MITSUBISHI ELECTRIC

MOTION CONTROLLERS

MOTION
CONTROLLER

MR-MQ100

MT Developer2
Version 1

Setup Guidance

● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly. The precautions given in this manual are concerned with this product only. Refer to the user's manual of the CPU module to use for a description of the PLC system safety precautions. In this manual, the safety precautions are classified into two levels: "WARNING" and "CAUTION".

⚠ WARNING	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.

Under some circumstances, failure to observe the precautions given under "CAUTION" may lead to serious consequences.
Observe the precautions of both levels because they are important for personal and system safety.
Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

For Safe Operations
[Design Precautions]

⚠WARNING

- Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller.
  Failure to do so may result in an accident due to an incorrect output or malfunction.

  (1) Configure external safety circuits, such as an emergency stop circuit, protection circuit, and protective interlock circuit for forward/reverse operation or upper/lower limit positioning.

  (2) The programmable controller stops its operation upon detection of the following status, and the output status of the system will be as shown below.

    • Turned off if the overcurrent or overvoltage protection of the power supply module is activated.

    • Held or turned off according to the parameter setting if the self-diagnostic function of the CPU module detects an error such as a watchdog timer error.

  (3) Also, all outputs may be turned on if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller. For a fail-safe circuit example, refer to the user's manual of the CPU module to use.

  (4) Outputs may remain on or off due to a failure of a component such as a relay and transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.

- In an output circuit, when a load current exceeding the rated current or an overcurrent caused by a load short circuit flows for a long time, it may cause smoke and fire.
  To prevent this, configure an external safety circuit, such as a fuse.

- Configure a circuit so that the programmable controller is turned on first and then the external power supply. If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.

- For the operating status of each station after a communication failure, refer to manuals relevant to the network. Incorrect output or malfunction due to a communication failure may result in an accident.

- When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.

- Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

⚠ WARNING

● Do not write any data to the "system area" and "write-protect area" of the buffer memory in the module. Also, do not use any "use prohibited" signals as an output signal from the CPU module to each module. Doing so may cause malfunction of the programmable controller system. For the "system area", "write-protect area", and the "use prohibited" signals, refer to the user's manual for the module used.

● If a communication cable is disconnected, the network may be unstable, resulting in a communication failure of multiple stations. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even if communications fail. Failure to do so may result in an accident due to an incorrect output or malfunction.

● To maintain the safety of the programmable controller system against unauthorized access from external devices via the network, take appropriate measures. To maintain the safety against unauthorized access via the Internet, take measures such as installing a firewall.

● Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller.

  Failure to do so may result in an accident due to an incorrect output or malfunction.

  (1) Machine home position return is controlled by two kinds of data: a home position return direction and a home position return speed. Deceleration starts when the near-point dog signal turns on. If an incorrect home position return direction is set, motion control may continue without deceleration. To prevent machine damage caused by this, configure an interlock circuit external to the programmable controller.

  (2) When the module detects an error, the motion slows down and stops or the motion rapid stop, depending on the stop group setting in parameter. Set the parameter to meet the specifications of a positioning control system. In addition, set the home position return parameter and positioning data within the specified setting range.

  (3) Outputs may remain on or off, or become undefined due to a failure of a component such as an insulation element and transistor in an output circuit, where the module cannot detect any error. In a system that the incorrect output could cause a serious accident, configure an external circuit for monitoring output signals.

● If safety standards (ex., robot safety rules, etc.,) apply to the system using the module, servo amplifier and servomotor, make sure that the safety standards are satisfied.

● Construct a safety circuit externally of the module or servo amplifier if the abnormal operation of the module or servo amplifier differs from the safety directive operation in the system.

● Do not remove the SSCNET Ⅲ cable while turning on the control circuit power supply of Multiple CPU system and servo amplifier. Do not see directly the light generated from SSCNET Ⅲ connector of the module or servo amplifier and the end of SSCNET Ⅲ cable. When the light gets into eyes, you may feel something wrong with eyes. (The light source of SSCNET Ⅲ complies with class1 defined in JISC6802 or IEC60825-1.)

[Design Precautions]

⚠CAUTION
● Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100 mm or more between them. Failure to do so may result in malfunction due to noise.
● During control of an inductive load such as a lamp, heater, or solenoid valve, a large current (approximately ten times greater than normal) may flow when the output is turned from off to on. Therefore, use a module that has a sufficient current rating.
● After the CPU module is powered on or is reset, the time taken to enter the execution status varies depending on the system configuration, parameter settings, and/or program size. Design circuits so that the entire system will always operate safely, regardless of the time.
● Do not power off the programmable controller or do not reset the CPU module during the setting registration. Doing so will make the data in the flash ROM undefined. The data need to be set in the buffer memory and to be written to the flash ROM again. Doing so may cause malfunction or failure of the module.
● Reset the CPU module after changing the parameters. Failure to do so may cause malfunction because the previous parameter settings remain in the module.
● When changing the operating status of the CPU module from external devices (such as remote RUN/STOP), select "Do Not Open by Program" for "Opening Method" in the module parameters. If "Open by Program" is selected, an execution of remote STOP causes the communication line to close. Consequently, the CPU module cannot reopen the communication line, and external devices cannot execute the remote RUN.

