

 **MITSUBISHI**
PROGRAMMABLE CONTROLLERS
MELSEC-F

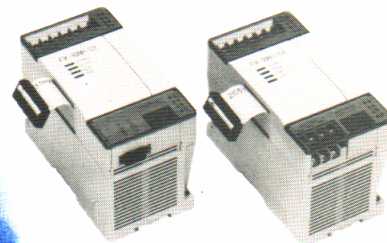
ADVANCED AND EVER ADVANCING **MITSUBISHI ELECTRIC**

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FX

FX-16NP/NT-S3

USER'S MANUAL



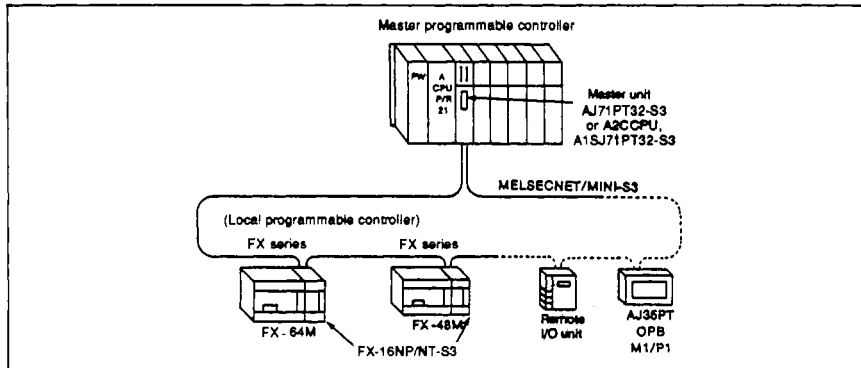
FOREWORD

- This manual provides technical information on the use of the FX-16NP/NT-S3 special function block in connection with the FX programmable controller.
- Information concerning the MELSECNET/MINI-S3 network is covered by the manual of the master unit.
- Users should ensure that the details of this and other relevant manuals are studied and understood before attempting to install or use these units.

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1. SYSTEM CONFIGURATION



- Maximum station-to-station distance Plastic fiber-optic cable: 50 m
Twisted-wire pair cable: 100 m
- Maximum number of stations 64 (8 input or output points per station)
- Interface block FX-16NP-S3 for fiber-optic cable
FX-16NT-S3 for twisted-wire pair cable
- Number of occupying stations 4 (When the A series PC is in expansion mode)
- Number of occupying I/O points 8 input points and 8 output points for the FX series PCs.
And, 8 input or output points as a special extension block.
Total: 24 points
- Communications information A to FX: 8 input points and 28 words
FX to A: 8 output points and 28 words

The MELSECNET/MINI-S3 is an I/O and data transmission system for remote I/O units.

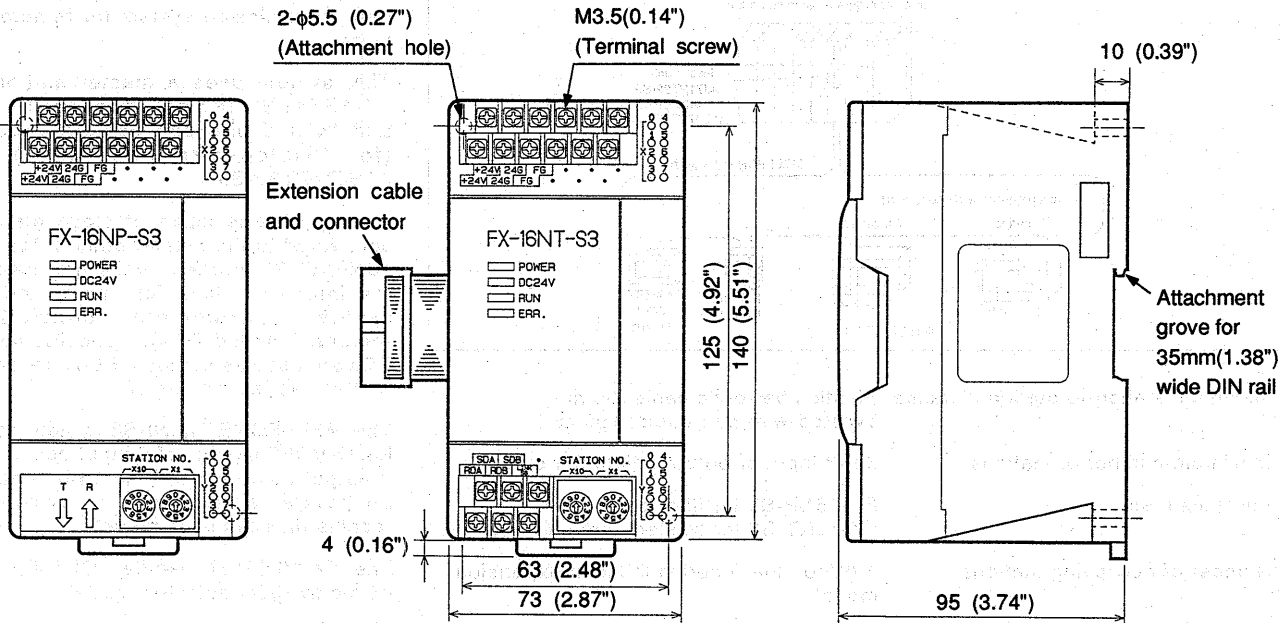
This system uses a master station of AJ71PT32-S3 (for both fiber-optic cable and twisted-wire pair cable), A2CCPU (for twisted-wire pair cable), or A1SJ71PT32-S3.

Among various kinds of slave stations connected to the master station, the FX-16NP/NT-S3 interface units are used as the interface block for linking the FX series programmable controllers (hereafter called PCs). The FX series PCs are used as the local PCs connected to the A series master PCs.

The MELSECNET/MINI-S3 system handles ON/OFF signals of 8 input points and 8 output points as well as 16-bit data of 28 points respectively for send and receive (in expansion mode).

The FX-16NP/NT handles ON/OFF signals only (I/O dedicated mode).

2. EXTERNAL DIMENSIONS AND SPECIFICATIONS



Weight : Approx. 0.4 Kg (0.88 lbs.)
 Accessories: Self-adhesive special block number labels

2. EXTERNAL DIMENSIONS AND SPECIFICATIONS

- (1) Performance Specifications (General specifications except withstand voltage (*1) are the same as for the base unit.)

