	4	387
	16	0	400
24	0	24	275
	4	20	287
	8	16	300
	12	12	312
	16	8	325
	20	4	337
	24	0	350
32	0	32	200
	4	28	212
	8	24	225
	12	20	237
	16*1	16*1	250*1
	20	12	262
	24	8	275
	28	4	287
	32	0	300
40	8	32	150
	12	28	162
	16	24	175
	20	20	187
	24	16	200
	28	12	212
	32	8	225

Extension I/O Block			Service Power Supply (mA)
Total I/O	Input	Output	
40	36	4	237
	40	0	250
48	16	32	100
	20	28	112
	24	24	125
	28	20	137
	32	16	150
	36	12	162
	40	8	175
	44	4	187
	48	0	200
56	24	32	50
	28	28	62
	32	24	75
	36	20	87
	40	16	100
	44	12	112
	48	8	125
	52	4	137
	56	0	150
64	32	32	0
	36	28	12
	40	24	25
	44	20	37
	48	16	50
	52	12	62
	56	8	75
	60	4	87
	64	0	100
72	56	16	0
	60	12	12
	64	8	25

*1 For example; when connecting an FX2N-16EX and an FX2N-16EYR to the FX2N-32DP-IF, the 24V DC service power supply capacity is 250mA.

Table 1.12: Connecting Extension I/O Blocks to the FX2N-32DP-IF-D <DC Power Supply Type>

Extension I/O Block			Possible use Internal Power Supply (mA)
Total I/O	**Input**	**Output**	
0	0	0	300
8	0	8	225
	4	4	237
	8	0	250
16	0	16	150
	4	12	162
	8	8	175
	12	4	187
	16	0	200
24	0	24	75
	4	20	87
	8	16	100
	12	12	112
	16	8	125
	20	4	137
	24	0	150
32	0	32	0
	4	28	12
	8	24	25
	12	20	37
	16	16	50
	20	12	62
	24	8	75
	28	4	87
	32	0	100
40	24	16	0
	28	12	12
	32	8	25
	36	4	37
	40	0	50
48	48	0	0

Table 1.13: Connecting Extension I/O Blocks to the FX2N-48E*-***

Extension I/O Block			Possible use Service Power Supply *1 (mA)
Total I/O	Input	Output	
0	0	0	460
8	0	8	385
	4	4	397
	8	0	410
16	0	16	310
	4	12	322
	8	8	335
	12	4	347
	16	0	360
24	0	24	235
	4	20	247
	8	16	260
	12	12	272
	16	8	285
	20	4	297
	24	0	310
32	0	32	160
	4	28	172
	8	24	185
	12	20	197
	16	16	210
	20	12	222
	24	8	235
	28	4	247
	32	0	260
40	0	40	85
	4	36	97
	8	32	110
	12	28	122
	16	24	135
	20	20	147
	24	16	160

Extension I/O Block			Service Power Supply *1 (mA)
Total I/O	Input	Output	
40	28	12	172
	32	8	185
	36	4	197
	40	0	210
48	0	48	10
	4	44	22
	8	40	35
	12	36	47
	16	32	60
	20	28	72
	24	24	85
	28	20	97
	32	16	110
	36	12	122
	40	8	135
	44	4	147
	48	0	160
56	24	32	10
	28	28	22
	32	24	35
	36	20	47
	40	16	60
	44	12	72
	48	8	85
	52	4	97
	56	0	110
64	48	16	10
	52	12	22
	56	8	35
	60	4	47
	64	0	60

*1 Using an FX2N-48ER-UA1/UL, FX2N-48ER-DS and FX2N-48ET-DSS, the is possible to use only internal 24V DC power source because it does not have a 24V DC service power supply.

Table 1.14: Connecting Extension I/O Blocks to the FX2N-32E*-*/UL**

Extension I/O Block			Possible use Service Power Supply (mA)
Total I/O	Input	Output	
0	0	0	250
8	0	8	175
	4	4	187
	8	0	200
16	0	16	100
	4	12	112
	8	8	125
	12	4	137
	16	0	150
24	0	24	25
	4	20	37
	8	16	50
	12	12	62
	16	8	75
	20	4	87
	24	0	100
32	16	16	0
	20	12	12
	24	8	25
	28	4	37
	32	0	50

1.3.4 Example Configuration

Further information for configuration rules can be found in section 1.3.3.

Table 1.15: Specifications of Example Configuration

Item	Description
Digital DC input	64 points
Relay output	40 points
12 bit analog input	1 channel
12 bit analog output	3 channels

1) Check total I/O points.
   See Table 1.16 for the calculation.
   This example configuration does not have a problem about total I/O points.

Table 1.16: Check Total I/O Points

Check Points	Result
I/O points for the extension I/O units/blocks	104 points (64 + 40)
Occupation I/O points for special function units/blocks	16 points (8 + 8)
I/O points for FX2N-32ASI-M's active slaves	0 points
Total I/O Points	**124 Points ≤ 256 points**

2) Check power consumption of the 24V DC and 5V DC power supply

a) Check 5V DC power consumption for special function units/blocks.
See Table 1.17 for the calculation.
This example configuration does not have a problem concerning 5V DC power consumption.
For 5V DC power consumption of each special function unit/block, refer to table 1.4 and 1.7

Table 1.17: Check 5V DC Power Consumption

Specifications	Module	5V DC Power Consumption (mA)
12 bit analog input × 1 channel	FX2N-2AD	20
12 bit analog output × 3 channels	FX2N-4DA	30
Total Power Consumption		**50 mA ≤ 220 mA**

b) Check internal 24V DC power consumption for the FX0N-3A, FX2N-2AD and FX2N-2DA.
See Table 1.18 for the calculation.
This example configuration does not have a problem concerning 24V DC power consumption for the FX0N-3A, FX2N-2AD and FX2N-2DA.
For 24V DC power consumption of the FX0N-3A, FX2N-2AD and FX2N-2DA, refer to table 1.5 and 1.7

Table 1.18: Check Internal 24V DC Power Consumption for FX0N-3A, FX2N-2AD and FX2N-2DA

Module	Number of Blocks	24V DC power consumption (mA)
FX0N-3A	Not used	0
FX2N-2AD	1	50
FX2N-2DA	Not used	0
Total Power Consumption		**50 mA ≤ 300 mA**

c) Check 24V DC power consumption for connecting extension I/O blocks to 32DP-IF.
When checking this configuration, it is necessary to consider the following points.

- The 24V DC service power supply of the FX2N-32DP-IF must retain ***50mA*** for FX2N-2AD's internal 24V DC power supply.
- It is necessary to use the extension I/O unit for connecting to FX2N-32DP-IF as understood from Table 1.11. (Input: 64 points, Relay Output: 40 points)

For the 2 configurations (Figure 1.8 and 1.9) consider these points.
For 24V DC power consumption of each extension I/O block, refer to table 1.11 ~ 1.14 or Figure 1.4 ~1.7.

Figure 1.8: Example Configuration Case 1

FX2N-32DP-IF	FX2N-2AD	FX2N-4DA	FX2N-16EX	FX2N-16EX	FX2N-16EYR	FX0N-8EYR	FX2N-32ER-ES/UL	FX2N-16EX

Table 1.19: 24V DC Power Consumption for Example Configuration Case 1

Units		**I/O Points**		
32DP-IF Module	**Connected Extension I/O Units/Blocks**	**Input**	**Relay Output**	**Transistor Output**
FX2N-32DP-IF		0	0	0
	FX2N-16EX	16	0	0
	FX2N-16EX	16	0	0
	FX2N-16EYR	0	16	0
	FX0N-8EYR	0	8	0
	Total I/O points for connecting to FX2N-32DP-IF	**32**	**24**	**0**
	24V DC power consumption for FX2N-32DP-IF	**When checking on Figure 1.4 or Table 1.11, 75 mA can be used for the FX2N-2AD (50 mA) and service power supply (25 mA).**		
	FX2N-32ER-ES/UL	16	16	0
	FX2N-16EX	16	0	0
	Total I/O points for connecting to FX2N-32ER-ES/UL	**32**	**16**	**0**
	24V DC power consumption for FX2N-32ER-ES/UL	**When checking on Figure 1.6 or Table 1.14, 150 mA can be used for the service power supply.**		
Total I/O points for this example configuration		**64**	**40**	**0**

Figure 1.9: Example Configuration Case 2

FX2N-32DP-IF	FX2N-2AD	FX2N-4DA	FX2N-16EX	FX2N-16EX	FX2N-16EX	FX2N-16EYR	FX2N-32ER-ES/UL	FX0N-8EYR

Table 1.20: 24V DC Power Consumption for Example Configuration Case 2

Units		**I/O Points**		
32DP-IF/ Connected Extension I/O units	**Connected Extension I/O Blocks**	**Input**	**Relay Output**	**Transistor Output**
FX2N-32DP-IF		0	0	0
	FX2N-16EX	16	0	0
	FX2N-16EX	16	0	0
	FX2N-16EX	16	0	0
	FX2N-16EYR	0	16	0
	Total I/O points for connecting to FX2N-32DP-IF	**48**	**16**	**0**
	24V DC power consumption for FX2N-32DP-IF	**When checking on Figure 1.4 or Table 1.11, 50 mA can be used for the FX2N-2AD.**		
	FX2N-32ER-ES/UL	16	16	0
	FX0N-8EYR	0	8	0
	Total I/O points for connecting to FX2N-32ER-ES/UL	**16**	**24**	**0**
	24V DC power consumption for FX2N-32ER-ES/UL	**When checking on Figure 1.6 or Table 1.14, 175 mA can be used for the service power supply.**		
Total I/O points for this example configuration		**64**	**40**	**0**

3) Check exchange data length
See Table 1.13 for the calculation.
This example configuration does not have a problem concerning total exchange data length.
For exchange data length of each unit/block, refer to table 1.9.

Table 1.21: Check Exchange Data Length

Check Points	Result (bytes)
Exchange data length for extension I/O units/blocks	13 (4 + 2 $\times$ 3 + 2 + 1 = 13, refer to table 1.9)
Exchange data length for special function units/blocks	12 (4 + 8, refer to table 1.9)
Total exchange data length	25 bytes $\leq$ 200 bytes

4) Check user parameter length
See Table 1.22 for the calculation.
This example configuration does not have a problem concerning total user parameter length.
For exchange data length of each unit/block, refer to table 1.6 and 1.9.

Table 1.22: Check User Parameter Length

Check Points		Result (bytes)	
		Using short configuration	Using extended configuration
User parameter for global		2 (Refer to Table 1.6)	2 (Refer to Table 1.6)
User parameter length for special function units/blocks	FX2N-2DA	4 (Refer to Table 1.9)	4 (Refer to Table 1.9)
	FX2N-4DA	14 (Refer to Table 1.9)	50 (refer to Table 1.9)
Total exchange data length		20 bytes $\leq$ 193 bytes	56 bytes $\leq$ 193 bytes

2. Mounting

2.1 Mounting Arrangements

To prevent a rise in temperature, mount the units to the back walls. Never mount them to the floor, ceiling or side wall of an enclosure.

Figure 2.1: Mounting Location

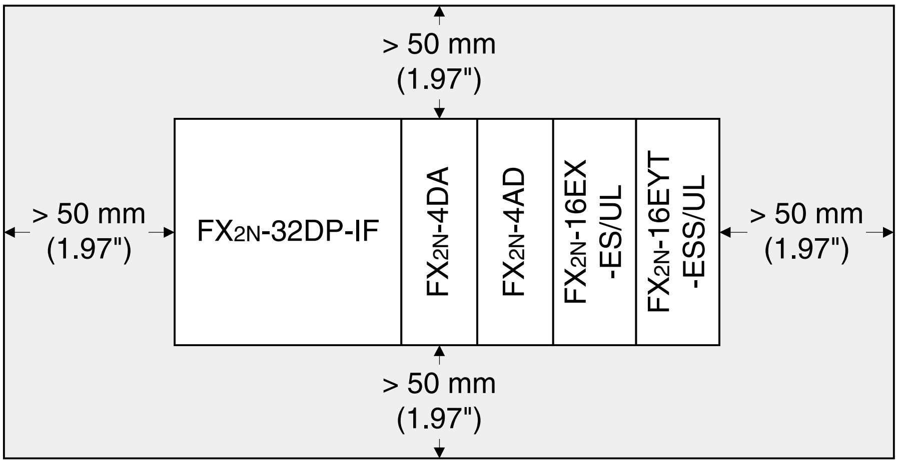
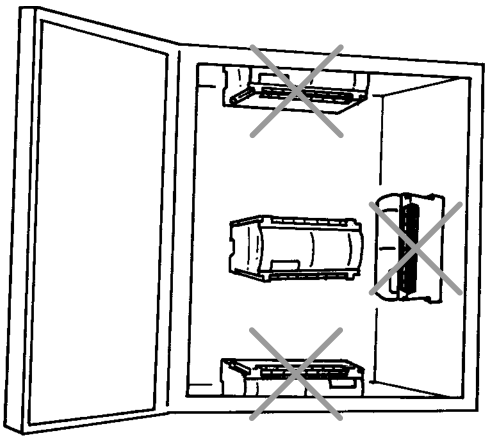


Figure 2.2: Mounting Arrangement



2.2 Mounting

Mounting method for the 32DP-IF is DIN rail mounting or direct wall mounting.

2.2.1 DIN Rail Mounting

- Align the upper side of the DIN rail mounting groove of the 32DP-IF with a DIN rail*1 (①), and push it on the DIN rail(②). See Figure 2.3.
- When removing the 32DP-IF from the DIN rail, the hook for DIN rail is pulled (③), and the 32DP-IF is removed (④). See Figure 2.4.

Figure 2.3: Attach to DIN Rail

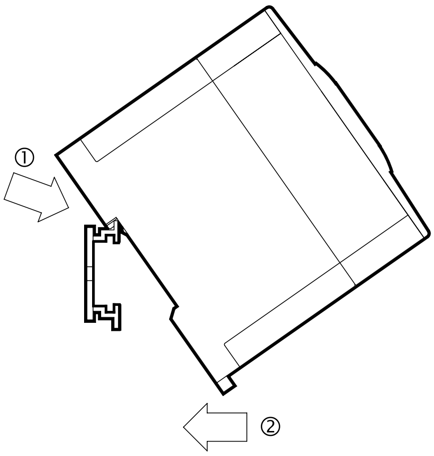
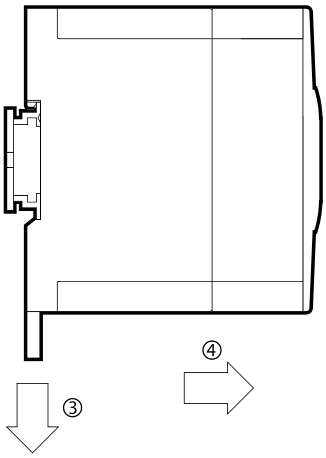


Figure 2.4: Remove from DIN Rail



*1 Uses DIN 46277 <35mm (1.38")>

2.2.2 Direct Mounting to Back Walls

The 32DP-IF can be mounted with M4 screws by using the direct mounting holes.
An interval space between each unit of 1 ~ 2 mm is necessary.
For mounting hole position of 32DP-IF, refer to section 1.2. Further information about extension I/O units/blocks can be found in the FX2N Hardware Manual. Further information about special function units/blocks can be found in each manual.

3. Wiring

3.1 Caution for Wiring

1) Do not lay signal cable near to either high voltage power cabling or cabinet housing along the same trunking duct. Effects of noise or surge induction may occur. Keep signal cables of more than 100 mm (3.94") from these power cables.
2) Ground the shield wire or the shield of a cable at one point on the module. Do not, however, ground at the same point as high voltage lines.
3) Cut off all phases of power source before installation or performing wiring work in order to avoid electric shock or damage to the product.
4) Replace the provided terminal cover before supplying power and operating the unit after installation or wiring work, in order to avoid electric shock.
5) To connect the 32DP-IF to a Profibus-DP network should be used only the Profibus connectors and shielded twisted-pair cable complying with EN50170.
6) The power supply of the extension units/blocks and the special function units/blocks should be starting-up at the same time or earlier than it with 32DP-IF.
7) DO NOT use “●” terminal in 32DP-IF.
8) “24+” and “24-” terminal are not reversible.
   If “24+” and “24-” terminal are reversed, the units/block may be serious damaged.
9) The terminal tightening torque is 0.5 to 0.8 N•m.
   Do not tighten terminal screws with a torque outside the above-mentioned range. Failure to do so may cause equipment failures or malfunctions.

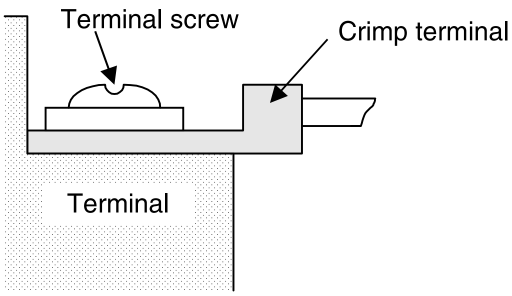
10) The terminal screws of FX2N-32DP-IF is M3.5 (0.14"). However, the terminal screws of the FX0N, FX2N Series extension I/O units/blocks and special function units/blocks are M3 (0.12"). The crimp style terminal (see drawing) suitable for use with these screws should be fitted to the cable for wiring.
When installing 1 or 2 crimp terminal to a terminal, see each explanation below. However, 3 crimp terminals or more cannot be installed to a single terminal.

a) Handle the crimp terminal of the following size as and when 1 wire is used per terminal. Refer to Figure 3.3 for installation instructions.

Figure 3.1: Crimp Terminal for M3.5 Screws

Figure 3.2: Crimp Terminal for M3 Screws

Figure 3.3: Installing 1 wire Per Terminal



b) Handle the crimp terminal of the following size as and when 2 wires are used per terminal. Refer to Figure 3.6 for installation instructions.

Figure 3.4: Crimp Terminal for M3.5 Screws

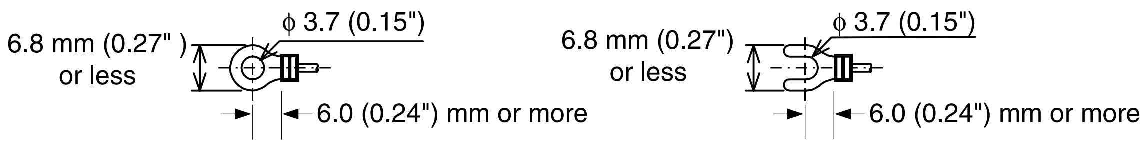


Figure 3.5: Crimp Terminal for M3 Screws

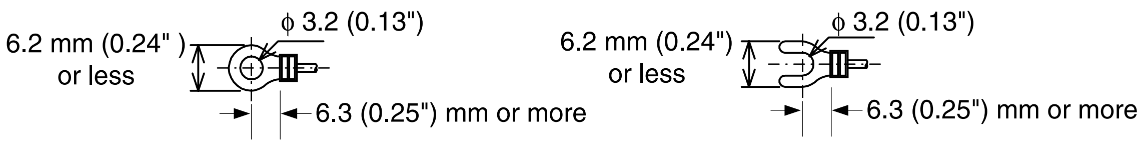
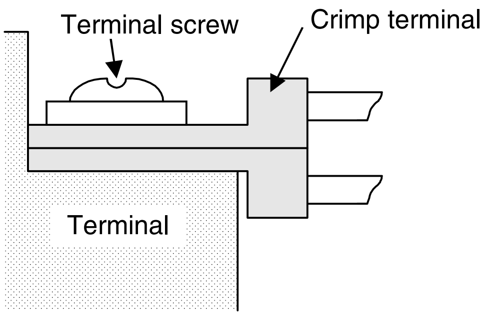


Figure 3.6: Installing 2 Wires Per Terminal



3.2 Power Supply

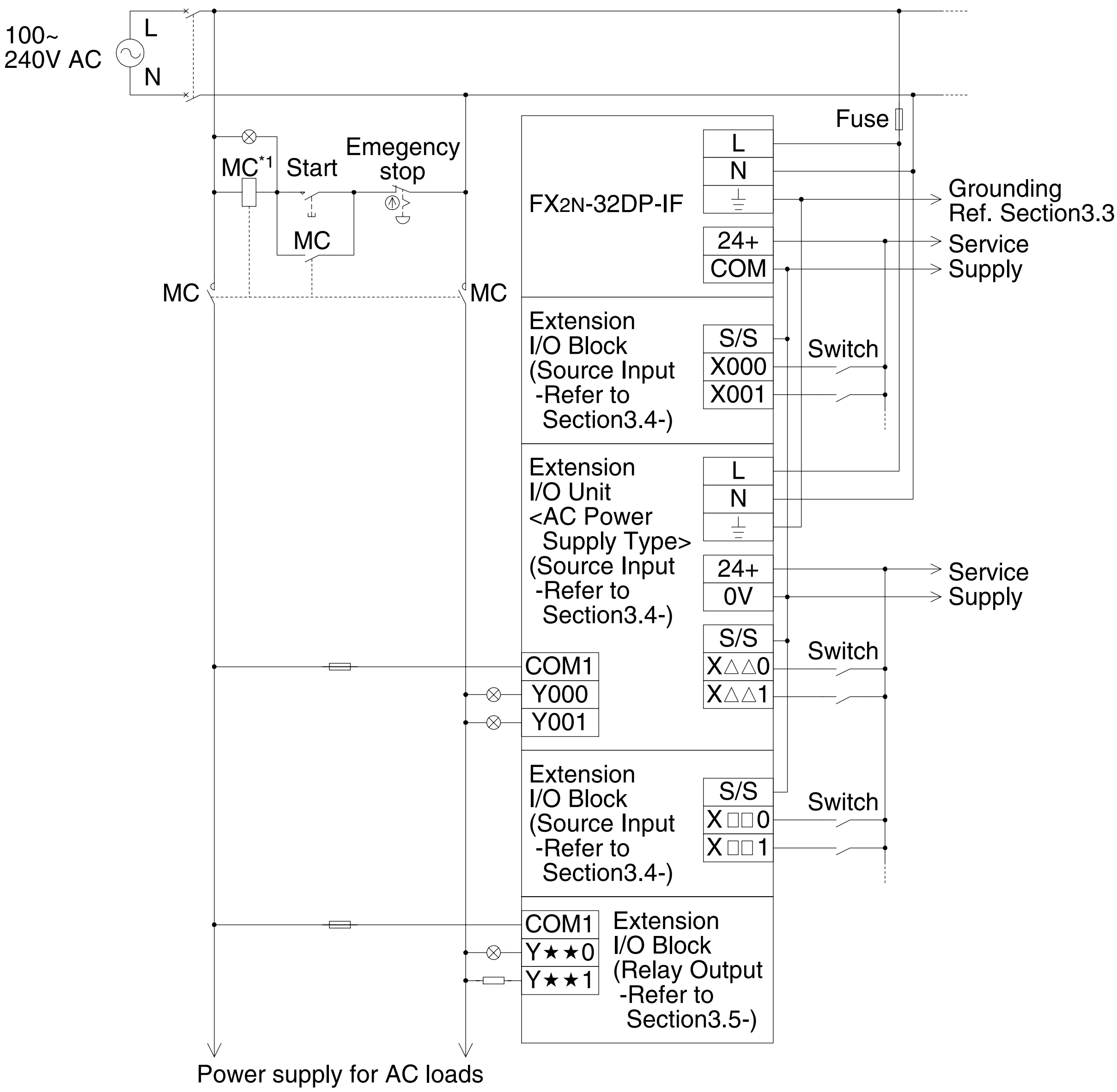
Further information for the extension unit's wiring can be found in the FX2N Series Hardware Manual. Further information for special function units/blocks can be found in their respective manual. For wiring of grounding, refer to Section 3.3.

3.2.1 AC Power Supply Type: FX2N-32DP-IF

When wiring a 32DP-IF and extension I/O units/blocks, the connection method is identical to an FX2N series PLC. Further information can be found in the FX2N-32DP-ID User's Manual and FX2N Series Hardware Manual.

- Supply both FX2N-32DP-IF-D and extension I/O units from the same AC power source.
- Connect "COM" terminal on the 32DP-IF to the "0V" terminal on the extension unit.
- For ground wiring, refer to Section 3.3.

Figure 3.7: AC Power Supply Type: FX2N-32DP-IF



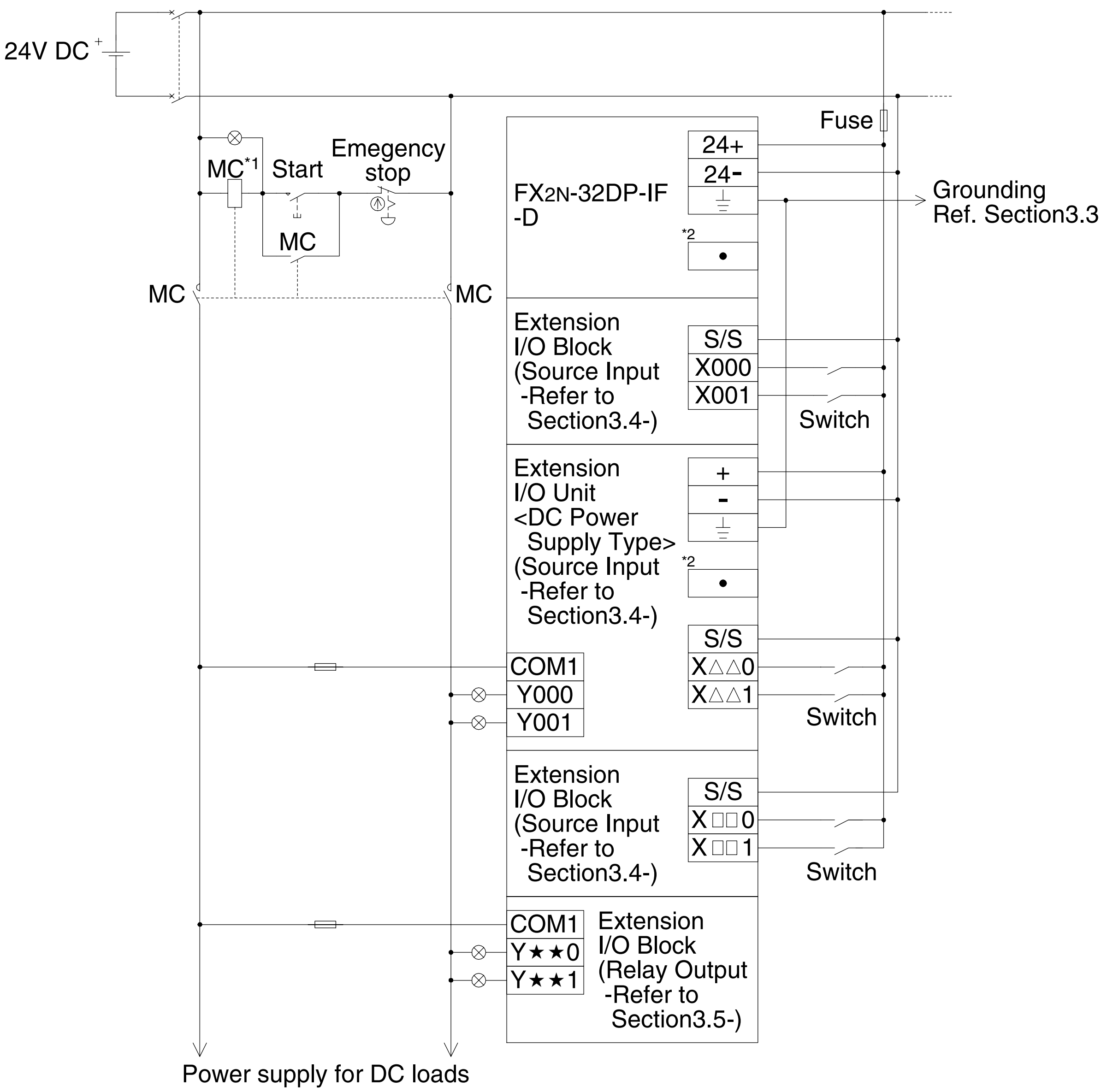
*1 Magnetic contact safety circuit

3.2.2 DC Power Supply Type: FX2N-32DP-IF-D

When wiring a 32DP-IF and extension I/O units/blocks, the connection method is identical to a FX2N series PLC. Further information can be found in the FX2N-32DP-ID User's Manual and FX2N Series Hardware Manual.

- Supply both FX2N-32DP-IF-D and extension I/O units/blocks from same DC power source.
- For ground wiring, refer to Section 3.3.

Figure 3.8: DC Power Supply Type: FX2N-32DP-IF-D



*1 Magnetic contact safety circuit

*2 DO NOT connect wire to this terminal.

3.3 Profibus-DP Network

To connect the 32DP-IF to a Profibus-DP network should be used only the Profibus connectors and shielded twisted-pair cable complying with EN50170.
Please use terminating resistors and Profibus connectors as shown in the DP-master manual and Profibus connector manual.
The 32DP-IF does not have a terminating resistance built-in.

Note: Noise Prevention

For noise prevention please attach at least 50mm (1.97”) of the shielded twisted-pair cable along the grounding plate to which the ground terminal is connected.

Figure 3.9: Connect to Profibus-DP Network

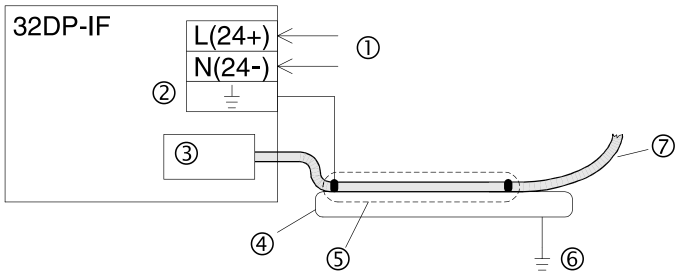
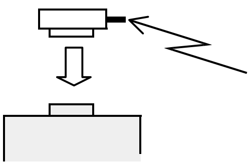


Table 3.1: Connect to Profibus-DP Network

Ref.	Description
①	Power source for 32DP-IF (Refer to section 3.2)
②	Grounding terminal in 32DP-IF
③	Profibus connector (Refer to Figure 3.10)
④	Grounding plate
⑤	For noise Prevention please attach at least 50mm (1.97”) of the shielded twisted-pair cable along the grounding plate to which the ground terminal is connected.
⑥	Grounding resistance of 100Ω or less
⑦	Shielded twisted-pair cable complying with EN50170 to Profibus-DP network

Figure 3.10:Profibus Connector



3.4 Input in Extension Units/Blocks

Wiring for sink and source input is decided by the wiring method for the S/S terminal on the extension I/O units/blocks. Further information can be found in the FX2N Hardware Manual.

3.4.1 DC Sink Input

When wiring sink input, 0V must be supplied to S/S terminal on the extension I/O units/blocks as Figure 3.11 and 3.12. In this case, this unit/block uses only sink input. Further information can be found in FX2N Hardware Manual.

Figure 3.11:Sink (negative input connection, positive S/S), FX2N-32DP-IF

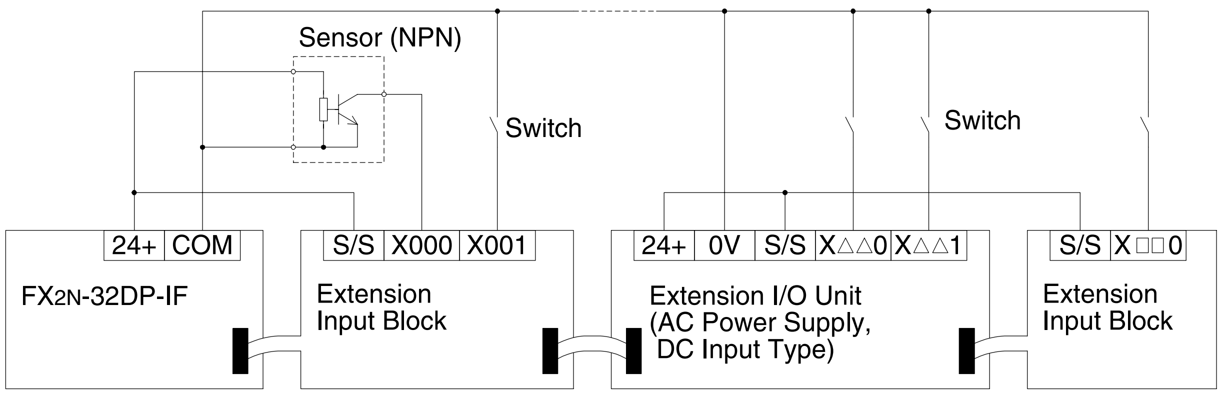
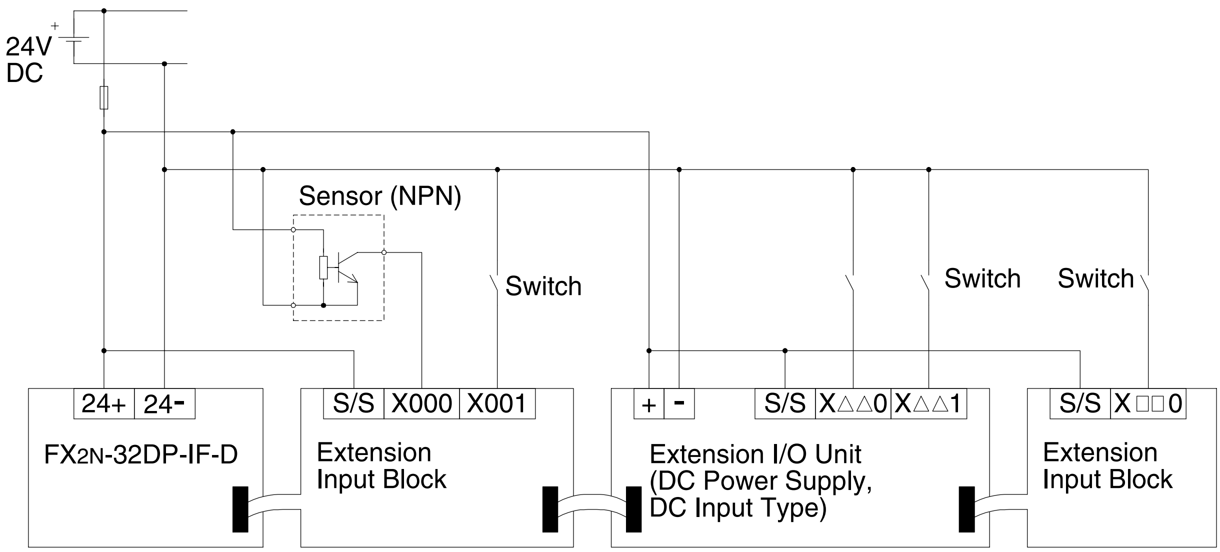


Figure 3.12:Sink (negative input connection, positive S/S), FX2N-32DP-IF-D



3.4.2 DC Source Input

When wiring source input, 24V must be supplied to S/S terminal on the extension I/O units/ blocks as Figure 3.13 and 3.14. In this case, this unit/block uses only source input. Further information can be found in the FX2N Hardware Manual.

