TECHNICAL BULLETIN

[Issue No.] T08-0010 [Page] 1/38

[Title] MELSEC-A/QnA Series Ethernet Interface Module [Date of Issue] May '99

[Relevant Models] AJ71E71-S3, A1SJ71E71-B2-S3, A1SJ71E71-B5-S3
AJ71QE71, AJ71QE71-B5, A1SJ71QE71-B2, A1SJ71QE71-B5

Thank you for your continued patronage of the Mitsubishi general-purpose programmable logic controller MELSEC-A Series.

Precautions for selecting and designing a system with the MELSEC-A/QnA Series Ethernet interface module (hereinafter, E71), and a check list for troubleshooting are provided in this document.

- Described items

(1) Precautions for selecting Ethernet interface module ..... Section 1
(2) Precautions for designing and structuring system ..... Sections 2.1 and 2.2
(3) Precautions for creating application software for communication partner device.. Section 2.3
(4) Communication troubleshooting..... Section 3.1
(5) Trouble check list ..... Sections 3.2 and 3.3

∗ Common inquiries from users have been picked up and described in this Technical Bulletin.

- Modules targeted for described contents

	Module type			
	Large module		Compact module	
MELSEC-A Series module	AJ71E71-S3	–	A1SJ71E71-B2-S3	A1SJ71E71-B5-S3
MELSEC-QnA Series module	AJ71QE71	AJ71QE71-B5	A1SJ71QE71-B2	A1SJ71QE71-B5

- Reference manuals for described contents

The target manuals indicated in the [Manual Reference Section] in this Technical Bulletin are as follow.

(1) For MELSEC-A Series module
Ethernet Interface Module User's Manual (Details) : Products after SH-3582-C
(2) For MELSEC-QnA Series module
QnA Compatible Ethernet Interface Module User's Manual (Details) : Products afte SH-3567-D

- Using the Technical Bulletin

(1) Sections 1 and 2
Use these sections as reference to answer users' questions regarding the module selection, system design and program creation.
(2) Section 3
Use this section to record information regarding trouble.

∗ Use this form (exchange faxes, etc., using this form) to record inquiries (user, dealer, branch office) to confirm trouble information.

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Whereas

[Details]

1. Precautions for selecting MELSEC-A/QnA Series Ethernet interface module

(1) Communication frame for transmitting/receiving data from a communication partner device (remote node)

(a) The E71 can communicate with a remote node that handles the Ethernet Standard frame for the Ethernet header.

(b) The E71 cannot communicate with a remote node that handles an IEEE802.3 Standard frame for the Ethernet header.

* Limited by the type and length in the Ethernet header for the data link phase in the communication frame.

[Method of confirming communication with device]

- Use the "Ping command".
  * "Ping command": ICMP Echo Request, Echo Reply function
- The "Ping command" is sent from the remote node to the E71 that has normally completed the initialization process.
  If the remote node receives a response from E71, communication is possible.
  * State of E71 that has normally completed the initial process: RDY LED is flickering, X19 is ON.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Appendix page 8)
MELSEC-QnA Series : SH-3567 (Appendix page 8)

(2) Communication with remote node

(a) The E71 can exchange data with a remote node that is capable of TCP/IP or UDP/IP communication.

(b) Currently, other brands of devices running the following OS are capable of correct data communication.

Windows 3.1, Windows 95, Windows 98, Windows NT, QNX, Unix, HP-UX

[Method of confirming communication with device]

- If communication can be carried out correctly with a device running the above OS, using the above "Ping command" and TCP/IP or UDP/IP communication, communication with the E71 is possible.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 5.4 to Chapter 9)
MELSEC-QnA Series : SH-3567 (Section 5.5 to Chapter 9)

2. Precautions for designing system

2.1 Precautions for configuring system

(1) Installation of each device

(a) Install with the installation distance between devices and segment length within the specification range.

(b) Consulting with a specialist or wire maker, and having 10BASE2 and 10BASE5 installation work carried out is recommended.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.2)
MELSEC-QnA Series : SH-3567 (Section 3.2)

(2) Separation of communication line

To eliminate communication trouble caused by a large amount of statements (congestion) on the communication line, avoid passing unnecessary statements over the line.
Measures for avoiding communication trouble are as follow.

(a) Use a switching hub, gateway or router, and separate the control communication line from the general-purpose data communication and office information communication lines.

(b) Use a switching hub, gateway or router, and separate the line (segment) to which the personal computer is connected from the line (segment) to which the process control computer and Mitsubishi E71 are connected. Do not pass statements other than the communications statements between each connected device over the other lines (segments).

(3) Confirming correct communication with remote node

Examples of checking the remote node's status to prevent communication from being disabled due to sudden trouble (line down, etc.) on that side are given in this section.

(a) Using the E71 existence confirmation function

After opening the connection (connecting the line) with the remote node, if communication with the remote node is not carried out for a set interval, the E71 will confirm whether the remote node is operating correctly. (The "Ping command" will be sent.)

* If an error in the remote node is detected with this confirmation, the corresponding connection will be closed (the line will be disconnected). Set to the program to reopen with the user program.

(b) Duplex connection

A connection for confirming the state of the remote node is established separately, and the state of the local station is periodically sent to the remote node. (The mutual communication state information is confirmed with a separate connection).

* Set the program so that if an error in the remote node is detected with this status confirmation, all connections with the corresponding device are closed and then reopened.

(4) Restarting the communication system

Establish means to be taken if communication between devices is disabled due to a device fault or line obstruction, so that the maintenance personnel is swiftly notified of the communication error with lamp displays or buzzer calling, etc., and so that the communication system can be quickly restarted.

2.2 Precautions regarding MELSEC-A/QnA Series Ethernet interface module

(1) Precautions for hardware

(a) Use IEEE802.3 compatible hardware.

(b) Consider the following points for the transceiver when connected with 10BASE5.

1) Use a transceiver that handles the Signal Quality Error TEST (SQETEST) or a signal called a "heartbeat", and set so that SQETEST is ON and the heartbeat signal is valid.

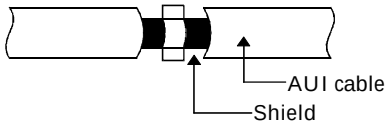
2) For the voltage for supplying the transceiver's external power supply to the E71, consider the voltage drop at the AUI cable and the voltage drop (0.8V) in the E71. (Recommended supply voltage: 14.08VDC to 15.75VDC)

(c) Consider the following points when connecting the E71 to the line to reduce communication trouble caused by higher harmonics and noise. (Communication trouble may be reduced by using the following measures.)

1) Keep the cables as short as possible, as they are affected by higher harmonics and noise.

2) Always ground the AUI cable when connected with 10BASE5.

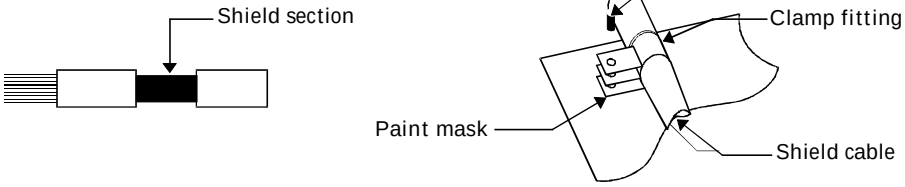
The AUI cable is a shielded cable, so remove part of the sheath as shown below, and ground the exposed shield section with as wide an area as possible.



