MITSUBISHI

PROGRAMMABLE CONTROLLER

MELSEC-A

Mitsubishi General Use PC User's Manual

PROFIBUS-FMS interface module type AJ71PB96F/A1SJ71PB96F (Hardware)

Thank you for buying the Mitsubishi General Use PC MELSEC-A Series.
Before use, please read this manual carefully and correctly operate the module with a sufficient understanding of the A series PC functions and performance.
Please place this manual in a location where it is available to end users.

MODEL	A1SJ71PB96F-U-H/W-E
MODEL CODE	13JL18

MITSUBISHI ELECTRIC
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SAFETY PRECAUTIONS

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in this manual. Also pay careful attention to safety and handle the module properly.
These precautions apply only to Mitsubishi equipment. Refer to the CPU module user's manual for a description of the PC system safety precautions.
These ySAFETY PRECAUTIONSy classify the safety precautions into two categories: "DANGER" and "CAUTION".

! **DANGER**	**Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.**
#**CAUTION**	**Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.**

Depending on circumstances, procedures indicated by #**CAUTION** may also be linked to serious results.
In any case, it is important to follow the directions for usage.
Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[DESIGN PRECAUTIONS]

#**CAUTION**
• When the PROFIBUS cable is laid, do not lay it close to main circuits or power lines. They should be installed 100mm(3.9inch) or more from each other. Not doing so could result in noise that would cause malfunction.

[INSTALLATION PRECAUTIONS]

#CAUTION
• Use the module in the environment given in the general specifications of the CPU module's User's Manual. Using the module outside the range of the general specifications may result in electric shock, fire or malfunction, or may damage or degrade the module. • Insert the tabs at the bottom of the module into the mounting holes in the base unit before installing the module and tighten the module fixing screw by the specified torque. Not installing the module correctly could result in malfunction, breakdowns or pieces of the product falling. • Do not touch the conductive area or electric parts of the module. Doing so may cause module malfunction or breakdowns. • Tighten the screws with the specified torque. If the screws are loose, it could result in falling, breaks or malfunction of the module. If the screws are too tight, it could result in falling, breaks or malfunction due to damage of the screws or the module.

[WIRING PRECAUTIONS]

#CAUTION
• Switch all phases of the external power supply of the PC system off before connecting the PROFIBUS cable. Not doing so could cause failure or malfunction of the module. • Be careful not to let foreign matter such as filings or wire chips get inside the module. These can cause fire, breakdowns and malfunction.

[STARTING AND MAINTENANCE PRECAUTIONS]

! DANGER
• Switch all phases of the external power supply off before cleaning. Not doing so could cause electric shock.

[STARTING AND MAINTENANCE PRECAUTIONS]

#CAUTION
• Never disassemble or modify the module. This may cause breakdowns, malfunction, injury and/or fire. • Switch all phases of the external power supply off before mounting or removing the module. If you do not switch off the external power supply, it will cause breakdowns or malfunction of the module.

[OPERATING PRECAUTIONS]

#CAUTION
• The online operations conducted for the CPU module being operated (especially when changing data or operation status), shall be conducted after the manual has been carefully read and a sufficient check of safety has been conducted. Operation mistakes could cause breakdowns to or malfunction of the module.

[DISPOSAL PRECAUTIONS]

#CAUTION
• When disposing of this product, treat it as industrial waste.

Revisions

* The manual number is noted at the lower left of the back cover.

Print Date	*Manual Number	Revision
Mar. 1997	IB (NA)-66770-A	First Printing

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SAFETY PRECAUTIONS
About This Manual

1. OVERVIEW ••••••

About This Manual

The following are manuals related to this product.
Request for the manuals as needed according to the chart below.

Detailed Mnual

Manual Name	Manual No. (Model Code)
PROFIBUS-FMS interface module type A1SJ71PB96F User's Manual	IB-66771 (13JL19)

Related Manuals

Manual Name	Manual No. (Model Code)
type SW0IX-PROFPE Operating Manual	IB-66772 (13JL20)

1. OVERVIEW

This manual explains the system configuration, specifications, procedures before operation and error codes for the type A1SJ71PB96F PROFIBUS-FMS interface module (hereafter abbreviated as A1SJ71PB96F) used to incorporate the PC CPU to the PROFIBUS-FMS network system.

2. SYSTEM CONFIGURATION

2.1 Applicable CPU Modules

The following table shows the CPUs that the A1SJ71PB96F can use and the number that can be installed.

Applicable CPU Modules	Installable Number	Remarks
A1SCPU-C24	1	*2
A1SJCPU, A1SJCPU-S3 A1SCPU, A1SCPU-S1 A2SCPU, A2SCPU-S1	2	
A2ASCPU, A2ASCPU-S1 A2ASCPU-S30, A2ASCPU-S60	6	
Q2ASCPU, Q2ASCPU-S1, *1 Q2ASHCPU, Q2ASHCPU-S1		

*1: The accessible range is the A2ASCPU range.

*2: When used with the special function modules (including the previous models such as the computer link module, Ethernet module, etc.) the total installable number of modules will include the number of these modules used.

- A1SJ71UC24-R2 (R4/PRF)
- A1SJ71E71-B2-S3 (-B5-S3)
- A1SD51S
- A1SD21-S1
- A1SJ61BT11: Only during intelligent mode
- AJ71UC24
- AJ71E71-S3
- AD51H-S3
- AD51-S3
- AD51FD-S3
- AD57G-S3
- A870GOT: Only when connected to bus
- A850GOT: Only when connected to bus
- A851GOT
- AJ71C21-S1: Only during the basic program mode
- AJ71C23-S3
- AD22-S1
- AJ61BT11: Only during intelligent mode

However, when the computer link module (A1SJ71UC24-R2, etc.) is used as a multiple drop link module, there is no limit to the above number of installable modules. Multiple modules can be installed within the number of I/O points in the PC CPU.

2.2 Installable Base Units

The base units that can be installed in the A1SJ71PB96F are shown below.