[Installation Precautions]

⚠WARNING
● Shut-off the external power supply (all phases) used in the system before mounting or removing the module. Failure to do so may result in electric shock or cause the module to fail or malfunction.

[Installation Precautions]

⚠CAUTION

- Use the programmable controller in an environment that meets the general specifications in the manual "Safety Guidelines" included in the base unit. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.

- To mount a module, place the concave part(s) located at the bottom onto the guide(s) of the base unit, and push in the module until the hook(s) located at the top snaps into place. Incorrect mounting may cause malfunction, failure, or drop of the module.

- When using the programmable controller in an environment of frequent vibrations, fix the module with a screw.

- Tighten the screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.

- When using an extension cable, connect it to the extension cable connector of the base unit securely. Check the connection for looseness. Poor contact may cause incorrect input or output.

- When using an SD memory card, fully insert it into the memory card slot. Check that it is inserted completely. Poor contact may cause malfunction.

- Securely insert an extended SRAM cassette into the cassette connector of a CPU module. After insertion, close the cassette cover and check that the cassette is inserted completely. Poor contact may cause malfunction.

- Do not directly touch any conductive parts and electronic components of the module, SD memory card, extended SRAM cassette, or connector. Doing so may cause malfunction or failure of the module.

[Wiring Precautions]

⚠WARNING

- Shut-off the external power supply (all phases) used in the system before installation and wiring. Failure to do so may result in electric shock or damage to the product.

- After installation and wiring, attach the included terminal cover to the module before turning it on for operation. Failure to do so may result in electric shock.

[Wiring Precautions]

⚠CAUTION

- Individually ground the FG and LG terminals of the programmable controller with a ground resistance of 100 ohm or less. Failure to do so may result in electric shock or malfunction.

- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.

- Check the rated voltage and signal layout before wiring to the module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause fire or failure.

- Connectors for external devices or coaxial cables must be crimped or pressed with the tool specified by the manufacturer, or must be correctly soldered. Incomplete connections may cause short circuit, fire, or malfunction.

- Securely connect the connector to the module. Poor contact may cause malfunction.

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100 mm or more between them. Failure to do so may result in malfunction due to noise.

- Place the cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact. Do not clamp the extension cables with the jacket stripped.

- Check the interface type and correctly connect the cable. Incorrect wiring (connecting the cable to an incorrect interface) may cause failure of the module and external device.

- Tighten the terminal screws or connector screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.

- When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.

- Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.

- A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.

- Mitsubishi programmable controllers must be installed in control panels. Connect the main power supply to the power supply module in the control panel through a relay terminal block. Wiring and replacement of a power supply module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring, refer to the MELSEC iQ-R Module Configuration Manual.

[Wiring Precautions]

⚠CAUTION

● For Ethernet cables to be used in the system, select the ones that meet the specifications in the MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup). If not, normal data transmission is not guaranteed.

[Startup and Maintenance Precautions]

⚠WARNING

● Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.

● Correctly connect the battery connector. Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire. Also, do not expose it to liquid or strong shock. Doing so may cause the battery to generate heat, explode, ignite, or leak, resulting in injury or fire.

● Shut-off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal screws, connector screws, or module fixing screws. Failure to do so may result in electric shock or cause the module to fail or malfunction.

[Startup and Maintenance Precautions]

⚠CAUTION

● When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.

● Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

● Do not disassemble or modify the modules. Doing so may cause failure, malfunction, injury, or a fire.

● Use any radio communication device such as a cellular phone or PHS (Personal Handyphone System) more than 25 cm away in all directions from the programmable controller.
Failure to do so may cause malfunction.

● Shut-off the external power supply (all phases) used in the system before mounting or removing the module. Failure to do so may cause the module to fail or malfunction.

[Startup and Maintenance Precautions]

⚠ CAUTION

- Tighten the screws within the specified torque range. Undertightening can cause drop of the component or wire, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.

- After the first use of the product, do not mount/remove the module to/from the base unit, and the terminal block to/from the module, and do not insert/remove the extended SRAM cassette to/from the CPU module more than 50 times (IEC 61131-2 compliant) respectively.
  Exceeding the limit of 50 times may cause malfunction.

- After the first use of the product, do not insert/remove the SD memory card to/from the CPU module more than 500 times. Exceeding the limit may cause malfunction.

- Do not touch the metal terminals on the back side of the SD memory card. Doing so may cause malfunction or failure.

- Do not touch the integrated circuits on the circuit board of an extended SRAM cassette.
  Doing so may cause malfunction or failure.

- Do not drop or apply shock to the battery to be installed in the module. Doing so may damage the battery, causing the battery fluid to leak inside the battery.
  If the battery is dropped or any shock is applied to it, dispose of it without using.

- Startup and maintenance of a control panel must be performed by qualified maintenance personnel with knowledge of protection against electric shock. Lock the control panel so that only qualified maintenance personnel can operate it.

- Before handling the module, touch a conducting object such as a grounded metal to discharge the static electricity from the human body.
  Failure to do so may cause the module to fail or malfunction.