Figure 3.13:Source (positive input connection, negative S/S), FX2N-32DP-IF

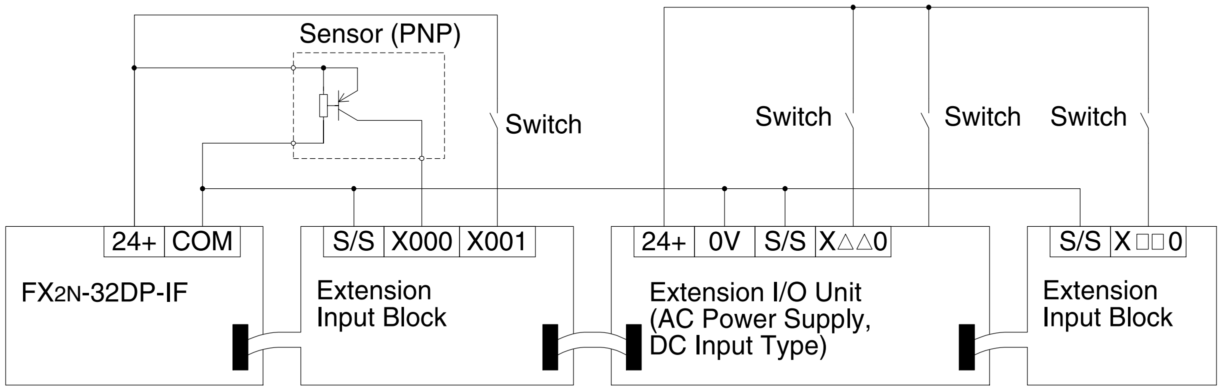
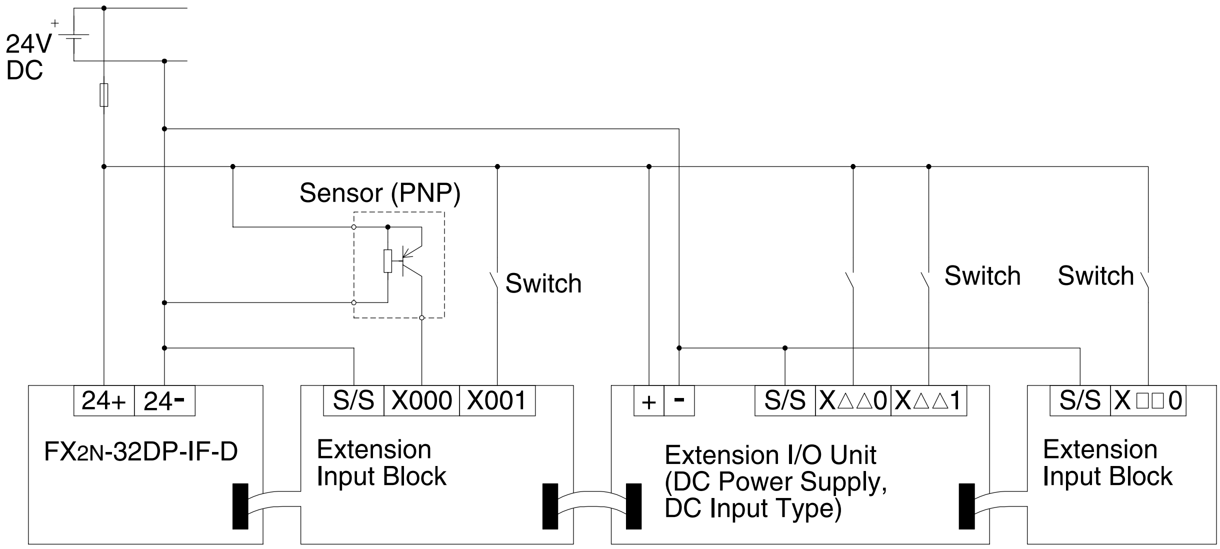


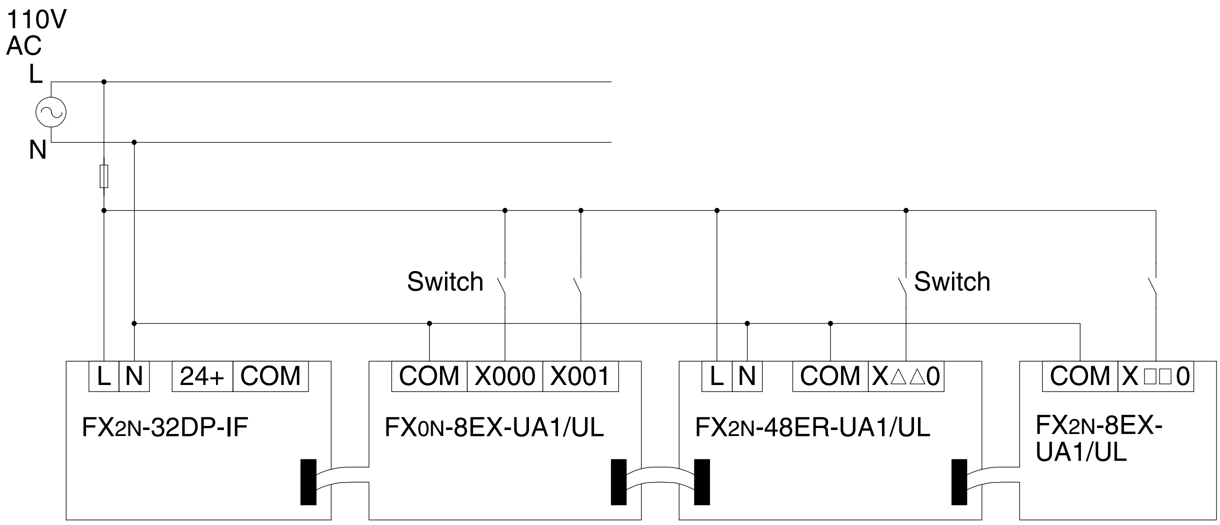
Figure 3.14:Source (positive input connection, negative S/S), FX2N-32DP-IF-D



3.4.3 AC Input

Further information can be found in the FX2N Hardware Manual.

Figure 3.15:AC Input Wiring, FX2N-32DP-IF



3.5 Output in Extension Units/Blocks

Further information can be found in the FX2N Hardware Manual.

3.5.1 Relay Output

Further information can be found in the FX2N Hardware Manual.

Figure 3.16:Relay Output Wiring

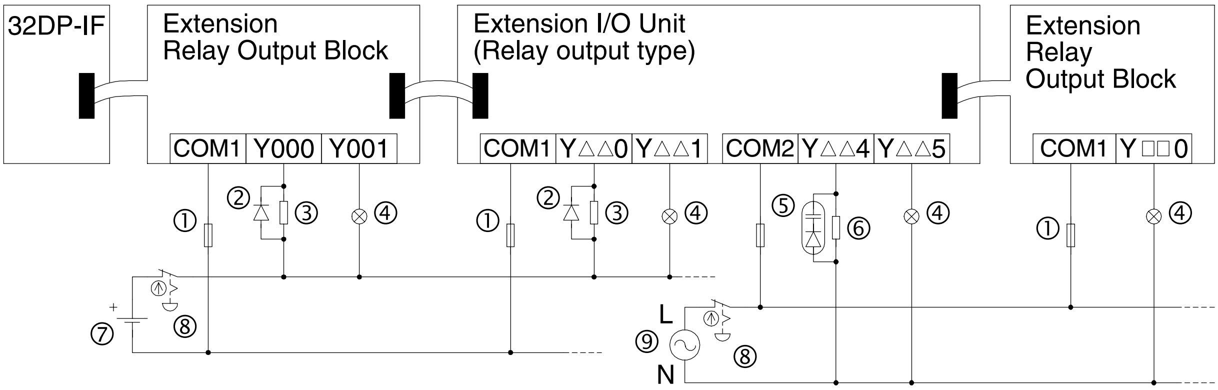


Table 3.2: Relay Output Wiring

Ref.	Description
①	Fuse
②	Surge absorbing diode
③	Solenoid
④	Lamp
⑤	Noise suppressor - Capacitor (0.1µF) + resistor (100 to 120W)
⑥	Contactor
⑦	DC power supply; ≤ 30V DC
⑧	Emergency stop
⑨	AC power supply, ≤ 240V AC

3.5.2 Transistor Output

Further information can be found in the FX2N Hardware Manual.

Note

"+V*" terminal on the extension units/blocks must be supplied +5 to +30V.
If "+V*" terminal is supplied 0V, the units/block maybe seriously damaged.

Figure 3.17:Transistor Output Wiring

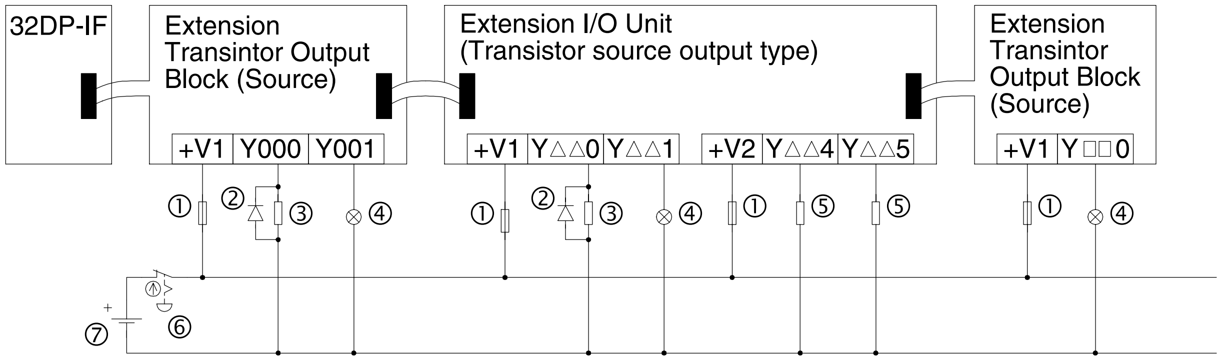


Table 3.3: Transistor Output Wiring

Ref.	Description
①	Fuse
②	Surge absorbing diode
③	Solenoid
④	Lamp
⑤	Resistance load
⑥	Emergency stop
⑦	DC power supply; ≤ 30V DC

3.6 Special Function Units/Blocks

When wiring a 32DP-IF and special function block, the connection method is identical to an FX2N series PLC. For special function block's wiring, refer to their respective manual.

4. Specifications

4.1 General Specifications

Table 4.1: General Specifications

Item		Description
Operating Temperature		0 to 55 °C (32 to 131 °F)
Storage Temperature		-20 to 70 °C (-4 to 158 °F)
Operating Humidity		35 to 85% Relative Humidity, No condensation
Storage Humidity		35 to 90% Relative Humidity, No condensation
Vibration Resistance[*1] - Direct Mounting		10 - 57 Hz: 0.075 mm Half Amplitude 57 - 150 Hz: 9.8 m/s^2 Acceleration Sweep Count for X, Y, Z: 10 times (80 min in each direction)
Vibration Resistance[*1] - DIN rail Mounting		10 - 57 Hz: 0.035 mm Half Amplitude 57 - 150 Hz: 4.9 m/s^2 Acceleration Sweep Count for X, Y, Z: 10 times (80 min in each direction)
Shock Resistance		147m/s^2 Acceleration, Action Time: 11 ms 3 times in each direction X, Y, and Z
Noise Immunity		1,000 Vp-p, 1microsecond, 30 - 100 Hz, tested by noise simulator
Dielectric Withstand Voltage	FX2N-32DP-IF (AC Power Supply Type)	1,500 V AC > 1 min, tested between all points, terminals and ground
	FX2N-32DP-IF-D (DC Power Supply Type)	500 V AC > 1 min, tested between all points, terminals and ground
Insulation Resistance		5 MΩ > at 500 V DC, tested between all points, terminals and ground
Grounding		Grounding resistance is 100 Ω or less
Complies with		UL508

*1 The criterion is shown in IEC61131-2.

4.2 Power Supply Specifications

Table 4.2: Power Supply Specifications

Item	Description	
	FX2N-32DP-IF (AC Power Supply Type)	**FX2N-32DP-IF-D (DC Power Supply Type)**
Power Supply	100 ~ 240 V AC +10% -15%, 50/60 Hz	24 V DC +20% -30%
Max. Allowable Momentary Power Failure Period	10 ms at 100 V AC (< 10 ms, 32DP-IF = RUN continue, > 10 ms, 32DP-IF = power down)	5 ms at 24 V DC (< 5 ms, 32DP-IF = RUN continue, > 5 ms, 32DP-IF = power down)
Fuse (size) Rating	3 A <ϕ 5 × 20 mm (0.2 × 0.79 inches), Time lag fuse>	1 A <ϕ 5 × 20 mm (0.2 × 0.79 inches), Time lag fuse>
In-rush Current	100 V AC Max. 40 A < 5 ms, 200 V AC Max. 60 A < 5 ms	24V DC Max. 30mA < 5ms
Power Consumption	30 VA	14W
24 V DC Service Supply	500 mA	-
Max. 5 V DC Bus Supply	220 mA	

4.3 Performance Specifications

Table 4.3: Performance Specifications

Items		Specifications
Maximum Number of Controllable I/O Points		Maximum 256 points (see section 1.3)
Transmission data (Maximum exchanged data length)		Max.200 bytes, total of sent and received during one bus cycle. (input: Max. 200 bytes, output: Max. 200 bytes)
Transmission Type		Bus network
Connector	9 pin D-SUB	Connector for Profibus-DP network
	8 pin mini DIN	Connector for FX-20P-E or personal computer (MELSEC MEDOC PLUS)
Supported Baud Rates (bps) and Bus Length	9.6k, 19.2k, 45.45k, 93.75k	1,200 m (3,937')
	187.5k	1,000 m (3,281')
	500k	400 m (1,312')
	1.5M	200 m (656')
	3M, 6M, 12M	100 m (328')
LED Indicators	POWER LED	ON when AC power is supplied.
	RUN LED	ON when 32DP-IF is exchanging data with extension I/O blocks/ units and special function blocks.
	BF LED	ON when a communication error is detected. (No data exchange)
	DIA LED	ON when notice of diagnostic data is detected.

5. Advanced Devices

5.1 Data Registers

Table 5.1: Supported Data Register List

Items	Description
D0 ~ D99	Input (sent) data to DP-master *1
D100 ~ D199	Output (received) data from DP-master *2
D200 ~ D299	Parameter data *3

*1 If the 32DP-IF is in data exchange mode, the sent data to a DP-master can be monitored by reading data registers D0 ~ D99 in the programming tool.
For example of allocating device, refer to section 5.1.1.

*2 If the 32DP-IF is in data exchange mode, the received data from a DP-master can be monitored by reading data registers D100 ~ D199 in the programming tool.
For example of allocating device, refer to section 5.1.1.

*3 The data registers D200 ~ D299 contain the user parameter data which sent by the DP-master. After power on, when the 32DP-IF is in the search baud rate state or the wait parameter state, these data register contain the default parameter data.
For user parameter, refer to chapter 7.

5.1.1 Example of Allocating Device

Figure 5.1: Example of Allocating Device

	X0 ~ X3 Y0 ~ Y3	X10 ~ X27	Using Ch1 ~ Ch4 (average data)	Using Ch1 ~ Ch4	Y10 ~ Y17
FX2N- 32DP-IF	FX0N-8ER -ES/UL	FX2N-16EX -ES/UL	FX2N-4AD	FX2N-4DA	FX0N-8EYT -ESS/UL

Table 5.2: Example of Allocating Device

Device No.		Description
D0 to D3		FX2N-4AD's input data (BFM #5 ~ #8)
D4	Lower 8 bits	FX0N-8ER-ES/UL's X0 ~ X3 (bit 4 ~ 7 not used)
	Higher 8 bits	FX2N-16EX-ES/UL's X10 ~ X17
D5	Lower 8 bits	FX2N-16EX-ES/UL's X20 ~ X27
	Higher 8 bits	These devise areas are not used.
D6 ~ D99		
D100 ~ D103		FX2N-4DA's output data (BFM #1 ~ #4)
D104	Lower 8 bits	FX0N-8ER-ES/UL's Y0 ~ Y3 (bit 4 ~ 7 not used)
	Higher 8 bits	FX0N-8EYT-ESS/UL's Y10 ~ Y17
D105 ~ D199		These devise areas are not used.

Note:

In configuring 32DP-IF GSD file, first assign special function blocks, second extension I/O units/blocks' input data, and finally extension I/O units/blocks' output data. If the parameter in DP-master is not the same as an actual configuration, the 32DP-IF will not operate correctly.

5.2 Diagnostic Devices (Special Devices)

Unsettable Devices:

Any device of type M or D that is marked with a “(✘)” or “(✍)” cannot be set by the programming tool. In the case of M devices this means the associated coil cannot be driven but all devices can be monitored. For data devices D, new values cannot be written to the register by a user but the register contents can be monitored.

Symbol Summary:

- ✘ automatically written to by the 32DP-IF
- ✍ automatically written to by the DP-master
- ✈ 32DP-IF send an extended diagnosis message to DP-master if marking device is ON. For diagnostic message, refer to chapter 7.

5.2.1 32DP-IF Status (M8000 ~ M8009 and D8000 ~ D8009)

Table 5.3: Special Auxiliary Relays (M8000 ~ M8009)

Diagnostic Device	Name	Description
M8000 (✘)	RUN LED monitor	ON when 32DP-IF is exchanging data with extension I/O blocks/units and special. This device operate same as RUN LED.
M8001 ~ M8003	Reserved	
M8004 (✘) (ref. D8004)	Error occurrence	ON when one or more error flags (M8060 to M8068) is ON. If this bit is ON, error number is written in D8004.
M8005, M8006	Reserved	
M8007 (✘) (✈) (ref. D8007)	Momentary power failure	See Figure 5.2.
M8008, M8009	Reserved	

Table 5.4: Special Data Registers (D8000 ~ D8009)

Diagnostic Device	Name	Description
D8000	Reserved	
D8001 (✘)	32DP-IF version	This value is 32DP-IF version code. See Figure 5.3.
D8002, D8003	Reserved	
D8004 (✘) (✈)	Error number M☆☆☆☆	The contents of this register ☆☆☆☆ identifies which error flag is active, i.e. if ☆☆☆☆ = 8061, identifies M8061
D8005, D8006	Reserved	
D8007 (✘) (✈)	Number of momentary power failures	This value is counted when M8007 is ON. This value is reset on full power OFF.
D8008 (✘)	Power failure detection period	Power failure detection period is 10 ms.
D8009	Reserved	

Figure 5.2: Momentary Power failures

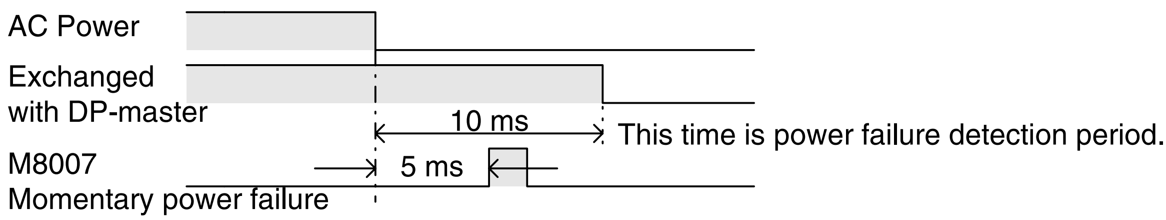
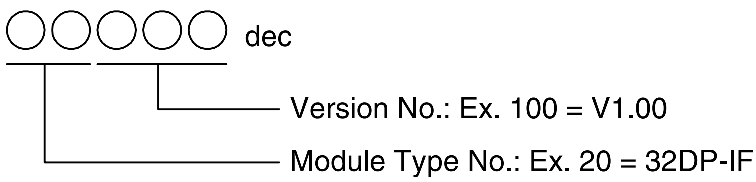


Figure 5.3: 32DP-IF Version



5.2.2 Clock Devices (D8010 ~ D8019)

Table 5.5: Special Data Registers (M8010 ~ M8019)

Diagnostic Device	Name	Operation
M8010 ~ M8019	Reserved	

Table 5.6: Special Data Registers (D8010 ~ D8019)

Diagnostic Device	Name	Operation
D8010 (✖)	Present scan time	Current operation cycle time in units of 0.1 msec
D8011 (✖)	Minimum scan time	Minimum cycle time in units of 0.1 msec
D8012 (✖)	Maximum scan time	Maximum cycle time in units of 0.1 msec
D8013 ~ D8019	Reserved	

5.2.3 Profibus-DP Network Status (M8020 ~ M8039 and D8020 ~ D8039)

Table 5.7: Special Auxiliary Relays (M8020 ~ M8039)

Diagnostic Device	Name	Description
M8020	Setting parameter	When this bit is changed from OFF to ON, the parameter D200 ~ D299 (made by the programming tool) is written to special function blocks' BFM. After the write is completed, this bit is turned automatically to OFF.
M8021 ~ M8033	Reserved	
M8034	All output disable	All physical switch gear for activating outputs is disabled. However, for debugging purposes the logical state of these outputs (D100 ~ D199) can be set, but remain disabled in the actual module.
M8035 ~ M8039	Reserved	

Table 5.8: Special Data Registers (D8020 ~ D8039)

Diagnostic Device	Name	Description
D8020 (✍)	Data exchange status	Data register D8020 contains a status bit for data exchange. If this is "1", 32DP-IF is in data exchange mode. If this is "0", 32DP-IF is not in data exchange mode.
D8021 (✍)	Swap byte order	See note 1.
D8022 (✍)	Length of input (sent) data in byte	The values held in these devices are copied from the input data length and output data length setting in the DP-master.
D8023 (✍)	Length of output (received) data in byte	
D8024 (✍)	Baud rate	See note 2.
D8025 (✍)	Communication status	See note 3.
D8026 (✖)	Profibus module ID (PNO ID code)	PNO-Nr.F232 (Hex) (This number contains the Profibus module ID number for the 32DP-IF.)
D8027 (✖)	Slave address	The slave address is set only by the 32DP-IF's DIP switches. The slave address value is 0 to 126. The address change by a Profibus-DP Class 2 master via the network or by a programming device is not supported.
D8028	Reserved	
D8029 (✖) (✈)	Error status	See note 4.

Note 1: Swap byte order

Some DP-masters handle lower bytes and higher bytes of a word in a reverse order than the 32DP-IF. To enable the module to communicate with these masters, bit 0 of data register D8021 can be set. If bit 0 is “1”, the low order byte and the high order byte of each user data word and of the user specific diagnosis will be swapped. Bit 0 of D8021 can also be set or reset by the second user defined parameter byte received from a master. The default value after power up is “0”.

Note 2: Baud rate

This device shows the current baud rate of the Profibus-DP network. The baud rate depends on the DP-master settings. The following table shows the supported baud rates and the value of D8024. If the module is in baud search mode, this value frequently changes until the module has found a supported baud rate as follows.

Table 5.9: Baud Rate in D8024

Values in D8024 (Hex)	Baud Rate (bps)
96E2 H	9,600
19E3 H	19.2k
45E3 H	45.45k
93E3 H	93.75k
18E4 H	187.5k

Values in D8024 (Hex)	Baud Rate (bps)
05E5 H	500k
15E5 H	1.5M
03E6 H	3M
06E6 H	6M
12E6 H	12M

Note 3: Communication status

This device is the 32DP-IF’s communication status. According to the status of 32DP-IF the bits are set and reset as follows.

Table 5.10: Communication Status in D8025

Bit No.	Description	1 (ON)	0 (OFF)
Bit 0	Module on-line/off-line	Module on-line	Module off-line
Bit 1	Reserved		
Bit 2	Diagnosis flag	New diagnosis not yet fetched by DP-master	New diagnosis fetched by DP-master
Bit 3	Reserved		
Bit 4, 5	DP-status	(bit 5, 4) = (0, 0)	Wait parameter state
		(bit 5, 4) = (0, 1)	Wait configuration state
		(bit 5, 4) = (1, 0)	Data exchange state
		(bit 5, 4) = (1, 1)	Not possible
Bit 6, 7	DP-watchdog state	(bit 7, 6) = (0, 0)	Baud search state
		(bit 7, 6) = (0, 1)	Baud control state
		(bit 7, 6) = (1, 0)	DP search state
		(bit 7, 6) = (1, 1)	Not possible
Bit 8	Reserved		
BIt 9	Clear data global control *1	Clear data command received	No clear data command received
Bit 10	Unfreeze global control *2	Unfreeze command received	No unfreeze command received
Bit 11	Freeze global control *3	Freeze command received	No freeze command received
Bit 12	Unsync global control *4	Unsync command received	No unsync command received
Bit 13	Sync global control *5	Sync command received	No sync command received
Bit 14, 15	Reserved		

*1 Clear data global control: When this command is received, the 32DP-IF set to “0” the output data (D100 ~ D199) of extension units/blocks connected it.

*2 Unfreeze global control: The UNFREEZE control command stops freeze control mode. The input data (D0 ~ D99) of extension units/blocks connected to the 32DP-IF is immediately sent to the DP-master.

*3 Freeze global control: The DP-master sends a FREEZE control command to a group of DP-slaves to hold their current input status. The input data (D0 ~ D99) of extension units/blocks connected to the 32DP-IF are withheld until the next FREEZE/UNFREEZE control command is received.

*4 Unsync global control: The UNSYNC command stops SYNC control mode. The output data (D100 ~ D199) send from the DP-master is immediately transmitted to extension units/blocks connected to the 32DP-IF.

*5 Sync global control: The DP-master sends a SYNC control command to a group of DP-slaves to synchronize their current output states. The output data (D100 ~ D199) of extension units/blocks connected to the 32DP-IF remains constant until the next SYNC/UNSYNC command is received.

Note 4: Error status

Data register D8029 reflects the error status of the 32DP-IF. In case of a general error (bit 0 = ON) the module tries to send a static diagnosis to the DP-master. In this case normal data exchange is not possible. If bit 0 returns to the Off state, the static diagnosis message is also reset.

The definition of the error bit is shown in the table below.

Table 5.11: Error status in D8029

Bit No.	Description	0 (OFF)	1 (ON)
Bit 0	general error	No general error	This bit is ON if one or more error bits (bit 2, 6, 7) are ON. Check Bit 2, 6 and 7 in D8029.
Bit 1	Reserved		
Bit 2	External 24 V power error	Power supply is normal	DC 24 V power supply failure
Bit 3 ~ 5	Reserved		
Bit 6 (ref. Table 4.11)	I/O bus error	No I/O bus error	I/O bus error occurred. Check extension bus cable for I/O extension units/blocks and error code in D8060.
Bit 7 (ref. Table 4.11)	Operation error	No operation error	Operation error occurred. Check extension bus cable for special function blocks, and DP-master parameter, and error code in D8067 and D8068.
Bit 8, 9	Reserved		
Bit 10 (ref. Table 4.11)	configuration error	Configuration data valid	Invalid configuration data received. Check configuration for 32DP-IF in the DP-master and D8040 ~ D8055.
Bit 11 (ref. Table 4.11)	Parameter error	Parameter data valid	Invalid parameter data received. Check parameter for 32DP-IF in the DP-master and D200 ~ D299, and error code in D8064and D8068.
Bit 12 ~ 14	Reserved		
Bit 15	RUN/STOP status	RUN/STOP switch is in RUN position	RUN/STOP switch is in STOP position

5.2.4 Configuration Status (M8040 ~ M8059 and D8040 ~ D8059)

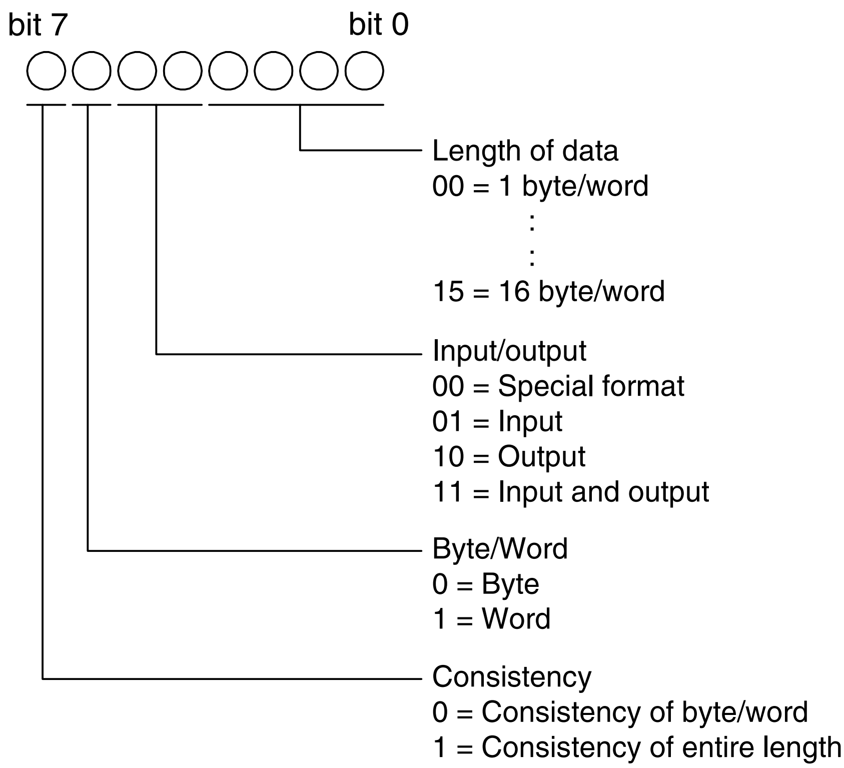
M8040 ~ M8059 are reserved. The configuration bytes in D8040 ~ D8059 define the amount of data which is exchanged between the corresponding I/O units/blocks, special function blocks and the DP-master.

Table 5.12: Special Data Registers (D8040 ~ D8059)

Diagnostic Device		Name	Description
D8040 (✗)	Lower 8 bits	Configuration data 1 *1	The data registers D8040~D8055 display the actual configuration of the node station. After power on, when the 32DP-IF is in the search baud rate state or in the wait configuration state, these data registers contain the default configuration data.
	Higher 8bits	Configuration data 2 *1	
D8041 (✗)	Lower 8 bits	Configuration data 3 *1	
	Higher 8bits	Configuration data 4 *1	
D8042 (✗)	Lower 8 bits	Configuration data 5 *1	
	Higher 8bits	Configuration data 6 *1	
:		:	
D8055 (✗)	Lower 8 bits	Configuration data 31 *1	
	Higher 8bits	Configuration data 32 *1	
D8056 ~ D8059		Reserved	

*3 This value shows as following Figure.
Ex.1 10 hex = 1 byte (8 bit) inputs not consistent
Ex.2 63 hex = 4 word outputs not consistent

Figure 5.4: Configuration Data



5.2.5 Error Status (M8060 ~ M8069 and D8060 ~ D8069)

Table 5.13: Special Auxiliary Relays (M8060 ~ M8069)

Diagnostic Device	Name	Check Points
M8060 (✖) (✈) (ref. D8060, D8061)	I/O configuration error	If this flag is ON, check error code in D8060, D8061 and extension cable.
M8061 (✖) (✈) (ref. D8060, D8061)	32DP-IF hardware error	If this bit is ON, check error code in D8061.
M8062, M8063	Reserved	
M8064 (✖) (✈) (ref. D8064	Parameter error	If this flag is ON, check error code inD8064 and DP-master setting.
M8065, M8066	Reserved	
M8067 (✖) (✈) (ref. D8067)	Operation error	If this flag is ON, check error code in D8067 and D8068, DP-master parameter, and the extension cable.
M8068 (✖) (ref. D8068)	Parameter error and operation error	If M8064 or M8067 is ON, this bit would be set to ON. This bit is cleared by resetting the power supply.
M8069	Reserved	

Table 5.14: Special Data Registers (D8060 ~ D8069)

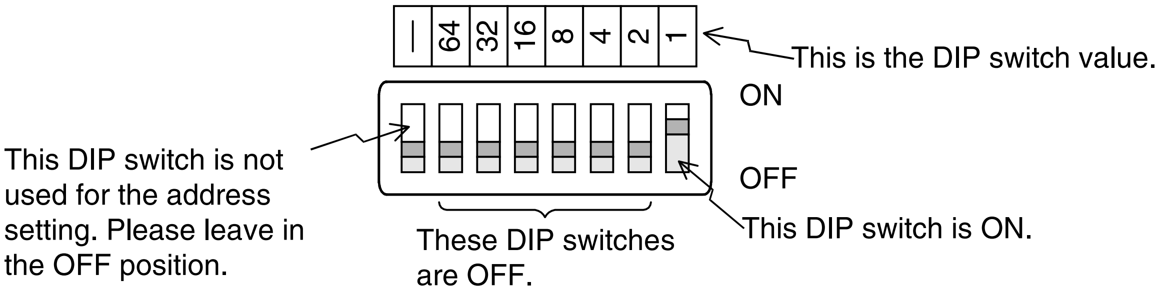
Diagnostic Device	Name	Error code	Description
D8060 (✘) (✈)	I/O configuration error	This device contains the lowest device address that caused the error. Check D8061	
D8061 (✘) (✈)	32DP-IF hardware error	0	No error
		6102	Operation circuit error: Please contact a service representative.
		6103	I/O bus error: Check extension cable for Extension I/O units/blocks.
		6129	BFM #29 (error status) of a connected special function block shows a value that is different from “0”. Please check the diagnosis message at the DP-master.
D8062, D8063	Reserved		
D8064 (✘) (✈)	Parameter error	0	No error
		6406	Parameter error for extension units/blocks: Check error code in D8068, and parameter in the DP-master.
		6407	Parameter length error: Parameter data too long, check parameter’s length in the DP-master.
		6408	Configuration error for extension units/blocks: Check error code in D8068, and parameter in the DP-master.
		6410	DIP switch error: DIP switch error refer to the address setting DIP switch on the 32DP-IF module: DIP switch position does not decided ON or OFF when the power of 32DP-IF is turned ON. Check position of DIP switch. If the position of DIP switch is ON or OFF, please contact a service representative.
D8065,D8066	Reserved		
D8067 (✘) (✈)	Operation error	0	No error
		6708	Operation error: Operation error for transmitting special function block occurs, check error code in D8068, and DP-master parameter, and extension cable.
D8068 (✘) (✈)	Parameter error and operation error	This device contains the lowest special function block’s address that caused the error. Check D8064 and D8067.	
D8069	Reserved		

6. Address Setting

6.1 Setting the Address

The slave address of 32DP-IF for Profibus network is set by the ON/OFF configuration of DIP switches. Slave address setting range is 0 ~ 126. When 32DP-IF’s power supply is turned ON, the slave address is the sum total of these DIP switch values.