Item	Optical data link	Twisted pair link	Remarks
Interface block	FX-16NP-S3	FX-16NT-S3	
Master station	AJ71PT32-S3 *2	AJ71PT32-S3 or A2CCPU *2	
Cable	Plastic fiber (50m between stations)	Shielded twisted-wire pair cable (100 m between stations)	
Number of occupied stations	4 stations		Conforms to MELSEC NET/MINI-S3.
Number of input points	8 points	Number of occupied I/O points: 24 Input: 8 points Output: 8 points Input or output: 8 points	Transfer from a master PC to a local PC
Number of output points	8 points		Transfer from a local PC to a master PC
Number of transfer words	FX to A: 28 A to FX: 28		Data is communicated through buffer memory.
Operation status indicator LEDs	POWER : Lit when the 5V power is supplied from the PC. DC24V : Lit when the 24V power for data transmission is supplied. RUN : Lit when the MELSEC NET/MINI is in the RUN state. ERR : Lit when a communication error has occurred. X0 to X7 : Lit/unlit according to ON/OFF of the input. Y0 to Y7 : Lit/unlit according to ON/OFF of the output.		If the I/O refresh operation at the master station is suspended when a transmission error has occurred, X0 to X7 hold the current state.

*1: Withstand voltage: 500V AC for 1 minute (across all terminals as one block and the grounding terminal)

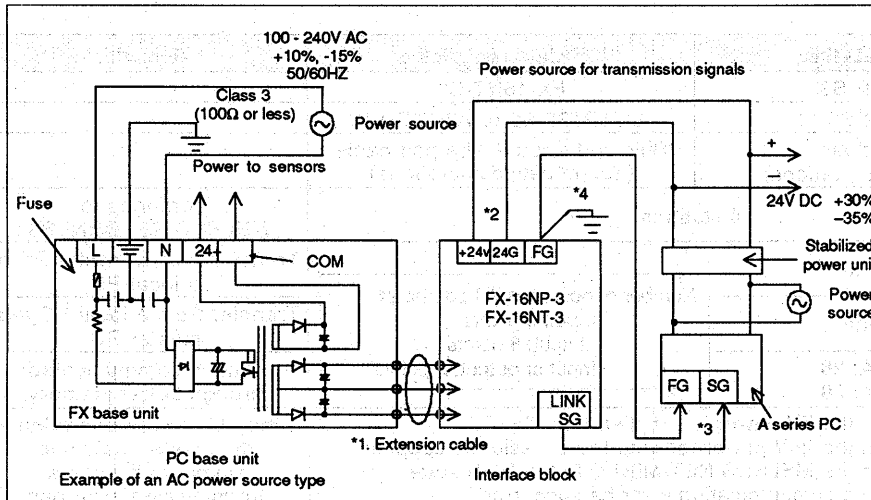
*2: A1SJ71PT32-S3 can also be used.

- (2) Power source specification

Item	Description	Remarks
Communications	DC 15.6V to DC 31.2V 100mA/DC 24V	The power lines for communications and those for the interface are isolated from each other.
Interface	DC 5V 80mA (supplied from PC)	

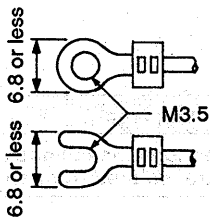
3. CONNECTIONS AND WIRING

(1) Connecting the power source



1. Connect the FX-16NP/NT-S3 to the base unit of the FX programmable controller with the extension cable.
2. Then, wire **+24V** and **24G** of the interface unit to the stabilized DC power source. Connect this stabilized power unit and the master programmable controller (the A-series PC) to the same AC power source.
3. Connect the **FG** and **LINK SG** terminals of the FX-16NT-S3 to those of the master programmable controller.
4. Connect **FG** of FX-16NP-S3 to an appropriate earth. (100 ohms or less)

Notes on using crimp terminals



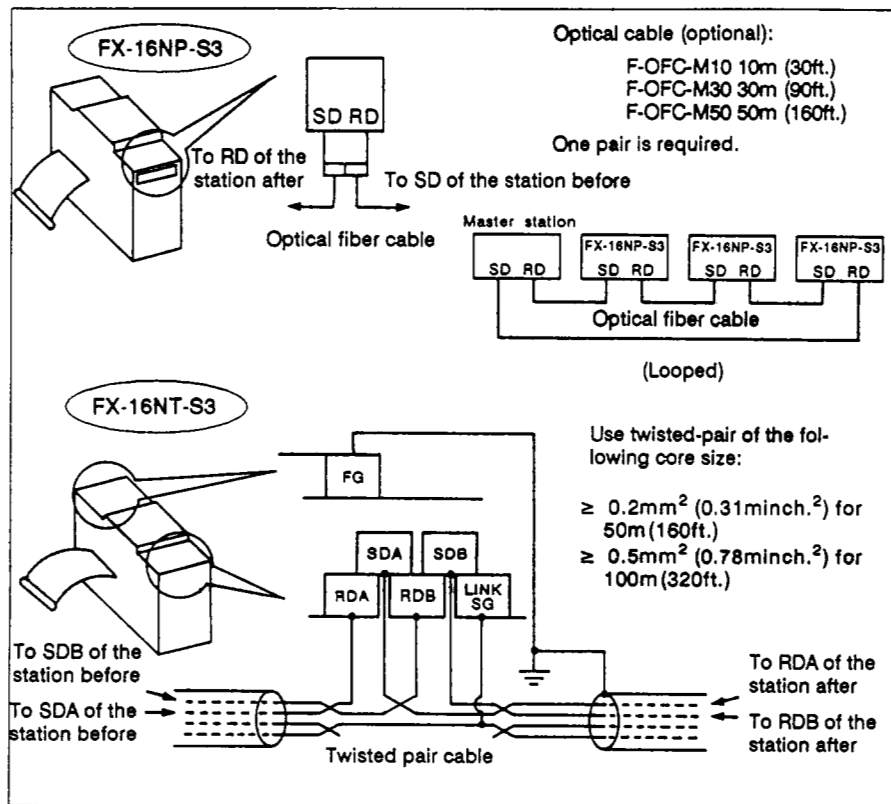
Use crimp terminations of the type indicated on the left.

Secure the terminals using a tightening torque of between 5 and 8 kg-cm.

Do not connect any cables to unused terminals [].