Installable Base Units	
Basic base unit	Expansion base unit *
A1S32B, A1S33B, A1S35B, A1S38B, A1S38HB	A1S52B (S1), A1S55B (S1), A1S58B (S1), A1S65B (S1), A1S68B (S1)

*: The no power supply module expansion base unit A1S5 [ ] B (S1) may not have sufficient power supply capacity, so use the A1S6 [ ] B (S1) when installing a A1SJ71PB96F in the expansion base unit.
When the A1S5 [ ] B (S1) must be installed, do so after referring to the chapter covering power supplies in the respective CPU module user's manual.

2.3 Combining with MELSECNET (II), MELSECNET/B, and MELSECNET/10

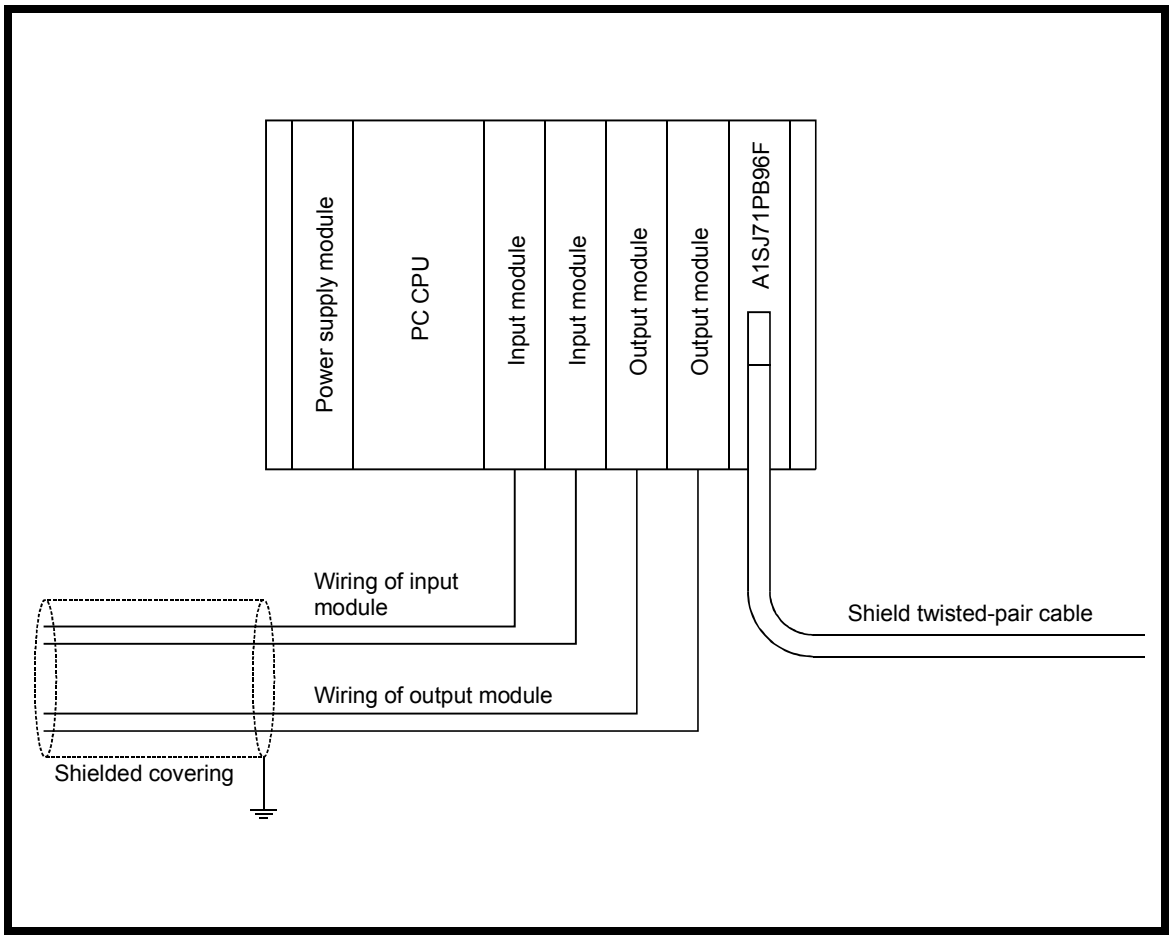
The A1SJ71PB96F can be installed in the MELSECNET (II) and MELSECNET/B master stations and local stations, and in the MELSECNET/10 control stations and normal stations.
However, the A1SJ71PB96F cannot be installed in the MELSECNET (II), MELSECNET/B, and MELSECNET/10 remote stations, so be careful.

2.4 Precautions Against Wiring

As one of the requirements to give full play to A1SJ71PB96F's functions and make up the system with high reliability, it is necessary to have an external wiring unsusceptible to an influence of noise. Precautions against external wiring of A1SJ71PB96F is described below.

(1) Do not route the wire of A1SJ71PB96F close to or bundle it together with the main circuit and high-tension lines, or the load-carrying lines from other than the PC. Otherwise, the module may be susceptible to an influence of noise and surge induction.

(2) The wires from the input/output modules of the PC should be away from the communication cable of PROFIBUS-FMS interface module as far as possible as shown in the figure below.



(3) Grounding

(a) When the PROFIBUS-FMS interface module is used, the FG and LG terminals of the power supply module of the PC should basically be grounded.

(b) If communication cannot be performed after grounding because of abnormal voltage applied to the FG terminal, the module may be used without grounding.

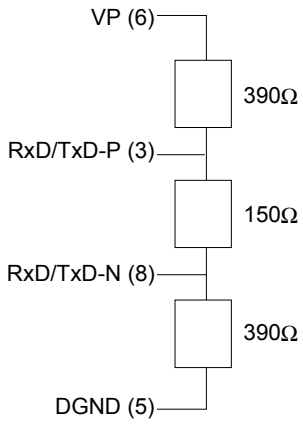
(4) When the A1SJ71PB96F's bus termination switch is set to on (has terminal resistor), do not remove the PROFIBUS cable from the A1SJ71PB96F during PROFIBUS-FMS network operation. If the cable is removed, then the terminal resistor in the network will disappear, causing an error and bringing down the network.

