

# MITSUBISHI

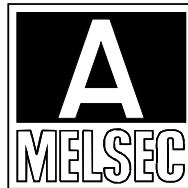
## A1SJ71UC24-R2/A1SJ71C24-R2 Computer Link Module A1SJ71UC24-PRF/A1SJ71C24-PRF Computer Link Module

### MITSUBISHI

#### General-Purpose PROGRAMMABLE CONTROLLER User's Manual (Hardware)

Thank you for buying the Mitsubishi general-purpose programmable controller MELSEC-A Series.

Prior to use, please read this manual thoroughly and familiarize yourself with the product.



MODEL	A1SJ71C24-R2/PRF (H/W)-U-E
MODEL CODE	13JE51
IB(NA)-66490-D (0902) MEE	

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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 the 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 used for a description of the programmable controller system safety precautions. These SAFETY PRECAUTIONS 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

#### DANGER

- When performing the control of the programmable controller in operation (especially changing data, program and operation status (Remote RUN/STOP)) by connecting a personal computer, etc. to the special function module, configure an interlock circuit in a sequence program so the safety of the overall system is always maintained. Particularly in the above described control for a remote site programmable controller from an external device, troubles occurring on the programmable controller side may not be immediately handled due to a data communication error. Construct an interlock circuit in the sequence program and determine between the external device and programmable controller CPU the system's error handling procedure and other items regarding data communication errors.

#### CAUTION

- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other. They should be installed 100 mm (3.9 inch) or more from each other. Not doing so could result in noise that would cause malfunction.

### INSTALLATION PRECAUTIONS

#### CAUTION

- Use the programmable controller in the environment given in the general specifications section of the applicable User's Manual for the CPU module used. Using this programmable controller in an environment outside the range of the general specifications could result in electric shock, fire, malfunction, and damage to or deterioration of the product.
- Shut off the external power supply for the system in all phases before wiring. If you do not switch off the external power supply, it will cause electric shock or damage to the product.
- Insert the tabs at the bottom of the module into the mounting holes in the base module, and tighten the module installation screws with the specified torque. If the module is not properly installed it may result in malfunction, failure or fallout.
- Tighten the screw within the range of specified torque. If the screw are loose, it may result in fallout, short circuit or malfunction. Tightening the screws too far may cause damage to the screw and/or the module, resulting in fallout, short circuit or malfunction.
- Do not directly touch the module's conductive parts or electronic components. Doing so could cause malfunction or failure in the module.
- Perform correct pressure-displacement, crimp-contact or soldering for wire connections using the tools specified by the manufactures. Attach connectors to the module securely.

#### CAUTION

- Do not disassemble or modify the modules. Doing so could cause failure, malfunction, injury or fire.
- Shut off the external power supply for the system in all phases 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.
- Before handling the module, touch a grounded metal object to discharge the static electricity from the human body. Not doing so may cause a failure or malfunction of the module.

### OPERATION PRECAUTIONS

#### DANGER

- Do not write data to the "system area" in the buffer memory of the special function module. Also, do not output (or turn on) a "use prohibited" signal from the programmable controller CPU to the special function module. If data is written to the "system area" or if the "use prohibited" signal is output, there is a risk that the programmable controller system will operate incorrectly.

#### CAUTION

- Before performing the control of the programmable controller in operation (especially changing data, program and operation status (Remote RUN/STOP)) by connecting a personal computer, etc. to the special function module, read User's Manual (com. link func. /Print. func.) carefully and confirm if the overall safety is maintained. Failure to perform correct operations to change data, program or the status may result in system malfunction, machine damage or an accident.
- When the EEPROM within the module is used with the contents of the buffer memory registered inside, do not turn off the power to the station to which the module is mounted or reset the programmable controller CPU during registration. If the power to the station to which the module is mounted is turned off or the programmable controller CPU is reset during registration, the contents of the data inside the EEPROM will need to be registered again since they become inconsistent. A module failure or malfunction may also be caused by the above operations.

### DISPOSAL PRECAUTIONS

#### CAUTION

- When disposing the product, treat it as industrial waste.

### About Manuals

The following product manuals are available. Please use this table as a reference to request the appropriate manual as necessary.

#### Related Manuals

Manual Names	Manual No. (Model Code)
Computer Link Module Guide Book	SH-3510 (13JE76)
Computer Link Module (Com. link func. /Print. func.) User's Manual	SH-3511 (13JE77)

When using this module, be sure to read Computer Link Module User's Manual (Com. link func. /Print. func.) as well as this manual.