3. CONNECTIONS AND WIRING

(2) Connecting the transmission lines



When using fiber-optic cables, connect **SD** to **RD** of the previous station and **RD** to **SD** of the next station so that the whole link forms a loop.

Marking one end of the cable will help form the loop correctly.

When using twisted-wire pair cables, connect **SDA** to **RDA** and **SDB** to **RDB** of the station before, and **RDA** to **SDA** and **RDB** to **SDB** of the station after. Connect the **LINK SG** terminal jointly to all the FX-16NT-S3 units. Transmission lines must be laid in separate cable runs from power lines.

4. STATION NUMBER SETTING

Open the terminal cover and set the station number using the two rotary switches (STATION NO. x10 and x1). The station number can be set from 01 to 61.

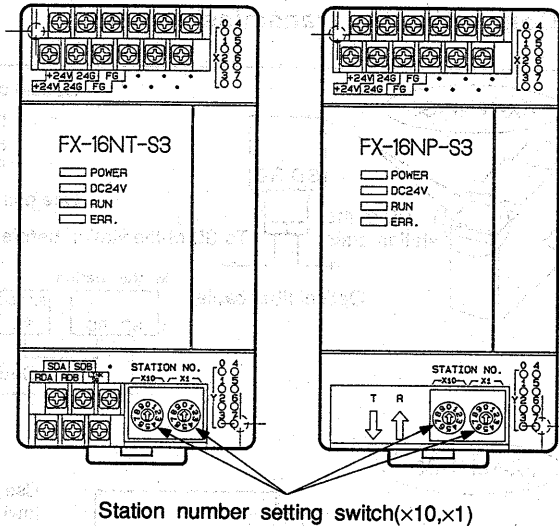
For example, if station number 15 is set, four station numbers of 15, 16, 17, and 18 are occupied by the unit.

Use caution not to set the same station number to more than one station.

These station numbers are registered to the master station when both the 5 V power supplied from the PC and the 24 V power for communications are turned ON.

Any changes to station numbers made while the power is ON are invalid.

Note: These types of units are not provided with a data set/hold select switch for communications errors. Therefore, data remains unchanged when a communications error has occurred. Since communications errors can be monitored by the PC, use a sequence program to reset a communications error.



5. I/O DATA ASSIGNMENT

Eight points of ON/OFF signals for both input and output are transmitted and received between an FX-16NP/NT-S3 and the A series master PC. These signals on an FX series local PC are mapped as input and output relays in the table shown on the right.

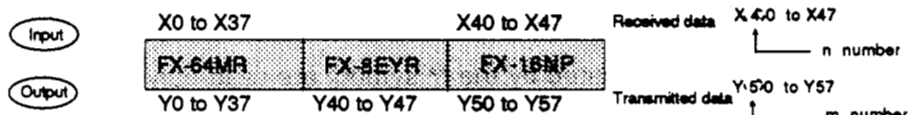
More than one interface block can be connected to one FX series PC. The FX-16NP/NT-S3 can be located at any desired position.

Link data	Description	IO assignment	IO monitor LED
A to FX (output data)	Received by the FX PC of the appropriate station number. (Transmitted from the A PC)	X n0	X0
		Xn1	X1
		Xn2	X2
		Xn3	X3
		Xn4	X4
		Xn5	X5
		Xn 6	X6
		Xn 7	X7
FX to A (output data)	Transmitted from the FX PC of the appropriate station number. (Received by the A PC)	Ym0	Y0
		Ym1	Y1
		Ym2	Y2
		Ym3	Y3
		Ym4	Y4
		Ym5	Y5
		Ym6	Y6
		Ym7	Y7

More ON/OFF signals can be received by using buffer memory, which is explained later in this Manual.

Example

The X and Y numbers are assigned sequentially beginning with X0 and Y0 of the corresponding base unit.



Select attached I/O No labels corresponding to the n and m numbers, and put them on the panel.

6. BUFFER MEMORY (BFM) ASSIGNMENT

The FX-16NP/NT-S3 interface block uses its built-in buffer memory (32-word RAM without battery backup) for communications with the A series PC. The buffer memory is assigned with the numbers as shown below.

FX to A TRANSMIT BUFFER MEMORY (WRITE-ONLY)

BFM No.	Memory data
#0 *	Data is written from the FX series PC to each BFM by a TO instruction. The written data is then transferred to the A series PC.
#1 *	
#26 *	
#27 *	
#28 **	Set value of the station number setting switch (1 to 61)
#29 **	Error code (See the following page.)
#30 **	Information code: 7001 (NP-S3), 7002 (NT-S3)
#31 **	Unusable

A to FX RECEIVE BUFFER MEMORY (READ-ONLY)

BFM No.	Memory data
#0 **	Data is written from the A series PC to each BFM. The written data is then transferred to the FX series PC by a FROM instruction.
#1 **	
#26 **	
#27 **	
#28 **	Set value of the station number setting switch (1 to 61)
#29 **	Error code (See the following page.)
#30 **	Information code: 7001 (NP-S3), 7002 (NT-S3)
#31 **	Unusable

The BFM numbers indicated by the * symbol are write-only memory. Reading by the FX series PC by a FROM instruction is denied.

The BFM numbers indicated by the ** symbol are read-only memory. Writing from the FX series PC by a TO instruction is denied.

6. BUFFER MEMORY (BFM) ASSIGNMENT

BFM #28, #29, and #30 are used as follows;

BFM #28 Station number

This is the number (1 to 61) set by the station number setting switch (see page 6) of the FX-16NP/NT-S3. This number is registered to the master station when the communications power source is turned ON. Any attempt to change this number while the power is ON is prevented.

BFM #29 Error code

As shown in the table on the right, an error code number corresponding to each error is written to this BFM.

BFM #30 Type code

The following type code number is written to this BFM.

Type	Code number
FX-16NP-S3	K7001
FX-16NT-S3	K7002

Error code numbers

Code No.	Error description	Processing
K100	Read error	A remote terminal unit error is detected by the master unit (X24 is ON) and corresponding remote terminal error code (address 96 to 209) is registered. By turning ON the remote terminal error detection reset signal (Y24), X24 is turned OFF and the error code is cleared.
K101	Write error	
K102	Command error: Unidentified data other than a read/write command is received.	The error code is cleared when the status is restored to normal.
K103	Designated number of words = 0 is received.	
K104	Data is received from the A series PC when data read is requested by the A series PC.	
K105	The number of write words is not equal to the number of received words when data is written from the A series PC.	
K106	The communications power source is OFF.	
K107	A CPU error occurred in the FX PC.	
K108	Link error (time out) RUN LED is OFF. ERR LED is ON.	
K109	Link error (parity error) RUN and ERR LEDs are ON.	

