MITSUBISHI

Web Server Module

User's Manual

(Installation)

QJ71WS96

Thank you for purchasing the Mitsubishi programmable logic controller MELSEC-Q Series.

Prior to use, please read both this manual and detailed manual thoroughly to fully understand the product.

MELSEC-Q

Mitsubishi Programmable
Logic Controller

MODEL	QJ71WS96-U-HW-JE
MODEL CODE	13JT97
IB(NA)-0800231-C(0311)MEE	

● SAFETY PRECAUTIONS ●

(Be sure to read these instructions before using the product.)

Before using this product, read this manual and the relevant manuals introduced in this manual carefully and handle the product correctly with full attention to safety.

Note that these precautions apply only to this product. Refer to the user's manual of the CPU module for the PLC system safety precautions.

In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

| ◇ DANGER | Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury. |
| ⚠ CAUTION | Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage. |

Note that failure to observe the ⚠**CAUTION** level instructions may also lead to serious results depending on the circumstances.

Be sure to observe the instructions of both levels to ensure personal safety.

Please keep this manual in accessible place and be sure to forward it to the end user.

[DESIGN PRECAUTIONS]

⚠ CAUTION

- Do not bundle the control lines or communication cables with the main circuit or power lines, or bring them close to each other.
  The distance of 100mm(3.9inch) or more should be ensured.
  Failure to do so cause malfunctions due to noise.
- Do not power off a station where this module is mounted and do not reset the PLC CPU while storing the settings into the standard ROM of the module using a Web browser.
  This may make the data unstable within the standard ROM and require resetting and re-storing, or it may cause a failure or malfunctions of the module.

[INSTALLATION PRECAUTIONS]

⚠ CAUTION

- Use the PLC in the environment specified in the user's manual of the CPU module.
  Failure to do so may cause electric shock, fires, malfunctions, product deterioration or damage.
- When mounting the module, fully insert the module fixing projection into the corresponding fixing hole on the base unit while pressing the module fixing lever at the bottom of the module.
  Incorrect mounting may cause malfunctions, failures or a fall of the module.
  The module should be secured with screws in an environment of frequent vibration.
- Be sure to shut off all phases of the external power supply before mounting or removing the module.
  Failure to do so may damage the module.
- Tighten the screws within the specified torque range.
  Loose tightening may cause a fall, short circuits, or malfunctions.
  Overtightening may damage the screws and/or the module, resulting in a fall of the module, short circuits or malfunctions.
- Do not directly touch the conductive part or electronic components of the module.
  This may cause malfunctions or a failure of the module.
- For connector wiring, correctly press, pressure-weld or solder the connecting part by using the tool specified by the manufacturer.
  Poor connection may cause short circuits, fires or malfunctions.
- Be sure to set the CompactFlash™ card by pressing it into the CompactFlash™ card slot. Confirm it is completely set.
  Poor contact may lead to malfunctions.

[WIRING PRECAUTIONS]

⚠**CAUTION**
● Be sure to fix communication cables and power cables to the module by ducts or clamps. Failure to do so may cause damage of the module or the cables due to accidental pull or unintentional shifting of the cables, or malfunctions due to poor contact of the cable. ● Connect the connectors to the module securely. ● Tighten the terminal screws within the specified torque range. Loose tightening may result in a fall, short circuits or malfunctions. Overtightening may cause damage to the screw and/or the module, resulting in a fall, short circuits or malfunctions. ● Do not hold the communication cable by hand when pulling it out from the module. Be sure to hold the connector by hand, when removing the cable with a connector from the module. Failure to do so may cause malfunctions or damage to the module or cable. ● Be careful not to let foreign matter such as dust or wire chips get inside the module. This may cause a fire, failure or malfunctions. ● A protection label is attached to cover the upper part of a module to prevent the entry of foreign matter. Do not remove the label during wiring. However, be sure to remove it for heat dissipation during system operation.

[TRANSPORTATION PRECAUTIONS]

⚠**CAUTION**
● When transporting lithium batteries, make sure to treat them based on the transport regulations. (Refer to Chapter 8 for details of the controlled models.)