Figure 6.1: DIP Switches



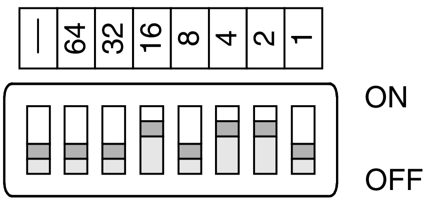
Note:

If the address of 32DP-IF is changed, the 32DP-IF must be turned OFF and ON again in order to activate the new address.

6.2 Example Address Setting

If slave address of 32DP-IF is set to “22”, the DIP switches are as shown below.

Figure 6.2: Address Setting



MEMO

7. User Parameter

7.1 User Parameter Rules

Some bytes of input data and output data exchanged with the DP-master (the 32DP-IF's configuration) must be defined by user parameter. Also defined by user parameters are how the exchanged data should be distributed between the available I/O points and special function blocks. Some applications require initial settings, like gain and offset of analog blocks. For these purposes, the 32DP-IF requires a set of parameter data, which must be determined by the user parameter.

For default user parameter, refer to section 7.2.

Note:

User parameter data become valid for 32DP-IF and special function blocks (ex. FX$_{2N}$-4AD, FX$_{2N}$-4DA).

Table 7.1: User Parameter Configuration

	Byte No.
User parameter for 32DP-IF (Global user parameter)	0
	1
User parameter for first special function block	2
	: :
	1 + (2 + m_1 [*1])
User parameter for second special function block	1 + (2 + m_1 [*1]) +1
	: :
	1 + (2 + m_1 [*1]) + (2 +m_2 [*1])
: :	: :

*1 m_1, m_2: Total length of parameter data for this special function block.

Figure 7.1: User Parameter Rules

	For 32DP-IF	
Byte No.	**0**	**1** [*1]
		Bit 0 ~ Bit 7
Meaning / **Description**	Not used (must be 0)	This byte is used for setting the Swap data, Swap parameter, Checking I/O block status, and Special function block's error status. [*1]

	For first special function block			
Byte No.	**2** [*3]	**3**	**4**	**5**
Meaning	Type code of special function block, lower byte of BFM 30 [*4]	Type code of special function block, higher byte of BFM 30 [*4]	Total length m of parameter data for this special function block.	Number (n) of BFM for data exchange [*7]
Description			m = 2 + n + 3 × b [*6]	

	First special function block			
Byte No.	**6**	**7**	**.....**	**5 + n**
Meaning / **Description**	First BFM address for data exchange [*7]	Second BFM address for exchange [*7]	....	n th BFM address for exchange [*7]

	First special function block			
Byte No.	**5 + n +1**		**5 + n + 2**	**5 + n + 3 × 1**
	Bit 7	**Bit 0 ~ 6**		
Meaning	Writing flag	BFM address adjusted [*8]	Lower byte of parameter data [*8]	Higher byte of parameter data [*8]
Description	If this BFM is adjusted, this bit is ON (1). [*8]			

	First special function block			
Byte No.	**5 + n + 3 × 1 +1**		**5 + n + 3 × 1 + 2**	**5 + n + 3 × 2**
	Bit 7	**Bit 0 ~ 6**		
Meaning	Writing flag	BFM address adjusted [*8]	Lower byte of parameter data [*8]	Higher byte of parameter data [*8]
Description	If this BFM is adjusted, this bit is ON (1). [*8]			

	For first special function block		**For second special function block**	
Byte No.	**.....**	**(5 + n + 3 × b)** [*9]	**(5 + n + 3 × b) +1** [*10]	**.....**
Meaning / **Description**	.....	Higher byte of parameter data [*8]	Type code of special function block, lower byte of BFM 30 [*4]	.....

*1 This byte is used for setting the Swap data, Swap parameter, Checking I/O block status, and Special function block's error status. See the following table.

Table 7.2: Swap Data, Swap Parameter, Checking I/O Block Status, and Special Function Block's Status

Bit No.	Meaning	Description
b0*2	Swap data (Motorola/Intel)	This bit is used for swapping the byte data within the word data of special function block's BFMs. 1) When this bit is OFF (0), byte data is Intel format within the word data. (Not swapped) 2) When this bit is ON (1), byte data is Motorola format within the word data. (Swapped)
b1	Cyclic status check of I/O units	This bit is used for checking status of I/O block. 1) When this bit is OFF (0), the status check of the I/O units/blocks is not performed. 2) When this bit is ON (1), the status check of the I/O units/blocks is performed in every cycle.
b2	Error check of special function units/blocks	This bit is used for checking the error status (BFM #29) of special function blocks. 1) When this bit is OFF (0), error status (BFM #29) in all connected special function blocks is not checked. 2) When this bit is ON (1), error status (BFM #29) in all connected special function blocks is checked in every cycle. However, the following modules are not checked. • FX2N-10GM • FX2N-20GM • FX2N-2AD • FX2N-2DA • FX0N-3A
b3*2	Swap word parameter for BFMs (Motorola/Intel)	This bit is used for swapping byte data within the word parameter. 1) When this bit is OFF (0), byte data is Intel format within the word parameter. (Not swapped) 2) When this bit is ON (1), byte data is Motorola format within the word parameter. (Swapped)
b4 ~ b7	Not used (These bits are always OFF.)	

*2 These bit settings are different depending upon the connected master module.

a) When connecting the A and Q series (MITSUBISHI) master module, these bits set to OFF (Intel format).

b) When connecting other master module, please check these points in the master module's manual.

*3 This byte number is the first parameter data of first special function block.

*4 Type code of special function block is as following table. This code in the parameter must be written first in the Lower byte and second in the higher byte.

Table 7.3: Type Code of Special Function Blocks

Model	Type Code	
	Dec.	Hex
FX$_{2N}$-4AD	K2010	07DA Hex
FX$_{2N}$-4AD-TC	K2030	07EE Hex
FX$_{2N}$-4AD-PT	K2040	07F8 Hex
FX$_{2N}$-4DA	K3020	0BCC Hex
FX$_{2N}$-2AD[*5]	K1	0001 Hex
FX$_{2N}$-2DA[*5]		
FX$_{0N}$-3A[*5]		
FX$_{2N}$-1HC	K4010	0FAA Hex
FX$_{2N}$-1PG	K5110	13F6 Hex
FX$_{2N}$-10GM	K5310	14BE Hex
FX$_{2N}$-20GM	K5210	145A Hex
FX$_{2N}$-32ASI-M	K7070	1B9E Hex
FX$_{2N}$-232IF	K7030	1B76 Hex

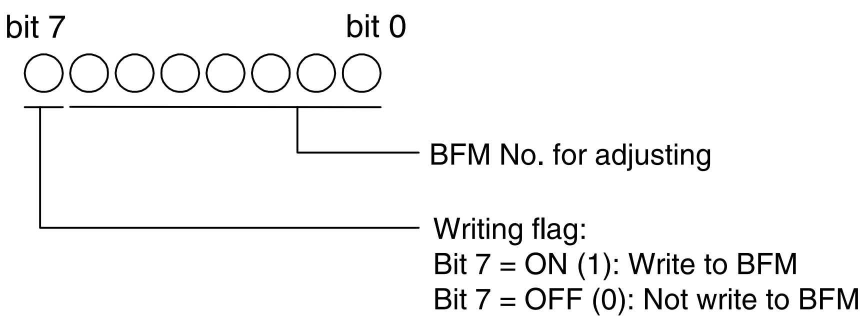
*5 These types do not have a type code inside the special function blocks.

*6 b: This value is number of BFMs that are adjusted by this parameter set.

*7 Number of exchanged BFM for input or output data (n = 0 ~ 32) defines how many words are reserved for data exchange with the DP-master. The following bytes define the BFM addresses of those words.
For example K3 K1 K2 K5 defines 3 words of input data, read from BFM #1, BFM #2 and BFM #5 of the corresponding special function block or written to BFM #1, BFM #2 and BFM #5.

*8 The format of this parameter byte is “bit 7 = write flag” and “bit 6 ~ bit 0 = BFM address”. If “bit 7 = ON (1)”, the data of the following two bytes are written to the BFM specified in bit 6 ~ bit 0. If bit7 = 0, the following two bytes will be ignored. This mechanism is used to write all parameter data from the GSD file or D200 ~ D299 to the BFM of the special function block.

Figure 7.2: Order BFM No. for adjusting BFMs



*9 This byte number is the last parameter data of first special function block.

*10 This byte number is the first parameter data of second special function block.
If 32DP-IF uses 4 special function blocks, user parameter must be made 4 patterns (byte No. “2” ~ “5 + n + 3 × b”).

7.2 Default User Parameter

32DP-IF communicates with the master by this default parameter at the following.

- From power on until parameter received from master.
- Using simple communication (3 word interface, 6 word interface and 15 word interface, etc.) with GX-Configurator (or ProfiMap).
- Using FX0N-3A, FX2N-2AD, FX2N-2DA, FX2N-10GM and FX2N-20GM with GX-Configurator (or ProfiMap).
- Using this parameter with configuration software such as GX-Configurator (or ProfiMap).

Figure 7.3: Default User Parameter

	User Parameter for 32DP-IF	
Byte No.	**0**	**1**
		Bit 0 ~ Bit 7
Meaning **Description**	Not used (must be 0)	This byte is used for setting the Swap data, Swap parameter, Checking I/O block status, and Special function block's error status.[*1]

	User Parameter for First Special Function Block			
Byte No.	**3**	**4**	**5**	**6**
Meaning	Type code of special function block, lower byte of BFM 30 [*3]	Type code of special function block, higher byte of BFM 30 [*3]	Total length m of parameter data for this special function block.	Contains n = 0, as BFM addresses will be assigned dynamically [*5]
Description			m = 2 [*4]	

	.....	**User Parameter for Last (y [*6] th) Special Function Block**		
Byte No.	**.....**	**2 + 4 × (y [*6] - 1) + 1**	**....**	**2 + 4 × y [*6]**
Meaning **Description**	.....	Type code of special function block, lower byte of BFM 30 [*1]	.....	Contains n = 0, as BFM addresses will be assigned dynamically [*5]

*1 This byte is used for setting the Swap data, Swap parameter, Checking I/O block status, and Special function block's error status. See the following table.

Table 7.4: Swap Data, Swap Parameter, Checking I/O Block Status, and Special Function Block's Status

Bit No.	Meaning	Description
b0*2	Swap data (Motorola/Intel)	This bit is used for swapping the byte data within the word data of special function block's BFMs. 1) When this bit is OFF (0), byte data is Intel format within the word data. (Not swapped) 2) When this bit is ON (1), byte data is Motorola format within the word data. (Swapped)
b1	Cyclic status check of I/O units	This bit is used for checking status of I/O block. 1) When this bit is OFF (0), the status check of the I/O units/blocks is not performed. 2) When this bit is ON (1), the status check of the I/O units/blocks is performed in every cycle.
b2	Error check of special function units/blocks	This bit is used for checking the error status (BFM #29) of special function blocks. 1) When this bit is OFF (0), error status (BFM #29) in all connected special function blocks is not checked. 2) When this bit is ON (1), error status (BFM #29) in all connected special function blocks is checked in every cycle. However, the following modules are not checked. • FX2N-10GM • FX2N-20GM • FX2N-2AD • FX2N-2DA • FX0N-3A
b3*2	Swap word parameter for BFMs (Motorola/Intel)	This bit is used for swapping byte data within the word parameter. 1) When this bit is OFF (0), byte data is Intel format within the word parameter. (Not swapped) 2) When this bit is ON (1), byte data is Motorola format within the word parameter. (Swapped)
b4 ~ b7	Not used (These bits are always OFF.)	

*2 These bit settings are different depending upon the connected master module.

a) When connecting the A and Q series (MITSUBISHI) master module, these bits set to OFF (Intel format).

b) When connecting other master module, please check these points in the master module's manual.

*3 Type code of special function block is as following table. This code in the parameter must be written first Lower byte and second Higher byte

Table 7.5: Type Code of Special Function Blocks

Model	Type Code	
	Dec.	**Hex**
FX2N-4AD	K2010	07DA Hex
FX2N-4AD-TC	K2030	07EE Hex
FX2N-4AD-PT	K2040	07F8 Hex
FX2N-4DA	K3020	0BCC Hex
FX2N-2AD		
FX2N-2DA	K1	0001 Hex
FX0N-3A		
FX2N-8AD	K2050	0802 Hex
FX2N-2LC	K2060	080C Hex
FX2N-1HC	K4010	0FAA Hex
FX2N-10PG	K5120	1400 Hex
FX2N-1PG	K5110	13F6 Hex
FX2N-10GM	K5310	14BE Hex
FX2N-20GM	K5210	145A Hex
FX2N-32ASI-M	K7070	1B9E Hex
FX2N-232IF	K7030	1B76 Hex

*4 After power on, the default setting of this parameter for every special function block is 2.

*5 After power on, the default setting of this parameter is 0, as the BFM addresses for reading/writing command are not coded in the parameter data, but are sent together with the Profibus data. For exchanged data, refer to section 7.2.1.

*6 "y" is number of connected special function blocks to 32DP-IF. (y = 1 ~ 8)

7.2.1 Exchanged Data by Default User Parameter

After power on, the bus node does not know about the I/O features of the connected special function blocks. So each special function block is assigned to one reading command and one writing command. The exchanged data is as follows:

Table 7.6: Exchanged Data

Data word	Output area (send)	Input area (receive)
1st	Special function block’s BFM address is written for input data (Reading from 32DP-IF) (Bit15 = write flag)	This value is BFM’s data read from special function block.
2nd	This data is written to special function block’s BFM for output data.	This value was written to special function block’s BFM. (Written value is read back)
3rd	Special function block’s BFM address is written for output data (writing to 32DP-IF) (Bit15 = write flag)	This value was special function block’s BFM address. (Written value is read back)

Example

Reading BFM #17 and writing K1000 to BFM #9 in the special function block.

Table 7.7: Example Exchanged Data

Data word	Output Data	Input Data
1st	8011hex = 11hex (17 dez = BFM #17) + 8000 hex (bit15=1)	nnnn = hex value of BFM #17
2nd	03E8 hex = (1000 dez)	03E8 hex = hex value of BFM #9
3rd	8009 hex = 09 hex (9 dez = BFM #9) + 8000 hex (bit15=1)	8009 hex = verification of BFM address

Basically this parameter block is only for the case when reaching the limits of the parameter data memory or Profibus I/O data memory. It is possible to use this block for every special function block listed above, but it is more comfortable to use the extended or short parameter settings of a special function block. The high address BFM area of some Special Function Block’s (Ex- FX2N-232IF) is only accessible by using this communication format.

Communication procedure:

For further explanation, the first word of the cyclical send data is called the “FROM ADDRESS”, the second word is called the “TO DATA” and the third “TO ADDRESS”. According to this “FROM DATA”, “TO DATA (read back)” and “TO ADDRESS (read back)” describes the first, second and third word of the cyclically received data. The most significant bit (MSB) of the “FROM ADDRESS” and the “TO ADDRESS” is a flag which is used to request a FROM/TO instruction inside the FX2N-32DP-IF. If this bit is 0, the contents of the “FROM ADDRESS” and the “TO ADDRESS” are transmitted to the FX2N-32DP-IF but no read/write command is executed. If the MSB is set to 1, the BFM specified by bit 0 - 14 is addressed.

Example- if the “TO ADDRESS” is 8000 Hex, the content of “TO DATA” is written to BFM 0.

Write Operation (TO):

Possible special function block BFM addresses: 0 to 32767

First write the data to send to the BFM into “TO DATA”, then write the BFM number + MSB = 1 into the “TO ADDRESS”. If the “TO ADDRESS” is the same as the “TO ADDRESS (read back)” and “TO DATA” is the same as “TO DATA (read back)”, the write operation is executed correctly.

Before write the next data into “TO DATA”, please reset “TO ADDRESS” to 0 or reset at least the MSB of “TO ADDRESS”. Otherwise the new data is written to the old BFM.

Table 7.8: Write Operation (TO)

Data word	data to be send in every cycle	data received in every cycle
1st	FROM ADDRESS (bit 15 MUST be 0)	FROM DATA in this case 0
2nd	TO DATA	TO DATA (read back)
3rd	TO ADDRESS (bit 15 MUST be 1)	TO ADDRESS (read back)

Read Operation (FROM):

Possible special function block BFM addresses: 0 to 32767

To read a BFM, please write its number + MSB=1 into “FROM ADDRESS”.

The data of the BFM will be received in “FROM DATA”.

Two possible ways to make sure that the FROM data is valid:

a) After 1 × Profibus cycle (master → slave) + 1 × FX2N-32DP-IF cycle + 1 × Profibus cycle (slave → master) it is possible to read the value of the selected BFM out of “FROM DATA”. If FX2N-32DP-IF has a Firmware 1.10 or above, the cycle time is listed in BFM8010 (current), BFM8011 (min), BFM8012 (max).

b) It is possible to use a feature similar to the write operation verify (Firmware 1.10 or above). If no write instruction is executed (MSB of “TO ADDRESS”=0), the data will be received in “FROM DATA” and the “FROM ADDRESS” is mapped to the “TO ADDRESS (read back)” by the FX2N-32DP-IF.

Table 7.9: Read Operation (FROM)

Data word	data to be send in every cycle	data received in every cycle
1st	FROM ADDRESS	FROM DATA
2nd	not used	TO DATA (read back) in this case 0
3rd	not used (bit 15 MUST be 0)	TO ADDRESS (read back) in this case FROM ADDRESS (read back)

Read and Write Operation:

To execute both a read and a write operation at the same time, keep the following order:

a) Write the BFM number to read + MSB = 1 into “FROM ADDRESS”

b) Write the data to write into “TO DATA”

c) Write the BFM number to write to +MSB=1 into “TO ADDRESS”

If this procedure is performed, the “FROM DATA” is valid and the write operation is complete when the read back values become the same as “TO DATA” and “TO ADDRESS”. Please take care of the MSB of “TO ADDRESS” before writing new data into “TO DATA” (see Write operation (TO)).

Ex- Profimap “Input CPU Device” = D0, “Output CPU Device” = D20

Table 7.10: Example Configuration

configuration		32DP-IF	FX2N-4DA (Extension Configuration)	FX2N-4DA (Short Configuration)	FX2N-4AD (Short Configuration)	FX2N-4AD (Simple Communication 3W-IF)
parameter	size	2 byte	50 byte	11 byte	11 byte	4 byte
cyclic read data	size	0 byte	0 byte	0 byte	8 byte	6 byte (3 words)
	Data register*1	-	-	-	D0 ~ D3	D4 ~ D6
cyclic written data	size	0 byte	8 byte	8 byte	0 byte	6 byte (3 words)
	Data register*1	-	D20 ~ D23	D24 ~ D27	-	D28 ~ D30

*1 This data resister is in 32DP-IF module.

To read BFM 5 of special function block 3 (FX2N-4AD in simple communication 3W-IF):

a) Write 8005hex (MSB=1 + BFM 5 address) to D28.
After 2 × Profibus cycle time + 1 × FX2N-32DP-IF cycle time (see D8010, D8011, D8012) D4 will contain the value of BFM5.

b) Write 8005hex (MSB=1 + BFM 5 address) to D28. MSB of D30 must be 0.
If D6 = D28 the operation is complete and D4 contains the value of BFM5.

To set the number of samples for channel 2 (BFM2) of SFB 3 to the value 10:

Write first 10 to D29 then 8002hex (MSB = 1 + BFM 2 address) to D30. The write operation has been completed successfully if D5 is the same as D29 and D6 the same as D30.

7.2.2 Exchanged Data Process by Simple Communication Interface

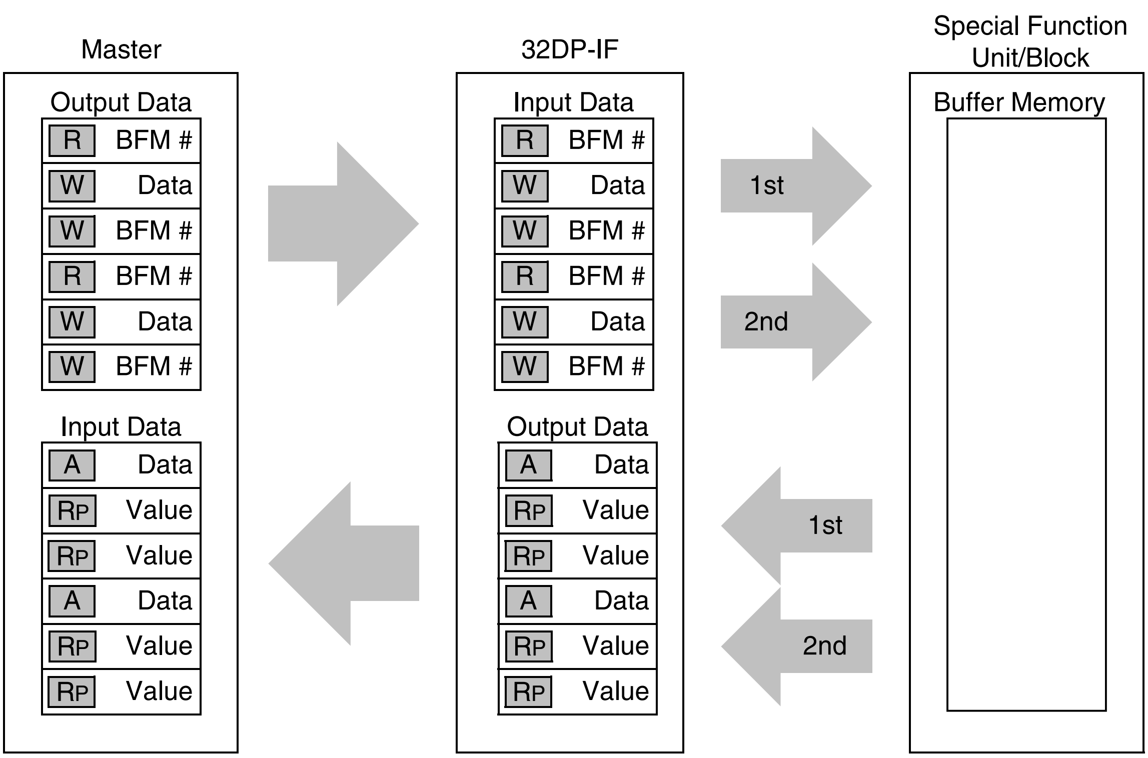
The Simple Communication Interface is a method to exchange data from the master to the 32DP-IF by the default user parameter. There are 3 word, 6 word, 9 word, 12 word and 15 word interface.

The Simple Communication Interface basically uses the Default Parameter one or more times (Refer to the table below and Figure 7.4).

Table 7.11: Repeatedly a Frequency and Exchange Data Length

Items	Use Frequency	Exchange Data Length	
		Input Data (Bytes)	Output Data (Bytes)
3 word Interface (3W-IF)	1	6	6
6 word Interface (6W-IF)	2	12	12
9 word Interface (9W-IF)	3	18	18
12 word Interface (12W-IF)	4	24	24
15 word Interface (15W-IF)	5	30	30

Figure 7.4: Simple Communication 6W-IF Case



R : BFM's number for reading from special function unit/block
W : BFM's number or data value for writing to special function unit/block
A : BFM's value read from special function unit/block
RP : BFM's number or data value written to special function unit/block

7.3 Configuring Slave Parameter

Caution:

The user parameter data and configuration of the 32DP-IF must always be consistent. To ensure that the user parameter data and the configuration of the 32DP-IF are matching each other, the user parameter data set should always be constructed by using the GSD file that has been delivered with the 32DP-IF.

7.3.1 Configuring Slave Parameter by GSD file

The parameter setting of the 32DP-IF can be entirely defined using the GSD file*1. For an easy adjustment of all user parameter data, the MELSOFT GX-Configurator-DP (or Mitsubishi ProfiMap Software V2.x or later) (hereafter called “GX-Configurator-DP”) or a configuration software from another vendor which is supporting extended parameter setting should be used.

For example configuring slave parameter with ProfiMap, refer to appendix A and C.
For example configuring slave parameter with GX-Configurator-DP, refer to appendix B and C.

*1 Please ask your vendor for the GSD file.

Note:

In configuring 32DP-IF GSD file, first assign special function blocks, second extension I/O units/blocks input data, and finally extension I/O units/blocks output data. The physical placement of the modules does not have to correspond with the GSD file order. However, the special function blocks must be configured in the same order as they are connected physically to the unit.

MEMO

8. Diagnostic Message

8.1 Diagnostic Message Frame

When a diagnostic error occurs in the 32DP-IF, a diagnostic message is sent from the 32DP-IF to the DP-master as shown in Figure 8.1. Refer to section 5.2 for the diagnostic message description.

Note:

If the DP-master receives a diagnostic message, make provisions for the system to act safely in accordance with the error message.

Figure 8.1: Diagnostic message Frame

Byte No.	0	1	2	3
Description	Total length of diagnostic message data is 9 (09 Hex)	First diagnostic message		Second diagnostic message
		Lower byte of D8029	Higher byte of D8029	Lower byte of D8004

Byte No.	4	5	6	7
Description	Second diagnostic message	Third diagnostic message		Lower byte of last diagnostic message data *2
	Higher byte of D8004	Lower byte of diagnostic *1	Higher byte of error code *1	

Byte No.	8
Description	Higher byte of last diagnostic message data *2

*1 This diagnostic message shows either the number of momentary power failures or the error code relating to the contents of D8004 (byte No. 3, 4). For error code, refer to section 5.2.4 or 9.3.3.

*2 This diagnostic message is either “0” or the contents of D8068.

8.2 Diagnostic Message Contents List

Table 8.1: Diagnostic Message List

Item	Third diagnostic message	Last diagnostic message
32DP-IF status is STOP	This value is “0”.	This value is “0”.
Momentary power failure	This value is number of momentary power failures in D8007.	
Power down		
I/O bus error	This value is error code in D8061.	This value is in D8068.
Parameter error/ Configuration error	This value is error code in D8064.	
Operation error	This value is error code in D8067.	

MEMO

9. Diagnostics

9.1 Preliminary Checks

1) Check “POWER LED”. If this is OFF, please see section 9.2.
2) Check power supply for special function blocks and extension I/O units/blocks.
   If this can not be supplied, 32DP-IF will not operate correctly.
3) Check that the slave addresses are the same at the 32DP-IF and in the DP-master configuration. If the slave addresses are not the same in the 32DP-IF and in the DP-master, change these addresses to match in both modules.
4) Check that the parameter data of 32DP-IF are set correctly in the DP-master.
   If the parameter data of the 32DP-IF are not set correctly in the DP-master, communication over the Profibus-DP network may be affected.
5) Check whether the network wiring and/or the cables for the extension blocks/units are properly connected to the 32DP-IF.
6) Check that the system configuration rules have not been exceeded, i.e. the number of special function blocks does not exceed 8 and control I/O of 32DP-IF is 256 or less.
7) Put RUN/STOP switch on the 32DP-IF into RUN.

9.2 Check the Status of the LEDs of the 32DP-IF

If the 32DP-IF does not seem to operate normally, check the following items.

1) Check the status of the “POWER LED”.

Table 9.1: POWER LED Check

Status	Description
Lit	Power source is OK.
Unlit	Possible AC power failure, check the power line and power source.

2) Check the status of the “RUN LED”

Table 9.2: RUN LED Check

Status	Description
Lit	The 32DP-IF will exchange data with extension units/blocks and special function blocks.
Unlit	The 32DP-IF will exchange only input data with extension units/blocks. Check position of the RUN/STOP switch. If the switch is in the STOP position, change to RUN. If this switch is RUN position, check power supply for special function blocks and extension I/O units/blocks.

3) Check the status of the “BF LED”

Table 9.3: BF LED Check

Status	Description
Lit	Check D8024. If D8024 does not show a stable baud rate (i.e. always changing) then check DP-network cables. Check M8004. If M8004 is ON, refer to Table 9.6.
Unlit	32DP-IF will exchange data with Profibus-DP network.

4) Check the status of the “DIA LED”

Table 9.4: DIA LED Check

Status	Description
Lit	Check status of M8004, and DP-master setting. If M8004 is ON, refer to Table 9.6.
Unlit	Diagnostic data is not detected.

9.3 Check Error Status of the 32DP-IF

9.3.1 Error Status in D8029

Table 9.5: Error Status in D8029

Bit No.	Description	0 (OFF)	1 (ON)
Bit 0	general error	No general error	This bit is ON if one or more error bits (bit 2, 6, 7) are ON. Check bit 2, 6 and 7 in D8029.
Bit 1	Reserved		
Bit 2	Power fail	Power supply is normal	Power supply failure
Bit 3 ~ 5	Reserved		
Bit 6	I/O bus error	No I/O bus error	I/O bus error occurred. Check extension bus cable of I/O extension units/blocks and error code in D8060.
Bit 7	Operation error	No operation error	Operation error occurred. Check extension bus cable of special function blocks, and DP-master parameter, and error code in D8067 and D8068.
Bit 8, 9	Reserved		
Bit 10	configuration error	Configuration data valid	Invalid configuration data received. Check configuration of 32DP-IF in the DP-master and D8040 ~ D8055.
Bit 11	Parameter error	Parameter data valid	Invalid parameter data received. Check parameter of 32DP-IF in the DP-master and D200 ~ D299, and error code in D8064and D8068.
Bit 12 ~ 14	Reserved		
Bit 15	RUN/STOP status	RUN/STOP switch is in RUN position	RUN/STOP switch is in STOP position

9.3.2 Error Flags

Table 9.6: Error Flags

Diagnostic Device	Name	Check Points
M8004 (ref. D8004)	Error occurrence	ON when one or more error flags (M8060 to M8068) is ON. If this bit is ON, error number is written in D8004.
M8060 (ref. D8060, D8061)	I/O configuration error	If this flag is ON, check error code in D8060, D8061 and extension cable.
M8061 (ref. D8060, D8061)	32DP-IF hardware error	If this bit is ON, check error code in D8061.
M8064 (ref. D8064	Parameter error	If this flag is ON, check error code inD8064 and DP-master setting.
M8067 (ref. D8067)	Operation error	If this flag is ON, check error code in D8067 and D8068, DP-master parameter, and the extension cable.
M8068 (ref. D8068)	Parameter error and operation error	If M8064 or M8067 is ON, this bit would be set to ON. This bit is cleared by resetting the power supply.

9.3.3 Error Code

Table 9.7: Error Code

Diagnostic Device	Name	Error code	Description
D8004	Error number M☆☆☆☆	The contents of this register ☆☆☆☆ identifies which error flag is active, i.e. if ☆☆☆☆ = 8061, identifies M8061.	
D8060	I/O configuration error	This device contains the lowest device address that caused the error. Check D8061	
D8061	32DP-IF hardware error	0	No error
		6102	Operation circuit error: Please contact a service representative.
		6103	I/O bus error: Check extension cable for Extension I/O units/blocks.
		6129	BFM #29 (error status) of a connected special function block shows a value that is different from “0”. Please check the diagnosis message at the DP-master.
D8064	Parameter error	0	No error
		6406	Parameter error for extension units/blocks: Check error code in D8068, and parameter in the DP-master.
		6407	Parameter length error: Parameter data too long, check parameter’s length in the DP-master.
D8067	Operation error	0	No error
		6407	Operation error: Operation error for transmitting special function block is occurred, check error code in D8068, and DP-master parameter, and extension cable.
D8068	Parameter error and operation error	This device contains the lowest special function block’s address that caused the error. Check D8064 and D8067.	

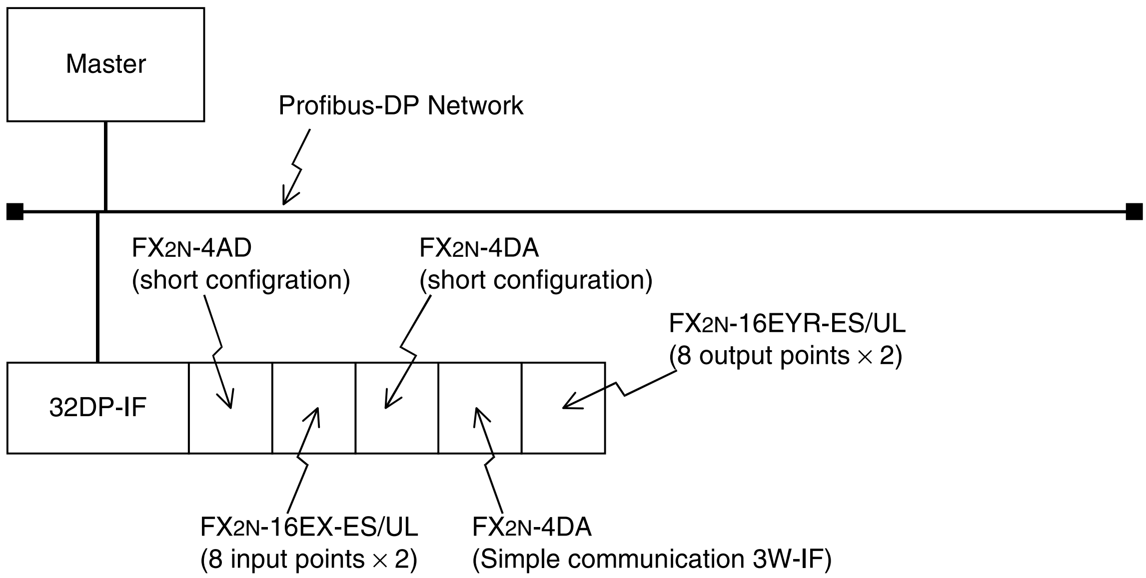
MEMO

Appendix A:
Example Parameter and Configuration on ProfiMap

This example parameter and configuration is written in ProfiMap V3.0. For further information on the operation of ProfiMap, please see the MELSEC ProfiMap Configuration System for Open Networks Software Manual. For an explanation of each special function block, please see the appropriate special function block manual.