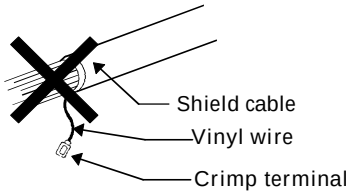
3) Always use a double shielded cable for the coaxial cable when connected with 10BASE2. Ground the outer shield.

(Supplement for shield treatment process)

- Treat the shield near the outlet from the control panel.
  If the grounding point is separated from the outlet position, magnetic inductance could recur in the cable after the grounding point and could lead to the generation of higher harmonic noise.
- Ground the shield with as wide an area to the control panel as possible.
  The following types of clamp fittings can be used. Note that the paint on the inner wall of the control panel that contacts with the fitting must be peeled off.



The shield must be grounded within 30cm from the E71.
If care is not taken when treating the end of the shield, the effect obtained with the transfer impedance of the shield wire will be lost.
If a vinyl wire is soldered on the shield section of the shielded cable as shown below, and the end is treated for grounding, the higher harmonic impedance will increase and the effect of the shield will be lost.



4) In addition to items 2) and 3), always install a ferrite core.
   * When using an AUI cable, install the ferrite core on the transceiver side.
   * The TDK ZCAT3035 ferrite core is recommended.

   [Manual Reference Section]

   MELSEC-A Series : SH-3582 (Section 2.3)
   MELSEC-QnA Series : SH-3567 (Section 2.3)

(d) Connect a 10BASE2/10BASE5 terminator (both are 50Ω) compatible with the line type on both ends of the line.
   Note that if the external device requires a terminator and the terminator has been set with the terminator setting procedure, a terminator must not be connected to the line.
   * When connecting with 10BASE2, the MELSECNET/10 coaxial bus system terminator (75Ω) cannot be used.

(e) Normally set the following DIP switches to OFF with the E71 switch settings.
   - Line process selection for TCP timeout error (SW1)
   - Initial timing setting (SW4/SW8)

   [Manual Reference Section]

   MELSEC-A Series : SH-3582 (Section 4.3.2)
   MELSEC-QnA Series : SH-3567 (Section 4.3.2)

(f) When carrying out the E71 self-return test, halt the communication of the other devices on the same segment.

   [Manual Reference Section]

   MELSEC-A Series : SH-3582 (Section 4.6.1)
   MELSEC-QnA Series : SH-3567 (Section 4.6.1)

(2) Precautions for software

(a) The maximum number of remote node stations (No. of nodes) that can be communicated with during one initialization process is 20 stations for the MELSEC-A Series E71 and 256 stations for the MELSEC-QnA Series E71.

To communicate data with more stations, initialize the E71 again.

∗ E71 is counted as a communication station even when carrying out the ICMP echo request/echo response using the "Ping command" to the E71 from the remote node.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.2)
MELSEC-QnA Series : SH-3567 (Section 3.2)

(b) When implementing the E71, leave the setting values of each timer set during the E71 initialization process at the default values, and try communicating with the remote node.

If the value of each timer must be changed due to trouble in the communication, use the following relational expression.

Response monitor timer value ≥ TCP ULP timeout value ≥ TCP end timer value
≥ TCP resend timer value

TPC resend timer value = TCP zero window timer value > IP assembly timer value

∗ When connecting with another brand of device, set each timer value with the above expression and so that the following relation is established.

Monitor timer value for application on other node side > TCP resend time on other node side

TCP resend time on other node side > TCP resend timer value for Mitsubishi E71

[Manual Reference Section]

MELSEC-A Series : SH-3582 (∗3 after section 5.3.1 (12))
MELSEC-QnA Series : SH-3567 (∗3 after section 5.2.2 (12))

(c) When exchanging the remote node (communication board/module) with which the connection with E71 was opened, restart the E71.

When the E71 has been replaced, follow the specifications of the remote node and restart the device, etc.

[Restarting the E71]

1) End communication with all devices, and close all connections that are currently open.
(Turn the open request signal OFF.)
2) After all open end signals have turned OFF, end the E71.
(Turn the initial request signal OFF.)
3) After the initial normal end signal has turned OFF, initialize the E71.
(Turn the initial request signal ON.)
4) After the initial normal end signal has turned ON, carry out the open process with the remote node. (Turn the open request signal ON.)

* For communication with Ethernet, the Ethernet address (also called MAC address) unique for the device is obtained from the IP address of the remote node continued in the statement. That Ethernet address is used for communication.
Each device saves the MAC address of the remote node with which communication has been carried out. If the remote node (communication board/module) has been exchanged, the MAC address of the remote node must be updated. Normally, this is not updated immediately and thus communication trouble occurs.

(Reference)

- The MAC address is an address unique to the device. If the device differs, the MAC address will also differ.
- The time that the MAC address of the remote node is held differs according to each device.
With the E71, the address is held until the end process.

(d) When using the E71's communication function with fixed buffer (procedural) or communication function with random access buffer, designate the actual data size of the text section for "data length" in the statement application data transmitted from the remote node to the E71.
If the "data length" is incorrect, the error end response will be returned.
* The E71 cannot transmit text having a size different from the data length to the remote node.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 13.1.1, Remarks)
MELSEC-QnA Series : SH-3567 (Section 17.1.3, Remarks)

(Supplement for when "data length" received from remote node is incorrect)

1) When data length designated immediately after subheader is less than the text data amount
   - The data immediately after the text having the data length designated immediately after the subheader will be handled as the second statement.
     The head of each statement is handled as the subheader, so the E71 will carry out a process corresponding to the subheader code.
   - If the subheader data is a code other than that handled by the E71, an error end response will be returned to the remote node.
2) When data length designated immediately after subheader is greater than the text data amount
   - The E71 will wait to receive the insufficient remaining data.
   - If the remaining data is received within the response monitor value timer, the E71 will carry out a process corresponding to the subheader code.
   - If the remaining data is not received within the response monitor value timer, the E71 will carry out the following processes.
     The RST command will be sent from the E71 to the remote node and the line will be closed.
     The occurrence of an open error will be notified to the PLC CPU. (Open error detection signal = ON)
     The error code will be stored in the open error code storage area.
     * The error code is not stored in the E71 error log storage area.

(3) Precautions for creating E71 sequence program

(a) Use the following procedures for carrying out various processes such as initialization, opening, and data transmission/reception.

1) Write the corresponding process data (communication conditions, etc.) in the buffer memory.
2) Turn the corresponding process request signal (output (Y)) from OFF to ON.
3) Confirm that the normal end signal (input (X)) for the corresponding process turns from OFF to ON.

* If an error end has occurred, read the error information stored in the buffer memory, turn the corresponding process request signal (output (Y)) from ON to OFF, and then confirm that the error end signal (input (X)) for the corresponding process turns from ON to OFF.
After processing the error, repeat the procedure from step 1).