Revisions

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CONTENTS

Manuals

The following table lists the manual on this product.
You can order it as necessary.

Relevant Manual

Manual name	Manual No. (Model code)
Web Server Module User's manual	SH-080320E (13JR58)

Compliance with the EMC Directive and the Low Voltage Directive
When incorporating Mitsubishi PLC into other machine or equipment and making it comply with the EMC directive and the low voltage directive, refer to Chapter 3, "EMC Directive and Low Voltage Directive" of the User's Manual (Hardware) for the CPU module.
The CE logo is printed on the rating plate of the PLC, indicating compliance with the EMC directive and the low voltage directive.

For making this product comply with the EMC directive and the low voltage directive, please refer to Section 3.1.3. "Cable" in Chapter 3 "EMC Directive and Low Voltage Directive" of the User's Manual (Hardware) for the CPU module.

1. Overview

This manual explains how to install the QJ71WS96 Web server module (hereinafter referred to as Web server module) and how to wire them with other devices.

(Production list)

Model name	Product name	Quantity
QJ71WS96	QJ71WS96 Web server module	1

2. Performance Specifications

The following describes the performance specifications of the Web server module.
For the general specifications of the Web server module, refer to the user's manual of the CPU module used.

Item		Specifications	
10BASE-T/10BASE-TX		-	
	Interface (*1)	10BASE-T	10BASE-TX
	Data transmission speed	10Mbps	100Mbps
	Transmission method	Base band	
	Maximum number of nodes/connection	Cascade connection Maximum 4 steps	Cascade connection Maximum 2 steps
	Maximum segment length(*2)	100m	
	Supported function	Auto negotiation function (automatically recognizes 10BASE-T/10BASE-TX)	
RS-232		-	
	Interface	Compliance with RS-232 (D-sub 9 pin)	
	Communication method	Full-duplex communication	
	Synchronization method	Start-stop synchronization method	
	Transmission speed	9600, 19200, 38400, 57600, 115200 bps	
	Transmission distance	Maximum 15m	
	Data format — Start bit	1	
	Data format — Data bit	8	
	Data format — Stop bit	1	
	Parity check	None	
	Transmission control	Flow control (RS/CS control) is available	
	Recommended cable	7/0. 127 □P HRV-SV outside diameter: 8.5mm or longer (Oki Electric Cable Company, Limited Specify the number of pairs in □.)	
	External wiring applicable connector	9 pin D-sub (Male) fixing type	
Compact flash card		-	
	Supply power voltage	3.3V±5%	
	Size	TYPE I card	
	Number of mountable cards	1	
Number of occupied I/O points		32 points/1 slot (I/O assignment: intelligent 32 points)	
Maximum number of writes for Standard ROM (Flash ROM)		Maximum 100,000 times to one area	
Clock		Acquired from the No. 1 CPU (Every 60s)	
5V DC internal current consumption		0.65A	
External dimensions		98 (3.86 in.) (H) × 27.4 (1.08 in.) (W) × 90 (3.54 in.) (D) [mm]	
Weight		0.17 kg (0.37lb.)	

*1: Web server module recognizes 10BASE-T/10BASE-TX according to the external device.
   For connection to the hub without the auto negotiation function, set the half-duplex mode on the hub side.
*2: Distance between the hub and node.

3. Mounting and Installation

3.1 Handling precautions
(1) Do not drop or apply severe shock to the module case since it is made of resin.
(2) Always make sure to touch the grounded metal to discharge the electricity charged in the body, etc., before touching the module.
Failure to do so may cause a failure or malfunctions of the module.
(3) Tighten the module fixing screws within the specified torque range as follows:

Screw position	Tightening torque range
Module fixing screw (usually not required) (M3 screw) (*1)	36 to 48 N•cm