- Before testing the operation, set a low speed value for the speed limit parameter so that the operation can be stopped immediately upon occurrence of a hazardous condition.

- Confirm and adjust the program and each parameter before operation.
  Unpredictable movements may occur depending on the machine.

- When using the absolute position system function, on starting up, and when the module or absolute value motor has been replaced, always perform a home position return.

- Before starting the operation, confirm the brake function.

- Do not perform a megger test (insulation resistance measurement) during inspection.

- After maintenance and inspections are completed, confirm that the position detection of the absolute position detection function is correct.

- Lock the control panel and prevent access to those who are not certified to handle or install electric equipment.

[Operating Precautions]

⚠CAUTION

- When changing data and operating status, and modifying program of the running programmable controller from an external device such as a personal computer connected to an intelligent function module, read relevant manuals carefully and ensure the safety before operation. Incorrect change or modification may cause system malfunction, damage to the machines, or accidents.

- Do not power off the programmable controller or reset the CPU module while the setting values in the buffer memory are being written to the flash ROM in the module. Doing so will make the data in the flash ROM undefined. The values need to be set in the buffer memory and written to the flash ROM again. Doing so also can cause malfunction or failure of the module.

- Note that when the reference axis speed is specified for interpolation operation, the speed of the partner axis (2nd, 3rd, or 4th axis) may exceed the speed limit value.

- Do not go near the machine during test operations or during operations such as teaching. Doing so may lead to injuries.

[Disposal Precautions]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.

- When disposing of batteries, separate them from other wastes according to the local regulations. For details on battery regulations in EU member states, refer to the MELSEC iQ-R Module Configuration Manual.

[Transportation Precautions]

⚠CAUTION

- When transporting lithium batteries, follow the transportation regulations. For details on the regulated models, refer to the MELSEC iQ-R Module Configuration Manual.

- The halogens (such as fluorine, chlorine, bromine, and iodine), which are contained in a fumigant used for disinfection and pest control of wood packaging materials, may cause failure of the product.
  Prevent the entry of fumigant residues into the product or consider other methods (such as heat treatment) instead of fumigation.
  The disinfection and pest control measures must be applied to unprocessed raw wood.

REVISIONS

The manual number is given on the bottom left of the back cover.

Print Date	Manual Number	Revision
Sep.,2008	IB(NA)-0300152-A	First edition
Jan.,2009	IB(NA)-0300152-B	OPERATING ENVIRONMENT, SYSTEM CONFIGURATION, WARRANTY
Jul.,2009	IB(NA)-0300152-C	OPERATING ENVIRONMENT, SYSTEM CONFIGURATION, TROUBLESHOOTING
May.,2010	IB(NA)-0300152-D	SAFETY PRECAUTIONS, OPERATING ENVIRONMENT, TROUBLESHOOTING
Sep.,2010	IB(NA)-0300152-E	[Correction] OPERATING ENVIRONMENT, SYSTEM CONFIGURATION, TROUBLESHOOTING
Nov.,2011	IB(NA)-0300152-F	[Correction] SAFETY PRECAUTIONS, OPERATING ENVIRONMENT, TROUBLESHOOTING
Apr.,2012	IB(NA)-0300152-G	[Correction] ABOUT MANUALS, OVERVIEW, OPERATING ENVIRONMENT, SYSTEM CONFIGURATION, APPENDICES
May.,2012	IB(NA)-0300152-H	[Correction] SAFETY PRECAUTIONS, WARRANTY
Jun.,2013	IB(NA)-0300152-J	[Correction] OPERATING ENVIRONMENT
Sep.,2013	IB(NA)-0300152-K	[Correction] OVERVIEW, OPERATING ENVIRONMENT
Feb.,2014	IB(NA)-0300152-L	[Correction] OPERATING ENVIRONMENT, TROUBLESHOOTING
Jun.,2014	IB(NA)-0300152-M	[Correction] OVERVIEW, OPERATING ENVIRONMENT, SYSTEM CONFIGURATION, TROUBLESHOOTING
Oct.,2014	IB(NA)-0300152-N	[Correction] ABOUT MANUALS, OVERVIEW, OPERATING ENVIRONMENT, SYSTEM CONFIGURATION, TROUBLESHOOTING
Apr.,2015	IB(NA)-0300152-P	[Correction] OPERATING ENVIRONMENT

CONTENTS

TRADEMARKS

WARRANTY

ABOUT MANUALS

The following manuals are related to this product.
Referring to this list, please request the necessary manuals.

| Related Manuals |

Motion controller

Manual Name	Manual Number (Model Code)
MELSOFT MT Works2 for MR-MQ100 Installation Instructions This document explains how to install and uninstall MT Developer2.	— (MTW2-I-INS2J)
MR-MQ100 Motion controller User's Manual (Details) This manual explains specifications of the Motion controller, Servo amplifiers, SSCNET cables, Synchronous encoder cables and others.	IB-0300150 (1XB818)
Q173D(S)CPU/Q172D(S)CPU Motion controller (SV13/SV22) Programming Manual (Motion SFC) This manual explains the functions, programming, debugging, error lists for Motion SFC and others.	IB-0300135 (1XB929)
Q173D(S)CPU/Q172D(S)CPU Motion controller (SV13/SV22) Programming Manual (REAL MODE) This manual explains the servo parameters, positioning instructions, device lists, error lists and others.	IB-0300136 (1XB930)
Q173D(S)CPU/Q172D(S)CPU Motion controller (SV22) Programming Manual (VIRTUAL MODE) This manual explains the dedicated instructions to use the synchronous control by virtual main shaft, mechanical system program create mechanical module, servo parameters, positioning instructions, device lists, error lists and others.	IB-0300137 (1XB931)

1. OVERVIEW

1.1 Overview

This manual describes those items related to the setup of the Motion controller programming software MELSOFT MT Works2 (for MR-MQ100).