4) Turn the corresponding process request signal (output (Y)) from ON to OFF.
5) Confirm that the normal end signal (input (X)) for the corresponding process turns from ON to OFF.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section explaining each process)
MELSEC-QnA Series : SH-3567 (Section explaining each process)

(b) When using TCP/IP communication, program so when closing the connection immediately after normally opening the connection with the remote node, the open normal end signal (X10 to X17) to the PLC CPU stays ON for one scan time or more before the close process is executed.
(This is so that the PLC CPU can confirm that the open process has been completed normally.)

* When using the COM command with the sequence program or when handling a subprogram, partially refresh all of the input signals (X) between the PLC CPU and E71 with the following timing.

- When using the COM command
Partially refresh immediately before executing the COM command.
- When handling a subprogram
Partially refresh immediately before changing the program execution to another program.

(c) During communication with TCP /IP, if the close process is to be carried out from the remote node after normally opening, and then reopening with the E71 side, use the following process.

1) Close from the remote node (E71 open normal end signal turns from ON to OFF)
2) Close process on E71 side (turn open request signal from ON to OFF)
3) Wait at least 500ms.
4) Open process from E71 side and remote side (E71 side: turn open request signal from OFF to ON)

* When closing from the E71 side, the above wait time is not required.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 5.4.3 (2))
MELSEC-QnA Series : SH-3567 (Section 5.5.3 (2))

(d) The detection of the open error in respect to the E71's eight connections is carried out with specifications to notify the PLC CPU with one open error detection signal (X18).

If the open process for any of the E71's connections end with an error, read all of the open error code storage area of the buffer memory for each connection for which the open request signal is ON, and then process the error according to the error code.

2.3 Precautions for creating application software for remote node

(1) Communicating with one connection

To avoid confusion with the application software, it is recommended to open a connection (port) for each communication function and to communicate data.

(Example) When carrying out reception/transmission of the fixed buffer, and reading/writing of the PLC CPU data in respect to the PLC side, open the following data communication connections and exchange the data.

- For transmission of fixed buffer communication
- For reception of fixed buffer communication
- For read/write communication of data in PLC CPU

∗ When communicating with several types of functions, refer to section (5) below.

(2) Opening and closing connection with E71 side

As the reopening process shown in (3) below takes time, limit the number of times the connection with E71 is opened and closed.

∗Open the connection when starting data communication, and close the connection when the series of data communications (multiple data communications) has completed.

(3) Opening connection with E71 side

When using TCP/IP communication, always consider the following time required on the E71 side.

(a) When closing the connection immediately after the connection with E71 is normally opened (∗1), program so that the PLC CPU side carries out the close process more than one scan time after the connection is normally opened.

∗1 This also applies when the remote node's open process is Active open or Passive open.

(b) When reopening the Active state after closing the connection with E71, carry out the opening process at least 500ms after the E71 side close side process ends normally.

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 5.4.3)
MELSEC-QnA Series : SH-3567 (Section 5.5.3)

(4) Retrying in respect to communication error

For communication errors that occur in the communication driver (TCP) take measures so that the erroneous communication process is carried out again, and the communication quality is secured. (Retry at least one time.) Retry after the normal end/error end is returned in respect to the previous process request.

(5) Confirmation of E71 specifications

(a) Data section code and communication data capacity

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.3)
MELSEC-QnA Series : SH-3567 (Section 3.3)

∗The E71 designates the code for communication with the DIP switch (SW2) on the main body.

(b) Communication statement division and data length

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.5.1)
MELSEC-QnA Series : SH-3567 (Section 3.5.1)

(c) Communication procedure

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.5.2)
MELSEC-QnA Series : SH-3567 (Section 3.5.2)

∗When communicating with TCP/IP, the response reception is monitored with the application software.
The monitor time must be larger than the TCP resend timer value.
It is also recommended that the time be longer than the TCP ULP timeout time.

(d) Connection forced disconnection conditions

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.5.3)
MELSEC-QnA Series : SH-3567 (Section 3.5.3)

3. Troubleshooting

3.1 Communication troubleshooting procedures

(1) Find the following details for each device according to the details of the error that has occurred.

1) What type of trouble occurred?
2) What is the current phenomenon or error details occurring on the E71 side and remote node side?
3) Which node is causing the occurrence?
4) How did the trouble occur? (Also check the communication details at the time of trouble)
5) Is there any difference in the installation environment before and after the trouble? (Noise)
6) Is there any difference in the system configuration before and after the trouble? (Expanded system installation, etc.)
7) If possible, replace the E71 or remote node, and check if the state changes.

(2) Check the following states on the E71 side.

1) Is there any abnormality in the hardware? (Check with the self-diagnosis test.)

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 4.6)
MELSEC-QnA Series : SH-3567 (Section 4.6)

2) Did the initialization end normally? (Check RDY LED (flickering), input signal X19 (ON).)

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 4.4 and 5.3)
MELSEC-QnA Series : SH-3567 (Section 4.4, 5.3 and 5.4)

3) Is the connection with the remote node open?
(Check BUFn/Bn LED (lit), input signal X10 to X17 (ON))

∗Check how the connection was opened.

- Was the connection opened for TCP/IP or UDP/IP communication?
- When opened for the TCP/IP communication, is Active designated or Passive (Unpassive/Full passive) designated?

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 4.4 and 5.4)
MELSEC-QnA Series : SH-3567 (Section 4.4 and 5.5)

4) Are any errors indicated with the display LED?

Buffer memory address		Display details	Display details when lit/flickering
A Series E71	QnA Series E71		
RUN		Normal operation display	Lit : Normal
RDY		Communication READY display	Flickering: Initial normal end
BSY		Display during communication process	Lit : Executing (communicating with remote node)
–	SW ERR	Switch setting error display	Lit : Error
COM.ERR		Communication error detection display	Lit : Detecting error
BUF1 to BUF8 (B1 to B8)		Connection status display	Lit : Open end (opened)

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 4.4)
MELSEC-QnA Series : SH-3567 (Section 4.4)

5) Is an error detection being input with the input signals?

Buffer memory address		Signal name	Status during error occurrence
A Series E71	QnA Series E71		
X1, X3, X5, . . . XD, XF		Transmission error detection signal	ON : Error detection (for fixed buffer communication)
X18		Open error detection signal	ON : Error detection
X1A		Initial error signal	ON : Error detection
X1C		COM.ERR LED turned on signal	ON : COM.ERR LED is lit
X1F		Watch dog timer error detection signal	ON : Watch dog timer error occurrence

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 3.6)
MELSEC-QnA Series : SH-3567 (Section 3.6)

Is an error code stored in the buffer memory?

