M I T S U B I S H I

Electronic Multi-Measuring Instrument

Programming Manual (CC-Link)

For ver.1 remote device station

Model

ME96NSR-MB or ME96NSR with Optional Plug-in Module : ME-0040C-NS96
ME96SSH-MB or ME96SSR-MB with Optional Plug-in Module : ME-0040C-SS96

LEN080334B

CONTENTS

1. General Description

This manual describes the programming methods that should be created by the user for monitoring measurement value of the Electronic Multi-Measuring Instrument (called ME96 from here on) with the Control & Communication Link (abbreviated as CC-Link from here on).
In programming, read the following related manuals in addition to this mannual.

Table 1.1 Related Manuals

Manual Name	Manual No.
CC-Link System Master/Local Module User's Manual type QJ61BT11	SH-080016 (13JL91)
CC-Link System Master/Local Module User's Manual type QJ61BT11N	SH-080394E (13JR64)
MELSEC-L CC-Link System Master/Local Module User's Manual	SH-080895ENG (13JZ41)
FX2N-16CCL-M USER'S MANUAL	JY992D93101 (09R710)
FX3U-16CCL-M USER'S MANUAL	JY997D43601 (09R724)
User's Manual for ME96	Supplied with product or download.

NOTICE

When using ME96, Optional Plug-in Module "ME-0040C-NS96" or "ME-0040C-SS96" is necessary. CC-Link communication is not available without the optional plug-in module. In this manual, "ME96NSR", "ME96SSH-MB" or "ME96SSR-MB" means the main device of ME96 with the optional plug-in module.

POINT

ME96SSH-MB/ME96SSR-MB must be handled after setting of the remote device station version. Set the remote device station version with the "Setting Menu 2" of the ME96SSH-MB/ME96SSR-MB.

Use the following as a guideline in setting the remote device station version and set the version at ME96.

Mode select setting	Guideline for selection
Ver.1 remote device station (Ver.1 compatible slave station)	Select this when utilizing the conventional program, because of compatibility with ME96NSR.
Ver.2 remote device station (Ver.2 compatible slave station)	Select this when configuring a new system or the being newly added to the existing system in combination with the applicable master module.

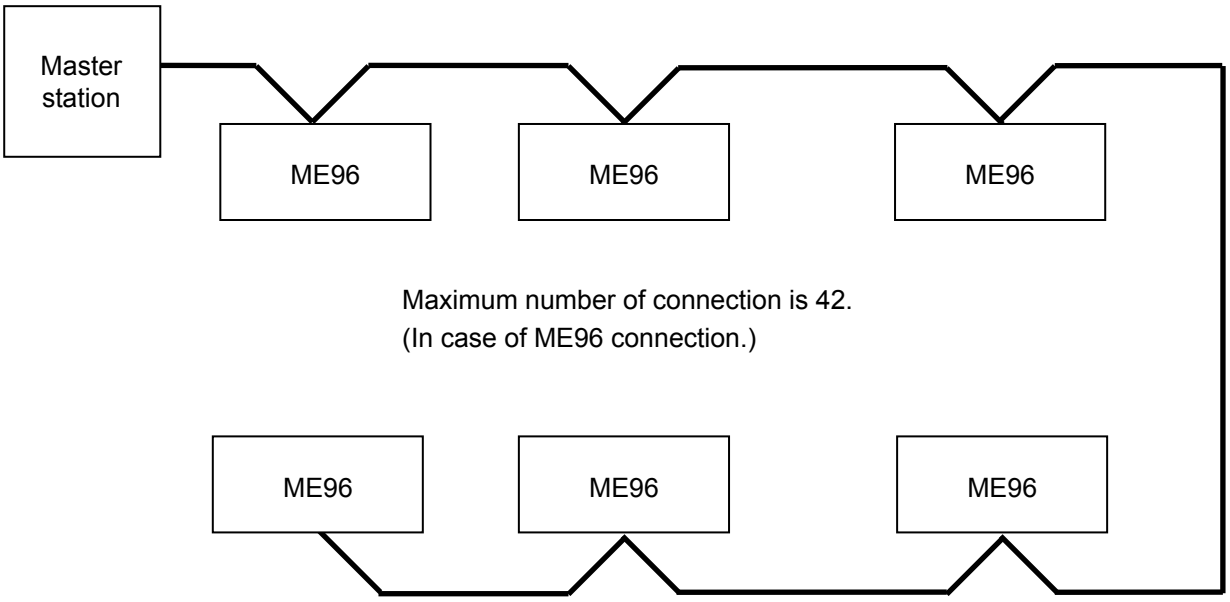
This programming manual is for ver.1 remote device station.
For use in the ver.2 remote device station (Ver.2 compatible slave station), refer to the following manual.
・Electronic Multi-Measuring Instrument Programing Manual (CC-Link)(For ver.2 remote device station)
..... LEN130391

2. Specification

ME96 specification is shown in Table 2.1.

Table 2.1 CC-Link Specification

Item	Specification
CC-Link station type	Remote device station (ver.1 remote device station)
Number of occupied stations	1 station
Maximum number of stations per master station	42 stations (In case of connecting only remote device station occupied by 1 station.)
Transmission speed	156kbps/625kbps/2.5Mbps/5Mbps/10Mbps
Remote I/O (RX, RY)	32 points each
Remote register (RWw, RWr)	4 points each



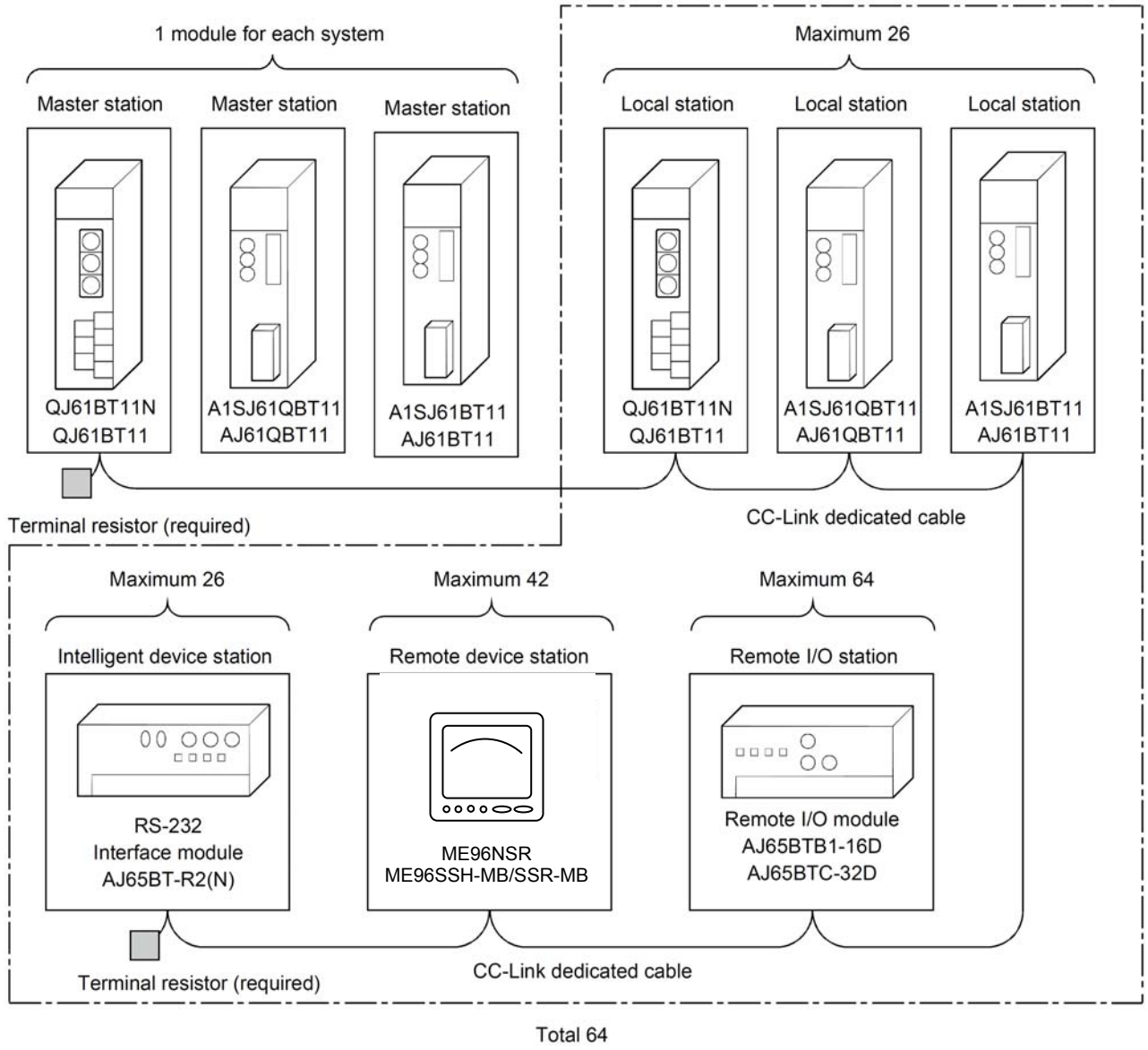
System Configration (CC-Link)

3. Configuration Conditions of CC-Link System

3.1 Remote net ver.1 mode

A total of 64 remote I/O stations, remote device stations, local stations, standby master stations, or intelligent device stations can be connected to a single master station.
However, the following conditions must all be satisfied.

Condition 1	$\{(1\times a)+(2\times b)+(3\times c)+(4\times d)\} \leqq 64$	a: Number of modules occupying 1 station (ME96 is applied) b: Number of modules occupying 2 stations c: Number of modules occupying 3 stations d: Number of modules occupying 4 stations
Condition 2	$\{(16\times A) + (54\times B) + (88\times C)\} \leqq 2304$	A: Number of remote I/O stations $\leqq 64$ B: Number of remote device stations (ME96 is applied) $\leqq 42$ C: Number of local stations, standby master stations and intelligent device stations $\leqq 26$

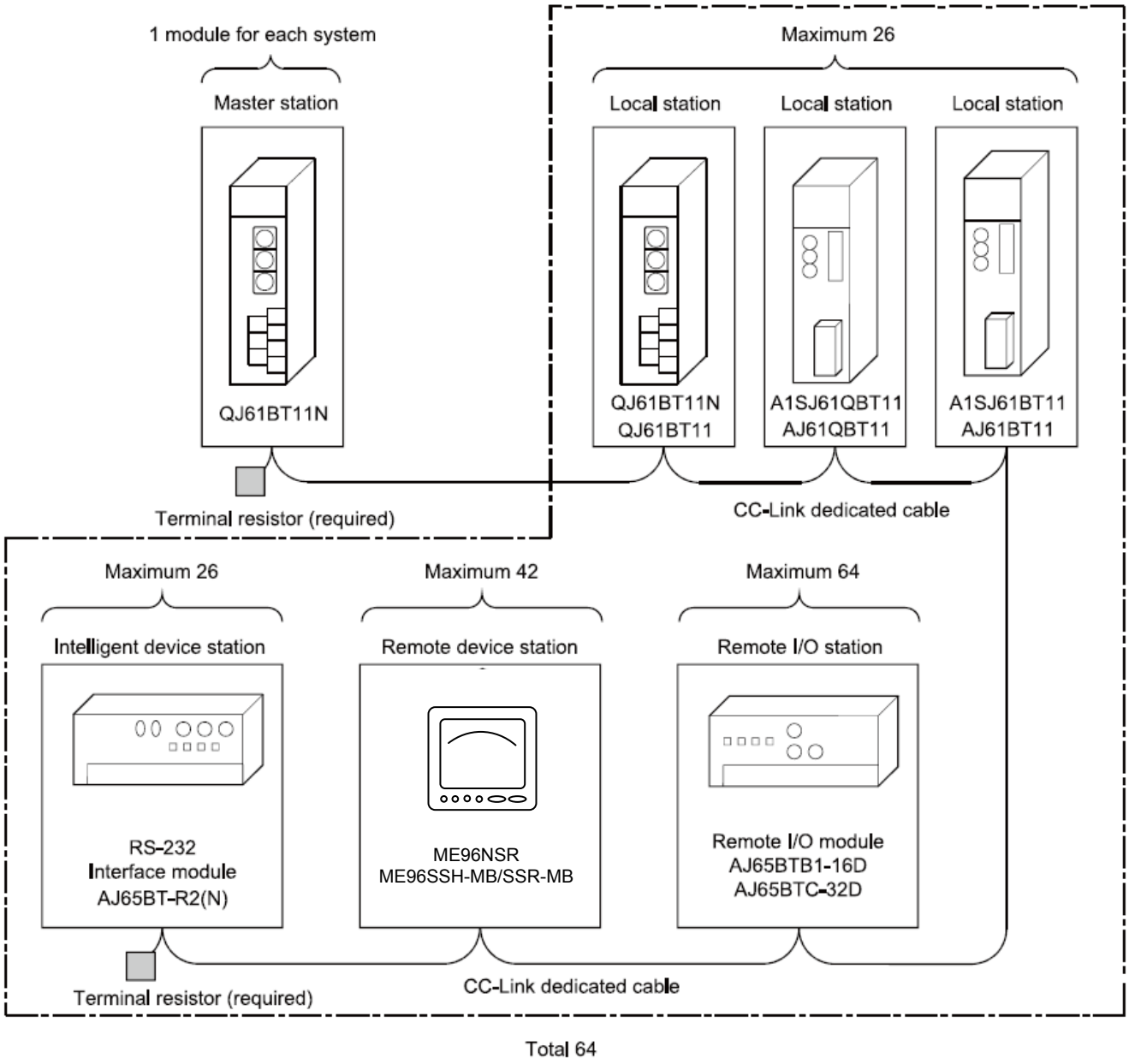


3.2 Remote net ver.2 mode

A total of 64 remote I/O stations, remote device stations, local stations, standby master stations, or intelligent device stations can be connected to a single master station.

However, the following conditions must all be satisfied.

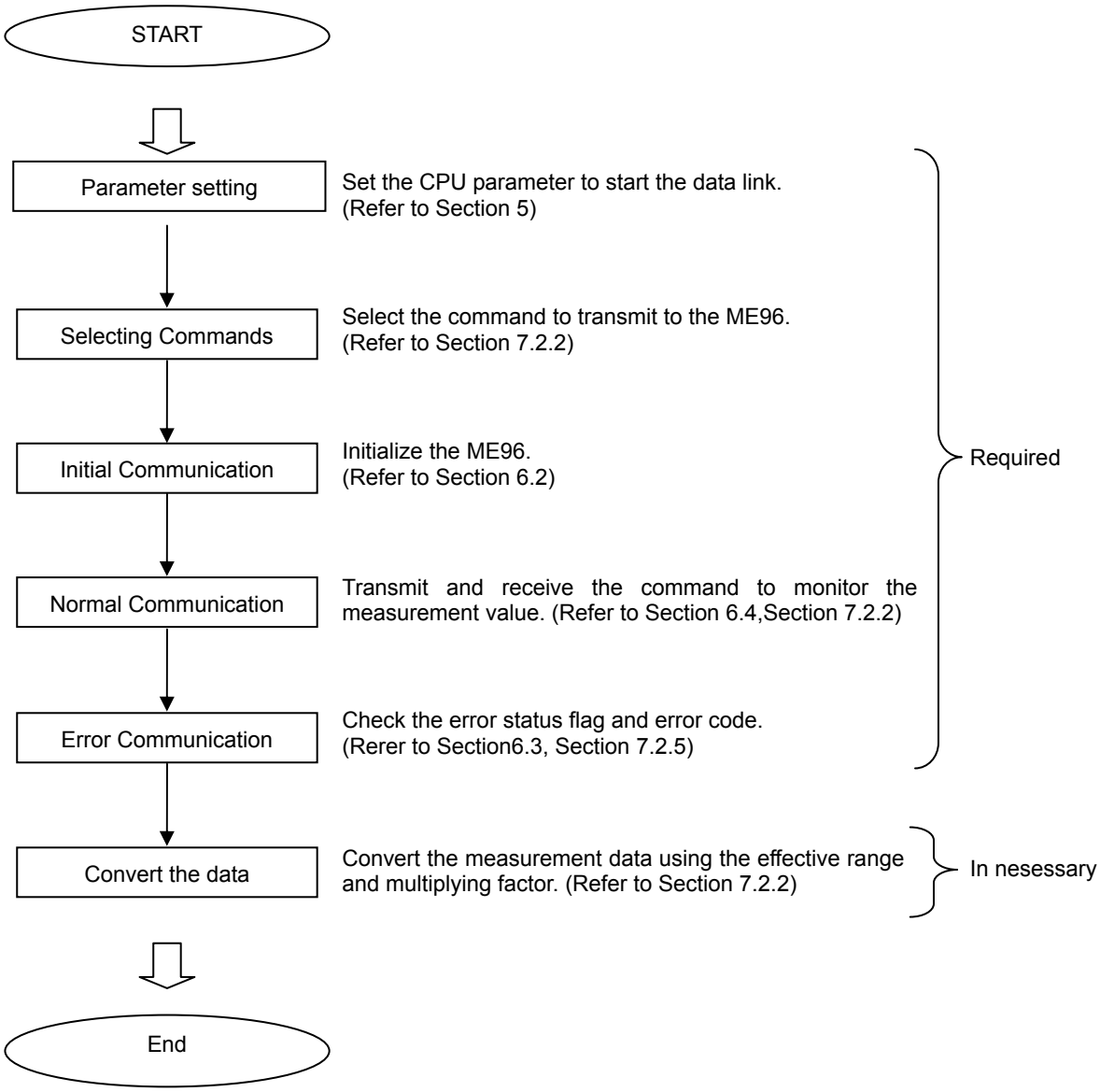
<table>
<tr><td>Condition 1</td><td>{(a＋a2＋a4＋a8)
＋(b＋b2＋b4＋b8)×2
＋(c＋c2＋c4＋c8)×3
＋(d＋d2＋d4＋d8)×4}≦64</td><td rowspan="3">a: The total number of ver.1 compatible slave stations that occupy 1 station, and ver.2 compatible slave stations that occupy 1 station which are set to “Single”.
(ME96 is applied)
b: The total number of ver.1 compatible slave stations that occupy 2 stations, and ver.2 compatible slave stations that occupy 2 stations which are set to “Single”.
c: The total number of ver.1 compatible slave stations that occupy 3 stations, and ver.2 compatible slave stations that occupy 3 stations which are set to “Single”.
d: The total number of ver.1 compatible slave stations that occupy 4 stations, and ver.2 compatible slave stations that occupy 4 stations which are set to “Single”.
a2: The number of ver.2 compatible stations that occupy 1 station which are set to “Double”.
b2: The number of ver.2 compatible stations that occupy 2 stations which are set to “Double”.
c2: The number of ver.2 compatible stations that occupy 3 stations which are set to “Double”.
d2: The number of ver.2 compatible stations that occupy 4 stations which are set to “Double”.
a4: The number of ver.2 compatible stations that occupy 1 station which are set to “Quadruple”.
b4: The number of ver.2 compatible stations that occupy 2 stations which are set to “Quadruple”.
c4: The number of ver.2 compatible stations that occupy 3 stations which are set to “Quadruple”.
d4: The number of ver.2 compatible stations that occupy 4 stations which are set to “Quadruple”.
a8: The number of ver.2 compatible stations that occupy 1 station which are set to “Octuple”.
b8: The number of ver.2 compatible stations that occupy 2 stations which are set to “Octuple”.
c8: The number of ver.2 compatible stations that occupy 3 stations which are set to “Octuple”.
d8: The number of ver.2 compatible stations that occupy 4 stations which are set to “Octuple”.</td></tr>
<tr><td>Condition 2</td><td>[{(a×32)＋(a2×32)＋(a4×64)＋(a8×128)}
＋{(b×64)＋(b2×96)＋(b4×192)＋(b8×384)}
＋{(c×96)＋(c2×160)＋(c4×320)＋(c8×640)}
＋{(d×128)＋(d2×224)＋(d4×448)＋(d8×896)}]
≦8192</td></tr>
<tr><td>Condition 3</td><td>[{(a×4)＋(a2×8)＋(a4×16)＋(a8×32)}
＋{(b×8)＋(b2×16)＋(b4×32)＋(b8×64)}
＋{(c×12)＋(c2×24)＋(c4×48)＋(c8×96)}
＋{(d×16)＋(d2×32)＋(d4×64)＋(d8×128)}]
≦2048</td></tr>
<tr><td>Condition 4</td><td>{(16×A) + (54×B) + (88×C)} ≦ 2304</td><td>A: Number of remote I/O stations ≦ 64
B: Number of remote device stations (ME96 is applied) ≦ 42
C: Number of local stations, standby master stations and intelligent device stations ≦ 26</td></tr>
</table>


1 module for each system
Master station
QJ61BT11N
Terminal resistor (required)
Maximum 26
Local station
Local station
Local station
QJ61BT11N
QJ61BT11
A1SJ61QBT11
AJ61QBT11
A1SJ61BT11
AJ61BT11
CC-Link dedicated cable
Maximum 26
Intelligent device station
RS-232
Interface module
AJ65BT-R2(N)
Maximum 42
Remote device station
ME96NSR
ME96SSH-MB/SSR-MB
Maximum 64
Remote I/O station
Remote I/O module
AJ65BTB1-16D
AJ65BTC-32D
Terminal resistor (required)
CC-Link dedicated cable
Total 64

4. Programming

4.1 Programming Procedure

Create a program which executes the “Monitoring of the measurement valus” by following the procedure below:



5. Parameter Settings

5.1 Procedure from Parameter Settings to Data Link Startup

The following explains the procedure from setting the parameters to stating the data link.

5.1.1 CPU Parameter Area and Master Module Parameter Memory

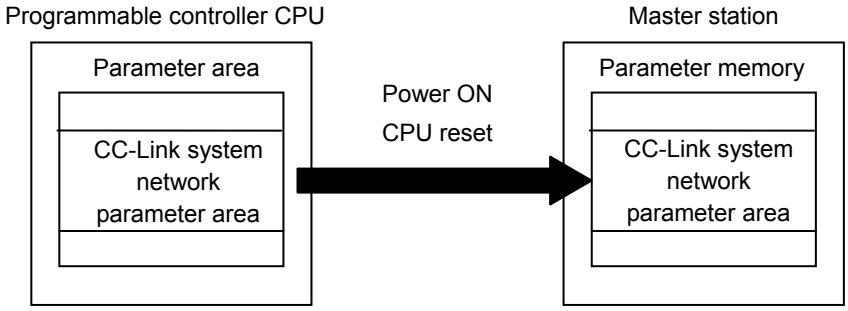
(1) CPU Parameter Area

This area is used to set the basic values for controlling the programmable controller system and the network parameters that control the CC-Link system.

(2) Master Station Parameter Memory

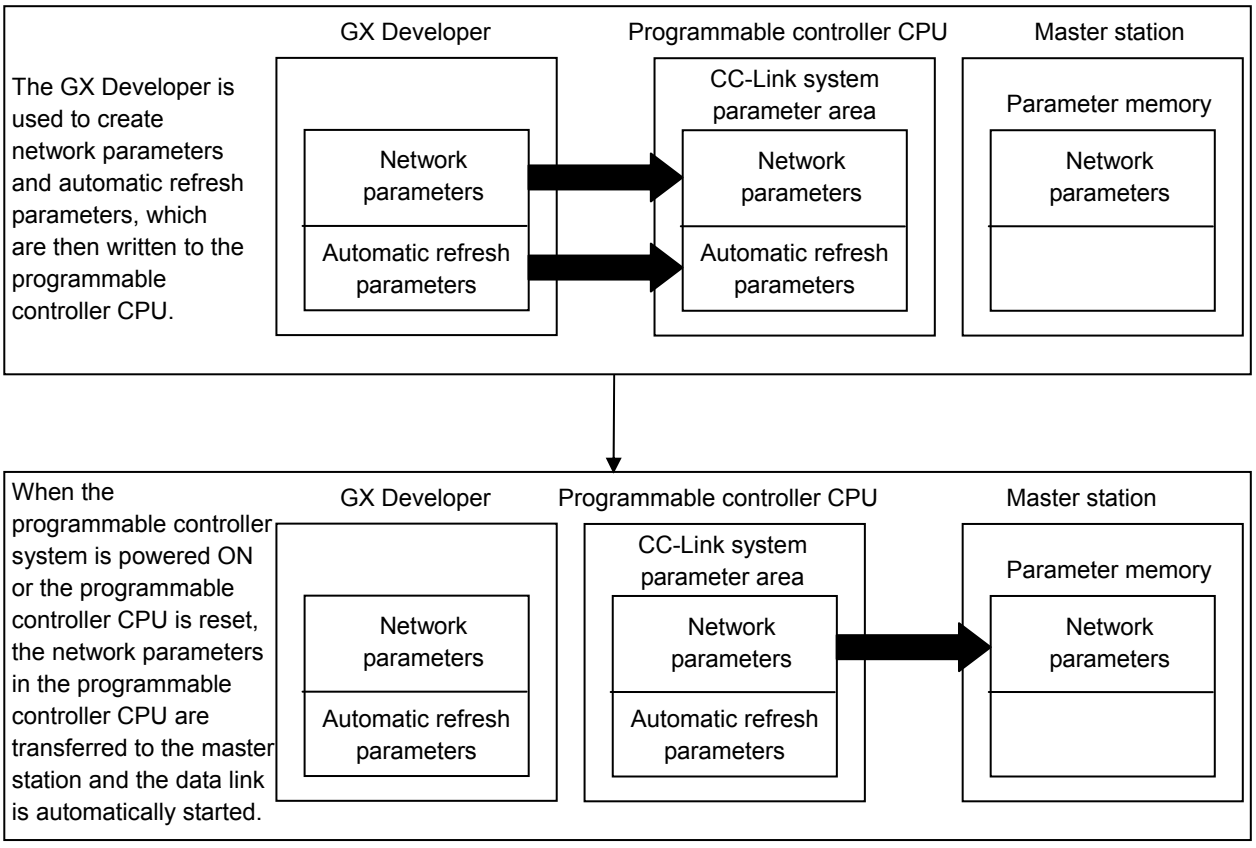
This area stores the network parameters for the CC-Link system.

When the module is powered OFF or the programmable controller CPU is reset, the network parameters are erased.



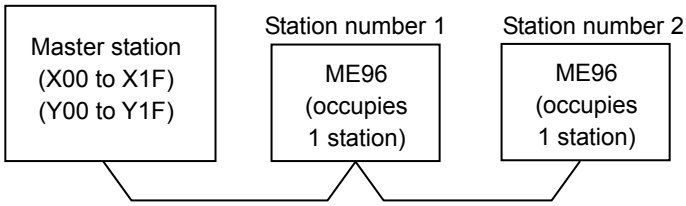
5.1.2 Procedure for Parameter Settings to Data Link Startup with GX Developer

Follow the procedure below for parameter settings to data link startup:



5.2 Example of Parameter Settings with GX Developer

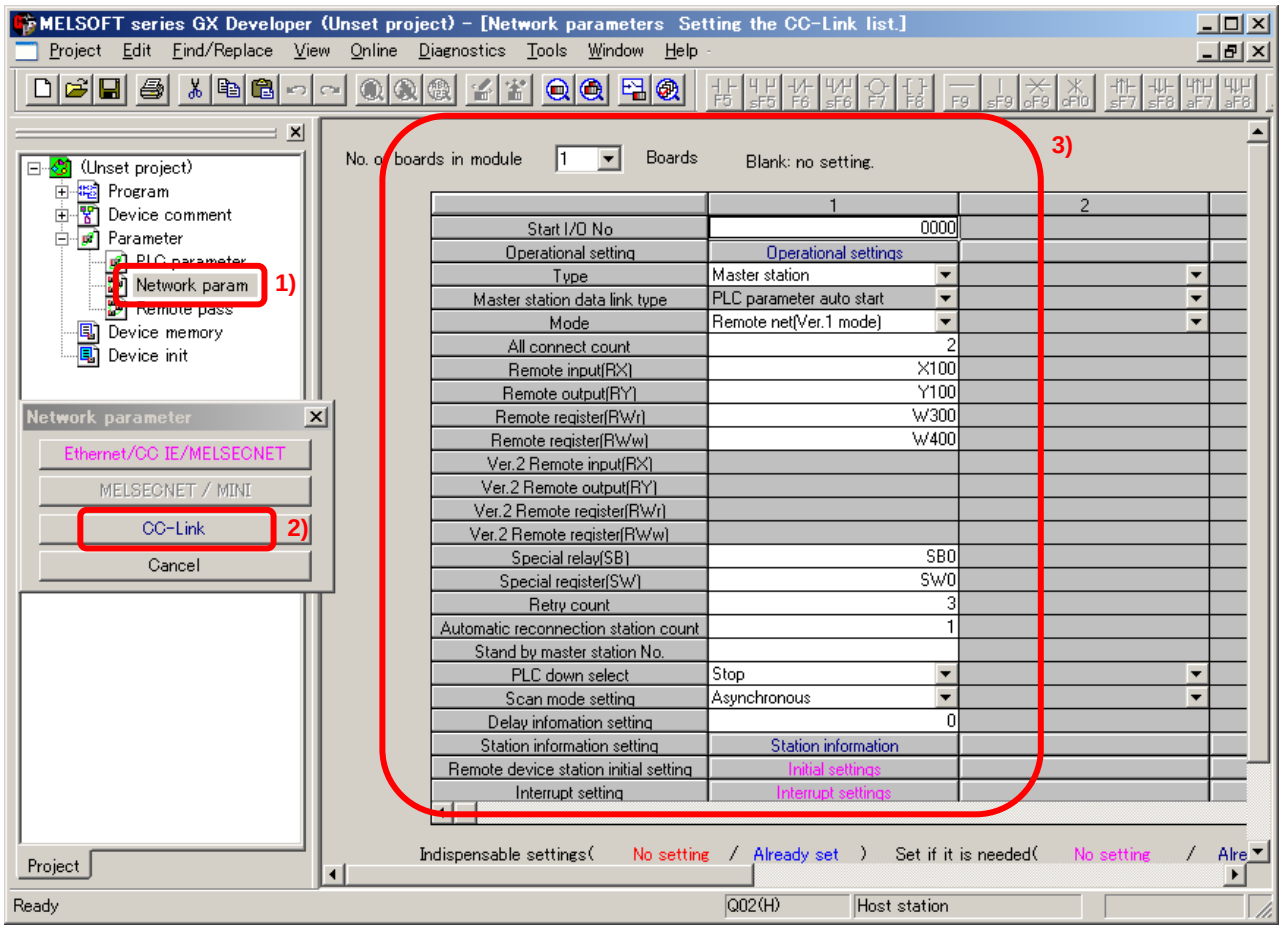
This section explains the parameter settings using the GX Developer. For more details on the GX Developer operation, refer to the GX Developer Operating Manual. The explanations in this section are based on the following example of the system configuration.



5.2.1 Master Station Network Parameter Settings

1) Double-click on the “Network param”.
2) Double-click on the “CC-Link” on the “Network parameter” screen.
3) Set the parameters as required.

The follwing describes an example of the parameter settings.



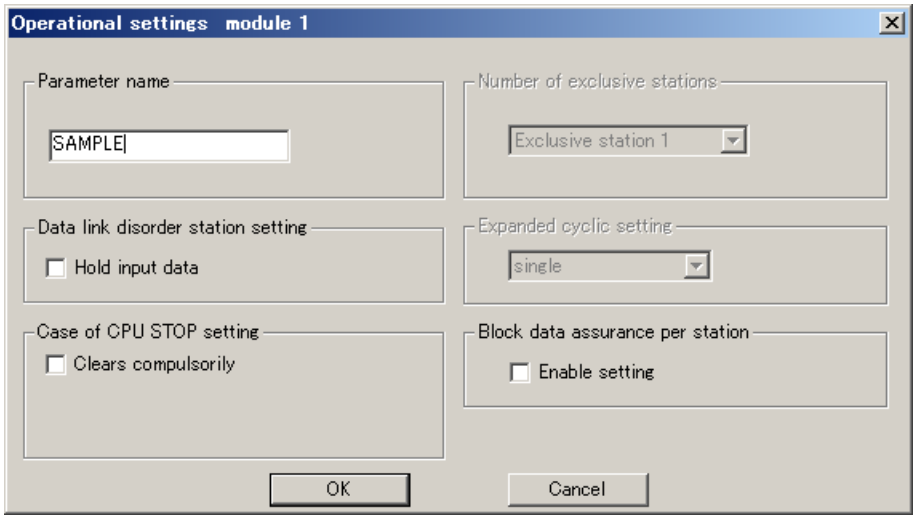
Setting Item	Description	Example for settings	Remarks
No.of boads in module	Set the "No. of boards in module " for which the network parameters are to be set.	1	
Start I/O No	Set the "Start I/O No." for the master station.	0000	
Operational settings	Set the following: ・Parameter name ・Data link err station setting ・Case of CPU Stop setting ・Block data assurance per station	Refer to next page.	Even if the Parameter name is not set, this will not affect the operation of the CC-Link system
Type	Set the station type.	Master station	
Mode	Set the CC-Link mode.	Remote net (Ver.1 mode)	“Remote net ver.2 mode “ and “Remote net additional mode” can be also used in case of the QJ61BT11N.
All connect count	Set the total number of connected stations in the CC-Link system including reserved stations.	2 (modules)	
Remote input (RX)	Set the remote input (RX) refresh device.	X100	Device name - Select from X, M, L, B, D, W, R or ZR. Device number - Within the range of the device points that the CPU has.
Remote output (RY)	Set the remote output (RY) refresh device.	Y100	Device name - Select from Y, M, L, B, T, C, ST, D, W, R or ZR. Device number - Within the range of the device points that the CPU has.
Remote register (RWr)	Set the remote register (RWr) refresh device.	W300	Device name - Select from M, L, B, D, W, R, or ZR. Device number - Within the range of the device points that the CPU has.
Remote register (RWw)	Set the remote register (RWw) refresh device.	W400	Device name - Select from M, L, B, T, C, ST, D, W, R, or ZR. Device number - Within the range of the device points that the CPU has.
Special relay (SB)	Set the link special relay (SB) refresh device.	SB0	Device name - Select from M, L, B, D, W, R, SB or ZR. Device number - Within the range of the device points that the CPU has.
Special register (SW)	Set the link special register (SW) refresh device.	SW0	Device name - Select from M, L, B, D, W, R, SW or ZR. Device number - Within the range of the device points that the CPU has.
Retry count	Set the number of retries for "Retry count", when a communication error occurs.	3	
Automatic reconnection station count	Set the number of modules that can return to system operation by a single link scan.	1	
Standby master station No.	Set the station number for the standby master station	Blank	Blank: No standby master station specified.
PLC down select	Set the data link status for "PLC down select", when a master station programmable controller CPU error occurs.	Stop	
Scan mode setting	Set whether the link scan for the sequence scan is synchronous or asynchronous.	Asynchronous	
Delay information setting	Set for the link scan delay time.	0	
Station information settings	Set the station data.	Refer to the next page.	