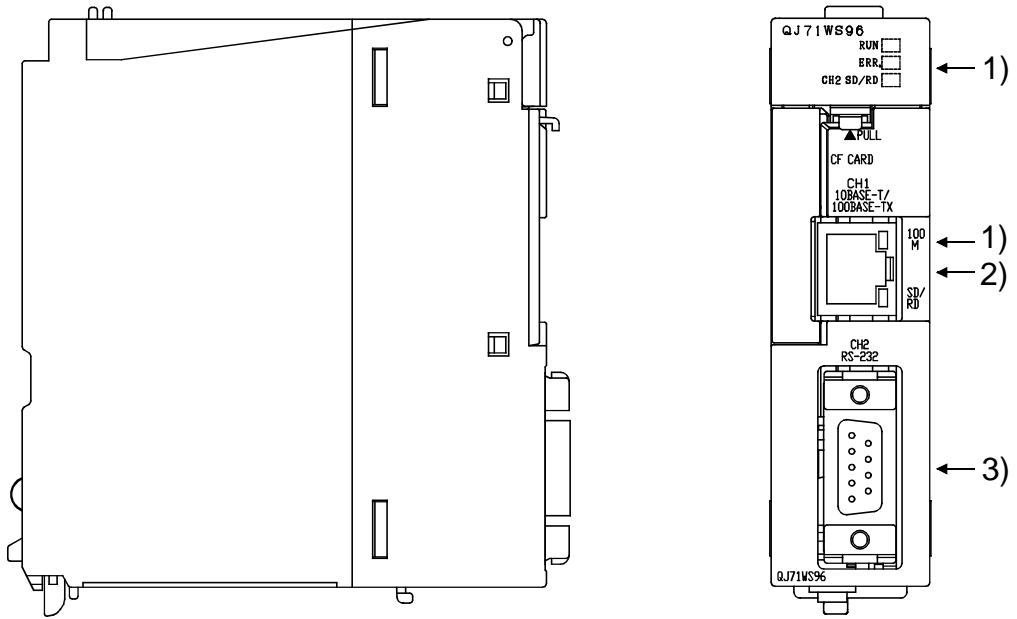*1:The module can be easily fixed onto the base unit using the hook at the top of the module. However, it is recommended to secure the module with the dedicated fixing screws if it is subject to significant vibration or shock.
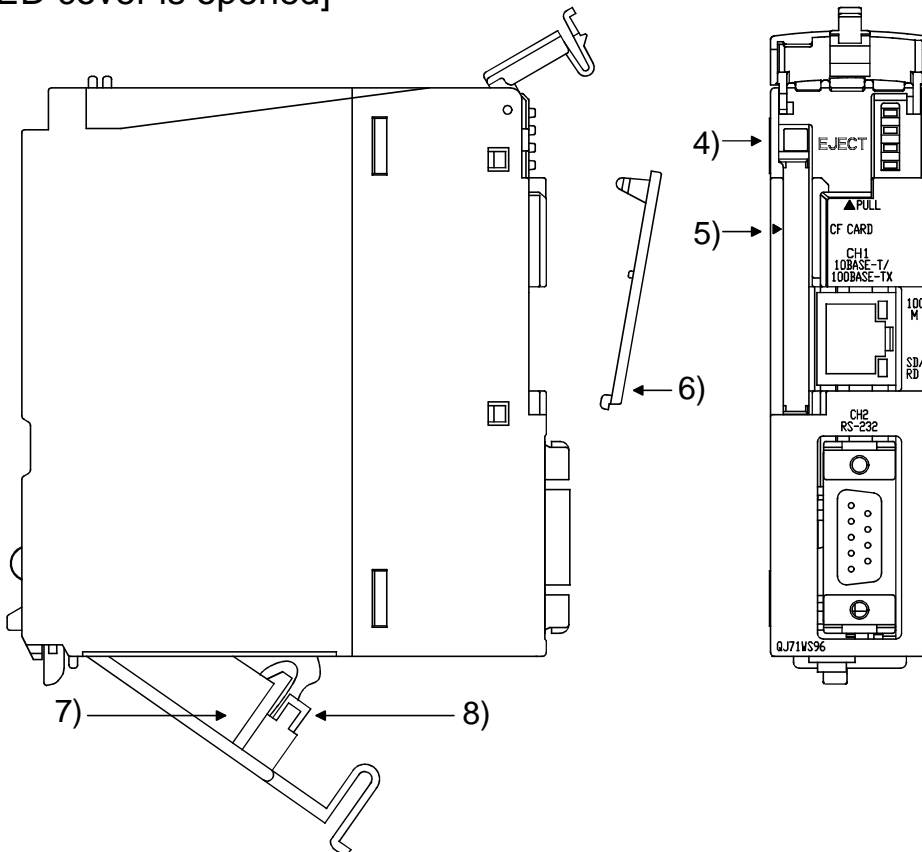
3.2 Installation Environment
For details, refer to the user's manual for the CPU module used.