Buffer memory address		Area name
A Series E71	QnA Series E71	
50H(80)	69H(105)	Initial error code storage area
5DH(93), 67H(103) . . .	7CH(124), 86H(134) . . .	Open error code storage area
5EH(94), 68H(104) . . .	7DH(125), 87H(135) . . .	Fixed buffer transmission error code storage area
5FH(95), 69H(105) . . .	7EH(126), 88H(136) . . .	Fixed buffer communication end code storage area Connection end code, error log area
A9H(169) to B3H(179)	E3H(227) to 174H(372)	Error log region area
–	CFH(207) to DFH(223)	Data link command execution results storage area

[Manual Reference Section]

MELSEC-A Series : SH-3582 (Section 13.1)
MELSEC-QnA Series : SH-3567 (Section 17.1.3)

(3) Use a line analyzer to check the normal and abnormal communication states, and comprehend the differences.

∗ Check on the E71 side and remote node side.

(4) Pinpoint the cause of the occurring trouble. (Sort the occurrence causes)

1) Causes on line

Multiple propagation, loop, traffic, device mounting mistake (contact defect), device fault, operating voltage fluctuation/insufficiency, noise

2) Causes in communication software

Application program, firmware

∗ If the trouble is in the application program, review the communication procedures and the timer setting value or retry (recovery) procedures related to the monitoring.
If the trouble is in the firmware, consult with the manufacturer of the device in use for countermeasures.

3.2 MELSEC-A Series E71 Trouble Check List

1/9	Check item	Check details		Record
1 – 1	System	Operation start interval		‘ / /
2		No. of operating years		years
3		Changes from previous installation environment	Presence of changes	Yes No
4			Outline of changes	
5		Changes from previous system configuration	Presence of changes	Yes No
6			Outline of changes	
7		Connection line		10BASE2 10BASE5
8		E71 unit type		
9		Device configuration of remote node		
2 – 1	Current state	Type of trouble		
2		Phenomenon		
3		Communication details at occurrence (How did the trouble occur?)		
4		Which device does the cause seem to be at?		E71 side Remote node side
5		(Reasons for above)		
6		State of remote node		
7		Details of error occurring on remote node side		
3 – 1	CPU module	Type		
2		Version (Hardware, software)		
3		State (Circle corresponding state)		RUN STOP PAUSE
4		Error code		
5		Name of lit LED		
6		Name of flickering LED		
7		Details displayed on indicator display		

2/9	Check item		Check details						Record		
4 – 1	E71	State of main module	Type								
2			Version (Hardware, software)								
3			Operation mode setting switch setting No.						No.(0:On-line,1:Off-line)		
4			Communication condition setting switch	SW1	TCP timeout selection				ON OFF		
5				SW2	Data code selection				ON OFF		
6				SW3	(CPU communication timing)				ON OFF		
7				SW4	(Initial timing)				ON OFF		
8				SW5	–				ON OFF		
9				SW6	–				ON OFF		
10				SW7	CPU communication timing				ON OFF		
11				SW8	Initial timing				ON OFF		
12			Connection type (Circle current state)						10BASE2 10BASE5		
13			Name of lit LED								
14			Name of flickering LED								
5 – 1		State of input signals	X0	Transmission normal/ reception end –1		ON OFF	Y0	Transmission request or reception confirmation	–1	ON OFF	
2			X1	Transmission error detection –1		ON OFF	Y1		–2	ON OFF	
3			X2	Transmission normal/ reception end –2		ON OFF	Y2		–3	ON OFF	
4			X3	Transmission error detection –2		ON OFF	Y3		–4	ON OFF	
5			X4	Transmission normal/ reception end –3		ON OFF	Y4		–5	ON OFF	
6			X5	Transmission error detection –3		ON OFF	Y5		–6	ON OFF	
7			X6	Transmission normal/ reception end –4		ON OFF	Y6		–7	ON OFF	
8			X7	Transmission error detection –4		ON OFF	Y7		–8	ON OFF	

3/9	Check item		Check details						Record		
5 – 9	E71	State of input signals	X8	Transmission normal/ reception end –5		ON OFF	Y8	Open request	–1	ON OFF
10			X9	Transmission error detection –5		ON OFF	Y9		–2	ON OFF
11			XA	Transmission normal/ reception end –6		ON OFF	YA		–3	ON OFF
12			XB	Transmission error detection –6		ON OFF	YB		–4	ON OFF
13			XC	Transmission normal/ reception end –7		ON OFF	YC		–5	ON OFF
14			XD	Transmission error detection –7		ON OFF	YD		–6	ON OFF
15			XE	Transmission normal/ reception end –8		ON OFF	YE		–7	ON OFF
16			XF	Transmission error detection –8		ON OFF	YF		–8	ON OFF
17		State of output signal	X10	Open end	–1	ON OFF	Y10	Use prohibited		ON OFF
18			X11		–2	ON OFF	Y11			ON OFF
19			X12		–3	ON OFF	Y12			ON OFF
20			X13		–4	ON OFF	Y13			ON OFF
21			X14		–5	ON OFF	Y14			ON OFF
22			X15		–6	ON OFF	Y15			ON OFF
23			X16		–7	ON OFF	Y16			ON OFF
24			X17		–8	ON OFF	Y17	COM. ERR. turn off request		ON OFF
25			X18	Open error detection		ON OFF	Y18	Use prohibited		ON OFF
26			X19	Initial normal end		ON OFF	Y19	Initial request		ON OFF
27			X1A	Initial error detection		ON OFF	Y1A	Use prohibited		ON OFF
28			X1B	Use prohibited		ON OFF	Y1B			ON OFF
29			X1C	COM. ERR. turned on		ON OFF	Y1C	Buffer memory channel switching		ON OFF
30			X1D	Use prohibited		ON OFF	Y1D	Use prohibited		ON OFF
31			X1E			ON OFF	Y1E			ON OFF
32			X1F	Watch dog timer error detection		ON OFF	Y1F			ON OFF

4/9	Check item		Check details					Record
	E71	Buffer memory –1	Address		Item name			Monitor value (O does not need to be noted)
6 – 1			0 ~ 1H	0 ~ 1	Local station IP address			H
2			2H	2	Special function setting			H
3			3H	3	Timer setting time unit			
4			7H	7	Existence check start interval-T			
5			8H	8	Existence check interval-T			
6			9H	9	No. of resend times for existence check			
7			AH	10	TCP ULP timeout-T			
8			BH	11	TCP zero window-T			
9			CH	12	TCP resend-T			
10			DH	13	TCP end-T			
11			EH	14	IP setup-T			
12			FH	15	Response monitor-T			
7 – 1		Buffer memory –2	10H	16	Usage application setting		–1	H
2			11H	17			–2	H
3			12H	18			–3	H
4			13H	19			–4	H
5			14H	20			–5	H
6			15H	21			–6	H
7			16H	22			–7	H
8			17H	23			–8	H
8 – 1		Buffer memory –3	18H	24	–1	E71 port No.		
2			19~1AH	25 ~ 26		Remote node IP Add.		H
3			1BH	27		Remote node port No.		
4			1C~1EH	28 ~ 30		Remote Ethernet Add.		H
5			1F	31	–2	E71 port No.		
6			20~ 21H	32 ~ 33		Remote node IP Add.		H
7			22H	34		Remote node port No.		
8			23~ 25H	35 ~ 37		Remote Ethernet Add.		H
9			26H	38	–3	E71 port No.		
10			27~ 28H	39 ~ 40		Remote node IP Add.		H
11			29H	41		Remote node port No.		
12			2A~2CH	42 ~ 44		Remote Ethernet Add.		H