POINT

(1) For the automatic refresh parameter setting, set the start device only. Devices are automatically assigned until the last station number including reserved stations and occupied stations.
In the example of the system configuration in this section, the last station number is "2". Therefore, total of remote I/O points is 64 points (32 x 2 = 64) and total of remote register points is 8 points (4 x 2 = 8). If refresh device of remote input (RX) is set to "X100" and that of remote register (RWr) is set to "W300", the end devices will be "X13F" and "W307" respectively.

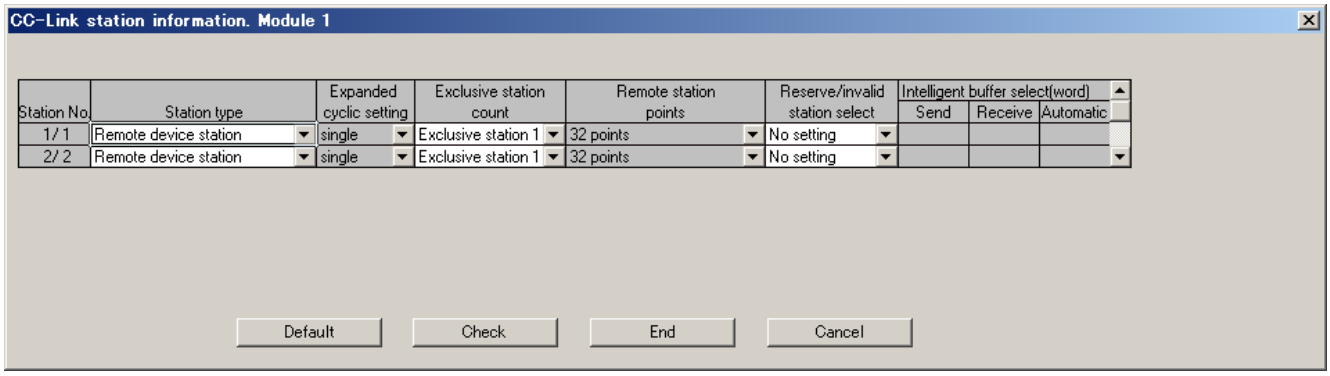
(2) When setting X, Y, B, W, SB and SW as refresh devices, make setting so that they do not overlap with the device numbers used on the other networks, etc.

《Example for Operational settings》



Setting Item	Description	Example for settings	Remarks
Parameter name	Set the Parameter name.	“SAMPLE”	Even if the Parameter name is not set, this will not affect the operation of the CC-Link system
Data link disorder satation setting	Set the input status for the data link error station.	Clear ("Hold input data" not checked)	
Case of CPU Stop setting	Set the slave station refresh/compulsory clear setting at programmable controller CPU STOP.	Refresh ("Clears compulsorily " not checked)	
Block data assurance per station	Set the block guarantee of cyclic data per station.	Disable ("Enable setting" not checked)	

《Example for Station information settings》



Setting Item	Description	Example for settings	Remarks
Station type	Set the station data.	Remote device station	Set the “remote device station” in case of the ME96. (If setting of “Mode” is remote net(Ver.2 mode, Set the “Ver.1 Remote device station”.)
Number of occupied stations *		Occupies 1 station	Set the “Occupies 1 station” in case of the ME96.
Remote station points		32 points [when occupies 1 station]	Cannot be changed.
Reserved/invalid station select		No setting	

* "Number of exclusive stations" on the screen is described as "Number of occupied stations" in this manual.
"Exclusive station 1" on the screen is described as "Occupies 1 station" in this manual

6. Communication Between the Master Station and ME96

6.1 Communication Guideline

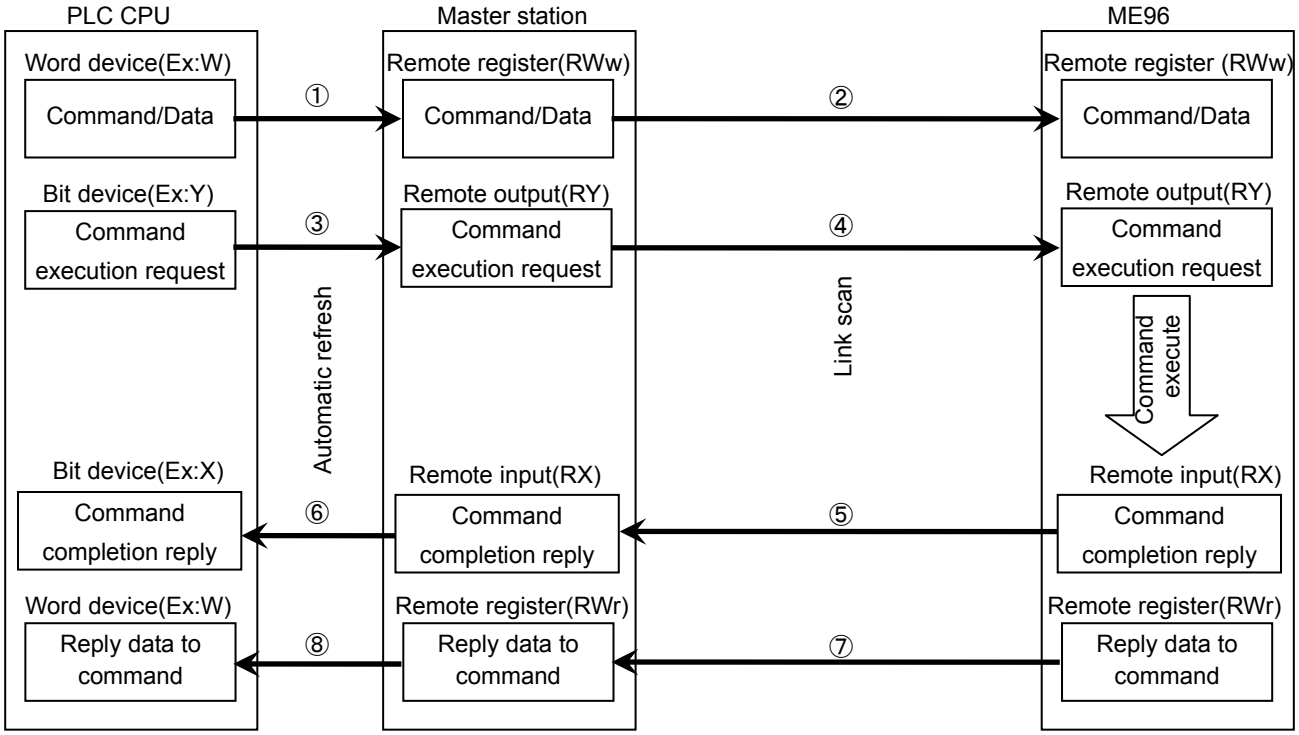
There are three communication statuses (Initial Communication, Normal Communication, Error Communication) between the Master station and ME96.

The following can be performed at normal communication.

- Monitoring of the measurement values such as the current, voltage and energy, etc.
- Monitoring of the bit data of the alarm state and the digital input state.
- Setting the set data of the time constant for current demand.

ME96 has a special-purpose command for each measurement items and each setting items. It becomes possible to monitor measurement value or to set the setting value by writing the command into the remote register RWw of the master station.

Overview of the Command Communication to ME96



① By automatic refresh, command and data stored in the word device of PLC CPU are stored in the "remote register RWw" of the master station.

② By link scan, command and data stored in the "remote register RWw" of the master station are sent to ME96, and is stored in the "remote register RWw" of the ME96.

③ By automatic refresh, command execution request stored in the bit device of PLC CPU is stored in the "remote output RY" of the master station.

④ By link scan, command execution request stored in the "remote output RY" of the master station is sent to ME96, and is stored in the "remote output RY" of the ME96. And then ME96 executes the command and data.

⑤ By link scan, command completion reply stored in the "remote input RX" of the ME96 is sent to the master station, and is stored in the "remote input RX" of the master station.

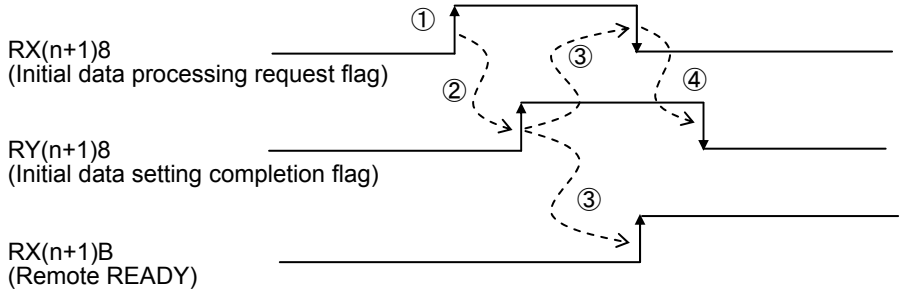
⑥ By automatic refresh, command completion reply stored in the "remote input RX" of the master station is stored in the bit device of the PLC CPU.

⑦ By link scan, reply data to command stored in the "remote register RWr" of the ME96 is sent to the master station, and is stored in the "remote register RWr" of the master station.

⑧ By automatic refresh, reply data to command stored in the "remote register RWr" of the master station is stored in the word device of the PLC CPU.

6.2 Initial Communication

Initial communication is performed at the beginning after the power supply is turned on or hardware is reset. Refer to section 7.1 about the remote input RX and the remote output RY.



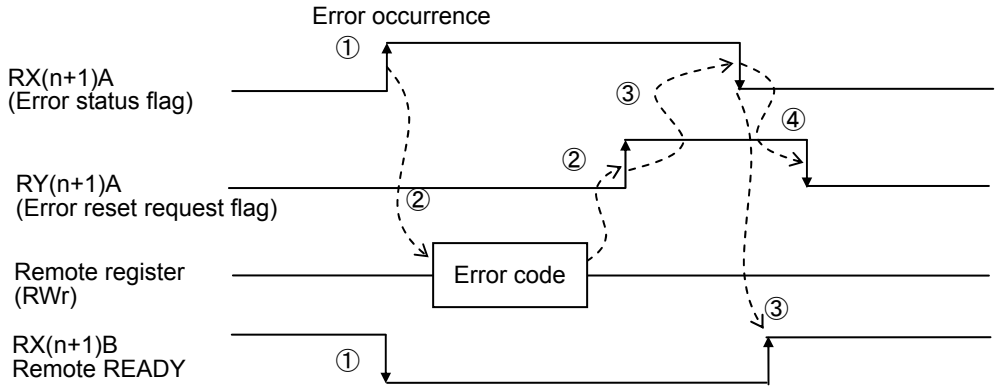
①After the power supply is turned on, or hardware is reset, the initial data processing request flag is turned on by ME96.

②After the initial data processing request flag is turned on, turn on the initial data setting completion flag.

③After the initial data setting completion flag is turned on, the initial data processing request flag is turned off and the remote READY is turned on.

④After the initial data processing request flag is turned off, turned off the initial data setting completion flag.

6.3 Error Communication



①When an error occurs in ME96, error status flag is turned on and the remote READY is turned off.

②When the error status flag is turned on, read the error code from the remote register RWr. Eliminate the cause of the error while referring to the red error code. When resuming communication with ME96, turn on the error reset request flag.

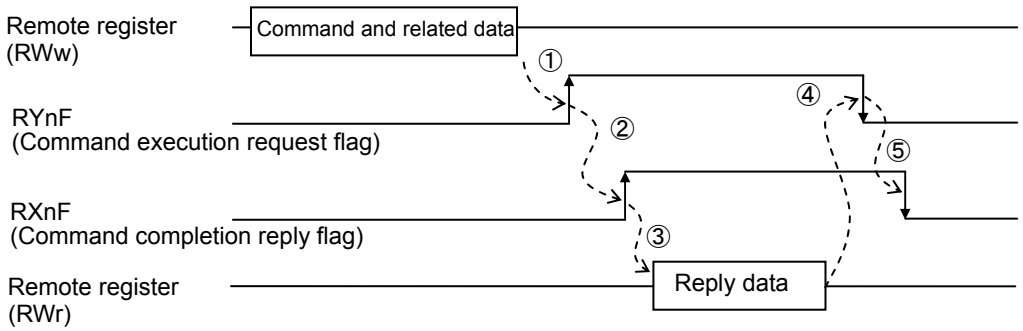
③After the error reset request flag is turned on, the error status flag is turned off. Also, the remote READY is turned on.

④After the error status flag is turned off, turn off the error reset request flag.

Note: Refer to “7.2.5 About error occurrence” for error code.

6.4 Normal Communication

After initial data processing is complete, the normally communication is performed to monitor the measurement values and to set the parameters.



①After writing the command and related data into the remote register RWw, turn on the command execution request flag.

②After receiving the reply data corresponding to the command, the command completion reply flag turned on.

③After the command completion reply flag is turned on, read the reply data from the remote register RWw.

④After reading the reply data, cancel the command execution request by turning off the command execution request flag.

⑤After the command execution request flag is turned off, the command completion reply flag is turned off.

Note: When sending commands successively, repeat ① to ⑤ above.
The command can be sent only when the remote READY is ON.

7. Remote I/O and Remote Register

7.1 Remote Input RX, Remote Output RY

The remote input RX and remote output RY are used to communicate for bit data between the master station and ME96.

7.1.1 Remote input RX

The allocation of the remote input RX of ME96 is shown in the table below.

Device No.	Signal name	ME96NSR ME96SSR	ME96SSH	Description		Note
				OFF(0)	ON(1)	
RXn0	Digital Input 1 (DI1)	O	O	OFF	ON	
RXn1	Digital Input 2 (DI2)	O	O	OFF	ON	
RXn2	Digital Input 3 (DI3)	O	O	OFF	ON	
RXn3	Digital Input 4 (DI4)	O	O	OFF	ON	
RXn4	Reserved	–	–	–	–	
RXn5	Alarm (Total)	O	O	Non-Alarm state	Alarm state	
RXn6	Alarm of Current Demand	O	O	Non-Alarm state	Alarm state	
RXn7	Alarm of Active power Demand	–	O	Non-Alarm state	Alarm state	
RXn8	Alarm of Voltage	O	O	Non-Alarm state	Alarm state	
RXn9	Alarm of Current	O	O	Non-Alarm state	Alarm state	
RXnA	Alarm of Active power	O	O	Non-Alarm state	Alarm state	
RXnB	Alarm of Reactive power	O	O	Non-Alarm state	Alarm state	
RXnC	Alarm of Frequency	O	O	Non-Alarm state	Alarm state	
RXnD	Alarm of Power factor	O	O	Non-Alarm state	Alarm state	
RXnE	Alarm of T.H.D (Voltage)	O	O	Non-Alarm state	Alarm state	
RXnF	Command completion reply flag	O	O	No receiving of reply date	Receiving of reply data	*1, *2
RX(n+1)0	Reserved	–	–	–	–	
RX(n+1)1	Reserved	–	–	–	–	
RX(n+1)2	Reserved	–	–	–	–	
RX(n+1)3	Reserved	–	–	–	–	
RX(n+1)4	Reserved	–	–	–	–	
RX(n+1)5	Reserved	–	–	–	–	
RX(n+1)6	Reserved	–	–	–	–	
RX(n+1)7	Reserved	–	–	–	–	
RX(n+1)8	Initial data processing request flag	O	O	Power OFF, remote READY ON, or error status flag ON	Power supply is turned ON or hardware reset	*1
RX(n+1)9	Reserved	–	–	–	–	
RX(n+1)A	Error status flag	O	O	No error occurrence	Error occurrence	*1
RX(n+1)B	Remote READY	O	O	Command sending not possible	Normally communication status (Command sending possible)	*1
RX(n+1)C	Reserved	–	–	–	–	
RX(n+1)D	Reserved	–	–	–	–	
RX(n+1)E	Reserved	–	–	–	–	
RX(n+1)F	Reserved	–	–	–	–	

*1: For the details, refer to “6.Communication Between the Master Station and ME”

*2: Alarm of harmonic current cannot be shown by remote input RX.

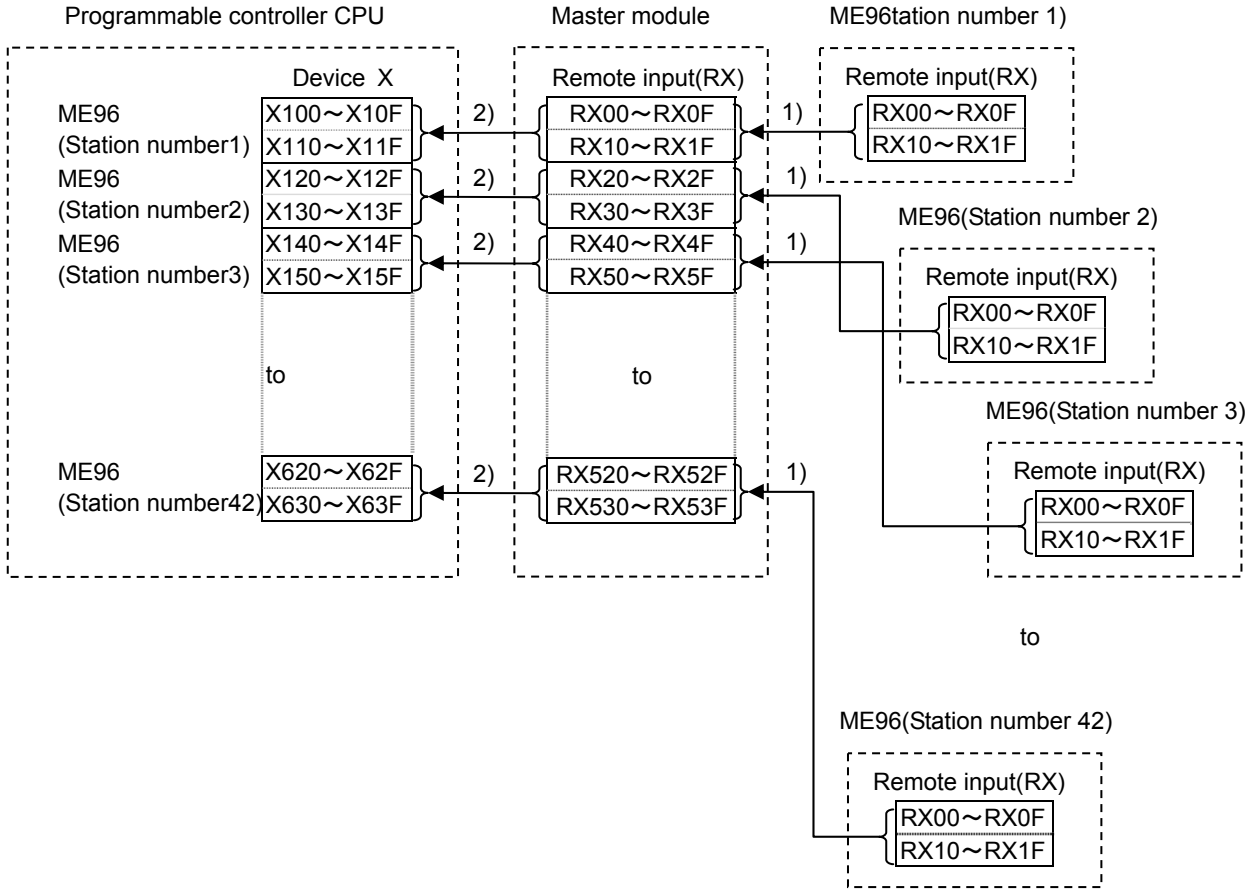
Note 1: RX is bit data which is stored the input status of ME96.

Note 2: The “n” in the table is determined by the station number of ME96. (Refer to the next page)

(1) Relationships between programmable controller CPU, master module and ME96(RX)

1) The input status of ME96 is stored automatically (for each link scan) in the master station's "remote input RX" buffer memory.

2) The input status stored in the "remote input RX" buffer memory is stored in the CPU device set with the automatic refresh parameters.



Station number	Device No.			Station number	Device No.			Station number	Device No.		
1	X100	to	X11F	15	X2C0	to	X2D9	29	X480	to	X49F
2	X120	to	X13F	16	X2E0	to	X2F9	30	X4A0	to	X4B9
3	X140	to	X15F	17	X300	to	X31F	31	X4C0	to	X4D9
4	X160	to	X17F	18	X320	to	X33F	32	X4E0	to	X4F9
5	X180	to	X19F	19	X340	to	X35F	33	X500	to	X51F
6	X1A0	to	X1B9	20	X360	to	X37F	34	X520	to	X53F
7	X1C0	to	X1D9	21	X380	to	X39F	35	X540	to	X55F
8	X1E0	to	X1F9	22	X3A0	to	X3B9	36	X560	to	X57F
9	X200	to	X21F	23	X3C0	to	X3D9	37	X580	to	X59F
10	X220	to	X23F	24	X3E0	to	X3F9	38	X5A0	to	X5B9
11	X240	to	X25F	25	X400	to	X41F	39	X5C0	to	X5D9
12	X260	to	X27F	26	X420	to	X43F	40	X5E0	to	X5F9
13	X280	to	X29F	27	X440	to	X45F	41	X600	to	X61F
14	X2A0	to	X2B9	28	X460	to	X47F	42	X620	to	X63F

Device No. is determined to “X100 to X63F” if refresh device of remote input (RX) is set to “X100”.

7.1.2 Remote Output RY

The allocation of the remote output RY of ME96 is shown in the table below.

Device No.	Signal name	Description		Note
		ON (1) → OFF (0)	OFF (0) → ON (1)	
RYn0	Reserved	—	—	
RYn1	Reserved	—	—	
RYn2	Reserved	—	—	
RYn3	Reserved	—	—	
RYn4	Reserved	—	—	
RYn5	Reserved	—	—	
RYn6	Reserved	—	—	
RYn7	Reserved	—	—	
RYn8	Reserved	—	—	
RYn9	Reserved	—	—	
RYnA	Reserved	—	—	
RYnB	Reserved	—	—	
RYnC	Reserved	—	—	
RYnD	Reserved	—	—	
RYnE	Reserved	—	—	
RYnF	Command execution request flag	Cancel command request	Command request	*1
RY(n+1)0	Reserved	—	—	
RY(n+1)1	Reserved	—	—	
RY(n+1)2	Reserved	—	—	
RY(n+1)3	Reserved	—	—	
RY(n+1)4	Reserved	—	—	
RY(n+1)5	Reserved	—	—	
RY(n+1)6	Reserved	—	—	
RY(n+1)7	Reserved	—	—	
RY(n+1)8	Initial data setting completion flag	Cancel normal communication request	Normal communication request	*1
RY(n+1)9	Reserved	—	—	
RY(n+1)A	Error reset request flag	Cancel error reset request	Error reset request	*1
RY(n+1)B	Reserved	—	—	
RY(n+1)C	Reserved	—	—	
RY(n+1)D	Reserved	—	—	
RY(n+1)E	Reserved	—	—	
RY(n+1)F	Reserved	—	—	

*1: For the details, refet to “6.Communication Between the Master Station and ME”

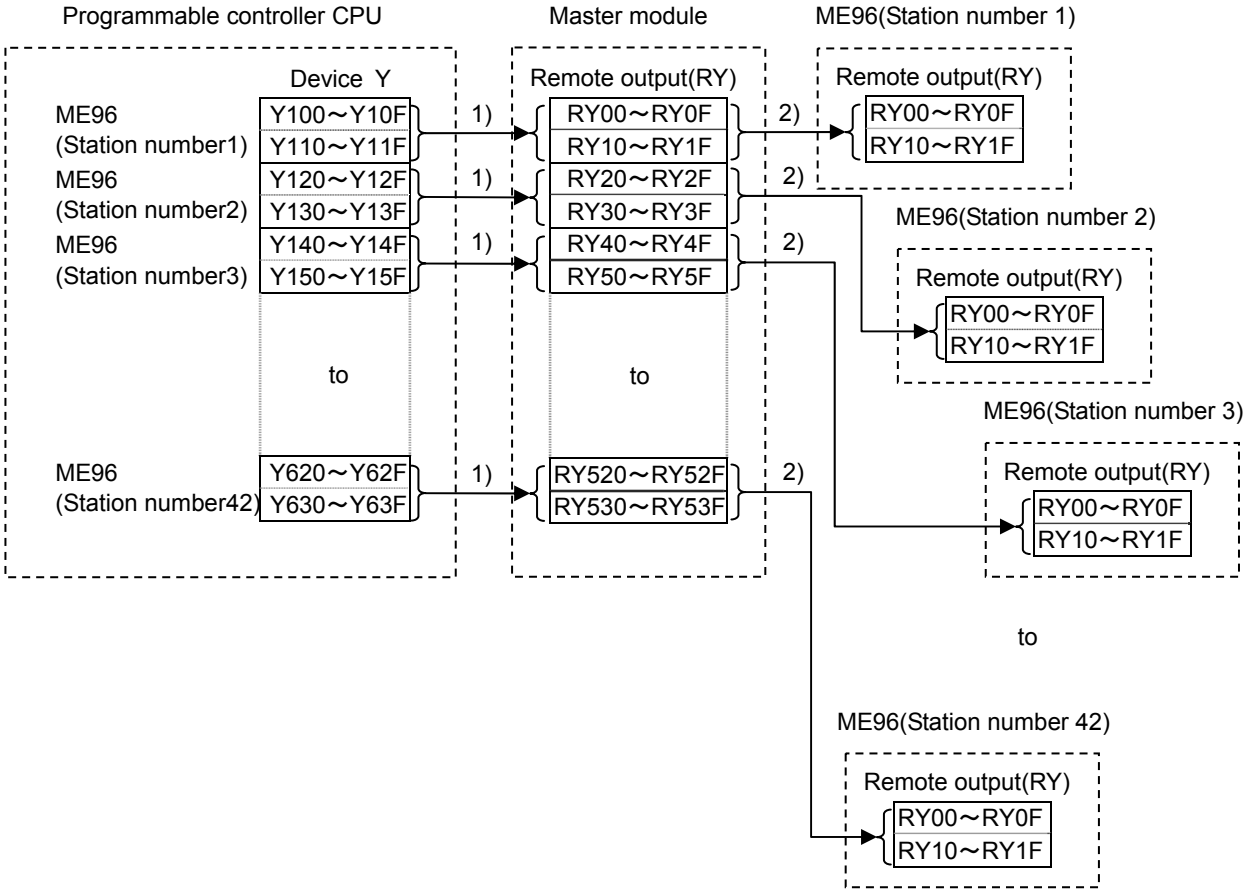
Note 1: The “n” in the table is determined by the station number of ME96. (Refer to the next page)

Point
Do not read or write to reserved remote registers. If reading or writing is performed, the functions of ME96 are not guaranteed.

(1) Relationships between programmable controller CPU, master module and ME96(RY)

1) The on/off data of the CPU device set with the automatic refresh parameters is stored in the "remote output RY" buffer memory.

2) Remote output RY is automatically set to on/off (for each link scan) according to the output status stored in the "remote output RY" buffer memory.



Station number	Device No.			Station number	Device No.			Station number	Device No.		
1	Y100	to	Y11F	15	Y2C0	to	Y2D9	29	Y480	to	Y49F
2	Y120	to	Y13F	16	Y2E0	to	Y2F9	30	Y4A0	to	Y4B9
3	Y140	to	Y15F	17	Y300	to	Y31F	31	Y4C0	to	Y4D9
4	Y160	to	Y17F	18	Y320	to	Y33F	32	Y4E0	to	Y4F9
5	Y180	to	Y19F	19	Y340	to	Y35F	33	Y500	to	Y51F
6	Y1A0	to	Y1B9	20	Y360	to	Y37F	34	Y520	to	Y53F
7	Y1C0	to	Y1D9	21	Y380	to	Y39F	35	Y540	to	Y55F
8	Y1E0	to	Y1F9	22	Y3A0	to	Y3B9	36	Y560	to	Y57F
9	Y200	to	Y21F	23	Y3C0	to	Y3D9	37	Y580	to	Y59F
10	Y220	to	Y23F	24	Y3E0	to	Y3F9	38	Y5A0	to	Y5B9
11	Y240	to	Y25F	25	Y400	to	Y41F	39	Y5C0	to	Y5D9
12	Y260	to	Y27F	26	Y420	to	Y43F	40	Y5E0	to	Y5F9
13	Y280	to	Y29F	27	Y440	to	Y45F	41	Y600	to	Y61F
14	Y2A0	to	Y2B9	28	Y460	to	Y47F	42	Y620	to	Y63F

Device No. is determined to “Y100 to Y63F” if refresh device of remote output (RY) is set to “Y100”.

7.2 Remote Register (RWr, RWw)

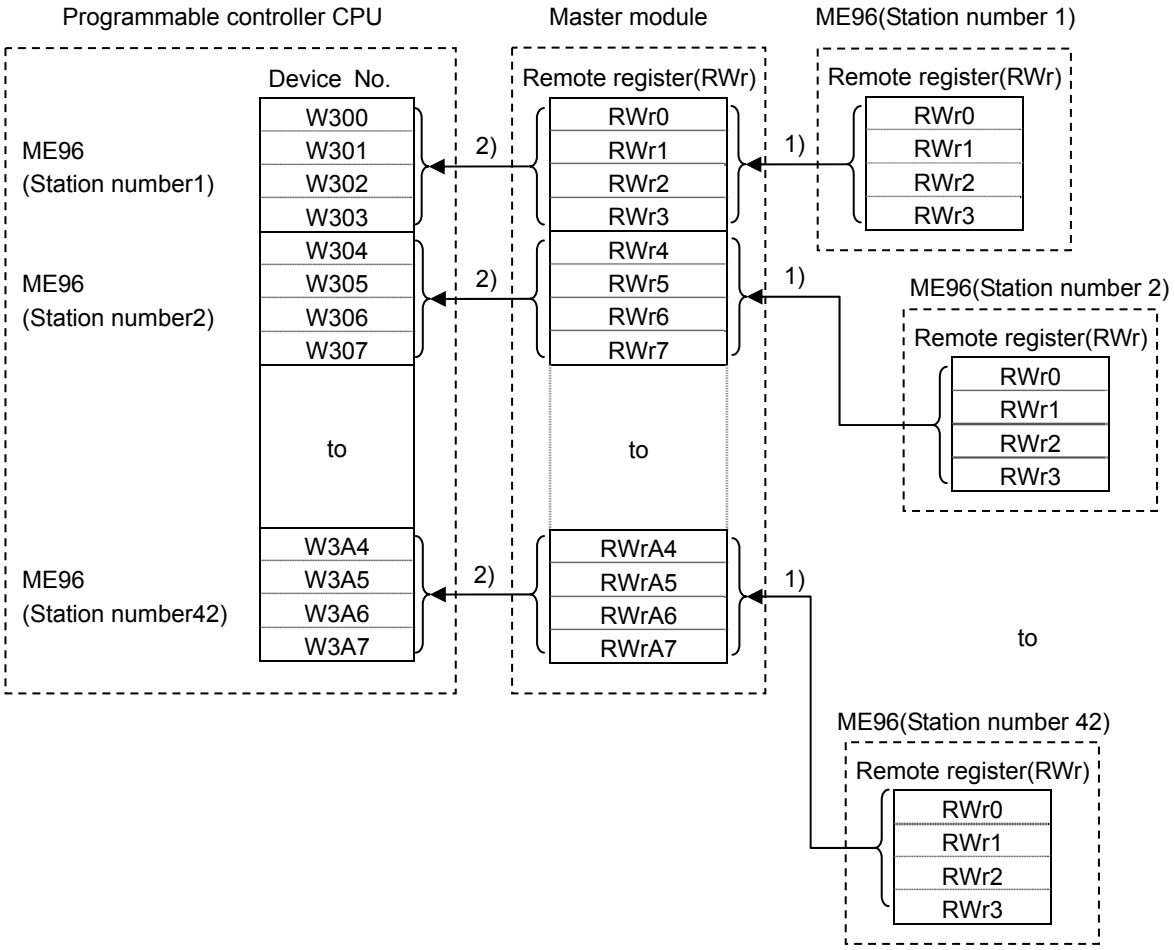
The remote register RWr and RWw are used to communicate word data between the master station and ME96. Because it occupiers 1 station, the remote registers RWr and RWw each have 4 words in length.

ME96 has the special-purpose commands for each measurement items and setting items.It becomes possible to monitor each measurement values or set each parameters by writing into the remote register RWw of the master station command and the related data allocated to the item you want to monitor or set.

(1) Relationships between programmable controller CPU, master module and ME96(RWr)

1) The remote register RWr data of a remote device station is automatically stored in the "remote register Rwr" buffer memory of the master station.

2) The remote register RWr data of ME96 stored in the "remote register RWr" buffer memory is stored in the CPU device set with the automatic refresh parameters.