In this manual, the following abbreviations are used.

Generic term/Abbreviation	Description
MELSOFT MT Works2 for MR-MQ100	Package product of the Motion controller engineering environment
MT Developer2	Programming software included in MELSOFT MT Works2 for MR-MQ100
MR Configurator2	Servo support software included in MELSOFT MT Works2 for MR-MQ100
MR Configurator	Servo support software package MRZJW3-SETUP221E
Motion CPU or Motion controller	Single Axis Motion Controller
Operating System software	General name for "SW9DNC-SV22QW"
SV22	Operating system software for automatic machinery use : SW9DNC-SV22QW

1.2 Features

MELSOFT MT Works2 is programming software for configuring and maintaining a system using the Motion controllers.
Offering the program design environment and maintenance environment, the software can be used for various applications in all the phases of configuring a Motion controller system (system design → program development → debugging → startup → operation and maintenance).
In addition, work efficiency is increased, by the expanded functions and improved operability, in all the system configuration phases.

2. OPERATING ENVIRONMENT

2.1 Operating Environment

Item		Contents
Personal computer main body	Personal computer	Windows® supported personal computer

	OS	Microsoft® Windows® XP Service Pack:3(Note-1)
		  Windows® XP Professional,
		  Windows® XP Home Edition
		Microsoft® Windows Vista® (32-bit) (Note-1)
		  Windows Vista® Enterprise,
		  Windows Vista® Ultimate,
		  Windows Vista® Business,
		  Windows Vista® Home Premium,
		  Windows Vista® Home Basic
		Microsoft® Windows® 7 (32-bit/64-bit)
		  Windows® 7 Enterprise,
		  Windows® 7 Ultimate,
		  Windows® 7 Professional,
		  Windows® 7 Home Premium,
		  Windows® 7 Starter
		Microsoft® Windows® 8 (32-bit/64-bit)
		  Windows® 8 Enterprise,
		  Windows® 8 Pro,
		  Windows® 8
		Microsoft® Windows® 8.1 (32-bit/64-bit)
		  Windows® 8.1 Enterprise,
		  Windows® 8.1 Pro,
		  Windows® 8.1

	CPU	Desktop PC: Intel® Celeron® Processor 2.8GHz or higher Laptop PC: Intel® Pentium® M Processor 1.7GHz or higher
	Required memory	1GB or more recommended (For 32-bit edition) 2GB or more recommended (For 64-bit edition)
	Video card	Video card supporting Microsoft® DirectX® 9.0c or higher
Available hard disk space		When installing: Available hard disk space: 3GB or more When operating: Available virtual memory space: 512MB or more
Disk drive		DVD-ROM supported disk drive
Monitor		Resolution 1024 x 768 pixels or higher
Communication interfaces		Ethernet port

(Note-1): The 64-bit edition is not supported.

POINT
MR Configurator2 is also installed simultaneously. For the details of the MR Configurator2, refer to the "MR Configurator2 SW1DNC-MRC2 INSTALLATION GUIDE".

2. OPERATING ENVIRONMENT

CAUTION

(1) For Windows® 7, Windows® 8 and Windows® 8.1, if .NET Framework 3.5 (including .NET 2.0 and 3.0) is invalid, it needs to be valid.

(2) The following functions cannot be used. This product may not perform properly, when these functions are used.
- Activating the application with Windows® compatible mode
- Simplified user switch-over
- Remote desktop
- Large font size (Advanced settings of Display Properties)
- DPI setting other than 100%
  (set the size of text and illustration other than [smaller-100%]
- Windows XP Mode
- Windows Touch or Touch
- Modern UI
- Client Hyper-V

(3) Use the product as a user having a privilege higher than 'Standard user' or 'Administrator' for Windows Vista®, Windows® 7, Windows® 8, and Windows® 8.1.

   Otherwise, you should have the administrator level to link to SoftGOT.

(4) If the Windows firewall setting is enabled, the "Find Module function" and "Direct connection function" may not operate correctly. Disable the Windows firewall setting.

(5) The screens of this product may not perform properly when multi-display is set on Display Properties.

(6) The operations on the screen of this product may not be executed properly when the screen resolution is changed while the product is being activated.

2.2 Use Conditions

(1) MR Configurator compatible version
   The supported version of MR Configurator (MRZJW3-SETUP221E) for MT Developer2 is C1 or later.