# 4. Part Names

[When LED cover is closed]

[When LED cover is opened]

	Name	Description
1)	LED Display	Refer (1) LED display contents.
2)	10BASE-T/ 100BASE-TX interface connection connector (RJ45)	Used for connecting Web server module to 10BASE-T/100BASE-TX. (Web server module recognizes 10BASE-T/ 10BASE-TX according to the external device.)
3)	RS-232 interface connection connector	Used for connecting Web server module to RS-232.
4)	EJECT button	Used for ejecting a CompactFlash™ card from Web server module.
5)	CompactFlash™ card mounting slot	Slot for mounting a CompactFlash™ card onto Web server module.
6)	CompactFlash™ card mounting slot cover	Cover for CompactFlash™ card mounting slot.
7)	Battery	Battery for file protection.
8)	Battery connector pin	Connector pin for battery lead. (The battery lead is not connected to the connector at shipment to prevent battery consumption.)

(1) LED display
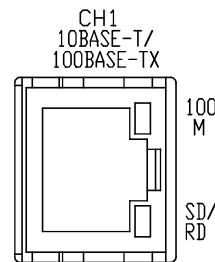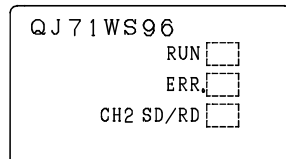
LED name	LED status	Description
RUN	ON	Normally operating (It may take some time until RUN LED turns ON after the module is started.)
	OFF	Watch dog timer error occurrence (Hardware error)
ERR.	OFF	Normal operation
	ON	Module continue error
	Flickering	Module stop error
CH2 SD/RD	ON	CH2 side: data receiving or data sending
	OFF	Data not transmitted
100M	ON	100Mbps
	OFF	10Mbps
SD/RD	ON	CH1 side: data receiving or data sending
	OFF	Data not transmitted

5. External Wiring

5.1 Connecting to the 10BASE-T/100BASE-TX

Use the twisted pair cable that meets IEEE802.3 10-BASE-T/100BASE-TX standards when connecting to the 10BASE-T/10BASE-TX interface.

   (1) For 100Mbps

      Use either of the following cables.

      (a) Unshielded twisted pair cable (UTP cable), Category 5

      (b) Shielded twisted pair cable (STP cable), Category 5

   (2) For 10Mbps

      Use either of the following cables.

      (a) Unshielded twisted pair cable (UTP cable), Category 3 (4,5)

      (b) Shielded twisted pair cable (STP cable), Category 3 (4,5)

TIP

During the high speed communication (100Mbps) via 100BASE-TX connection, a communication error may occur due to the effect of high frequency noise generated from the device other than PLC, depending on the installation environment.

Take the following countermeasures on the Web server module side to eliminate the effect of high frequency noise.

(1) Wiring
  • Do not bundle the twisted pair cables with the main circuit or power cables or bring them close to each other.
  • Make sure to place the twisted pair cable in a duct.

(2) Cable
  • In the environment where the cable is susceptible to noise, use the shielded twisted pair cable (STP cable).
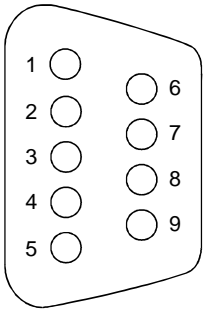
(3) 10Mbps communication
  • Connect the 10Mbps-compatible device with Web server module, and then transmit the data to the device at transmission speed of 10Mbps.

5.2 Connecting to the RS-232

Use the RS-232 cable when connecting to the RS-232 interface.