3. PERFORMANCE SPECIFICATIONS

Item		Specifications
Transmission speed		9.6, 19.2, 93.75, 187.5, 500, 1500kbps
Coding method		NRZ
Synchronization method		Asynchronous
Electrical standards and characteristics		EIA-RS485 compliance
Medium		Shield twisted cable
Network configuration (topology)		Bus type (However, tree type when a repeater is used)
Transmission distance	9.6kbps 19.2kbps 93.75kbps	1200m (3937ft.)
	187.5kbps	600m (1969ft.)
	500kbps	200m (656ft.)
	1500kbps	100m (328ft.)
Number of connection nodes		32, 62 (1 repeater), 9 (2 repeaters), 122 (3 repeaters)
Number of repeaters/network *1		3 repeaters (max)
Data link method		Token passing (between master-master), polling (between master-slave)
Transmittable data		241 bytes (max)/1 time
Number of occupied I/O points		32 points (I/O allocation: special 32 points)
5VDC internal power consumption (A)		0.56
Withstand noise, withstand voltage, insulation resistance		According to the power supply module specifications of the system in which the A1SJ71PB96F will be installed. (Refer to the CPU module's users manual.)
External dimensions (mm)		130 (5.12in.) (H) × 34.5 (1.36in.) (W) × 97.6 (3.84in.) (D)
Weight (kg)		0.27 (0.59lb)

*1 The transmission distance (m/network) can be extended by using a repeater.
Transmission distance (m/network) = (number of repeaters + 1) × transmission distance (m/segment)

*2 Transmission line

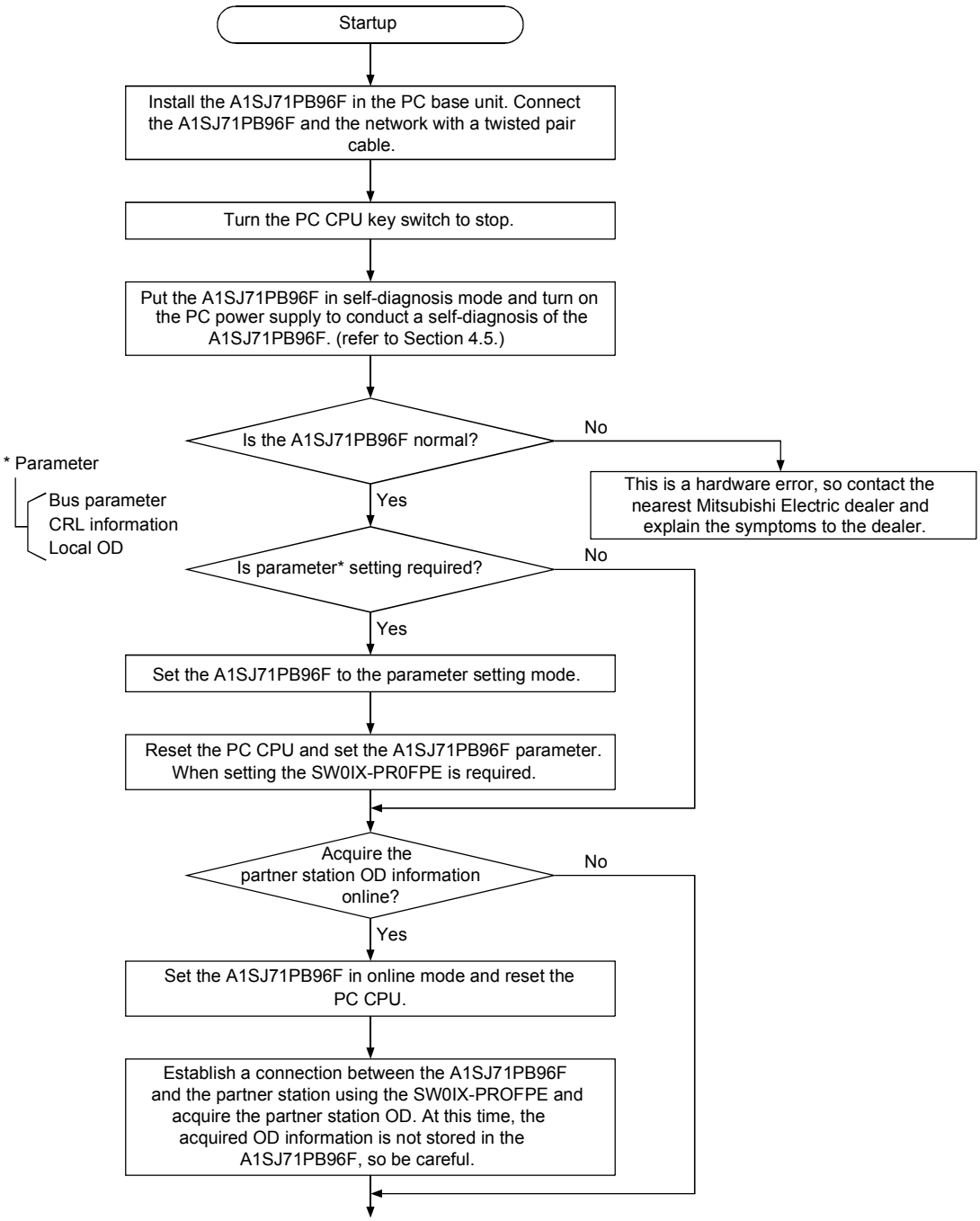
Items	Specifications	Remarks
PROFIBUS cable impedance Capacity Conductor resistance Conductor cross section area	Twisted pair cable 100 to 120Ω (>100kHz) <60nF/km <160Ω/km >0.22mm^2	User distribution
Terminal resistance		Set yes/no by the main module switch