A-1: System Configuration

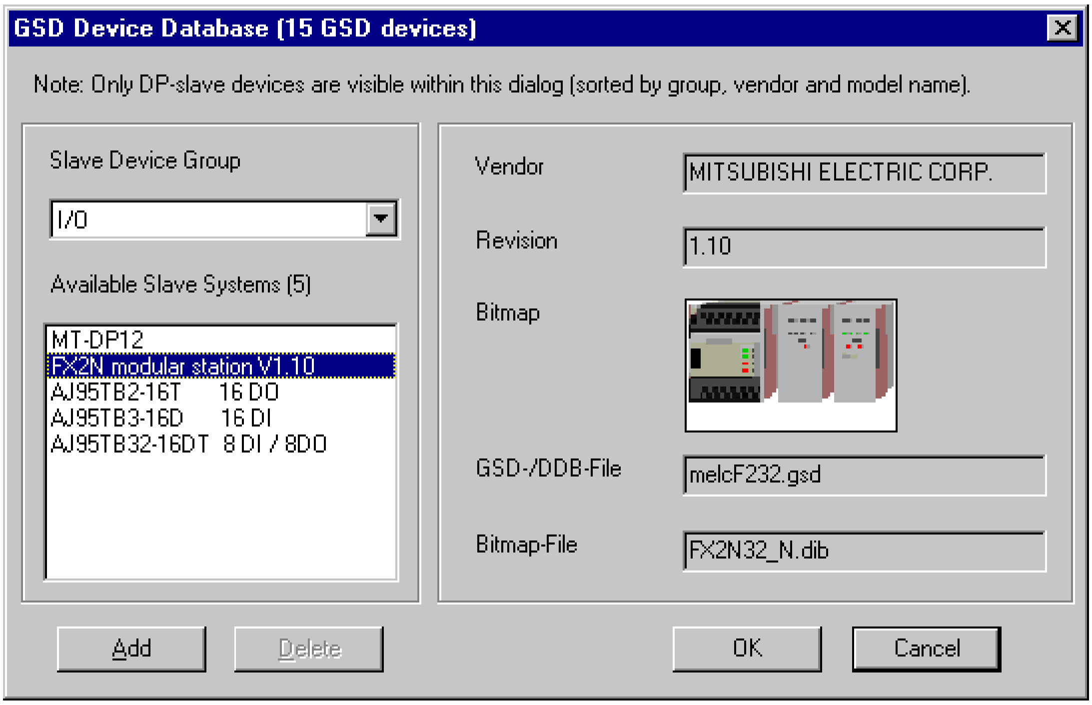
Figure A-1: Example System Configuration of 32DP-IF



A-2: Set System Configuration with ProfiMap

Move the cursor to the place where the slave can be arranged with the Network Configuration dialog box, then right-click. The GSD Database dialog box opens when “Insert DP-Slave” is selected.

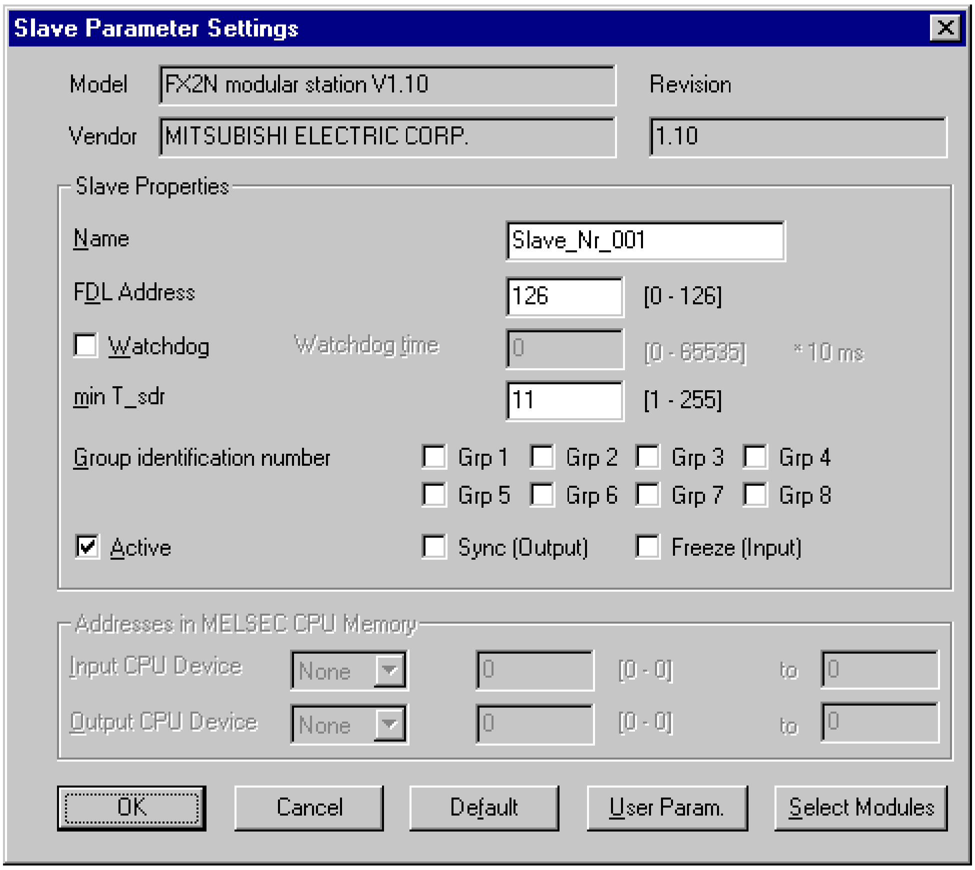
Figure A-2: GSD Device Database Dialog Box



In the GSD Device Database dialog box, please choose “FX2N modular V*.**” in the Available Slave Systems and “I/O” in the Slave Device Group. See picture above.

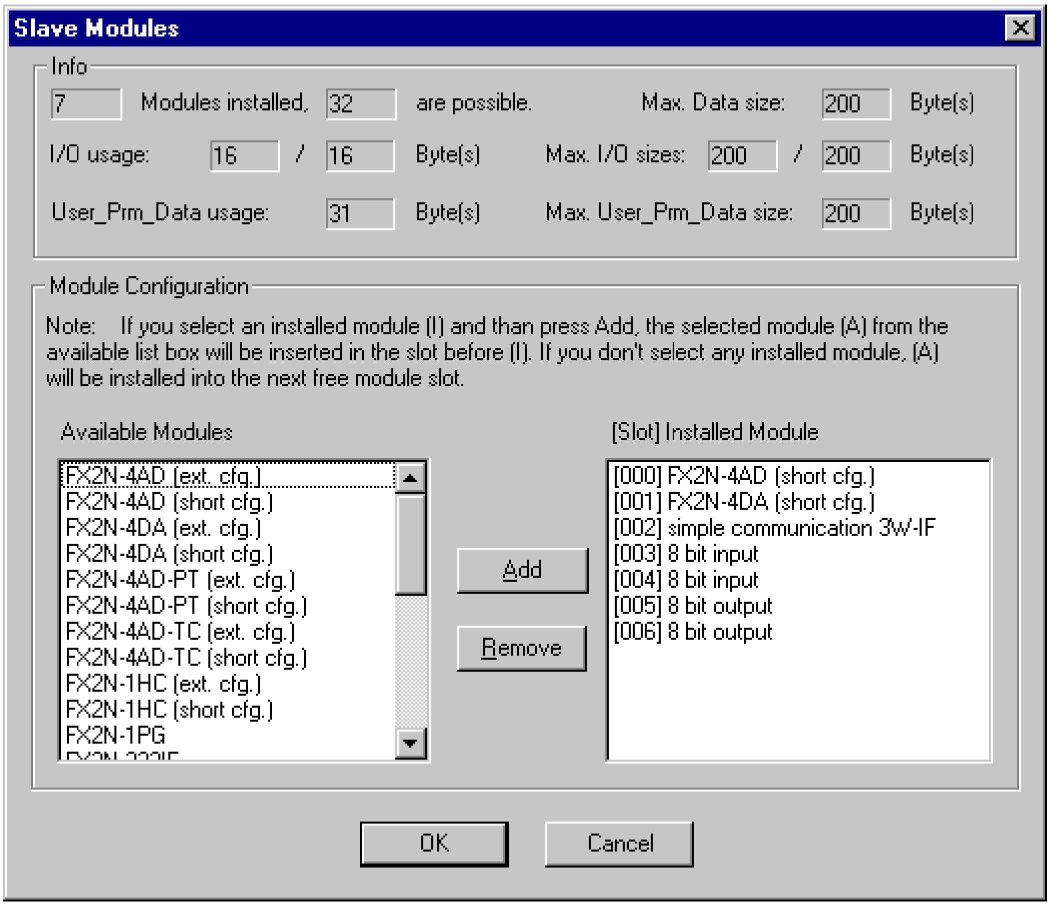
The Slave Parameter Settings dialog box will open when the OK button is clicked.

Figure A-3: Slave Parameter Settings Dialog Box



- The Slave Module dialog box opens when “Select Modules” is clicked.
- The Extended User Parameter dialog box opens when “User Param” is clicked.

Figure A-4: Slave Modules Dialog Box



The Slave Modules dialog box shows the Available Modules and the installed Modules. Use the Add and Remove buttons to configure the system as required. Please see section 6.3.1 for information on the correct order to install the modules.

Click OK to return to the Slave Parameter Setting dialog box (Figure A-3).

A-3: Set User Parameter with ProfiMap

Extended User Parameters dialog box opens when “User Param” is clicked in the Slave Parameter Setting dialog box. Choose the settings from the pull down menu in the Value Setting column. Please refer to Figure A-6 through A-9 for an example set up sequence.

Figure A-5: Extended User Parameters Dialog Box

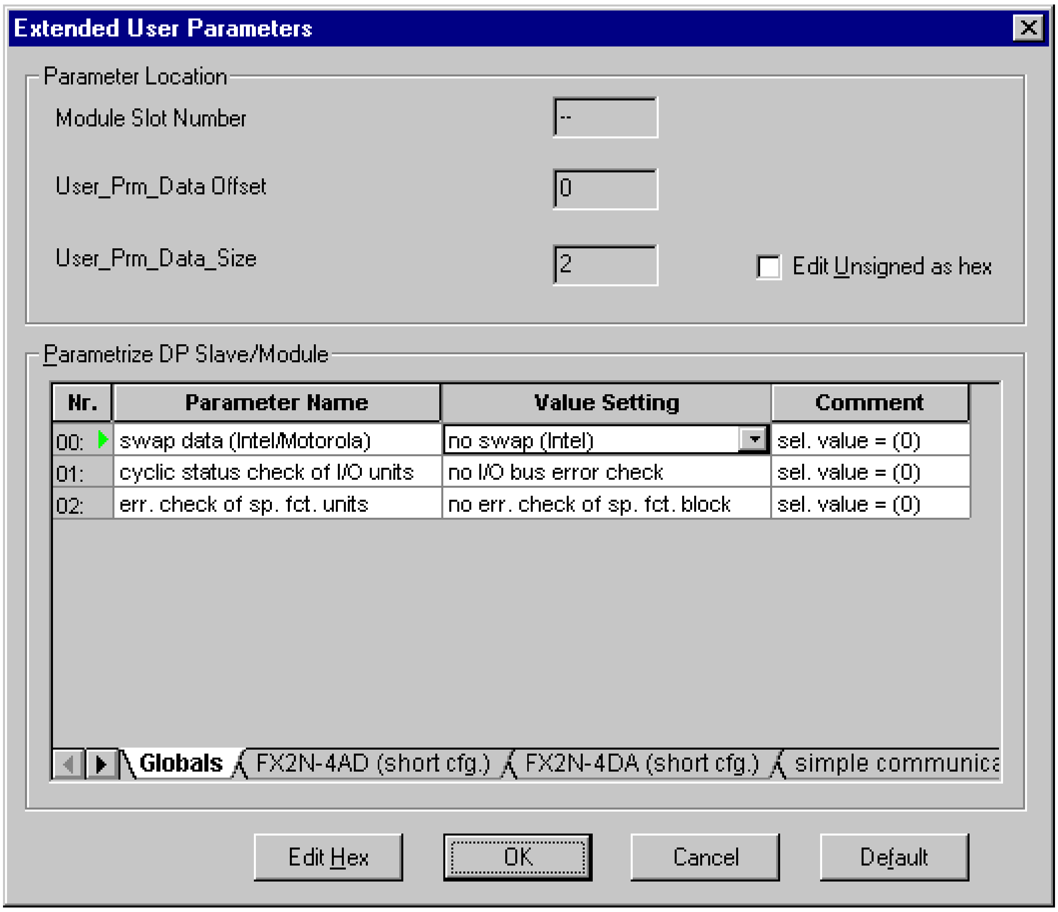


Figure A-6: Setting Global Parameter

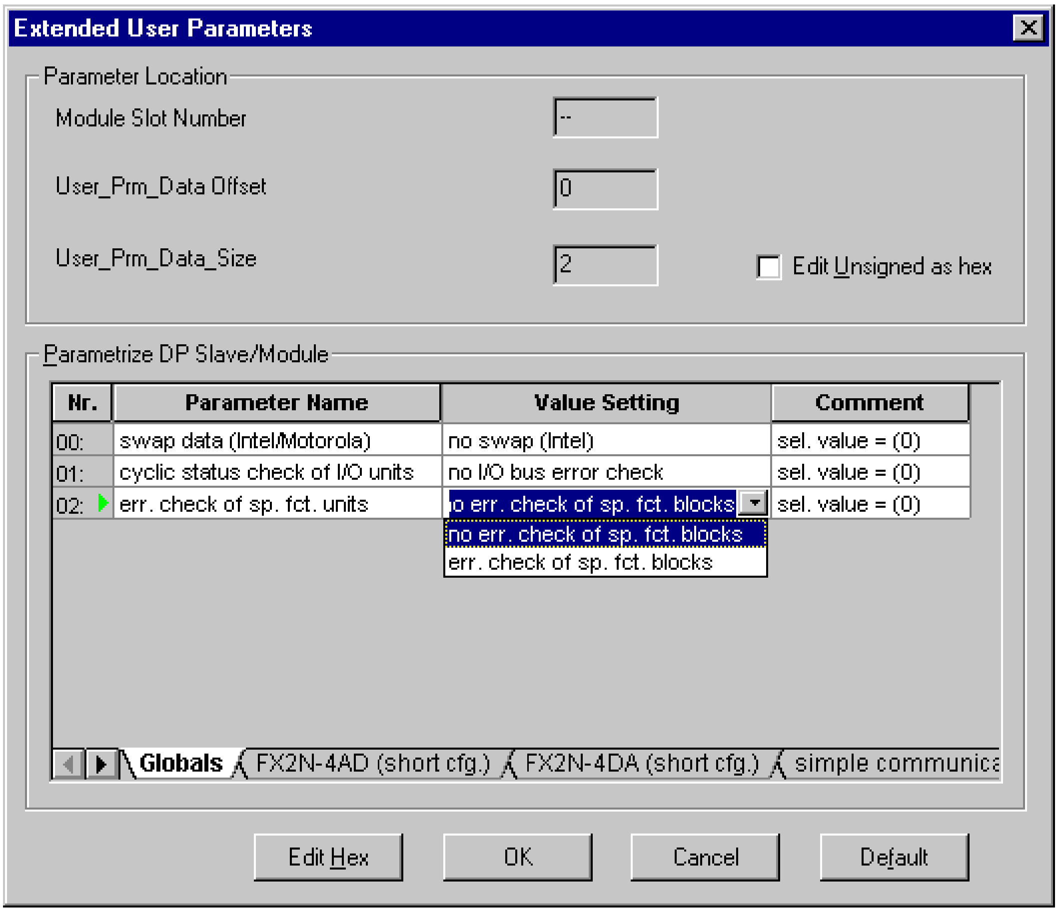


Figure A-7: Setting User Parameter of FX_{2N}-4AD (Short Configuration)

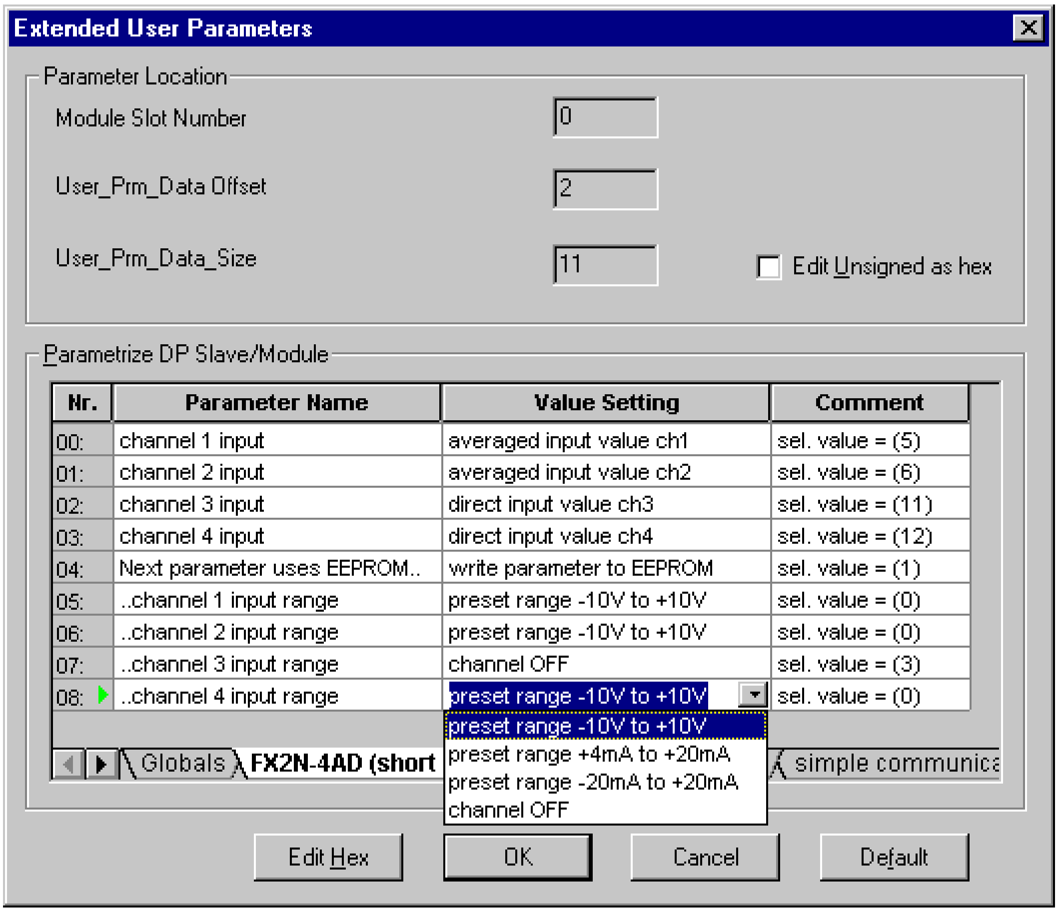


Figure A-8: Setting User Parameter of FX2N-4DA (Short Configuration)

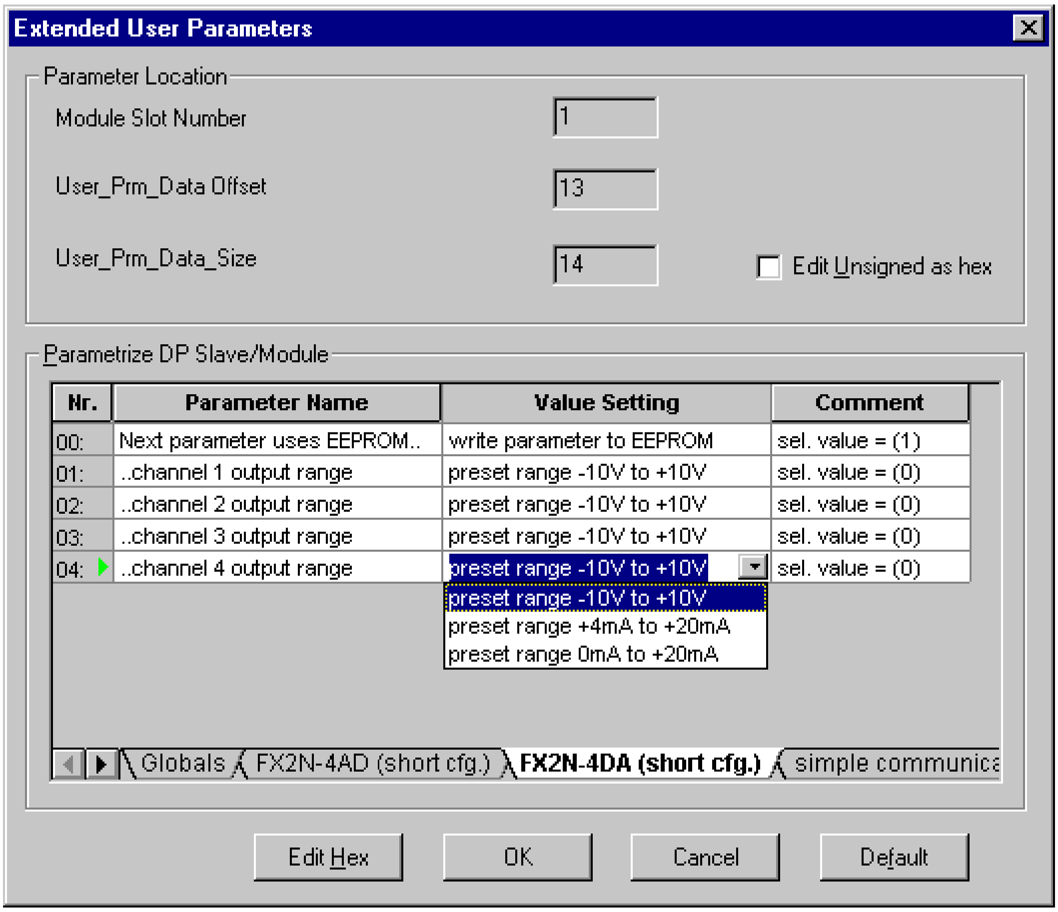
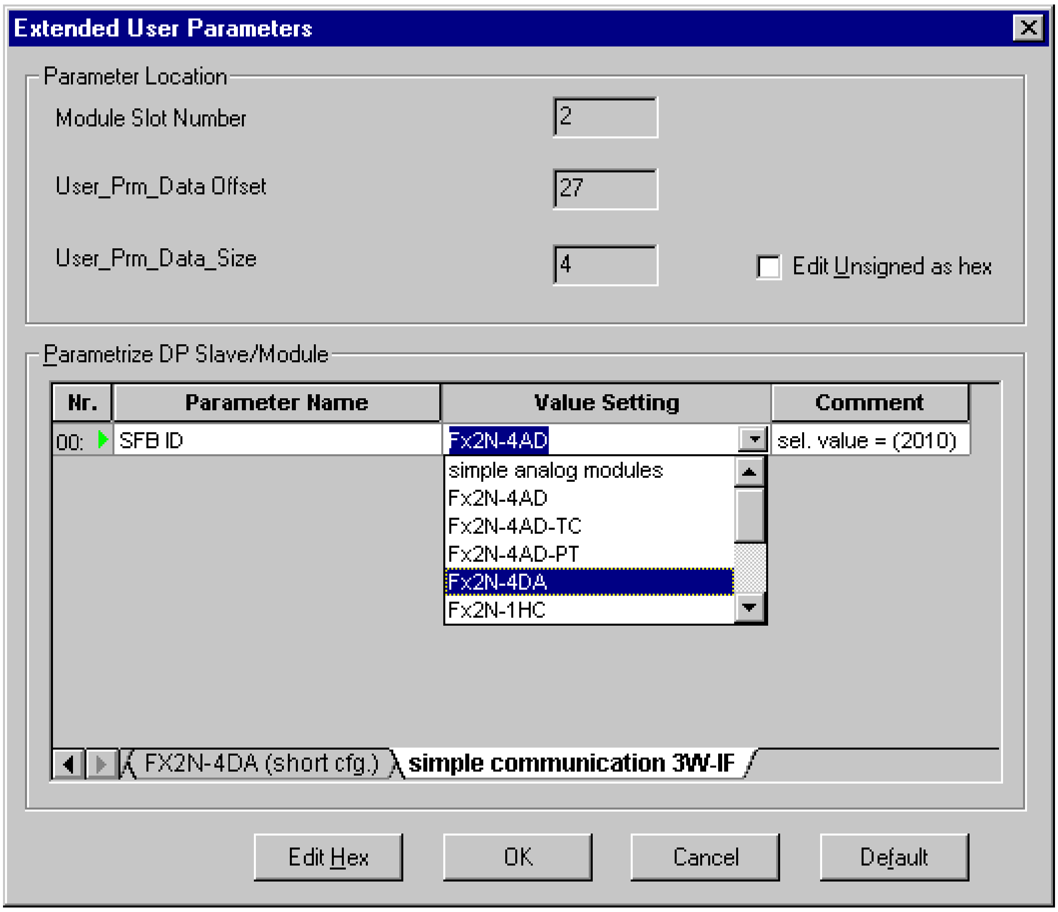


Figure A-9: Setting User Parameter of FX2N-4DA by Simple Communication 3W-IF



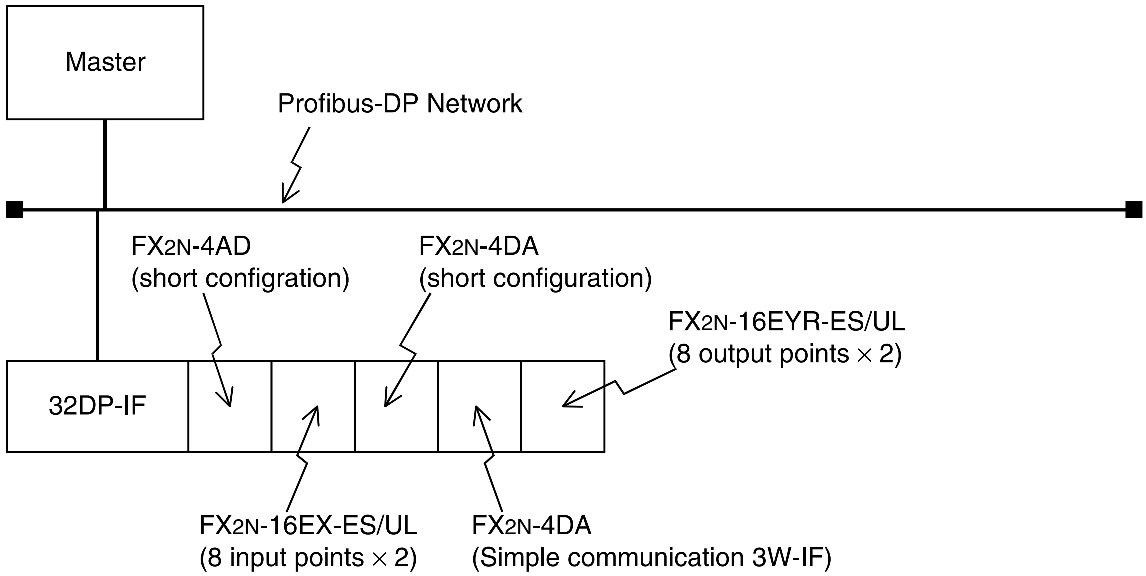
MEMO

Appendix B:
Example Parameter and Configuration on GX-Configurator-DP

This example parameter and configuration is written in GX-Configurator-DP V4.0. For further information on the operation of GX-Configurator-DP, please see the MELSOFT GX-Configurator-DP Configuration System for Open Networks Software Manual. For an explanation of each special function block, please see the appropriate special function block manual.

B-1: System Configuration

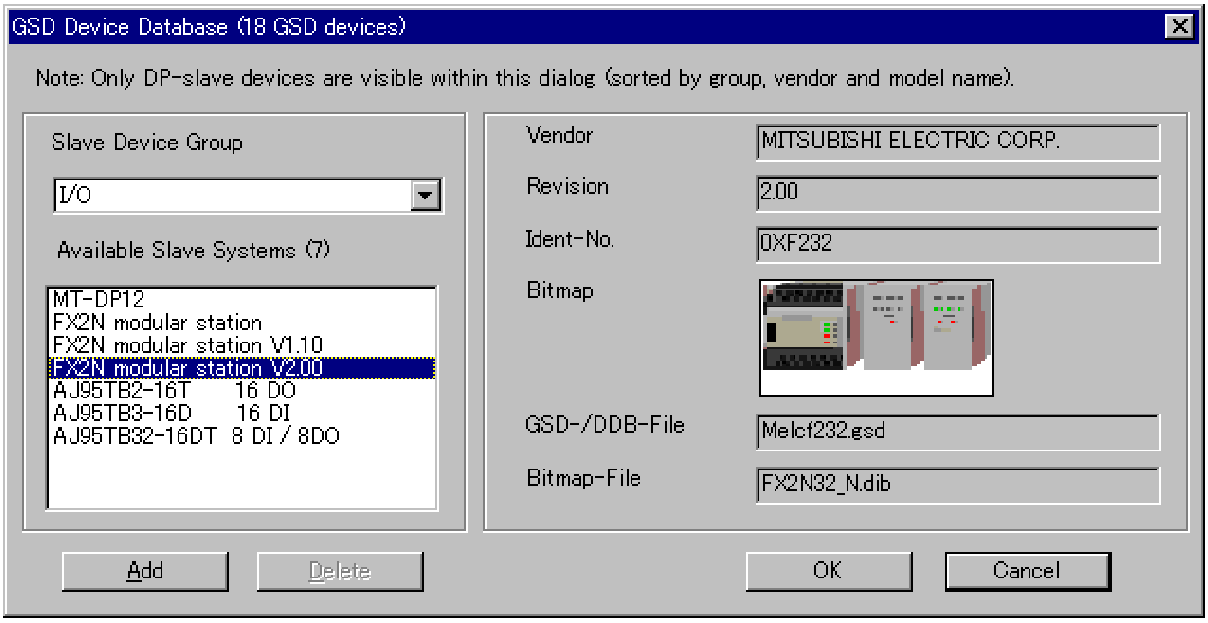
Figure B-1: Example System Configuration of 32DP-IF



B-2: Set System Configuration with GX-Configurator-DP

Move the cursor to the place where the slave can be arranged with the graphical network editor window, then right-click. The GSD Database dialog box opens when “Insert DP-Slave” is selected.

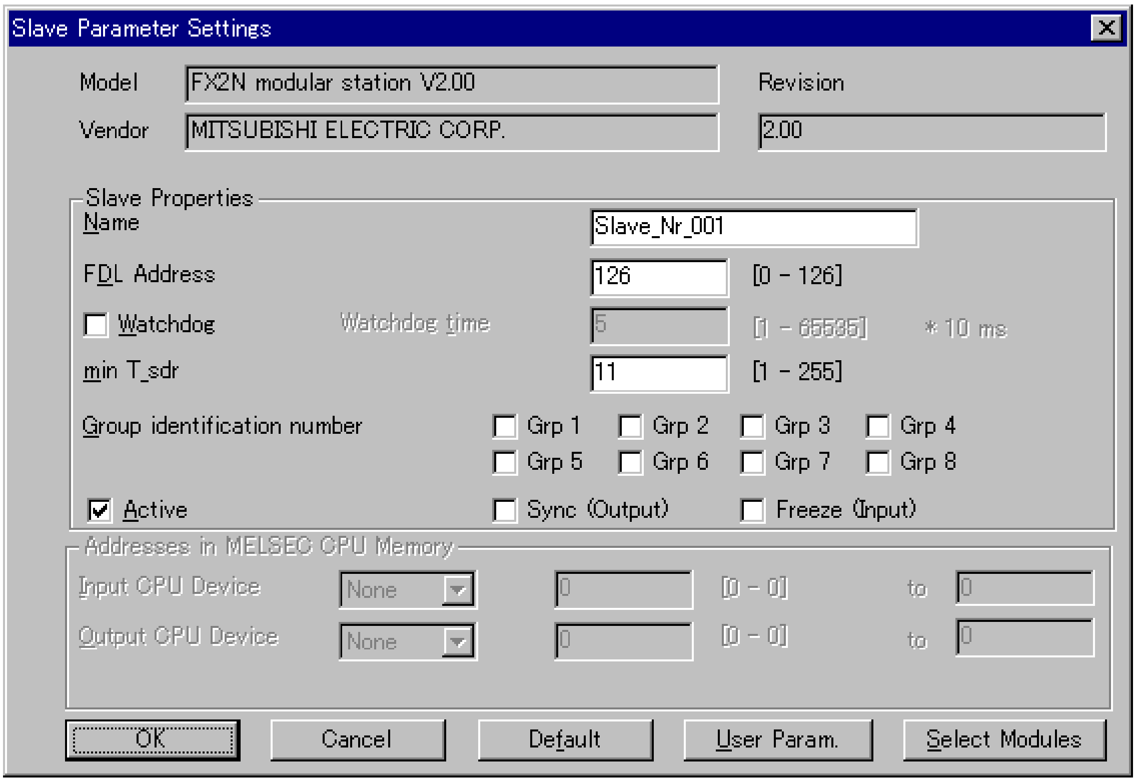
Figure B-2: GSD Device Database Dialog Box



In the GSD Device Database dialog box, please choose “FX2N modular V*.**” in the Available Slave Systems and “I/O” in the Slave Device Group. See picture above.

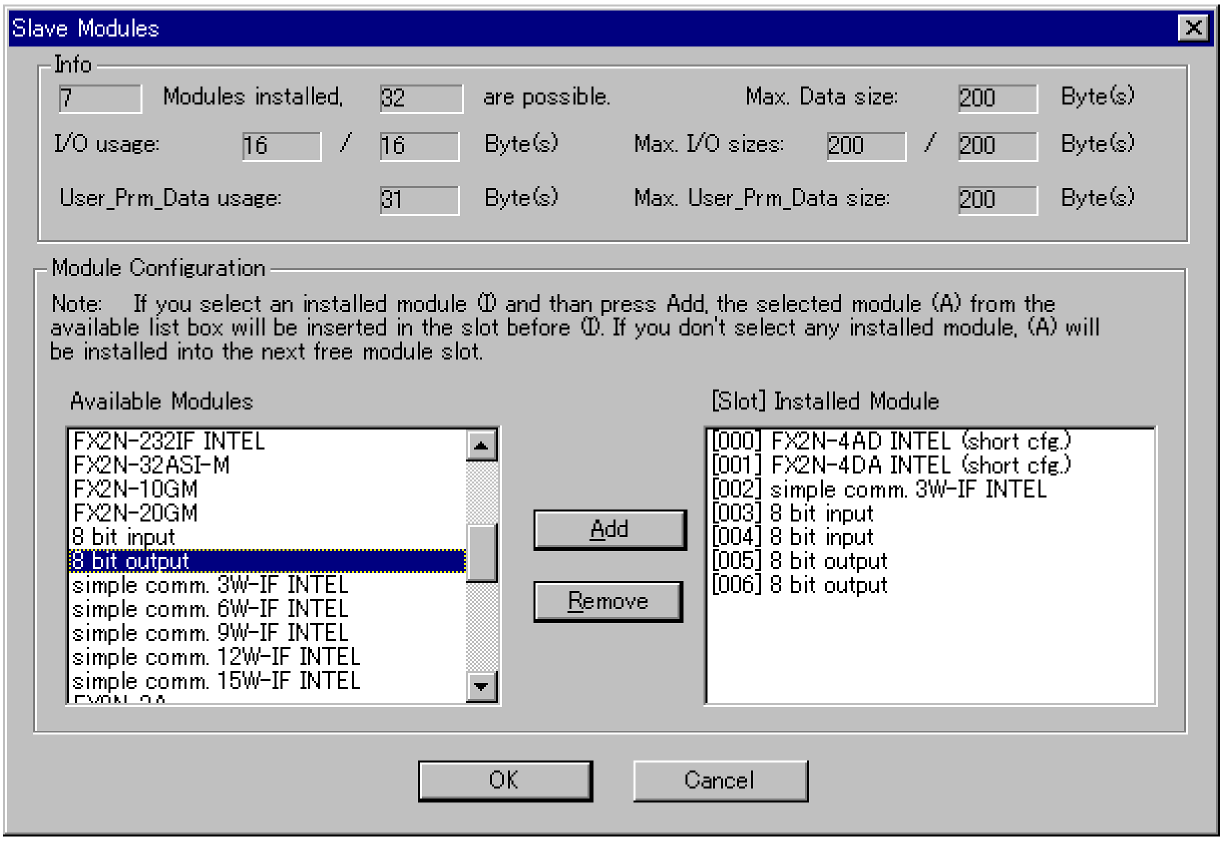
The Slave Parameter Settings dialog box will open when the OK button is clicked.