(2) Installation with both of SW1DNC-MTW2 and SW1DNC-MTW2MQ
   This product (SW1DNC-MTW2MQ) is programming software dedicated to MR-MQ100.
   When this product and a product of the same series (SW1DNC-MTW2) are installed on one personal computer, the software is installed as an upgrade and the products are integrated to one product. The types of motion controllers that can be used vary depending on the installation order. The operating environment is shown below.

Installation order	Support CPU
1) SW1DNC-MTW2 Ver.1.03D or earlier 2) SW1DNC-MTW2MQ Ver.1.04E or later	All CPUs
1) SW1DNC-MTW2MQ Ver.1.04E or later 2) SW1DNC-MTW2 Ver.1.05F or later	All CPUs
1) SW1DNC-MTW2MQ Ver.1.04E 2) SW1DNC-MTW2 Ver.1.03D or earlier	Other than MQ-MQ100 only

(Note): When installing both of SW1DNC-MTW2 and SW1DNC-MTW2MQ, install newer version after installing older version.

3. SYSTEM CONFIGURATION

3.1 System Configuration

MR-MQ100

| When connected directly | When connected with HUB |

Ethernet cable
(Cross cable)

Ethernet cable
(Straight cable)

HUB

Ethernet cable
(Straight cable)

MITSUBISHI

MELSOFT MT Works2
for MR-MQ100 Version 1

MELSOFT

Integrated FA Software

DATE

MODEL SW1DNC-MTW2MQ-E

MELSOFT

MELSOFT MT Works2 for MR-MQ100:
MT Developer2
MR Configurator2

3. SYSTEM CONFIGURATION

POINT

<When used in the Ethernet>
(1) We do not guarantee the operation in the following connections.
   - Connection via the Internet (general public line)
   - Connection via a firewall device
   - Connection via the broadband rooter
   - Connection via the wireless LAN
(2) If the resume function, suspension setting, power-saving function or stand-by mode is set in the personal computer used for communication with the CPU, a communication error may occur.
   Do not use these functions at the personal computer used for communication with the CPU.

When used in the direct connection
(1) Communication can be made only by selecting the direct connection (default) on the Transfer Setup screen of MELSOFT MT Works2.
   It is not necessary to set the IP address, IP address input format, or protocol.

When used in the connection with HUB
(1) It is necessary to set the parameters using MELSOFT MT Works2 for the connection with HUB.
   - IP address: Set the IP address at the CPU side.
   - Protocol: Select from TCP and UDP in accordance with the other device.
   Resetting or turning on again the CPU after writing the parameters to the CPU makes the set parameters valid.
   If parameters are written with no IP address set, they must be written in the direct connection first.
(2) Communication with the CPU with the IP address set can be made by setting the IP address/host name and protocol on the Transfer Setup screen of MELSOFT MT Works2 after performing the operations described in (1).
   - IP address/host name: Set the IP address or host name.
                         (For the host name, use the name set with the hosts file of Windows.)
   - Protocol: Select from TCP and UDP in accordance with the other device.

3. SYSTEM CONFIGURATION

3.2 Component List

The following shows the specifications of Ethernet cable.

Part name	Connection type	Cable type	Ethernet standard	Model name
Ethernet cable	Connection with HUB	Straight cable	10BASE-T	Compliant with Ethernet standards, category 5 or higher. • Shielded twisted pair cable (STP cable)
			100BASE-TX	
	Direct connection	Crossover cable	10BASE-T	
			100BASE-TX	

(Note): The following shows the selection criterion of cable.
- Category: 5 or higher.
- Diameter of lead: AWG26 or higher.
- Shield: Copper braid shield and drain wire.
  Copper braid shield and aluminum layered type shield.

4. PRECAUTION

4.1 Finding Ethernet Built-in Type CPU on the Network

When "Find Ethernet Built-in Type CPU on the Network" is executed at the CPU side I/F CPU module detail setting in the transfer setup, the "Windows Security Alert" dialog box may appear.
If this dialog box appears, select "Unblock".
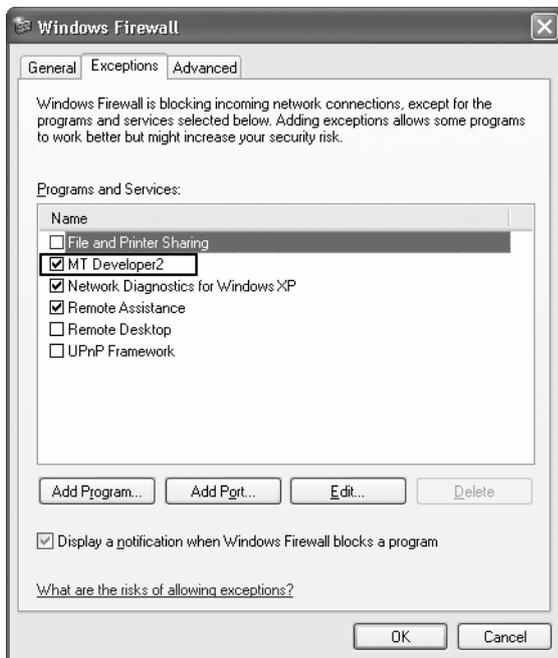
When selecting "Block", operate as follows.
Mark the checkbox of "MT Developer2" in the "Programs and Services" list on the "exceptions" tag of Windows Firewall.