(1) RS-232 connector specifications

Pin No.	Signal abbreviation	Signal name	Signal direction Web module ←→ Modem
1	CD(DCD)	Data Carrier Detect	←
2	RD(RXD)	Received Data	←
3	SD(TXD)	Transmitted Data	→
4	ER(DTR)	Data Terminal Ready	→
5	SG(GND)	Signal Ground	←→
6	DR(DSR)	Data Set Ready	←
7	RS(RTS)	Request To Send	→
8	CS(CTS)	Clear To Send	←
9	CI(RI)	Ring Indicator	←

(2) RS-232 interface connector

The Web server module uses the following RS-232 interface connector.

9 pin D-sub (Female) fixing type

Use either of the following products as a connector shell for the connection cable on the Web server module side.

- 3M
  Plug type: 8209-6009
  Shell type: 3702-2209 M2.6
- Tyco Electronics AMP K.K.
  Plug type: 747904-2
  Shell type: 747515 or 174469-2
- Connector fitting screw (M2.6)

(3) RS-232 cable

Use the RS-232-compliant cable of up to 15m.

[Recommended cable]

7/0. 127 □P HRV-SV... Specify the number of pairs in □.

(for 13 pairs, specify 7/0. 127 13P HRV-SV.)

(Oki Electric Cable Company, Limited)

6. Setting from GX Developer

Set the mode, default operation, battery error detection, logging monitor setting and response monitoring time for Web server module on the "Intelligent function module switch setting" screen.

Switch Number	Description
Switch 1	Mode setting
Switch 2	Default operation/Battery error detection setting/ logging monitor setting
Switch 3 (lower byte)	Response monitoring time setting
Switch 4 to 5	For system (not set)

(1) Mode setting (Switch 1)

Select the operation mode for Web server module.

Setting Number	Item	Description
0000$_H$	Online	Normal operation mode
0001$_H$	Hardware test	Tests the ROM/RAM/switch settings
0002$_H$	CH1 Self-loopback test	Tests the self diagnostics for CH1.
0003$_H$	CH2 Self-loopback test	Tests the self diagnostics for CH2.
9999 (270F$_H$)	Module initialization mode	Initializes the module to default setting.

(2) Default operation/Battery error detection setting/logging monitor setting (switch 2)

b15	to	b5	b4	b3	b2	b1	b0	
	Speccify 0. *			0				Switch 2

Logging monitor setting

0: Not display the latest file update time.

1: Displays the latest file update time.

Battery error detection setting

0: Detects battery error.

1: Not detect battery error.

Default operation setting (Account setting)

0: Operates according to the account setting.

1: Operates according to the default setting.
- User name : QJ71WS96
- Password   : MITSUBISHI
- Access authority :
  Device write/Tag component write/ Administrator
- Initial screen :
  Standard screen top page

Default operation setting (System setting)

0: Operates according to the system setting.

1: Operates according to the default system setting.
- IP address   : 192.168.3.3
- Subnet mask   : 255.255.255.0
- Connecting through LAN or the router.
- Use the default HTTP port number (80).
- Use the default FTP port number (21).
- System name : QJ71WS96
- Does not execute network diagnoses (Ping).
- Automatic connection to network at start-up.

Default operation setting (IP filter setting)

0: Operates according to the IP filter setting.

1: Operates according to the default IP filter setting.
- The IP packet with no filter setting is passed. (Without filter setting)

* A switch setting error (0180h) will occur during hardware test if this area is other than 0.

(a) Default operation setting (bit 0, 1)

For the account setting, system setting and IP filter setting, whether the default setting is enabled or not is set in this setting.

1) Account setting (bit 0)

0: Operates according to the account setting.

1: Operates according to the default setting.

2) System setting and IP filter setting (bit 1)

0: Operates according to the system setting/IP filter setting.

1: Operates according to the default setting.

(b) Battery error detection setting (bit 2)

This setting is provided to determine whether battery error detection is enabled or not while the Web server module is operating without battery.

0: Detects battery error.

1: Not detect battery error.

(c) Logging monitor setting (bit 4)

Whether the latest file update time is displayed or not in the file specification field of the logging monitor is set in this setting.

0: Not display the latest file update time.

1: Displays the latest file update time.