7. GENERAL DESCRIPTION OF THE MASTER UNIT(REFERENCE)

(1) Remote Units and Operation Modes

(a) A remote unit is referred to as a remote I/O unit which handles ON/OFF data only or a remote terminal unit which handles byte or word data as well as ON/OFF data. A remote unit is allocated as a remote station in a link system.

(b) Either the batch refresh method or the partial refresh method is used as the I/O refresh processing for the communications between a master station and a remote station.

FX-16NP/NT

Remote I/O unit:

Batch refresh method

FX-16NP/NT-S3

Remote terminal unit:

Batch refresh method

(c) The master unit has an operation mode setting pin.

32 : (I/O dedicated mode position)

The A-CPU occupies 32 I/O points.
Only remote I/O units can be used.

48 : (Expansion mode position)

The A-CPU occupies 48 I/O points.
Remote I/O units and remote terminal units can be used together.

(d) In I/O dedicated mode, initial data is set by using a sequence program. In expansion mode, initial data is set by using the EPROM and a sequence program.

(e) Writing initial data to the EPROM can be done by using the system disk of SW []GP-MINIP on an A6GPP unit.

- Number of remote stations:
1 to 64
- Number of remote terminals:
0 to 14
- Remote terminal station number setting:
1 to 61
- Type setting:
The FX-16NP/NT-S3 uses the MINI standard protocol. Set 4.
- Head address of the FROM/TO instructions

7. GENERAL DESCRIPTION OF THE MASTER UNIT (REFERENCE)

(2) I/O Signals in Expansion Mode

The following lists the I/O signals when the master unit is installed to the head I/O numbers of X00/Y00 of the A series PC.

Remote unit No.	Signal names			
	Transmit completion	Request to read	Request to transmit	Read completion
1	X00	X01	Y00	Y01
2	X02	X03	Y02	Y03
3	X04	X05	Y04	Y05
4	X06	X07	Y06	Y07
5	X08	X09	Y08	Y09
6	X0A	X0B	Y0A	Y0B
7	X0C	X0D	Y0C	Y0D
8	X0E	X0F	Y0E	Y0F
9	X10	X11	Y10	Y11
10	X12	X13	Y12	Y13
11	X14	X15	Y14	Y15
12	X16	X17	Y16	Y17
13	X18	X19	Y18	Y19
14	X1A	X1B	Y1A	Y1B

	Signal name
X1C	Unusable
X1D	Unusable
X1E	Unusable
X1F	Unusable
X20	Hardware fault
X21	During link communications
X22	Unusable
X23	Received data clear completion
X24	Remote terminal error detection
X25	Test mode
X26	Link error detection
X27	Link communications error
X28	EPROM fault
X29	Unusable
X2A	Unusable
X2B	Unusable
X2C	Unusable
X2D	Unusable
X2E	Unusable
X2F	Unusable

	Signal name
Y1C	Unusable
Y1D	Unusable
Y1E	Unusable
Y1F	Unusable
Y20	Unusable
Y21	Unusable
Y22	Unusable
Y23	Request to clear received data
Y24	Remote terminal error detection reset
Y25	Unusable
Y26	Unusable
Y27	Unusable
Y28	Link communications start
Y29	Unusable
Y2A	FROM/TO instruction response designation
Y2B	Faulty station data clear designation
Y2C	BFM channel switch
Y2D	Error reset

7. GENERAL DESCRIPTION OF THE MASTER UNIT(REFERENCE)

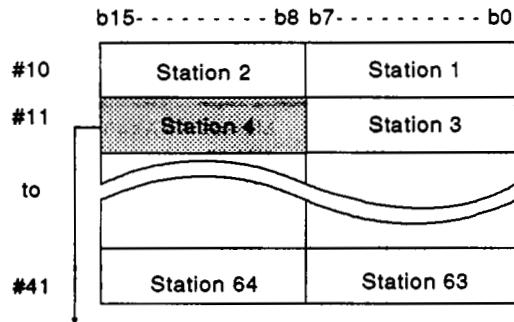
(3) Buffer Memory (BFM)

The master unit has a built-in buffer memory (BFM) (a RAM not backed up by a battery) used for the communications with the A-CPU. The BFM addresses are assigned as shown below.

BFM No.	Description	Remarks
0	Total number of remote stations	Initial data is set from the EPROM.
1	Retry count	0 to 32 (initial value: 5) This must be written when Y28 is OFF.
4	Link error check	Use this to locate the position of a link error.
10 to 41	Transmission data for batch refresh	ON/OFF signals from master to remote (see the next page)
70 to 77	Remote unit type information	Type information of each remote unit is automatically registered.
90 to 93	Accumulated faulty station detection	Faulty remote station numbers are accumulated until they are reset.
100 to 103	Faulty station detection	Faulty remote station numbers are accumulated until they are reset.
107	Communications error code	Cause of communications error signal X27 is stored.
108	Error detection code	Set to "1" when link error X26 is turned ON, and remains "1" until it is reset.
110 to 141	Received data for batch refresh	ON/OFF signals from remote to master (see the next page)
160	Communications retry counter	The number of retries attempted after the communications with a remote station failed.
161 to 192	Retry counter	The retry count of each faulty station.
195	Faulty remote station	The station number of the remote terminal when a unit fault has occurred.
196 to 209	Faulty station code	Cause of a remote terminal unit error is stored.
250 to 663	Partial refresh	Not relevant to the FX-16NP/NT-S3.
858 to 929	—	Same as above.
1100 to 8099	Transmission/receive areas for communications with remote terminals	For communications in word data with remote stations. (see the next page)

7. GENERAL DESCRIPTION OF THE MASTER UNIT (REFERENCE)

ON/OFF signal transmit data (BFM #10 to #41)

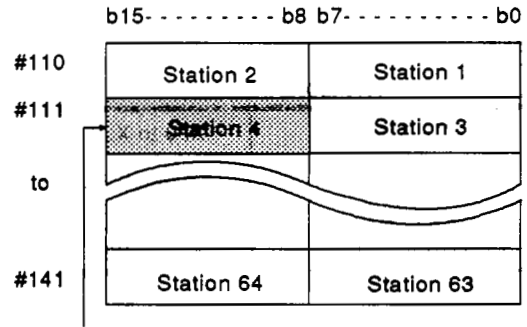


When a remote station number is set to n (1 in this example), the last station $n-3$ (4 in this example) of four occupied stations is assigned as the buffer for transmit and receive.
The I/O numbers of the remote station are X20 to X27 and Y20 to Y27, as given in the example on the next page.