5/9	Check item		Check details				Record
	E71	Buffer memory –3	Address		Item name		Monitor value (O does not need to be noted)
8 –13			2DH	45	–4	E71 port No.	
14			2E~2FH	46 ~ 47		Remote node IP Add.	H
15			30H	48		Remote node port No.	
16			31~ 33H	49 ~ 51		Remote Ethernet Add.	H
17			34H	52	–5	E71 port No.	
18			35~ 36H	53 ~ 54		Remote node IP Add.	H
19			37H	55		Remote node port No.	
20			38~3AH	56 ~ 58		Remote Ethernet Add.	H
21			3BH	59	–6	E71 port No.	
22			3C~3DH	60 ~ 61		Remote node IP Add.	H
23			3EH	62		Remote node port No.	
24			3F~41H	63 ~ 65		Remote Ethernet Add.	H
25			42H	66	–7	E71 port No.	
26			43~ 44H	67 ~ 68		Remote node IP Add.	H
27			45H	69		Remote node port No.	
28			46~ 48H	70 ~ 72		Remote Ethernet Add.	H
29			49H	73	–8	E71 port No.	
30			4A~4BH	74 ~ 75		Remote node IP Add.	H
31			4CH	76		Remote node port No.	
32			4D~4FH	77 ~ 79		Remote Ethernet Add.	H

6/9	Check item		Check details					Record
	E71	Buffer memory –4	Address		Item name			Monitor value (O does not need to be noted)
9 – 1			50H	80	Initial error detection			
2			51~52H	81 ~ 82	E71 IP Add.			H
3			53~55H	83 ~ 85	E71Ethernet Add.			H
4			59H	89	–1	E71 port No.		
5			5A~5BH	90 ~ 91		Remote node IP Add.		H
6			5CH	92		Remote node port No.		
7			5DH	93		Open error code		
8			5EH	94		Fixed buffer transmission error		
9			5FH	95		Fixed buffer communication end		
10			60H	96		Communication time	Maximum	
11			61H	97			Minimum	
12			62H	98			Current	
13			63H	99	–2	E71 port No.		
14			64~65H	100~101		Remote node IP Add.		H
15			66H	102		Remote node port No.		
16			67H	103		Open error code		
17			68H	104		Fixed buffer transmission error		
18			69H	105		Fixed buffer communication end		
19			6AH	106		Communication time	Maximum	
20			6BH	107			Minimum	
21			6CH	108			Current	
22			6DH	109	–3	E71 port No.		
23			6E~6FH	110~111		Remote node IP Add.		H
24			70H	112		Remote node port No.		
25			71H	113		Open error code		
26			72H	114		Fixed buffer transmission error		
27			73H	115		Fixed buffer communication end		
28			74H	116		Communication time	Maximum	
29			75H	117			Minimum	
30			76H	118			Current	

7/9	Check item		Check details					Record
	E71	Buffer memory –4	Address		Item name			Monitor value (O does not need to be noted)
9 –31			77H	119	–4	E71 port No.		
32			78~ 79H	120~121		Remote node IP Add.		H
33			7AH	122		Remote node port No.		
34			7BH	123		Open error code		
35			7CH	124		Fixed buffer transmission error		
36			7DH	125		Fixed buffer communication end		
37			7EH	126		Communication time	Maximum	
38			7FH	127			Minimum	
39			80H	128			Current	
40			81H	129	–5	E71 port No.		
41			82~ 83H	130~131		Remote node IP Add.		H
42			84H	132		Remote node port No.		
43			85H	133		Open error code		
44			86H	134		Fixed buffer transmission error		
45			87H	135		Fixed buffer communication end		
46			88H	136		Communication time	Maximum	
47			89H	137			Minimum	
48			8AH	138			Current	
49			8BH	139	–6	E71 port No.		
50			8C~8DH	140~141		Remote node IP Add.		H
51			8EH	142		Remote node port No.		
52			8FH	143		Open error code		
53			90H	144		Fixed buffer transmission error		
54			91H	145		Fixed buffer communication end		
55			92H	146		Communication time	Maximum	
56			93H	147			Minimum	
57			94H	148			Current	

8/9	Check item		Check details					Record
	E71	Buffer memory –4	Address		Item name			Monitor value (O does not need to be noted)
9 –58			95H	149		E71 port No.		
59			96~ 97H	150~151		Remote node IP Add.		H
60			98H	152		Remote node port No.		
61			99H	153		Open error code		
62			9AH	154	–7	Fixed buffer transmission error		
63			9BH	155		Fixed buffer communication end		
64			9CH	156		Communication time	Maximum	
65			9DH	157			Minimum	
66			9EH	158			Current	
67			9FH	159		E71 port No.		
68			A0~A1H	160~161		Remote node IP Add.		H
69			A2H	162		Remote node port No.		
70			A3H	163		Open error code		
71			A4H	164	–8	Fixed buffer transmission error		
72			A5H	165		Fixed buffer communication end		
73			A6H	166		Communication time	Maximum	
74			A7H	167			Minimum	
75			A8H	168			Current	
10– 1		Buffer memory –5	A9H	169	Error log		–1	
2			AAH	170			–2	
3			ABH	171			–3	
4			ACH	172			–4	
5			ADH	173			–5	
6			AEH	174			–6	
7			AFH	175			–7	
8			B0H	176			–8	
9			B1H	177			–9	
10			B2H	178			–10	
11			B3H	179			–11	

9/9	Check item		Check details			Record
	E71	Buffer memory –6	Address		Item name	Monitor value (O does not need to be noted)
11–1			170H	368	No. of times IP packets received	
2			171H	369	No. of times received IP packet discarded	
3			172H	370	Total No. of transmitted IP packets	
4			180H	384	Total No. of received ICMP	
5			181H	385	No. of times received ICMP packet discarded	
6			182H	386	Total No. of transmitted ICMP packets	
7			183H	387	Total No. of received ICMP E.req.	
8			184H	388	Total No. of transmitted ICMP e.rep.	
9			185H	389	Total No. of transmitted ICMP e.req.	
10			186H	390	Total No. of received ICMP e.rep.	
11			190H	400	Total No. of received TCP packets	
12			191H	401	No. of times received TCP packet discarded	
13			192H	402	Total No. of transmitted TCP packets	
14			1A0H	416	Total No. of received UDP packets	
15			1A1H	417	No. of times received UDP packet discarded	
16			1A2H	418	Total No. of transmitted UDP packets	
17			1F0H	496	Communication instruction when stopped	H