Figure B-3: Slave Parameter Settings Dialog Box



- The Slave Module dialog box opens when “Select Modules” is clicked.
- The Extended User Parameter dialog box opens when “User Param” is clicked.

Figure B-4: Slave Modules Dialog Box



The Slave Modules dialog box shows the Available Modules and the installed Modules. Use the Add and Remove buttons to configure the system as required. Please see section 6.3.1 for information on the correct order to install the modules.

Click OK to return to the Slave Parameter Setting dialog box (Figure A-3).

B-3: Set User Parameter with GX-Configurator-DP

Extended User Parameters dialog box opens when “User Param” is clicked in the Slave Parameter Setting dialog box. Choose the settings from the pull down menu in the Value Setting column. Please refer to Figure A-6 through A-9 for an example set up sequence.

Figure B-5: Extended User Parameters Dialog Box

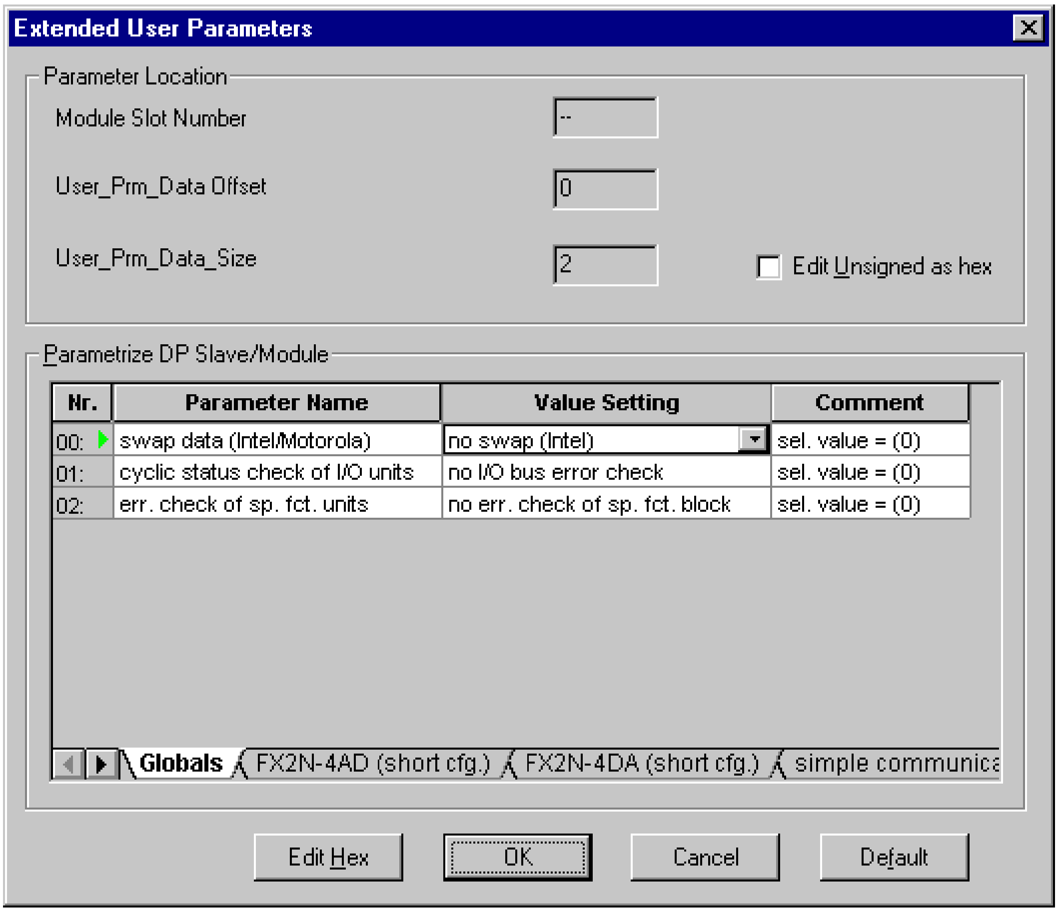


Figure B-6: Setting Global Parameter

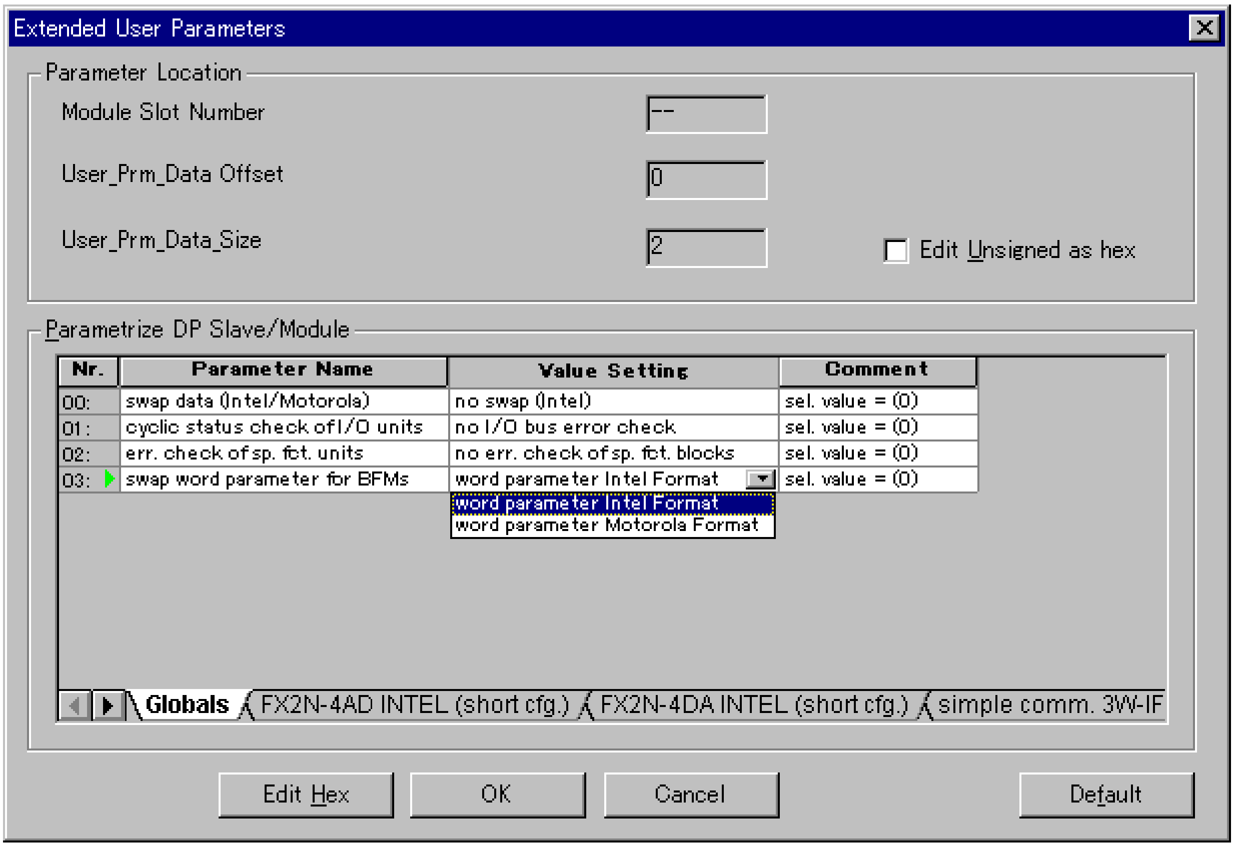


Figure B-7: Setting User Parameter of FX2N-4AD (Short Configuration Intel format)

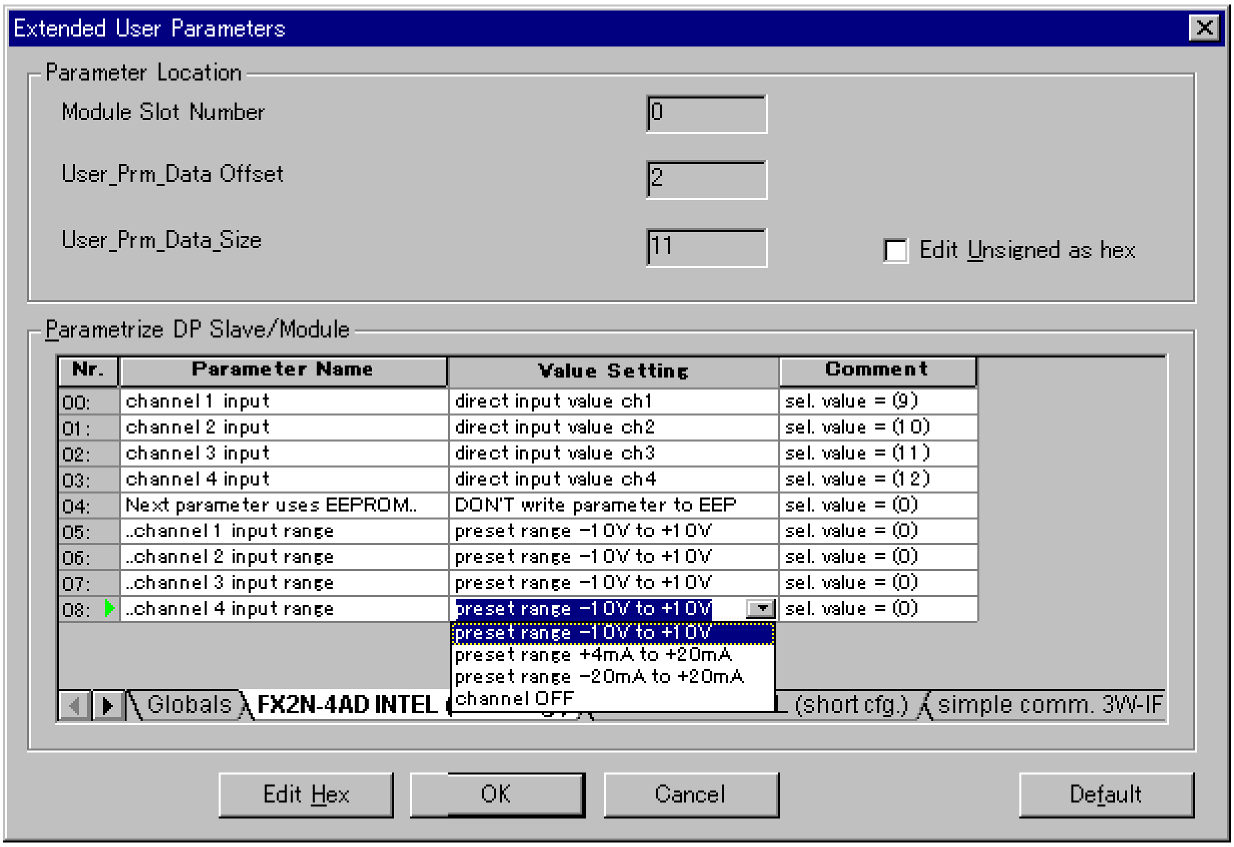


Figure B-8: Setting User Parameter of FX2N-4DA (Short Configuration Intel format)

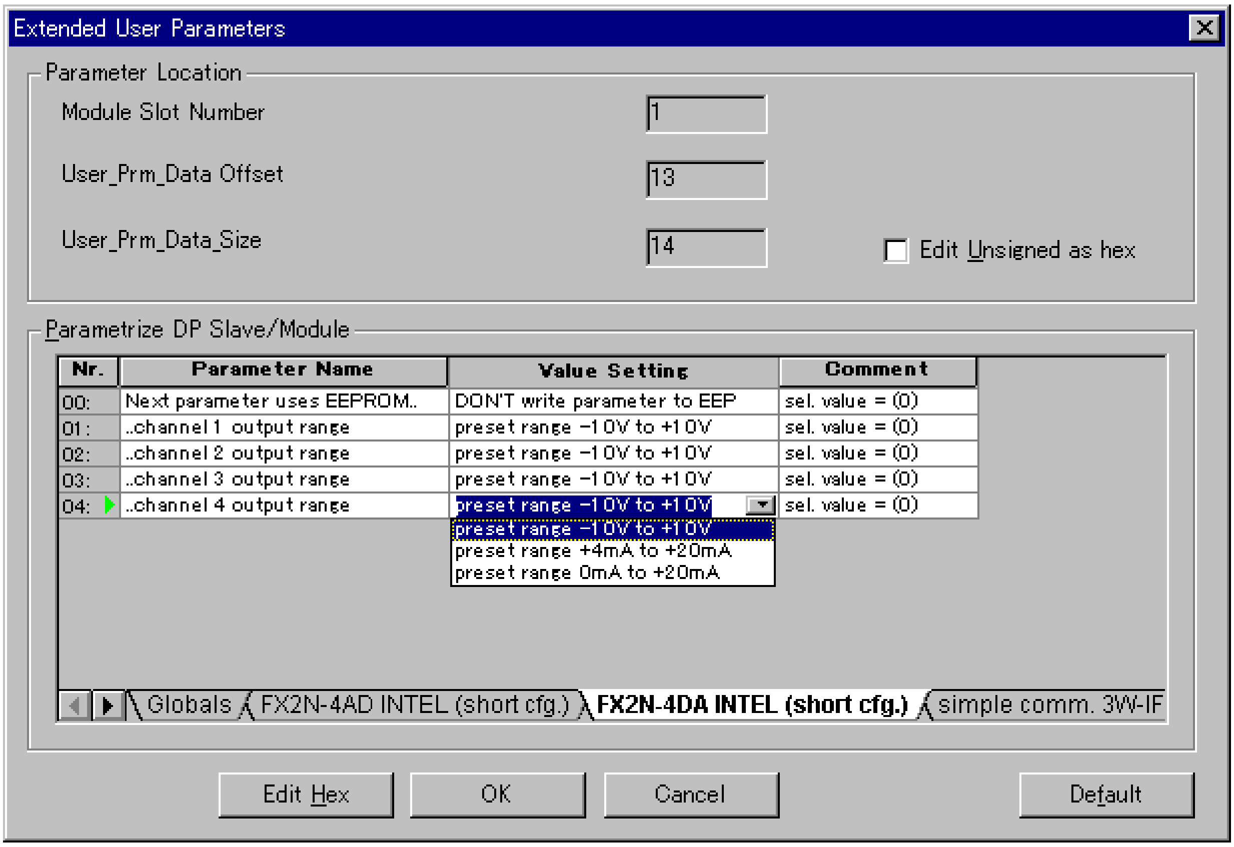
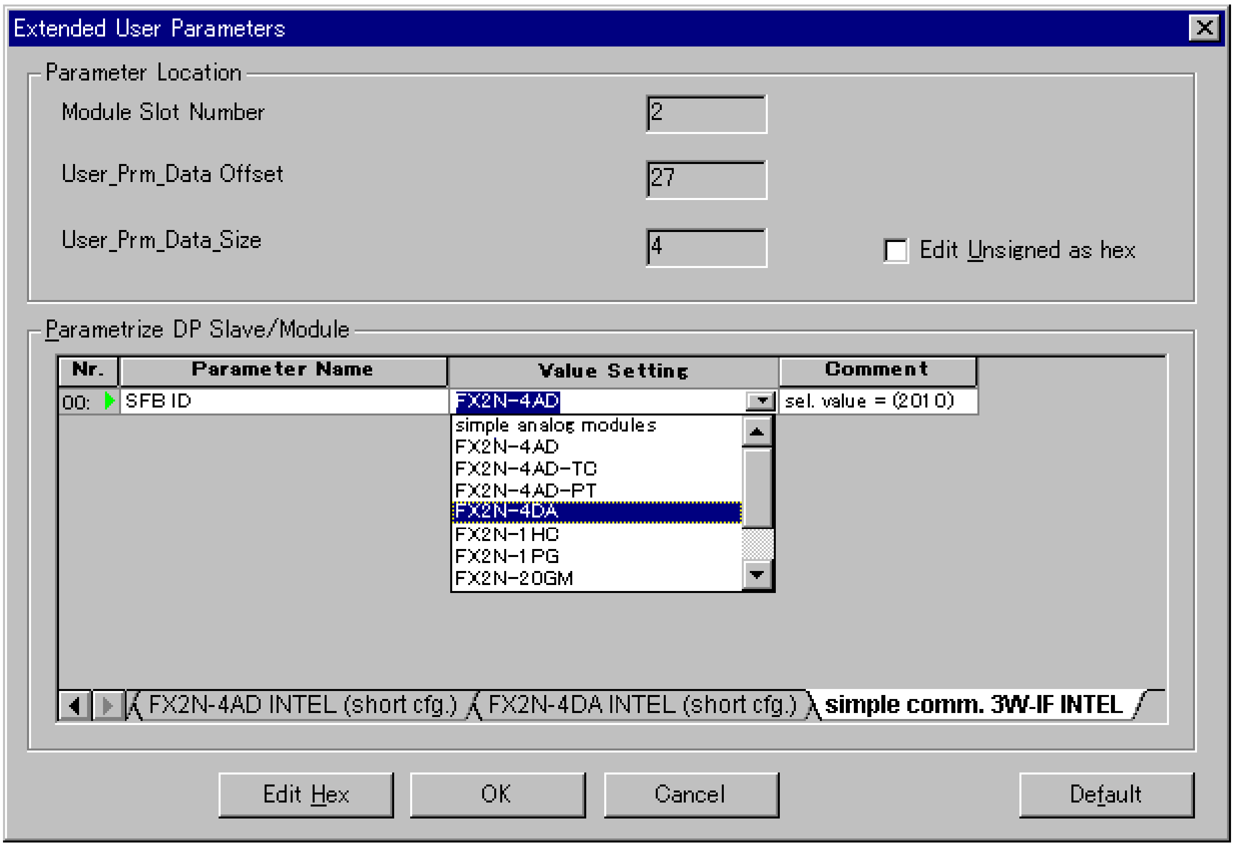


Figure B-9: Setting User Parameter of FX2N-4DA by Simple Communication 3W-IF (Intel format)



MEMO

Appendix C: User Parameter

The following user parameter is used by GSD File V2.10 of 32DP-IF on the configuration software.
Further information for user parameter can be found in the chapter 6. Further information for the special function block's BFMs can be found in each module's manual.

C-1: General Parameter (Global User Parameter)

The first two bytes of user parameter is general parameter. This parameter influence the communication of the FX2N-32DP-IF.
First byte is "Not used", so it is always 0. For second byte, see the following table.

Table C-1: General Parameter (Global User Parameter) [Second byte]

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	swap data for BFMs (Intel/Motorola)*1	no swap (Intel)	Default setting. Byte data is Intel format within the word data of special function block's BFMs.(Not swapped) 1st: Low byte 2nd: High byte
		swap (Motorola)	Byte data is Motorola format within the word data of special function block's BFMs.(Swapped) 1st: High byte 2nd: Low byte
01 (2nd)	cyclic status check of I/O units	no I/O bus error check	Default setting. The status check of the I/O units/blocks is not performed.
		cyclic I/O bus error check	The status check of the I/O units/blocks is performed in every cycle
02 (3rd)	error check of special function units	no err. check of sp. fct. blocks	Default setting. Error status (BFM #29) in all connected special function blocks is not checked.
		err. check of sp. fct. blocks	Error status (BFM #29) in all connected special function blocks is checked in every cycle. However, the following modules are not checked. • FX2N-10GM, FX2N-20GM, FX2N-2AD, FX2N-2DA, FX0N-3A
03 (4th)	swap word parameter for BFMs*2	word parameter Intel Format	Default setting. Byte data is Intel format within the word parameter. (Not swapped) 1st: Low byte 2nd: High byte
		word parameter Motorola Format	Byte data is Motorola format within the word parameter. (Swapped) 1st: High byte 2nd: Low byte

For information of Note, please see next page.

*1 These bit settings are different depending upon the connected master module.

a) When connecting the A and Q series (MITSUBISHI) master module, both units are set to Intel format.

b) When connecting other master module, please check the settings in the master module's manual.

C-2: User Parameter for Special function block

“Short configuration”, “extension configuration” and “simple communication” is prepared in the user parameter for a special function block with a special function block.

Further information for user parameter can be found in the chapter 6. Further information for the special function block’s BFMs can be found in each module’s manual.

C-2-1: FX2N-4AD Extension Configuration (Intel Format)

Requirements:

- Cyclic data is 4 word inputs in every cycle.

Table C-2: Cyclic Data of FX2N-4AD Extension Configuration (Intel Format)

	Send Data	Receive Data
1st	None	Choose between direct and averaged value ch1
2nd		Choose between direct and averaged value ch2
3rd		Choose between direct and averaged value ch3
4th		Choose between direct and averaged value ch4

- Parameter is 41 bytes.

Table C-3: FX2N-4AD Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Channel 1 input	direct input value ch1	Select input value type for channel 1 from the available options (BFM #9 or BFM #5).
		averaged input value ch1	
01 (2nd)	Channel 2 input	direct input value ch2	Select input value type for channel 2 from the available options (BFM #10 or BFM #6).
		averaged input value ch2	
02 (3rd)	Channel 3 input	direct input value ch3	Select input value type for channel 3 from the available options (BFM #11 or BFM #7).
		averaged input value ch3	
03 (4th)	Channel 4 input	direct input value ch4	Select input value type for channel 4 from the available options (BFM #12 or BFM #8).
		averaged input value ch4	
04 (5th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 6th parameter uses EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
05 (6th)	..O/G setting prohibit/permit	permit offset/gain setting	Select prohibit/permit setting of offset/ gain from the available options (BFM #21).
		prohibit offset/gain setting	
06 (7th)	RESET/INIT. MODULE TO DEFAULT	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
07[*1] (8th)	VERIFY RESET/ INITIALISE COMMAND	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	

Table C-3: FX2N-4AD Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
08*2 (9th)	A/D conversion speed	normal speed (15ms/ch)	Select conversion speed from the available options (BFM #15).
		high speed (6ms/ch)	
09 (10th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 11th ~13th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
10*3 (11th)	..channel 1 input range	preset range -10V to +10V	Select input range for channel 1 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
11*3 (12th)	..channel 2 input range	preset range -10V to +10V	Select input range for channel 2 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
12*3 (13th)	..channel 3 input range	preset range -10V to +10V	Select input range for channel 3 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
13*3 (14th)	..channel 4 input range	preset range -10V to +10V	Select input range for channel 4 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
14 (15th)	data BFM 1 (No. of samples ch1)	Default: 8	Set the number of samples for averaged results in channel 1 (BFM #1). Setting range: 1 to 4096
15 (16th)	data BFM 2 (No. of samples ch2)		Set the number of samples for averaged results in channel 2 (BFM #2). Setting range: 1 to 4096
16 (17th)	data BFM 3 (No. of samples ch3)		Set the number of samples for averaged results in channel 3 (BFM #3). Setting range: 1 to 4096
17 (18th)	data BFM 4 (No. of samples ch4)		Set the number of samples for averaged results in channel 4 (BFM #4). Setting range: 1 to 4096
18 (19th)	data BFM 23 (offset)	Default: 0	Set offset value (BFM #23). Setting range: -20000 to +20000
19*4 (20th)	data BFM 24 (gain)	Default: 5000	Set gain value (BFM #24). Setting: -20000 to +20000

Table C-3: FX2N-4AD Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
20 (21st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 22th ~ 25th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
21 (22nd)	..channel 1 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 1 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	
22 (23rd)	..channel 2 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	
23 (24th)	..channel 3 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	
24 (25th)	..channel 4 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	

*1 To RESET the special function block, set both parameters (6&7) to “reset module”. While processing a RESET command, no other parameter will be accepted by the special function block.
As mentioned in the FX2N-4AD users guide the EEPROM access takes 300ms. So it is not possible to RESET the special function block to defaults and set the BFMs 0 to 24 to a value different to the default value with the same parameter data block.
However, it is possible to send a parameter block to RESET any special function block that supports the RESET function and afterwards to send a second parameter block to set the module/s to the desired parameter values.

*2 In this case the default value of the GSD file (high speed) differs from the hardware default value (normal speed).

*3 The changes of BFM # 0 are written to EEPROM memory. Keep a delay of 300ms between setting the input range and other write accesses to the EEPROM.
Ex.- changing the gain/offset values

*4 If it is necessary to set different offset/gain values for every input channel, send the parameter data in multiple segments to the slave rage
Ex.- ch1: offset=100/gain=6000; ch2:100/7000; ch3:200/4000; ch4:no changes

Table C-4: Ex.- ch1: offset=100/gain=6000; ch2:100/7000; ch3:200/4000; ch4:no changes

	Parameter No.	Setting
1st parameter block	18th	100
	19th	6000
	20th	change offset & gain (channel 1)
	21th	change offset (channel 2)
	22th	no adjustment (channel 3)
	23th	no adjustment (channel 4)
2nd parameter block	18th	200
	19th	4000
	20th	no adjustment (channel 1)
	21th	no adjustment (channel 2)
	22th	change offset & gain (channel 3)
	23th	no adjustment (channel 4)
3rd parameter block	18th	System does not use this data.
	19th	7000
	20th	no adjustment (channel 1)
	21th	change gain (channel 2)
	22th	no adjustment (channel 3)
	23th	no adjustment (channel 4)

C-2-2: FX2N-4AD Extension Configuration (Motorola Format)

Requirements:

- Cyclic data is 4 word inputs in every cycle.

Table C-5: Cyclic Data of FX2N-4AD Extension Configuration (Motorola Format)

	Send Data	Receive Data
1st	None	Choose between direct and averaged value ch1
2nd		Choose between direct and averaged value ch2
3rd		Choose between direct and averaged value ch3
4th		Choose between direct and averaged value ch4

- Parameter is 41 bytes.

Table C-6: FX2N-4AD Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Channel 1 input	direct input value ch1	Select input value type for channel 1 from the available options (BFM #9 or BFM #5).
		averaged input value ch1	
01 (2nd)	Channel 2 input	direct input value ch2	Select input value type for channel 2 from the available options (BFM #10 or BFM #6).
		averaged input value ch2	
02 (3rd)	Channel 3 input	direct input value ch3	Select input value type for channel 3 from the available options (BFM #11 or BFM #7).
		averaged input value ch3	
03 (4th)	Channel 4 input	direct input value ch4	Select input value type for channel 4 from the available options (BFM #12 or BFM #8).
		averaged input value ch4	
04 (5th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 6th parameter uses EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
05 (6th)	..O/G setting prohibit/permit	permit offset/gain setting	Select prohibit/permit setting of offset/gain from the available options (BFM #21).
		prohibit offset/gain setting	
06 (7th)	RESET/INIT. MODULE TO DEFAULT	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
07[*1] (8th)	VERIFY RESET/ INITIALISE COMMAND	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
08[*2] (9th)	A/D conversion speed	normal speed (15ms/ch)	Select conversion speed from the available options (BFM #15).
		high speed (6ms/ch)	
09 (10th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 11th ~13th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	

Table C-6: FX2N-4AD Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
10*3 (11th)	..channel 3 input range	preset range -10V to +10V	Select input range for channel 3 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
11*3 (12th)	..channel 4 input range	preset range -10V to +10V	Select input range for channel 4 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
12*3 (13th)	..channel 1 input range	preset range -10V to +10V	Select input range for channel 1 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
13*3 (14th)	..channel 2 input range	preset range -10V to +10V	Select input range for channel 2 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
14 (15th)	data BFM 1 (No. of samples ch1)	Default: 8	Set the number of samples for averaged results in channel 1 (BFM #1). Setting range: 1 to 4096
15 (16th)	data BFM 2 (No. of samples ch2)		Set the number of samples for averaged results in channel 2 (BFM #2). Setting range: 1 to 4096
16 (17th)	data BFM 3 (No. of samples ch3)		Set the number of samples for averaged results in channel 3 (BFM #3). Setting range: 1 to 4096
17 (18th)	data BFM 4 (No. of samples ch4)		Set the number of samples for averaged results in channel 4 (BFM #4). Setting range: 1 to 4096
18*4 (19th)	data BFM 23 (offset)	Default: 0	Set offset value (BFM #23). Setting range: -20000 to +20000
19*4 (20th)	data BFM 24 (gain)	Default: 5000	Set gain value (BFM #24). Setting: -20000 to +20000
20 (21st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 22th ~ 25th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	

Table C-6: FX2N-4AD Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
21 (22nd)	..channel 1 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 1 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	
22 (23rd)	..channel 2 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	
23 (24th)	..channel 3 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	
24 (25th)	..channel 4 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #22).
		change offset	
		change gain	
		change gain & offset	

*1 To RESET the special function block, set both parameters (6&7) to “reset module”. While processing a RESET command, no other parameter will be accepted by the special function block.
As mentioned in the FX2N-4AD users guide the EEPROM access takes 300ms. So it is not possible to RESET the special function block to defaults and set the BFMs 0 to 24 to a value different to the default value with the same parameter data block.
However, it is possible to send a parameter block to RESET any special function block that supports the RESET function and afterwards to send a second parameter block to set the module/s to the desired parameter values.

*2 In this case the default value of the GSD file (high speed) differs from the hardware default value (normal speed).

*3 The changes of BFM # 0 are written to EEPROM memory. Keep a delay of 300ms between setting the input range and other write accesses to the EEPROM.
Ex.- changing the gain/offset values

*4 If it is necessary to set different offset/gain values for every input channel, send the parameter data in multiple segments to the slave rage
Ex.- ch1: offset=100/gain=6000; ch2:100/7000; ch3:200/4000; ch4:no changes

Table C-7: Ex.- ch1: offset=100/gain=6000; ch2:100/7000; ch3:200/4000; ch4:no changes

	Parameter No.	Setting
1st parameter block	18th	100
	19th	6000
	20th	change offset & gain (channel 1)
	21th	change offset (channel 2)
	22th	no adjustment (channel 3)
	23th	no adjustment (channel 4)
2nd parameter block	18th	200
	19th	4000
	20th	no adjustment (channel 1)
	21th	no adjustment (channel 2)
	22th	change offset & gain (channel 3)
	23th	no adjustment (channel 4)
3rd parameter block	18th	Don’t care
	19th	7000
	20th	no adjustment (channel 1)
	21th	change gain (channel 2)
	22th	no adjustment (channel 3)
	23th	no adjustment (channel 4)

C-2-3: FX2N-4AD Short Configuration (Intel Format)

Requirements:

- Cyclic data is 4 word inputs in every cycle.

Table C-8: Cyclic Data of FX2N-4AD Short Configuration (Intel Format)

	Send Data	Receive Data
1st	None	Choose between direct and averaged value ch1
2nd		Choose between direct and averaged value ch2
3rd		Choose between direct and averaged value ch3
4th		Choose between direct and averaged value ch4

- Parameter is 11 bytes.

Table C-9: FX2N-4AD Short Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Channel 1 input	direct input value ch1	Select input value type for channel 1 from the available options (BFM #9 or BFM #5).
		averaged input value ch1	
01 (2nd)	Channel 2 input	direct input value ch2	Select input value type for channel 2 from the available options (BFM #10 or BFM #6).
		averaged input value ch2	
02 (3rd)	Channel 3 input	direct input value ch3	Select input value type for channel 3 from the available options (BFM #11 or BFM #7).
		averaged input value ch3	
03 (4th)	Channel 4 input	direct input value ch4	Select input value type for channel 4 from the available options (BFM #12 or BFM #8).
		averaged input value ch4	
04 (5th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 6th ~9th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
05*1 (6th)	..channel 1 input range	preset range -10V to +10V	Select input range for channel 1 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
06*1 (7th)	..channel 2 input range	preset range -10V to +10V	Select input range for channel 2 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
07*1 (8th)	..channel 3 input range	preset range -10V to +10V	Select input range for channel 3 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	

Table C-9: FX2N-4AD Short Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
08*1 (9th)	..channel 4 input range	preset range -10V to +10V	Select input range for channel 4 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	

*1 The changes of BFM # 0 are written to EEPROM memory. Keep a delay of 300ms between setting the input range and other write accesses to the EEPROM.
Ex.- changing the gain/offset values

C-2-4: FX2N-4AD Short Configuration (Motorola Format)

Requirements:

- Cyclic data is 4 word inputs in every cycle.

Table C-10: Cyclic Data of FX2N-4AD Short Configuration (Motorola Format)

	Send Data	Receive Data
1st	None	Choose between direct and averaged value ch1
2nd		Choose between direct and averaged value ch2
3rd		Choose between direct and averaged value ch3
4th		Choose between direct and averaged value ch4

- Parameter is 11 bytes.

Table C-11: FX2N-4AD Short Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Channel 1 input	direct input value ch1	Select input value type for channel 1 from the available options (BFM #9 or BFM #5).
		averaged input value ch1	
01 (2nd)	Channel 2 input	direct input value ch2	Select input value type for channel 2 from the available options (BFM #10 or BFM #6).
		averaged input value ch2	
02 (3rd)	Channel 3 input	direct input value ch3	Select input value type for channel 3 from the available options (BFM #11 or BFM #7).
		averaged input value ch3	
03 (4th)	Channel 4 input	direct input value ch4	Select input value type for channel 4 from the available options (BFM #12 or BFM #8).
		averaged input value ch4	
04 (5th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 6th ~9th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
05[*1] (6th)	..channel 3 input range	preset range -10V to +10V	Select input range for channel 3 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
06[*1] (7th)	..channel 4 input range	preset range -10V to +10V	Select input range for channel 4 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	
07[*1] (8th)	..channel 1 input range	preset range -10V to +10V	Select input range for channel 1 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	

Table C-11: FX2N-4AD Short Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
08*1 (9th)	..channel 2 input range	preset range -10V to +10V	Select input range for channel 2 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -20mA to +20mA	
		channel OFF	

*1 The changes of BFM # 0 are written to EEPROM memory. Keep a delay of 300ms between setting the input range and other write accesses to the EEPROM.
Ex.- changing the gain/offset values

C-2-5: FX2N-4DA Extension Configuration (Intel Format)

Requirements:

- Cyclic data is 4 word outputs in every cycle.