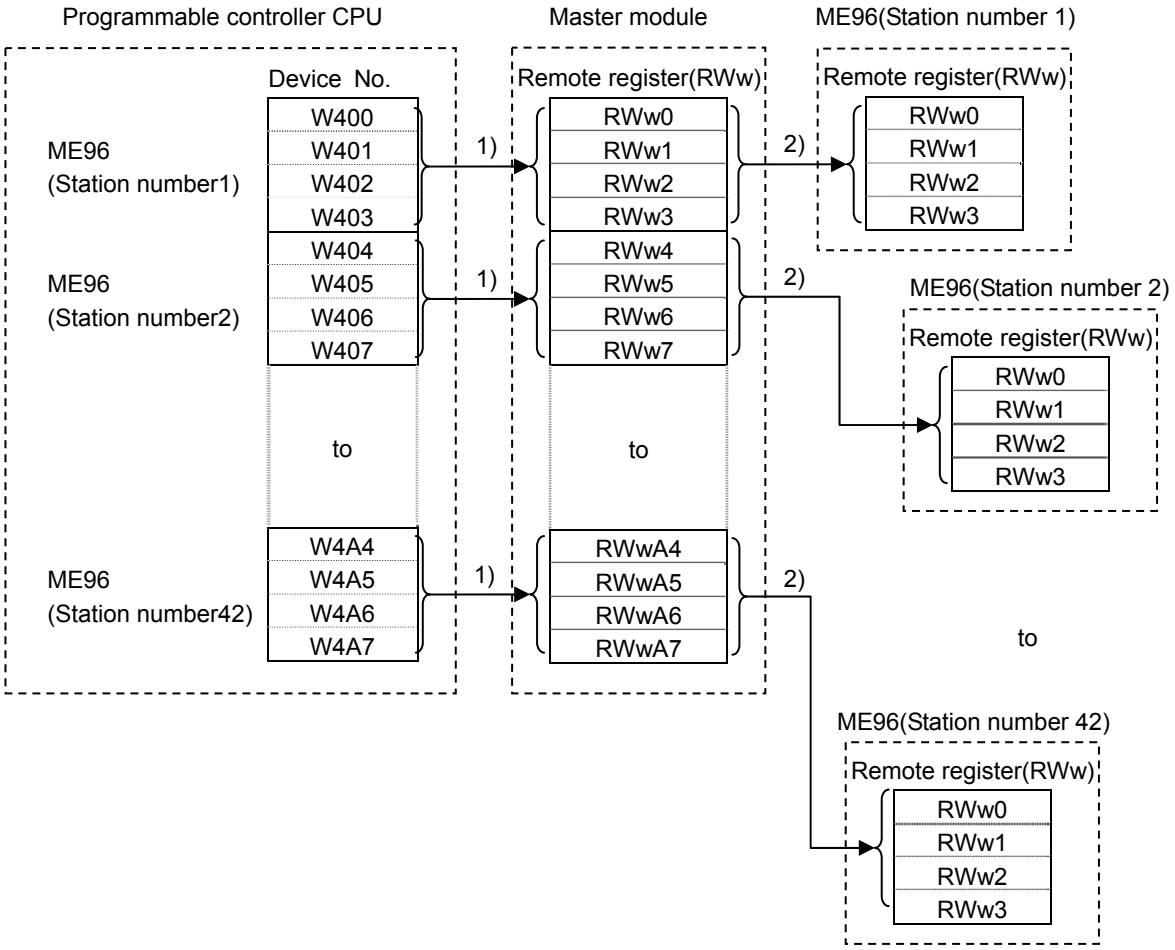
Station number	Device No.			Station number	Device No.			Station number	Device No.		
1	W300	to	W303	15	W338	to	W33B	29	W370	to	W373
2	W304	to	W307	16	W33C	to	W33F	30	W374	to	W377
3	W308	to	W30B	17	W340	to	W343	31	W378	to	W37B
4	W30C	to	W30F	18	W344	to	W347	32	W37C	to	W37F
5	W310	to	W313	19	W348	to	W34B	33	W380	to	W383
6	W314	to	W317	20	W34C	to	W34F	34	W384	to	W387
7	W318	to	W31B	21	W350	to	W353	35	W388	to	W38B
8	W31C	to	W31F	22	W354	to	W357	36	W38C	to	W38F
9	W320	to	W323	23	W358	to	W35B	37	W390	to	W393
10	W324	to	W327	24	W35C	to	W35F	38	W394	to	W397
11	W328	to	W32B	25	W360	to	W363	39	W398	to	W39B
12	W32C	to	W32F	26	W364	to	W367	40	W39C	to	W39F
13	W330	to	W333	27	W368	to	W36B	41	W3A0	to	W3A3
14	W334	to	W337	28	W36C	to	W36F	42	W3A4	to	W3A7

Device No. is determined to “W300 to W3A7” if refresh device of remote register (RWr) is set to “W300”.

(2) Relationships between programmable controller CPU, master module and ME96(RWw)

1) The transmission data of the CPU device set with the automatic refresh parameters is stored in the "remote register RWw" buffer memory.

2) The data stored in the "remote register RWw" buffer memory is automatically sent to the remote register RWw of each remote device station.



Station number	Device No.	Station number	Device No.	Station number	Device No.
1	W400 to W403	15	W438 to W43B	29	W470 to W473
2	W404 to W407	16	W43C to W43F	30	W474 to W477
3	W408 to W40B	17	W440 to W443	31	W478 to W47B
4	W40C to W40F	18	W444 to W447	32	W47C to W47F
5	W410 to W413	19	W448 to W44B	33	W480 to W483
6	W414 to W417	20	W44C to W44F	34	W484 to W487
7	W418 to W41B	21	W450 to W453	35	W488 to W48B
8	W41C to W41F	22	W454 to W457	36	W48C to W48F
9	W420 to W423	23	W458 to W45B	37	W490 to W493
10	W424 to W427	24	W45C to W45F	38	W494 to W497
11	W428 to W42B	25	W460 to W463	39	W498 to W49B
12	W42C to W42F	26	W464 to W467	40	W49C to W49F
13	W430 to W433	27	W468 to W46B	41	W4A0 to W4A3
14	W434 to W437	28	W46C to W46F	42	W4A4 to W4A7

Device No. is determined to “W400 to W4A7” if refresh device of remote register (RWw) is set to “W400”.

7.2.1 Supported Commands

The commands supported by ME96 are listed in the table below. For the details of each commands, refer to “7.2.2 Details of Commands“.

Table 7.1 Suppoted Commands

Command	Name	Descriprion	Note	page
1H	Data Monitor	For monitoring measurement		25
2H	Data Set	For setting measurement		37

Note) 1: The command can be sent only when the remote READY is ON.
2: The command execution request flag and command completion reply flag are used to send the command and receive replay data. For details of each flag, refer to “6.4 Normal Communication”.
3: In case of monitoring the present value and its maximum continuously according to the renewal data timing of ME96, the maximum may be smaller than the present value.

7.2.2 Details of Commands

The details of the command and reply data supported by ME96 are described here.

(1) Data Monitor Command (1H)

1H	Data Monitor

- The measurement items are assigned “Unit No.”, ”Group No.” and “Channel No.”. (Refer to Table 7.2 to Table 7.12.)
- After writing the command as shown below into the remote register RWw, set the command excution request flag to ON(1). When the command completion reply frag is turned on, the item specified is reset.
- The details of the data format are shown in the section 7.2.3.
- The monitering item is changed with the setting of phase wire system. (Refer to Table 7.2 to Table 7.12.)

Remote register RWw（Programmable controller→ME96）

	b15 – b8	b7 – b4	b3 – b0
m	Group No.	Unit No.	1H (Command)
m+1	00H	Channel No.	
m+2	00H	00H	
m+3	00H	00H	

（※）0H and 1H is used in the unit No. of ME96

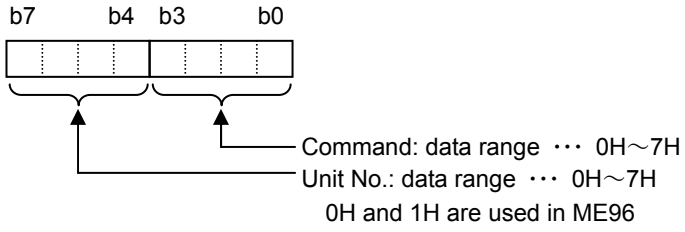
Remote register RWr（ME96→Programmable controller）

	b15 – b8	b7 – b0
n	Channel No.	Group No.
n+1	Index number	00H
n+2	Low data	
n+3	High data	

m, n : Address is allocated to the master module by the station number setting.

Note: ME96 can monitor the value of the measurement items which are not displayed.

*1: It is described as 8 bits data by combining the unit No. (high 4 bits) and the command (low 4 bits).



For example, When the unit No. is 0H and the command is 1H, it becomes “01H”.

Table 7.2 Group Channel List (1/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel			ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
						3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	F0	02	Model code			○	○	○	○	○	○	○	○	⑥	
0	E0	11	Primary current			○	○	○	○	○	○	○	○	⑤	
0	E0	12	Primary voltage(L-L)			○	○	○	○	○	○	○	○	⑤	
0	E0	1B	Primary voltage（L-N）			○	－	－	○	－	－	○	－	⑤	
0	E0	1C	Secondary voltage（L-N）			○	○	○	○	○	○	○	○	⑤	*2,*3
0	E0	13	Phase & Wiring			○	○	○	○	○	○	○	○	⑥	
0	E0	1D	Frequency			○	○	○	○	○	○	－	－	⑤	
0	E0	1E	Secondary current			○	○	○	○	○	○	－	－	⑤	
0	E0	18	Alarm items			○	○	○	○	○	○	○	○	⑦	
0	E0	19	Byte monitor			○	○	○	○	○	○	○	○	⑥	
0	E0	1A	Attribute monitor			○	○	○	○	○	○	○	○	⑥	
0	02	E0	Time constant for current demand	sec.		○	○	○	○	○	○	○	○	⑥	
0	08	E4	Interval time constant	min.		○	○	○	－	－	－	－	－	⑥	
0	08	E5	Subinterval time constant	min.		○	○	○	－	－	－	－	－	⑥	
0	01	01	Average current	A	Inst.	○	○	－	○	○	－	○	○	①	
0	01	21	Phase 1 current	A	Inst.	○	○	○	○	○	○	○	○	①	
0	01	41	Phase 2 current	A	Inst.	○	○	－	○	○	－	○	○	①	
0	01	61	Phase 3 current	A	Inst.	○	○	－	○	○	－	○	○	①	
0	01	81	Phase N current	A	Inst.	○	－	－	○	－	－	○	－	①	
0	01	02	Average current	A	max.	○	○	－	○	○	－	○	○	①	
0	01	22	Phase 1 current	A	max.	○	○	○	○	○	○	○	○	①	
0	01	42	Phase 2 current	A	max.	○	○	－	○	○	－	○	○	①	
0	01	62	Phase 3 current	A	max.	○	○	－	○	○	－	○	○	①	
0	01	82	Phase N current	A	max.	○	－	－	○	－	－	○	－	①	
0	01	05	Average current	A	min.	○	○	－	○	○	－	○	○	①	
0	01	25	Phase 1 current	A	min.	○	○	○	○	○	○	○	○	①	
0	01	45	Phase 2 current	A	min.	○	○	－	○	○	－	○	○	①	
0	01	65	Phase 3 current	A	min.	○	○	－	○	○	－	○	○	①	
0	01	85	Phase N current	A	min.	○	－	－	○	－	－	○	－	①	
0	02	01	Average current demand	A	Inst.	○	○	－	○	○	－	○	○	①	
0	02	21	Phase 1 current demand	A	Inst.	○	○	○	○	○	○	○	○	①	
0	02	41	Phase 2 current demand	A	Inst.	○	○	－	○	○	－	○	○	①	
0	02	61	Phase 3 current demand	A	Inst.	○	○	－	○	○	－	○	○	①	
0	02	81	Phase N current demand	A	Inst.	○	－	－	○	－	－	○	－	①	
0	02	02	Average current demand	A	max.	○	○	－	○	○	－	○	○	①	
0	02	22	Phase 1 current demand	A	max.	○	○	○	○	○	○	○	○	①	
0	02	42	Phase 2 current demand	A	max.	○	○	－	○	○	－	○	○	①	
0	02	62	Phase 3 current demand	A	max.	○	○	－	○	○	－	○	○	①	
0	02	82	Phase N current demand	A	max.	○	－	－	○	－	－	○	－	①	
0	02	05	Average current demand	A	min.	○	○	－	○	○	－	○	○	①	
0	02	25	Phase 1 current demand	A	min.	○	○	○	○	○	○	○	○	①	
0	02	45	Phase 2 current demand	A	min.	○	○	－	○	○	－	○	○	①	
0	02	65	Phase 3 current demand	A	min.	○	○	－	○	○	－	○	○	①	
0	02	85	Phase N current demand	A	min.	○	－	－	○	－	－	○	－	①	
0	05	01	Average L-L voltage	V	Inst.	○	○	－	○	○	－	○	○	①	
0	05	21	1-2 voltage	V	Inst.	○	○	○	○	○	○	○	○	①	
0	05	41	2-3 voltage	V	Inst.	○	○	－	○	○	－	○	○	①	
0	05	61	3-1 voltage	V	Inst.	○	○	－	○	○	－	○	○	①	
0	05	02	Average L-L voltage	V	max.	○	○	－	○	○	－	○	○	①	
0	05	22	1-2 voltage	V	max.	○	○	○	○	○	○	○	○	①	
0	05	42	2-3 voltage	V	max.	○	○	－	○	○	－	○	○	①	
0	05	62	3-1 voltage	V	max.	○	○	－	○	○	－	○	○	①	
0	05	05	Average L-L voltage	V	min.	○	○	－	○	○	－	○	○	①	
0	05	25	1-2 voltage	V	min.	○	○	○	○	○	○	○	○	①	
0	05	45	2-3 voltage	V	min.	○	○	－	○	○	－	○	○	①	
0	05	65	3-1 voltage	V	min.	○	○	－	○	○	－	○	○	①	

Note: Measurement data correspond as follows according to setting of phase wiring. (Maximum / Minimum data and harmonic data are same.)

Name of channel	Phase wiring			
	3P3W	1P3W(1N3)	1P3W(1N2)	1P2W
1-2 voltage	1-2 voltage	1-N voltage	1-N voltage	Voltage
2-3 voltage	2-3 voltage	3-N voltage	2-N voltage	-
3-1 voltage	3-1 voltage	1-3 voltage	1-3 voltage	-
Phase 1 current	Phase 1 current	Phase 1 current	Phase 1 current	Current
Phase 2 current	Phase 2 current	Phase N current	Phase N current	-
Phase 3 current	Phase 3 current	Phase 3 current	Phase 2 current	-

Table 7.3 Group Channel List (2/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel			ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
						3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	03	01	Average L-N voltage	V	Inst.	○	–	–	○	–	–	○	–	①	
0	03	21	1-N voltage	V	Inst.	○	–	–	○	–	–	○	–	①	
0	03	41	2-N voltage	V	Inst.	○	–	–	○	–	–	○	–	①	
0	03	61	3-N voltage	V	Inst.	○	–	–	○	–	–	○	–	①	
0	03	02	Average L-N voltage	V	max.	○	–	–	○	–	–	○	–	①	
0	03	22	1-N voltage	V	max.	○	–	–	○	–	–	○	–	①	
0	03	42	2-N voltage	V	max.	○	–	–	○	–	–	○	–	①	
0	03	62	3-N voltage	V	max.	○	–	–	○	–	–	○	–	①	
0	03	05	Average L-N voltage	V	min.	○	–	–	○	–	–	○	–	①	
0	03	25	1-N voltage	V	min.	○	–	–	○	–	–	○	–	①	
0	03	45	2-N voltage	V	min.	○	–	–	○	–	–	○	–	①	
0	03	65	3-N voltage	V	min.	○	–	–	○	–	–	○	–	①	
0	07	01	Total active power	kW	Inst.	○	○	○	○	○	○	○	○	①	
0	07	21	Phase 1 active power	kW	Inst.	○	–	–	○	–	–	○	–	①	
0	07	41	Phase 2 active power	kW	Inst.	○	–	–	○	–	–	○	–	①	
0	07	61	Phase 3 active power	kW	Inst.	○	–	–	○	–	–	○	–	①	
0	07	02	Total active power	kW	max.	○	–	–	○	–	–	○	–	①	
0	07	22	Phase 1 active power	kW	max.	○	○	○	○	○	○	○	○	①	
0	07	42	Phase 2 active power	kW	max.	○	–	–	○	–	–	○	–	①	
0	07	62	Phase 3 active power	kW	max.	○	–	–	○	–	–	○	–	①	
0	07	05	Total active power	kW	min.	○	○	○	○	○	○	○	○	①	
0	07	25	Phase 1 active power	kW	min.	○	–	–	○	–	–	○	–	①	
0	07	45	Phase 2 active power	kW	min.	○	–	–	○	–	–	○	–	①	
0	07	65	Phase 3 active power	kW	min.	○	–	–	○	–	–	○	–	①	
0	08	01	Total rolling demand	kW	Inst.	○	○	○	–	–	–	–	–	①	
0	08	02	Total rolling demand	kW	max.	○	○	○	–	–	–	–	–	①	
0	09	01	Total reactive power	kvar	Inst.	○	○	○	○	○	○	○	○	①	
0	09	21	Phase 1 reactive power	kvar	Inst.	○	–	–	○	–	–	○	–	①	
0	09	41	Phase 2 reactive power	kvar	Inst.	○	–	–	○	–	–	○	–	①	
0	09	61	Phase 3 reactive power	kvar	Inst.	○	–	–	○	–	–	○	–	①	
0	09	02	Total reactive power	kvar	max.	○	○	○	○	○	○	○	○	①	
0	09	22	Phase 1 reactive power	kvar	max.	○	–	–	○	–	–	○	–	①	
0	09	42	Phase 2 reactive power	kvar	max.	○	–	–	○	–	–	○	–	①	
0	09	62	Phase 3 reactive power	kvar	max.	○	–	–	○	–	–	○	–	①	
0	09	05	Total reactive power	kvar	min.	○	○	○	○	○	○	○	○	①	
0	09	25	Phase 1 reactive power	kvar	min.	○	–	–	○	–	–	○	–	①	
0	09	45	Phase 2 reactive power	kvar	min.	○	–	–	○	–	–	○	–	①	
0	09	65	Phase 3 reactive power	kvar	min.	○	–	–	○	–	–	○	–	①	
1	0B	01	Total apparent power	kVA	Inst.	○	–	–	○	–	–	○	–	①	
1	0B	21	Phase 1 apparent power	kVA	Inst.	○	–	–	○	–	–	○	–	①	
1	0B	41	Phase 2 apparent power	kVA	Inst.	○	–	–	○	–	–	○	–	①	
1	0B	61	Phase 3 apparent power	kVA	Inst.	○	–	–	○	–	–	○	–	①	
1	0B	02	Total apparent power	kVA	max.	○	–	–	○	–	–	○	–	①	
1	0B	22	Phase 1 apparent power	kVA	max.	○	–	–	○	–	–	○	–	①	
1	0B	42	Phase 2 apparent power	kVA	max.	○	–	–	○	–	–	○	–	①	
1	0B	62	Phase 3 apparent power	kVA	max.	○	–	–	○	–	–	○	–	①	
1	0B	05	Total apparent power	kVA	min.	○	–	–	○	–	–	○	–	①	
1	0B	25	Phase 1 apparent power	kVA	min.	○	–	–	○	–	–	○	–	①	
1	0B	45	Phase 2 apparent power	kVA	min.	○	–	–	○	–	–	○	–	①	
1	0B	65	Phase 3 apparent power	kVA	min.	○	–	–	○	–	–	○	–	①	

Table 7.4 Group Channel List (3/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	0D	01	Total power factor	%	Inst.		○	○	○	○	○	○	○	○	①	
0	0D	21	Phase 1 power factor	%	Inst.		○	–	–	○	–	–	○	–	①	
0	0D	41	Phase 2 power factor	%	Inst.		○	–	–	○	–	–	○	–	①	
0	0D	61	Phase 3 power factor	%	Inst.		○	–	–	○	–	–	○	–	①	
0	0D	02	Total power factor	%	max.		○	○	○	○	○	○	○	○	①	
0	0D	22	Phase 1 power factor	%	max.		○	–	–	○	–	–	○	–	①	
0	0D	42	Phase 2 power factor	%	max.		○	–	–	○	–	–	○	–	①	
0	0D	62	Phase 3 power factor	%	max.		○	–	–	○	–	–	○	–	①	
0	0D	05	Total power factor	%	min.		○	○	○	○	○	○	○	○	①	
0	0D	25	Phase 1 power factor	%	min.		○	–	–	○	–	–	○	–	①	
0	0D	45	Phase 2 power factor	%	min.		○	–	–	○	–	–	○	–	①	
0	0D	65	Phase 3 power factor	%	min.		○	–	–	○	–	–	○	–	①	
0	0F	01	Frequency	Hz	Inst.		○	○	○	○	○	○	○	○	①	
0	0F	02	Frequency	Hz	max.		○	○	○	○	○	○	○	○	①	
0	0F	05	Frequency	Hz	min.		○	○	○	○	○	○	○	○	①	
0	63	21	1-2 harmonic voltage	V	Inst.	Total	–	○	○	–	○	○	–	○	①	
0	4D	21	1-2 harmonic voltage	V	Inst.	1st	–	○	○	–	○	○	–	○	①	
0	4F	21	1-2 harmonic voltage	V	Inst.	3rd	–	○	○	–	○	○	–	○	①	
0	51	21	1-2 harmonic voltage	V	Inst.	5th	–	○	○	–	○	○	–	○	①	
0	53	21	1-2 harmonic voltage	V	Inst.	7th	–	○	○	–	○	○	–	○	①	
0	55	21	1-2 harmonic voltage	V	Inst.	9th	–	○	○	–	○	○	–	○	①	
0	57	21	1-2 harmonic voltage	V	Inst.	11th	–	○	○	–	○	○	–	○	①	
0	59	21	1-2 harmonic voltage	V	Inst.	13th	–	○	○	–	○	○	–	○	①	
1	5B	21	1-2 harmonic voltage	V	Inst.	15th	–	○	○	–	–	–	–	–	①	
1	5D	21	1-2 harmonic voltage	V	Inst.	17th	–	○	○	–	–	–	–	–	①	
1	5F	21	1-2 harmonic voltage	V	Inst.	19th	–	○	○	–	–	–	–	–	①	
1	61	21	1-2 harmonic voltage	V	Inst.	21st	–	○	○	–	–	–	–	–	①	
1	79	02	1-2 harmonic voltage	V	Inst.	23rd	–	○	○	–	–	–	–	–	①	
1	79	04	1-2 harmonic voltage	V	Inst.	25th	–	○	○	–	–	–	–	–	①	
1	79	06	1-2 harmonic voltage	V	Inst.	27th	–	○	○	–	–	–	–	–	①	
1	79	08	1-2 harmonic voltage	V	Inst.	29th	–	○	○	–	–	–	–	–	①	
1	79	0A	1-2 harmonic voltage	V	Inst.	31st	–	○	○	–	–	–	–	–	①	
0	76	86	1-2 voltage THD	%	Inst.	Total	–	○	○	–	○	○	–	○	①	
0	76	73	1-2 voltage harmonic distortion	%	Inst.	3rd	–	○	○	–	○	○	–	○	①	
0	76	75	1-2 voltage harmonic distortion	%	Inst.	5th	–	○	○	–	○	○	–	○	①	
0	76	77	1-2 voltage harmonic distortion	%	Inst.	7th	–	○	○	–	○	○	–	○	①	
0	76	79	1-2 voltage harmonic distortion	%	Inst.	9th	–	○	○	–	○	○	–	○	①	
0	76	7B	1-2 voltage harmonic distortion	%	Inst.	11th	–	○	○	–	○	○	–	○	①	
0	76	7D	1-2 voltage harmonic distortion	%	Inst.	13th	–	○	○	–	○	○	–	○	①	
1	76	7F	1-2 voltage harmonic distortion	%	Inst.	15th	–	○	○	–	–	–	–	–	①	
1	76	81	1-2 voltage harmonic distortion	%	Inst.	17th	–	○	○	–	–	–	–	–	①	
1	76	83	1-2 voltage harmonic distortion	%	Inst.	19th	–	○	○	–	–	–	–	–	①	
1	76	85	1-2 voltage harmonic distortion	%	Inst.	21st	–	○	○	–	–	–	–	–	①	
1	79	72	1-2 voltage harmonic distortion	%	Inst.	23rd	–	○	○	–	–	–	–	–	①	
1	79	74	1-2 voltage harmonic distortion	%	Inst.	25th	–	○	○	–	–	–	–	–	①	
1	79	76	1-2 voltage harmonic distortion	%	Inst.	27th	–	○	○	–	–	–	–	–	①	
1	79	78	1-2 voltage harmonic distortion	%	Inst.	29th	–	○	○	–	–	–	–	–	①	
1	79	7A	1-2 voltage harmonic distortion	%	Inst.	31st	–	○	○	–	–	–	–	–	①	

Table 7.5 Group Channel List (4/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	63	41	2-3 harmonic voltage	V	Inst.	Total	−	○	−	−	○	−	−	○	①	
0	4D	41	2-3 harmonic voltage	V	Inst.	1st	−	○	−	−	○	−	−	○	①	
0	4F	41	2-3 harmonic voltage	V	Inst.	3rd	−	○	−	−	○	−	−	○	①	
0	51	41	2-3 harmonic voltage	V	Inst.	5th	−	○	−	−	○	−	−	○	①	
0	53	41	2-3 harmonic voltage	V	Inst.	7th	−	○	−	−	○	−	−	○	①	
0	55	41	2-3 harmonic voltage	V	Inst.	9th	−	○	−	−	○	−	−	○	①	
0	57	41	2-3 harmonic voltage	V	Inst.	11th	−	○	−	−	○	−	−	○	①	
0	59	41	2-3 harmonic voltage	V	Inst.	13th	−	○	−	−	○	−	−	○	①	
1	5B	41	2-3 harmonic voltage	V	Inst.	15th	−	○	−	−	−	−	−	−	①	
1	5D	41	2-3 harmonic voltage	V	Inst.	17th	−	○	−	−	−	−	−	−	①	
1	5F	41	2-3 harmonic voltage	V	Inst.	19th	−	○	−	−	−	−	−	−	①	
1	61	41	2-3 harmonic voltage	V	Inst.	21st	−	○	−	−	−	−	−	−	①	
1	79	18	2-3 harmonic voltage	V	Inst.	23rd	−	○	−	−	−	−	−	−	①	
1	79	1A	2-3 harmonic voltage	V	Inst.	25th	−	○	−	−	−	−	−	−	①	
1	79	1C	2-3 harmonic voltage	V	Inst.	27th	−	○	−	−	−	−	−	−	①	
1	79	1E	2-3 harmonic voltage	V	Inst.	29th	−	○	−	−	−	−	−	−	①	
1	79	20	2-3 harmonic voltage	V	Inst.	31st	−	○	−	−	−	−	−	−	①	
0	76	9C	2-3 voltage THD	%	Inst.	Total	−	○	−	−	○	−	−	○	①	
0	76	89	2-3 voltage harmonic distortion	%	Inst.	3rd	−	○	−	−	○	−	−	○	①	
0	76	8B	2-3 voltage harmonic distortion	%	Inst.	5th	−	○	−	−	○	−	−	○	①	
0	76	8D	2-3 voltage harmonic distortion	%	Inst.	7th	−	○	−	−	○	−	−	○	①	
0	76	8F	2-3 voltage harmonic distortion	%	Inst.	9th	−	○	−	−	○	−	−	○	①	
0	76	91	2-3 voltage harmonic distortion	%	Inst.	11th	−	○	−	−	○	−	−	○	①	
0	76	93	2-3 voltage harmonic distortion	%	Inst.	13th	−	○	−	−	○	−	−	○	①	
1	76	95	2-3 voltage harmonic distortion	%	Inst.	15th	−	○	−	−	−	−	−	−	①	
1	76	97	2-3 voltage harmonic distortion	%	Inst.	17th	−	○	−	−	−	−	−	−	①	
1	76	99	2-3 voltage harmonic distortion	%	Inst.	19th	−	○	−	−	−	−	−	−	①	
1	76	9B	2-3 voltage harmonic distortion	%	Inst.	21st	−	○	−	−	−	−	−	−	①	
1	79	88	2-3 voltage harmonic distortion	%	Inst.	23rd	−	○	−	−	−	−	−	−	①	
1	79	8A	2-3 voltage harmonic distortion	%	Inst.	25th	−	○	−	−	−	−	−	−	①	
1	79	8C	2-3 voltage harmonic distortion	%	Inst.	27th	−	○	−	−	−	−	−	−	①	
1	79	8E	2-3 voltage harmonic distortion	%	Inst.	29th	−	○	−	−	−	−	−	−	①	
1	79	90	2-3 voltage harmonic distortion	%	Inst.	31st	−	○	−	−	−	−	−	−	①	
0	76	DE	L-L voltage THD	%	max.	Total	−	○	○	−	○	○	−	○	①	
0	4D	A2	L-L harmonic voltage	V	max.	1st	−	○	○	−	○	○	−	○	①	
0	76	CB	L-L voltage harmonic distortion	%	max.	3rd	−	○	○	−	○	○	−	○	①	
0	76	CD	L-L voltage harmonic distortion	%	max.	5th	−	○	○	−	○	○	−	○	①	
0	76	CF	L-L voltage harmonic distortion	%	max.	7th	−	○	○	−	○	○	−	○	①	
0	76	D1	L-L voltage harmonic distortion	%	max.	9th	−	○	○	−	○	○	−	○	①	
0	76	D3	L-L voltage harmonic distortion	%	max.	11th	−	○	○	−	○	○	−	○	①	
0	76	D5	L-L voltage harmonic distortion	%	max.	13th	−	○	○	−	○	○	−	○	①	
1	76	D7	L-L voltage harmonic distortion	%	max.	15th	−	○	○	−	−	−	−	−	①	
1	76	D9	L-L voltage harmonic distortion	%	max.	17th	−	○	○	−	−	−	−	−	①	
1	76	DB	L-L voltage harmonic distortion	%	max.	19th	−	○	○	−	−	−	−	−	①	
1	76	DD	L-L voltage harmonic distortion	%	max.	21st	−	○	○	−	−	−	−	−	①	
1	79	CA	L-L voltage harmonic distortion	%	max.	23rd	−	○	○	−	−	−	−	−	①	
1	79	CC	L-L voltage harmonic distortion	%	max.	25th	−	○	○	−	−	−	−	−	①	
1	79	CE	L-L voltage harmonic distortion	%	max.	27th	−	○	○	−	−	−	−	−	①	
1	79	D0	L-L voltage harmonic distortion	%	max.	29th	−	○	○	−	−	−	−	−	①	
1	79	D2	L-L voltage harmonic distortion	%	max.	31st	−	○	○	−	−	−	−	−	①	

Table 7.6 Group Channel List (5/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	4B	21	1-N harmonic voltage	V	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	35	21	1-N harmonic voltage	V	Inst.	1st	○	–	–	○	–	–	○	–	①	
1	37	21	1-N harmonic voltage	V	Inst.	3rd	○	–	–	○	–	–	○	–	①	
1	39	21	1-N harmonic voltage	V	Inst.	5th	○	–	–	○	–	–	○	–	①	
1	3B	21	1-N harmonic voltage	V	Inst.	7th	○	–	–	○	–	–	○	–	①	
1	3D	21	1-N harmonic voltage	V	Inst.	9th	○	–	–	○	–	–	○	–	①	
1	3F	21	1-N harmonic voltage	V	Inst.	11th	○	–	–	○	–	–	○	–	①	
1	41	21	1-N harmonic voltage	V	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	43	21	1-N harmonic voltage	V	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	45	21	1-N harmonic voltage	V	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	47	21	1-N harmonic voltage	V	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	49	21	1-N harmonic voltage	V	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	7A	02	1-N harmonic voltage	V	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	04	1-N harmonic voltage	V	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	7A	06	1-N harmonic voltage	V	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	7A	08	1-N harmonic voltage	V	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	7A	0A	1-N harmonic voltage	V	Inst.	31st	○	–	–	–	–	–	–	–	①	
0	77	86	1-N voltage THD	%	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	77	73	1-N voltage harmonic distortion	%	Inst.	3rd	○	–	–	○	–	–	○	–	①	
0	77	75	1-N voltage harmonic distortion	%	Inst.	5th	○	–	–	○	–	–	○	–	①	
0	77	77	1-N voltage harmonic distortion	%	Inst.	7th	○	–	–	○	–	–	○	–	①	
0	77	79	1-N voltage harmonic distortion	%	Inst.	9th	○	–	–	○	–	–	○	–	①	
0	77	7B	1-N voltage harmonic distortion	%	Inst.	11th	○	–	–	○	–	–	○	–	①	
0	77	7D	1-N voltage harmonic distortion	%	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	77	7F	1-N voltage harmonic distortion	%	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	77	81	1-N voltage harmonic distortion	%	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	77	83	1-N voltage harmonic distortion	%	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	77	85	1-N voltage harmonic distortion	%	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	7A	72	1-N voltage harmonic distortion	%	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	74	1-N voltage harmonic distortion	%	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	7A	76	1-N voltage harmonic distortion	%	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	7A	78	1-N voltage harmonic distortion	%	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	7A	7A	1-N voltage harmonic distortion	%	Inst.	31st	○	–	–	–	–	–	–	–	①	
0	4B	41	2-N harmonic voltage	V	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	35	41	2-N harmonic voltage	V	Inst.	1st	○	–	–	○	–	–	○	–	①	
1	37	41	2-N harmonic voltage	V	Inst.	3rd	○	–	–	○	–	–	○	–	①	
1	39	41	2-N harmonic voltage	V	Inst.	5th	○	–	–	○	–	–	○	–	①	
1	3B	41	2-N harmonic voltage	V	Inst.	7th	○	–	–	○	–	–	○	–	①	
1	3D	41	2-N harmonic voltage	V	Inst.	9th	○	–	–	○	–	–	○	–	①	
1	3F	41	2-N harmonic voltage	V	Inst.	11th	○	–	–	○	–	–	○	–	①	
1	41	41	2-N harmonic voltage	V	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	43	41	2-N harmonic voltage	V	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	45	41	2-N harmonic voltage	V	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	47	41	2-N harmonic voltage	V	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	49	41	2-N harmonic voltage	V	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	7A	18	2-N harmonic voltage	V	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	1A	2-N harmonic voltage	V	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	7A	1C	2-N harmonic voltage	V	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	7A	1E	2-N harmonic voltage	V	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	7A	20	2-N harmonic voltage	V	Inst.	31st	○	–	–	–	–	–	–	–	①	