A1SJ71UC24-R2/PRF computer link function is the same as AJ71UC24.

And A1SJ71UC24-R2/PRF printer function is the same as A1SJ71C24-PRF.

When you refer to the following manual to use A1SJ71UC24-R2/PRF, replace the module model name to refer.

- Computer Link Module User's Manual (Com. link func. /Print. func.) Version C or before

#### Computer link function

AJ71UC24 → A1SJ71UC24-R2/PRF

#### Printer function

A1SJ71C24-PRF → A1SJ71UC24-PRF

Conformation to the EMC Directive and Low Voltage Instruction

For details on making Mitsubishi programmable controller conform to the EMC directive and low voltage instruction when installing it in your product, please see Chapter 3, "EMC Directive and Low Voltage Instruction" of the User's Manual (Hardware) of the programmable controller CPU to use.

The CE logo is printed on the rating plate on the main body of the programmable controller that conforms to the EMC directive and low voltage instruction.

By making this product conform to the EMC directive and low voltage instruction, it is not necessary to make those steps individually. (A1SCPUC24-R2, A2CCPUC24(PRF) removes.)

## 1. Overview

This manual is intended for installing the computer link module and performing wiring for external devices.

After unpacking the module, check that the following products are included:

Model name	Item name	Quantity
A1SJ71UC24-R2	A1SJ71UC24-R2 computer link module	1
	D-sub 9 pin (male), screw type 17JE-23090-02 (-D8A) manufactured by Daiichi Denso Kogyo (DDK)	1
A1SJ71C24-R2	A1SJ71C24-R2 computer link module	1
	D-sub 9 pin (male), screw type 17JE-23090-02 (-D8A) manufactured by Daiichi Denso Kogyo (DDK)	1
A1SJ71UC24-PRF	A1SJ71UC24-PRF computer link module	1
	D-sub 9 pin (male), screw type 17JE-23090-02 (-D8A) manufactured by Daiichi Denso Kogyo (DDK)	1
A1SJ71C24-PRF	A1SJ71C24-PRF computer link module	1
	D-sub 9 pin (male), screw type 17JE-23090-02 (-D8A) manufactured by Daiichi Denso Kogyo (DDK)	1

\* In the explanation hereafter, the computer link modules are abbreviated as follows except when differentiate specially.

- The general term of above 4 type is abbreviated as "C24."
- The general term of A1SJ71UC24-R2 and A1SJ71C24-R2 is abbreviated as "C24-R2."
- The general term of A1SJ71UC24-PRF and A1SJ71C24-PRF is abbreviated as "C24-PRF."

\* The following accesses to the programmable controller CPU with a dedicated protocol of the computer link function are possible by using A1SJ71UC24-R2 and A1SJ71UC24-PRF.

- Access to the device extended by AnACPU, AnUCPU and A2US(H)CPU.
- Access to the other stations via MELSECNET/10.

Other specifications are the same as A1SJ71C24-R2 and A1SJ71C24-PRF.

## 2. Transmission Specifications

The following table indicates the transmission specifications for the C24. For general specifications of the C24, see the user's manual for the CPU module used.

Item	Specification	
Interface	Conform to RS-232C	
Transmission method	Dedicated protocol	Half duplex communication method *1
	No protocol/ Bidirectional/ Printer function	Full duplex or half duplex (depend on setting to the buffer memory)
Synchronization system	Start-stop synchronization method	
Transmission speed	300, 600, 1200, 2400, 4800, 9600, 19200 bps (Selected via the switch)	
Data format	Start bit	1
	Data bit	7 or 8
	Parity bit	1 or none
	Stop bit	1 or 2
Access cycle	Processing for one request is performed during the END processing of the sequence program. Therefore, the access cycle is one scan time.	
Error detection	Parity check yes (odd/even) or no	
	Sum check yes or no	
DTR/DSR control (ER/DR)	Yes/No (selected by setting to the buffer memory)	
Line configuration (external device: programmable controller CPU)	X ON/OFF control (DC1/DC3)	
	Dedicated protocol	1 : 1
	No protocol/Printer function	1 : 1
Transmission distance	RS-232C 15 m (49.2 ft.) or less	
Current consumption	5VDC 0.1A	
Occupied I/O points	32 points *2	
Weight	0.22 kg(0.49 lb.)	