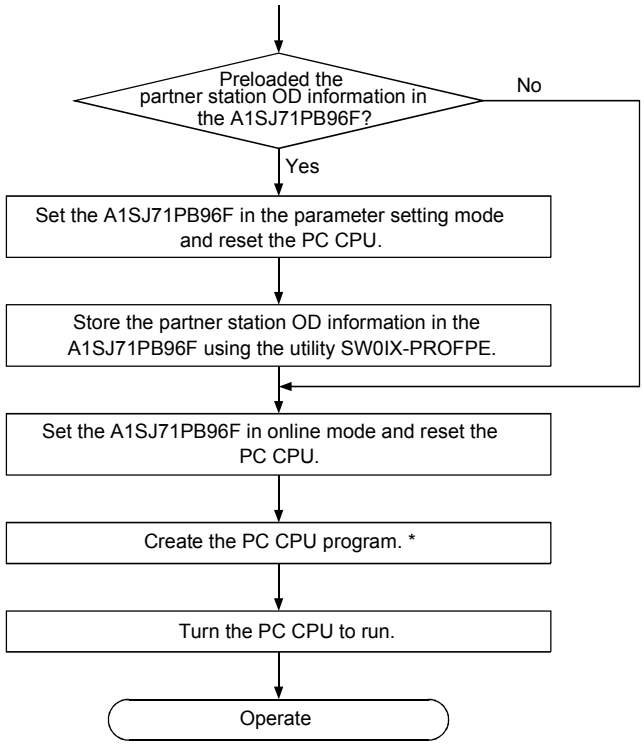
Refer to the Use's Manual for the CPU Module that you use about general specifications.

4. PROCEDURES BEFORE SYSTEM OPERATION

4.1 Procedures before Operation

The procedure for newly connecting A1SJ71PB96F to an existing PROFIBUS-FMS network is explained below.





Point

*: Creation of a sequence program is required when the PC launches communication or when the PC is used as a client. Creating a sequence program is not required when the PC is used as a server or when answering a request from a client.

4.2 I/O Signal List

The configuration of the I/O signal to be used to receive and send data with A1SJ71PB96F and the PC CPU is shown below.

Signal direction: A1SJ71PB96F→PC CPU		Signal direction: PC CPU→A1SJ71PB96F	
Device No.	**Description**	**Device No.**	**Description**
X00	Request process end signal (Area No. 1)	Y00	Request request signal (Area No. 1)
X01	Request process end signal (Area No. 2)	Y01	Request request signal (Area No. 2)
X02	Request process end signal (Area No. 3)	Y02	Request request signal (Area No. 3)
X03	UCS receive signal (Receive only area)	Y03	UCS read end signal (Receive only area)
X04	Usage not possible	Y04	Unused
⋮		Y05	Usage prohibited because used by system
X0C		Y06	
		Y07	Unused
		⋮	
		Y0f	
X0D	PROFIBUS-FMS I/F WDT error signal		
X0E	Usage not possible	Y10	Usage not possible
⋮		Y11	Unused
X1A		⋮	
		Y19	
X1B	PROFIBUS-FMS I/F communication Ready signal	Y1A	Usage prohibited because used by the system
X1C	PROFIBUS-FMS I/F error signal	⋮	
X1D	PROFIBUS-FMS I/F module Ready signal		
X1E	Usage not possible	Y1F	
X1F			

Remark

- WDT: Watchdog timer
- The Y unused area can be used in place of the internal relay M.
- Refer to the PC CPU User's Manual for information regarding the relationship between the I/O No. and slot.
- UCS: Unconfirmed Service

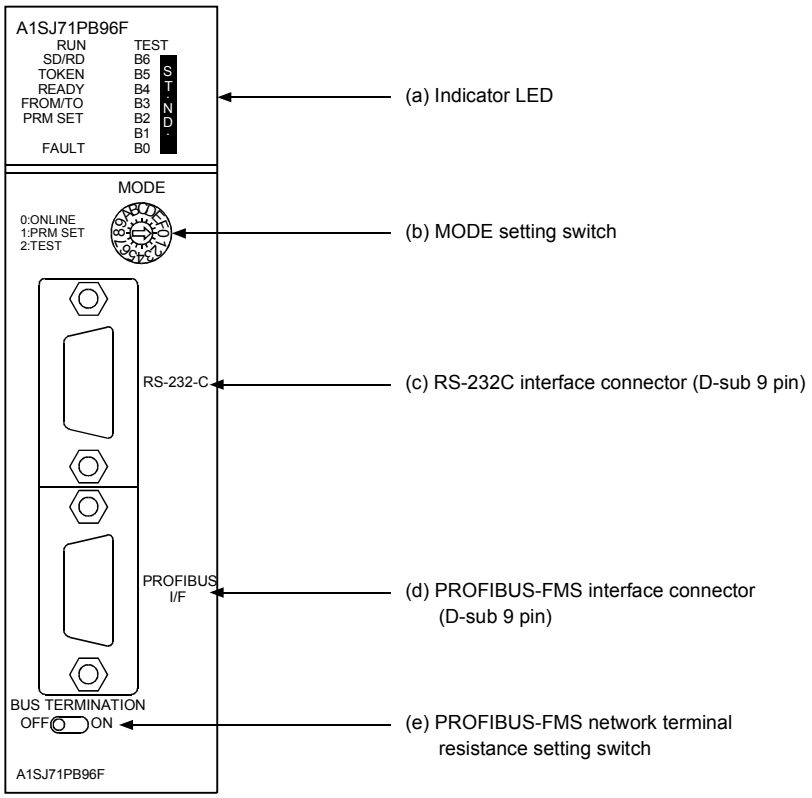
4.3 Buffer Memory

The configuration of the buffer memory used to receive and send data with the A1SJ71PB96F and the PC CPU is shown below.

Address (decimal/hexadecimal)		The unit is word (16 bits).
0/ to 63/	0h to 3Fh	Request area No. 1 (Description) This is the area in which the PC CPU sets the request data.
64/ to 127/	40h to 7Fh	Request answer area No. 1 (Description) This is the area in which the answer for the request area No. 1 request is returned.
128/ to 191/	80h to BFh	Request area No. 2 (Description) Same as No. 1.
192/ to 255/	C0h to FFh	Request answer area No. 2 (Description) Same as No. 1.
256/ to 319/	100h to 13Fh	Request area No. 3 (Description) Same as No. 1.
320/ to 383/	140h to 17Fh	Request answer area No. 3 (Description) Same as No. 1.
384/ to 447/	180h to 1BFh	Unused (Reserved)
448/ to 511/	1C0h to 1FFh	Receive area (Description) The unconfirmed service receive control information is set. The received data is set in the reception only data area.
512/ to 1152/	200h to 480h	Information area (Description) This area displays the association information.
		Unused
1376/ to 1407/	560h to 57Fh	Network trouble information area (Description) This area displays the media level trouble information.
		Unused
1536/ to 2047/	600h to 7FFh	Data area No. 1 (Description) This is the area in which the data to be read/write by the client function using the request area No. 1 is set.
2048/ to 2559/	800h to 9FFh	Data area No. 2 (Description) Same as No. 1
2560/ to 3071/	A00h to BFFh	Data area No. 3 (Description) Same as No. 1
3072/ to 3535/	C00h to DCFh	Receive data area (Description) This sets the data received by the unconfirmed service.