3.3 MELSEC-QnA Series E71 Trouble Check List

1/15	Check item	Check details		Record
1 – 1	System	Operation start interval		‘ / /
2		No. of operating years		years
3		Changes from previous installation environment	Presence of changes	Yes No
4			Outline of changes	
5		Changes from previous system configuration	Presence of changes	Yes No
6			Outline of changes	
7		Connection line		10BASE2 10BASE5
8		E71 unit type		
9		Device configuration of remote node		
2 – 1	Current state	Type of trouble		
2		Phenomenon		
3		Communication details at occurrence (How did the trouble occur?)		
4		Which device does the cause seem to be at?		E71 side Remote node side
5		(Reasons for above)		
6		State of remote node		
7		Details of error occurring on remote node side		
3 – 1	CPU module	Type		
2		Version (Hardware, software)		
3		Statue (Circle corresponding state)		RUN STOP PAUSE
4		Error code		
5		Name of lit LED		
6		Name of flickering LED		
7		Details displayed on indicator display		

2/15	Check item		Check details							Record	
4 – 1	E71	State of main module	Type								
2			Version (Hardware, software)								
3			Operation mode setting switch setting No.							No.(0:On-line,1:Off-line)	
4			Communication condition setting switch	SW1	TCP timeout selection					ON OFF	
5				SW2	Data code selection					ON OFF	
6				SW3	Automatic start mode					ON OFF	
7				SW4	–					ON OFF	
8				SW5	–					ON OFF	
9				SW6	–					ON OFF	
10				SW7	CPU communication timing					ON OFF	
11				SW8	Initial timing					ON OFF	
12			Connection type (Circle current state)							10BASE2 10BASE5	
13			Name of lit LED								
14			Name of flickering LED								
5 – 1		State of input signals	X0	Transmission normal/ reception end –1		ON OFF	Y0	Transmission request or reception confirmation		–1	ON OFF
2			X1	Transmission error detection –1		ON OFF	Y1			–2	ON OFF
3			X2	Transmission normal/ reception end –2		ON OFF	Y2			–3	ON OFF
4			X3	Transmission error detection –2		ON OFF	Y3			–4	ON OFF
5			X4	Transmission normal/ reception end –3		ON OFF	Y4			–5	ON OFF
6			X5	Transmission error detection –3		ON OFF	Y5			–6	ON OFF
7			X6	Transmission normal/ reception end –4		ON OFF	Y6			–7	ON OFF
8			X7	Transmission error detection –4		ON OFF	Y7			–8	ON OFF

3/15	Check item		Check details				Record			
5 – 9	E71	State of input signals	X8	Transmission normal/ reception end	–5	ON OFF	Y8	Open request	–1	ON OFF
10			X9	Transmission error detection	–5	ON OFF	Y9		–2	ON OFF
11			XA	Transmission normal/ reception end	–6	ON OFF	YA		–3	ON OFF
12			XB	Transmission error detection	–6	ON OFF	YB		–4	ON OFF
13			XC	Transmission normal/ reception end	–7	ON OFF	YC		–5	ON OFF
14			XD	Transmission error detection	–7	ON OFF	YD		–6	ON OFF
15			XE	Transmission normal/ reception end	–8	ON OFF	YE		–7	ON OFF
16			XF	Transmission error detection	–8	ON OFF	YF		–8	ON OFF
17		State of output signal	X10	Open end	–1	ON OFF	Y10	EEPROM read request		ON OFF
18			X11		–2	ON OFF	Y11	EEPROM write request		ON OFF
19			X12		–3	ON OFF	Y12	Use prohibited		ON OFF
20			X13		–4	ON OFF	Y13			ON OFF
21			X14		–5	ON OFF	Y14			ON OFF
22			X15		–6	ON OFF	Y15			ON OFF
23			X16		–7	ON OFF	Y16			ON OFF
24			X17		–8	ON OFF	Y17	COM. ERR. turn off request		ON OFF
25			X18	Open error detection		ON OFF	Y18	Use prohibited		ON OFF
26			X19	Initial normal end		ON OFF	Y19	Initial request		ON OFF
27			X1A	Initial error detection		ON OFF	Y1A	Use prohibited		ON OFF
28			X1B	Use prohibited		ON OFF	Y1B			ON OFF
29			X1C	COM. ERR. turned on		ON OFF	Y1C			ON OFF
30			X1D	EEPROM read end		ON OFF	Y1D	Use prohibited		ON OFF
31			X1E	EEPROM write end		ON OFF	Y1E			ON OFF
32			X1F	Watch dog timer errordetection		ON OFF	Y1F			ON OFF

4/15	Check item		Check details				Record
	E71	Buffer memory –1	Address		Item name		Monitor value (O does not need to be noted)
6 – 1			0 ~ 1H	0 ~ 1	Local station IP address		H
2			4H	2	Special function setting		H
3			BH	11	TCP ULP timeout		
4			CH	12	TCP zero window-T		
5			DH	13	TCP resend-T		
6			EH	14	TCP end-T		
7			FH	15	IP setup-T		
8			10H	16	Response monitor-T		
9			11H	17	Existence check start interval-T		
10			12H	18	Existence check interval-T		
11			13H	19	No. of resend times for existence check		
12			14H	20	Automatic - O - UDP port No.		
7 – 1		Buffer memory –2	20H	32	Usage application setting	–1	H
2			21H	33		–2	H
3			22H	34		–3	H
4			23H	35		–4	H
5			24H	36		–5	H
6			25H	37		–6	H
7			26H	38		–7	H
8			27H	39		–8	H
8 – 1		Buffer memory –3	28H	40	–1	E71 port No.	
2			29 ~ 2AH	41 ~ 42		Remote node IP Add.	H
3			2BH	43		Remote node port No.	
4			2C ~ 2EH	44 ~ 46		Remote Ethernet Add.	H
5			2F	47	–2	E71 port No.	
6			30 ~ 31H	48 ~ 49		Remote node IP Add.	H
7			32H	50		Remote node port No.	
8			33 ~ 35H	51 ~ 53		Remote Ethernet Add.	H
9			36H	54	–3	E71 port No.	
10			37 ~ 38H	55 ~ 56		Remote node IP Add.	H
11			39H	57		Remote node port No.	
12			3A ~ 3CH	58 ~ 60		Remote Ethernet Add.	H

5/15	Check item		Check details				Record
	E71	Buffer memory –3	Address		Item name		Monitor value (O does not need to be noted)
8 –13			3DH	61	–4	E71 port No.	
14			3E ~ 3FH	62 ~ 63		Remote node IP Add.	H
15			40H	64		Remote node port No.	
16			41 ~ 43H	65 ~ 67		Remote Ethernet Add.	H
17			44H	68	–5	E71 port No.	
18			45 ~ 46H	69 ~ 70		Remote node IP Add.	H
19			47H	71		Remote node port No.	
20			48 ~ 4AH	72 ~ 74		Remote Ethernet Add.	H
21			4BH	75	–6	E71 port No.	
22			4C ~ 4DH	76 ~ 77		Remote node IP Add.	H
23			4EH	78		Remote node port No.	
24			4F ~ 51H	79 ~ 81		Remote Ethernet Add.	H
25			52H	82	–7	E71 port No.	
26			53 ~ 54H	83 ~ 84		Remote node IP Add.	H
27			55H	85		Remote node port No.	
28			56 ~ 58H	86 ~ 88		Remote Ethernet Add.	H
29			59H	89	–8	E71 port No.	
30			5A ~ 5BH	90 ~ 91		Remote node IP Add.	H
31			5CH	92		Remote node port No.	
32			5D ~ 5FH	93 ~ 95		Remote Ethernet Add.	H