Table C-12: Cyclic Data of FX2N-4DA Extension Configuration (Intel Format)

	Send Data	Receive Data
1st	Data for channel 1	None
2nd	Data for channel 2	
3rd	Data for channel 3	
4th	Data for channel 4	

- Parameter is 50 bytes.
- For the FX2N-4DA the GSD-File is using a setting which is different to the default of the FX2N-4DA. The BFM #5 is set to 1111hex which will reset the analog outputs to the offset value if there is no further FROM/TO instruction.
  The reason for this setting is the behavior of the FX2N-32DP-IF, according to the Profibus specification it will set the cyclic output data to '0' if the Slave detects an internal watchdog error (Profibus down). In the case of the FX2N-4DA ext. & short configuration, an internal watchdog error will set the analog output data of channel 1,2,3 and 4 to 0 which means offset value.
- To hold the last output value, please use 'simple communication', because this communication style is accessing the BFMs indirectly. In the case of a watchdog error of the FX2N-32DP-IF, access to the FX2N-4DA will be stopped but the last output data will be held if BFM #5 is set to 0 for the corresponding channel.

Table C-13: FX2N-4DA Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 2nd parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
01 (2nd)	..O/G setting prohibit/permit	permit offset/gain setting	Select prohibit/permit setting of offset/ gain from the available options (BFM #21).
		prohibit offset/gain setting	
02 (3rd)	RESET/INIT. MODULE TO DEFAULT	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
03*1 (4th)	VERIFY RESET/ INITIALISE COMMAND	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
04 (5th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 6th to 9th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	

Table C-13: FX2N-4DA Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
05*1 (6th)	..channel 1 output range	preset range -10V to +10V preset range +4mA to +20mA preset range -0mA to +20mA	Select output range for channel 1 from the available options (BFM #0).
06*1 (7th)	..channel 2 output range	preset range -10V to +10V preset range +4mA to +20mA preset range 0mA to +20mA	Select output range for channel 2 from the available options (BFM #0).
07*1 (8th)	..channel 3 output range	preset range -10V to +10V preset range +4mA to +20mA preset range 0mA to +20mA	Select output range for channel 3 from the available options (BFM #0).
08*1 (9th)	..channel 4 output range	preset range -10V to +10V preset range +4mA to +20mA preset range 0mA to +20mA	Select output range for channel 4 from the available options (BFM #0).
09*2 (10th)	data BFM10 (offset ch1)	Default: 0	Set offset value for channel 1 (BFM #10). Setting range: -20000 to +20000
10*2 (11th)	data BFM 11 (gain ch1)	Default: 5000	Set gain value for channel 1 (BFM #11). Setting: -20000 to +20000
11*2 (12th)	data BFM 12 (offset ch2)	Default: 0	Set offset value for channel 2 (BFM #12). Setting range: -20000 to +20000
12*2 (13th)	data BFM 13 (gain ch2)	Default: 5000	Set gain value for channel 2 (BFM #13). Setting: -20000 to +20000
13*2 (14th)	data BFM 14 (offset ch3)	Default: 0	Set offset value for channel 3 (BFM #14). Setting range: -20000 to +20000
14*2 (15th)	data BFM 15 (gain ch3)	Default: 5000	Set gain value for channel 3 (BFM #15). Setting: -20000 to +20000
15*2 (16th)	data BFM 16 (offset ch4)	Default: 0	Set offset value for channel 4 (BFM #16). Setting range: -20000 to +20000
16*2 (17th)	data BFM 17 (gain ch4)	Default: 5000	Set gain value for channel 4 (BFM #17). Setting: -20000 to +20000
17*2 (18th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM write parameter to EEPROM	The 19th and 20th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.

Table C-13: FX2N-4DA Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
18*2 (19th)	..channel 1 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 1 from the available options (BFM #8).
		change offset	
		change gain	
		change gain & offset	
19*2 (20th)	..channel 2 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #8).
		change offset	
		change gain	
		change gain & offset	
20*2 (21st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 22nd and 23rd parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
21*2 (22nd)	..channel 3 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 3 from the available options (BFM #9).
		change offset	
		change gain	
		change gain & offset	
22*2 (23rd)	..channel 4 (offset/ gain)	no offset/gain setting	Select gain/offset adjust setting for channel 4 from the available options (BFM #9).
		change offset	
		change gain	
		change gain & offset	

*1 To RESET the special function block, set both parameters (2&3) to “reset module”. While processing a RESET command, no other parameter will be accepted by the special function block. As mentioned in the FX2N-4DA user’s guide the EEPROM access takes 3s. It is not possible to RESET the special function block to defaults and to set the BFMs 0 to 21 to a non-default value within the same parameter data block.
However, it is possible to send a parameter block to RESET any special function block that supports the RESET function and afterwards to send a second parameter block to set the module/s to the desired parameter values.

*2 When changing offset and gain setting value for one or more channels, please set the values for every channel.

C-2-6: FX2N-4DA Extension Configuration (Motorola Format)

Requirements:

- Cyclic data is 4 word outputs in every cycle.

Table C-14: Cyclic Data of FX2N-4DA Extension Configuration (Motorola Format)

	Send Data	Receive Data
1st	Data for channel 1	None
2nd	Data for channel 2	
3rd	Data for channel 3	
4th	Data for channel 4	

- Parameter is 50 bytes.
- For the FX2N-4DA the GSD-File is using a setting which is different to the default of the FX2N-4DA. The BFM #5 is set to 1111hex which will reset the analog outputs to the offset value if there is no further FROM/TO instruction.
  The reason for this setting is the behavior of the FX2N-32DP-IF, according to the Profibus specification it will set the cyclic output data to '0' if the Slave detects an internal watchdog error (Profibus down). In the case of the FX2N-4DA ext. & short configuration, an internal watchdog error will set the analog output data of channel 1,2,3 and 4 to 0 which means offset value.
- To hold the last output value, please use 'simple communication', because this communication style is accessing the BFMs indirectly. In the case of a watchdog error of the FX2N-32DP-IF, access to the FX2N-4DA will be stopped but the last output data will be held if BFM #5 is set to 0 for the corresponding channel.

Table C-15: FX2N-4DA Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 2nd parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
01 (2nd)	..O/G setting prohibit/permit	permit offset/gain setting	Select prohibit/permit setting of offset/gain from the available options (BFM #21).
		prohibit offset/gain setting	
02 (3rd)	RESET/INIT. MODULE TO DEFAULT	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
03*1 (4th)	VERIFY RESET/ INITIALISE COMMAND	no reset/initialisation	Select initialize module setting from the available options (BFM #20).
		RESET/INITIALISE MODULE	
04 (5th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 6th to 9th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	

Table C-15: FX2N-4DA Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
05*1 (6th)	..channel 3 output range	preset range -10V to +10V preset range +4mA to +20mA preset range -0mA to +20mA	Select output range for channel 3 from the available options (BFM #0).
06*1 (7th)	..channel 4 output range	preset range -10V to +10V preset range +4mA to +20mA preset range 0mA to +20mA	Select output range for channel 4 from the available options (BFM #0).
07*1 (8th)	..channel 1 output range	preset range -10V to +10V preset range +4mA to +20mA preset range 0mA to +20mA	Select output range for channel 1 from the available options (BFM #0).
08*1 (9th)	..channel 2 output range	preset range -10V to +10V preset range +4mA to +20mA preset range 0mA to +20mA	Select output range for channel 2 from the available options (BFM #0).
09*2 (10th)	data BFM10 (offset ch1)	Default: 0	Set offset value for channel 1 (BFM #10). Setting range: -20000 to +20000
10*2 (11th)	data BFM 11 (gain ch1)	Default: 5000	Set gain value for channel 1 (BFM #11). Setting: -20000 to +20000
11*2 (12th)	data BFM 12 (offset ch2)	Default: 0	Set offset value for channel 2 (BFM #12). Setting range: -20000 to +20000
12*2 (13th)	data BFM 13 (gain ch2)	Default: 5000	Set gain value for channel 2 (BFM #13). Setting: -20000 to +20000
13*2 (14th)	data BFM 14 (offset ch3)	Default: 0	Set offset value for channel 3 (BFM #14). Setting range: -20000 to +20000
14*2 (15th)	data BFM 15 (gain ch3)	Default: 5000	Set gain value for channel 3 (BFM #15). Setting: -20000 to +20000
15*2 (16th)	data BFM 16 (offset ch4)	Default: 0	Set offset value for channel 4 (BFM #16). Setting range: -20000 to +20000
16*2 (17th)	data BFM 17 (gain ch4)	Default: 5000	Set gain value for channel 4 (BFM #17). Setting: -20000 to +20000
17*2 (18th)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM write parameter to EEPROM	The 19th and 20th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.

Table C-15: FX2N-4DA Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
18*2 (19th)	..channel 2 (offset/gain)	no offset/gain setting	Select gain/offset adjust setting for channel 2 from the available options (BFM #8).
		change offset	
		change gain	
		change gain & offset	
19*2 (20th)	..channel 1 (offset/gain)	no offset/gain setting	Select gain/offset adjust setting for channel 1 from the available options (BFM #8).
		change offset	
		change gain	
		change gain & offset	
20*2 (21st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 22nd and 23rd parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
21*2 (22nd)	..channel 4 (offset/gain)	no offset/gain setting	Select gain/offset adjust setting for channel 4 from the available options (BFM #9).
		change offset	
		change gain	
		change gain & offset	
22*2 (23rd)	..channel 3 (offset/gain)	no offset/gain setting	Select gain/offset adjust setting for channel 3 from the available options (BFM #9).
		change offset	
		change gain	
		change gain & offset	

*1 To RESET the special function block, set both parameters (2&3) to “reset module”. While processing a RESET command, no other parameter will be accepted by the special function block. As mentioned in the FX2N-4DA user’s guide the EEPROM access takes 3s. It is not possible to RESET the special function block to defaults and to set the BFMs 0 to 21 to a non-default value within the same parameter data block.
However, it is possible to send a parameter block to RESET any special function block that supports the RESET function and afterwards to send a second parameter block to set the module/s to the desired parameter values.

*2 When changing offset and gain setting value for one or more channels, please set the values for every channel.

C-2-7: FX2N-4DA Short Configuration (Intel Format)

Requirements:

- Cyclic data is 4 word outputs in every cycle.

Table C-16: Cyclic Data of FX2N-4DA Short Configuration (Intel Format)

	Send Data	Receive Data
1st	Data for channel 1	None
2nd	Data for channel 2	
3rd	Data for channel 3	
4th	Data for channel 4	

- Parameter is 14 bytes.
- For the FX2N-4DA the GSD-File is using a setting which is different to the default of the FX2N-4DA. The BFM #5 is set to 1111hex which will reset the analog outputs to the offset value if there is no further FROM/TO instruction.
  The reason for this setting is the behavior of the FX2N-32DP-IF, according to the Profibus

specification it will set the cyclic output data to '0' if the Slave detects an internal watchdog error (Profibus down). In the case of the FX2N-4DA ext. & short configuration, an internal watchdog error will set the analog output data of channel 1,2,3 and 4 to 0 which means offset value.

- To hold the last output value, please use 'simple communication', because this communication style is accessing the BFMs indirectly. In the case of a watchdog error of the FX2N-32DP-IF, access to the FX2N-4DA will be stopped but the last output data will be held if BFM #5 is set to 0 for the corresponding channel.

Table C-17: FX2N-4DA Short Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 2nd to 5th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
01*1 (2nd)	..channel 1 output range	preset range -10V to +10V	Select output range for channel 1 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -0mA to +20mA	
02*1 (3rd)	..channel 2 output range	preset range -10V to +10V	Select output range for channel 2 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range 0mA to +20mA	
03*1 (4th)	..channel 3 output range	preset range -10V to +10V	Select output range for channel 3 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range 0mA to +20mA	
04*1 (5th)	..channel 4 output range	preset range -10V to +10V	Select output range for channel 4 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range 0mA to +20mA	

For information of Note, please see next page.

*1 To RESET the special function block, set both parameters (2&3) to “reset module”. While processing a RESET command, no other parameter will be accepted by the special function block. As mentioned in the FX2N-4DA user’s guide the EEPROM access takes 3s. It is not possible to RESET the special function block to defaults and to set the BFMs 0 to 21 to a non-default value within the same parameter data block.
However, it is possible to send a parameter block to RESET any special function block that supports the RESET function and afterwards to send a second parameter block to set the module/s to the desired parameter values.

C-2-8: FX2N-4DA Short Configuration (Motorola Format)

Requirements:

- Cyclic data is 4 word outputs in every cycle.

Table C-18: Cyclic Data of FX2N-4DA Short Configuration (Motorola Format)

	Send Data	Receive Data
1st	Data for channel 1	None
2nd	Data for channel 2	
3rd	Data for channel 3	
4th	Data for channel 4	

- Parameter is 14 bytes.
- For the FX2N-4DA the GSD-File is using a setting which is different to the default of the FX2N-4DA. The BFM #5 is set to 1111hex which will reset the analog outputs to the offset value if there is no further FROM/TO instruction.
  The reason for this setting is the behavior of the FX2N-32DP-IF, according to the Profibus

specification it will set the cyclic output data to '0' if the Slave detects an internal watchdog error (Profibus down). In the case of the FX2N-4DA ext. & short configuration, an internal watchdog error will set the analog output data of channel 1,2,3 and 4 to 0 which means offset value.

- To hold the last output value, please use 'simple communication', because this communication style is accessing the BFMs indirectly. In the case of a watchdog error of the FX2N-32DP-IF, access to the FX2N-4DA will be stopped but the last output data will be held if BFM #5 is set to 0 for the corresponding channel.

Table C-19: FX2N-4DA Short Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Next parameter uses EEPROM.	DON'T write parameter to EEPROM	The 2nd to 5th parameter use EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
01*1 (2th)	..channel 3 output range	preset range -10V to +10V	Select output range for channel 3 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range -0mA to +20mA	
02*1 (3th)	..channel 4 output range	preset range -10V to +10V	Select output range for channel 4 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range 0mA to +20mA	
03*1 (4th)	..channel 1 output range	preset range -10V to +10V	Select output range for channel 1 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range 0mA to +20mA	
04*1 (5th)	..channel 2 output range	preset range -10V to +10V	Select output range for channel 2 from the available options (BFM #0).
		preset range +4mA to +20mA	
		preset range 0mA to +20mA	

For information of Note, please see next page.

*1 To RESET the special function block, set both parameters (2&3) to “reset module”. While processing a RESET command, no other parameter will be accepted by the special function block. As mentioned in the FX2N-4DA user’s guide the EEPROM access takes 3s. It is not possible to RESET the special function block to defaults and to set the BFMs 0 to 21 to a non-default value within the same parameter data block.
However, it is possible to send a parameter block to RESET any special function block that supports the RESET function and afterwards to send a second parameter block to set the module/s to the desired parameter values.

C-2-9: FX2N-4AD-PT Extension Configuration

Requirements:

- Cyclic data is 5 word inputs in every cycle.

Table C-20: Cyclic Data of FX2N-4AD-PT Extension Configuration

	Send Data	Receive Data
1st	None	Channel 1: present; average value in °C; °F
2nd		Channel 2: present; average value in °C; °F
3rd		Channel 3: present; average value in °C; °F
4th		Channel 4: present; average value in °C; °F
5th		Value of BFM #28 “digital range error latch”

- Parameter is 24 bytes.

Table C-21: FX2N-4AD-PT Extension Configuration

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	channel 1 input	average temperature in 0.1°C	Select input value type for channel 1 from the available options. (BFM #9, #5, #17, #13)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
01 (2th)	channel 2 input	average temperature in 0.1°C	Select input value type for channel 2 from the available options. (BFM #10, #6, #18, #14)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
02 (3th)	channel 3 input	average temperature in 0.1°C	Select input value type for channel 3 from the available options. (BFM #11, #7, #19, #15)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
03 (4th)	channel 4 input	average temperature in 0.1°C	Select input value type for channel 4 from the available options. (BFM #12, #8, #20, #16)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
04 (5th)	data BFM 1 (No. of samples ch1)	Default: 8	Set the number of samples for averaged results in channel 1 (BFM #1). Setting range: 1 to 4096
05 (6th)	data BFM 2 (No. of samples ch2)	Default: 8	Set the number of samples for averaged results in channel 2 (BFM #2). Setting range: 1 to 4096

Table C-21: FX2N-4AD-PT Extension Configuration

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	data BFM 3 (No. of samples ch3)	Default: 8	Set the number of samples for averaged results in channel 3 (BFM #3). Setting range: 1 to 4096
07 (8th)	data BFM 4 (No. of samples ch4)	Default: 8	Set the number of samples for averaged results in channel 4 (BFM #4). Setting range: 1 to 4096
08 (9th)	clear error register	perform nothing	Select clear error register from the available options. (BFM #28)
		reset error register	

C-2-10: FX2N-4AD-PT Short Configuration

Requirements:

- Cyclic data is 4 word inputs in every cycle.

Table C-22: Cyclic Data of FX2N-4AD-PT Short Configuration

	Send Data	Receive Data
1st	None	Channel 1: present; average value in °C; °F
2nd		Channel 2: present; average value in °C; °F
3rd		Channel 3: present; average value in °C; °F
4th		Channel 4: present; average value in °C; °F
5th		Value of BFM #28 “digital range error latch”

- Parameter is 12 bytes.

Table C-23: FX2N-4AD-PT Short Configuration

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	channel 1 input	average temperature in 0.1°C	Select input value type for channel 1 from the available options. (BFM #9, #5, #17, #13)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
01 (2th)	channel 2 input	average temperature in 0.1°C	Select input value type for channel 2 from the available options. (BFM #10, #6, #18, #14)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
02 (3th)	channel 3 input	average temperature in 0.1°C	Select input value type for channel 3 from the available options. (BFM #11, #7, #19, #15)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
03 (4th)	channel 4 input	average temperature in 0.1°C	Select input value type for channel 4 from the available options. (BFM #12, #8, #20, #16)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
04 (5th)	clear error register	perform nothing	Select clear error register from the available options. (BFM #28)
		reset error register	

C-2-11: FX2N-4AD-TC Extension Configuration (Intel Format)

Requirements:

- Cyclic data is 5 word inputs in every cycle.

Table C-24: Cyclic Data of FX2N-4AD-TC Extension Configuration (Intel Format)

	Send Data	Receive Data
1st	None	Channel 1: present; average value in °C; °F
2nd		Channel 2: present; average value in °C; °F
3rd		Channel 3: present; average value in °C; °F
4th		Channel 4: present; average value in °C; °F
5th		Value of BFM #28 “digital range error latch”

- Parameter is 30 bytes.

Table C-25: FX2N-4AD-TC Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	channel 1 input	average temperature in 0.1°C	Select input value type for channel 1 from the available options. (BFM #9, #5, #17, #13)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
01 (2th)	channel 2 input	average temperature in 0.1°C	Select input value type for channel 2 from the available options. (BFM #10, #6, #18, #14)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
02 (3th)	channel 3 input	average temperature in 0.1°C	Select input value type for channel 3 from the available options. (BFM #11, #7, #19, #15)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
03 (4th)	channel 4 input	average temperature in 0.1°C	Select input value type for channel 4 from the available options. (BFM #12, #8, #20, #16)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
04 (5th)	channel 1	thermocouple type K	Select thermocouple type for channel 1 from the available options. (BFM #0)
		thermocouple type J	
		not used	
05 (6th)	channel 2	thermocouple type K	Select thermocouple type for channel 2 from the available options. (BFM #0)
		thermocouple type J	
		not used	

Table C-25: FX2N-4AD-TC Extension Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	channel 3	thermocouple type K	Select thermocouple type for channel 3 from the available options. (BFM #0)
		thermocouple type J	
		not used	
07 (8th)	channel 4	thermocouple type K	Select thermocouple type for channel 4 from the available options. (BFM #0)
		thermocouple type J	
		not used	
08 (9th)	clear error register	perform nothing	Select clear error register from the available options. (BFM #28)
		reset error register	
09 (10th)	data BFM 1 (No. of samples ch1)	Default: 8	Set the number of samples for averaged results in channel 1 (BFM #1). Setting range: 1 to 256
10 (11th)	data BFM 2 (No. of samples ch2)	Default: 8	Set the number of samples for averaged results in channel 2 (BFM #2). Setting range: 1 to 256
11 (12th)	data BFM 3 (No. of samples ch3)	Default: 8	Set the number of samples for averaged results in channel 3 (BFM #3). Setting range: 1 to 256
12 (13th)	data BFM 4 (No. of samples ch4)	Default: 8	Set the number of samples for averaged results in channel 4 (BFM #4). Setting range: 1 to 256

C-2-12: FX2N-4AD-TC Extension Configuration (Motorola Format)

Requirements:

- Cyclic data is 5 word inputs in every cycle.

Table C-26: Cyclic Data of FX2N-4AD-TC Extension Configuration (Motorola Format)

	Send Data	Receive Data
1st	None	Channel 1: present; average value in °C; °F
2nd		Channel 2: present; average value in °C; °F
3rd		Channel 3: present; average value in °C; °F
4th		Channel 4: present; average value in °C; °F
5th		Value of BFM #28 “digital range error latch”

- Parameter is 30 bytes.

Table C-27: FX2N-4AD-TC Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	channel 1 input	average temperature in 0.1°C	Select input value type for channel 1 from the available options. (BFM #9, 5, 17, 13)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
01 (2th)	channel 2 input	average temperature in 0.1°C	Select input value type for channel 2 from the available options. (BFM #10, #6, #18, #14)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
02 (3th)	channel 3 input	average temperature in 0.1°C	Select input value type for channel 3 from the available options. (BFM #11, #7, #19, #15)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
03 (4th)	channel 4 input	average temperature in 0.1°C	Select input value type for channel 4 from the available options. (BFM #12, #8, #20, #16)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
04 (5th)	channel 3	thermocouple type K	Select thermocouple type for channel 3 from the available options. (BFM #0)
		thermocouple type J	
		not used	
05 (6th)	channel 4	thermocouple type K	Select thermocouple type for channel 4 from the available options. (BFM #0)
		thermocouple type J	
		not used	

Table C-27: FX2N-4AD-TC Extension Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	channel 1	thermocouple type K	Select thermocouple type for channel 1 from the available options. (BFM #0)
		thermocouple type J	
		not used	
07 (8th)	channel 2	thermocouple type K	Select thermocouple type for channel 2 from the available options. (BFM #0)
		thermocouple type J	
		not used	
08 (9th)	clear error register	perform nothing	Select clear error register from the available options. (BFM #28)
		reset error register	
09 (10th)	data BFM 1 (No. of samples ch1)	Default: 8	Set the number of samples for averaged results in channel 1 (BFM #1). Setting range: 1 to 256
10 (11th)	data BFM 2 (No. of samples ch2)	Default: 8	Set the number of samples for averaged results in channel 2 (BFM #2). Setting range: 1 to 256
11 (12th)	data BFM 3 (No. of samples ch3)	Default: 8	Set the number of samples for averaged results in channel 3 (BFM #3). Setting range: 1 to 256
12 (13th)	data BFM 4 (No. of samples ch4)	Default: 8	Set the number of samples for averaged results in channel 4 (BFM #4). Setting range: 1 to 256

C-2-13: FX2N-4AD-TC Short Configuration (Intel Format)

Requirements:

- Cyclic data is 5 word inputs in every cycle.

Table C-28: Cyclic Data of FX2N-4AD-TC Short Configuration (Intel Format)

	Send Data	Receive Data
1st	None	Channel 1: present; average value in °C; °F
2nd		Channel 2: present; average value in °C; °F
3rd		Channel 3: present; average value in °C; °F
4th		Channel 4: present; average value in °C; °F
5th		Value of BFM #28 “digital range error latch”

- Parameter is 18 bytes.

Table C-29: FX2N-4AD-TC Short Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	channel 1 input	average temperature in 0.1°C	Select input value type for channel 1 from the available options. (BFM #9, #5, #17, #13)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
01 (2th)	channel 2 input	average temperature in 0.1°C	Select input value type for channel 2 from the available options. (BFM #10, #6, #18, #14)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
02 (3th)	channel 3 input	average temperature in 0.1°C	Select input value type for channel 3 from the available options. (BFM #11, #7, #19, #15)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
03 (4th)	channel 4 input	average temperature in 0.1°C	Select input value type for channel 4 from the available options. (BFM #12, #8, #20, #16)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
04 (5th)	channel 1	thermocouple type K	Select thermocouple type for channel 1 from the available options. (BFM #0)
		thermocouple type J	
		not used	
05 (6th)	channel 2	thermocouple type K	Select thermocouple type for channel 2 from the available options. (BFM #0)
		thermocouple type J	
		not used	

Table C-29: FX2N-4AD-TC Short Configuration (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	channel 3	thermocouple type K	Select thermocouple type for channel 3 from the available options. (BFM #0)
		thermocouple type J	
		not used	
07 (8th)	channel 4	thermocouple type K	Select thermocouple type for channel 4 from the available options. (BFM #0)
		thermocouple type J	
		not used	
08 (9th)	clear error register	perform nothing	Select clear error register from the available options. (BFM #28)
		reset error register	

C-2-14: FX2N-4AD-TC Short Configuration (Motorola Format)

Requirements:

- Cyclic data is 5 word inputs in every cycle.

Table C-30: Cyclic Data of FX2N-4AD-TC Short Configuration (Motorola Format)

	Send Data	Receive Data
1st	None	Channel 1: present; average value in °C; °F
2nd		Channel 2: present; average value in °C; °F
3rd		Channel 3: present; average value in °C; °F
4th		Channel 4: present; average value in °C; °F
5th		Value of BFM #28 “digital range error latch”

- Parameter is 18 bytes.

Table C-31: FX2N-4AD-TC Short Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	channel 1 input	average temperature in 0.1°C	Select input value type for channel 1 from the available options. (BFM #9, #5, #17, #13)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
01 (2th)	channel 2 input	average temperature in 0.1°C	Select input value type for channel 2 from the available options. (BFM #10, #6, #18, #14)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
02 (3th)	channel 3 input	average temperature in 0.1°C	Select input value type for channel 3 from the available options. (BFM #11, #7, #19, #15)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
03 (4th)	channel 4 input	average temperature in 0.1°C	Select input value type for channel 4 from the available options. (BFM #12, #8, #20, #16)
		present temperature in 0.1°C	
		average temperature in 0.1°F	
		present temperature in 0.1°F	
04 (5th)	channel 3	thermocouple type K	Select thermocouple type for channel 3 from the available options. (BFM #0)
		thermocouple type J	
		not used	
05 (6th)	channel 4	thermocouple type K	Select thermocouple type for channel 4 from the available options. (BFM #0)
		thermocouple type J	
		not used	

Table C-31: FX2N-4AD-TC Short Configuration (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	channel 1	thermocouple type K	Select thermocouple type for channel 1 from the available options. (BFM #0)
		thermocouple type J	
		not used	
07 (8th)	channel 2	thermocouple type K	Select thermocouple type for channel 2 from the available options. (BFM #0)
		thermocouple type J	
		not used	
08 (9th)	clear error register	perform nothing	Select clear error register from the available options. (BFM #28)
		reset error register	

C-2-15: FX2N-1HC Extension Configuration

Requirements:

- Cyclic data is 2 word inputs and 2 word outputs in every cycle.

Table C-32: Cyclic Data of FX2N-1HC Extension Configuration

	Send Data	Receive Data
1st	Up/down command (BFM #1)	Compare results (BFM #26)
2nd	Command (BFM #4)	Terminal status (BFM #27)

- Parameter is 41 bytes.

Table C-33: FX2N-1HC Extension Configuration

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Counter mode	2-ph. input 1 edge count 32 bit 2-ph. input 1 edge count 16 bit 2-ph. input 2 edge count 32 bit 2-ph. input 2 edge count 16 bit 2-ph. input 4 edge count 32 bit 2-ph. input 4 edge count 16 bit 1-ph. 2-input +/- pls. 32 bit 1-ph. 2-input +/- pls. 16 bit 1-ph. 1-inp. HW UP/DOWN 32 bit 1-ph. 1-inp. HW UP/DOWN 16 bit 1-ph. 1-inp. SW UP/DOWN 32 bit 1-ph. 1-inp. SW UP/DOWN 16 bit	Select counter mode from the available options. (BFM #0)
01 (2nd)	ring length lower word	Default: 0 (0000Hex)	Set lower word value for ring length (BFM #2) Setting range (BFM #2, #3): 2 ~ 65535 (00002 ~ 10000Hex)
02 (3rd)	ring length upper word	Default: 1 (0001Hex)	Set upper word value for ring length (BFM #3) Setting range (BFM #3, #2): 2 ~ 65535 (00002 ~ 10000Hex)
03 (4th)	counter curr. value lower word	Default: 0 (0000Hex)	Set lower word for counter current value. (BFM #20) Setting range (BFM #21, #20): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
04 (5th)	counter curr. value upper word	Default: 0 (0000Hex)	Set upper word for counter current value. (BFM #21) Setting range (BFM #21, #20): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
05 (6th)	preset data lower word	Default: 0 (0000Hex)	Set lower word for preset data. (BFM #10) Setting range (BFM #11, #10): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)

Table C-33: FX2N-1HC Extension Configuration

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	preset data upper word	Default: 0 (0000Hex)	Set upper word for preset data. (BFM #11) Setting range (BFM #11, #10): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
07 (8th)	YH compare value lower word	Default: 32767 (7FFFHex)	Set lower word for YH compare value. (BFM #12) Setting range (BFM #13, #12): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
08 (9th)	YH compare value upper word	Default: 0 (0000Hex)	Set upper word for YH compare value. (BFM #13) Setting range (BFM #13, #12): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
09 (10th)	YS compare value lower word	Default: 32767 (7FFFHex)	Set lower word for YS compare value. (BFM #14) Setting range (BFM #15, #14): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
10 (11th)	YS compare value upper word	Default: 0 (0000Hex)	Set upper word for YS compare value. (BFM #15) Setting range (BFM #15, #14): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)

C-2-16: FX2N-1HC Short Configuration

Requirements:

- Cyclic data is 8 word inputs and 8 word outputs in every cycle.

Table C-34: Cyclic Data of FX2N-1HC Short Configuration

	Send Data	Receive Data
1st	Preset data lower word (BFM #10)	Compare results (BFM #26)
2nd	Preset data upper word (BFM #11)	Terminal status (BFM #27)
3rd	YH compare value lower word (BFM #12)	Current counter value lower word (BFM #20)
4th	YH compare value upper word (BFM #13)	Current counter value upper word (BFM #21)
5th	YS compare value lower word (BFM #14)	Maximum counter value lower word (BFM #22)
6th	YS compare value upper word (BFM #15)	Maximum counter value upper word (BFM #23)
7th	Up/down command (BFM #1)	Minimum counter value lower word (BFM #24)
8th	Command (BFM #4)	Minimum counter value upper word (BFM #25)

- Parameter is 35 bytes.

Table C-35: FX2N-1HC Short Configuration

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Counter mode	2-ph. input 1 edge count 32 bit	Select counter mode from the available options. (BFM #0)
		2-ph. input 1 edge count 16 bit	
		2-ph. input 2 edge count 32 bit	
		2-ph. input 2 edge count 16 bit	
		2-ph. input 4 edge count 32 bit	
		2-ph. input 4 edge count 16 bit	
		1-ph. 2-input +/- pls. 32 bit	
		1-ph. 2-input +/- pls. 16 bit	
		1-ph. 1-inp. HW UP/DOWN 32 bit	
		1-ph. 1-inp. HW UP/DOWN 16 bit	
		1-ph. 1-inp. SW UP/DOWN 32 bit	
		1-ph. 1-inp. SW UP/DOWN 16 bit	
01 (2nd)	ring length lower word	Default: 0 (0000Hex)	Set lower word value for ring length (BFM #2) Setting range (BFM #2, #3): 2 ~ 65535 (00002 ~ 10000Hex)
02 (3rd)	ring length upper word	Default: 1 (0001Hex)	Set upper word value for ring length (BFM #3) Setting range (BFM #3, #2): 2 ~ 65535 (00002 ~ 10000Hex)
03 (4th)	counter curr. value lower word	Default: 0 (0000Hex)	Set lower word for counter current value. (BFM #20) Setting range (BFM #21, #20): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)
04 (5th)	counter curr. value upper word	Default: 0 (0000Hex)	Set upper word for counter current value. (BFM #21) Setting range (BFM #21, #20): -2,147,483,648 ~ +2,147,483,647 (00000000 ~ FFFFFFFFHex)

C-2-17: FX2N-1PG (Intel Format)

Requirements:

- Cyclic data is 9 word inputs and 9 word outputs in every cycle.

Table C-36: Cyclic Data of FX2N-1PG (Intel Format)

	Send Data	Receive Data
1st	Set the lower word for current position (BFM #26)	Lower word for position (I) (BFM #17)
2nd	Set the upper word for current position (BFM #27)	Upper word for position (I) (BFM #18)
3rd	Set the lower word for position (I) (BFM #17)	Lower word for operation speed (I) (BFM #19)
4th	Set the upper word for position (I) (BFM #18)	Upper word for operation speed (I) (BFM #20)
5th	Set the lower word for position (II) (BFM #21)	Lower word for position (II) (BFM #21)
6th	Set the upper word for position (II) (BFM #22)	Upper word for position (II) (BFM #22)
7th	Set the operation command (BFM #25)	Lower word for operation speed (II) (BFM #23)
8th	Status and error flags (BFM #28)	Upper word for operation speed (II) (BFM #24)
9th	Error code No. (BFM #29)	Operation command (BFM #25)

- Parameter is 70 bytes.