4.4 Part Names and Settings

Following is an explanation of the AISJ71PB96F part names and settings.



No.	Name	Description		Remarks
(a)	LED	Displays the A1SJ71PB96F status.		
		Name	Display description	
		RUN	Displays the A1SJ71PB96F operation status. Turned on: During normal operation Turned off: When there is an error	
		SD/RD	Turns on when data is transmitted/received on the PROFIBUS-FMS network.	
		TOKEN	Turns on when token is maintained.	
		READY	Turns on when the PROFIBUS-FMS network subscription preparation is completed and during subscription.	
		FROM/TO	Turns on when a FROM/TO instruction from the PC CPU is executed.	
		PRM.SET	Turns on during the parameter setting mode.	
		FAULT	Turns on when an error occurs.	
		TEST	Turns on when a self-diagnosis is executing.	
		B0 to B6	Displays the station address during normal operation (binary). Displays the test type during a self-diagnosis.	

<table>
<tr><th>No.</th><th>Name</th><th colspan="2">Description</th><th>Remark</th></tr>
<tr><td rowspan="6">(b)</td><td rowspan="6">Mode setting switch</td><td colspan="2">This sets the A1SJ71PB96F operation status. (at time of shipment: 0)</td><td rowspan="6"></td></tr>
<tr><td>Switch No.</td><td>MODE</td></tr>
<tr><td>0</td><td>Online mode</td></tr>
<tr><td>1</td><td>Parameter setting mode</td></tr>
<tr><td>2</td><td>Self-diagnosis mode (refer to section 4.5)</td></tr>
<tr><td>3 to F</td><td>Not usable</td></tr>
<tr><td>(c)</td><td>RS-232C interface connector</td><td colspan="2">Connector for connecting the peripheral equipment that conduct the A1SJ71PB96F operation.</td><td>*1</td></tr>
<tr><td>(d)</td><td>PROFIBUS interface connector</td><td colspan="2">Connector for connecting the table for the PROFIBUS-FMS network.</td><td>*2</td></tr>
<tr><td>(e)</td><td>PROFIBUS network terminal resistance setting switch</td><td colspan="2">This sets whether or not there is terminal resistance inside the A1SJ71PB96F. (at time of shipment: OFF)
ON: has terminal resistance
OFF: no terminal resistance</td><td>Always ON for both ends of the station on the PROFIBUS-FMS network.</td></tr>
</table>

*1: For the connector type, use a male B-Sub 9 pin. The user makes the RS-232C cable. (for information regarding cable wiring, refer to SW0IX-PROFPE Operating Manual.)

*2: For the connector type, use a male D-Sub 9 pin. The user creates the PROFIBUS cable. (for information regarding the cable wiring, refer to Item 4.6.)

4.5 Self-diagnosis Execution Method

(1) Self-diagnosis method

The A1SJ71PB96F self-diagnosis test method is conducted using the following procedure.

(a) Set the mode setting switch to “2.”
(b) The PC CPU will stop.
(c) The PC power will turn on. In addition, the PC CPU will be reset.
(d) The A1SJ71PB96F self-diagnosis will be executed, and results will be displayed using the LEDs (B0 to B6).

(2) Test results

The results of the executed test are displayed as shown below (LED B0 to B6 display status).

Test item		LED							
		B6	B5	B4	B3	B2	B1	B0	TEST
(a) MPU test	During test	b	b	b	b	b	y	y	y
	Error	y	b	b	b	b	y	b	y
(b) Timer test	During test	b	b	b	b	y	b	y	y
	Error	y	b	b	b	y	b	b	y
(c) Interrupt test	During test	b	b	b	b	y	y	y	y
	Error	y	b	b	b	y	y	b	y
(d) DRAM test	During test	b	b	b	y	b	y	y	y
		b	b	b	y	y	b	y	y
	Error	y	b	b	y	y	y	b	y

b: Turned off y: turned on

When the test results are normal, tests (a) to (d) are repeated. If an error is detected, then the LED status at the tie the error occurs for that test will be displayed.

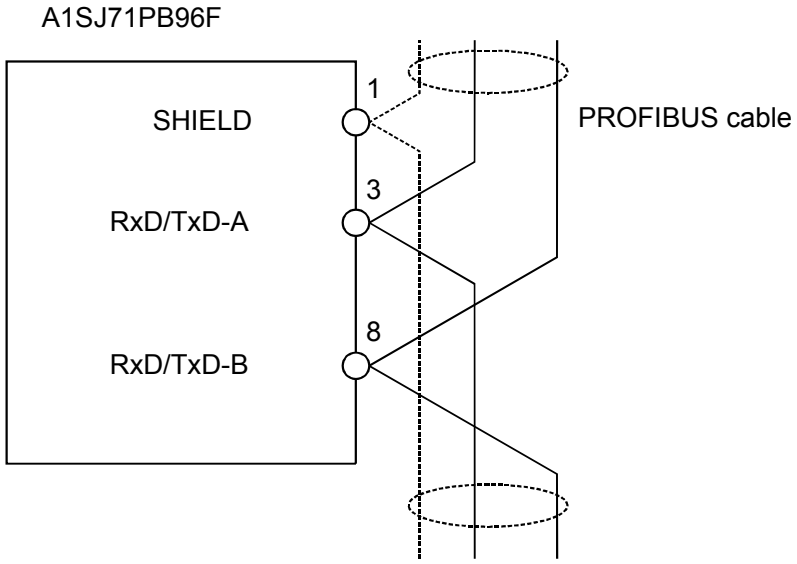
4.6 PROFIBUS Cable Wiring

This section explains the wiring to PROFIBUS connector for A1SJ71PB96F

(1) Pin assignments for the connector

Pin No.	Symbol	Name	Application	Remark
1		SHIELD	Shield, Protective Ground	
2		RP	Reserved for Power	Unused
3	A/A'	RxD/TxD-A	Receive/Transmit Data-A	
4		CNTR-A	Control-A	Unused
5	C/C'	DGND	Data Ground	Unused
6		VP	Voltage-Plus	Unused
7		RP	Reserved for Power	Unused
8	B/B'	RxD/TxD-B	Receive/Transmit Data-B	
9		CNTR-B	Control-B	Unused

(2) Wiring



5. HANDLING PRECAUTIONS

This section explains handling precautions for A1SJ71PB96F.