6/15	Check item		Check details					Record
	E71	Buffer memory –4	Address		Item name			Monitor value (O does not need to be noted)
9 – 1			67H	103	Communication instruction when stopped			H
10 –1		Buffer memory –5	69H	105	Initial error detection			
2			6A ~ 6BH	106~107	E71 IP Add.			H
3			6C ~ 6EH	108~110	E71 Ethernet Add.			H
4			70H	112	EEPROM register status			H
5			71H	113	Parameter use status			H
6			72H	114	EEPROM read result			
7			73H	115	EEPROM write result			
8			74H	116	Automatic - O – UDP port No.			
9			76H	118	N/W-No., station No.			
10			77H	119	Group No.			
11			78H	120	–1	E71 port No.		
12			79 ~ 7AH	121~122		Remote node IP Add.		H
13			7BH	123		Remote node port No.		
14			7CH	124		Open error code		
15			7DH	125		Fixed buffer transmission error		
16			7EH	126		Fixed buffer communication end		
17			7FH	127		Communication time	Maximum	
18			80H	128			Minimum	
19			81H	129			Current	
20			82H	130	–2	E71 port No.		
21			83 ~ 84H	131~132		Remote node IP Add.		H
22			85H	133		Remote node port No.		
23			86H	134		Open error code		
24			87H	135		Fixed buffer transmission error		
25			88H	136		Fixed buffer communication end		
26			89H	137		Communication time	Maximum	
27			8AH	138			Minimum	
28			8BH	139			Current	

7/15	Check item		Check details					Record
	E71	Buffer memory –5	Address		Item name			Monitor value (O does not need to be noted)
10–29			8CH	140	–3	E71 port No.		
30			8D ~ 8EH	141~142		Remote node IP Add.		H
31			8FH	143		Remote node port No.		
32			90H	144		Open error code		
33			91H	145		Fixed buffer transmission error		
34			92H	146		Fixed buffer communication end		
35			93H	147		Communication time	Maximum	
36			94H	148			Minimum	
37			95H	149			Current	
38			96H	150	–4	E71 port No.		
39			97 ~ 98H	151~152		Remote node IP Add.		H
40			99H	153		Remote node port No.		
41			9AH	154		Open error code		
42			9BH	155		Fixed buffer transmission error		
43			9CH	156		Fixed buffer communication end		
44			9DH	157		Communication time	Maximum	
45			9EH	158			Minimum	
46			9FH	159			Current	
47			A0H	160	–5	E71 port No.		
48			A1 ~ A2H	161~162		Remote node IP Add.		H
49			A3H	163		Remote node port No.		
50			A4H	164		Open error code		
51			A5H	165		Fixed buffer transmission error		
52			A6H	166		Fixed buffer communication end		
53			A7H	167		Communication time	Maximum	
54			A8H	168			Minimum	
55			A9H	169			Current	

8/15	Check item		Check details					Record
	E71	Buffer memory –5	Address		Item name			Monitor value (O does not need to be noted)
10–56			AAH	170		E71 port No.		
57			AB ~ ACH	171~172		Remote node IP Add.		H
58			ADH	173		Remote node port No.		
59			AEH	174		Open error code		
60			AFH	175	–6	Fixed buffer transmission error		
61			B0H	176		Fixed buffer communication end		
62			B1H	177		Communication time	Maximum	
63			B2H	178			Minimum	
64			B3H	179			Current	
65			B4H	180		E71 port No.		
66			B5 ~ B6H	181~182		Remote node IP Add.		H
67			B7H	183		Remote node port No.		
68			B8H	184		Open error code		
69			B9H	185	–7	Fixed buffer transmission error		
70			BAH	186		Fixed buffer communication end		
71			BBH	187		Communication time	Maximum	
72			BCH	188			Minimum	
73			BDH	189			Current	
74			BEH	190		E71 port No.		
75			BF ~ C0H	191~192		Remote node IP Add.		H
76			C1H	193		Remote node port No.		
77			C2H	194		Open error code		
78			C3H	195	–8	Fixed buffer transmission error		
79			C4H	196		Fixed buffer communication end		
80			C5H	197		Communication time	Maximum	
81			C6H	198			Minimum	
82			C7H	199			Current	

9/15	Check item		Check details				Record
	E71	Buffer memory –5	Address		Item name		Monitor value (O does not need to be noted)
10–83			C8H	200	LED lighting state (left side)		H
84			C9H	201	LED lighting state (right side)		H
85			CAH	202	Operation mode setting		H
86			CBH	203	Communication condition setting		H
87			CDH	205	RECV command execution result		H
88			CFH	207	Data link command execution result	CH1	
89			D1H	209		CH2	
90			D3H	211		CH3	
91			D5H	213		CH4	
92			D7H	215		CH5	
93			D9H	217		CH6	
94			DBH	219		CH7	
95			DDH	221		CH8	
10– 1		Buffer memory –6	E3H	227	No. of errors generated		
2			E4H	228	Error log write pointer		
3			E5H	229	Error log 1	Error end	
4			E6H	230		Subheader	
5			E7H	231		COM. Code	H
6			E8H	232		CON.-No.	
7			E9H	233		E71 port	
8			EA ~ EBH	234~235		Remote node IP Add.	H
9			ECH	236		Remote node port	
10			EDH	237		–	
11			EEH	238	Error log 2	Error end	
12			EFH	239		Subheader	
13			F0H	240		COM. Code	H
14			F1H	241		CON.-No.	
15			F2H	242		E71 port	
16			F3 ~ F4H	243~244		Remote node IP Add.	H
17			F5H	245		Remote node port	
18			F6H	246		–	

10/15	Check item		Check details				Record
	E71	Buffer memory –6	Address		Item name		Monitor value (O does not need to be noted)
19			F7H	247	Error log 3	Error end	
20			F8H	248		Subheader	
21			F9H	249		COM. Code	H
22			FAH	250		CON.-No.	
23			FBH	251		E71 port	
24			FC ~ FDH	252~253		Remote node IP Add.	H
25			FEH	254		Remote node port	
26			FFH	255		–	
27			100H	256	Error log 4	Error end	
28			101H	257		Subheader	
29			102H	258		COM. Code	H
30			103H	259		CON.-No.	
31			104H	260		E71 port	
32			105 ~ 106H	261~262		Remote node IP Add.	H
33			107H	263		Remote node port	
34			108H	264		–	
35			109H	265	Error log 5	Error end	
36			10AH	266		Subheader	
37			10BH	267		COM. Code	H
38			10CH	268		CON.-No.	
39			10DH	269		E71 port	
40			10E~ 10FH	270~271		Remote node IP Add.	H
41			110H	272		Remote node port	
42			111H	273		–	
43			112H	274	Error log 6	Error end	
44			113H	275		Subheader	
45			114H	276		COM. Code	H
46			115H	277		CON.-No.	
47			116H	278		E71 port	
48			117 ~ 118H	279~280		Remote node IP Add.	H
49			119H	281		Remote node port	
50			11AH	282		–	