Remote station

X7	X6	X5	X4	X3	X2	X1	X0
----	----	----	----	----	----	----	----

ON/OFF signal received data (BFM #110 to #141)



Remote station

Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
----	----	----	----	----	----	----	----

Word data (BFM #1100 to #8099 x 2 channels)

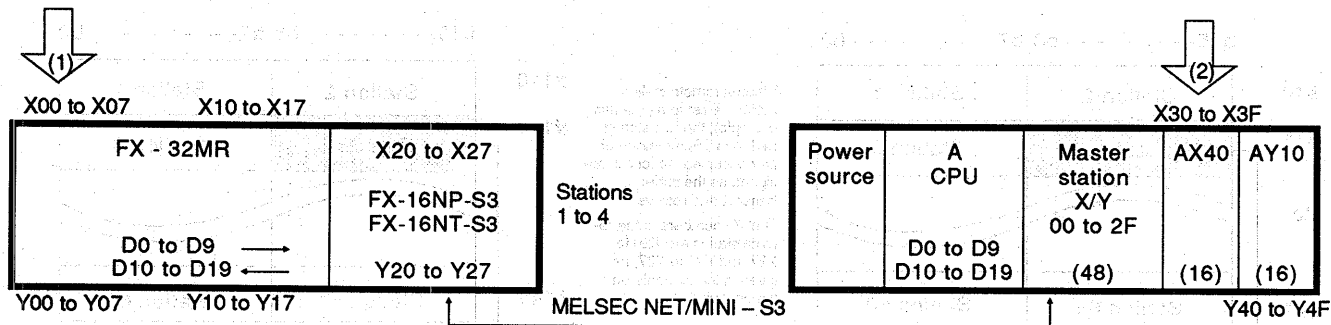
Remote terminal No.		BFM No.	
Y2C=OFF	Y2C=ON	Remote to Master	Master to Remote
No.1	No.8	#1100 to #1599	#1600 to #2099
No.2	No.9	#2100 to #2599	#2600 to #3099
No.3	No.10	#3100 to #3599	#3600 to #4099
No.4	No.11	#4100 to #4599	#4600 to #5099
No.5	No.12	#5100 to #5599	#5600 to #6099
No.6	No.13	#6100 to #6599	#6600 to #7099
No.7	No.14	#7100 to #7599	#7600 to #8099

- Remote terminal unit No. 1 to 7 and No. 8 to 14 are allocated with the same BFM numbers. Y2C is used to switch ON/OFF the channel.
- Data in the Remote to Master BFM is read by the A-CPU by a FROM instruction.

Data in the Master to Remote BFM is written from the A-CPU by a TO instruction.

8. PROGRAMMING

(1) I/O Assignment and Operation Example



Operation example	FX	A
X00 to X07	→	Y40 to Y47
Y00 to Y07	←	X30 to X37
D0 to D9	→	D0 to D9
D10 to D19	←	D10 to D19

I/O head address

Remote station

Inputs X and outputs Y are numbered sequentially beginning with the I/O numbers assigned to the base unit. In this example, X20 and Y20 are the head numbers and 8 input points and 8 output points, beginning with the head addresses, are occupied. (Another 8 points are occupied as input or output points.) If an FX-8EX is connected between the FX-32MR and the FX-16NP/NT-S3, the head addresses of the *PT-S3 are X30 and Y20. (*PT-S3 is an abbreviation for FX-16NP/NT-S3.)

Master station

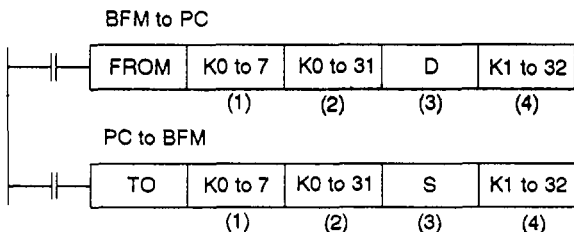
The I/O addresses are assigned sequentially beginning with the CPU as inputs X mixed with outputs Y. A master station occupies 48 points. In this example, X/Y 00 to 2F are assigned, and X/Y 00 is the head address.

8. PROGRAMMING

(2) General Description of the FROM/TO Instructions

On the FX PC

Communications between the PC and the BFM of *PT-S3 interface block (remote station) are carried out by using the FROM/TO instructions.



- (1) A special extension unit number or block number. Assigned from K0 to K7 beginning with the one closest to the base unit.
- (2) BFM number
- (3) Data transfer device head address for destination (D) or source (S). T, C, D, KnY, KnM, KnS, V or Z can be specified for source or destination. KnX, K or H can be specified for source only.
- (4) Number of points of transfer data. For example, if K10 is designated for the data transfer from BFM #0 to data register D10, data is transferred from BFM (#0 to #9) to (D10 to D19).

On the A series PC

Communications between the A series PC and the BFM of the master unit are carried out by using the FROM/TO instructions.

Contents of the instructions are the same as those for the FX PC.