Table C-37: FX2N-1PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	pulse rate value	Default: 2000 (07D0Hex)	Set pulse rate. (BFM #0). Setting range: 1 ~ 32767 (0001 ~ 7FFFHex)>
01 (2nd)	feed rate lower word	Default: 1000 (03E8Hex)	Set lower word for feed rate. (BFM #2). Setting range (BFM #2, #1): 1 ~ 999999 (00000001 ~ 000F423FHex)>
02 (3rd)	feed rate upper word	Default: 0 (0000Hex)	Set upper word for feed rate. (BFM #1). Setting range (BFM #2, #1): 1 ~ 999999 (00000001 ~ 000F423FHex)>
03 (4th)	System of units	Motor system	Select system of units from the available options. (BFM #3)
		Machine system	
		Combined system	
04 (5th)	position data multiplication	multiplicator = 1	Select magnification of positioning data from the available options. (BFM #3)
		multiplicator = 10	
		multiplicator = 100	
		multiplicator = 1000	
05 (6th)	pulse output format	forward/reverse pulses	Select pulse output format from the available options. (BFM #3)
		pulse/direction	
06 (7th)	rotation direction	CP value increases with a FP	Select rotation direction from the available options. (BFM #3)
		CP value decreases with a FP	
07 (8th)	home position ret. dir.*1	CP value dec. during ret. home	Select the home position return direction from the available options. (BFM #3)
		CP value inc. during ret. home	
08 (9th)	DOG input polarity	DOG signal active high	Select the polarity of DOG signal from the available options. (BFM #3)
		DOG signal active low	
09 (10th)	count start timing	count z.p.sig.*2 while DOG is act.	Select the count start timing from the available options. (BFM #3)
		count z.p.sig.*2 after DOG impulse	
10 (11th)	STOP input polarity	STOP operation if input is on	Select the polarity of STOP signal from the available options. (BFM #3)
		STOP operation if input is off	
11 (12th)	STOP input mode	remaining distance	Select STOP operation from the available options. (BFM #3)
		next position	

Table C-37: FX2N-1PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
12 (13th)	maximum speed lower word	Default: 34464 (86A0Hex)	Set lower word for maximum speed from the available options. (BFM #4) Setting range (BFM #5, #4): 10 ~ 100000 (00000000A ~ 000186A0Hex)
13 (14th)	maximum speed upper word	Default: 1 (0001Hex)	Set upper word for maximum speed from the available options. (BFM #5) Setting range (BFM #5, #4): 10 ~ 100000 (00000000A ~ 000186A0Hex)
14 (15th)	Bias speed value	Default: 0 (0000Hex)	Set bias speed. (BFM #6) Setting range: 0 ~ 10000 (0000 ~ 2710Hex)
15 (16th)	JOG speed lower word	Default: 10000 (2710Hex)	Set lower word for JOG speed. (BFM #7) Setting range (BFM #8, #7): 10 ~ 100000 (00000000A ~ 000186A0Hex)
16 (17th)	JOG speed upper word	Default: 0 (0000Hex)	Set upper word for JOG speed. (BFM #8) Setting range (BFM #8, #7): 10 ~ 100000 (00000000A ~ 000186A0Hex)
17 (18th)	home pos. ret. hi.sp.lower word	Default: 50000 (C350Hex)	Set lower word for the home position return speed (high speed). (BFM #9) Setting range (BFM #10, #9): 10 ~ 100000 (00000000A ~ 000186A0Hex)
18 (19th)	home pos. ret. hi.sp.upper word	Default: 0 (0000Hex)	Set upper word for the home position return speed (high speed). (BFM #10) Setting range (BFM #10, #9): 10 ~ 100000 (00000000A ~ 000186A0Hex)
19 (20th)	home pos. ret. creep speed	Default: 1000 (03E8Hex)	Set lower word for home position return speed (creep speed). (BFM #11) Setting range: 10 ~ 10000 (0000 ~ 2710Hex)
20 (21st)	No. of zero pt.sig.*3 value	Default: 10 (000AHex)	Set the number of zero point signals for home position return. (BFM #12) Setting range: 0 ~ 32767 (0000 ~ 7FFFHex)

Table C-37: FX2N-1PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
21 (22nd)	home position lower word	Default: 0 (0000Hex)	Set lower word for home position. (BFM #13) Setting range (BFM #14, #13): -999999 ~ +999999 (FFF0BDC1 ~ 000F423FHex)
22 (23rd)	home position upper word	Default: 0 (0000Hex)	Set upper word for home position. (BFM #14) Setting range (BFM #14, #13): -999999 ~ +999999 (FFF0BDC1 ~ 000F423FHex)
23 (24th)	acc/dec time value	Default: 100 (64Hex)	Set acceleration/deceleration time. (BFM #15) Setting range: 50 ~ 5000 (0032 ~ 1388Hex)

*1 home position ret. dir. = home position return direction

*2 Z.P.sig = Zero point signal

*3 zero pt.sig. = zero point signal

C-2-18: FX2N-1PG (Motorola Format)

Requirements:

- Cyclic data is 9 word inputs and 9 word outputs in every cycle.

Table C-38: Cyclic Data of FX2N-1PG (Motorola Format)

	Send Data	Receive Data
1st	Set the lower word for current position (BFM #26)	Lower word for position (I) (BFM #17)
2nd	Set the upper word for current position (BFM #27)	Upper word for position (I) (BFM #18)
3rd	Set the lower word for position (I) (BFM #17)	Lower word for operation speed (I) (BFM #19)
4th	Set the upper word for position (I) (BFM #18)	Upper word for operation speed (I) (BFM #20)
5th	Set the lower word for position (II) (BFM #21)	Lower word for position (II) (BFM #21)
6th	Set the upper word for position (II) (BFM #22)	Upper word for position (II) (BFM #22)
7th	Set the operation command (BFM #25)	Lower word for operation speed (II) (BFM #23)
8th	Status and error flags (BFM #28)	Upper word for operation speed (II) (BFM #24)
9th	Error code No. (BFM #29)	Operation command (BFM #25)

- Parameter is 70 bytes.

Table C-39: FX2N-1PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	pulse rate value	Default: 2000 (07D0Hex)	Set pulse rate. (BFM #0). Setting range: 1 ~ 32767 (0001 ~ 7FFFHex)>
01 (2nd)	feed rate lower word	Default: 1000 (03E8Hex)	Set lower word for feed rate. (BFM #2). Setting range (BFM #2, #1): 1 ~ 999999 (00000001 ~ 000F423FHex)>
02 (3rd)	feed rate upper word	Default: 0 (0000Hex)	Set upper word for feed rate. (BFM #1). Setting range (BFM #2, #1): 1 ~ 999999 (00000001 ~ 000F423FHex)>
03 (4th)	pulse output format	forward/reverse pulses	Select pulse output format from the available options. (BFM #3)
		pulse/direction	
04 (5th)	rotation direction	CP value increases with a FP	Select rotation direction from the available options. (BFM #3)
		CP value decreases with a FP	
05 (6th)	home position ret. dir.*1	CP value dec. during ret. home	Select the home position return direction from the available options. (BFM #3)
		CP value inc. during ret. home	
06 (7th)	DOG input polarity	DOG signal active high	Select the polarity of DOG signal from the available options. (BFM #3)
		DOG signal active low	
07 (8th)	count start timing	count z.p.sig.*2 while DOG is act.	Select the count start timing from the available options. (BFM #3)
		count z.p.sig.*2 after DOG impulse	
08 (9th)	STOP input polarity	STOP operation if input is on	Select the polarity of STOP signal from the available options. (BFM #3)
		STOP operation if input is off	
09 (10th)	STOP input mode	remaining distance	Select STOP operation from the available options. (BFM #3)
		next position	
10 (11th)	System of units	Motor system	Select system of units from the available options. (BFM #3)
		Machine system	
		Combined system	
11 (12th)	position data multiplication	multiplicator = 1	Select magnification of positioning data from the available options. (BFM #3)
		multiplicator = 10	
		multiplicator = 100	
		multiplicator = 1000	

Table C-39: FX2N-1PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
12 (13th)	maximum speed lower word	Default: 34464 (86A0Hex)	Set lower word for maximum speed from the available options. (BFM #4) Setting range (BFM #5, #4): 10 ~ 100000 (00000000A ~ 000186A0Hex)
13 (14th)	maximum speed upper word	Default: 1 (0001Hex)	Set upper word for maximum speed from the available options. (BFM #5) Setting range (BFM #5, #4): 10 ~ 100000 (00000000A ~ 000186A0Hex)
14 (15th)	Bias speed value	Default: 0 (0000Hex)	Set bias speed. (BFM #6) Setting range: 0 ~ 10000 (0000 ~ 2710Hex)
15 (16th)	JOG speed lower word	Default: 10000 (2710Hex)	Set lower word for JOG speed. (BFM #7) Setting range (BFM #8, #7): 10 ~ 100000 (00000000A ~ 000186A0Hex)
16 (17th)	JOG speed upper word	Default: 0 (0000Hex)	Set upper word for JOG speed. (BFM #8) Setting range (BFM #8, #7): 10 ~ 100000 (00000000A ~ 000186A0Hex)
17 (18th)	home pos. ret. hi.sp.lower word	Default: 50000 (C350Hex)	Set lower word for the home position return speed (high speed). (BFM #9) Setting range (BFM #10, #9): 10 ~ 100000 (00000000A ~ 000186A0Hex)
18 (19th)	home pos. ret. hi.sp.upper word	Default: 0 (0000Hex)	Set upper word for the home position return speed (high speed). (BFM #10) Setting range (BFM #10, #9): 10 ~ 100000 (00000000A ~ 000186A0Hex)
19 (20th)	home pos. ret. creep speed	Default: 1000 (03E8Hex)	Set lower word for home position return speed (creep speed). (BFM #11) Setting range: 10 ~ 10000 (0000 ~ 2710Hex)
20 (21st)	No. of zero pt.sig.*3 value	Default: 10 (000AHex)	Set the number of zero point signals for home position return. (BFM #12) Setting range: 0 ~ 32767 (0000 ~ 7FFFHex)

Table C-39: FX2N-1PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
21 (22nd)	home position lower word	Default: 0 (0000Hex)	Set lower word for home position. (BFM #13) Setting range (BFM #14, #13): -999999 ~ +999999 (FFF0BDC1 ~ 000F423FHex)
22 (23rd)	home position upper word	Default: 0 (0000Hex)	Set upper word for home position. (BFM #14) Setting range (BFM #14, #13): -999999 ~ +999999 (FFF0BDC1 ~ 000F423FHex)
23 (24th)	acc/dec time value	Default: 100 (64Hex)	Set acceleration/deceleration time. (BFM #15) Setting range: 50 ~ 5000 (0032 ~ 1388Hex)

*1 home position ret. dir. = home position return direction

*2 Z.P.sig = Zero point signal

*3 zero pt.sig. = zero point signal

C-2-19: FX2N-232IF (Intel Format)

Requirements:

- Cyclic data is 3 word inputs and 3 word outputs in every cycle. These data is used "Simple Communication 3W-IF". Further information of the simple commnunication 3W-IF can be found in section 7.2.1 and 7.2.2.

Table C-40: Cyclic Data of FX2N-232IF (Intel Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)

- Parameter is 46 bytes.

Table C-41: FX2N-232IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	data length (1)	7 data bit	Select data length from the available options. (BFM #0)
		8 data bit	
01 (2nd)	parity (3)	none	Select parity from the available options. (BFM #0)
		odd	
		even	
02 (3rd)	stop bit (0)	1 stop bit	Select stop bit from the available options. (BFM #0)
		2 stop bit	

Table C-41: FX2N-232IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
03 (4th)	baud rate (8)	300 baud	Select baud rate from the available options. (BFM #0)
		600 baud	
		1200 baud	
		2400 baud	
		4800 baud	
		9600 baud	
		19200 baud	
04 (5th)	control line	not used	Select control line from the available options. (BFM #0)
		standard RS-232C	
		RS-232C interlink connect. mode	
05 (6th)	addition of CR and LF	not added	Select the addition of CR and LF from the available options. (BFM #0)
		CR only	
		CR & LF	
06 (7th)	check sum & ASCII/ HEX conv.	not available	Select the check sum & ASCII/HEX from the available options. (BFM #0)
		ASCII/HEX conversion available	
		check sum available	
		check sum & ASCII/HEX conv. av.	
07 (8th)	send/receive buffer data length	16 bit	Select the send/receive buffer data length from the available options. (BFM #0)
		8 bit	
08 (9th)	receive upper limit byte count	Default:0	Set the upper limit byte for receive data (BFM #2) Setting range: • 16 bit data length: 1 to 512 • 8 bit data length: 1 to 256
09 (10th)	receive time-out time x10ms	Default:0	Set the time-out time for receiving data. (BFM #3) Setting range: 1 to 32767 (×10ms)
10 (11th)	Send header lower 2 bytes	Default:0	Set the lower 2 bytes for sending header. (BFM #4)
11 (12th)	Send header higher 2 bytes	Default:0	Set the higher 2 bytes for sending header. (BFM #5)
12 (13th)	Send term. lower 2 bytes	Default:0	Set the lower 2 bytes for sending terminator. (BFM #6)
13 (14th)	Send term. higher 2 bytes	Default:0	Set the higher 2 bytes for sending terminator. (BFM #7)
14 (15th)	Receive header lower 2 bytes	Default:0	Set the lower 2 bytes for receiving header. (BFM #4)
15 (16th)	Receive header higher 2 bytes	Default:0	Set the higher 2 bytes for receiving header. (BFM #5)

Table C-41: FX2N-232IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
16 (17th)	Receive term. lower 2 bytes	Default:0	Set the lower 2 bytes for receiving terminator. (BFM #6)
17 (18th)	Receive term. higher 2 bytes	Default:0	Set the higher 2 bytes for receiving terminator. (BFM #7)
18 (19th)	rec. susp. waiting time x10ms	Default:0	Set the waiting time for receiving suspension. (BFM #12) Setting range: 0 to 32767 (×10ms)
19 (20th)	Time CS ON to send start x10ms	Default:0	Set the time for CS ON to send start. (BFM #20) Setting range: 0 ~ 32767 (×10ms)
20 (21st)	Time transm.comp.to RS OFF x10ms	Default:0	Set the time from completion of actual send to RS OFF. (BFM #21) Setting range: 0 ~ 32767 (×10ms)

C-2-20: FX2N-232IF (Motorola Format)

Requirements:

- Cyclic data is 3 word inputs and 3 word outputs in every cycle. These data is used “Simple Communicatio 3W-IF”. Further information of the simple commnunication 3W-IF can be found in section 7.2.1 and 7.2.2.

Table C-42: Cyclic Data of FX2N-232IF (Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)

- Parameter is 46 bytes.

Table C-43: FX2N-232IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	control line	not used	Select control line from the available options. (BFM #0)
		standard RS-232C	
		RS-232C interlink connect. mode	
01 (2nd)	addition of CR and LF	not added	Select the addition of CR and LF from the available options. (BFM #0)
		CR only	
		CR & LF	
02 (3rd)	check sum & ASCII/ HEX conv.	not available	Select the check sum & ASCII/HEX from the available options. (BFM #0)
		ASCII/HEX conversion available	
		check sum available	
		check sum & ASCII/HEX conv. av.	
03 (4th)	send/receive buffer data length	16 bit	Select the send/receive buffer data length from the available options. (BFM #0)
		8 bit	

Table C-43: FX2N-232IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
04 (5th)	data length (1)	7 data bit	Select data length from the available options. (BFM #0)
		8 data bit	
05 (6th)	parity (3)	none	Select parity from the available options. (BFM #0)
		odd	
		even	
06 (7th)	stop bit (0)	1 stop bit	Select stop bit from the available options. (BFM #0)
		2 stop bit	
07 (8th)	baud rate (8)	300 baud	Select baud rate from the available options (BFM #0)
		600 baud	
		1200 baud	
		2400 baud	
		4800 baud	
		9600 baud	
		19200 baud	
08 (9th)	receive upper limit byte count	Default:0	Set the upper limit byte for receive data (BFM #2) Setting range: • 16 bit data length: 1 to 512 • 8 bit data length: 1 to 256
09 (10th)	receive time-out time x10ms	Default:0	Set the time-out time for receiving data. (BFM #3) Setting range: 1 to 32767 (×10ms)
10 (11th)	Send header lower 2 bytes	Default:0	Set the lower 2 bytes for sending header. (BFM #4)
11 (12th)	Send header higher 2 bytes	Default:0	Set the higher 2 bytes for sending header. (BFM #5)
12 (13th)	Send term. lower 2 bytes	Default:0	Set the lower 2 bytes for sending terminator. (BFM #6)
13 (14th)	Send term. higher 2 bytes	Default:0	Set the higher 2 bytes for sending terminator. (BFM #7)
14 (15th)	Receive header lower 2 bytes	Default:0	Set the lower 2 bytes for receiving header. (BFM #4)
15 (16th)	Receive header higher 2 bytes	Default:0	Set the higher 2 bytes for receiving header. (BFM #5)
16 (17th)	Receive term. lower 2 bytes	Default:0	Set the lower 2 bytes for receiving terminator. (BFM #6)
17 (18th)	Receive term. higher 2 bytes	Default:0	Set the higher 2 bytes for receiving terminator. (BFM #7)
18 (19th)	rec. susp. waiting time x10ms	Default:0	Set the waiting time for receiving suspension. (BFM #12) Setting range: 0 to 32767 (×10ms)

Table C-43: FX2N-232IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
19 (20th)	Time CS ON to send start x10ms	Default:0	Set the time for CS ON to send start. (BFM #20) Setting range: 0 ~ 32767 (×10ms)
20 (21st)	Time transm.comp.to RS OFF x10ms	Default:0	Set the time from completion of actual send to RS OFF. (BFM #21) Setting range: 0 ~ 32767 (×10ms)

C-2-21: FX2N-32ASI-M

Requirements:

- Cyclic data is 13 word inputs and 13 word outputs in every cycle.

Table C-44: Cyclic Data of FX2N-32ASI-M

	Send Data	Receive Data
1st	HI flg. send data TO slv. 1to3 (BFM #0)	EC Flags rec. data FROM slave 1 to 3 (BFM #0)
2nd	Send data TO slave 4 to 7 (BFM #1)	Receive data FROM slave 4 to 7 (BFM #1)
3rd	Send data TO slave 8 to 11 (BFM #2)	Receive data FROM slave 8 to 11 (BFM #2)
4th	Send data TO slave 12 to 15 (BFM #3)	Receive data FROM slave 12 to 15 (BFM #3)
5th	Send data TO slave 16 to 19 (BFM #4)	Receive data FROM slave 16 to 19 (BFM #4)
6th	Send data TO slave 20 to 23 (BFM #5)	Receive data FROM slave 20 to 23 (BFM #5)
7th	Send data TO slave 24 to 27 (BFM #6)	Receive data FROM slave 24 to 27 (BFM #6)
8th	Send data TO slave 28 to 31 (BFM #7)	Receive data FROM slave 28 to 31 (BFM #7)
9th	Don't use	EC-Flags (BFM #8)
10th	Don't use	Module error status (BFM #29)
11th	Command buffer data word 0 (BFM #21)	Command buffer data word 0 (BFM #21)
12th	Command buffer data word 1 (BFM #22)	Command buffer data word 1 (BFM #22)
13th	Command buffer (BFM #20)	Command buffer (BFM #20)

- Parameter is 33 bytes.

Table C-45: FX2N-32ASI-M

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Watchdog time x10ms	Default: 20	Set watchdog time. (BFM #9) Setting range: 0 ~ 65535 (x10ms)

C-2-22: FX0N-3A

Requirements:

- Cyclic data is 2 word inputs and 2 word outputs in every cycle.

Table C-46: Cyclic Data of FX0N-3A

	Send Data	Receive Data
1st	data for analog output (BFM #16)	Data of analog input1 (BFM #0[*1])
2nd	not used	Data of analog input2 (BFM #0[*1])

*1 The channel selection is done automatically

- Parameter is 4 bytes.

C-2-23: FX2N-2AD

Requirements:

- Cyclic data is 2 word inputs in every cycle.

Table C-47: Cyclic Data of FX2N-2AD

	Send Data	Receive Data
1st	None	Data of analog input1, 12 bit (BFM #0,BFM #1[*1])
2nd		Data of analog input2, 12 bit (BFM #0,BFM #1[*1])

*1 The channel selection and assembling of lower 8 and upper 4 bit is done automatically.

- Parameter is 4 bytes.

C-2-24: FX2N-2DA

Requirements:

- Cyclic data is 2 word outputs in every cycle.

Table C-48: Cyclic Data of FX2N-2DA

Nr.	Send Data	Receive Data
00 (1st)	Data of analog output1, 12 bit (BFM #16[*1])	None
01 (2nd)	Data of analog output2, 12 bit (BFM #16[*1])	

*1 The channel selection and assembling of lower 8 and upper 4 bit is done automatically.

- Parameter is 4 bytes.

C-2-25: FX2N-10GM, FX2N-20GM

Requirements:

- Cyclic data is 6 word inputs and 6 word outputs in every cycle. These data is used “Simple Communicatio 6W-IF”. Further information of the simple commnunication 6W-IF can be found in section 7.2.1 and 7.2.2.

Table C-49: Cyclic Data of FX2N-232IF (Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)

- Parameter is 4 bytes.

When accessing a 32bit value, please access first the low word and then the high word of the value.

Table C-50: Ex.- Read Access to BFM # 9162/9163 Index Register Z7

Nr.	Send Data	Receive Data
00 (1st)	FROM address A3CA (Bit15=1 + 9162)	FROM data Low word of Z7
01 (2nd)	TO data	TO data (read back)
02 (3rd)	TO address	TO address (read back)
03 (4th)	FROM address A3CB (Bit15=1 + 9163)	FROM data High word of Z7
04 (5th)	TO data	TO data (read back)
05 (6th)	TO address	TO address (read back)

C-2-26: FX2N-2LC (Intel Format)

Requirements:

- Cyclic data is 3 word inputs and 3 word outputs in every cycle. This data is used for “Simple Communication 3W-IF”. Further information for the simple commnunication 3W-IF can be found in section 7.2.1 and 7.2.2.

Table C-51: Cyclic Data of FX2N-2LC (Intel Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)

- Parameter is 70 bytes.

Table C-52: FX2N-2LC (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	clear error register	perform nothing	Select error reset command from the available options. (BFM #10).
		reset error register	
01 (2nd)	Input Type channel 1 (BFM #70)	Default: 2	Set input type for channel 1. (BFM #70) Setting range: 0 to 42
02 (3rd)	Input Type channel 2 (BFM #71)	Default: 2	Select input type for channel 1. (BFM #71) Setting range: 0 to 42
03 (4th) 04 (5th) 05 (6th) 06 (7th)	Set Alarm 1 mode Set Alarm 2 mode Set Alarm 3 mode Set Alarm 4 mode	alarm function OFF	• Select mode of Alarm 1 from the available options. (BFM #72) • Select mode of Alarm 2 from the available options. (BFM #73) • Select mode of Alarm 3 from the available options. (BFM #74) • Select mode of Alarm 4 from the available options. (BFM #75)
		upper limit input value alarm	
		lower limit input value alarm	
		upper limit deviation alarm	
		lower limit deviation alarm	
		upper/lower limit deviation	
		range alarm	
		up. limit in.value alarm + wait	
		lo. limit in.value alarm + wait	
		up. limit deviation alarm + wait	
		lo. limit deviation alarm + wait	
		upper/lower lim. dev.+ wait	
		up. limit dev. alarm + re-wait	
		lo. limit dev. alarm + re-wait	
		upper/lower lim. dev.+ re-wait	
07 (8th)	ALARM1 value for channel 1.	Default: 0	Set channel 1’s value for Alarm 1. (BFM #13) Setting range: -32768 to 32767

Table C-52: FX2N-2LC (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
08 (9th)	.. and for channel 2	Default: 0	Set channel 2’s value for Alarm 1. (BFM #22) Setting range: -32768 to 32767
09 (10th)	ALARM2 value for channel 1.	Default: 0	Set channel 1’s value for Alarm 2. (BFM #14) Setting range: -32768 to 32767
10 (11th)	.. and for channel 2	Default: 0	Set channel 2’s value for Alarm 2. (BFM #23) Setting range: -32768 to 32767
11 (12th)	ALARM3 value for channel 1.	Default: 0	Set channel 1’s value for Alarm 3. (BFM #15) Setting range: -32768 to 32767
12 (13th)	.. and for channel 2	Default: 0	Set channel 2’s value for Alarm 3. (BFM #24) Setting range: -32768 to 32767
13 (14th)	ALARM4 value for channel 1.	Default: 0	Set channel 1’s value for Alarm 4. (BFM #16) Setting range: -32768 to 32767
14 (15th)	.. and for channel 2	Default: 0	Set channel 2’s value for Alarm 4. (BFM #25) Setting range: -32768 to 32767
15 (16th)	discon. ALARM val. channel 1.	Default: 0	Set channel 1’s value for the heater disconnection alarm. (BFM #17) Setting range: -32768 to 32767
16 (17th)	.. and for channel 2	Default: 0	Set channel 2’s value for the heater disconnection alarm. (BFM #26) Setting range: -32768 to 32767
17 (18th)	operation mode channel 1	monitor	Select operation mode for channel 1 from the available options. (BFM #32)
		monitor + temp. alarm	
		monitor + temp. alarm + control	
18 (19th)	operation mode channel 2	monitor	Select operation mode for channel 2 from the available options. (BFM #51)
		monitor + temp. alarm	
		monitor + temp. alarm + control	
19 (20th)	control response par. channel 1	slow	Select the control response parameter for channel 1 from the available options. (BFM #36)
		medium	
		fast	
20 (21st)	control response par. channel 2	slow	Select the control response parameter for channel 2 from the available options. (BFM #55)
		medium	
		fast	
21 (22nd)	temp. rise comp. soak time	Default: 0	Set the temperature rise completion soak time. (BFM #80) Setting range 0 to 3600

C-2-27: FX2N-2LC (Motorola Format)

Requirements:

- Cyclic data is 3 word inputs and 3 word outputs in every cycle. This data is used for “Simple Communication 3W-IF”. Further information for the simple commnunication 3W-IF can be found in section 7.2.1 and 7.2.2.

Table C-53: Cyclic Data of FX2N-2LC (Intel Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)

- Parameter is 70 bytes.

Table C-54: FX2N-2LC (Motorola Format)

<table>
<tr><th>Nr.</th><th>Parameter Name</th><th>Value Setting List</th><th>Description</th></tr>
<tr><td rowspan="2">00
(1st)</td><td rowspan="2">clear error register</td><td>perform nothing</td><td rowspan="2">Select error reset command from the available options. (BFM #10).</td></tr>
<tr><td>reset error register</td></tr>
<tr><td>01
(2nd)</td><td>Input Type channel 1 (BFM #70)</td><td>Default: 2</td><td>Set input type for channel 1.
(BFM #70)
Setting range: 0 to 42</td></tr>
<tr><td>02
(3rd)</td><td>Input Type channel 2 (BFM #71)</td><td>Default: 2</td><td>Select input type for channel 2.
(BFM #71)
Setting range: 0 to 42</td></tr>
<tr><td rowspan="15">03
(4th)

04
(5th)

05
(6th)

06
(7th)</td><td rowspan="15">Set Alarm 1 mode

Set Alarm 2 mode

Set Alarm 3 mode

Set Alarm 4 mode</td><td>alarm function OFF</td><td rowspan="15">• Select mode of Alarm 1 from the available options. (BFM #72)
• Select mode of Alarm 2 from the available options. (BFM #73)
• Select mode of Alarm 3 from the available options. (BFM #74)
• Select mode of Alarm 4 from the available options. (BFM #75)</td></tr>
<tr><td>upper limit input value alarm</td></tr>
<tr><td>lower limit input value alarm</td></tr>
<tr><td>upper limit deviation alarm</td></tr>
<tr><td>lower limit deviation alarm</td></tr>
<tr><td>upper/lower limit deviation</td></tr>
<tr><td>range alarm</td></tr>
<tr><td>up. limit in.value alarm + wait</td></tr>
<tr><td>lo. limit in.value alarm + wait</td></tr>
<tr><td>up. limit deviation alarm + wait</td></tr>
<tr><td>lo. limit deviation alarm + wait</td></tr>
<tr><td>upper/lower lim. dev.+ wait</td></tr>
<tr><td>up. limit dev. alarm + re-wait</td></tr>
<tr><td>lo. limit dev. alarm + re-wait</td></tr>
<tr><td>upper/lower lim. dev.+ re-wait</td></tr>
<tr><td>07
(8th)</td><td>ALARM1 value for channel 1.</td><td>Default: 0</td><td>Set channel 1’s value for Alarm 1.
(BFM #13)
Setting range: -32768 to 32767</td></tr>
</table>

Table C-54: FX2N-2LC (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
08 (9th)	.. and for channel 2	Default: 0	Set channel 2's value for Alarm 1. (BFM #22) Setting range: -32768 to 32767
09 (10th)	ALARM2 value for channel 1.	Default: 0	Set channel 1's value for Alarm 2. (BFM #14) Setting range: -32768 to 32767
10 (11th)	.. and for channel 2	Default: 0	Set channel 2's value for Alarm 2. (BFM #23) Setting range: -32768 to 32767
11 (12th)	ALARM3 value for channel 1.	Default: 0	Set channel 1's value for Alarm 3. (BFM #15) Setting range: -32768 to 32767
12 (13th)	.. and for channel 2	Default: 0	Set channel 2's value for Alarm 3. (BFM #24) Setting range: -32768 to 32767
13 (14th)	ALARM4 value for channel 1.	Default: 0	Set channel 1's value for Alarm 4. (BFM #16) Setting range: -32768 to 32767
14 (15th)	.. and for channel 2	Default: 0	Set channel 2's value for Alarm 4. (BFM #25) Setting range: -32768 to 32767
15 (16th)	discon. ALARM val. channel 1.	Default: 0	Set channel 1's value for the heater disconnection alarm. (BFM #17) Setting range: -32768 to 32767
16 (17th)	.. and for channel 2	Default: 0	Set channel 2's value for the heater disconnection alarm. (BFM #26) Setting range: -32768 to 32767
17 (18th)	operation mode channel 1	monitor	Select operation mode for channel 1 from the available options. (BFM #32)
		monitor + temp. alarm	
		monitor + temp. alarm + control	
18 (19th)	operation mode channel 2	monitor	Select operation mode for channel 2 from the available options. (BFM #51)
		monitor + temp. alarm	
		monitor + temp. alarm + control	
19 (20th)	control response par. channel 1	slow	Select the control response parameter for channel 1 from the available options. (BFM #36)
		medium	
		fast	
20 (21st)	control response par. channel 2	slow	Select the control response parameter for channel 2 from the available options. (BFM #55)
		medium	
		fast	
21 (22nd)	temp. rise comp. soak time	Default: 0	Set the temperature rise completion soak time. (BFM #80) Setting range 0 to 3600

C-2-28: FX2N-8AD (Intel Format)

Requirements:

- Cyclic data is 10 word inputs in every cycle.

Table C-55: Cyclic Data of FX2N-8AD (Intel Format)

	Send Data	Receive Data
1st	None	Channel 1: present; average value in V, mA, °C; °F (BFM #10)
2nd		Channel 2: present; average value in V, mA, °C; °F (BFM #11)
3rd		Channel 3: present; average value in V, mA, °C; °F (BFM #12)
4th		Channel 4: present; average value in V, mA, °C; °F (BFM #13)
5th		Channel 5: present; average value in V, mA, °C; °F (BFM #14)
6th		Channel 6: present; average value in V, mA, °C; °F (BFM #15)
7th		Channel 7: present; average value in V, mA, °C; °F (BFM #16)
8th		Channel 8: present; average value in V, mA, °C; °F (BFM #17)
9th		Scale over status (BFM #28)
10th		Error code (BFM #29)

- Parameter is 47 bytes.

Table C-56: FX2N-8AD (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Next parameter uses EEPROM..	DON'T write parameter to EEPROM	The 2nd to 5th parameter is written to EEPROM. Select “don't write” or “write to EEPROM”.
		write parameter to EEPROM	
01 (2nd) 02 (3rd) 03 (4th) 04 (5th)	• ..channel 1 input mode • ..channel 2 input mode • ..channel 3 input mode • ..channel 4 input mode	-10 to 10V res. 10V/16000	• Select input mode for channel 1 (BFM #0). • Select input mode for channel 2 (BFM #0). • Select input mode for channel 3 (BFM #0). • Select input mode for channel 4 (BFM #0).
		-10 to 10V res. 10V/4000	
		-10 to 10V direct ADC value	
		4mA to 20mA res. 20mA/8000	
		4mA to 20mA res. 20mA/4000	
		4mA to 20mA direct ADC value	
		-20mA to 20mA res. 20mA/8000	
		-20mA to 20mA res. 20mA/4000	
		-20mA to 20mA direct ADC value	
		K type thermocouple in °C	
		J type thermocouple in °C	
		T type thermocouple in °C	
		K type thermocouple in °F	
		J type thermocouple in °F	
		T type thermocouple in °F	
		channel unused	

Table C-56: FX2N-8AD (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
05 (6th)	Next parameter uses EEPROM..	DON'T write parameter to EEPROM	The 2nd to 5th parameter is written to EEPROM. Select “writing to EEPROM” setting from the available options.
		write parameter to EEPROM	
06 (7th) 07 (8th) 08 (9th) 09 (10th)	• ..channel 5 input mode • ..channel 6 input mode • ..channel 7 input mode • ..channel 8 input mode	-10 to 10V res. 10V/16000	• Select input mode for channel 5 from the available options. (BFM #1). • Select input mode for channel 6 from the available options. (BFM #1). • Select input mode for channel 7 from the available options. (BFM #1). • Select input mode for channel 8 from the available options. (BFM #1).
		-10 to 10V res. 10V/4000	
		-10 to 10V direct ADC value	
		4mA to 20mA res. 20mA/8000	
		4mA to 20mA res. 20mA/4000	
		4mA to 20mA direct ADC value	
		-20mA to 20mA res. 20mA/8000	
		-20mA to 20mA res. 20mA/4000	
		-20mA to 20mA direct ADC value	
		K type thermocouple in °C	
		J type thermocouple in °C	
		T type thermocouple in °C	
		K type thermocouple in °F	
		J type thermocouple in °F	
		T type thermocouple in °F	
		channel unused	
10 (11th)	channel 1 number of samples	Default: 1	Set the number of samples for averaged results in channel 1. (BFM #2) Setting range: 1 to 4096
11 (12th)	channel 2 number of samples	Default: 1	Set the number of samples for averaged results in channel 2. (BFM #3) Setting range: 1 to 4096
12 (13th)	channel 3 number of samples	Default: 1	Set the number of samples for averaged results in channel 3. (BFM #4) Setting range: 1 to 4096
13 (14th)	channel 4 number of samples	Default: 1	Set the number of samples for averaged results in channel 4. (BFM #5) Setting range: 1 to 4096
14 (15th)	channel 5 number of samples	Default: 1	Set the number of samples for averaged results in channel 5. (BFM #6) Setting range: 1 to 4096

Table C-56: FX2N-8AD (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
15 (16th)	channel 6 number of samples	Default: 1	Set the number of samples for averaged results in channel 6. (BFM #7) Setting range: 1 to 4096
16 (17th)	channel 7 number of samples	Default: 1	Set the number of samples for averaged results in channel 7. (BFM #8) Setting range: 1 to 4096
17 (18th)	channel 8 number of samples	Default: 1	Set the number of samples for averaged results in channel 8. (BFM #9) Setting range: 1 to 4096

C-2-29: FX2N-8AD (Motorola Format)

Requirements:

- Cyclic data is 10 word inputs in every cycle.