#CAUTION
• Use the module in the environment given in the general specifications of the CPU module's User's Manual. Using the module outside the range of the general specifications may result in electric shock, fire or malfunctioning, or may damage or degrade the module. • Do not touch the conductive area or the electronic parts of the module. Doing so may cause malfunctioning or breakdowns. • Switch all phases of the external power supply of the PC system off before connecting the PROFIBUS cable. Not doing so could cause failure or malfunction of the module. • Be careful not to let foreign matter such as filling or wire chips get inside the module. These can cause fire, breakdowns and malfunctioning. • Never disassemble or modify the module. This may cause breakdowns, malfunctioning, injury and/or fire. • Insert the tabs at the bottom of the module into the holes in the base unit before installing the module and tighten the module fixing screw by the specified torque. Not installing the module correctly could result in malfunctioning, breakdown or pieces of the product falling. • Switch all phases of the external power supply off before mounting or removing the module. If you do not switch off the external power supply, it will cause failure or malfunction of the module. • Tighten the screws with the specified torque. If the screws are loose, it could result in falling, breaks or malfunction of the module. If the screws are too tight, it could result in falling, breaks or malfunctions due to damage of the screws or the module.

(1) The A1SJ71PB96F's case is made of resin, so be careful not to drop it or strike it hard.

(2) The module fixing screw (M4) fastening torque should be tighten within the range of 78.4 to 117.6N•cm {8 to 12kg•cm}

6. MAINTENANCE AND INSPECTION

For the A1SJ71PB96F, eliminate the check of cable connection and looseness and do not include it as an inspection item. Otherwise, follow the inspection item instructions in the PC CPU User's Manual to always use the system in good condition.

! DANGER
• Switch all phases of the external power supply off before cleaning. Not doing so could cause failure or malfunction of the module.

#CAUTION
• Never disassemble or modify the module. This may cause breakdowns, malfunctioning, injury and/or fire. • Switch all phases of the external power supply off before mounting or removing the module. If you do not switch off the external power supply, it will cause failure or malfunction of the module. • Do not touch the conductive area or the electronic parts of the module. Doing so may cause malfunctioning or breakdowns.

7. ERROR CODE

7.1 Answer area, receive area

Following is shown the error codes set in the buffer memory request answer area and receive area.

(1) Error codes

Request answer area No. 1 → 66 buffer memory address
Request answer area No. 2 → 194 buffer memory address
Request answer are No. 3 → 322 buffer memory address
Reception area → 450 buffer memory address

(a) Common

Error code	Description	Counter measure
2100h	A connection No. that has not been established on a connection is specified.	Check the connection establishment.
2101h	There is a service during specified connection processing.	Output a service after the other service processing is completed.
2103h	A service that cannot be used has been specified.	The services that can be issued vary depending on the connection type and the connection attributes. Set service commands that can be issued in the various cases.
220Fh	The connection for which services remain is aborted during processing.	Re-establish the connection.
2258h	The connection was aborted.	Re-establish the connection. If this error code is set when the connection is re-established, then investigate the connection setting table parameters.
2259h	The service request was denied and the connection was aborted.	Comprehensively investigate the transmission parameters and initial setting parameters.

(b) Initiate

Error code	Description	Counter measure
2055h	A FMS refusal answer is received.	Refer to the error information and then check the data set in the buffer memory.
2061h	An initiate request to the partner station for which a connection has already been established was sent.	Set the correct connection No.
2062h	An incorrect connection No. was specified.	Set a connection No. that is defined in the connection setting table.
2067h	An error during the request transmission.	Comprehensively investigate the transmission parameters and error information.
2071h	A connection establishment request is sent from other than the master station.	Establish a connection from the master station.

(c) Abort

Error code	Description	Counter measure
2209h	An error during request transmission.	Comprehensively check the transmission parameters and error information.
220Bh	An abort prohibit connection is specified.	Use the SW0IX-PROFPE to abort the connection.

(d) Status

Error code	Description	Counter measure
2055h	A FMS refusal response is received.	Refer to the error information and then check the data set in the buffer memory.
205Fh	A time up occurs during the timer monitoring period.	Check the transmission route status and partner station operation status.
2067h	An error during request transmission.	Comprehensively check the transmission parameters and error information.

(e) Identify

Error code	Description	Counter measure
2055h	A FMS refusal response is received.	Refer to the error information and then check the data set in the buffer memory.
205Fh	A time up occurs during timer monitoring.	Check the transmission route status and partner station operation status.
2067h	An error during the request transmission.	Comprehensively check the transmission parameters and error information.

(f) UnsolicitedStatus

Error code	Description	Counter measure
2201h	Incorrect request transmission conditions.	Check the communication attributes and spatial attributes (master or slow) parameters.
2209h	An error occurs during request transmission.	Comprehensively check the transmission parameters and error information.
2259h	Before the received unconfirmed service, two or more unconfirmed services were received and the connection was aborted.	When an unconfirmed service is received, turn on Y03 for I/O signal to notify that the receive areas and receive data area read are terminated to the PC CPU.