Table 7.7 Group Channel List (6/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	77	9C	2-N voltage THD	%	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	77	89	2-N voltage harmonic distortion	%	Inst.	3rd	○	–	–	○	–	–	○	–	①	
0	77	8B	2-N voltage harmonic distortion	%	Inst.	5th	○	–	–	○	–	–	○	–	①	
0	77	8D	2-N voltage harmonic distortion	%	Inst.	7th	○	–	–	○	–	–	○	–	①	
0	77	8F	2-N voltage harmonic distortion	%	Inst.	9th	○	–	–	○	–	–	○	–	①	
0	77	91	2-N voltage harmonic distortion	%	Inst.	11th	○	–	–	○	–	–	○	–	①	
0	77	93	2-N voltage harmonic distortion	%	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	77	95	2-N voltage harmonic distortion	%	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	77	97	2-N voltage harmonic distortion	%	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	77	99	2-N voltage harmonic distortion	%	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	77	9B	2-N voltage harmonic distortion	%	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	7A	88	2-N voltage harmonic distortion	%	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	8A	2-N voltage harmonic distortion	%	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	7A	8C	2-N voltage harmonic distortion	%	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	7A	8E	2-N voltage harmonic distortion	%	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	7A	90	2-N voltage harmonic distortion	%	Inst.	31st	○	–	–	–	–	–	–	–	①	
0	4B	61	3-N harmonic voltage	V	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	35	61	3-N harmonic voltage	V	Inst.	1st	○	–	–	○	–	–	○	–	①	
1	37	61	3-N harmonic voltage	V	Inst.	3rd	○	–	–	○	–	–	○	–	①	
1	39	61	3-N harmonic voltage	V	Inst.	5th	○	–	–	○	–	–	○	–	①	
1	3B	61	3-N harmonic voltage	V	Inst.	7th	○	–	–	○	–	–	○	–	①	
1	3D	61	3-N harmonic voltage	V	Inst.	9th	○	–	–	○	–	–	○	–	①	
1	3F	61	3-N harmonic voltage	V	Inst.	11th	○	–	–	○	–	–	○	–	①	
1	41	61	3-N harmonic voltage	V	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	43	61	3-N harmonic voltage	V	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	45	61	3-N harmonic voltage	V	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	47	61	3-N harmonic voltage	V	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	49	61	3-N harmonic voltage	V	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	7A	2E	3-N harmonic voltage	V	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	30	3-N harmonic voltage	V	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	7A	32	3-N harmonic voltage	V	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	7A	34	3-N harmonic voltage	V	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	7A	36	3-N harmonic voltage	V	Inst.	31st	○	–	–	–	–	–	–	–	①	
0	77	B2	3-N voltage THD	%	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	77	9F	3-N voltage harmonic distortion	%	Inst.	3rd	○	–	–	○	–	–	○	–	①	
0	77	A1	3-N voltage harmonic distortion	%	Inst.	5th	○	–	–	○	–	–	○	–	①	
0	77	A3	3-N voltage harmonic distortion	%	Inst.	7th	○	–	–	○	–	–	○	–	①	
0	77	A5	3-N voltage harmonic distortion	%	Inst.	9th	○	–	–	○	–	–	○	–	①	
0	77	A7	3-N voltage harmonic distortion	%	Inst.	11th	○	–	–	○	–	–	○	–	①	
0	77	A9	3-N voltage harmonic distortion	%	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	77	AB	3-N voltage harmonic distortion	%	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	77	AD	3-N voltage harmonic distortion	%	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	77	AF	3-N voltage harmonic distortion	%	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	77	B1	3-N voltage harmonic distortion	%	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	7A	9E	3-N voltage harmonic distortion	%	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	A0	3-N voltage harmonic distortion	%	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	7A	A2	3-N voltage harmonic distortion	%	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	7A	A4	3-N voltage harmonic distortion	%	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	7A	A6	3-N voltage harmonic distortion	%	Inst.	31st	○	–	–	–	–	–	–	–	①	

Table 7.8 Group Channel List (7/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	77	DE	L-N voltage THD	%	max.	Total	○	–	–	○	–	–	○	–	①	
0	35	A2	L-N harmonic voltage	V	max.	1st	○	–	–	○	–	–	○	–	①	
0	77	CB	L-N voltage harmonic distortion	%	max.	3rd	○	–	–	○	–	–	○	–	①	
0	77	CD	L-N voltage harmonic distortion	%	max.	5th	○	–	–	○	–	–	○	–	①	
0	77	CF	L-N voltage harmonic distortion	%	max.	7th	○	–	–	○	–	–	○	–	①	
0	77	D1	L-N voltage harmonic distortion	%	max.	9th	○	–	–	○	–	–	○	–	①	
0	77	D3	L-N voltage harmonic distortion	%	max.	11th	○	–	–	○	–	–	○	–	①	
0	77	D5	L-N voltage harmonic distortion	%	max.	13th	○	–	–	○	–	–	○	–	①	
1	77	D7	L-N voltage harmonic distortion	%	max.	15th	○	–	–	–	–	–	–	–	①	
1	77	D9	L-N voltage harmonic distortion	%	max.	17th	○	–	–	–	–	–	–	–	①	
1	77	DB	L-N voltage harmonic distortion	%	max.	19th	○	–	–	–	–	–	–	–	①	
1	77	DD	L-N voltage harmonic distortion	%	max.	21st	○	–	–	–	–	–	–	–	①	
1	7A	CA	L-N voltage harmonic distortion	%	max.	23rd	○	–	–	–	–	–	–	–	①	
1	7A	CC	L-N voltage harmonic distortion	%	max.	25th	○	–	–	–	–	–	–	–	①	
1	7A	CE	L-N voltage harmonic distortion	%	max.	27th	○	–	–	–	–	–	–	–	①	
1	7A	D0	L-N voltage harmonic distortion	%	max.	29th	○	–	–	–	–	–	–	–	①	
1	7A	D2	L-N voltage harmonic distortion	%	max.	31st	○	–	–	–	–	–	–	–	①	
0	33	21	Phase 1 harmonic current	A	Inst.	Total	○	○	○	○	○	○	○	○	①	
0	1D	21	Phase 1 harmonic current	A	Inst.	1st	○	○	○	○	○	○	○	○	①	
0	1F	21	Phase 1 harmonic current	A	Inst.	3rd	○	○	○	○	○	○	○	○	①	
0	21	21	Phase 1 harmonic current	A	Inst.	5th	○	○	○	○	○	○	○	○	①	
0	23	21	Phase 1 harmonic current	A	Inst.	7th	○	○	○	○	○	○	○	○	①	
0	25	21	Phase 1 harmonic current	A	Inst.	9th	○	○	○	○	○	○	○	○	①	
0	27	21	Phase 1 harmonic current	A	Inst.	11th	○	○	○	○	○	○	○	○	①	
0	29	21	Phase 1 harmonic current	A	Inst.	13th	○	○	○	○	○	○	○	○	①	
1	2B	21	Phase 1 harmonic current	A	Inst.	15th	○	○	○	–	–	–	–	–	①	
1	2D	21	Phase 1 harmonic current	A	Inst.	17th	○	○	○	–	–	–	–	–	①	
1	2F	21	Phase 1 harmonic current	A	Inst.	19th	○	○	○	–	–	–	–	–	①	
1	31	21	Phase 1 harmonic current	A	Inst.	21st	○	○	○	–	–	–	–	–	①	
1	78	02	Phase 1 harmonic current	A	Inst.	23rd	○	○	○	–	–	–	–	–	①	
1	78	04	Phase 1 harmonic current	A	Inst.	25th	○	○	○	–	–	–	–	–	①	
1	78	06	Phase 1 harmonic current	A	Inst.	27th	○	○	○	–	–	–	–	–	①	
1	78	08	Phase 1 harmonic current	A	Inst.	29th	○	○	○	–	–	–	–	–	①	
1	78	0A	Phase 1 harmonic current	A	Inst.	31st	○	○	○	–	–	–	–	–	①	
0	75	86	Phase 1 current THD	%	Inst.	Total	○	○	○	○	○	○	○	○	①	
1/0	75	73	Phase 1 current harmonic distortion	%	Inst.	3rd	○	○	○	○	○	○	○	○	①	*2
1/0	75	75	Phase 1 current harmonic distortion	%	Inst.	5th	○	○	○	○	○	○	○	○	①	*2
1/0	75	77	Phase 1 current harmonic distortion	%	Inst.	7th	○	○	○	○	○	○	○	○	①	*2
1/0	75	79	Phase 1 current harmonic distortion	%	Inst.	9th	○	○	○	○	○	○	○	○	①	*2
1/0	75	7B	Phase 1 current harmonic distortion	%	Inst.	11th	○	○	○	○	○	○	○	○	①	*2
1/0	75	7D	Phase 1 current harmonic distortion	%	Inst.	13th	○	○	○	○	○	○	○	○	①	*2
1	75	7F	Phase 1 current harmonic distortion	%	Inst.	15th	○	○	○	–	–	–	–	–	①	
1	75	81	Phase 1 current harmonic distortion	%	Inst.	17th	○	○	○	–	–	–	–	–	①	
1	75	83	Phase 1 current harmonic distortion	%	Inst.	19th	○	○	○	–	–	–	–	–	①	
1	75	85	Phase 1 current harmonic distortion	%	Inst.	21st	○	○	○	–	–	–	–	–	①	
1	78	72	Phase 1 current harmonic distortion	%	Inst.	23rd	○	○	○	–	–	–	–	–	①	
1	78	74	Phase 1 current harmonic distortion	%	Inst.	25th	○	○	○	–	–	–	–	–	①	
1	78	76	Phase 1 current harmonic distortion	%	Inst.	27th	○	○	○	–	–	–	–	–	①	
1	78	78	Phase 1 current harmonic distortion	%	Inst.	29th	○	○	○	–	–	–	–	–	①	
1	78	7A	Phase 1 current harmonic distortion	%	Inst.	31st	○	○	○	–	–	–	–	–	①	

Table 7.9 Group Channel List (8/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	33	41	Phase 2 harmonic current	A	Inst.	Total	○	△	－	○	△	－	○	○	①	*1
0	1D	41	Phase 2 harmonic current	A	Inst.	1st	○	△	－	○	△	－	○	○	①	*1
0	1F	41	Phase 2 harmonic current	A	Inst.	3rd	○	△	－	○	△	－	○	○	①	*1
0	21	41	Phase 2 harmonic current	A	Inst.	5th	○	△	－	○	△	－	○	○	①	*1
0	23	41	Phase 2 harmonic current	A	Inst.	7th	○	△	－	○	△	－	○	○	①	*1
0	25	41	Phase 2 harmonic current	A	Inst.	9th	○	△	－	○	△	－	○	○	①	*1
0	27	41	Phase 2 harmonic current	A	Inst.	11th	○	△	－	○	△	－	○	○	①	*1
0	29	41	Phase 2 harmonic current	A	Inst.	13th	○	△	－	○	△	－	○	○	①	*1
1	2B	41	Phase 2 harmonic current	A	Inst.	15th	○	△	－	－	－	－	－	－	①	*1
1	2D	41	Phase 2 harmonic current	A	Inst.	17th	○	△	－	－	－	－	－	－	①	*1
1	2F	41	Phase 2 harmonic current	A	Inst.	19th	○	△	－	－	－	－	－	－	①	*1
1	31	41	Phase 2 harmonic current	A	Inst.	21st	○	△	－	－	－	－	－	－	①	*1
1	78	18	Phase 2 harmonic current	A	Inst.	23rd	○	△	－	－	－	－	－	－	①	*1
1	78	1A	Phase 2 harmonic current	A	Inst.	25th	○	△	－	－	－	－	－	－	①	*1
1	78	1C	Phase 2 harmonic current	A	Inst.	27th	○	△	－	－	－	－	－	－	①	*1
1	78	1E	Phase 2 harmonic current	A	Inst.	29th	○	△	－	－	－	－	－	－	①	*1
1	78	20	Phase 2 harmonic current	A	Inst.	31st	○	△	－	－	－	－	－	－	①	*1
0	75	9C	Phase 2 current THD	%	Inst.	Total	○	△	－	○	△	－	○	○	①	*1
1/0	75	89	Phase 2 current harmonic distortion	%	Inst.	3rd	○	△	－	○	△	－	○	○	①	*1,*2
1/0	75	8B	Phase 2 current harmonic distortion	%	Inst.	5th	○	△	－	○	△	－	○	○	①	*1,*2
1/0	75	8D	Phase 2 current harmonic distortion	%	Inst.	7th	○	△	－	○	△	－	○	○	①	*1,*2
1/0	75	8F	Phase 2 current harmonic distortion	%	Inst.	9th	○	△	－	○	△	－	○	○	①	*1,*2
1/0	75	91	Phase 2 current harmonic distortion	%	Inst.	11th	○	△	－	○	△	－	○	○	①	*1,*2
1/0	75	93	Phase 2 current harmonic distortion	%	Inst.	13th	○	△	－	○	△	－	○	○	①	*1,*2
1	75	95	Phase 2 current harmonic distortion	%	Inst.	15th	○	△	－	－	－	－	－	－	①	*1
1	75	97	Phase 2 current harmonic distortion	%	Inst.	17th	○	△	－	－	－	－	－	－	①	*1
1	75	99	Phase 2 current harmonic distortion	%	Inst.	19th	○	△	－	－	－	－	－	－	①	*1
1	75	9B	Phase 2 current harmonic distortion	%	Inst.	21st	○	△	－	－	－	－	－	－	①	*1
1	78	88	Phase 2 current harmonic distortion	%	Inst.	23rd	○	△	－	－	－	－	－	－	①	*1
1	78	8A	Phase 2 current harmonic distortion	%	Inst.	25th	○	△	－	－	－	－	－	－	①	*1
1	78	8C	Phase 2 current harmonic distortion	%	Inst.	27th	○	△	－	－	－	－	－	－	①	*1
1	78	8E	Phase 2 current harmonic distortion	%	Inst.	29th	○	△	－	－	－	－	－	－	①	*1
1	78	90	Phase 2 current harmonic distortion	%	Inst.	31st	○	△	－	－	－	－	－	－	①	*1
0	33	61	Phase 3 harmonic current	A	Inst.	Total	○	○	－	○	○	－	○	○	①	
0	1D	61	Phase 3 harmonic current	A	Inst.	1st	○	○	－	○	○	－	○	○	①	
0	1F	61	Phase 3 harmonic current	A	Inst.	3rd	○	○	－	○	○	－	○	○	①	
0	21	61	Phase 3 harmonic current	A	Inst.	5th	○	○	－	○	○	－	○	○	①	
0	23	61	Phase 3 harmonic current	A	Inst.	7th	○	○	－	○	○	－	○	○	①	
0	25	61	Phase 3 harmonic current	A	Inst.	9th	○	○	－	○	○	－	○	○	①	
0	27	61	Phase 3 harmonic current	A	Inst.	11th	○	○	－	○	○	－	○	○	①	
0	29	61	Phase 3 harmonic current	A	Inst.	13th	○	○	－	○	○	－	○	○	①	
1	2B	61	Phase 3 harmonic current	A	Inst.	15th	○	○	－	－	－	－	－	－	①	
1	2D	61	Phase 3 harmonic current	A	Inst.	17th	○	○	－	－	－	－	－	－	①	
1	2F	61	Phase 3 harmonic current	A	Inst.	19th	○	○	－	－	－	－	－	－	①	
1	31	61	Phase 3 harmonic current	A	Inst.	21st	○	○	－	－	－	－	－	－	①	
1	78	2E	Phase 3 harmonic current	A	Inst.	23rd	○	○	－	－	－	－	－	－	①	
1	78	30	Phase 3 harmonic current	A	Inst.	25th	○	○	－	－	－	－	－	－	①	
1	78	32	Phase 3 harmonic current	A	Inst.	27th	○	○	－	－	－	－	－	－	①	
1	78	34	Phase 3 harmonic current	A	Inst.	29th	○	○	－	－	－	－	－	－	①	
1	78	36	Phase 3 harmonic current	A	Inst.	31st	○	○	－	－	－	－	－	－	①	

Table 7.10 Group Channel List (9/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	75	B2	Phase 3 current THD	%	Inst.	Total	○	○	–	○	○	–	○	○	①	
1/0	75	9F	Phase 3 current harmonic distortion	%	Inst.	3rd	○	○	–	○	○	–	○	○	①	*2
1/0	75	A1	Phase 3 current harmonic distortion	%	Inst.	5th	○	○	–	○	○	–	○	○	①	*2
1/0	75	A3	Phase 3 current harmonic distortion	%	Inst.	7th	○	○	–	○	○	–	○	○	①	*2
1/0	75	A5	Phase 3 current harmonic distortion	%	Inst.	9th	○	○	–	○	○	–	○	○	①	*2
1/0	75	A7	Phase 3 current harmonic distortion	%	Inst.	11th	○	○	–	○	○	–	○	○	①	*2
1/0	75	A9	Phase 3 current harmonic distortion	%	Inst.	13th	○	○	–	○	○	–	○	○	①	*2
1	75	AB	Phase 3 current harmonic distortion	%	Inst.	15th	○	○	–	–	–	–	–	–	①	
1	75	AD	Phase 3 current harmonic distortion	%	Inst.	17th	○	○	–	–	–	–	–	–	①	
1	75	AF	Phase 3 current harmonic distortion	%	Inst.	19th	○	○	–	–	–	–	–	–	①	
1	75	B1	Phase 3 current harmonic distortion	%	Inst.	21st	○	○	–	–	–	–	–	–	①	
1	78	9E	Phase 3 current harmonic distortion	%	Inst.	23rd	○	○	–	–	–	–	–	–	①	
1	78	A0	Phase 3 current harmonic distortion	%	Inst.	25th	○	○	–	–	–	–	–	–	①	
1	78	A2	Phase 3 current harmonic distortion	%	Inst.	27th	○	○	–	–	–	–	–	–	①	
1	78	A4	Phase 3 current harmonic distortion	%	Inst.	29th	○	○	–	–	–	–	–	–	①	
1	78	A6	Phase 3 current harmonic distortion	%	Inst.	31st	○	○	–	–	–	–	–	–	①	
0	33	81	Phase N harmonic current	A	Inst.	Total	○	–	–	○	–	–	○	–	①	
0	1D	81	Phase N harmonic current	A	Inst.	1st	○	–	–	○	–	–	○	–	①	
0	1F	81	Phase N harmonic current	A	Inst.	3rd	○	–	–	○	–	–	○	–	①	
0	21	81	Phase N harmonic current	A	Inst.	5th	○	–	–	○	–	–	○	–	①	
0	23	81	Phase N harmonic current	A	Inst.	7th	○	–	–	○	–	–	○	–	①	
0	25	81	Phase N harmonic current	A	Inst.	9th	○	–	–	○	–	–	○	–	①	
0	27	81	Phase N harmonic current	A	Inst.	11th	○	–	–	○	–	–	○	–	①	
0	29	81	Phase N harmonic current	A	Inst.	13th	○	–	–	○	–	–	○	–	①	
1	2B	81	Phase N harmonic current	A	Inst.	15th	○	–	–	–	–	–	–	–	①	
1	2D	81	Phase N harmonic current	A	Inst.	17th	○	–	–	–	–	–	–	–	①	
1	2F	81	Phase N harmonic current	A	Inst.	19th	○	–	–	–	–	–	–	–	①	
1	31	81	Phase N harmonic current	A	Inst.	21st	○	–	–	–	–	–	–	–	①	
1	78	44	Phase N harmonic current	A	Inst.	23rd	○	–	–	–	–	–	–	–	①	
1	78	46	Phase N harmonic current	A	Inst.	25th	○	–	–	–	–	–	–	–	①	
1	78	48	Phase N harmonic current	A	Inst.	27th	○	–	–	–	–	–	–	–	①	
1	78	4A	Phase N harmonic current	A	Inst.	29th	○	–	–	–	–	–	–	–	①	
1	78	4C	Phase N harmonic current	A	Inst.	31st	○	–	–	–	–	–	–	–	①	
1	33	82	Phase N current THD	A	max.	Total	○	–	–	○	–	–	○	–	①	
1	1D	82	Phase N current harmonic distortion	A	max.	1st	○	–	–	○	–	–	○	–	①	
1	1F	82	Phase N current harmonic distortion	A	max.	3rd	○	–	–	○	–	–	○	–	①	
1	21	82	Phase N current harmonic distortion	A	max.	5th	○	–	–	○	–	–	○	–	①	
1	23	82	Phase N current harmonic distortion	A	max.	7th	○	–	–	○	–	–	○	–	①	
1	25	82	Phase N current harmonic distortion	A	max.	9th	○	–	–	○	–	–	○	–	①	
1	27	82	Phase N current harmonic distortion	A	max.	11th	○	–	–	○	–	–	○	–	①	
1	29	82	Phase N current harmonic distortion	A	max.	13th	○	–	–	○	–	–	○	–	①	
1	2B	82	Phase N current harmonic distortion	A	max.	15th	○	–	–	–	–	–	–	–	①	
1	2D	82	Phase N current harmonic distortion	A	max.	17th	○	–	–	–	–	–	–	–	①	
1	2F	82	Phase N current harmonic distortion	A	max.	19th	○	–	–	–	–	–	–	–	①	
1	31	82	Phase N current harmonic distortion	A	max.	21st	○	–	–	–	–	–	–	–	①	
1	7B	44	Phase N current harmonic distortion	A	max.	23rd	○	–	–	–	–	–	–	–	①	
1	7B	46	Phase N current harmonic distortion	A	max.	25th	○	–	–	–	–	–	–	–	①	
1	7B	48	Phase N current harmonic distortion	A	max.	27th	○	–	–	–	–	–	–	–	①	
1	7B	4A	Phase N current harmonic distortion	A	max.	29th	○	–	–	–	–	–	–	–	①	
1	7B	4C	Phase N current harmonic distortion	A	max.	31st	○	–	–	–	–	–	–	–	①	

Table 7.11 Group Channel List (10/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	33	A2	Harmonic current	A	max.	Total	○	○	○	○	○	○	○	○	①	
0	1D	A2	Harmonic current	A	max.	1st	○	○	○	○	○	○	○	○	①	
0	1F	A2	Harmonic current	A	max.	3rd	○	○	○	○	○	○	○	○	①	
0	21	A2	Harmonic current	A	max.	5th	○	○	○	○	○	○	○	○	①	
0	23	A2	Harmonic current	A	max.	7th	○	○	○	○	○	○	○	○	①	
0	25	A2	Harmonic current	A	max.	9th	○	○	○	○	○	○	○	○	①	
0	27	A2	Harmonic current	A	max.	11th	○	○	○	○	○	○	○	○	①	
0	29	A2	Harmonic current	A	max.	13th	○	○	○	○	○	○	○	○	①	
1	2B	A2	Harmonic current	A	max.	15th	○	○	○	–	–	–	–	–	①	
1	2D	A2	Harmonic current	A	max.	17th	○	○	○	–	–	–	–	–	①	
1	2F	A2	Harmonic current	A	max.	19th	○	○	○	–	–	–	–	–	①	
1	31	A2	Harmonic current	A	max.	21st	○	○	○	–	–	–	–	–	①	
1	78	5A	Harmonic current	A	max.	23rd	○	○	○	–	–	–	–	–	①	
1	78	5C	Harmonic current	A	max.	25th	○	○	○	–	–	–	–	–	①	
1	78	5E	Harmonic current	A	max.	27th	○	○	○	–	–	–	–	–	①	
1	78	60	Harmonic current	A	max.	29th	○	○	○	–	–	–	–	–	①	
1	78	62	Harmonic current	A	max.	31st	○	○	○	–	–	–	–	–	①	
0	80	01	Active energy import	kWh	count		○	○	○	○	○	○	○	○	②	*3
0	80	63	Active energy export	kWh	count		○	○	○	○	○	○	○	○	②	*3
0	80	64	Active energy import	kWh	count	expand	○	○	○	○	○	○	○	○	②	*3
0	80	65	Active energy export	kWh	count	expand	○	○	○	○	○	○	○	○	②	*3
0	81	01	Reactive energy import lag	kvarh	count		○	○	○	○	○	○	○	○	②	*3
0	81	63	Reactive energy export lag	kvarh	count		○	○	○	○	○	○	○	○	②	*3
0	81	64	Reactive energy import lead	kvarh	count		○	○	○	○	○	○	○	○	②	*3
0	81	65	Reactive energy export lead	kvarh	count		○	○	○	○	○	○	○	○	②	*3
0	81	66	Reactive energy import lag	kvarh	count	expand	○	○	○	○	○	○	○	○	②	*3
0	81	67	Reactive energy export lag	kvarh	count	expand	○	○	○	○	○	○	○	○	②	*3
0	81	68	Reactive energy import lead	kvarh	count	expand	○	○	○	○	○	○	○	○	②	*3
0	81	69	Reactive energy export lead	kvarh	count	expand	○	○	○	○	○	○	○	○	②	*3
0	82	01	Apparent energy	kVAh	count		○	–	–	–	–	–	–	–	②	*3
0	8B	01	Periodic active energy(Period 1)	kWh	count		○	○	○	○	○	○	–	–	②	*3
0	8C	01	Periodic active energy(Period 2)	kWh	count		○	○	○	○	○	○	–	–	②	*3
0	87	01	Operating time1	h	count		○	○	○	○	○	○	–	–	②	
0	88	01	Operating time2	h	count		○	○	○	○	○	○	–	–	②	
1	B0	01	Active energy import	Wh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	04	Active energy export	Wh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	07	Reactive energy import lag	varh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	0A	Reactive energy export lag	varh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	0D	Reactive energy import lead	varh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	10	Reactive energy export lead	varh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	13	Apparent energy	VAh	count	unit fixed	○	–	–	–	–	–	–	–	③	*3
1	B0	16	Periodic active energy(Period 1)	Wh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	19	Periodic active energy(Period 2)	Wh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	02	Active energy import	kWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	05	Active energy export	kWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	08	Reactive energy import lag	kvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	0B	Reactive energy export lag	kvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	0E	Reactive energy import lead	kvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	11	Reactive energy export lead	kvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	14	Apparent energy	kVAh	count	unit fixed	○	–	–	–	–	–	–	–	③	*3
1	B0	17	Periodic active energy(Period 1)	kWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	1A	Periodic active energy(Period 2)	kWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	03	Active energy import	MWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	06	Active energy export	MWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	09	Reactive energy import lag	Mvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	0C	Reactive energy export lag	Mvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	0F	Reactive energy import lead	Mvarh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	12	Reactive energy export lead	Mvarh	count	unit fixed	○	–	–	–	–	–	–	–	③	*3
1	B0	15	Apparent energy	MVAh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	18	Periodic active energy(Period 1)	MWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3
1	B0	1B	Periodic active energy(Period 2)	MWh	count	unit fixed	○	○	○	○	○	○	–	–	③	*3

Table 7.12 Group Channel List (11/11)

Unit No.	Group (h)	Channel (h)	Name of Cannel				ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
							3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
0	01	14	Current upper limit	A	Alarm		○	○	○	○	○	○	○	○	①	
0	01	15	Current lower limit	A	Alarm		○	○	○	○	○	○	○	○	①	
0	01	94	Current upper limit	A	Alarm	PhaseN	○	－	－	○	－	－	○	－	①	
0	02	14	Current demand upper limit	A	Alarm		○	○	○	○	○	○	○	○	①	
0	02	15	Current demand lower limit	A	Alarm		○	○	○	○	○	○	○	○	①	
0	02	94	Current demand upper limit	A	Alarm	PhaseN	○	－	－	○	－	－	○	－	①	
0	05	14	Voltage upper limit（L-L）	V	Alarm		○	○	○	○	○	○	○	○	①	
0	05	15	Voltage lower limit（L-L）	V	Alarm		○	○	○	○	○	○	○	○	①	
0	03	14	Voltage upper limit（L-N）	V	Alarm		○	○	○	○	○	○	○	○	①	
0	03	15	Voltage lower limit（L-N）	V	Alarm		○	○	○	○	○	○	○	○	①	
0	07	14	Active power upper limit	kW	Alarm		○	○	○	○	○	○	○	○	①	
0	07	15	Active power lower limit	kW	Alarm		○	○	○	○	○	○	○	○	①	
0	08	14	Rolling demand upper limit	kW	Alarm		○	○	○	－	－	－	－	－	①	
0	09	14	Reactive power upper limit	kvar	Alarm		○	○	○	○	○	○	○	○	①	
0	09	15	Reactive power lower limit	kvar	Alarm		○	○	○	○	○	○	○	○	①	
0	0D	14	Power factor upper limit	%	Alarm		○	○	○	○	○	○	○	○	①	
0	0D	15	Power factor lower limit	%	Alarm		○	○	○	○	○	○	○	○	①	
0	0F	14	Frequency upper limit	Hz	Alarm		○	○	○	○	○	○	○	○	①	
0	0F	15	Frequency lower limit	Hz	Alarm		○	○	○	○	○	○	○	○	①	
0	77	E1	H.V(L-N) upper limit	%	Alarm	Total	○	○	○	○	○	○	○	○	①	
0	76	E1	H.V(L-L) upper limit	%	Alarm	Total	○	○	○	○	○	○	○	○	①	
0	75	E1	H.A upper limit	A	Alarm	Total	○	○	○	○	○	○	○	○	①	
0	75	F1	H.A upper limit(Phase N)	A	Alarm	Total	○	－	－	○	－	－	○	－	①	
0	A0	31	Alarm state		Alarm		○	○	○	○	○	○	○	○	④	
0	A0	35	Alarm state2		Alarm		○	○	○	○	○	○	○	○	④	

Inst.: Instantaneous value, max.: maximum value, min.: minimum value.

*1: △ in the table means that it is applicable when the setting of phase wiring is 3P3W_3CT only.

*2: Unit number is “0” when the setting of phase wiring is 1P2W, 1P3W or 3P3W.

*3: About the reply data of active energy(Wh), reactive energy(varh) and apparent energy(VAh), refer to follows.

Example) In case of active energy(import) data is 876,543,210,987,654,321mWh, each reply data are follows.

					GWh				MWh			kWh			Wh			mWh		
				Data=	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1
Unit No.	Group (h)	Channel (h)	Name of Cannel	Total power[kW]																		Note
0	80	01	Active energy import	less than 10									0	9	8	7	6	5				
				10 or more and less than 100								1	0	9	8	7	6					
				100 or more and less than 1000							2	1	0	9	8	7						
				1000 or more and less than 10000						3	2	1	0	9	8							
				10000 or more and less than 100000					4	3	2	1	0	9								
				100000 or more				5	4	3	2	1	0									*1
0	80	64	Active energy import (expand)	less than 10												7	6	5	4	3	2	
				10 or more and less than 100											8	7	6	5	4	3		
				100 or more and less than 1000										9	8	7	6	5	4			
				1000 or more and less than 10000									0	9	8	7	6	5				
				10000 or more and less than 100000								1	0	9	8	7	6					
				100000 or more							2	1	0	9	8	7						
1	B0	01	Active energy import (unit fixed: Wh)	-							2	1	0	9	8	7	6	5	4			
1	B0	02	Active energy import (unit fixed: kWh)	-				5	4	3	2	1	0	9	8	7						*2
1	B0	03	Active energy import (unit fixed: MWh)	-	8	7	6	5	4	3	2	1	0									

*1: The data of energy wil change according to the total load setting of ME96. (This matches to display of ME96NSR.) Multiplying the receving data by the multiplying factor of section gives the actual value (unit:kWh).

*2: The data of energy of selected unit will reply regardless to the total load setting of ME96. (This matches to the additional display(9 digits) of ME96SSH/ME96SSR.

(2) Data Set Command (2H)

2H	Data Set

- After writing the command as shown below into the remote register RWwm, set the command execution request flag to ON (1). When the command completion reply flag is turned on, the specified item is set.
- The details of the data written into the remote resister RWw are shown in the section 7.2.3.

※After writing the setting value, about 2 seconds (max 4 seconds) is needed to restart the measurement based on new set-up value.

Remote register RWw（Programmable controller→ME96）

	b15 – b8	b7 – b4	b3 – b0
m	Group No.	0H (Unit No)	2H (Command)
m+1	Index number	Channel No.	
m+2	Low data		
m+3	High data		

（※）At data set , Unit No. is fixed 0H in ME96.

Remote register RWr（ME96→Programmable controller）

	b15 – b8	b7 – b0
n	Channel No.	Group No.
n+1	00H	00H
n+2	00H	00H
n+3	00H	00H

m, n : Address is allocated to the master module by the station number setting.