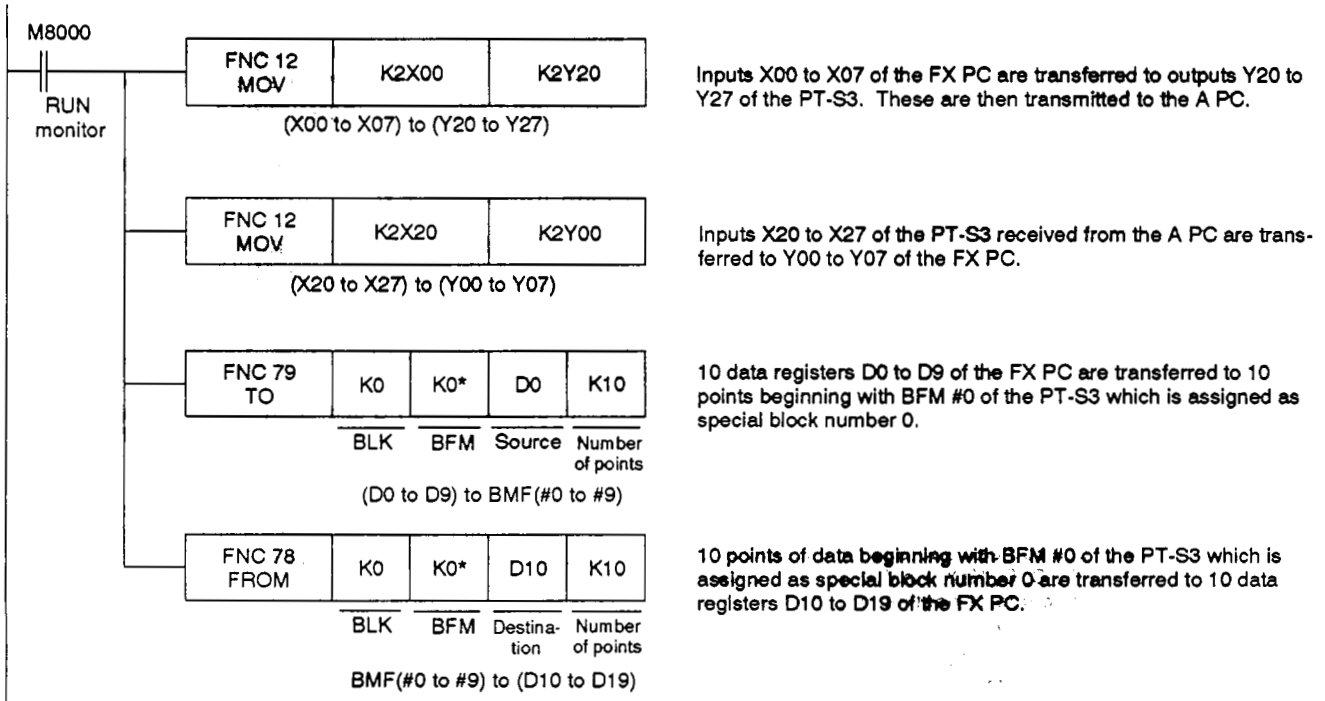
However, designate the head I/O number (higher two digits) of the slot in which the master unit is installed in the special block number area (1).

In the example, H00 or K00 shall be designated.

- Both the FX series PC and the A series PC can use 32-bit instructions and pulse-execution type FROM/TO instructions.
- Data transfer between buffer memories of remote stations and the master station is automatically carried out through the M-NET/MINI-S3 link.

8. PROGRAMMING

(3) Programming on the FX PC



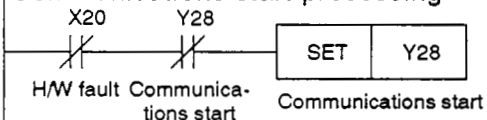
Though the same BFM number is designated, the read/write purpose of the BFM is distinguished (See page 8).

8. PROGRAMMING

(4) Programming on the A series PC

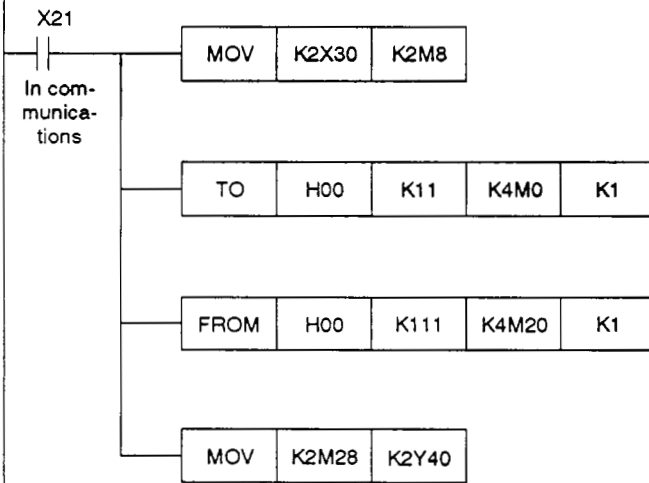
X00/Y00 to 2F used in the following sequences are mentioned on page 11. The actual value will vary according to the slot in which the master unit is installed.

Communications start processing



Communications start Y28 is set under the condition that there is no H/W fault.

I/O refresh



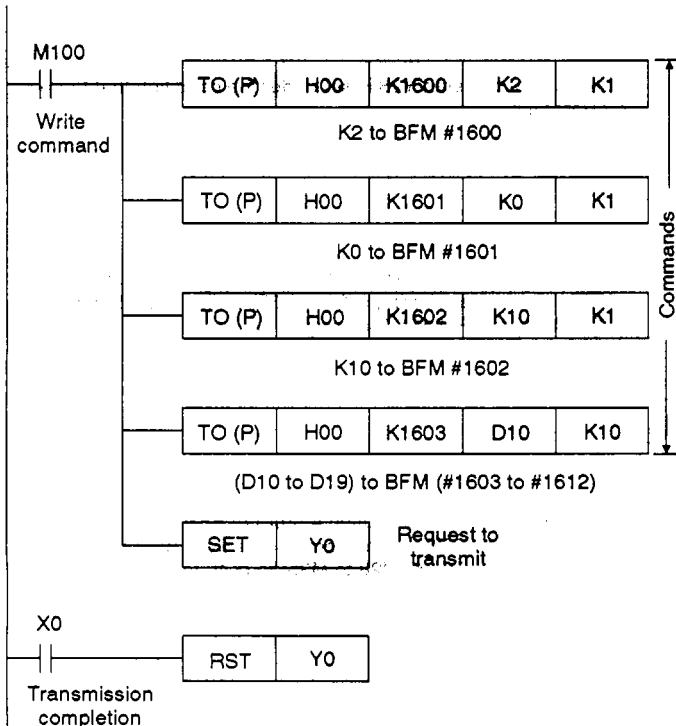
(X30 to X37) are transferred to the higher 8 bits (station 4 area) of BFM #11 by transferring (X30 to X37) to (M8 to M15) and then (M0 to M15) to BFM #11 (See page 13).

Data in the higher 8 bits (station 4 area) of BFM #111 are transferred to (Y40 to Y47) by transferring data from BFM #111 to (M20 to M35) and then (M28 to M35) to (Y40 to Y47), (See page 13).