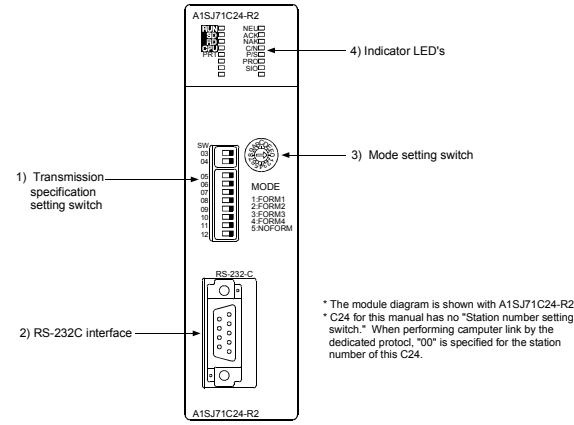
\*1 When data communication can be performed using the full duplex transmission method, this transmission method is used whenever the on-demand function is used.

\*2 When performing I/O assignment using the GX Developer, set as special 32 points.

The model name to register when using the dedicated commands, the following model name should be set depending on C24 and programmable controller CPU mounted to C24.

Programmable controller CPU mounted to C24	Types of C24 to mount			
	A1SJ71UC24-R2	A1SJ71UC24-PRF	A1SJ71C24-R2	A1SJ71C24-PRF
AnUCPU	AJ71UC24		AJ71C24S3	
AnACPU	AJ71C24S3			
Other than AnU/AnACPU	(Model name setting is not necessary as the dedicated command cannot be used.)			

### 3. Name of Each Part and Setting



Number	Name	Description																																							
1)	Transmission setting switches	Transmission settings (all are set to OFF at the time of shipment)																																							
	SW 03, 04, 05, 06, 07, 08, 09, 10, 11, 12	<table border="1"> <thead> <tr> <th>SW</th> <th>Setting item</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>03</td> <td>A1ADP-SP setting *1</td> <td>A1ADP-SP used / A1ADP-SP not used</td> </tr> <tr> <td>04</td> <td>Write during RUN setting</td> <td>Enabled / Disabled</td> </tr> <tr> <td>05</td> <td>Transmission speed setting</td> <td>See *2</td> </tr> <tr> <td>08</td> <td>Data bit setting</td> <td>8 bits / 7 bits</td> </tr> <tr> <td>09</td> <td>Parity bit setting</td> <td>YES / NO</td> </tr> <tr> <td>10</td> <td>Even/odd parity setting</td> <td>Even / Odd</td> </tr> <tr> <td>11</td> <td>Stop bit setting</td> <td>2 bits / 1 bit</td> </tr> <tr> <td>12</td> <td>Sum check setting</td> <td>YES / NO</td> </tr> </tbody> </table>	SW	Setting item	Status	03	A1ADP-SP setting *1	A1ADP-SP used / A1ADP-SP not used	04	Write during RUN setting	Enabled / Disabled	05	Transmission speed setting	See *2	08	Data bit setting	8 bits / 7 bits	09	Parity bit setting	YES / NO	10	Even/odd parity setting	Even / Odd	11	Stop bit setting	2 bits / 1 bit	12	Sum check setting	YES / NO												
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2)	RS-232C interface	RS-232C interface for external device connection																																							
3)	Mode setting switch	Mode setting (set to 0 at the time of shipment)																																							
	MODE (0-9, A-F)	<table border="1"> <thead> <tr> <th>Mode</th> <th>Setting contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Use prohibited</td> </tr> <tr> <td>1</td> <td>Type 1 dedicated protocol mode</td> </tr> <tr> <td>2</td> <td>Type 2 dedicated protocol mode</td> </tr> <tr> <td>3</td> <td>Type 3 dedicated protocol mode</td> </tr> <tr> <td>4</td> <td>Type 4 dedicated protocol mode</td> </tr> <tr> <td>5</td> <td>Non procedure mode or printer function</td> </tr> <tr> <td>6 to E</td> <td>Use prohibited</td> </tr> <tr> <td>F</td> <td>For module test</td> </tr> </tbody> </table>	Mode	Setting contents	0	Use prohibited	1	Type 1 dedicated protocol mode	2	Type 2 dedicated protocol mode	3	Type 3 dedicated protocol mode	4	Type 4 dedicated protocol mode	5	Non procedure mode or printer function	6 to E	Use prohibited	F	For module test																					
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\*1 This setting is available when software version of the A1SJ71UC24-R2/A1SJ71UC24-PRF is X or later, and not available for the A1SJ71UC24-R2/A1SJ71UC24-PRF.