Table 7.13 List of Group and Channel for Setting

Group (h)	Channel (h)	Name of Cannel	Setting range	ME96SSH-MB			ME96SSR-MB			ME96NSR		Data type	Note
				3P4W	3P3W 1P3W	1P2W	3P4W	3P3W 1P3W	1P2W	3P4W	3P3W		
E0	11	Primary current	1.0A to 30000.0A	○	○	○	○	○	○	○	○	⑤	*1
E0	12	Primary voltage(L-L)	60V～750000V	○	○	○	○	○	○	○	○	⑤	*2
E0	1B	Primary voltage(L-N)	60V～750000V	○	–	–	○	–	–	○	–	⑤	*3
E0	1C	Scondary voltage	(Refer to *4)	○	○	○	○	○	○	○	○	⑤	*4
E0	13	Phase wiring	Refer to data type ⑥	○	○	○	○	○	○	○	○	⑥	
E0	1D	Frequency	50Hz, 60Hz	○	○	○	○	○	○	–	–	⑤	
E0	1E	Secondary current	5A, 1A	○	○	○	○	○	○	–	–	⑤	
E0	18	Alarm items	Refer to data type ⑦	○	○	○	○	○	○	○	○	⑦	
02	E0	Time constant for current demand	0 to 1800 sec.	○	○	○	○	○	○	○	○	⑥	*5
08	E4	Interval time constant	1 to 60 min	○	○	○	–	–	–	–	–	⑥	*6
08	E5	Subinterval time constant	1 to 60 min	○	○	○	–	–	–	–	–	⑥	*6
80	01	Active energy import	0 to 999999 x Multiplying	○	○	○	○	○	○	○	○	②	*7
80	63	Active energy export	0 to 999999 x Multiplying	○	○	○	○	○	○	○	○	②	*7
81	01	Reactive energy import lag	0 to 999999 x Multiplying	○	○	○	○	○	○	○	○	②	*7
81	63	Reactive energy export lag	0 to 999999 x Multiplying	○	○	○	○	○	○	○	○	②	*7
81	64	Reactive energy import lead	0 to 999999 x Multiplying	○	○	○	○	○	○	○	○	②	*7
81	65	Reactive energy export lead	0 to 999999 x Multiplying	○	○	○	○	○	○	○	○	②	*7
82	01	Apparent energy	0 to 999999 x Multiplying	○	–	–	–	–	–	–	–	②	*7
8B	01	Periodic active energy(Period 1)	0 to 999999 x Multiplying	○	○	○	○	○	○	–	–	②	*7
8C	01	Periodic active energy(Period 2)	0 to 999999 x Multiplying	○	○	○	○	○	○	–	–	②	*7
01	14	Current upper limit	5 to 120% (1% step)	○	○	○	○	○	○	○	○	①	*8
01	15	Current lower limit	3 to 95% (1% step)	○	○	○	○	○	○	○	○	①	*8
01	94	Current upper limit(Phase N)	5 to 120% (1% step)	○	–	–	○	–	–	○	–	①	*8
02	14	Current demand upper limit	5 to 120% (1% step)	○	○	○	○	○	○	○	○	①	*8
02	15	Current demand lower limit	3 to 95% (1% step)	○	○	○	○	○	○	○	○	①	*8
02	94	Current demand upper limit (Phase N)	5 to 120% (1% step)	○	–	–	○	–	–	○	–	①	*8
05	14	Voltage upper limit（L-L）	25 to 135% (1% step)	○	○	○	○	○	○	○	○	①	*8
05	15	Voltage lower limit（L-L）	20 to 95% (1% step)	○	○	○	○	○	○	○	○	①	*8
03	14	Voltage upper limit（L-N）	25 to 135% (1% step)	○	○	○	○	○	○	○	○	①	*8
03	15	Voltage lower limit（L-N）	20 to 95% (1% step)	○	○	○	○	○	○	○	○	①	*8
07	14	Active power upper limit	-95 to 120% (1% step)	○	○	○	○	○	○	○	○	①	*8
07	15	Active power lower limit	-120 to 95% (1% step)	○	○	○	○	○	○	○	○	①	*8
08	14	Rolling demand upper limit	5 to 120% (1% step)	○	○	○	–	–	–	–	–	①	*8
09	14	Reactive power upper limit	-95 to 120% (1% step)	○	○	○	○	○	○	○	○	①	*8
09	15	Reactive power lower limit	-120 to 95% (1% step)	○	○	○	○	○	○	○	○	①	*8
0D	14	Power factor upper limit	-0.05 to 1 to 0.05 (0.05 step)	○	○	○	○	○	○	○	○	①	*8
0D	15	Power factor lower limit	-0.05 to 1 to 0.05 (0.05 step)	○	○	○	○	○	○	○	○	①	*8
0F	14	Frequency upper limit	45 to 65Hz (1Hz step)	○	○	○	○	○	○	○	○	①	*8
0F	15	Frequency lower limit	45 to 65Hz (1Hz step)	○	○	○	○	○	○	○	○	①	*8
77	E1	H.V(L-N) upper limit	0.5 to 20% (0.5% step)	○	○	○	○	○	○	○	○	①	*8
76	E1	H.V(L-L) upper limit	0.5 to 20% (0.5% step)	○	○	○	○	○	○	○	○	①	*8
75	E1	H.A upper limit	1 to 120% (1% step)	○	○	○	○	○	○	○	○	①	*8
75	F1	H.A upper limit(Phase N)	1 to 120% (1% step)	○	–	–	○	–	–	○	–	①	*8
A1	3A	16bit set register 1	Refer to data type ⑧	○	○	○	○	○	○	○	○	⑧	
A1	3B	16bit set register 2	Refer to data type ⑧	○	○	○	○	○	○	–	–	⑧	

*1: From the most significant digit to 3 digits can be freely setting in the range. Digits of 4 or more are rounded down to 3 digits. (When less than 10A, to 2 digits.)
In details of setting data and setting ranges, please refer each user's manuals.

*2: Effective value of primary voltage(L-L) is follows.

- 3P4W

  It is valid only 190V, 415V, 440V. And it changed as follows by set value.

Set value	Using VT/ Direct input	Direct voltage	VT secondary voltage	VT primary voltage
190V	Direct input	110V/190V	—	—
415V	Using VT	—	63.5V/110V	240V/415V
440V	Using VT	—	63.5V/110V	254V/440V

- 3P3W or 1P2W
  - Set a direct voltage value (Ex. 110V, 220V etc.).
    It is set “Direct input”, and set the primary voltage which is transmitted as the direct input voltage.
  - Set within the range of from 60V to 750000V. (In case of ME96NSR-MB, from 221V to 750000V)
    It is set “Using VT”, and set the primary voltage which is transmitted. From the most significant digit to 3 figures can be freely set up in the range.
- 1P3W
  110V or 220V is valid only. (ME96NSR is not enable.)

*3: Effective value of primary voltage(L-N) is follows.

- 3P4W
  - Set a direct voltage value (Ex. 63.5V, 100V, 110V, 220V, 240V, 254V or 277V)
    It is set “Direct input”, and set the primary voltage which is transmitted as the direct input voltage.
  - Set within the range from 60V to 750000V. (In case of ME96NSR-MB, from 278V to 750000V)
    It is set “Using VT”, and set the primary voltage which is transmitted. From the most significant digit to 3 figures can be freely set up in the range.
- 3P3W, 1P3W or 1P2W
  It is unsupported. Use the primary voltage value (L-L) (*2).

*4: Effective value of secondary voltage is follows.

- 3P4W, 3P3W or 1P2W
  About setting range, please refer to each user’s manuals.
  In case of 3P4W, set the voltage of L-N. In case of 3P3W, set the voltage of L-L. If the setting of ME96 is “Direct voltage”, the setting is changed “With VT” and set the secondary voltage. Furthermore, the setting of the primary voltage is changed to the initial value or the previous value.
- 1P3W
  It is unsupported.

*5: The set value is the second unit value. (For example of 2 miniutes, sets as 120 seconds.) About setting range, please refer to each user’s manuals.

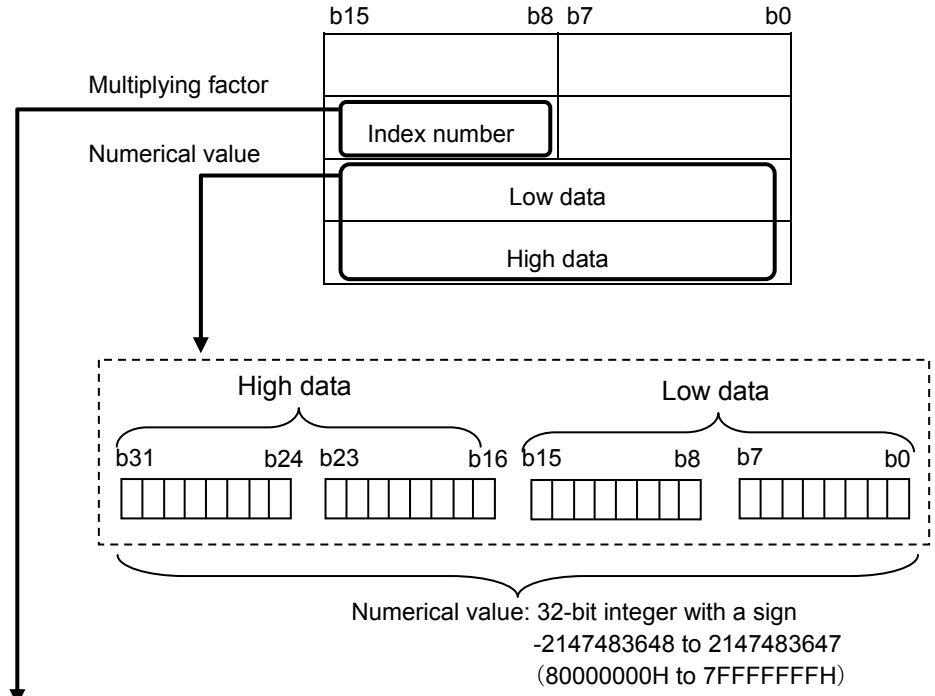
*6: When the interval time constant is changed, the subinterval time constant is changed to 1 min. When the subinterval is changed, if the interval time constant cannot be divided by subinterval time constant, it will be the error of illegal data value.

*7: Multiplyng factor differs according to settings of phase wiring, primary voltage and primary current. For details, refer to 7.2.4.

*8: About setting of upper/lower limit value.

- About setting range, please refer to each user’s manuals.
- Setting of upper/lower limit value is not a percentage value of maximum scale but a direct value.
  (In case of current harmonic and phase N current harmonic, use a percentage value for the maximum scale.)
- When the setting value is other than setting step, it is rounded according to following calculation.
  Calculate: Setting value via CC-Link / maximum scale (±0step) x 100 → Rounds to the whole number.
  Example: In case of setting value is 55.5kW, maximum scale (±0step) is 100kW.
  55.5kW / 100kW x100 = 55.5% → 56%
- When out of range is set, the error code of invalid data is replied, and setting value is not changed.
- If the upper/lower limit value of W, DW and var exceeds ±1638.3MW(Mvar), please set by the main device.

7.2.3 Data format

Data	Data Format ①
Measurement Items Current, Voltage, Active power, Reactive power, Apparent power, Power factor, Frequency, etc. Format①	 <Multiplying factor> Multiplying factor is fixed according to setting of the phase wiring, primary voltage and primary current. (Refer to 7.2.4)

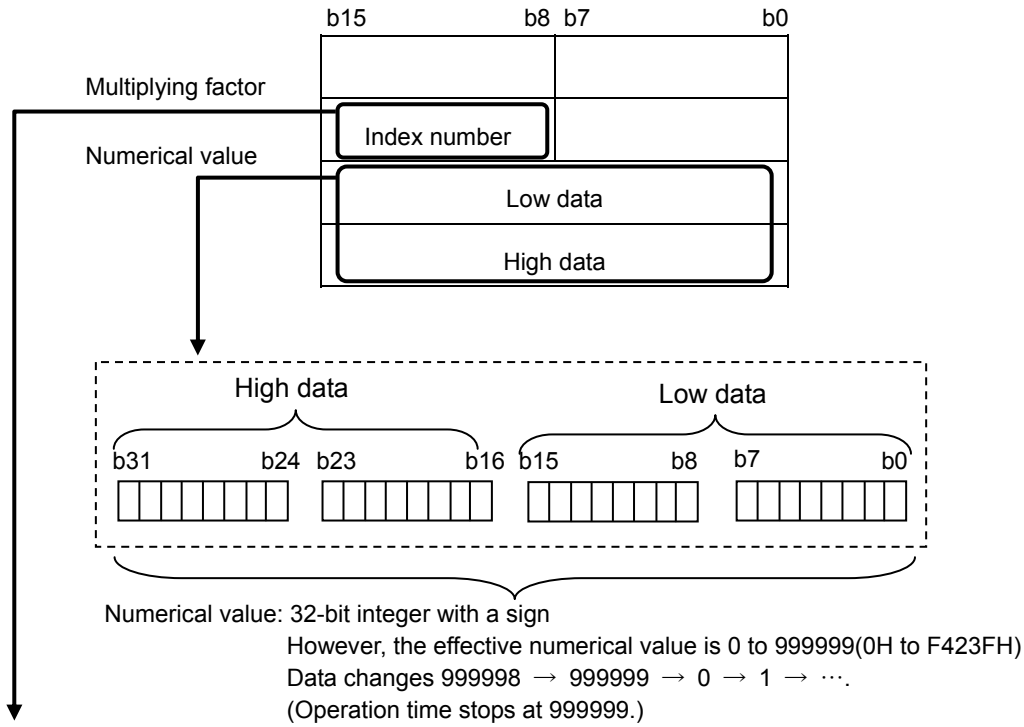
Index number	Multiplying factor	Remarks
02H	$x10^{2}$	Actual value = Numerical value x Multiplying factor
01H	x10	
00H	x1	
FFH	$x10^{-1}$	
FEH	$x10^{-2}$	
FDH	$x10^{-3}$	

<Example >

Items	Data	Multiplying factor	Numerical value	Actual value
Active power *1	FF000000FFH	FFH ⇒$x10^{-1}$	000000FFH⇒255	255×10^{-1} =25.5[kW]
	00000000FFH	00H ⇒x1	000000FFH⇒255	255 × 1 =255[kW]
	FFFFFFFF01H	FFH ⇒$x10^{-1}$	FFFFFF01H⇒-255	-255×10^{-1} =-25.5[kW]
	00FFFFFF01H	00H ⇒x1	FFFFFF01H⇒-255	-255 × 1 =-255[kW]
Power factor *2	FF000003E3H	FFH ⇒$x10^{-1}$	000003E3H⇒995	995×10^{-1} =99.5[%]
	FFFFFFFC1DH	FFH ⇒$x10^{-1}$	FFFFFC1DH⇒-995	-995×10^{-1} =-99.5[%]
Frequency	FF00000258H	FFH ⇒$x10^{-1}$	00000258H⇒600	600×10^{-1} =60.0[Hz]

*1: When the elements are active power and reactive power in case of a data monitor, ±1638.3MW becomes the upper(lower) value.

*2: For the data of power factor, “lag” shows as “+”(positive), “lead” shows as “-“(negative). That is same as the display of main device.

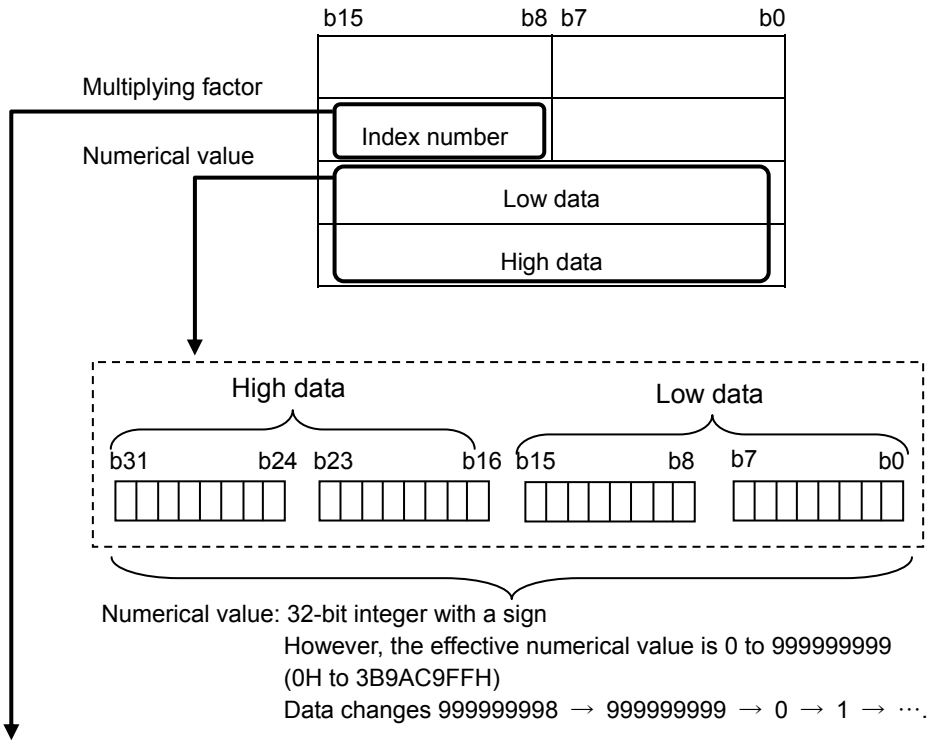
Data	Data Format ②
Measurement Items Active energy, Reactive energy, Apparent energy, Operation time, etc. Format②	 Numerical value: 32-bit integer with a sign However, the effective numerical value is 0 to 999999(0H to F423FH) Data changes 999998 → 999999 → 0 → 1 → …. (Operation time stops at 999999.) <Multiplying factor> Multiplying factor is fixed according to setting of the phase wiring, primary voltage and primary current. (Refer to 7.2.4)

Index number	Multiplying factor	Remarks
03H	$x10^{3}$	Actual value = Numerical value x Multiplying factor
02H	$x10^{2}$	
01H	x10	
00H	x1	
FFH	$x10^{-1}$	
FEH	$x10^{-2}$	
FDH	$x10^{-3}$	
FCH	$x10^{-4}$	

<Example : Active energy>

Data	Multiplying factor	Numerical value	Actual value
FF000000FFH	FFH ⇒$x10^{-1}$	000000FFH⇒255	255×10^{-1} =25.5[kWh]
00000000FFH	00H ⇒x1	000000FFH⇒255	255 × 1 =255[kWh]

Note: For active energy (export), reactive energy (export/Lag) and reactive energy (export/Lead), the reply data are unsigned although the display of main device has a "-"(negative) sign.

Data	Data Format ③
Measurement Items (Active energy, Reactive energy, Apparent energy, (unit fixed) Format③	 Numerical value: 32-bit integer with a sign However, the effective numerical value is 0 to 999999999 (0H to 3B9AC9FFH) Data changes 999999998 → 999999999 → 0 → 1 → …. <Multiplying factor> Multiplying factor is fixed by the channel number.

	Index number	Multiplying factor	Remarks
MWh, Mvarh, MVAh unit fixed	03H	$x10^3$	Actual value = Numerical value x Multiplying factor [kWh],[kvarh],[kVAh]
kWh, kvarh, kVAh unit fixed	00H	x1	
Wh, varh, VAh unit fixed	FDH	$x10^{-3}$	

<Example : Active energy unit fixed:Wh>

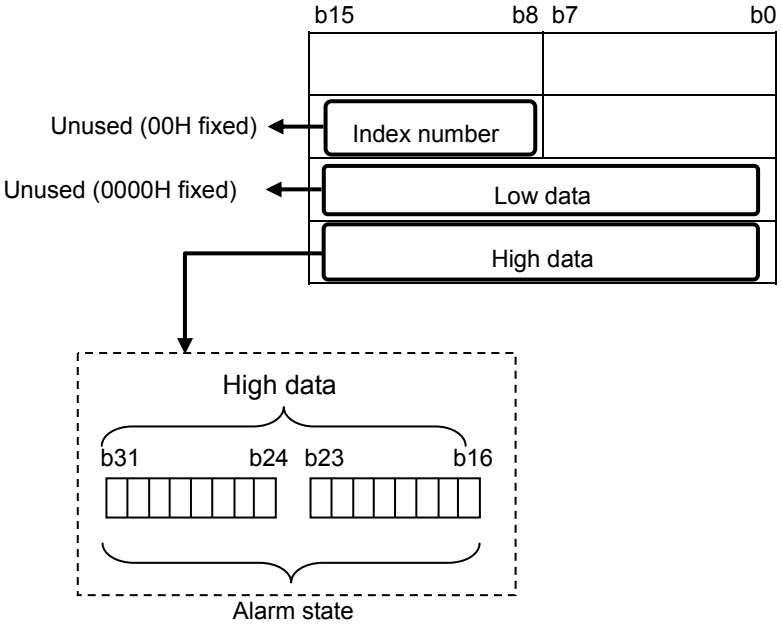
Data	Multiplying factor	Numerical value	Actual value
FD3ADE68B1H	FDH ⇒$x10^{-3}$	FD3ADE68B1H ⇒987654321	987654321[Wh] × 10^{-3} =987654.321[kWh]

<Example : Active energy unit fixed:kWh>

Data	Multiplying factor	Numerical value	Actual value
003ADE68B1H	00H ⇒x1	FD3ADE68B1H ⇒987654321	987654321[KWh] × 1=987654321[kWh]

Note: For active energy (export), reactive energy (export/Lag) and reactive energy (export/Lead), the reply data are unsigned although the display of main device has a "-"(negative) sign.

Data	Data Format ④
Alarm state 1 Format④	



<The allocation of the alarm state 1>

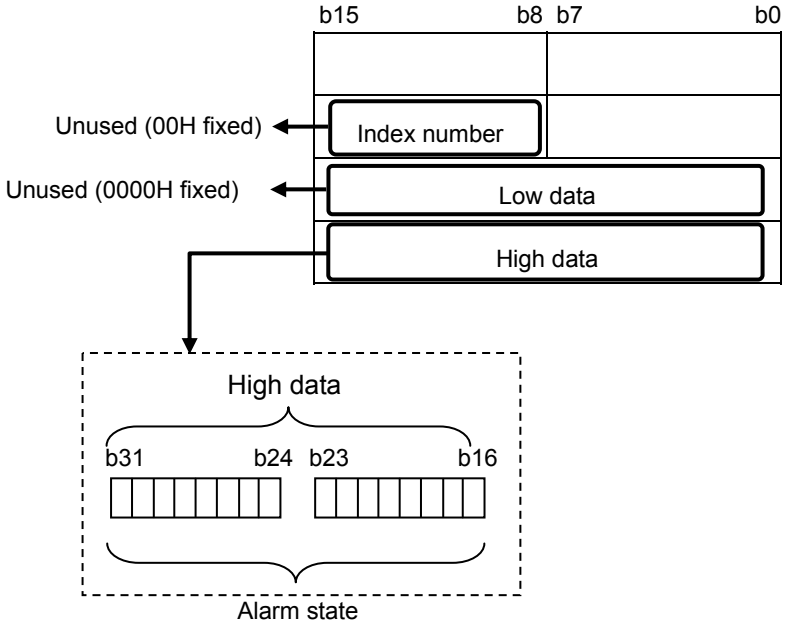
Bit	Data			ME96 SSH	ME96 SSR	ME96 NSR
	Content	ON(1)	OFF(0)			
b16	Digital Input 1	ON	OFF	○	○	○
b17	Digital Input 2	ON	OFF	○	○	○
b18	Digital Input 3	ON	OFF	○	○	○
b19	Digital Input 4	ON	OFF	○	○	○
b20	Reserved	–	–	–	–	–
b21	Alarm (Total)	Non-Alarm	Alarm	○	○	○
b22	Alarm of Current Demand	Non-Alarm	Alarm	○	○	○
b23	Alarm of Active power Demand	Non-Alarm	Alarm	○	–	–
b24	Alarm of Voltage	Non-Alarm	Alarm	○	○	○
b25	Alarm of Current	Non-Alarm	Alarm	○	○	○
b26	Alarm of Active power	Non-Alarm	Alarm	○	○	○
b27	Alarm of Reactive power	Non-Alarm	Alarm	○	○	○
b28	Alarm of Frequency	Non-Alarm	Alarm	○	○	○
b29	Alarm of Power factor	Non-Alarm	Alarm	○	○	○
b30	Alarm of T.H.D (Voltage)	Non-Alarm	Alarm	○	○	○
b31	Alarm of Harmonic current	Non-Alarm	Alarm	○	○	○

Alarm judging items of each phase wiring are shown as follows.

Upper/lower limit alarm element	Monitored phase			
	3P4W	3P3W(3CT,2CT)	1P3W（1N2）	1P3W（1N3）
Upper limit current, current demand	1, 2, 3	1, 2, 3	1, N, 2	1, N, 3
Lower limit current, current demand	1, 2, 3	1, 2, 3	1, 2	1, 3
Upper limit N-phase current, N-phase current demand	N	—	—	—
Lower limit N-phase current, N-phase current demand	N	—	—	—
Upper limit voltage (L-L) (*1)	12, 23, 31	12, 23, 31	1N, 2N, 12	1N, 3N, 13
Lower limit voltage (L-L) (*1)	12, 23, 31	12, 23, 31	1N, 2N, 12	1N, 3N, 13
Upper limit voltage (L-N)	1N, 2N, 3N	—	—	—
Lower limit voltage (L-N)	1N, 2N, 3N	—	—	—
Upper limit active power, reactive power, power factor	Total	Total	Total	Total
Lower limit active power, reactive power, power factor	Total	Total	Total	Total
Upper limit frequency	1N	12	1N	1N
Lower limit frequency	1N	12	1N	1N
Harmonic current total RMS value	1, 2, 3	1, 2, 3 (*2)	1, 2	1, 3
Harmonic current total RMS value N-phase	N	—	—	—
Harmonic voltage total distortion ratio	1N, 2N, 3N	12, 23	1N, 2N	1N, 3N
Upper limit rolling demand	Total	Total	Total	Total

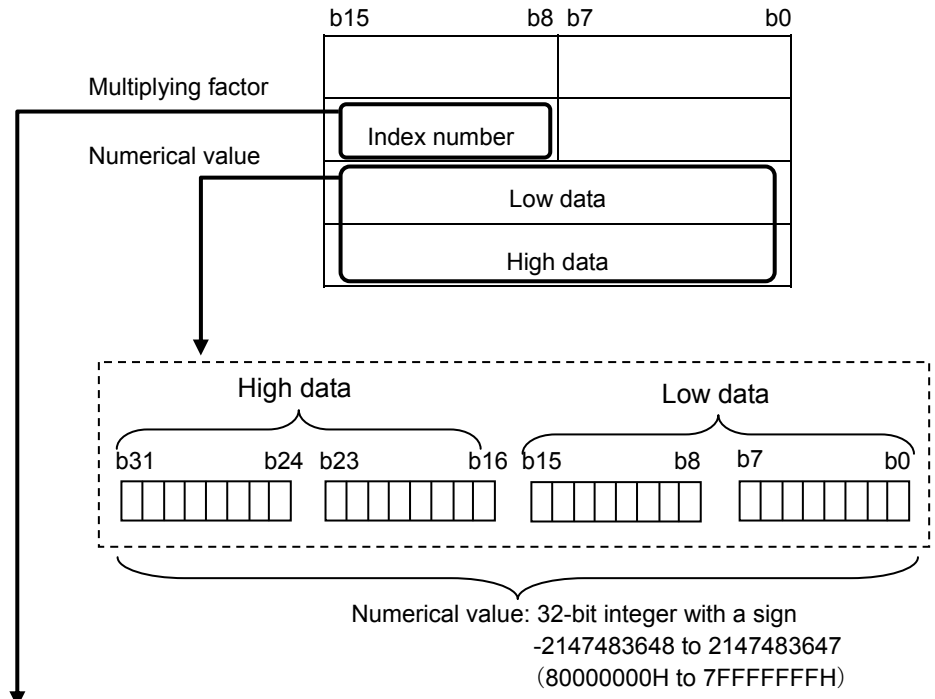
*1: For phase 12 (or phase 31) at 1-phase 3-wire, alarm monitoring is executed using a value that is two times the set upper/lower limit alarm value.

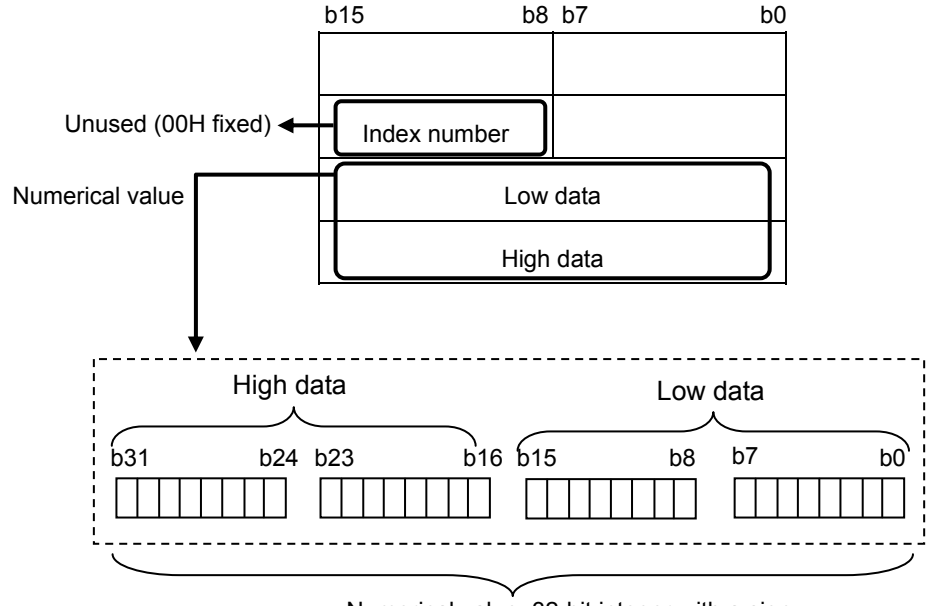
*2: Only 3P3W (3CT) is measured for the phase 2 harmonic current.

Data	Data Format ④
Alarm state 2 Format④	

<The allocation of the alarm state 2>

Bit	Data			ME96 SSH	ME96 SSR	ME96 NSR
	Content	ON(1)	OFF(0)			
b16	Upper limit alarm of current (phase 1)	Non-Alarm	Alarm	○	○	○
b17	Upper limit alarm of current (phase 2)	Non-Alarm	Alarm	○	○	○
b18	Upper limit alarm of current (phase 3	Non-Alarm	Alarm	○	○	○
b19	Upper limit alarm of current (phase N)	Non-Alarm	Alarm	○	○	○
b20	Upper limit alarm of current (total)	Non-Alarm	Alarm	○	○	○
b21	Lower limit alarm of current (total)	Non-Alarm	Alarm	○	○	○
b22	Upper limit alarm of L-L voltage (total)	Non-Alarm	Alarm	○	○	○
b23	Lower limit alarm of L-L voltage (total)	Non-Alarm	Alarm	○	○	○
b24	Upper limit alarm of L-N voltage (1-N)	Non-Alarm	Alarm	○	○	○
b25	Upper limit alarm of L-N voltage (2-N)	Non-Alarm	Alarm	○	○	○
b26	Upper limit alarm of L-N voltage (3-N)	Non-Alarm	Alarm	○	○	○
b27	Upper limit alarm of L-N voltage (total)	Non-Alarm	Alarm	○	○	○
b28	Lower limit alarm of L-N voltage (1-N)	Non-Alarm	Alarm	○	○	○
b29	Lower limit alarm of L-N voltage (2-N)	Non-Alarm	Alarm	○	○	○
b30	Lower limit alarm of L-N voltage (3-N)	Non-Alarm	Alarm	○	○	○
b31	Lower limit alarm of L-N voltage (total)	Non-Alarm	Alarm	○	○	○

Data	Data Format ⑤
Setting Items Primary current, Primary Voltage, Secondary current, Secondary Voltage, Frequency, etc. Format⑤	 <Multiplying factor> Multiplying factor is fixed according to setting of the phase wiring, primary voltage and primary current. (Refer to 7.2.4). Index number = 00H: The actual value is the numeric value. Index number = FFH: The actual value is 10^{-1} times the numeric value <Example: Primary current > Setting data = 100.0A; x10^{-1} ⇒FFH; 1000⇒03E8H; FF000003E8H Setting data = 400A; x1 ⇒00H; 400⇒0190H; 0000000190H <Example: Primary voltage> Setting data = 110.0V; x10^{-1} ⇒FFH; 1100⇒044CH; FF0000044CH Setting data = 3300V; x1 ⇒00H; 3300⇒0CE4H; 0000000CE4H

Data	Data Format ⑥
Setting Items Phase wiring, Time constant for current demand, Interval time, Subinterval time etc. Format⑥	 Numerical value: 32-bit integer with a sign -2147483648 to 2147483647 (80000000H to 7FFFFFFFH)

<Data(Numerical value)>

1) Phase wiring

Setting data	Data	Note.
Single phase 2 wire (1P2W)	00000001H	About setting range, please refer to each user's manual.
Single phase 3 wire (1P3W)(1N3 display)	00000002H	
Three phase 3 wire (3P3W_2CT)	00000003H	
Three phase 4 wire (3P4W)	00000004H	
Single phase 3 wire (1P3W)(1N2 display)	00000005H	
Three phase 3 wire (3P3W_3CT)	00000006H	

2) Time constant for current demand

Example	Data	Note.
2 minutes = 120 seconds	00000078H	

3) Interval time / Subinterval time

Example	Data	Note.
15 minutes	0000000FH	

4) Byte monitor

Model	Data	Note.
ME96NSR/ME96SSH-MB/ME96SSR-MB	C50A 0500H	

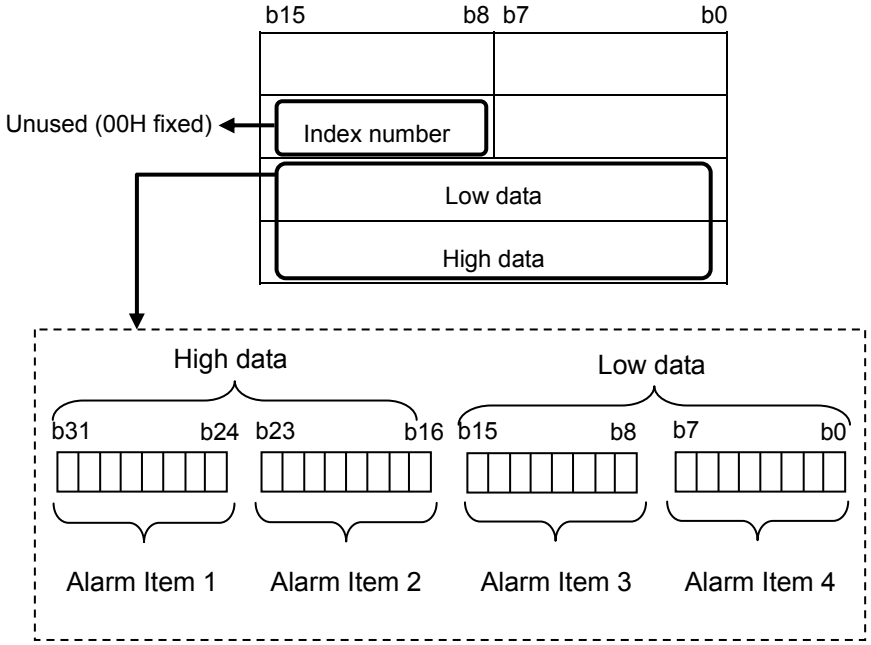
5) Attribute monitor

Model	Data	Note.
ME96NSR/ME96SSH-MB/ME96SSR-MB	C510 1000H	

6) Model code

Example	Data	Note.
ME96NSR	00000010H	
ME96SSH-MB	00000014H	
ME96SSR-MB	00000013H	

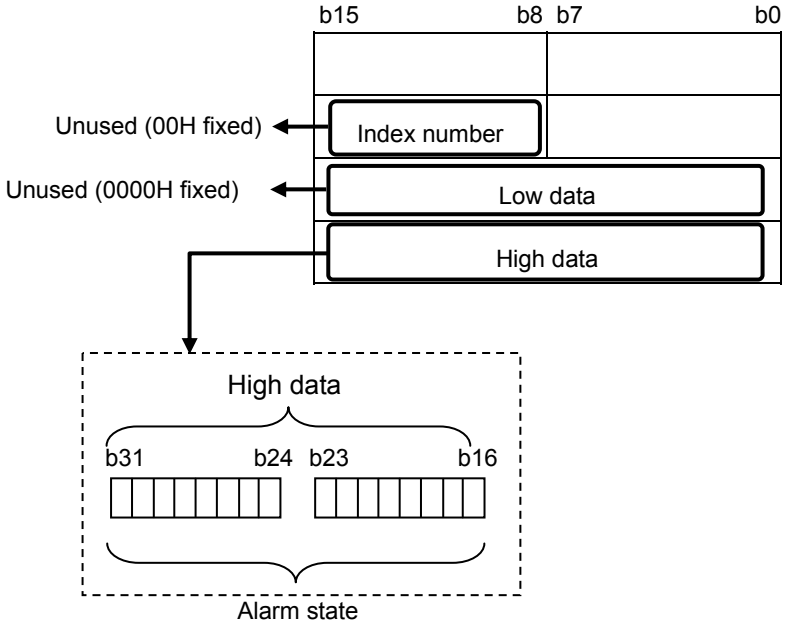
Data	Data Format ⑦
Setting Items Alarm Item Format⑦	



Note: The numbers of alarms which can set are 4 items.