The image of the dialog box differs depending on Windows you use.
For details of the Windows Firewall settings, refer to Windows Help.

5. TROUBLESHOOTING

5.1 During USB Communication, Communication Error Occurred and Communication Is Not Recovered from Error

No.	Phenomenon	Cause and remedy
1	A communication error occurred during USB communication with the Motion CPU, and communication is not recovered from the error.	Any of operations 1) to 3) was performed during USB communication with the Motion CPU. 　1) The USB cable was disconnected and connected during communication with the Motion CPU or connected after communication started. 　2) The Motion CPU was reset. 　3) The Motion CPU was cycled on/off. Do not perform any of operations 1) to 3) during USB communication. Doing so may cause a communication error, from which communication cannot be recovered. If any of operations of 1) to 3) is to be performed, it is recommended to put MELSOFT MT Works2 in an offline status[Note-1]. If communication is not recovered from the error, disconnect the USB cable once, and after 5 or more seconds have elapsed, reconnect it. (The communication error may occur at the first time after the above operation is performed, but communication will return to normal at the second time and later.) Depending on the personal computer model, however, communication may not be recovered from the error if the above operation is performed. In that case, reset the personal computer. (Note-1): Offline status: Status in which communication is not made with the Motion CPU (In an online status, program/parameter read/write, monitoring, test or like is in execution.)

5.2 Project Cannot Be Saved or Read

No.	Phenomenon	Cause and remedy
1	A project cannot be saved or read. (Example) The following message may appear. ↓ To next page	<Cause 1)> The item "Execute this program in compatibility mode" is selected in the application properties. <Remedy 1)> Remove the check mark from "Execute this program in compatibility mode".
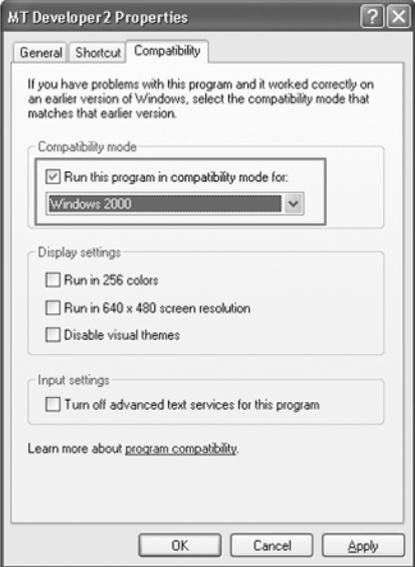
5. TROUBLESHOOTING

No.	Phenomenon	Cause and remedy
	From preceding page ⬇	\<Cause 2\> A part of the Microsoft .NET Framework may be corrupted. \<Remedy 2\> Uninstall the Microsoft .NET Framework from the personal computer, download the latest Microsoft .NET Framework from the web site of Microsoft and install it. Uninstall all the programs displayed with the name "Microsoft .NET Framework". When multiple programs are required to uninstall, uninstall them in descending order. (Example) The following shows the order of uninstalling of the figure below. 1) Microsoft .NET Framework 3.5 SP1 2) Microsoft .NET Framework 3.0 Service Pack 2 3) Microsoft .NET Framework 2.0 Service Pack 2
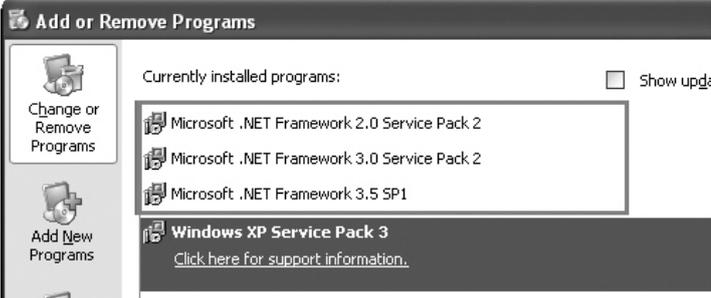
(Note-1): For Windows[®] 7 and Windows Vista[®], .Net Framework may not be displayed in "Uninstall or change a program" since it
is installed by default.
(Windows[®] 7: .Net Framework 3.51, Windows Vista[®]: .Net Framework 3.0)
(Note-2): The following shows the latest version in November, 2009.
Microsoft .NET Framework 3.5 SP1

5.3 Sampling Omission May Occur on the Digital Oscilloscope

No.	Phenomenon	Cause and remedy
1	On the digital oscilloscope, a sampling omission may occur during sampling of data by SSCNET communication (PC real-time read method).	If other operation is performed during sampling, a sampling failure may occur.