(3) Response monitoring time setting (switch 3 (lower byte))

This is the setting for timeout time (second) from when a module sends a request to the CPU of the accessed device until the CPU responds to it. Response timeout error will occur if the CPU of the accessed device does not respond to the request after the set time has passed.

Setting range: 15 to 255 (second)   (default value: 15 seconds)

Response monitoring time will be automatically default value (15 seconds) if it is not set or set to any of 0 to 14.

b15	to	b8	b7	to	b0	
(Upper byte) *			(lower byte)			Swich 3

Specify 0. *
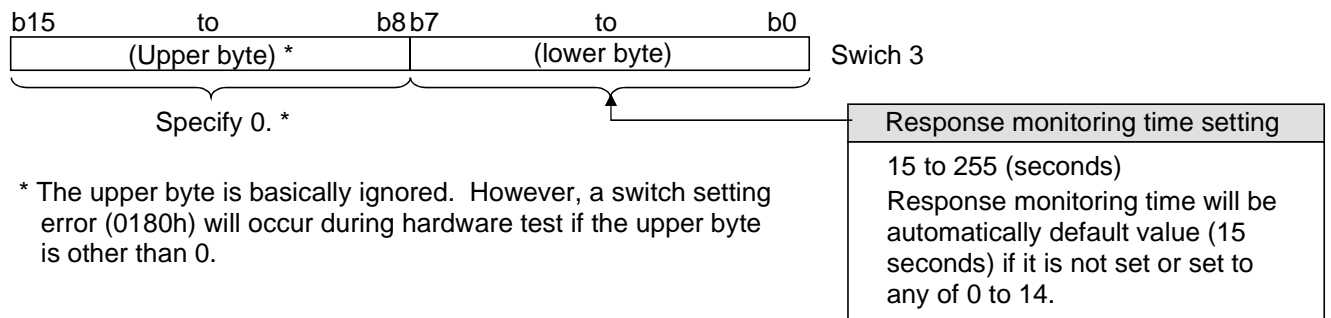
* The upper byte is basically ignored. However, a switch setting error (0180h) will occur during hardware test if the upper byte is other than 0.

Response monitoring time setting
15 to 255 (seconds) Response monitoring time will be automatically default value (15 seconds) if it is not set or set to any of 0 to 14.