<Content of alarm items>

Data		Explanation	ME96 SSH	ME96 SSR	ME96 NSR
Dec.	Hex.				
00	00	No alarm	○	○	○
01	01	The upper limit alarm of current	○	○	○
02	02	The lower limit alarm of current	○	○	○
03	03	The upper limit alarm of phase N current	○	○	○
09	09	The upper limit alarm of current demand	○	○	○
10	0A	The lower limit alarm of current demand	○	○	○
11	0B	The upper limit alarm of phase N current demand	○	○	○
17	11	The upper limit alarm of L-L voltage	○	○	○
18	12	The lower limit alarm of L-L voltage	○	○	○
19	13	The upper limit alarm of L-N voltage	○	○	○
20	14	The lower limit alarm of L-N voltage	○	○	○
21	15	The upper limit alarm of active power	○	○	○
22	16	The lower limit alarm of active power	○	○	○
23	17	The upper limit alarm of rolling demand	○	-	-
25	19	The upper limit alarm of reactive power	○	○	○
26	1A	The lower limit alarm of reactive power	○	○	○
27	1B	The upper limit alarm of power factor	○	○	○
28	1C	The lower limit alarm of power factor	○	○	○
29	1D	The upper limit alarm of frequency	○	○	○
30	1E	The lower limit alarm of frequency	○	○	○
31	1F	The upper limit alarm of current harmonic	○	○	○
32	20	The upper limit alarm of voltage harmonic	○	○	○
33	21	The upper limit alarm of phase N current harmonic	○	○	○

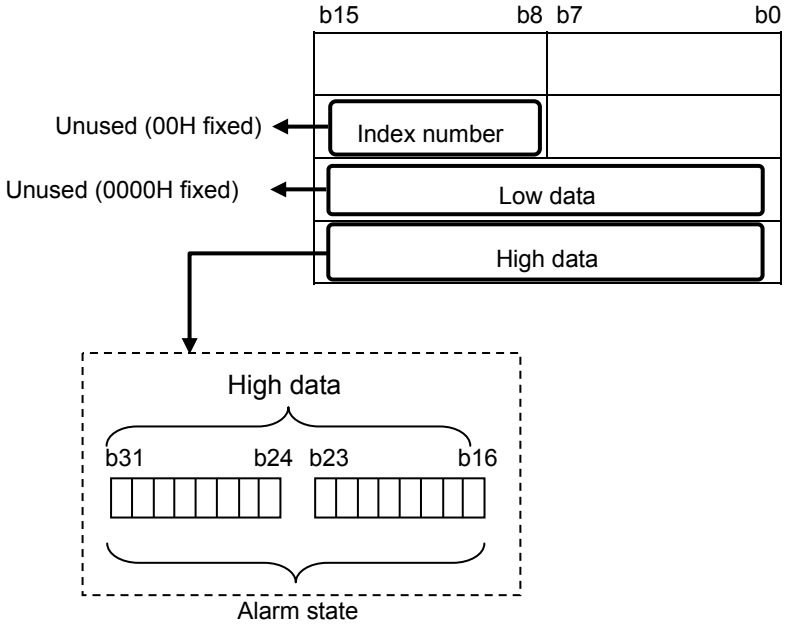
Data	Data Format ⑧
Setting Items 16bit set register1 Format⑧	

<16bit set register 1>

Bit	Data			ME96 SSH	ME96 SSR	ME96 NSR
	Content	ON(1)	OFF(0)			
b16	Reset of all alarm	executed	–	○	○	○
b17	Reset of all energy(*1) and all max/min value(*2)	executed	–	○	○	○
b18	Reset of all max/min value(*2)	executed	–	○	○	○
b19	Unusable	–	–	–	–	–
b20	Unusable	–	–	–	–	–
b21	Unusable	–	–	–	–	–
b22	Unusable	–	–	–	–	–
b23	Unusable	–	–	–	–	–
b24	Reset of all digital input (DI) latch	executed	–	○	○	○
b25	Unusable	–	–	–	–	–
b26	Unusable	–	–	–	–	–
b27	Unusable	–	–	–	–	–
b28	Unusable	–	–	–	–	–
b29	Unusable	–	–	–	–	–
b30	Reset of all energy(*1)	executed	–	○	○	○
b31	Unusable	–	–	–	–	–

*1: Periodic active energy (period 1/2) are not reset. Active energy (import/export), reactive energy (import(LEAD/LAG) /export(LEAD/LAG)), apparent energy and operating time are reset.
*2: Maximum value of rolling demand power is not reset.

Data	Data Format ⑧
Setting Items 16bit set register2 Format⑧	



<16bit set register 2>

Bit	Data			ME96 SSH	ME96 SSR	ME96 NSR
	Content	ON(1)	OFF(0)			
b16	Select of periodic active energy (period 1) (*1)	Select	Cancel	○	○	—
b17	Select of periodic active energy (period 2) (*1)	Select	Cancel	○	○	—
b18	Unusable	—	—	○	○	—
b19	Unusable	—	—	—	—	—
b20	Reset of periodic active energy (period 1)	executed	—	—	—	—
b21	Reset of periodic active energy (period 2)	executed	—	—	—	—
b22	Unusable	—	—	—	—	—
b23	Unusable	—	—	—	—	—
b24	Reset of maximum value of rolling demand power	executed	—	○	—	—
b25	Unusable	—	—	—	—	—
b26	Unusable	—	—	—	—	—
b27	Unusable	—	—	—	—	—
b28	Unusable	—	—	—	—	—
b29	Unusable	—	—	—	—	—
b30	Restart of rolling demand calculation	executed	—	○	—	—
b31	Unusable	—	—	—	—	—

*1: When the bit in on(1), the active energy (import) is add to the active energy (period n). (where n= 1, 2)

7.2.4 Multiplying Factor

Conditions of multiplying factor by setup of each element are shown below.

Element	Unit	Condition		Multiplying factor
Voltage Harmonics voltage	V	Primary voltage	less than 440V	$x10^{-1}$
			440V or more	x1
Current Current demand Harmonics current	A	Primary current	less than 4A	$x10^{-3}$
			4A or more and less than 40A	$x10^{-2}$
			40A or more and less than 400A	$x10^{-1}$
			400A or more and less than 4000A	x1
Active power Rolling demand power Reactive power Apparent power	kW kvar kVA	Total load power *1	0kW or more and less than 1.2kW	$x10^{-4}$
			1.2kW or more and less than 12kW	$x10^{-3}$
			12kW or more and less than 120kW	$x10^{-2}$
			120kW or more and less than 1200kW	$x10^{-1}$
			1200kW or more and less than 12000kW	x1
			12000kW or more and less than 120000kW	x10
			120000kW or more	$x10^{2}$
Active energy Reactive energy Apparent energy	kWh kvarh kVAh	Total load power *1	0kW or more and less than 10kW	$x10^{-2}$
			10kW or more and less than 100kW	$x10^{-1}$
			100kW or more and less than 1000kW	x1
			1000kW or more and less than 10000kW	x10
			10000kW or more and less than 100000kW	$x10^{2}$
			100000kW or more	$x10^{3}$
Active energy (extended) Reactive energy (extended)	kWh kvarh	Total load power *1	0kW or more and less than 10kW	$x10^{-5}$
			10kW or more and less than 100kW	$x10^{-4}$
			100kW or more and less than 1000kW	$x10^{-3}$
			1000kW or more and less than 10000kW	$x10^{-2}$
			10000kW or more and less than 100000kW	$x10^{-1}$
			100000kW or more	x1
Power factor	%	-	-	$x10^{-1}$
Frequency	Hz	-	-	$x10^{-1}$
Harmonics distortion (Current)	%	-	-	$x10^{-1}$
Harmonics distortion (Voltage)	%	-	-	$x10^{-1}$
Active energy (unit: Wh fixed) Reactive energy (unit: varh fixed) Apparent energy (unit: VA fixed)	Wh varh VAh	-	-	$x10^{-3}$
Active energy (unit: kWh fixed) Reactive energy (unit: kvarh fixed) Apparent energy (unit: kVA fixed)	kWh kvarh kVAh	-	-	x1
Active energy (unit: MWh fixed) Reactive energy (unit: Mvarh fixed) Apparent energy (unit: MVA fixed)	MWh Mvarh MVAh	-	-	$x10^{3}$
Operating time	h	-	-	x1

*1: How to calculate primary rated power is the as follows.

$$\text{Total rated power[kW]} = \frac{\alpha \times (\text{Primary voltage}) \times (\text{Primary current})}{1000}$$

Phase wiring	α	Note
1P2W	α=1	
1P3W	α=2	Primary voltage is L-N voltage.
3P3W	α=1.732	
3P4W	α=3	Primary voltage is L-N voltage.

7.2.5 About Error Occurrence

When the command and related data transmitted to ME96 is improper or ME96 is in H/W error, RX(n+1)A (Error status flag) becomes 1(ON), the error code shown in Table 7.14 is returned as reply data.

Table 7.14 Error Code

Error Description	Error Code (Hex.)
Undefined command	01h
Frequency, voltage harmonic or current harmonic are out of range (Note1) (Measuring frequency and harmonics needs a voltage input.)	17H, E0H
Illegal command or packet length	40h
Invalid group number	41h
Invalid channel number	42h
ME96 is in set-up mode or test mode	43h, 44h
Invalid data for set-up	51h
It is not set the item of alarm	55h

Note1:Only at ME96SR-C and ME96NSR-C(3P4W). In others, it is reply 0 not an error code.

If an error occurs, the error code is written into the RWrn as shown in the figure below, and RX(n+1)A (error status flag) is turned on (error occurrence) and RX(n+1)B (remote READY) is turned off (normal communication stop). For the error resetting method, refer to “6.3 Error Communication”.

(1) At the command No. is in range

Remote register RWrn

	b15 b8	b7 b0
n	Channel No.	Group No.
n+1	00H	00H
n+2	00H	Error code
n+3	00H	00H

(2) At the command No. is out of range

Remote register RWrn

	b15 b8	b7 b0
n	00H	Error code
n+1	00H	00H
n+2	00H	00H
n+3	00H	00H

8. Abbreviations and Special Terms

Abbreviations and special terms used in this manual are shown below:

Abbreviation and Special Terms	Description
Master station	Station which controls remote stations and local stations. One station is required for one system.
Local station	Station with the CPU which can communicate with master station and other local stations.
Remote I/O station	Remote station which deals with bit information only.
Remote device station	Remote station which deals with bit information and word information.
Remote station	General name for remote I/O station and remote device station. Controlled by a master station.
Intelligent device station	Station that can perfom transient transmission.
RX	Remote input
RY	Remote output
RWw	Remote resister (write area)
RWr	Remote resister (read area)
Command	Identification code allocated to items to be monitored or set. ME96 uses a special-purpose command that is transmitted to monitor each measurement value or set each parameter.
Demand value	The demand value is an approximate average value during the demand time period. When it is set to 0, each demand present value becomes equivalent to the present value.

9. Program Example

9.1 Program Content

This program example is assumed the system configuration in below.

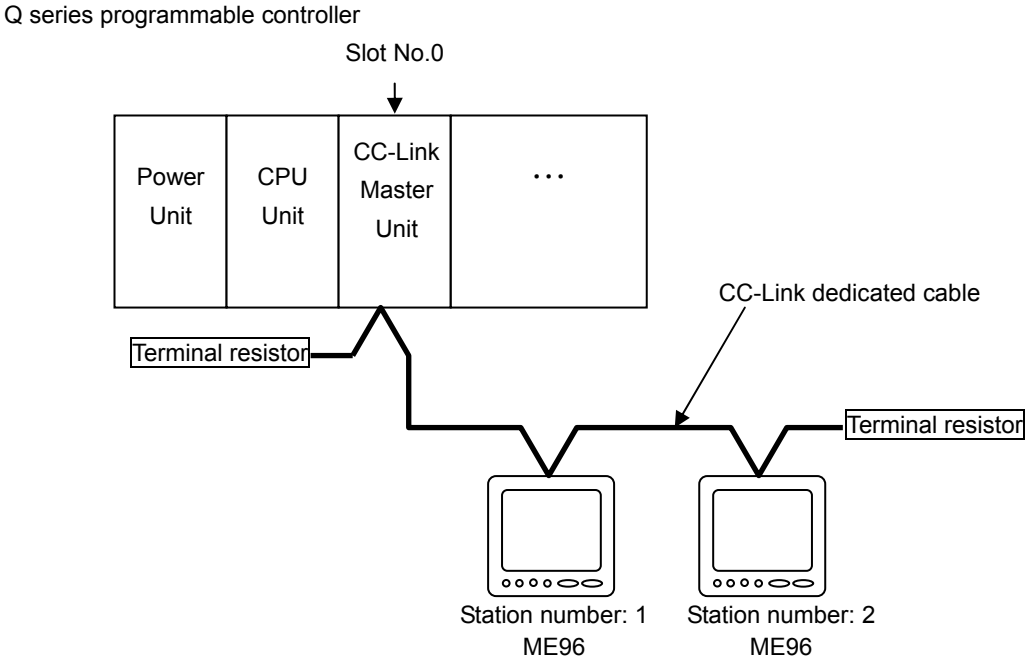
In the program, at first, the parameters of the linked number and station information are set, and the data link with the parameter of buffer memory startes up.

Next, the reading data shown in below is monitored continuously.

Also, this program is made by using “SW8D5C-GPPW GX Developer”.

Note: The refresh set with the automatic refresh parameters and the refresh executed with the FROM/TO instructions cannot be performed simultaneously.

9.2 System Configuration



※Reading data

Station number 1: ME96	Phase 1 current, Phase 2 current, Phase 3 current, 1-N voltage, 2-N voltage, 3-N voltage, Phase 1 active power, Phase 2 active power, Phase 3 active power
Station number 2: ME96	Active energy (import), Average current, Average L-N voltage, Total active power, Total reactive power, Total power factor, Frequency

9.3 Device Allocation

Allocation of transmitted device

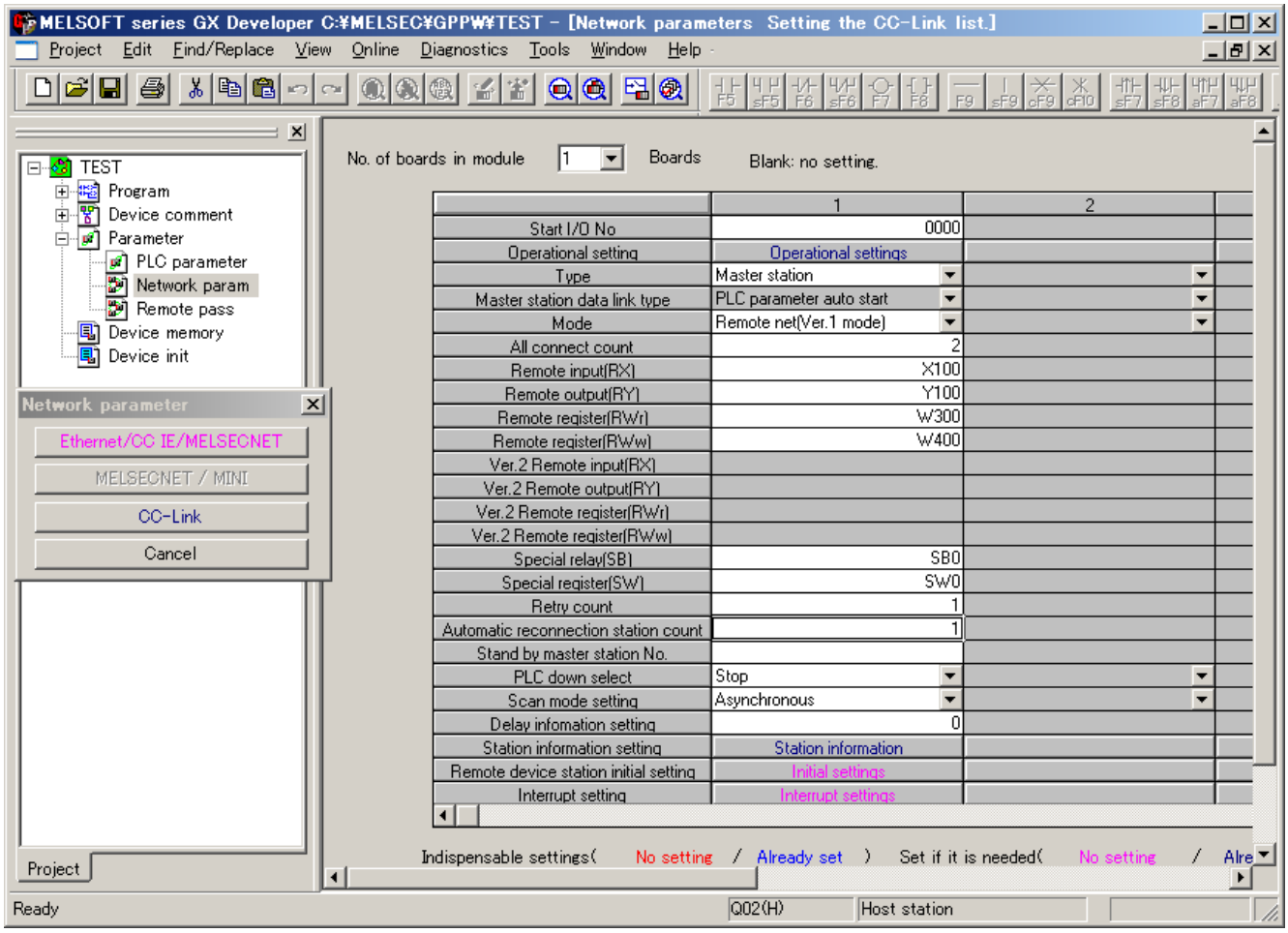
Items	Contents	Device No.	Note
Remote input(RX)	Station number 1:Remote input (RX00 to RX1F)	X100 to X11F	Set X100 to remote input(RX) refresh device.
	Station number 2:Remote input (RX00 to RX1F)	X120 to X13F	
Remote output(RY)	Station number 1:Remote output (RY00 to RY1F)	Y100 to Y11F	Set Y100 to remote output(RY) refresh device.
	Station number 2:Remote output (RY00 to RY1F)	Y120 to Y13F	
Remote register(RWr)	Station number 1:Remote register(RWr0 to RWr3)	W300 to W303	Set W300 to remote register(RWr) refresh device.
	Station number 2:Remote register (RWr0 to RWr3)	W304 to W307	
Remote register(RWw)	Station number 1:Remote register (RWw0 to RWw3)	W400 to W403	Set W400 to remote register(RWw) refresh device.
	Station number 2:Remote register (RWw0 to RWw3)	W404 to W407	
Link special relay(SB)	Link special relay of master station(SB0 to SB01FF)	SB0 to SB01FF	Set SB0 to link special relay(SB) refresh device.
Link special register(SW)	Link special register of master station (SW0 to SW01FF)	SW0 to SW01FF	Set SW0 to link special register(SW) refresh device.
Number of taking items	Station number 1: Number of monitoring items	D0	Number of items are mentioned in section 9.2.
	Station number 2: Number of monitoring items	D1	
Number of taken items	Station number 1: For calculation of number of taken items.	D10	
	Station number 2: For calculation of number of taken items.	D11	
Send data items	Station number 1: Send data for monitoring	D100 to D117	Content of items are mentioned in section 9.2.
	Station number 2: Send data for monitoring	D120 to D133	
Writing send data	Station number 1: Data for writing RWw	D400 to D403	
	Station number 2: Data for writing RWw	D404 to D407	
Reading recive data	Station number 1: Data for reading RWr	D300 to D303	
	Station number 2: Data for reading RWr	D304 to D307	
Error code	Station number 1: Error code	D500 to D503	
	Station number 2: Error code	D504 to D504	
Monitor data	Station number 1: Monitor data (only numeric value)	R0 to R17	
	Station number 2: Monitor data (only numeric value)	R40 to R33	
Data link status	Station number 1: Data link status	M0	
	Station number 2: Data link status	M1	
Command setting	Station number 1: Command setting completion flag	M100	
	Station number 2: Command setting completion flag	M110	
Transmitting completion	Station number 1: Transmitting completion flag	M101	
	Station number 2: Transmitting completion flag	M111	

9.4 Parameter Settings

Parameter settings are set as following with GX Developer.

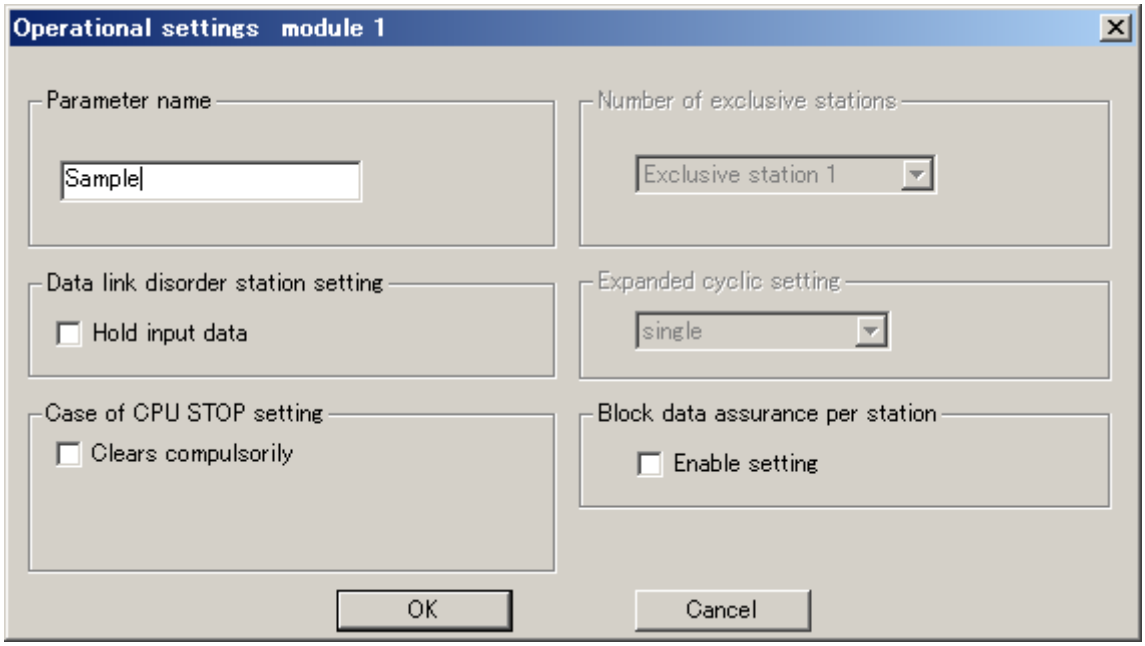
9.4.1 Network Parameter Settings and Auto Refresh Parameter Settings

The following is shown CC-Link network parameter settings and auto refresh parameter settings.



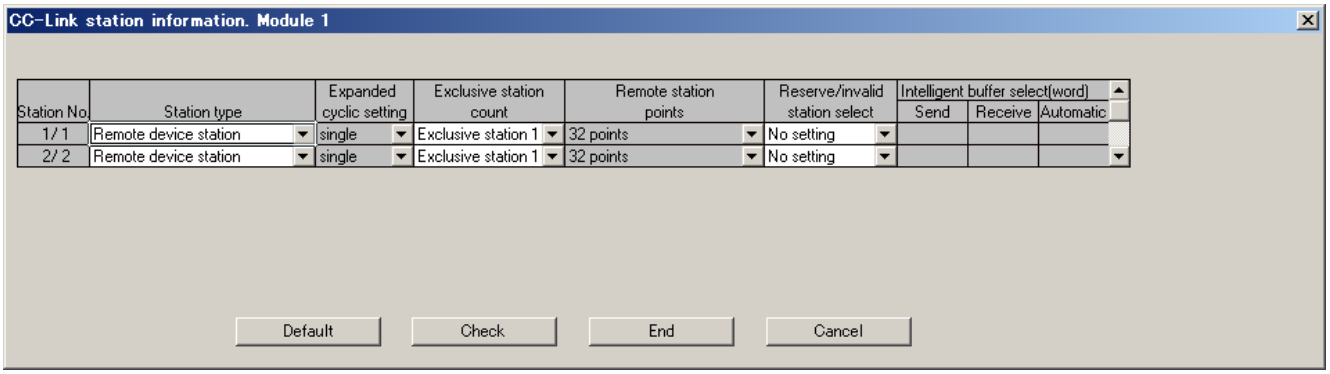
9.4.2 Operational Settings

Operational settings are as follows.

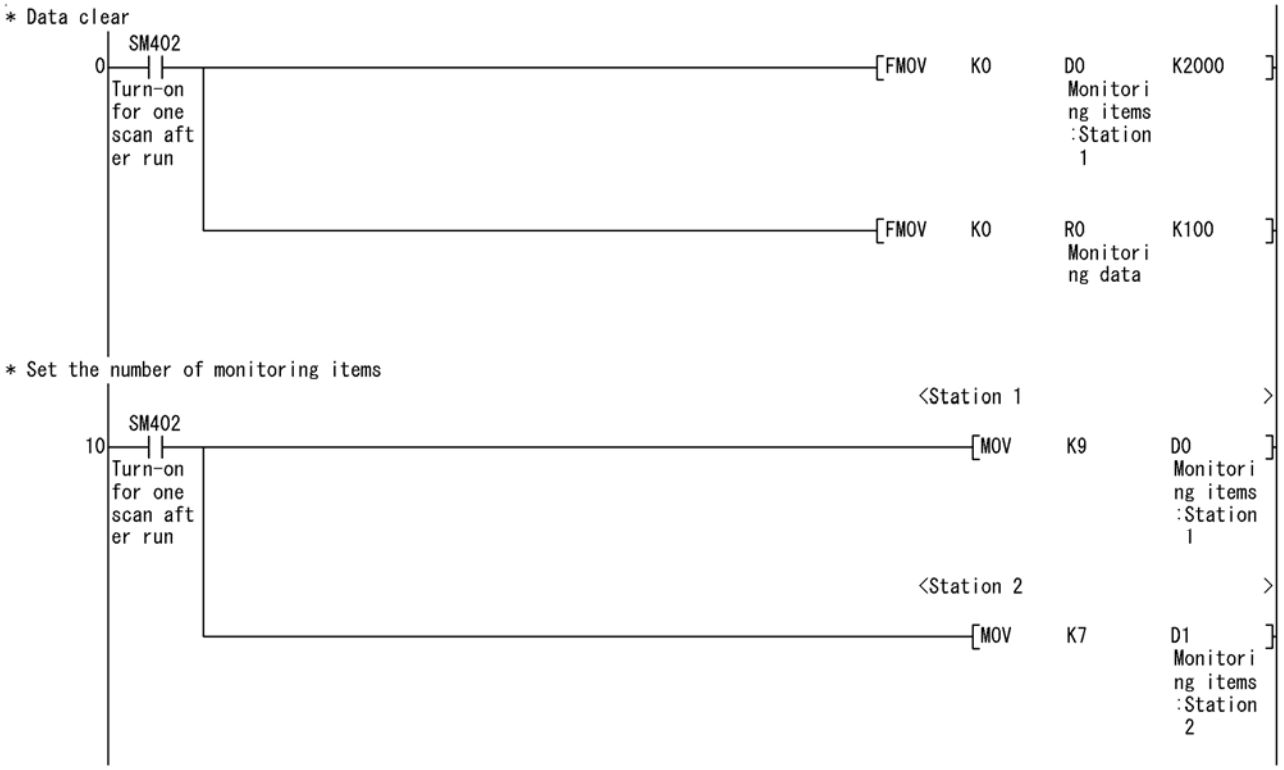


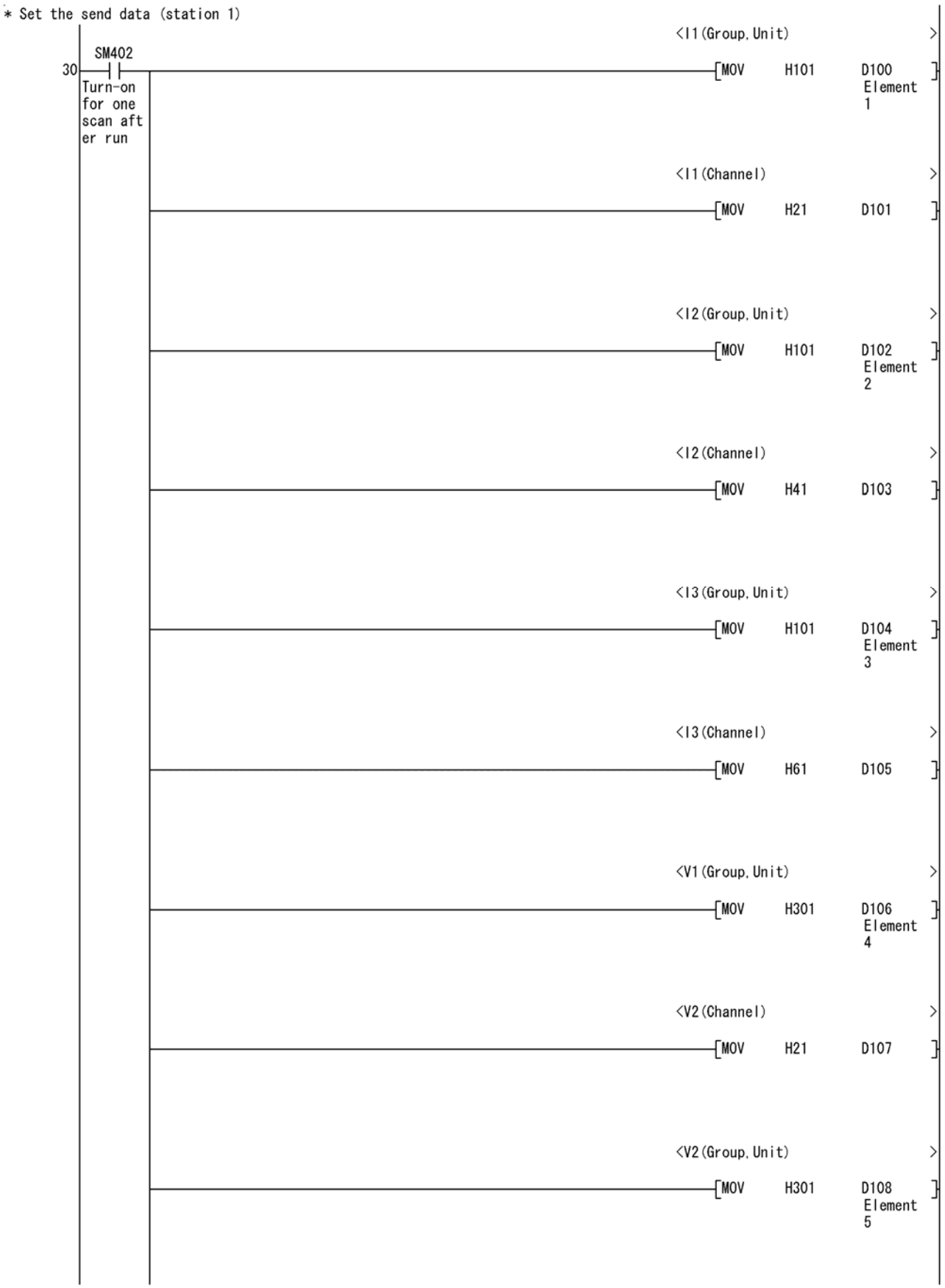
9.4.3 Station Information Settings

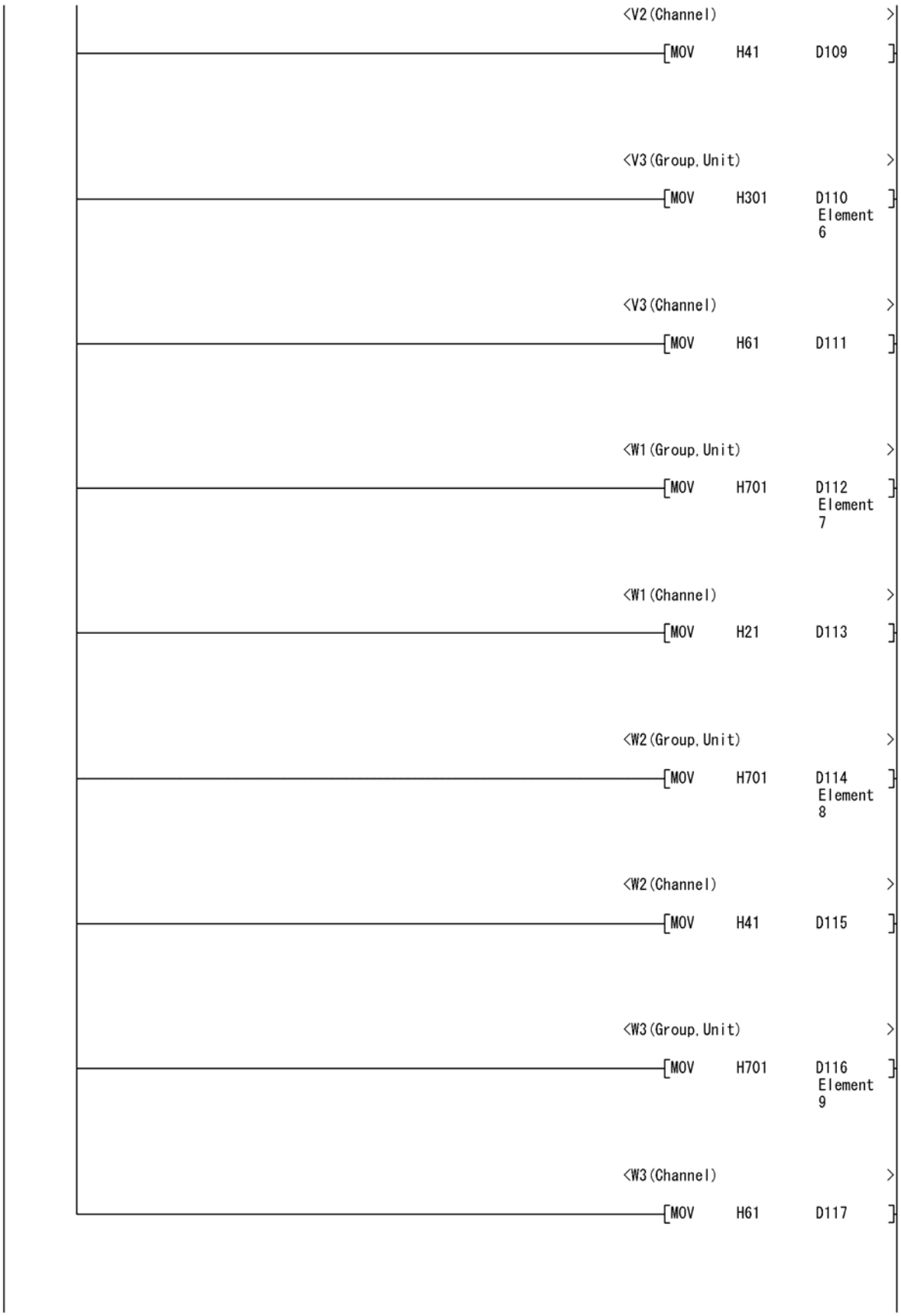
Station information settings are as follows.