\*2 Transmission speed settings

Setting switch	Transmission speed (unit: bps)						
	300	600	1200	2400	4800	9600	19200
SW05	OFF	ON	OFF	ON	OFF	ON	OFF
SW06	OFF	OFF	ON	ON	OFF	OFF	ON
SW07	OFF	OFF	OFF	OFF	ON	ON	ON

### 4. Loading and Installation

This section explains precautionary items regarding handling of the C24 from unpacking up to installation, and the installation environment that are common to all modules.

See the user's manual for the programmable controller CPU module used for further details regarding module loading and installation.

#### 4.1 Precautionary Items when Handling

The following explains precautionary items when handling the module:

- Do not drop or apply severe shock to the module case since it is made of resin.
- Tighten the module installation screws within the specified torque range as follows:

Screw Area	Tightening Torque Range
Module installation screws (M4 screw)	78 to 118N · cm (6.9 to 10.4 lb · inch)
RS-232C connector installation screws (M2.6 screw)	19 to 24N · cm (1.7 to 2.0 lb · inch)

#### 4.2 Installation Environment

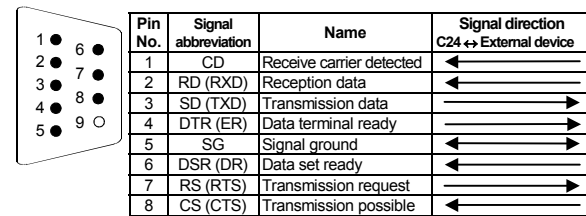
Avoid the following conditions for the installing location of the AnS Series programmable controller:

- Location where the ambient temperature exceeds the range of 0 to 55 °C.
- Location where the ambient humidity exceeds the range of 10 to 90% RH.
- Location where condensation occurs due to a sudden temperature change.
- Location where corrosive or inflammable gas exists.
- Location where a lot of conductive powdery substance such as dust and iron filing, oil mist, salt, or organic solvent exists.
- Location exposed to direct sunlight.
- Location where strong electric fields or magnetic fields form.
- Location where vibration or impact is directly applied to the main module.

### 5. External Wiring

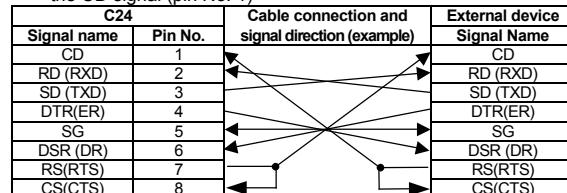
#### 5.1 Connecting to the RS-232C

The standard method for connecting the RS-232C line is shown below:



The following model of RS-232C connectors are used. Use connectors which are compatible with these on the opposite side.  
D-sub 9 pin (female), screw type

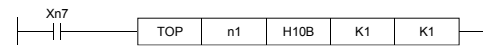
- Example of a connection to an external device capable of turning on/off the CD signal (pin No. 1)



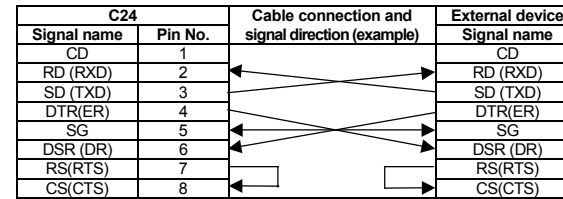
- Example of a connection to an external device which cannot turn on/off the CD signal (pin No. 1 pin)

When connecting to a device which cannot turn on/off the CD signal, use the "not performed" setting at the buffer memory address 10BH (setting for whether or not to perform CD terminal check for the RS-232C).