11/15	Check item		Check details				Record
	E71	Buffer memory –6	Address		Item name		Monitor value (O does not need to be noted)
10–51			11BH	283	Error log 7	Error end	
52			11CH	284		Subheader	
53			11DH	285		COM. Code	H
54			11EH	286		CON.-No.	
55			11FH	287		E71 port	
56			120 ~ 121H	288~289		Remote node IP Add.	H
57			122H	290		Remote node port	
58			123H	291		–	
59			124H	292	Error log 8	Error end	
60			125H	293		Subheader	
61			126H	294		COM. Code	H
62			127H	295		CON.-No.	
63			128H	296		E71 port	
64			129 ~12AH	297~298		Remote node IP Add.	H
65			12BH	299		Remote node port	
66			12CH	300		–	
67			12DH	301	Error log 9	Error end	
68			12EH	302		Subheader	
69			12FH	303		COM. Code	H
70			130H	304		CON.-No.	
71			131H	305		E71 port	
72			132 ~ 133H	306~307		Remote node IP Add.	H
73			134H	308		Remote node port	
74			135H	309		–	
75			136H	310	Error log 10	Error end	
76			137H	311		Subheader	
77			138H	312		COM. Code	H
78			139H	313		CON.-No.	
79			13AH	314		E71 port	
80			13B~ 13CH	315~316		Remote node IP Add.	H
81			13DH	317		Remote node port	
82			13EH	318		–	

12/15	Check item		Check details				Record
	E71	Buffer memory –6	Address		Item name		Monitor value (O does not need to be noted)
10–83			13FH	319	Error log 11	Error end	
84			140H	320		Subheader	
85			141H	321		COM. Code	H
86			142H	322		CON.-No.	
87			143H	323		E71 port	
88			144 ~ 145H	324~325		Remote node IP Add.	H
89			146H	326		Remote node port	
90			147H	327		–	
91			148H	328	Error log 12	Error end	
92			149H	329		Subheader	
93			14AH	330		COM. Code	H
94			14BH	331		CON.-No.	
95			14CH	332		E71 port	
96			14D~14EH	333~334		Remote node IP Add.	H
97			14FH	335		Remote node port	
98			150H	336		–	
99			151H	337	Error log 13	Error end	
100			152H	338		Subheader	
101			153H	339		COM. Code	H
102			154H	340		CON.-No.	
103			155H	341		E71 port	
104			156 ~ 157H	342~343		Remote node IP Add.	H
105			158H	344		Remote node port	
106			159H	345		–	
107			15AH	346	Error log 14	Error end	
108			15BH	347		Subheader	
109			15CH	348		COM. Code	H
110			15DH	349		CON.-No.	
111			15EH	350		E71 port	
112			15F ~160H	351~352		Remote node IP Add.	H
113			161H	353		Remote node port	
114			162H	354		–	

13/15	Check item		Check details				Record
	E71	Buffer memory –6	Address		Item name		Monitor value (O does not need to be noted)
115			163H	355	Error log 15	Error end	
116			164H	356		Subheader	
117			165H	357		COM. Code	H
118			166H	358		CON.-No.	
119			167H	359		E71 port	
120			168 ~ 169H	360~361		Remote node IP Add.	H
121			16AH	362		Remote node port	
122			16BH	363		–	
123			16CH	364	Error log 16	Error end	
124			16DH	365		Subheader	
125			16EH	366		COM. Code	H
126			16FH	367		CON.-No.	
127			170H	368		E71 port	
128			171 ~ 172H	369~370		Remote node IP Add.	H
129			173H	371		Remote node port	
130			174H	372		–	
11– 1		Buffer memory –7	178~179H	376~377	No. of times IP-P received		
2			17A~17BH	378~379	No. of times received IP-P discarded		
3			17C~17DH	380~381	Total No. of transmitted IP-P		
4			198~199H	408~409	Total No. of received ICMP		
5			19A~19BH	410~411	No. of times received ICMP-P discarded		
6			19C~19DH	412~413	Total No. of transmitted ICMP-P		
7			19E~19FH	414~415	Total No. of received ICMP E.req.		
8			1A0~1A1H	416~417	Total No. of transmitted ICMP e.rep.		
9			1A2~1A3H	418~419	Total No. of transmitted ICMP e.req.		
10			1A4~1A5H	420~421	Total No. of received ICMP e.rep.		
11			1B8~1B9H	440~441	Total No. of received TCP-P		

14/15	Check item		Check details			Record
	E71	Buffer memory –7	Address		Item name	Monitor value (O does not need to be noted)
12			1BA~1BBH	442~443	No. of times received TCP-P discarded	
13			1BC~ 1BDH	444~445	Total No. of transmitted TCP-P	
14			1D8~1DBH	472~473	Total No. of received UDP-P	
15			1DA~ 1DBH	474~475	No. of times received UDP-P discarded	
16			1DC~ 1DDH	476~477	Total No. of transmitted UDP-P	
12 –1		Buffer memory – 8	200~201H	512~513	Subnet mask	H
2			202~203H	514~515	Default router IP	H
3			204H	516	No. of registered routers	
4			205~206H	517~518	Subnet Add.-1	H
5			207~208H	519~520	Router IP IP Add.-1	H
6			209~20AH	521~522	Subnet Add.-2	H
7			20B~20CH	523~524	Router IP IP Add.-2	H
8			20D~20EH	525~526	Subnet Add.-3	H
9			20F~210H	527~528	Router IP IP Add.-3	H
10			211~212H	529~530	Subnet Add.-4	H
11			213~214H	531~532	Router IP IP Add.-4	H
12			215~216H	533~534	Subnet Add.-5	H
13			217~218H	535~536	Router IP IP Add.-5	H
14			219~21AH	537~538	Subnet Add.-6	H
15			21B~21CH	539~540	Router IP IP Add.-6	H
16			21D~21EH	541~542	Subnet Add.-7	H
17			21F~220H	543~544	Router IP IP Add.-7	H
18			221~222H	545~546	Subnet Add.-8	H
19			223~224H	547~548	Router IP IP Add.-8	H

15/15	Check item		Check details			Record
	E71	Buffer memory –9	Address		Item name	Monitor value (O does not need to be noted)
13 –1			228H	552	No. of conversion table data items	
2			229~22AH	553~554	Communication request N/W, station No. -1	H
3			22B~22CH	555~556	N/W E71 IP Add. -1	H
4			22F~230H	559~560	Communication request N/W, station No. -2	H
5			231~232H	561~562	N/W E71 IP Add. -2	H
6			235~236H	565~566	Communication request N/W, station No. -3	H
7			237~238H	567~568	N/W E71 IP Add. -3	H
8			23B~23CH	571~572	Communication request N/W, station No. -4	H
9			23D~23EH	573~574	N/W E71 IP Add. -4	H
10			241~242H	577~578	Communication request N/W, station No. -5	H
11			243~244H	579~580	N/W E71 IP Add. -5	H
12			247~248H	583~584	Communication request N/W, station No. -6	H
13			249~24AH	585~586	N/W E71 IP Add. -6	H
:			:	:	:	
:			:	:	:	