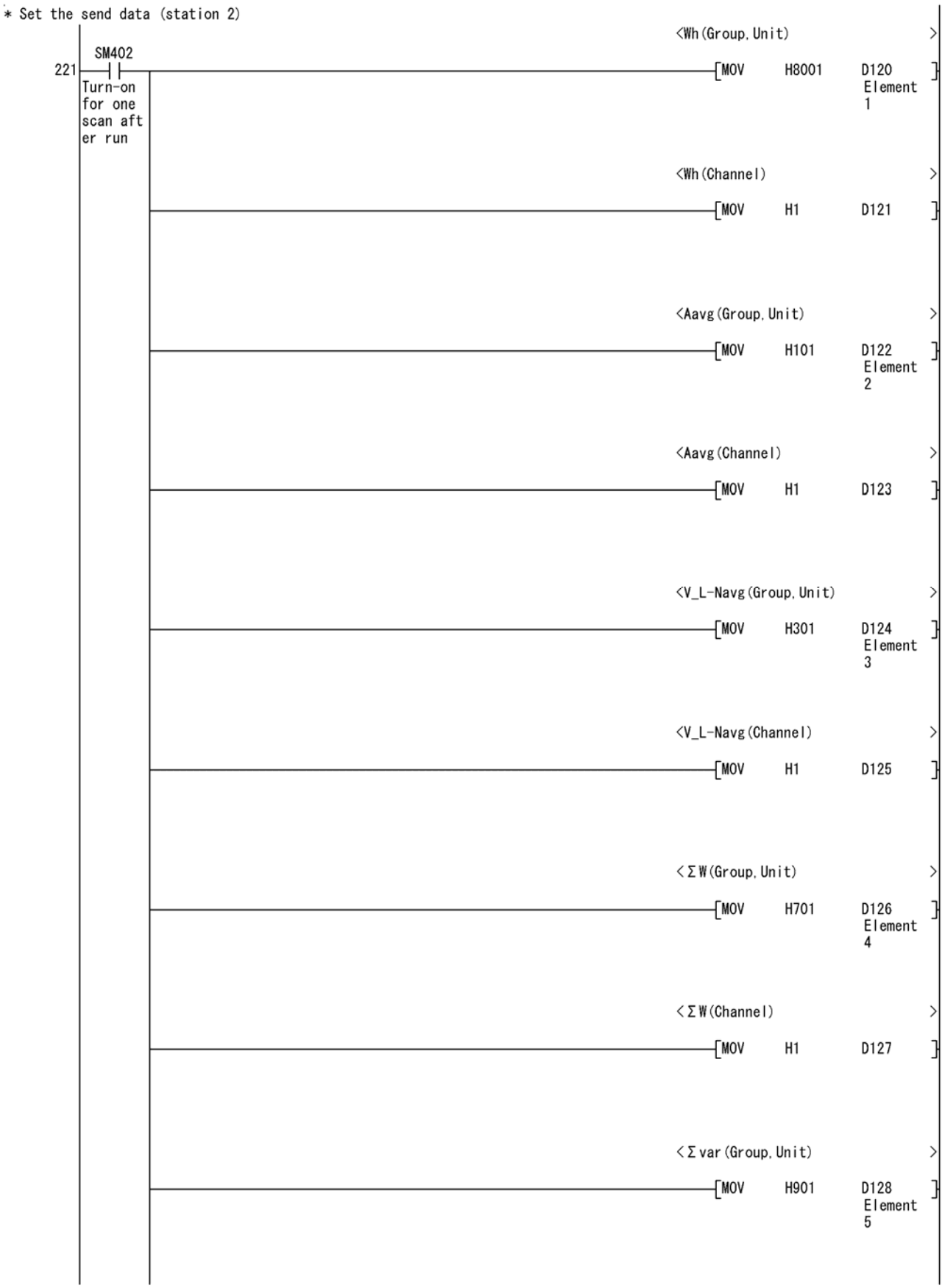


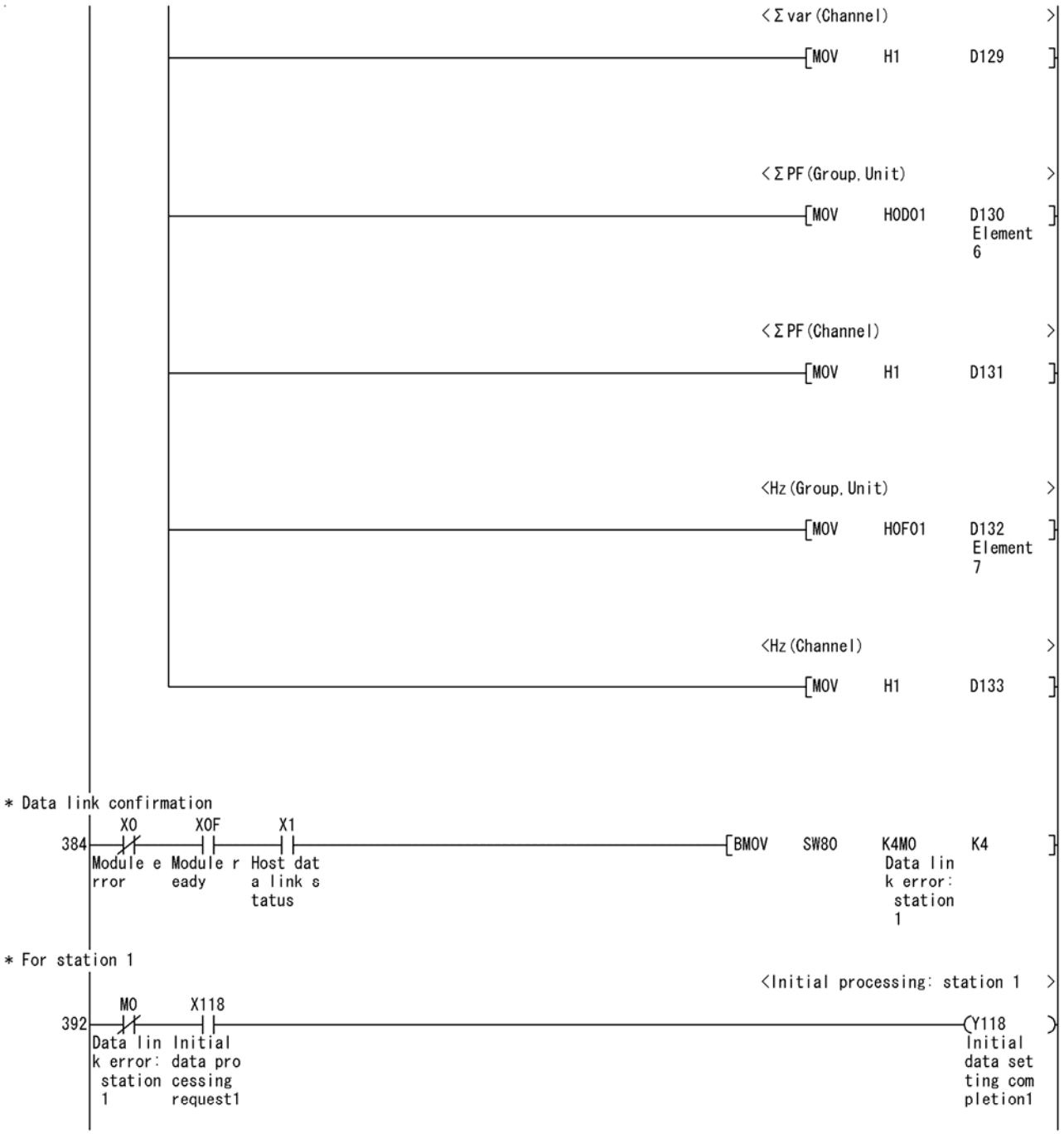
9.5 Program Example

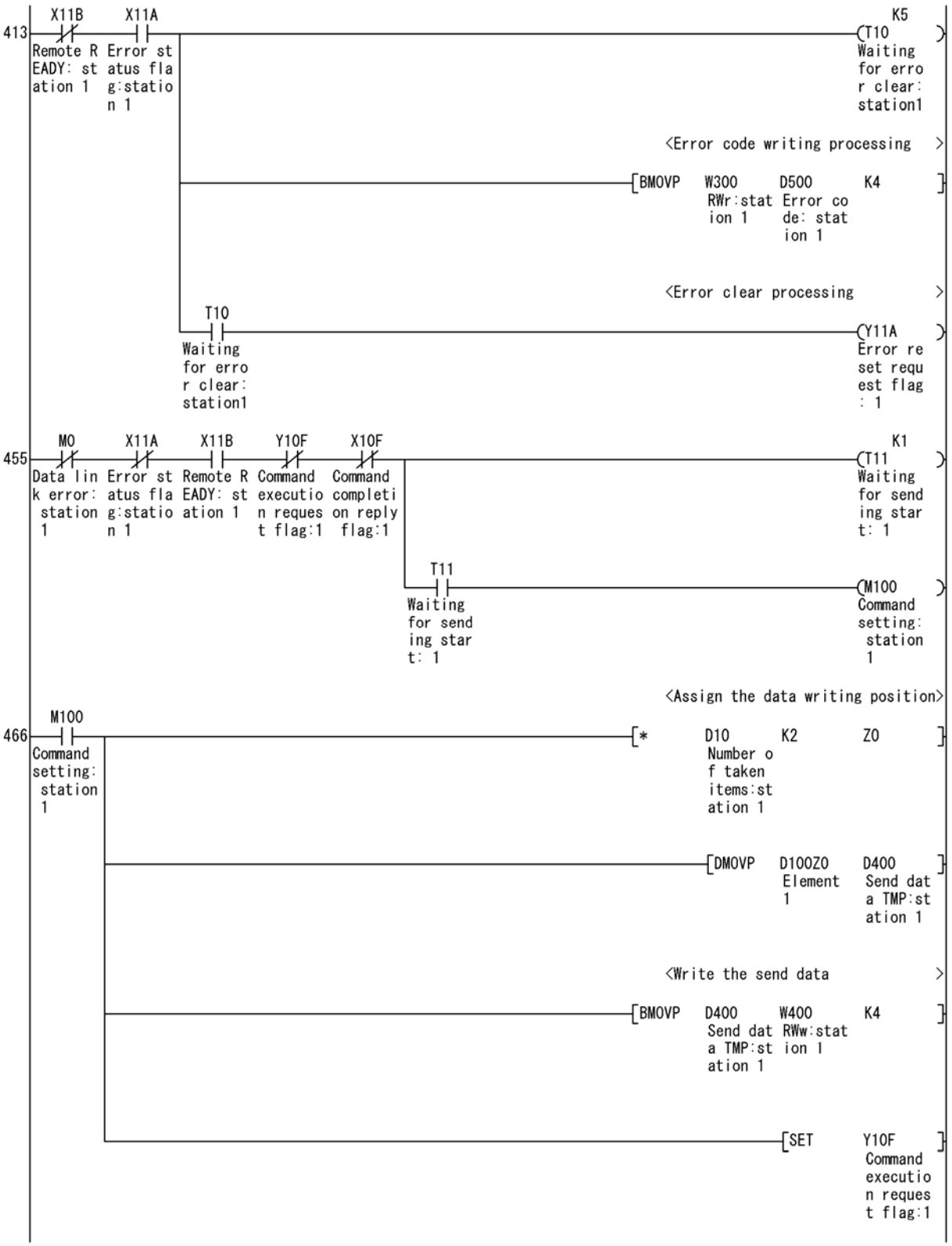


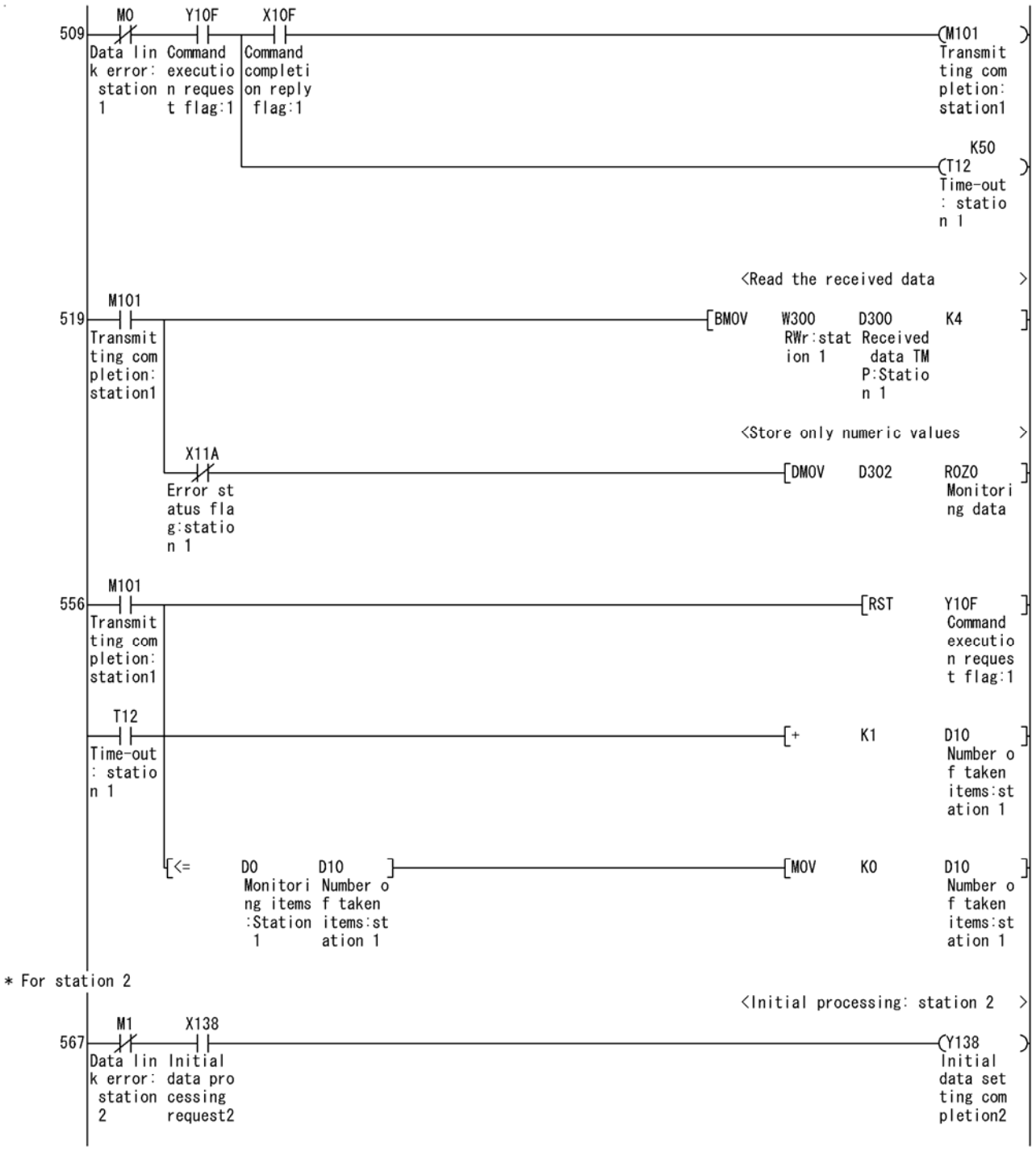

* Set the send data (station 1)
30
SM402
Turn-on for one scan after run
<I1(Group, Unit)
MOV H101 D100 Element 1
<I1(Channel)
MOV H21 D101
<I2(Group, Unit)
MOV H101 D102 Element 2
<I2(Channel)
MOV H41 D103
<I3(Group, Unit)
MOV H101 D104 Element 3
<I3(Channel)
MOV H61 D105
<V1(Group, Unit)
MOV H301 D106 Element 4
<V2(Channel)
MOV H21 D107
<V2(Group, Unit)
MOV H301 D108 Element 5

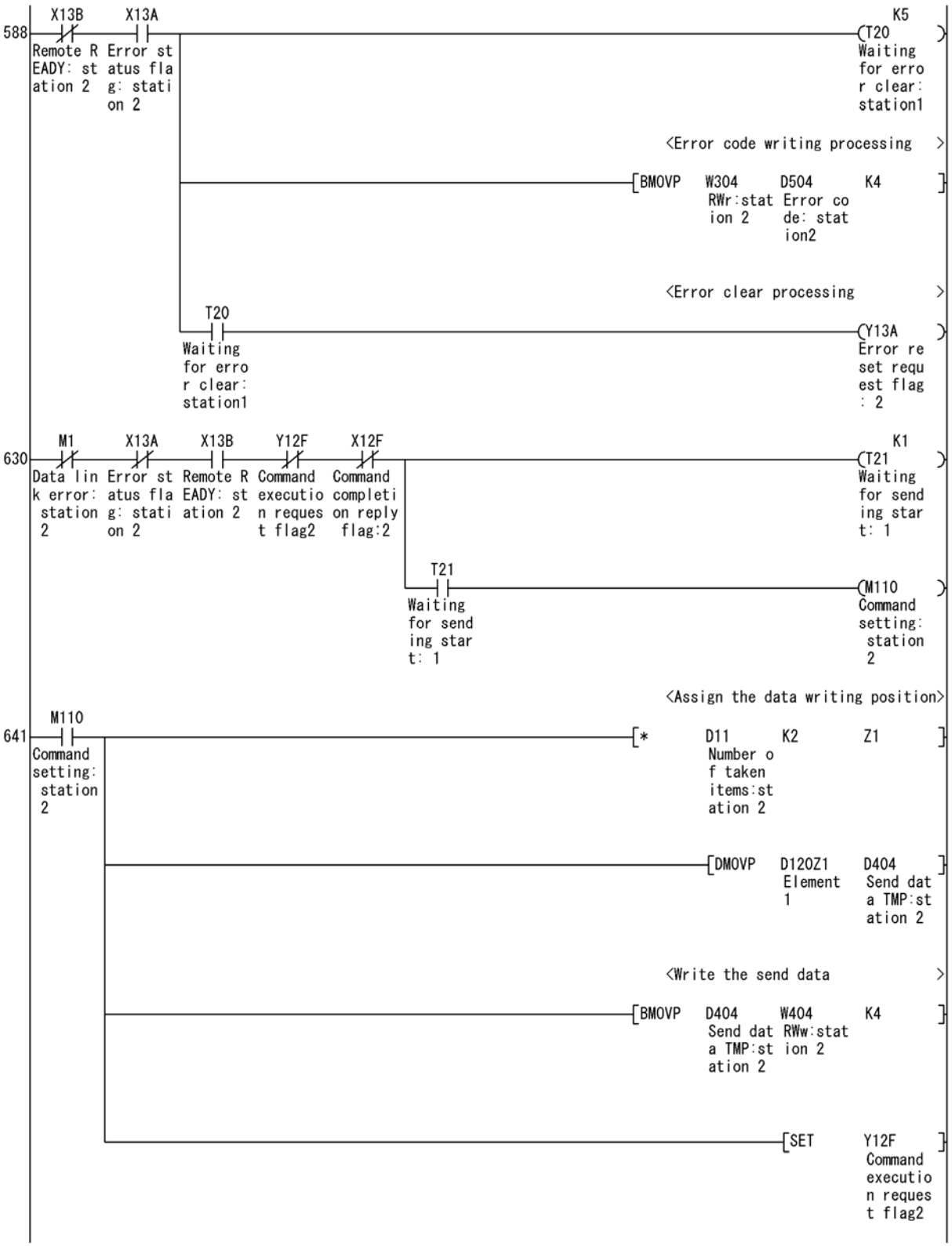

<V2(Channel)
MOV H41 D109
<V3(Group,Unit)
MOV H301 D110
Element
6
<V3(Channel)
MOV H61 D111
<W1(Group,Unit)
MOV H701 D112
Element
7
<W1(Channel)
MOV H21 D113
<W2(Group,Unit)
MOV H701 D114
Element
8
<W2(Channel)
MOV H41 D115
<W3(Group,Unit)
MOV H701 D116
Element
9
<W3(Channel)
MOV H61 D117

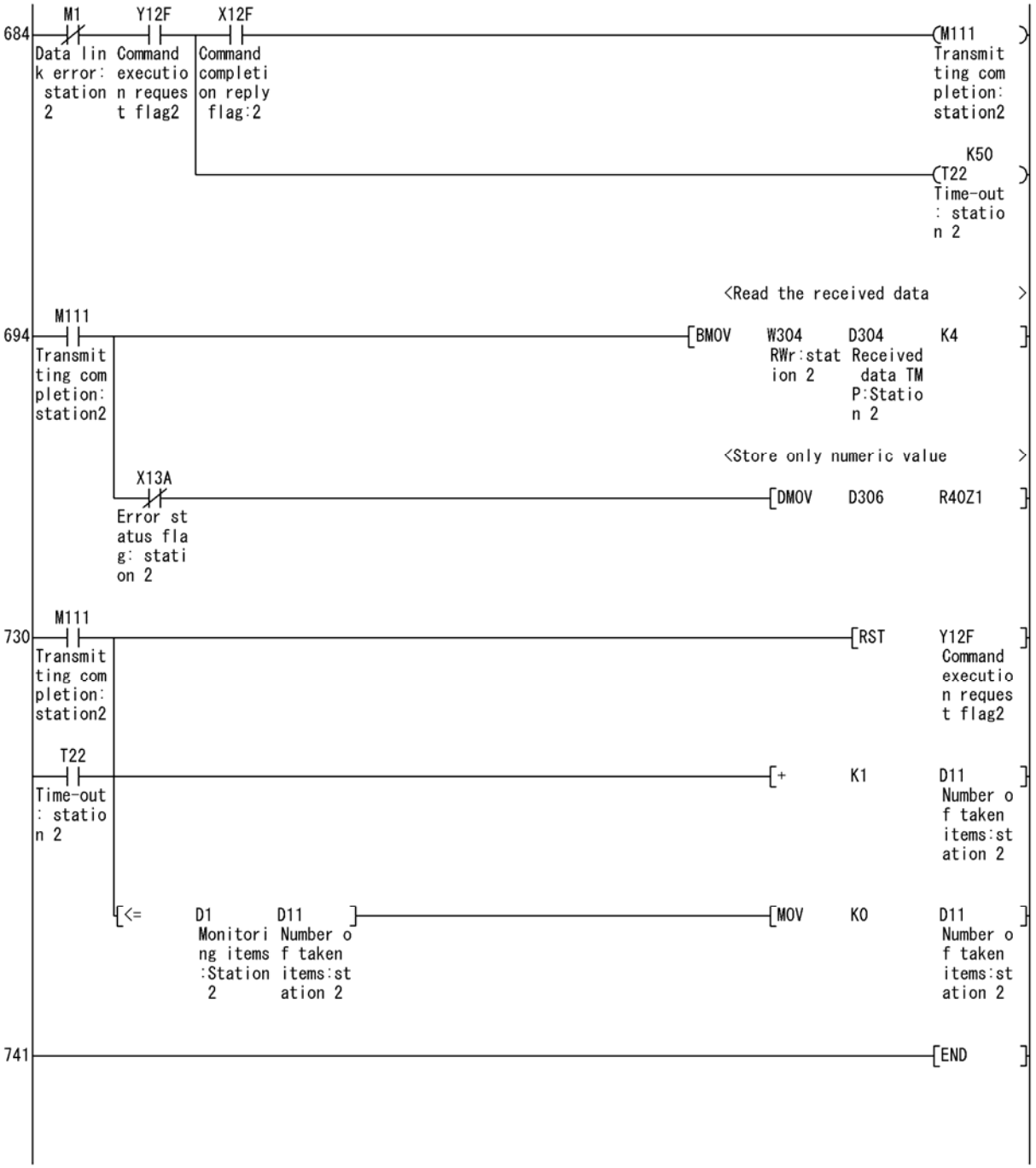

* Set the send data (station 2)
<Wh(Group, Unit)
SM402
221
Turn-on for one scan after run
MOV H8001 D120 Element 1
<Wh(Channel)
MOV H1 D121
<Aavg(Group, Unit)
MOV H101 D122 Element 2
<Aavg(Channel)
MOV H1 D123
<V_L-Navg(Group, Unit)
MOV H301 D124 Element 3
<V_L-Navg(Channel)
MOV H1 D125
<ΣW(Group, Unit)
MOV H701 D126 Element 4
<ΣW(Channel)
MOV H1 D127
<Σvar(Group, Unit)
MOV H901 D128 Element 5


< Σ var (Channel)
MOV H1 D129
< Σ PF (Group, Unit)
MOV H0D01 D130
Element 6
< Σ PF (Channel)
MOV H1 D131
< Hz (Group, Unit)
MOV H0F01 D132
Element 7
< Hz (Channel)
MOV H1 D133
* Data link confirmation
384
X0
Module error
X0F
Module ready
X1
Host data link status
BMOV SW80 K4M0 K4
Data link error: station 1
* For station 1
< Initial processing: station 1
392
M0
Data link error: station 1
X118
Initial data processing request1
Y118
Initial data setting completion1


413
X11B
Remote R EADY: st ation 1
X11A
Error st atus fla g:statio n 1
K5
T10
Waiting for erro r clear: station1
<Error code writing processing
BMOVP
W300
RWr:stat ion 1
D500
Error co de: stat ion 1
K4
<Error clear processing
T10
Waiting for erro r clear: station1
Y11A
Error re set requ est flag : 1
455
M0
Data lin k error: station 1
X11A
Error st atus fla g:statio n 1
X11B
Remote R EADY: st ation 1
Y10F
Command executio n reques t flag:1
X10F
Command completi on reply flag:1
K1
T11
Waiting for send ing star t: 1
T11
Waiting for send ing star t: 1
M100
Command setting: station 1
<Assign the data writing position>
466
M100
Command setting: station 1
*
D10
Number o f taken items:st ation 1
K2
Z0
DMOVP
D100Z0
Element 1
D400
Send dat a TMP:st ation 1
<Write the send data
BMOVP
D400
Send dat a TMP:st ation 1
W400
RWw:stat ion 1
K4
SET
Y10F
Command executio n reques t flag:1


509
M0
Data link error: station 1
Y10F
Command execution request flag:1
X10F
Command completion reply flag:1
M101
Transmitting completion: station1
K50
T12
Time-out: station 1
<Read the received data
519
M101
Transmitting completion: station1
BMOV W300 D300 K4
RWr:station 1
Received data TMP:Station 1
<Store only numeric values
X11A
Error status flag:station 1
DMOV D302 R0Z0
Monitoring data
556
M101
Transmitting completion: station1
RST Y10F
Command execution request flag:1
T12
Time-out: station 1
+ K1 D10
Number of taken items:station 1
<= D0 D10
Monitoring items:Station 1
Number of taken items:station 1
MOV K0 D10
Number of taken items:station 1
* For station 2
<Initial processing: station 2
567
M1
Data link error: station 2
X138
Initial data processing request2
Y138
Initial data setting completion2


588
X13B
Remote READY: station 2
X13A
Error status flag: station 2
K5
T20
Waiting for error clear: station1
<Error code writing processing
BMOVP
W304
RWr:station 2
D504
Error code: station2
K4
<Error clear processing
T20
Waiting for error clear: station1
Y13A
Error reset request flag: 2
630
M1
Data link error: station 2
X13A
Error status flag: station 2
X13B
Remote READY: station 2
Y12F
Command execution request flag2
X12F
Command completion reply flag:2
K1
T21
Waiting for sending start: 1
T21
Waiting for sending start: 1
M110
Command setting: station 2
<Assign the data writing position>
641
M110
Command setting: station 2
*
D11
Number of taken items:station 2
K2
Z1
DMOVP
D120Z1
Element 1
D404
Send data TMP:station 2
<Write the send data
BMOVP
D404
Send data TMP:station 2
W404
RWw:station 2
K4
SET
Y12F
Command execution request flag2


684
M1
Data link error: station 2
Y12F
Command execution request flag2
X12F
Command completion reply flag:2
M111
Transmitting completion: station2
K50
T22
Time-out : station 2
<Read the received data
694
M111
Transmitting completion: station2
BMOV
W304
RWr:station 2
D304
Received data TMP:Station 2
K4
<Store only numeric value
X13A
Error status flag: station 2
DMOV
D306
R40Z1
730
M111
Transmitting completion: station2
RST
Y12F
Command execution request flag2
T22
Time-out : station 2
+
K1
D11
Number of taken items:station 2
<=
D1
Monitoring items :Station 2
D11
Number of taken items:station 2
MOV
K0
D11
Number of taken items:station 2
741
END

10. Test Mode

ME96 has the test mode which the fixed values are replied even if the voltage and current are not input. It can be used to check the communication to programmable controller.

10.1 ME96SSH-MB/ME96SSR-MB

(1) Shift to Test Mode

Operation of ME96 is necessary. At first, shifts to the setting value confirmation mode from the operation mode. And then, select “9” of menu number, and shifts to the test menu screen. And then, select “1” of menu number, and shifts to the test mode. (For details, refer to each user’s manual)

(2) How to Test

In the test mode, you need to appear values which wanted to monitor on the screen of ME96. For example, if you want to monitor the active power, you need to appear the active power on the screen of ME96.

① Replied Data

Values displayed on the screen of ME96 can be monitored by CC-Link communication. Measurement elements not displayed on the screen are zero (only power factor is 1.000). When DI1 to DI4 are used, it is also possible to monitor the digital input status.

② Display screen

In the same as the operating mode, items are displayed when making settings such as those for the display pattern. Maximum and minimum values can be displayed. (Cyclic function is invalid.)

③ Button Operations

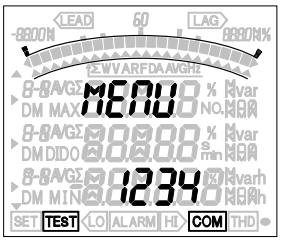
Button	Operation
[DISPLAY]	Display is changed.
[PHASE]	Phase is changed.
[MAXMIN]	Mode is changed to the maximum/minimum display and the instantaneous display.
[+], [-]	The item expressed with the bar graph is changed. And, harmonics number is changed when harmonics displayed.
[+]+[-] for 2 seconds	The unit of Wh, varh and VAh is changed.
[SET]	Test mode is finished and back to test menu screen.

10.2 ME96NSR

(1) How to Test

To test, it is necessary to operate the basic device.
Operate as follows.

①At the state of power failure, turn on the power supply while pressing the DISPLAY of basic device.
②After display on the right is shown, operate the normal communication.
③Data shown in the next section is replied.



When the test is finished, turn off the power supply.

(2) Reply Data

The reply data at test function mode is shown in next page and on.
The reply data takes the value of primary side, but the data of table 8.1 describes the secondary side.
It is necessary to convert to the value of primary side using the VT ratio and CT ratio.