8. PROGRAMMING

Writing word data from A to FX

In the example shown here, the following transfer is executed; A-CPU (D10 to D19) to Master station BFM (#1603 to #1612) to Remote station BFM (#0 to #9).



The BFM numbers are assigned for each remote terminal unit as shown in the table on page 13.

To designate data transmission, first write the command data, and then write the object data.

- #1600 Write the write command code "2".
- #1601 Write the head BFM number for writing of the remote station.
- #1602 Write the number of words to be written.
- #1603 to #1612 Write area (when 10 words are written).

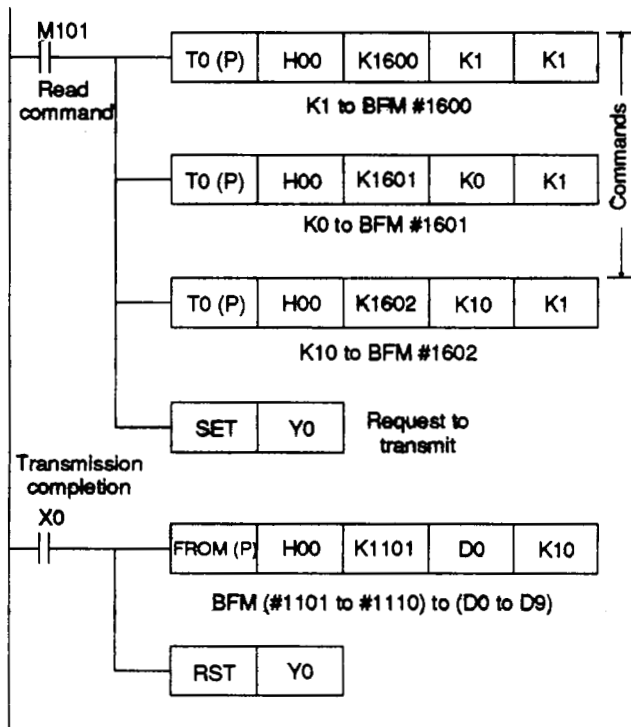
The transmission from the master to the remote is executed by turning ON the request to transmit Y0. When it is completed, X0 (send completed) is turned ON. X0 resets Y0, and then X0 is reset.

This command should not be executed along with the read command shown on the next page.

8. PROGRAMMING

Reading word data from FX to A

In the example shown here, the following transfer is executed. Remote station BFM (#0 to #9) to Master station BFM (#1101 to #1110) to A-CPU (D0 to D9).

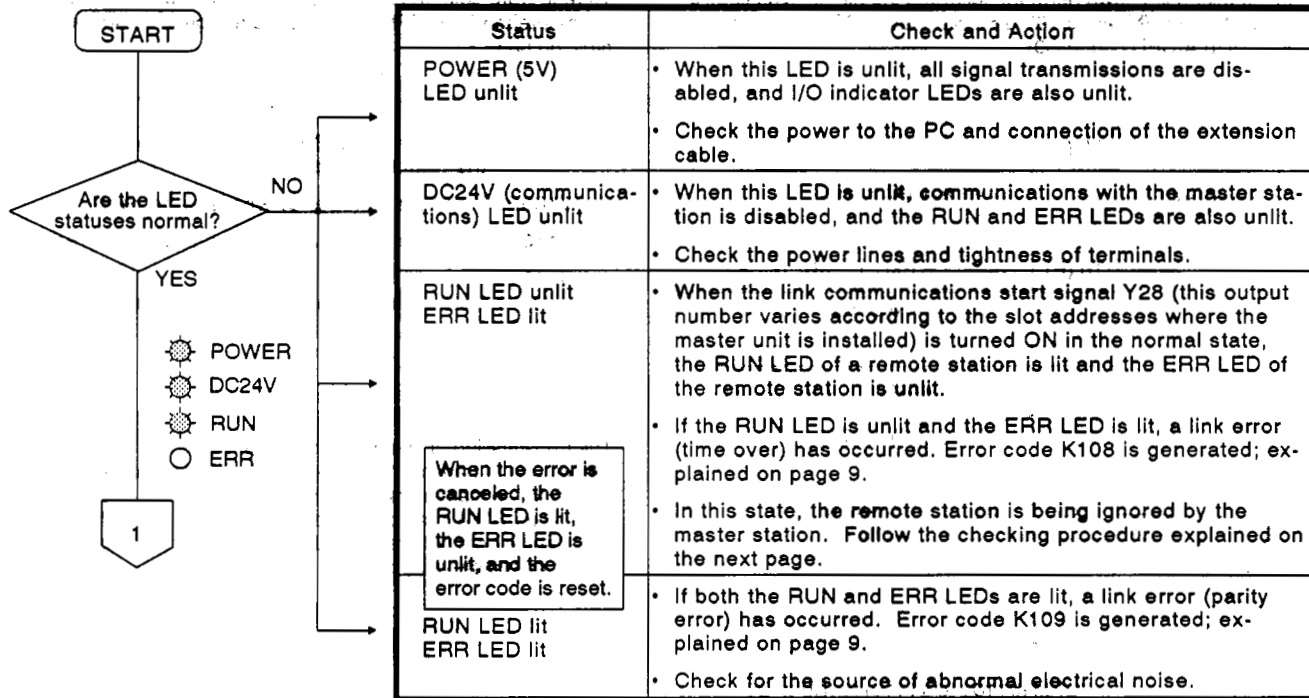


To read word data, the following command data must be transmitted beforehand. The BFM numbers are assigned as shown in the table on page 13.

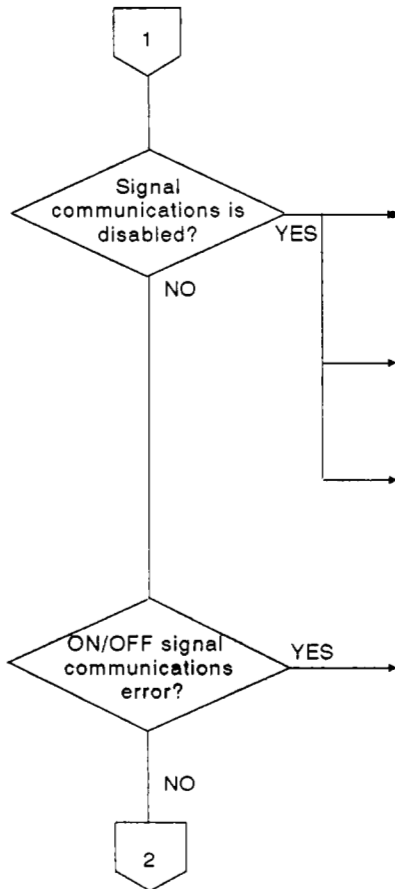
- #1600 Write the read command code "1".
- #1601 Write the head BFM number for reading of the remote station.
- #1602 Write the number of words to be read.
- #1100 The number of words to be read is stored.
- #1101 to #1110 Read area (when 10 words are read).