5. TROUBLESHOOTING

5.4 Digital Oscilloscope Cannot Be Started

No.	Phenomenon	Cause and remedy
1	When the digital oscilloscope is started, the following message appears and the digital oscilloscope cannot be started. **Digital Oscilloscope** Digital Oscilloscope start err. [DSRP.]: DirectX initialization failed. Exit Digital Oscilloscope. [RMDY.]: Check Whether the function of DirectX is enabled in the using PC by DirectX diagnosis tool. Refer to [Starting and Exiting the Digital Oscilloscope] in MT Developer2 help for details. OK	Check whether DirectX® can be operated by the DirectX Diagnostic Tool. Choose the [Display] tab in the DirectX® Diagnostic Tool. Check whether "DirectDraw Acceleration" of the "DirectX Features" is "Enabled". **DirectX Diagnostic Tool** **DirectX Features** DirectDraw Acceleration: Enabled — Disable Direct3D Acceleration: Enabled — Disable AGP Texture Acceleration: Not Available — Disable

5.5 The SSCNET Communication Manager of SW6RN-SNETP Displays "Shared Memory Connection Error"

| No.	Phenomenon	Cause and remedy
1	The SSCNET communication manager of SW6RN-SNETP displays "Connected To The Shared Memory Error" and SW6RN-SNETP is not started properly. **SW6RN-SNETP - SSCNET Communication Manager** File(E) Help(H) Connected To The Shared Memory Error If SSCNET communication is started in this status, communication error "51" occurs. **Install** A communication error occurred.(Err. Code=51) [DSRP.]: The SSCNET communication task is not yet started. [RMDY.]: Execute again after making "SSCNET communication task start" on the SSCNET communication system software (SWnRN-SNETP). OK	With MT Developer2 and SW6RN-SNETP started simultaneously, operation to start SW6RN-SNETP or to execute communication may cause a phenomenon shown on the left. To start SSCNET communication by SW6RN-SNETP, exit from MT Developer2 and SW6RN-SNETP once and restart only SW6RN-SNETP. To execute SSCNET communication, make communication with only either one of MT Developer2 or SW6RN-SNETP started.
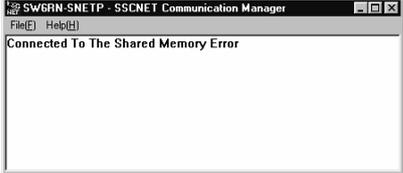
5. TROUBLESHOOTING

5.6 During Communication, "Can not allocate Share memory" Error Occurs

No.	Phenomenon	Cause and remedy
1	During communication, "Can not allocate Share memory" error occurs. Error [X] [X] Can not allocate Share memory [OK]	The following operations may cause the phenomenon given on the left. • When the communication is forcibly shut down, during communication, by the CPU power turning off or an unplugged communication cable. • The communication is made at MT Developer2 side while SW3RN-SNETP is started (including the online status). When this error occurs, exit from all MELSOFT applications once, and start MT Developer2 again.

5.7 When SW3RN-SNETP Is Started, "Not enough memory" Error Occurs

No.	Phenomenon	Cause and remedy
1	When SW3RN-SNETP is started, "Not enough memory" error occurs. VLINKS(Shared Memory Server) [X] [X] Not enough memory. [OK]	With MT Developer2 and SW3RN-SNETP started simultaneously, operation to start SW3RN-SNETP or to execute communication may cause a phenomenon shown on the left. To start SSCNET communication by SW3RN-SNETP, exit from MT Developer2 and SW6RN-SNETP once and restart only SW3RN-SNETP. To execute SSCNET communication, make communication with only either one of MT Developer2 or SW3RN-SNETP started.

5. TROUBLESHOOTING

5.8 MR Configurator Fails to Be Started from MT Developer2 (Linkage Function)

No.	Phenomenon	Cause and remedy
1	When MR Configurator is started from MT Developer2, the following error occurs and the starting fails. (linkage function)	An MR Configuration version which does not support MT Developer2 is installed. Update the version of MR Configurator to Ver.C1 or later.
2	When MR Configurator is started from MT Developer2, the following error occurs and the starting fails. (linkage function)	MR Configurator version which does not support Q170M is installed. Update the version of MR Configurator to Ver.C2 or later.
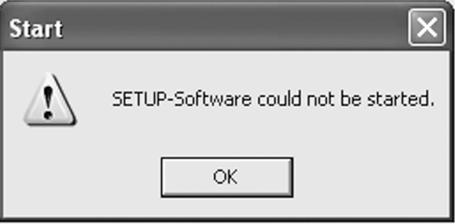
5. TROUBLESHOOTING

5.9 Operation when Using a Program Data, Created with the Japanese Edition[(Note-1)] in the English Edition[(Note-2)]

No.	Phenomenon	Cause and remedy
1	The Motion SFC Program Name Is Not Displayed Correctly.	This situation occurs when Japanese characters are used. Change the Japanese characters to the ASCII characters with the Japanese edition before opening the project with the English edition. The project may also be opened by deleting the garbled characters and entering characters in the English edition.
2	The motion SFC chart (symbols) comments, or comments in the F/G program are not displayed correctly.	
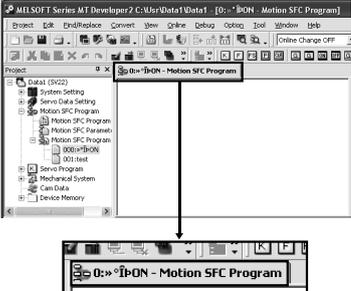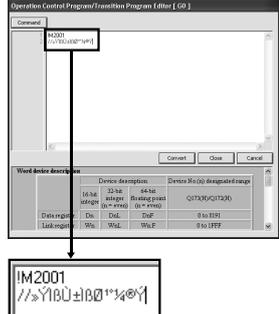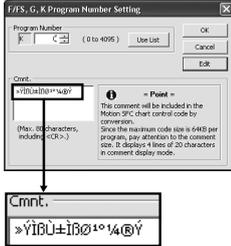
(Note-1): MT Developer (SW6RNC-GSVE), MT Developer2
(Note-2): MT Developer2