Table C-57: Cyclic Data of FX2N-8AD (Motorola Format)

	Send Data	Receive Data
1st	None	Channel 1: present; average value in V, mA, °C; °F (BFM #10)
2nd		Channel 2: present; average value in V, mA, °C; °F (BFM #11)
3rd		Channel 3: present; average value in V, mA, °C; °F (BFM #12)
4th		Channel 4: present; average value in V, mA, °C; °F (BFM #13)
5th		Channel 5: present; average value in V, mA, °C; °F (BFM #14)
6th		Channel 6: present; average value in V, mA, °C; °F (BFM #15)
7th		Channel 7: present; average value in V, mA, °C; °F (BFM #16)
8th		Channel 8: present; average value in V, mA, °C; °F (BFM #17)
9th		Scale over status (BFM #28)
10th		Error code (BFM #29)

- Parameter is 47 bytes.

Table C-58: FX2N-8AD (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	Next parameter uses EEPROM..	DON'T write parameter to EEPROM	The 2nd to 5th parameter is written to EEPROM. Select “don't write” or “write to EEPROM”.
		write parameter to EEPROM	
01 (2nd) 02 (3rd) 03 (4th) 04 (5th)	• ..channel 3 input mode • ..channel 4 input mode • ..channel 1 input mode • ..channel 2 input mode	-10 to 10V res. 10V/16000	• Select input mode for channel 3 (BFM #0). • Select input mode for channel 4 (BFM #0). • Select input mode for channel 1 (BFM #0). • Select input mode for channel 2 (BFM #0).
		-10 to 10V res. 10V/4000	
		-10 to 10V direct ADC value	
		4mA to 20mA res. 20mA/8000	
		4mA to 20mA res. 20mA/4000	
		4mA to 20mA direct ADC value	
		-20mA to 20mA res. 20mA/8000	
		-20mA to 20mA res. 20mA/4000	
		-20mA to 20mA direct ADC value	
		K type thermocouple in °C	
		J type thermocouple in °C	
		T type thermocouple in °C	
		K type thermocouple in °F	
		J type thermocouple in °F	
		T type thermocouple in °F	
		channel unused	

Table C-58: FX2N-8AD (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
05 (6th)	Next parameter uses EEPROM..	DON'T write parameter to EEPROM write parameter to EEPROM	The 2nd to 5th parameter is written to EEPROM. Select "writing to EEPROM" setting from the available options.
06 (7th) 07 (8th) 08 (9th) 09 (10th)	• ..channel 7 input mode • ..channel 8 input mode • ..channel 5 input mode • ..channel 6 input mode	-10 to 10V res. 10V/16000 -10 to 10V res. 10V/4000 -10 to 10V direct ADC value 4mA to 20mA res. 20mA/8000 4mA to 20mA res. 20mA/4000 4mA to 20mA direct ADC value -20mA to 20mA res. 20mA/8000 -20mA to 20mA res. 20mA/4000 -20mA to 20mA direct ADC value K type thermocouple in °C J type thermocouple in °C T type thermocouple in °C K type thermocouple in °F J type thermocouple in °F T type thermocouple in °F channel unused	• Select input mode for channel 7 from the available options. (BFM #1). • Select input mode for channel 8 from the available options. (BFM #1). • Select input mode for channel 5 from the available options. (BFM #1). • Select input mode for channel 6 from the available options. (BFM #1).
10 (11th)	channel 1 number of samples	Default: 1	Set the number of samples for averaged results in channel 1. (BFM #2) Setting range: 1 to 4096
11 (12th)	channel 2 number of samples	Default: 1	Set the number of samples for averaged results in channel 2. (BFM #3) Setting range: 1 to 4096
12 (13th)	channel 3 number of samples	Default: 1	Set the number of samples for averaged results in channel 3. (BFM #4) Setting range: 1 to 4096
13 (14th)	channel 4 number of samples	Default: 1	Set the number of samples for averaged results in channel 4. (BFM #5) Setting range: 1 to 4096
14 (15th)	channel 5 number of samples	Default: 1	Set the number of samples for averaged results in channel 5. (BFM #6) Setting range: 1 to 4096

Table C-58: FX2N-8AD (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
15 (16th)	channel 6 number of samples	Default: 1	Set the number of samples for averaged results in channel 6. (BFM #7) Setting range: 1 to 4096
16 (17th)	channel 7 number of samples	Default: 1	Set the number of samples for averaged results in channel 7. (BFM #8) Setting range: 1 to 4096
17 (18th)	channel 8 number of samples	Default: 1	Set the number of samples for averaged results in channel 8. (BFM #9) Setting range: 1 to 4096

C-2-30: FX2N-10PG (Intel Format)

Requirements:

- Cyclic data is 10 word inputs and 10 word output in every cycle.

Table C-59: Cyclic Data of FX2N-10PG (Intel Format)

	Send Data	Receive Data
1st	Set the low word for target address I (BFM #13)	Low word for current address (BFM #24)
2nd	Set the upper word for target address I (BFM #14)	Upper word for current address (BFM #25)
3rd	Set the low word for operation speed I (BFM #15)	Low word for the target address I (BFM #13)
4th	Set the upper word for operation speed I (BFM #16)	Upper word for the target address I (BFM #14)
5th	Set the low word for the target address II (BFM #17)	Low word for the target address II (BFM #17)
6th	Set the upper word for the target address II (BFM #18)	Upper word for the target address II (BFM #18)
7th	Set the low word for operation speed II (BFM #19)	Terminal information (BFM #38)
8th	Set the upper word for operation speed II (BFM #20)	Status information (BFM #28)
9th	Set the operation pattern (BFM #27)	Error code (BFM #37)
10th	Set the operation command (BFM #26)	Operation command (BFM #26)

- Parameter is 78 bytes.

Table C-60: FX2N-10PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	pulse rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for pulse rate. (BFM #32) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
01 (2nd)	pulse rate upper word	Default: 0 (0000 Hex)	Set the upper word for pulse rate. (BFM #33) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
02 (3rd)	feed rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for feed rate. (BFM #34) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)

Table C-60: FX2N-10PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
03 (4th)	feed rate upper word	Default: 0 (0000 Hex)	Set the upper word for feed rate. (BFM #35) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)
04 (5th)	System of units	Motor system	Select the unit system from the available options. (BFM #36)
		Machine system	
		Combined system	
05 (6th)	position data multiplication	multiplicator = 1	Select magnification of position data from the available options. (BFM #36)
		multiplicator = 10	
		multiplicator = 100	
		multiplicator = 1000	
06 (7th)	pulse output format	forward/reverse pulses	Select pulse output format from the available options. (BFM #36)
		pulse/direction	
07 (8th)	rotation direction	CP value increases with a FP	Select rotation direction from the available options. (BFM #36)
		CP value decreases with a FP	
08 (9th)	home position ret. dir.	CP value dec. during ret. home	Select home return direction from the available options. (BFM #36)
		CP value inc. during ret. home	
09 (10th)	Acceleration/ Deceleration mode	trapezoidal control	Select acceleration/deceleration mode from the available options. (BFM #36)
		approx. S-shape control	
10 (11th)	DOG input polarity	DOG signal active high	Select polarity for DOG input signal from the available options. (BFM #36)
		DOG signal active low	
11 (12th)	count start timing	count z.p.sig. while DOG is act.	Select the count start timing from the available options. (BFM #36)
		count z.p.sig. after DOG impulse	
12 (13th)	STOP input mode	remaining distance	Select STOP mode from the available options. (BFM #36)
		next position	
13 (14th)	maximum speed lower word	Default: 41248 (A120 Hex)	Set lower word of maximum speed. (BFM #0) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex).

Table C-60: FX2N-10PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
14 (15th)	maximum speed upper word	Default: 7 (0007 Hex)	Set upper word of maximum speed. (BFM #1) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
15 (16th)	bias speed	Default: 0 (0000 Hex)	Set bias speed. (BFM #2) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
16 (17th)	Jog speed lower word	Default: 10000 (2710 Hex)	Set lower word of JOG speed. (BFM #3) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
17 (18th)	Jog speed upper word	Default: 0 (0000 Hex)	Set lower word of JOG speed. (BFM #4) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
18 (19th)	zero ret. hi. speed lower word	Default: 41248 (A120 Hex)	Set lower word of the home position return speed. (BFM #5) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
19 (20th)	zero ret. hi. speed upper word	Default: 7 (0007 Hex)	Set upper word of the home position return speed. (BFM #6) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)

Table C-60: FX2N-10PG (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
20 (21st)	zero ret. creep speed	Default: 1000 (03EB Hex)	Set creep speed of home position return. (BFM #7) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
21 (22nd)	zero point signal number	Default: 1 (0001 Hex)	Set number of zero point signal. (BFM #8) Setting range: 0 to 32767 (0000 to 7FFF Hex)
22 (23rd)	zero point address lower word	Default: 0 (0000 Hex)	Set lower word of home position address. (BFM #9) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
23 (24th)	zero point address upper word	Default: 0 (0000 Hex)	Set upper word of home position address. (BFM #10) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
24 (25th)	acceleration time	Default: 100 (0064 Hex)	Set acceleration time. (BFM #11) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)
25 (26th)	deceleration time	Default: 100 (0064 Hex)	Set deceleration time. (BFM #12) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)

C-2-31: FX2N-10PG (Motorola Format)

Requirements:

- Cyclic data is 10 word inputs and 10 word output in every cycle.

Table C-61: Cyclic Data of FX2N-10PG (Motorola Format)

	Send Data	Receive Data
1st	Set the low word for target address I (BFM #13)	Low word for current address (BFM #24)
2nd	Set the upper word for target address I (BFM #14)	Upper word for current address (BFM #25)
3rd	Set the low word for operation speed I (BFM #15)	Low word for the target address I (BFM #13)
4th	Set the upper word for operation speed I (BFM #16)	Upper word for the target address I (BFM #14)
5th	Set the low word for the target address II (BFM #17)	Low word for the target address II (BFM #17)
6th	Set the upper word for the target address II (BFM #18)	Upper word for the target address II (BFM #18)
7th	Set the low word for operation speed II (BFM #19)	Terminal information (BFM #38)
8th	Set the upper word for operation speed II (BFM #20)	Status information (BFM #28)
9th	Set the operation pattern (BFM #27)	Error code (BFM #37)
10th	Set the operation command (BFM #26)	Operation command (BFM #26)

- Parameter is 78 bytes.

Table C-62: FX2N-10PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	pulse rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for pulse rate. (BFM #32) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
01 (2nd)	pulse rate upper word	Default: 0 (0000 Hex)	Set the upper word for pulse rate. (BFM #33) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
02 (3rd)	feed rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for feed rate. (BFM #34) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)

Table C-62: FX2N-10PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
03 (4th)	feed rate upper word	Default: 0 (0000 Hex)	Set the upper word for feed rate. (BFM #35) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)
04 (5th)	pulse output format	forward/reverse pulses	Select pulse output format from the available options. (BFM #36)
		pulse/direction	
05 (6th)	rotation direction	CP value increases with a FP	Select rotation direction from the available options. (BFM #36)
		CP value decreases with a FP	
06 (7th)	home position ret. dir.	CP value dec. during ret. home	Select home return direction from the available options. (BFM #36)
		CP value inc. during ret. home	
07 (8th)	Acceleration/ Deceleration mode	trapezoidal control	Select acceleration/deceleration mode from the available options. (BFM #36)
		approx. S-shape control	
08 (9th)	DOG input polarity	DOG signal active high	Select polarity for DOG input signal from the available options. (BFM #36)
		DOG signal active low	
09 (10th)	count start timing	count z.p.sig. while DOG is act.	Select the count start timing from the available options. (BFM #36)
		count z.p.sig. after DOG impulse	
10 (11th)	STOP input mode	remaining distance	Select STOP mode from the available options. (BFM #36)
		next position	
11 (12th)	System of units	Motor system	Select unit system from the available options. (BFM #36)
		Machine system	
		Combined system	
12 (13th)	position data multiplication	multiplicator = 1	Select magnification of position data from the available options. (BFM #36)
		multiplicator = 10	
		multiplicator = 100	
		multiplicator = 1000	
13 (14th)	maximum speed lower word	Default: 41248 (A120 Hex)	Set lower word of maximum speed. (BFM #0) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex).

Table C-62: FX2N-10PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
14 (15th)	maximum speed upper word	Default: 7 (0007 Hex)	Set upper word of maximum speed. (BFM #1) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
15 (16th)	bias speed	Default: 0 (0000 Hex)	Set bias speed. (BFM #2) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
16 (17th)	Jog speed lower word	Default: 10000 (2710 Hex)	Set lower word of JOG speed. (BFM #3) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
17 (18th)	Jog speed upper word	Default: 0 (0000 Hex)	Set lower word of JOG speed. (BFM #4) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
18 (19th)	zero ret. hi. speed lower word	Default: 41248 (A120 Hex)	Set lower word of the home position return speed. (BFM #5) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
19 (20th)	zero ret. hi. speed upper word	Default: 7 (0007 Hex)	Set upper word of the home position return speed. (BFM #6) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)

Table C-62: FX2N-10PG (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
20 (21st)	zero ret. creep speed	Default: 1000 (03EB Hex)	Set creep speed of home position return. (BFM #7) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
21 (22nd)	zero point signal number	Default: 1 (0001 Hex)	Set number of zero point signal. (BFM #8) Setting range: 0 to 32767 (0000 to 7FFF Hex)
22 (23rd)	zero point address lower word	Default: 0 (0000 Hex)	Set lower word of home position address. (BFM #9) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
23 (24th)	zero point address upper word	Default: 0 (0000 Hex)	Set upper word of home position address. (BFM #10) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
24 (25th)	acceleration time	Default: 100 (0064 Hex)	Set acceleration time. (BFM #11) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)
25 (26th)	deceleration time	Default: 100 (0064 Hex)	Set deceleration time. (BFM #12) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)

C-2-32: FX2N-10PG (Intel Format) - Using 6W-IF -

Requirements:

- Cyclic data is 6 word inputs and 6 word outputs in every cycle. This data is used for “Simple Communication 6W-IF”. Further information for the simple commnunication 6W-IF can be found in section 7.2.1 and 7.2.2.

Table C-63: Cyclic Data of FX2N-10PG 6W-IF (Intel Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)

- Parameter is 58 bytes.

Table C-64: FX2N-10PG 6W-IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	pulse rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for pulse rate. (BFM #32) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
01 (2nd)	pulse rate upper word	Default: 0 (0000 Hex)	Set the upper word for pulse rate. (BFM #33) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
02 (3rd)	feed rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for feed rate. (BFM #34) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)
03 (4th)	feed rate upper word	Default: 0 (0000 Hex)	Set the upper word for feed rate. (BFM #35) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)
04 (5th)	System of units	Motor system	Select unit system from the available options. (BFM #36)
		Machine system	
		Combined system	
05 (6th)	position data multiplication	multiplicator = 1	Select magnification of position data from the available options. (BFM #36)
		multiplicator = 10	
		multiplicator = 100	
		multiplicator = 1000	

Table C-64: FX2N-10PG 6W-IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
06 (7th)	pulse output format	forward/reverse pulses pulse/direction	Select pulse output format from the available options. (BFM #36)
07 (8th)	rotation direction	CP value increases with a FP CP value decreases with a FP	Select rotation direction from the available options. (BFM #36)
08 (9th)	home position ret. dir.	CP value dec. during ret. home CP value inc. during ret. home	Select home return direction from the available options. (BFM #36)
09 (10th)	Acceleration/ Deceleration mode	trapezoidal control approx. S-shape control	Select acceleration/deceleration mode from the available options. (BFM # #36)
10 (11th)	DOG input polarity	DOG signal active high DOG signal active low	Select polarity for DOG input signal from the available options. (BFM #36)
11 (12th)	count start timing	count z.p.sig. while DOG is act. count z.p.sig. after DOG impulse	Select the count start timing from the available options. (BFM #36)
12 (13th)	STOP input mode	remaining distance next position	Select STOP mode from the available options. (BFM #36)
13 (14th)	maximum speed lower word	Default: 41248 (A120 Hex)	Set lower word of maximum speed. (BFM #0) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex).
14 (15th)	maximum speed upper word	Default: 7 (0007 Hex)	Set upper word of maximum speed. (BFM #1) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
15 (16th)	bias speed	Default: 0 (0000 Hex)	Set bias speed. (BFM #2) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
16 (17th)	Jog speed lower word	Default: 10000 (2710 Hex)	Set lower word of JOG speed. (BFM #3) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)

Table C-64: FX2N-10PG 6W-IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
17 (18th)	Jog speed upper word	Default: 0 (0000 Hex)	Set lower word of JOG speed. (BFM #4) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
18 (19th)	zero ret. hi. speed lower word	Default: 41248 (A120 Hex)	Set lower word of the home position return speed. (BFM #5) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
19 (20th)	zero ret. hi. speed upper word	Default: 7 (0007 Hex)	Set upper word of the home position return speed. (BFM #6) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
20 (21st)	zero ret. creep speed	Default: 1000 (03EB Hex)	Set creep speed of home position return. (BFM #7) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
21 (22nd)	zero point signal number	Default: 1 (0001 Hex)	Set number of zero point signal. (BFM #8) Setting range: 0 to 32767 (0000 to 7FFF Hex)
22 (23rd)	zero point address lower word	Default: 0 (0000 Hex)	Set lower word of home position address. (BFM #9) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
23 (24th)	zero point address upper word	Default: 0 (0000 Hex)	Set upper word of home position address. (BFM #10) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)

Table C-64: FX2N-10PG 6W-IF (Intel Format)

Nr.	Parameter Name	Value Setting List	Description
24 (25th)	acceleration time	Default: 100 (0064 Hex)	Set acceleration time. (BFM #11) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)
25 (26th)	deceleration time	Default: 100 (0064 Hex)	Set deceleration time. (BFM #12) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)

C-2-33: FX2N-10PG (Motorola Format) - Using 6W-IF -

Requirements:

- Cyclic data is 6 word inputs and 6 word outputs in every cycle. This data is used for “Simple Communication 6W-IF”. Further information for the simple commnunication 6W-IF can be found in section 7.2.1 and 7.2.2.

Table C-65: Cyclic Data of FX2N-10PG 6W-IF (Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)

- Parameter is 58 bytes.

Table C-66: FX2N-10PG 6W-IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	pulse rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for pulse rate. (BFM #32) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
01 (2nd)	pulse rate upper word	Default: 0 (0000 Hex)	Set the upper word for pulse rate. (BFM #33) Setting range (BFM #33, #32): 1 to 999999 (00000001 to 000F423F Hex)
02 (3rd)	feed rate lower word	Default: 2000 (07D0 Hex)	Set the lower word for feed rate. (BFM #34) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)

Table C-66: FX2N-10PG 6W-IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
03 (4th)	feed rate upper word	Default: 0 (0000 Hex)	Set the upper word for feed rate. (BFM #35) Setting range (BFM #35, #34): 1 to 999999 (00000001 to 000F423F Hex)
04 (5th)	pulse output format	forward/reverse pulses	Select pulse output format from the available options. (BFM #36)
		pulse/direction	
05 (6th)	rotation direction	CP value increases with a FP	Select rotation direction from the available options. (BFM #36)
		CP value decreases with a FP	
06 (7th)	home position ret. dir.	CP value dec. during ret. home	Select home return direction from the available options. (BFM #36)
		CP value inc. during ret. home	
07 (8th)	Acceleration/ Deceleration mode	trapezoidal control	Select acceleration/deceleration mode from the available options. (BFM #36)
		approx. S-shape control	
08 (9th)	DOG input polarity	DOG signal active high	Select polarity for DOG input signal from the available options. (BFM #36)
		DOG signal active low	
09 (10th)	count start timing	count z.p.sig. while DOG is act.	Select the count start timing from the available options. (BFM #36)
		count z.p.sig. after DOG impulse	
10 (11th)	STOP input mode	remaining distance	Select STOP mode from the available options. (BFM #36)
		next position	
11 (12th)	System of units	Motor system	Select unit system from the available options. (BFM #36)
		Machine system	
		Combined system	
12 (13th)	position data multiplication	multiplicator = 1	Select magnification of position data from the available options. (BFM #36)
		multiplicator = 10	
		multiplicator = 100	
		multiplicator = 1000	
13 (14th)	maximum speed lower word	Default: 41248 (A120 Hex)	Set lower word of maximum speed. (BFM #0) Setting range (BFM #1, #0): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex).

Table C-66: FX2N-10PG 6W-IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
14 (15th)	maximum speed upper word	Default: 7 (0007 Hex)	Set upper word of maximum speed. (BFM #1) Setting range (BFM #1, 0#): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
15 (16th)	bias speed	Default: 0 (0000 Hex)	Set bias speed. (BFM #2) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
16 (17th)	Jog speed lower word	Default: 10000 (2710 Hex)	Set lower word of JOG speed. (BFM #3) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
17 (18th)	Jog speed upper word	Default: 0 (0000 Hex)	Set lower word of JOG speed. (BFM #4) Setting range (BFM #4, #3): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
18 (19th)	zero ret. hi. speed lower word	Default: 41248 (A120 Hex)	Set lower word of the home position return speed. (BFM #5) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)
19 (20th)	zero ret. hi. speed upper word	Default: 7 (0007 Hex)	Set upper word of the home position return speed. (BFM #6) Setting range (BFM #6, #5): 1 to 2,147,483,467 (00000001 to 7FFFFFFF Hex) The range of pulse-converted value is 1 to 1,000,000 Hz (000000001 to 000F4240 Hex)

Table C-66: FX2N-10PG 6W-IF (Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
20 (21st)	zero ret. creep speed	Default: 1000 (03EB Hex)	Set creep speed of home position return. (BFM #7) Setting range: 0 to 32767 (0000 to 7FFF Hex) The range of pulse-converted value is 0 to 30000 Hz (0000 to 7530 Hex)
21 (22nd)	zero point signal number	Default: 1 (0001 Hex)	Set number of zero point signal. (BFM #8) Setting range: 0 to 32767 (0000 to 7FFF Hex)
22 (23rd)	zero point address lower word	Default: 0 (0000 Hex)	Set lower word of home position address. (BFM #9) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
23 (24th)	zero point address upper word	Default: 0 (0000 Hex)	Set upper word of home position address. (BFM #10) Setting range (BFM #10, #9): -2,147,483,648 to 2,147,483,467 (00000000 to FFFFFFFF Hex)
24 (25th)	acceleration time	Default: 100 (0064 Hex)	Set acceleration time. (BFM #11) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)
25 (26th)	deceleration time	Default: 100 (0064 Hex)	Set deceleration time. (BFM #12) Setting range: • Trapezoidal control; 1 to 5000 (0001 to 1388 Hex) • S-shaped control; 64 to 5000 (0040 to 1388 Hex)

C-2-34: Simple Communication 3W-IF (Intel Format/Motorola Format)

Further information of the simple commnunication 3W-IF can be found in section 7.2.1 and 7.2.2.

Requirements:

- Cyclic data is 3 word inputs and 3 word outputs in every cycle.

Table C-67: Cyclic Data of Simple Communication 3W-IF (Intel Format/Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)

- Parameter is 4 bytes.

Table C-68: Simple Communication 3W-IF (Intel Format/Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	SFB ID	simple analog modules[*1]	Special function block ID code
		FX2N-4AD[*2]	
		FX2N-4AD-TC[*2]	
		FX2N-4AD-PT[*2]	
		FX2N-4DA[*2]	
		FX2N-1HC[*2]	
		FX2N-1PG[*2]	
		FX2N-20GM[*2]	
		FX2N-10GM[*2]	
		FX2N-232IF[*2]	
		FX2N-32ASI-M[*2]	

*1 Simple analog modules are FX$_{0N}$-3A, FX$_{2N}$-2AD and FX$_{2N}$-2DA.

*2 These products are listed as shown when using the Intel format. When using the Motorola format, the order of the products listed will change slightly.

C-2-35: Simple Communication 6W-IF (Intel Format/Motorola Format)

Further information of the simple commnunication 6W-IF can be found in section 7.2.1 and 7.2.2.

Requirements:

- Cyclic data is 6 word inputs and 6 word outputs in every cycle.

Table C-69: Cyclic Data of Simple Communication 6W-IF (Intel Format/Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)

- Parameter is 4 bytes.

Table C-70: Simple Communication 6W-IF (Intel Format/Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	SFB ID	simple analog modules*1	Special function block ID code
		FX2N-4AD*2	
		FX2N-4AD-TC*2	
		FX2N-4AD-PT*2	
		FX2N-4DA*2	
		FX2N-1HC*2	
		FX2N-1PG*2	
		FX2N-20GM*2	
		FX2N-10GM*2	
		FX2N-232IF*2	
		FX2N-32ASI-M*2	

*1 Simple analog modules are FX0N-3A, FX2N-2AD and FX2N-2DA.

*2 These products are listed as shown when using the Intel format. When using the Motorola format, the order of the products listed will change slightly.

C-2-36: Simple Communication 9W-IF (Intel Format/Motorola Format)

Further information of the simple commnunication 9W-IF can be found in section 7.2.1 and 7.2.2.

Requirements:

- Cyclic data is 9 word inputs and 9 word outputs in every cycle.

Table C-71: Cyclic Data of Simple Communication 9W-IF (Intel Format/Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)
7th	FROM address	FROM data
8th	TO data	TO data (read back)
9th	TO address	TO address (read back)

- Parameter is 4 bytes.

Table C-72: Simple Communication 9W-IF (Intel Format/Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	SFB ID	simple analog modules*1	Special function block ID code
		FX2N-4AD*2	
		FX2N-4AD-TC*2	
		FX2N-4AD-PT*2	
		FX2N-4DA*2	
		FX2N-1HC*2	
		FX2N-1PG*2	
		FX2N-20GM*2	
		FX2N-10GM*2	
		FX2N-232IF*2	
		FX2N-32ASI-M*2	

*1 Simple analog modules are FX0N-3A, FX2N-2AD and FX2N-2DA.

*2 These products are listed as shown when using the Intel format. When using the Motorola format, the order of the products listed will change slightly.

C-2-37: Simple Communication 12W-IF (Intel Format/Motorola Format)

Further information of the simple commnunication 12W-IF can be found in section 7.2.1 and 7.2.2.

Requirements:

- Cyclic data is 12 word inputs and 12 word outputs in every cycle.

Table C-73: Cyclic Data of Simple Communication 12W-IF (Intel Format/Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)
7th	FROM address	FROM data
8th	TO data	TO data (read back)
9th	TO address	TO address (read back)
10th	FROM address	FROM data
11th	TO data	TO data (read back)
12th	TO address	TO address (read back)

- Parameter is 4 bytes.

Table C-74: Simple Communication 12W-IF (Intel Format/Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	SFB ID	simple analog modules*1	Special function block ID code
		FX2N-4AD*2	
		FX2N-4AD-TC*2	
		FX2N-4AD-PT*2	
		FX2N-4DA*2	
		FX2N-1HC*2	
		FX2N-1PG*2	
		FX2N-20GM*2	
		FX2N-10GM*2	
		FX2N-232IF*2	
		FX2N-32ASI-M*2	

*1 Simple analog modules are FX0N-3A, FX2N-2AD and FX2N-2DA.

*2 These products are listed as shown when using the Intel format. When using the Motorola format, the order of the products listed will change slightly.

C-2-38: Simple Communication 15W-IF (Intel Format/Motorola Format)

Further information of the simple commnunication 15W-IF can be found in section 7.2.1 and 7.2.2.

Requirements:

- Cyclic data is 15 word inputs and 15 word outputs in every cycle.

Table C-75: Cyclic Data of Simple Communication 15W-IF (Intel Format/Motorola Format)

	Send Data	Receive Data
1st	FROM address	FROM data
2nd	TO data	TO data (read back)
3rd	TO address	TO address (read back)
4th	FROM address	FROM data
5th	TO data	TO data (read back)
6th	TO address	TO address (read back)
7th	FROM address	FROM data
8th	TO data	TO data (read back)
9th	TO address	TO address (read back)
10th	FROM address	FROM data
11th	TO data	TO data (read back)
12th	TO address	TO address (read back)
13th	FROM address	FROM data
14th	TO data	TO data (read back)
15th	TO address	TO address (read back)

- Parameter is 4 bytes.

Table C-76: Simple Communication 15W-IF (Intel Format/Motorola Format)

Nr.	Parameter Name	Value Setting List	Description
00 (1st)	SFB ID	simple analog modules*1	Special function block ID code
		FX2N-4AD*2	
		FX2N-4AD-TC*2	
		FX2N-4AD-PT*2	
		FX2N-4DA*2	
		FX2N-1HC*2	
		FX2N-1PG*2	
		FX2N-20GM*2	
		FX2N-10GM*2	
		FX2N-232IF*2	
		FX2N-32ASI-M*2	

*1 Simple analog modules are FX0N-3A, FX2N-2AD and FX2N-2DA.

*2 These products are listed as shown when using the Intel format. When using the Motorola format, the order of the products listed will change slightly.

C-2-39: 8 Bit Input

Requirements:

- Cyclic data is 1 byte input in every cycle.
- Parameter is 0 bytes.

C-2-40: 8 Bit Output

Requirements:

- Cyclic data is 1 byte output in every cycle.

Parameter is 0 bytes.

MEMO

Appendix D:
Update History of FX2N-32DP-IF and GSD File

Table D-1: Update History of FX2N-32DP-IF and GSD File [*1]

Version		Contents
32DP-IF Hardware	**GSD File**	
V1.00	V1.00	First Product Supports the following. • Special function blocks: FX2N-4AD, FX2N-4AD-TC, FX2N-4AD-PT, FX2N-4DA • Extension units: FX2N-32ER-ES/UL, FX2N-32ET-ESS/UL, FX2N-48ER-ES/UL, FX2N-48ET-ESS/UL FX2N-48ER-UA1/UL • Extension blocks: FX2N-16EX-ES/UL, FX2N-16EYR-ES/UL, FX2N-16EYT-ESS/UL, FX0N-8EX-UA1/UL, FX0N-8EX-ES/UL, FX0N-8ER-ES/UL, FX0N-8EYR-ES/UL, FX0N-8EYT-ESS/UL, FX0N-16EX-ES/UL, FX0N-16EYR-ES/UL, FX0N-16EYT-ESS/UL
V1.10	V1.10	Supports FX0N-3A, FX2N-2AD, FX2N-2DA, FX2N-1HC, FX2N-1PG, FX2N-10GM, FX2N-20GM, FX2N-32ASI-M and FX2N-232IF.
V2.00	V2.00	Supports the swap parameter (Second byte bit 4 in the global user parameter). (This content is written in the Section 7.1 and 7.2.)
V2.10	V2.10	Supports the following • Profibus-DP Interface unit: FX2N-32DP-IF-D • Specical function blocks: FX2N-8AD, FX2N-2LC, FX2N-10PG. • Extension units: FX2N-48ER-DS, FX2N-48ET-DSS

*1 Please ask your vendor for the GSD files.

MEMO

Appendix E:
Further Information Manual Lists

Table E-1: Further Information Manual Lists

Manual name	Manual No.	Description
FX_{2N} Series Programmable Controllers Hardware Manual	JY992D66301	This manual contains explanations for wiring, installation and specification, etc. about FX_{2N} Series programmable controller.
FX_0/FX_{0N} Series Programmable Controllers Hardware Manual	JY992D47501	This manual contains explanations for wiring, installation and specification, etc. about FX_0 and FX_{0N} Series programmable controllers.
FX_{2N}-32DP-IF Profibus-DP Interface Unit Hardware Manual	JY992D79401	This manual contains explanations for wiring, installation, specification, etc. about FX_{2N}-32DP-IF Profibus-DP Interface Unit. However, the hardware manual's text is already contained in the user's manual.
FX_{2N}-2DA special Function Block User's Guide	JY992D74901	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-2DA special function block.
FX_{2N}-2AD Special Function Block User's Guide	JY992D74701	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-2AD special function block.
FX_{0N}-3A Special Function Block User's Guide	JY992D49001	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{0N}-3A special function block.
FX_{2N}-4DA Special Function Block User's Guide	JY992D65901	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-4DA special function block.
FX_{2N}-4AD Special Function Block User's Guide	JY992D65201	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-4AD special function block.
FX_{2N}-4AD-PT Special Function Block User's Guide	JY992D65601	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-4AD-PT special function block.
FX_{2N}-4AD-TC Special Function Block User's Guide	JY992D65501	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-4AD-TC special function block.
FX_{2N}-8AD Special Function Block User's Manual	JY992D86001	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-8AD special function block.
FX_{2N}-2LC Special Function Block User's Manual	JY992D85801	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-2LC special function block.
FX_{2N}-1HC Special Function Block User's Guide	JY992D65401	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX_{2N}-1HC special function block.
FX-1PG/FX_{2N}-1PG Pulse Generation Unit User's Manual	JY992D65301	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX-1PG/FX_{2N}-1PG Pulse Generation Unit.

Table E-1: Further Information Manual Lists

Manual name	Manual No.	Description
FX2N-10PG Pulse Generation Unit User's Manual	JY992D93401	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX2N-10PG Pulse Generation Unit.
FX2N-10GM User's Guide	JY992D77701	This manual contains explanations for specification about FX2N-10GM Positioning Control Unit. However, the user's guide's text is already contained in the hardware/programming manual.
FX2N-20GM User's Guide	JY992D77601	This manual contains explanations for specification about FX2N-20GM Positioning Control Unit. However, the user's guide's text is already contained in the hardware/programming manual.
FX2N-10GM, Fx2N-20GM Hardware/Programming Manual	JY992D77801	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX2N-10GM, FX2N-20GM unit.
FX2N-32ASI-M AS-interface Master Block User's Manual	JY992D76901	This manual contains explanations for wiring, installation, specification and BFM allocation, etc. about FX2N-32ASI-M AS-interface master block.
FX2N-232IF RS232C Interface Block User's Manual	JY992D73501	This manual contains explanations for wiring, installation and specification about FX2N-232IF RS232C interface block.
FX Communication (RS232C, RS485) User's Manual	JY992D69901	This manual contains explanations for N:N network, parallel link and computer link no protocol communication (RS instruction and FX2N-232IF RS232C interface block) about FX family PLC.
MELSEC ProfiMap Configuration System for Open Networks Software Manual	-	This manual contains explanations for operation of MELSEC ProfiMap Configuration System for Open Networks Software.
MELSOFT GX-Configurator-DP Configuration System for Open Networks Software Manual	-	This manual contains explanations for operation of MELSOFT GX-Confirarater-DP Configuration System for Open Networks Software.

USER'S MANUAL

FX2N-32DP-IF Profibus-DP Interface Unit

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

JY992D79401G
(MEE)

Effective April 2015
Specification are subject to change without notice.