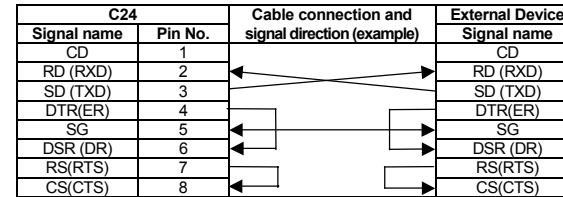
(Setting example)



- Example of external wiring under DC code control or DTR/DSR control



- Example of external wiring under DC code control

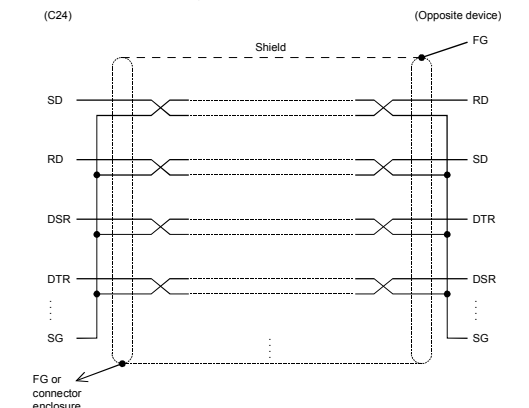


- Precautionary items when wiring

- Treat the FG signal and shield of the connection cable as indicated below:

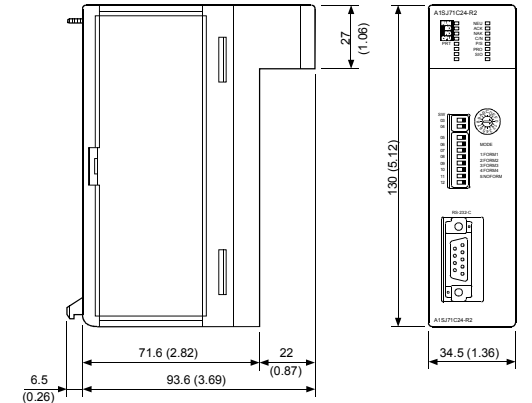
	Connection method	Remarks
FG signal	Connect to the connector enclosure on the C24 side.	● Do not short the FG signal and SG signal of the connector cable.
Shield	Connect to the FG terminal on the external device side or connector enclosure on the UC24 side.	

- If data communication cannot be performed normally due to external noise even if the wiring is done as described above, perform wiring as follows:
  - Connect all signals of the connection cable except for the SG signal with the SG signal as a pair.



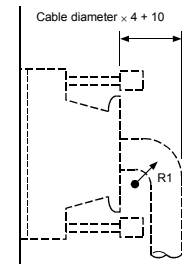
- Do not connect an RS-422 device to the RS-232C interface. If an RS-422 device is connected to the RS-232C interface, the RS-422 interface hardware for the connected device will be damaged and communications cannot be performed.

### 6. External Dimensions



(Unit: mm (inch))

\*Bending radius of the cable when wiring to the external device.



R1 (Bending radius near connector) : Cable diameter × 4

External dimensions of C24 corresponding to this manual are the same for all types. The diagram above is A1SJ71UC24-R2 external dimensions.

Country/Region	Sales office/Tel	Country/Region	Sales office/Tel
U.S.A	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway Vernon Hills, IL 60061, U.S.A. Tel : +1-847-478-2100 MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda.	Hong Kong	Mitsubishi Electric Automation (Hong Kong) Ltd. 10th Floor, Manulife Tower, 169 Electric Road, North Point, Hong Kong Tel : +852-2887-8870
Brazil	Mitsubishi Electric Europe B.V. German Branch Gothaer Strasse 8 D-40880 Ratingen, GERMANY Tel : +49-2102-486-0	China	(Shanghai) Ltd. 4/F Zhi Fu Plaza, No.80 Xin Chang Road, Shanghai 200003, China Tel : +86-21-6120-0808
Germany	Mitsubishi Electric Europe B.V. Italian Branch Centro Dr. Colleoni, Pal. Perseo-Ingr.2 Via Paracelso 12, I-20041 Agrate Brianza, Milano, Italy Tel : +39-039-60531	Taiwan	Setuoy Enterprise Co., Ltd. 6F No.105 Wu-Kung 3rd Rd, Wu-Ku Hsiang, Taipei Hsine, Taiwan Tel : +886-2-2299-2499
Italy	Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80, E-08190 Sant Guig del Valles, Barcelona, Spain Tel : +34-93-665-3131	Korea	Mitsubishi Electric Automation Korea Co., Ltd. 1490-6, Gayang-dong, Gangseo-ku Seoul 157-200, Korea Tel : +82-2-3660-9552
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		Australia	Mitsubishi Electric Australia Pty. Ltd. 348 Victoria Road, Rydalmere, N.S.W 2116, Australia Tel : +61-2-9684-7777

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MAGDOYA WORKS: 1-1-KA TAKAHASHI-MACHI, HIGASHI-KU, MAGDOYA, JAPAN

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Specifications subject to change without notice.  
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