7. External Dimensions
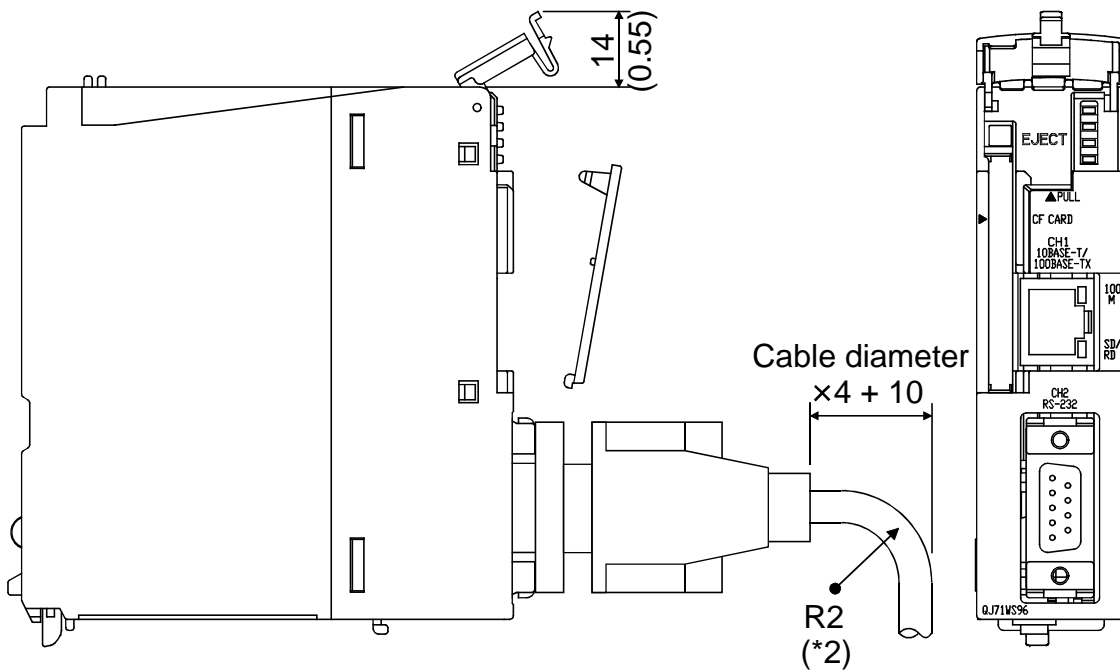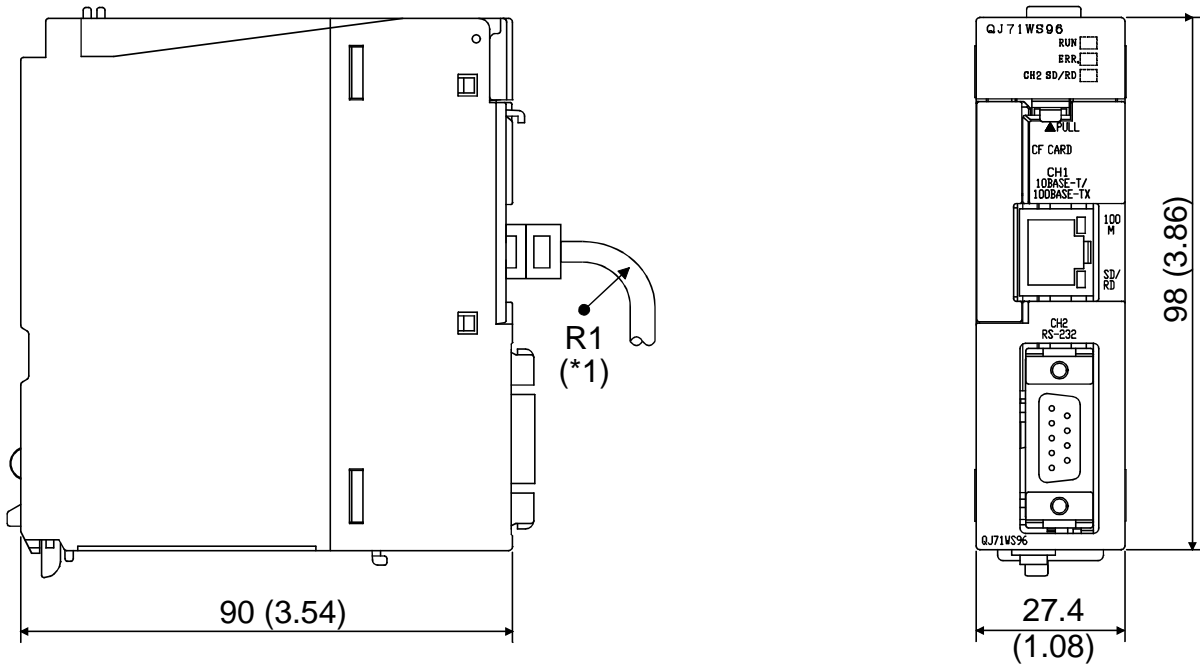
(Units:mm (in.))

*1: The bending radius near the connectors (reference value: R1) should be four times as long as the cable's outside diameter or more when connecting the twisted pair cable.

*2: The bending radius near the connectors (reference value: R2) should be four times as long as the cable's diameter or more when connecting the RS-232 cable.

CompactFlash is a trademark of SanDisk Corporation.
Other company names and product names used in this document are trademarks or registered trademarks of respective companies.

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8. Transportation Precautions

When transporting lithium batteries, make sure to treat them based on the transport regulations.

8.1 Controlled Models

The lithium batteries used with the Web server module are classified as indicated in the following table:

Product name	Model	Product supply status	Classification for transportation
Q series battery	Q6BAT	Lithium battery	Non-dangerous goods

8.2 Transport Guidelines

Comply with IATA Dangerous Goods Regulations, IMDG code and the local transport regulations when transporting products after unpacking or repacking, while Mitsubishi ships products with packages to comply with the transport regulations.

Please consult your carrier for further details.

Warranty

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

⚠ For safe use

• This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.

• Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.

• This product has been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

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