(g) Read

Error code	Description	Counter measure
2053h	A data type incorrect for the remote OD is specified.	Set the correct data type.
2055h	A MMS refusal response is received.	Refer to the error information and check the data set in the buffer memory.
205Fh	A time up is occured by the timer monitoring.	Check the transmission route status and partner station operation status.
2062h	An incorrect connection No. is specified.	Set the connection No. to the one defined in the connection setting table.
2065h	An incorrect partner station object is specified.	Set the correct OD index/name.
2067h	An error occurs during request transmission.	Comprehensively check the transmission parameters and error information.
2069h	An incorrect access mode is specified.	Set the correct access mode.
206Bh	The variable name length is incorrect.	Set the variable name length to 1 to 32.
2070h	Variable name access is specified even though variable name access is not supported.	Set an index specification.
2072h	An incorrect subindex is specified.	Set the correct subindex.
2073h	An undefined partner station object (NULL) is specified.	Set the correct OD index/name.
2074h	An incorrect read length is specified.	Set the partner station OD variable data length to 1 to 128 (bytes).
207Ch	A request is issued using name specification for a connection that does not support long form Get OD.	Set Features Supported or use index specification so that long form is supported.

(h) Write

Error code	Description	Counter measure
2053h	A data type incorrect for the remote OD is specified.	Set the correct data type.
2055h	A MMS refusal response is received.	Refer to the error information and check the data set in the buffer memory.
205Fh	A time up is occured by the timer monitoring.	Check the transmission route status and partner station operation status.
2062h	An incorrect connection No. is specified.	Set the connection No. to the one defined in the connection setting table.
2065h	An incorrect partner station object is specified.	Set the correct OD index/name.
2067h	An error occurs during request transmission.	Comprehensively check the transmission parameters and error information.
2069h	An incorrect access mode is specified.	Set the correct access mode.
206Bh	The variable name length is incorrect.	Set the variable name length to 1 to 32.
2070h	Variable name access is specified even though variable name access is not supported.	Set an index specification.
2072h	An incorrect subindex is specified.	Set the correct subindex.
2073h	An undefined partner station object (NULL) is specified.	Set the correct OD index/name.
2074h	An incorrect read length is specified.	Set the partner station OD variable data length to 1 to 128 (bytes).
207Ch	A request is issued using name specification for a connection that does not support long form Get OD.	Set Features Supported or use Index specification so that long form is supported.

(i) InformationReport

Error code	Description	Counter measure
2201h	The request transmission conditions are incorrect.	Check the connection attributes and station attributes (master and slow) parameters.
2202h	An incorrect access mode was specified.	Specify the correct access mode.
2204h	An undefined local station object (NULL) was specified.	Set the correct OD index/name.
2205h	An incorrect local station object was specified.	Set the correct OD index/name.
2209h	An error occurred during request transmission.	Comprehensively check the transmission parameters and error information.
220Ah	An incorrect device or type was registered in the local station OD.	Set the correct parameters.
220Ch	An incorrect subindex was specified.	Set the correct subindex.
220Dh	An incorrect data length was specified.	Set the local station OD variable data length to 1 to 128 (bytes).
2251h	An incorrect access mode was specified.	Set the correct access mode.
2253h	An undefined remote station object (NULL) was specified.	Set the correct OD index/name.
2255h	An incorrect data length was specified.	Set the partner station OD variable data length to 1 to 128 (bytes).
2256h	A variable name access was specified even though variable name access is not supported.	Set the index specification.
	(Continued)	

(i) InformationReport

Error code	Description	Counter measure
2259h	Before the received unconfirmed service, two or more unconfirmed services were received and the connection was aborted.	When an unconfirmed service is received, turn on Y03 for I/O signal to notify that the receive areas and receive data area read are terminated to the PC CPU.
225Ch	An incorrect data type was specified in the remote OD.	Set the correct data type.

(j) FMA7 Abort

Error code	Description	Counter measure
2209h	An error occurs during request transmission.	Comprehensively check the transmission parameters and error information.
220Bh	An abort prohibited connection was specified.	Use SW0IX-PROFPE to abort the connection.

(2) Error information

When a refusal response is received

When the error code is 2055h, valid values are written in the following addresses of the buffer memory.

Request area No. 1's 67 address: FMS refusal response Error Class
Request area No. 2's 195 address: FMS refusal response Error Class
Request area No. 3's 323 address: FMS refusal response Error Class

Refer to the Communication Standard DIN 19245 Part 2 for information regarding the written numerical value details.

7.2 Communication Circuits

Following is shown the error code that is returned to the partner station via the communication circuit.

(1) Connection control

(a) Initiate

Class	Code	Cause
Initiate (0)	E_INIT_MAX_PDU_ SIZE_INSUFF (1)	• The number of maximum simultaneous processing services is incorrect. • The support service setting is incorrect.
Initiate (0)	E_INIT_USER_ DENIED (4)	• A connection that has already been established was specified.

(2) VFD control

(a) Status

Class	Code	Cause
ACCESS (6)	E_ACCESS_OBJ_ INVALIDATED (1)	• An error has occurred in the PC CPU.

(3) OD control

(a) GetOD

Class	Code	Cause
Access (6)	E_ACCESS_OBJ_ NON_EXIST (7)	• An undefined OD was specified.
OD (7)	E_OD_OERFLOW (2)	• An undefined OD was specified (the value exceeded the maximum index value registered in the specified index).

(b) PutOD

Class	Code	Cause
OD (7)	E_OD_OERFLOW (2)	• The OD was defined to a value that exceeded the maximum number of registrations. • The index value is not in the OD header specification range.
DEFINITION (3)	E_DEF_OBJ_ATTR_ INCONSIST (2)	• An object that is not supported was defined.

(4) Variable access

(a) Common

Class	Code	Cause
ACCESS (6)	E_ACCESS_OBJ_ ACCESS_UNSUPP (6)	• A data length was exceeded 128 bytes.
	E_ACCESS_NAME_ ACCESS_UNSUPP (9)	• A variable name was specified even though variable name access is not supported.
	E_ACCESS_OBJ_ NON_EXIST (7)	• An undefined object was specified. • An access mode other than index or name was specified.
	E_ACCESS_OBJ_ ACCESS_DENIED (3)	• The specified subindex exceeds the number of array variable elements.
	E_ACCESS_OBJ_ INVALIDATED (1)	• An error occurred in the PC CPU.
Service (5)	E_SERV_ILLIGAL_ PARAM (5)	• Incorrect device information was set in the variable information.
OD (7)	E_OD_OVERFLOW (2)	• An undefined OD was specified (a value that exceeds the maximum index value registered in the specified index).