The transmission of command data is executed by turning ON the request to transmit Y0. Read data is read from the remote station to the master station, and X0 is turned ON. After data is read by a FROM instruction to the A-CPU, reset Y0. This command should not be executed along with the write command shown on the previous page.

9. TROUBLESHOOTING

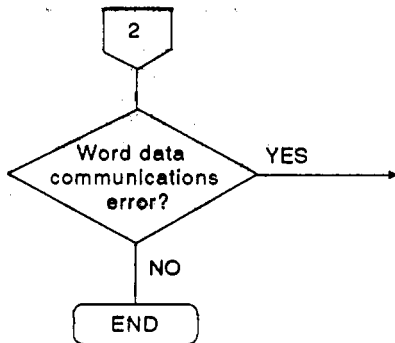


9. TROUBLESHOOTING



Status	Check and Action
Station number setting is erroneous. (remote station)	<ul style="list-style-type: none"> Station numbers are set on the unit panel between 1 and 61 using caution not to set a same number to more than one station. For example, if a remote unit is set to station 1, that station occupies station numbers 1 to 4, and these numbers must not be allocated to any other station. Station numbers cannot be changed after turning on the power for communications (24V DC).
Initial setting is erroneous. (master station)	<ul style="list-style-type: none"> Check the EPROM is correctly installed. Check initial data such as the total number of remote stations, number of remote terminals, remote station number setting, unit type, and FROM/TO instruction head addresses. Check that the mode setting pin is set in the 48 position. Check the operation mode setting switch for correct setting.
A sequence program in the master station is erroneous.	<ul style="list-style-type: none"> Check if the head I/O numbers of the master station are correct. Check if the communications start signal is turned ON.
ON/OFF signals are not correctly transmitted.	<ul style="list-style-type: none"> Designate a monitor station number with the monitor station switch of the master station, and check that the I/O indicator LEDs of the remote station conform with the I/O monitor display of the master station. (Designate the correct station number for monitoring, remote station number +3). If they do not conform with each other, check that the head I/O numbers and BFM numbers (#10 to #41, #110 to #141) of the remote station are correctly assigned, and that correct programs are executed in the master and remote stations.

9. TROUBLESHOOTING



Status	Check and Action
Word data is not correctly transmitted.	• Check that the BFM numbers (#1100 to #8099) are correctly assigned, and that correct programs are executed in the master and remote stations.
	• Confirm the division of the FROM area and TO area. Compare the area addresses with the initial setting data of the EPROM.
	• Check that the command data program in the master station is correctly executed.
	• Errors in the program can be checked by error codes K100 to K105 (see page 9) by monitoring BFM #29 at the remote station.

When the FX PC has stopped

- Signals from the master station are received by the remote station. However, they are not transferred to the FX PC.
- The status immediately before the PC stops is transmitted to the master station. If memory hold mode (M8033) has not been set, all ON/OFF signals are turned to OFF.
- The above applies also to the case of a CPU error of the FX PC.

When communications has stopped

- Communications between the FX PC and the remote station is carried out. However, communications between the remote station and the master station is not carried out.
- The received signals in the remote station hold the status immediately before the stop of communications. These signals can be reset by using a sequence program on the FX PC.

10. TRANSMISSION CABLE SPECIFICATIONS

(1) Fiber-Optic Cables

The following pre terminated optical cables are available.

F-OFC-M10 10 m (30 ft.)

F-OFC-M30 30 m (90 ft.)

F-OFC-M50 50 m (160 ft.)

(2) Twisted-Wire Pair Cables Specification

Item	Specifications
Cable type	Shielded twisted-wire pair cable
Number of pairs	2 pairs or more
Conductor resistance (20 °C)	88.0 ohms/km or less
Capacitance (1 KHz)	60 nF/km or less in average
Characteristic impedance (100 KHz)	110 ± 10 Ω

APPENDIX

A. Communication times.

The maximum communication time between the A series PC and the FX-16NP/NT-S3, for data read and data write, can be found from the following equations.

(1) Data write (A series PC → FX-16NP/NT-S3).

$$T (\text{max.}) = 2 \times (\text{A series PC scan time}) + t \text{ msec} \times (\text{number of data words written} + 7) + 10 \text{ msec} *1$$

(2) Data read (FX-16NP/NT-S3 → A series PC).

$$T (\text{max.}) = 2 \times (\text{A series PC scan time}) + t \text{ msec} \times (\text{number of data words read} + 8) + 10 \text{ msec} *1$$

*1: Internal processing time.

Operation Mode	Recovery Mode on Error	t msec: I/O Refresh Time
Extended mode; Master station occupies 48 I/O.	Automatic error recovery (when error cleared)	$t = 0.66 + (0.044 \times R) + (0.25 \times B) + (0.95 \times T)$
	Remote terminal stops on error	$t = 0.54 + (0.058 \times R) + (0.25 \times B) + (0.95 \times T)$
	System communication stops on error	$t = 0.54 + (0.051 \times R) + (0.25 \times B) + (0.95 \times T)$

R = Total number of remote stations.

B = Number of AJ35PTF-128DT remote I/O units.

T = Number of remote terminal units.

Revisions

EDITION DATE	MANUAL NUMBER	REVISION
Nov. 1992	JY992D34601A	First edition
July 1993	JY992D34601B	Text: Pages 3, 11, 14, 19. Diagram: Pages 4, 7. Program: Page 19

Under no circumstances will Mitsubishi Electric be liable or 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.

Owing to the very great variety in possible applications of this equipment, you must satisfy yourself as to its suitability for your specific application.



MITSUBISHI ELECTRIC CORPORATION

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**Specifications are subject
to change without notice.**