(Example)At three phase 3-wire, VT: 6600V/110V, CT: 100A/5A

・Phase 1 current (Inst.) = reply data(secondary side)×CT ratio.
= 4.11A × 100A/5A = 82.2A

・1-2 voltage (Inst.) = reply data(secondary side)×VT ratio.
= 101.1V × 6600V/110V = 6066V

・Total active power (Inst.) = reply data(secondary side)×VT ratio×CT ratio.
= 1041W × 6600V/110V × 100A/5A = 1249.2kW

Table 10.1 Reply data

Unit No.	Group (h)	Ch. (h)	Name of Channel			Data Type	3P4W reply data (Secondary side)		3P3W_2CT reply data (Secondary side)		3P3W_3CT reply data (Secondary side)		Note
							Data	Unit	Data	Unit	Data	Unit	
0	F0	2	Model code			⑤	—	—	—	—	—	—	
0	E0	11	Primary current			④	—	—	—	—	—	—	
0	E0	12	Primary voltage(L-L)			④	—	—	—	—	—	—	
0	E0	1B	Primary voltage(L-N)			④	—	—	—	—	—	—	
0	E0	1C	Secondary voltage(L-N)			④	—	—	—	—	—	—	
0	E0	13	Phase & Wiring			⑤	—	—	—	—	—	—	
0	E0	18	Alarm Items			⑥	—	—	—	—	—	—	
0	E0	19	Byte monitor			⑤	—	—	—	—	—	—	
0	E0	1A	reserved				—	—	—	—	—	—	
0	2	E0	Time constant for DA	sec.		⑤	—	—	—	—	—	—	
0	1	1	Average current	A	Inst.	①	4.31	A	4.41	A	4.31	A	
0	1	21	Phase 1 current	A	Inst.	①	4.11	A	4.11	A	4.11	A	
0	1	41	Phase 2 current	A	Inst.	①	4.21	A	4.51	A	4.21	A	
0	1	61	Phase 3 current	A	Inst.	①	4.61	A	4.61	A	4.61	A	
0	1	81	Phase N current	A	Inst.	①	4.51	A	—	—	—	—	
0	1	2	Average current	A	max.	①	4.32	A	4.42	A	4.32	A	
0	1	22	Phase 1 current	A	max.	①	4.12	A	4.12	A	4.12	A	
0	1	42	Phase 2 current	A	max.	①	4.22	A	4.52	A	4.22	A	
0	1	62	Phase 3 current	A	max.	①	4.62	A	4.62	A	4.62	A	
0	1	82	Phase N current	A	max.	①	4.52	A	—	—	—	—	
0	1	5	Average current	A	min.	①	4.30	A	4.40	A	4.30	A	
0	1	25	Phase 1 current	A	min.	①	4.10	A	4.10	A	4.10	A	
0	1	45	Phase 2 current	A	min.	①	4.20	A	4.50	A	4.20	A	
0	1	65	Phase 3 current	A	min.	①	4.60	A	4.60	A	4.60	A	
0	1	85	Phase N current	A	min.	①	4.50	A	—	—	—	—	
0	2	1	Average current demand	A	Inst.	①	4.31	A	4.41	A	4.31	A	
0	2	21	Phase 1 current demand	A	Inst.	①	4.11	A	4.11	A	4.11	A	
0	2	41	Phase 2 current demand	A	Inst.	①	4.21	A	4.51	A	4.21	A	
0	2	61	Phase 3 current demand	A	Inst.	①	4.61	A	4.61	A	4.61	A	
0	2	81	Phase N current demand	A	Inst.	①	4.51	A	—	—	—	—	
0	2	2	Average current demand	A	max.	①	4.32	A	4.42	A	4.32	A	
0	2	22	Phase 1 current demand	A	max.	①	4.12	A	4.12	A	4.12	A	
0	2	42	Phase 2 current demand	A	max.	①	4.22	A	4.52	A	4.22	A	
0	2	62	Phase 3 current demand	A	max.	①	4.62	A	4.62	A	4.62	A	
0	2	82	Phase N current demand	A	max.	①	4.52	A	—	—	—	—	
0	2	5	Average current demand	A	min.	①	4.30	A	4.40	A	4.30	A	
0	2	25	Phase 1 current demand	A	min.	①	4.10	A	4.10	A	4.10	A	
0	2	45	Phase 2 current demand	A	min.	①	4.20	A	4.50	A	4.20	A	
0	2	65	Phase 3 current demand	A	min.	①	4.60	A	4.60	A	4.60	A	
0	2	85	Phase N current demand	A	min.	①	4.50	A	—	—	—	—	
0	5	1	Average L-L voltage	V	Inst.	①	173.1	V	127.8	V	127.8	V	
0	5	21	1-2 voltage	V	Inst.	①	171.1	V	101.1	V	101.1	V	
0	5	41	2-3 voltage	V	Inst.	①	172.1	V	106.1	V	106.1	V	
0	5	61	3-1 voltage	V	Inst.	①	176.1	V	176.1	V	176.1	V	
0	5	2	Average L-L voltage	V	max.	①	173.2	V	127.9	V	127.9	V	
0	5	22	1-2 voltage	V	max.	①	171.2	V	101.2	V	101.2	V	
0	5	42	2-3 voltage	V	max.	①	172.2	V	106.2	V	106.2	V	
0	5	62	3-1 voltage	V	max.	①	176.2	V	176.2	V	176.2	V	
0	5	5	Average L-L voltage	V	min.	①	173.0	V	127.7	V	127.7	V	
0	5	25	1-2 voltage	V	min.	①	171.0	V	101.0	V	101.0	V	
0	5	45	2-3 voltage	V	min.	①	172.0	V	106.0	V	106.0	V	
0	5	65	3-1 voltage	V	min.	①	176.0	V	176.0	V	176.0	V	

Unit No.	Group (h)	Ch. (h)	Name of Channel			Data Type	3P4W reply data (Secondary side)		3P3W_2CT reply data (Secondary side)		3P3W_3CT reply data (Secondary side)		Note
							Data	Unit	Data	Unit	Data	Unit	
0	3	1	Average L-N voltage	V	Inst.	①	103.1	V	—	—	—	—	
0	3	21	1-N voltage	V	Inst.	①	101.1	V	—	—	—	—	
0	3	41	2-N voltage	V	Inst.	①	102.1	V	—	—	—	—	
0	3	61	3-N voltage	V	Inst.	①	106.1	V	—	—	—	—	
0	3	2	Average L-N voltage	V	max.	①	103.2	V	—	—	—	—	
0	3	22	1-N voltage	V	max.	①	101.2	V	—	—	—	—	
0	3	42	2-N voltage	V	max.	①	102.2	V	—	—	—	—	
0	3	62	3-N voltage	V	max.	①	106.2	V	—	—	—	—	
0	3	5	Average L-N voltage	V	min.	①	103.0	V	—	—	—	—	
0	3	25	1-N voltage	V	min.	①	101.0	V	—	—	—	—	
0	3	45	2-N voltage	V	min.	①	102.0	V	—	—	—	—	
0	3	65	3-N voltage	V	min.	①	106.0	V	—	—	—	—	
0	7	1	Total active power	kW	Inst.	①	1041	W	1041	W	1041	W	
0	7	21	Phase 1 active power	kW	Inst.	①	1011	W	—	—	—	—	
0	7	41	Phase 2 active power	kW	Inst.	①	1021	W	—	—	—	—	
0	7	61	Phase 3 active power	kW	Inst.	①	1031	W	—	—	—	—	
0	7	2	Total active power	kW	max.	①	1042	W	1042	W	1042	W	
0	7	22	Phase 1 active power	kW	max.	①	1012	W	—	—	—	—	
0	7	42	Phase 2 active power	kW	max.	①	1022	W	—	—	—	—	
0	7	62	Phase 3 active power	kW	max.	①	1032	W	—	—	—	—	
0	7	5	Total active power	kW	min.	①	1040	W	1040	W	1040	W	
0	7	25	Phase 1 active power	kW	min.	①	1010	W	—	—	—	—	
0	7	45	Phase 2 active power	kW	min.	①	1020	W	—	—	—	—	
0	7	65	Phase 3 active power	kW	min.	①	1030	W	—	—	—	—	
0	9	1	Total reactive power	kvar	Inst.	①	741	var	741	var	741	var	
0	9	21	Phase 1 reactive power	kvar	Inst.	①	711	var	—	—	—	—	
0	9	41	Phase 2 reactive power	kvar	Inst.	①	721	var	—	—	—	—	
0	9	61	Phase 3 reactive power	kvar	Inst.	①	731	var	—	—	—	—	
0	9	2	Total reactive power	kvar	max.	①	742	var	742	var	742	var	
0	9	22	Phase 1 reactive power	kvar	max.	①	712	var	—	—	—	—	
0	9	42	Phase 2 reactive power	kvar	max.	①	722	var	—	—	—	—	
0	9	62	Phase 3 reactive power	kvar	max.	①	732	var	—	—	—	—	
0	9	5	Total reactive power	kvar	min.	①	740	var	740	var	740	var	
0	9	25	Phase 1 reactive power	kvar	min.	①	710	var	—	—	—	—	
0	9	45	Phase 2 reactive power	kvar	min.	①	720	var	—	—	—	—	
0	9	65	Phase 3 reactive power	kvar	min.	①	730	var	—	—	—	—	
1	0B	1	Total apparent power	kVA	Inst.	①	1241	VA	—	—	—	—	
1	0B	21	Phase 1 apparent power	kVA	Inst.	①	1211	VA	—	—	—	—	
1	0B	41	Phase 2 apparent power	kVA	Inst.	①	1221	VA	—	—	—	—	
1	0B	61	Phase 3 apparent power	kVA	Inst.	①	1231	VA	—	—	—	—	
1	0B	2	Total apparent power	kVA	max.	①	1242	VA	—	—	—	—	
1	0B	22	Phase 1 apparent power	kVA	max.	①	1212	VA	—	—	—	—	
1	0B	42	Phase 2 apparent power	kVA	max.	①	1222	VA	—	—	—	—	
1	0B	62	Phase 3 apparent power	kVA	max.	①	1232	VA	—	—	—	—	
1	0B	5	Total apparent power	kVA	min.	①	1240	VA	—	—	—	—	
1	0B	25	Phase 1 apparent power	kVA	min.	①	1210	VA	—	—	—	—	
1	0B	45	Phase 2 apparent power	kVA	min.	①	1220	VA	—	—	—	—	
1	0B	65	Phase 3 apparent power	kVA	min.	①	1230	VA	—	—	—	—	

Unit No.	Group (h)	Ch. (h)	Name of Channel				Data Type	3P4W reply data (Secondary side)		3P3W_2CT reply data (Secondary side)		3P3W_3CT reply data (Secondary side)		Note
								Data	Unit	Data	Unit	Data	Unit	
0	0D	1	Total power factor	%	Inst.		①	84.1	%	84.1	%	84.1	%	
0	0D	21	Phase 1 power factor	%	Inst.		①	81.1	%	—	—	—	—	
0	0D	41	Phase 2 power factor	%	Inst.		①	82.1	%	—	—	—	—	
0	0D	61	Phase 3 power factor	%	Inst.		①	83.1	%	—	—	—	—	
0	0D	2	Total power factor	%	max.		①	84.0	%	84.0	%	84.0	%	
0	0D	22	Phase 1 power factor	%	max.		①	81.0	%	—	—	—	—	
0	0D	42	Phase 2 power factor	%	max.		①	81.9	%	—	—	—	—	
0	0D	62	Phase 3 power factor	%	max.		①	83.0	%	—	—	—	—	
0	0D	5	Total power factor	%	min.		①	84.2	%	84.2	%	84.2	%	
0	0D	25	Phase 1 power factor	%	min.		①	81.2	%	—	—	—	—	
0	0D	45	Phase 2 power factor	%	min.		①	82.2	%	—	—	—	—	
0	0D	65	Phase 3 power factor	%	min.		①	83.2	%	—	—	—	—	
0	0F	1	Frequency	Hz	Inst.		①	50.0	Hz	50.0	Hz	50.0	Hz	
0	0F	2	Frequency	Hz	max.		①	51.0	Hz	51.0	Hz	51.0	Hz	
0	0F	5	Frequency	Hz	min.		①	49.0	Hz	49.0	Hz	49.0	Hz	
0	63	21	1-2 H.V	V	Inst.	Total	①	—	—	78.9	V	78.9	V	
0	4D	21	1-2 H.V	V	Inst.	1st	①	—	—	91.1	V	91.1	V	
0	4F	21	1-2 H.V	V	Inst.	3rd	①	—	—	36.1	V	36.1	V	
0	51	21	1-2 H.V	V	Inst.	5th	①	—	—	35.1	V	35.1	V	
0	53	21	1-2 H.V	V	Inst.	7th	①	—	—	34.1	V	34.1	V	
0	55	21	1-2 H.V	V	Inst.	9th	①	—	—	33.1	V	33.1	V	
0	57	21	1-2 H.V	V	Inst.	11th	①	—	—	32.1	V	32.1	V	
0	59	21	1-2 H.V	V	Inst.	13th	①	—	—	20.1	V	20.1	V	
0	76	86	1-2 H.V D. ratio	%	Inst.	Total	①	—	—	86.6	%	86.6	%	
0	76	73	1-2 H.V D. ratio	%	Inst.	3rd	①	—	—	39.6	%	39.6	%	
0	76	75	1-2 H.V D. ratio	%	Inst.	5th	①	—	—	38.5	%	38.5	%	
0	76	77	1-2 H.V D. ratio	%	Inst.	7th	①	—	—	37.4	%	37.4	%	
0	76	79	1-2 H.V D. ratio	%	Inst.	9th	①	—	—	36.3	%	36.3	%	
0	76	7B	1-2 H.V D. ratio	%	Inst.	11th	①	—	—	35.2	%	35.2	%	
0	76	7D	1-2 H.V D. ratio	%	Inst.	13th	①	—	—	22.1	%	22.1	%	
0	63	41	2-3 H.V	V	Inst.	Total	①	—	—	79.3	V	79.3	V	
0	4D	41	2-3 H.V	V	Inst.	1st	①	—	—	91.3	V	91.3	V	
0	4F	41	2-3 H.V	V	Inst.	3rd	①	—	—	35.9	V	35.9	V	
0	51	41	2-3 H.V	V	Inst.	5th	①	—	—	34.9	V	34.9	V	
0	53	41	2-3 H.V	V	Inst.	7th	①	—	—	34.3	V	34.3	V	
0	55	41	2-3 H.V	V	Inst.	9th	①	—	—	33.3	V	33.3	V	
0	57	41	2-3 H.V	V	Inst.	11th	①	—	—	32.3	V	32.3	V	
0	59	41	2-3 H.V	V	Inst.	13th	①	—	—	21.3	V	21.3	V	
0	76	9C	2-3 H.V D. ratio	%	Inst.	Total	①	—	—	86.9	%	86.9	%	
0	76	89	2-3 H.V D. ratio	%	Inst.	3rd	①	—	—	39.3	%	39.3	%	
0	76	8B	2-3 H.V D. ratio	%	Inst.	5th	①	—	—	38.2	%	38.2	%	
0	76	8D	2-3 H.V D. ratio	%	Inst.	7th	①	—	—	37.6	%	37.6	%	
0	76	8F	2-3 H.V D. ratio	%	Inst.	9th	①	—	—	36.5	%	36.5	%	
0	76	91	2-3 H.V D. ratio	%	Inst.	11th	①	—	—	35.4	%	35.4	%	
0	76	93	2-3 H.V D. ratio	%	Inst.	13th	①	—	—	23.3	%	23.3	%	
0	76	DE	L-L H.V D. ratio	%	max.	Total	①	—	—	91.7	%	91.7	%	
0	4D	A2	L-L H.V	V	max.	1st	①	—	—	91.8	V	91.8	V	
0	76	CB	L-L H.V D. ratio	%	max.	3rd	①	—	—	40.1	%	40.1	%	
0	76	CD	L-L H.V D. ratio	%	max.	5th	①	—	—	39.1	%	39.1	%	
0	76	CF	L-L H.V D. ratio	%	max.	7th	①	—	—	37.9	%	37.9	%	
0	76	D1	L-L H.V D. ratio	%	max.	9th	①	—	—	36.8	%	36.8	%	
0	76	D3	L-L H.V D. ratio	%	max.	11th	①	—	—	35.7	%	35.7	%	
0	76	D5	L-L H.V D. ratio	%	max.	13th	①	—	—	34.6	%	34.6	%	

Unit No.	Group (h)	Ch. (h)	Name of Channel				Data Type	3P4W reply data (Secondary side)		3P3W_2CT reply data (Secondary side)		3P3W_3CT reply data (Secondary side)		Note
								Data	Unit	Data	Unit	Data	Unit	
0	4B	21	1-N H.V	V	Inst.	Total	①	78.9	V	—	—	—	—	
0	35	21	1-N H.V	V	Inst.	1st	①	91.1	V	—	—	—	—	
1	37	21	1-N H.V	V	Inst.	3rd	①	36.1	V	—	—	—	—	
1	39	21	1-N H.V	V	Inst.	5th	①	35.1	V	—	—	—	—	
1	3B	21	1-N H.V	V	Inst.	7th	①	34.1	V	—	—	—	—	
1	3D	21	1-N H.V	V	Inst.	9th	①	33.1	V	—	—	—	—	
1	3F	21	1-N H.V	V	Inst.	11th	①	32.1	V	—	—	—	—	
1	41	21	1-N H.V	V	Inst.	13th	①	20.1	V	—	—	—	—	
0	77	86	1-N H.V D. ratio	%	Inst.	Total	①	86.6	%	—	—	—	—	
0	77	73	1-N H.V D. ratio	%	Inst.	3rd	①	39.6	%	—	—	—	—	
0	77	75	1-N H.V D. ratio	%	Inst.	5th	①	38.5	%	—	—	—	—	
0	77	77	1-N H.V D. ratio	%	Inst.	7th	①	37.4	%	—	—	—	—	
0	77	79	1-N H.V D. ratio	%	Inst.	9th	①	36.3	%	—	—	—	—	
0	77	7B	1-N H.V D. ratio	%	Inst.	11th	①	35.2	%	—	—	—	—	
0	77	7D	1-N H.V D. ratio	%	Inst.	13th	①	22.1	%	—	—	—	—	
0	4B	41	2-N H.V	V	Inst.	Total	①	73.2	V	—	—	—	—	
0	35	41	2-N H.V	V	Inst.	1st	①	91.2	V	—	—	—	—	
1	37	41	2-N H.V	V	Inst.	3rd	①	36.2	V	—	—	—	—	
1	39	41	2-N H.V	V	Inst.	5th	①	16.8	V	—	—	—	—	
1	3B	41	2-N H.V	V	Inst.	7th	①	34.2	V	—	—	—	—	
1	3D	41	2-N H.V	V	Inst.	9th	①	33.2	V	—	—	—	—	
1	3F	41	2-N H.V	V	Inst.	11th	①	32.2	V	—	—	—	—	
1	41	41	2-N H.V	V	Inst.	13th	①	21.2	V	—	—	—	—	
0	77	9C	2-N H.V D. ratio	%	Inst.	Total	①	80.2	%	—	—	—	—	
0	77	89	2-N H.V D. ratio	%	Inst.	3rd	①	39.7	%	—	—	—	—	
0	77	8B	2-N H.V D. ratio	%	Inst.	5th	①	18.4	%	—	—	—	—	
0	77	8D	2-N H.V D. ratio	%	Inst.	7th	①	37.5	%	—	—	—	—	
0	77	8F	2-N H.V D. ratio	%	Inst.	9th	①	36.4	%	—	—	—	—	
0	77	91	2-N H.V D. ratio	%	Inst.	11th	①	35.3	%	—	—	—	—	
0	77	93	2-N H.V D. ratio	%	Inst.	13th	①	23.2	%	—	—	—	—	
0	4B	61	3-N H.V	V	Inst.	Total	①	79.3	V	—	—	—	—	
0	35	61	3-N H.V	V	Inst.	1st	①	91.3	V	—	—	—	—	
1	37	61	3-N H.V	V	Inst.	3rd	①	35.9	V	—	—	—	—	
1	39	61	3-N H.V	V	Inst.	5th	①	34.9	V	—	—	—	—	
1	3B	61	3-N H.V	V	Inst.	7th	①	34.3	V	—	—	—	—	
1	3D	61	3-N H.V	V	Inst.	9th	①	33.3	V	—	—	—	—	
1	3F	61	3-N H.V	V	Inst.	11th	①	32.3	V	—	—	—	—	
1	41	61	3-N H.V	V	Inst.	13th	①	21.3	V	—	—	—	—	
0	77	B2	3-N H.V D. ratio	%	Inst.	Total	①	86.9	%	—	—	—	—	
0	77	9F	3-N H.V D. ratio	%	Inst.	3rd	①	39.3	%	—	—	—	—	
0	77	A1	3-N H.V D. ratio	%	Inst.	5th	①	38.2	%	—	—	—	—	
0	77	A3	3-N H.V D. ratio	%	Inst.	7th	①	37.6	%	—	—	—	—	
0	77	A5	3-N H.V D. ratio	%	Inst.	9th	①	36.5	%	—	—	—	—	
0	77	A7	3-N H.V D. ratio	%	Inst.	11th	①	35.4	%	—	—	—	—	
0	77	A9	3-N H.V D. ratio	%	Inst.	13th	①	23.3	%	—	—	—	—	
0	77	DE	L-N H.V D. ratio	%	max.	Total	①	91.7	%	—	—	—	—	
0	35	A2	L-N H.V	V	max.	1st	①	91.8	V	—	—	—	—	
0	77	CB	L-N H.V D. ratio	%	max.	3rd	①	40.1	%	—	—	—	—	
0	77	CD	L-N H.V D. ratio	%	max.	5th	①	39.1	%	—	—	—	—	
0	77	CF	L-N H.V D. ratio	%	max.	7th	①	37.9	%	—	—	—	—	
0	77	D1	L-N H.V D. ratio	%	max.	9th	①	36.8	%	—	—	—	—	
0	77	D3	L-N H.V D. ratio	%	max.	11th	①	35.7	%	—	—	—	—	
0	77	D5	L-N H.V D. ratio	%	max.	13th	①	34.6	%	—	—	—	—	

Unit No.	Group (h)	Ch. (h)	Name of Channel				Data Type	3P4W reply data (Secondary side)		3P3W_2CT reply data (Secondary side)		3P3W_3CT reply data (Secondary side)		Note
								Data	Unit	Data	Unit	Data	Unit	
0	33	21	Phase 1 H.A	A	Inst.	Total	①	3.15	A	3.15	A	3.15	A	
0	1D	21	Phase 1 H.A	A	Inst.	1st	①	3.71	A	3.71	A	3.71	A	
0	1F	21	Phase 1 H.A	A	Inst.	3rd	①	1.63	A	1.63	A	1.63	A	
0	21	21	Phase 1 H.A	A	Inst.	5th	①	1.48	A	1.48	A	1.48	A	
0	23	21	Phase 1 H.A	A	Inst.	7th	①	1.34	A	1.34	A	1.34	A	
0	25	21	Phase 1 H.A	A	Inst.	9th	①	1.19	A	1.19	A	1.19	A	
0	27	21	Phase 1 H.A	A	Inst.	11th	①	1.04	A	1.04	A	1.04	A	
0	29	21	Phase 1 H.A	A	Inst.	13th	①	0.89	A	0.89	A	0.89	A	
0	75	86	Phase 1 H.A D. ratio	%	Inst.	Total	①	84.9	%	84.9	%	84.9	%	
1	75	73	Phase 1 H.A D. ratio	%	Inst.	3rd	①	43.9	%	43.9	%	43.9	%	
1	75	75	Phase 1 H.A D. ratio	%	Inst.	5th	①	39.9	%	39.9	%	39.9	%	
1	75	77	Phase 1 H.A D. ratio	%	Inst.	7th	①	36.1	%	36.1	%	36.1	%	
1	75	79	Phase 1 H.A D. ratio	%	Inst.	9th	①	32.1	%	32.1	%	32.1	%	
1	75	7B	Phase 1 H.A D. ratio	%	Inst.	11th	①	28.0	%	28.0	%	28.0	%	
1	75	7D	Phase 1 H.A D. ratio	%	Inst.	13th	①	24.0	%	24.0	%	24.0	%	
0	33	41	Phase 2 H.A	A	Inst.	Total	①	3.07	A	2.92	A	3.07	A	
0	1D	41	Phase 2 H.A	A	Inst.	1st	①	3.72	A	3.75	A	3.72	A	
0	1F	41	Phase 2 H.A	A	Inst.	3rd	①	1.60	A	1.54	A	1.60	A	
0	21	41	Phase 2 H.A	A	Inst.	5th	①	1.45	A	1.39	A	1.45	A	
0	23	41	Phase 2 H.A	A	Inst.	7th	①	1.30	A	1.24	A	1.30	A	
0	25	41	Phase 2 H.A	A	Inst.	9th	①	1.15	A	1.09	A	1.15	A	
0	27	41	Phase 2 H.A	A	Inst.	11th	①	1.00	A	0.94	A	1.00	A	
0	29	41	Phase 2 H.A	A	Inst.	13th	①	0.86	A	0.79	A	0.86	A	
0	75	9C	Phase 2 H.A D. ratio	%	Inst.	Total	①	82.5	%	77.9	%	82.5	%	
1	75	89	Phase 2 H.A D. ratio	%	Inst.	3rd	①	43.0	%	41.1	%	43.0	%	
1	75	8B	Phase 2 H.A D. ratio	%	Inst.	5th	①	39.0	%	37.1	%	39.0	%	
1	75	8D	Phase 2 H.A D. ratio	%	Inst.	7th	①	34.9	%	33.1	%	34.9	%	
1	75	8F	Phase 2 H.A D. ratio	%	Inst.	9th	①	30.9	%	29.1	%	30.9	%	
1	75	91	Phase 2 H.A D. ratio	%	Inst.	11th	①	26.9	%	25.1	%	26.9	%	
1	75	93	Phase 2 H.A D. ratio	%	Inst.	13th	①	23.1	%	21.1	%	23.1	%	
0	33	61	Phase 3 H.A	A	Inst.	Total	①	2.99	A	2.99	A	2.99	A	
0	1D	61	Phase 3 H.A	A	Inst.	1st	①	3.73	A	3.73	A	3.73	A	
0	1F	61	Phase 3 H.A	A	Inst.	3rd	①	1.57	A	1.57	A	1.57	A	
0	21	61	Phase 3 H.A	A	Inst.	5th	①	1.42	A	1.42	A	1.42	A	
0	23	61	Phase 3 H.A	A	Inst.	7th	①	1.27	A	1.27	A	1.27	A	
0	25	61	Phase 3 H.A	A	Inst.	9th	①	1.12	A	1.12	A	1.12	A	
0	27	61	Phase 3 H.A	A	Inst.	11th	①	0.97	A	0.97	A	0.97	A	
0	29	61	Phase 3 H.A	A	Inst.	13th	①	0.82	A	0.82	A	0.82	A	
0	75	B2	Phase 3 H.A D. ratio	%	Inst.	Total	①	80.3	%	80.3	%	80.3	%	
1	75	9F	Phase 3 H.A D. ratio	%	Inst.	3rd	①	42.1	%	42.1	%	42.1	%	
1	75	A1	Phase 3 H.A D. ratio	%	Inst.	5th	①	38.1	%	38.1	%	38.1	%	
1	75	A3	Phase 3 H.A D. ratio	%	Inst.	7th	①	34.0	%	34.0	%	34.0	%	
1	75	A5	Phase 3 H.A D. ratio	%	Inst.	9th	①	30.0	%	30.0	%	30.0	%	
1	75	A7	Phase 3 H.A D. ratio	%	Inst.	11th	①	26.0	%	26.0	%	26.0	%	
1	75	A9	Phase 3 H.A D. ratio	%	Inst.	13th	①	22.0	%	22.0	%	22.0	%	
0	33	81	Phase N H.A	A	Inst.	Total	①	2.92	A	—	—	—	—	
0	1D	81	Phase N H.A	A	Inst.	1st	①	3.75	A	—	—	—	—	
0	1F	81	Phase N H.A	A	Inst.	3rd	①	1.54	A	—	—	—	—	
0	21	81	Phase N H.A	A	Inst.	5th	①	1.39	A	—	—	—	—	
0	23	81	Phase N H.A	A	Inst.	7th	①	1.24	A	—	—	—	—	
0	25	81	Phase N H.A	A	Inst.	9th	①	1.09	A	—	—	—	—	
0	27	81	Phase N H.A	A	Inst.	11th	①	0.94	A	—	—	—	—	
0	29	81	Phase N H.A	A	Inst.	13th	①	0.79	A	—	—	—	—	
0	75	C8	Phase N H.A D. ratio	%	Inst.	Total	①	77.9	%	—	—	—	—	
1	75	B5	Phase N H.A D. ratio	%	Inst.	3rd	①	41.1	%	—	—	—	—	
1	75	B7	Phase N H.A D. ratio	%	Inst.	5th	①	37.1	%	—	—	—	—	
1	75	B9	Phase N H.A D. ratio	%	Inst.	7th	①	33.1	%	—	—	—	—	
1	75	BB	Phase N H.A D. ratio	%	Inst.	9th	①	29.1	%	—	—	—	—	
1	75	BD	Phase N H.A D. ratio	%	Inst.	11th	①	25.1	%	—	—	—	—	
1	75	BF	Phase N H.A D. ratio	%	Inst.	13th	①	21.1	%	—	—	—	—	

Unit No.	Group (h)	Ch. (h)	Name of Channel				Data Type	3P4W reply data (Secondary side)		3P3W_2CT reply data (Secondary side)		3P3W_3CT reply data (Secondary side)		Note
								Data	Unit	Data	Unit	Data	Unit	
0	33	A2	H.A	A	max.	Total	①	3.48	A	3.51	A	3.48	A	
0	1D	A2	H.A	A	max.	1st	①	3.76	A	3.77	A	3.76	A	
0	1F	A2	H.A	A	max.	3rd	①	1.66	A	1.67	A	1.66	A	
0	21	A2	H.A	A	max.	5th	①	1.56	A	1.58	A	1.56	A	
0	23	A2	H.A	A	max.	7th	①	1.46	A	1.47	A	1.46	A	
0	25	A2	H.A	A	max.	9th	①	1.36	A	1.37	A	1.36	A	
0	27	A2	H.A	A	max.	11th	①	1.26	A	1.28	A	1.26	A	
0	29	A2	H.A	A	max.	13th	①	1.16	A	1.17	A	1.16	A	
1	33	82	Phase N H.A	A	max.	Total	①	3.51	A	—	—	—	—	
1	1D	82	Phase N H.A	A	max.	1st	①	3.77	A	—	—	—	—	
1	1F	82	Phase N H.A	A	max.	3rd	①	1.67	A	—	—	—	—	
1	21	82	Phase N H.A	A	max.	5th	①	1.58	A	—	—	—	—	
1	23	82	Phase N H.A	A	max.	7th	①	1.47	A	—	—	—	—	
1	25	82	Phase N H.A	A	max.	9th	①	1.37	A	—	—	—	—	
1	27	82	Phase N H.A	A	max.	11th	①	1.28	A	—	—	—	—	
1	29	82	Phase N H.A	A	max.	13th	①	1.17	A	—	—	—	—	
0	80	1	active energy import	kWh	count		②	6666.66	kWh	6666.66	kWh	6666.66	kWh	Note1
0	80	63	active energy export	kWh	count		②	5555.55	kWh	5555.55	kWh	5555.55	kWh	Note1
0	80	64	active energy import	kWh	count	expand	②	6.66666	kWh	6.66666	kWh	6.66666	kWh	Note1
0	80	65	active energy export	kWh	count	expand	②	5.55555	kWh	5.55555	kWh	5.55555	kWh	Note1
0	81	1	reactive energy import	kvar	count		②	4444.44	kvar	4444.44	kvar	4444.44	kvar	Note1
0	81	63	reactive energy export	kvar	count		②	3333.33	kvar	3333.33	kvar	3333.33	kvar	Note1
0	81	64	reactive energy import	kvar	count		②	2222.22	kvar	2222.22	kvar	2222.22	kvar	Note1
0	81	65	reactive energy export	kvar	count		②	1111.11	kvar	1111.11	kvar	1111.11	kvar	Note1
0	81	66	reactive energy import	kvar	count	expand	②	4.44444	kvar	4.44444	kvar	4.44444	kvar	Note1
0	81	67	reactive energy export	kvar	count	expand	②	3.33333	kvar	3.33333	kvar	3.33333	kvar	Note1
0	81	68	reactive energy import	kvar	count	expand	②	2.22222	kvar	2.22222	kvar	2.22222	kvar	Note1
0	81	69	reactive energy export	kvar	count	expand	②	1.11111	kvar	1.11111	kvar	1.11111	kvar	Note1
0	1	14	current upper limit	A	Alarm		①	—	—	—	—	—	—	
0	1	15	current lower limit	A	Alarm		①	—	—	—	—	—	—	
0	1	94	current upper limit	A	Alarm	PhaseN	①	—	—	—	—	—	—	
0	2	14	current demand upper	A	Alarm		①	—	—	—	—	—	—	
0	2	15	current demand lower	A	Alarm		①	—	—	—	—	—	—	
0	2	94	current demand upper limit	A	Alarm	PhaseN	①	—	—	—	—	—	—	
0	5	14	voltage upper limit(L-L)	V	Alarm		①	—	—	—	—	—	—	
0	5	15	voltage lower limit(L-L)	V	Alarm		①	—	—	—	—	—	—	
0	3	14	voltage upper limit(L-N)	V	Alarm		①	—	—	—	—	—	—	
0	3	15	voltage lower limit(L-N)	V	Alarm		①	—	—	—	—	—	—	
0	7	14	active power upper limit	kW	Alarm		①	—	—	—	—	—	—	
0	7	15	active power lower limit	kW	Alarm		①	—	—	—	—	—	—	
0	9	14	reactive power upper limit	kvar	Alarm		①	—	—	—	—	—	—	
0	9	15	reactive power lower limit	kvar	Alarm		①	—	—	—	—	—	—	
0	0D	14	power factor upper limit	%	Alarm		①	—	—	—	—	—	—	
0	0D	15	power factor lower limit	%	Alarm		①	—	—	—	—	—	—	
0	0F	14	Frequency upper limit	Hz	Alarm		①	—	—	—	—	—	—	
0	0F	15	Frequency lower limit	Hz	Alarm		①	—	—	—	—	—	—	
0	77	E1	H.V(L-N) upper limit	%	Alarm	Total	①	—	—	—	—	—	—	
0	76	E1	H.V(L-L) upper limit	%	Alarm	Total	①	—	—	—	—	—	—	
0	75	E1	H.A upper limit	A	Alarm	Total	①	—	—	—	—	—	—	
0	75	F1	H.A upper limit(Phase N)	A	Alarm	Total	①	—	—	—	—	—	—	
0	A0	31	Alarm state		Alarm		③	Note2	—	Note2	—	Note2	—	
0	A0	35	Alarm state2		Alarm		③	Note3	—	Note3	—	Note3	—	

Note1. Counting values are replied on the values of primary side.
Note2. b21 and b24 become ON(1). b16 to b19 of digital inputs are reflected at the present state.
Note3. b23, b28 to b31 become ON(1).