(b) Write

Class	Code	Cause
ACCESS (6)	E_ACCESS_OBJ_ ACCESS_DENIED (3)	• The write data length and the data length of the object to be written do not match.

(5) Domain control

(a) Download

Class	Code	Cause
RESOURCE (4)	E_RESOURCE_MEM_ UNAVAILABLE (1)	• An attempt was made to write data that is larger than the capacity specified in the CPU parameter.
SERVICE (5)	E_SERV_OBJ_STATE _CONFLICT (1)	• An attempt to download was made to a domain that is not in the EXISTENT status. • An attempt was made to download from a domain which is uploading.
ACCESS (6)	E_ACCESS_OBJ_ INVALIDATED (1)	• An error occurred in the PC CPU.

(b) Upload

Class	Code	Cause
SERVICE (5)	E_SERV_OBJ_STATE _CONFLICT (1)	• An attempt was made to upload from the different connection while the domain was uploading.
ACCESS (6)	E_ACCESS_OBJ_ INVALIDATED (1)	• An error occurred in the PC CPU.

(6) PI control

(a) Common

Class	Code	Cause
SERVICE (5)	E_SERV_OBJ_ STATE_CONFLICT (1)	• The PI state is not in one such that it can issue a service. • The specified domain is not in a state where it can execute the service.
ACCESS (6)	E_ACCESS_OBJ_ INVALIDATED (1)	• An error occurred in the PC CPU.

(7) FMA7 connection control

(a) FMA7 Initiate

Class	Code	Cause
Initiate (0)	E_INIT_USER_ DENIED (4)	• An FMA7 connection has already been established.

(8) CRL control

(a) PutOD

Class	Code	Cause
RESOURCE (2)	E_FMA7_RESOURCE _MEM_UNAVAILABLE (1)	• An attempt was made to write more than 32 CRLs.

(b) ReadOD

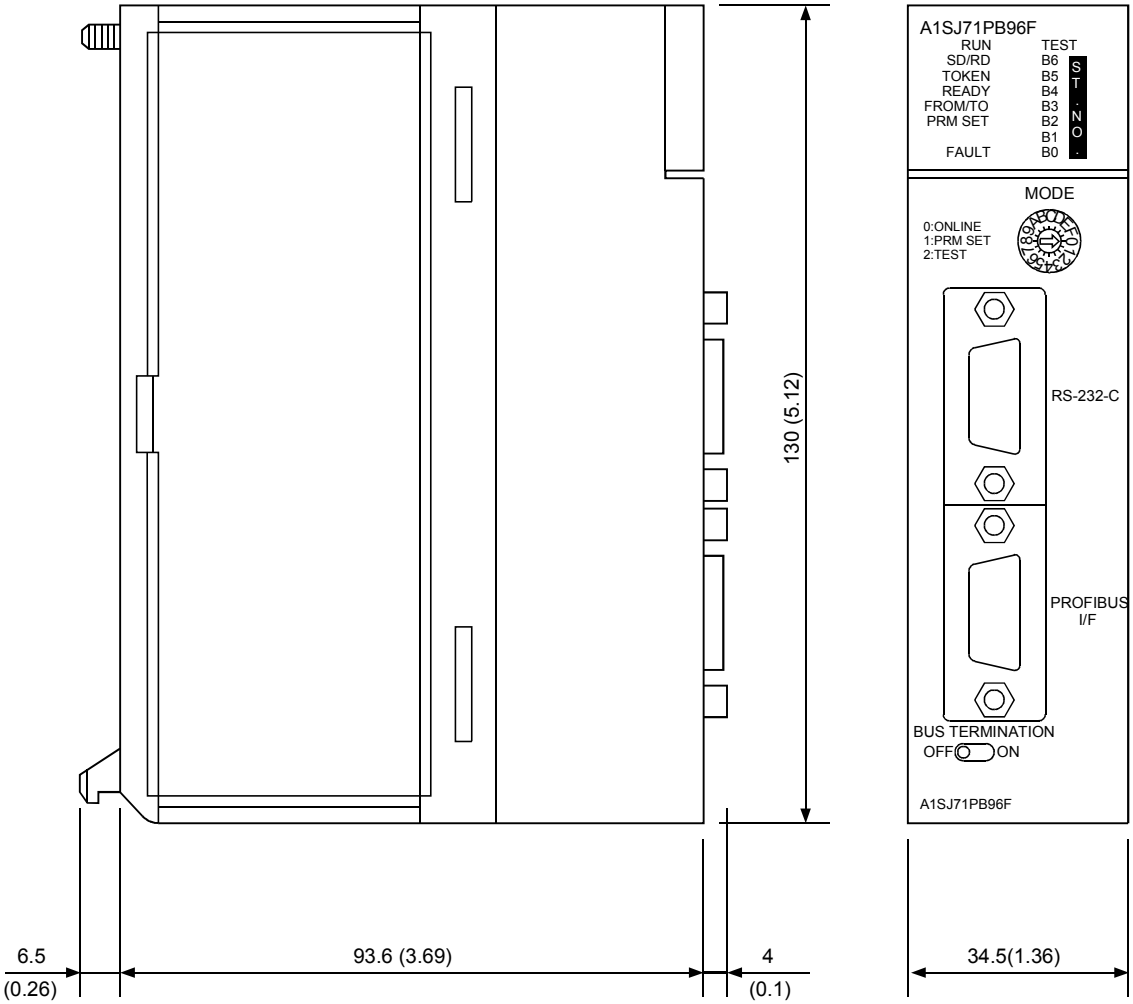
Class	Code	Cause
CRL (6)	E_FMA7_CRL_NO_ CRL_ENTRY (3)	• The specified CRL entry does not exist.

(9) Bus parameter control

(a) SetValue

Class	Code	Cause
USER (6)	E_FMA7_USR_ OTHERS (3)	• A value that is not used by the A1SJ71PB96F was specified.

8. EXTERNAL DIMENTION



Unit : mm (inch)