5. TROUBLESHOOTING

5.10 A Dialog Box is Displayed after an Installer

No.	Phenomenon	Cause and remedy
1	The following warning dialog boxes may appear on a Windows Vista®/Windows® 7/Windows® 8-based personal computer. **CAUTION** The warning dialog boxes shown above may be hidden behind the screen of MELSOFT installer. Press Alt + Tab to bring them to front.	\<Corrective action\> Ensure to select "This program installed correctly". If "Reinstall using recommended settings" is selected by mistake, "Windows XP compatibility mode" is set automatically. Disable "Windows XP compatibility mode" by the following procedure, and perform the reinstallation. 1). Right-click on the setup.exe icon of the installation target in the Windows explorer, and open the "setup Properties" screen. 2). Select the "Compatibility" tab and click "Show settings for all users". 3). Uncheck the "Run this program in compatibility mode for: "check box of compatibility mode in the "Compatibility for all users" tab and click OK . 4). Click OK on the "setup Properties" screen.
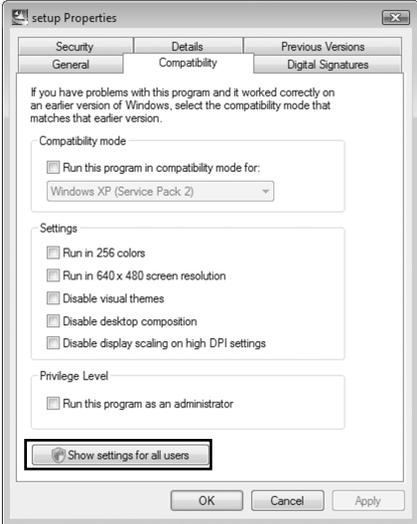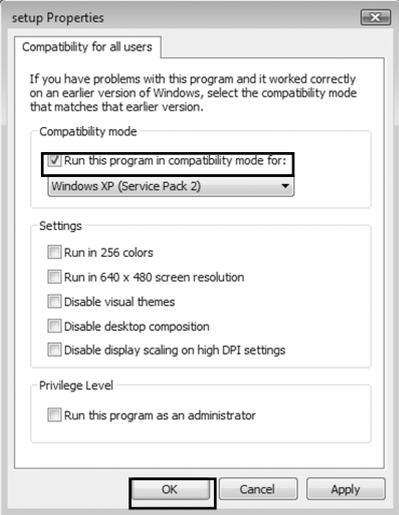
5.11 When the TCP/IP Communication cannot be Established or the Simulation Function cannot be Started

No.	Phenomenon	Cause and remedy
1	As the TCP/IP communication with the Motion CPU is established or the simulation function is started on MELSOFT MT Works2, the following dialog box may be displayed and the operation may not be able to be performed even if corrective actions against the message are taken. (Error Code <ES:01808201>) **MELSOFT application** ⊠ ⓘ Cannot communicate with the PLC. Execute again after checking the connections with the PLC. Please check power module, CPU module, I/O module, Intelligent module, Network module, base, cable. Please check the manual and other documentation. <ES:01808201> [OK]	The TCP/IP communication function and simulation function of MELSOFT MT Works2 are based on the standard TCP/IP communication provided by Microsoft Corporation. In cases where these functions cannot be started, a communication function of a software product made by another company may adversely affect the standard TCP/IP communication. <Corrective action> This problem can be workarounded by upgrading another company's software product to the latest version or uninstalling it. For the corresponding software products, refer to the following "Corresponding other companies' software products". <Corresponding other companies' software products> (1) Other companies' software products that have been confirmed as causes of this problem
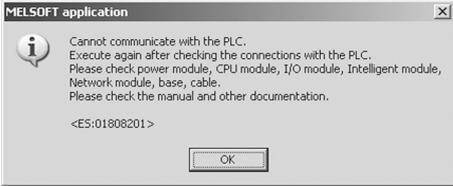
<table>
<tr><th>Manufacturer</th><th>Product name</th><th>Confirmed by (version)</th><th>Corrective action</th></tr>
<tr><td>WILLCOM, Inc.</td><td>Venturi Client for AIR-EDGE</td><td>3.1.2</td><td>Upgrade</td></tr>
<tr><td>Digital Arts Inc.</td><td>i-FILTER</td><td>4.01.08</td><td>Upgrade</td></tr>
<tr><td>SOURCENEXT CORPORATION</td><td>Virus Security ZERO</td><td>9.5.0072</td><td>Uninstall</td></tr>
<tr><td>Sprint Inc.</td><td>Sprint SmartView</td><td>2.25.0046</td><td>Uninstall</td></tr>
</table>

(2) Other companies' software products other than above
In cases where this problem occurs on a personal computer on which any of these software products mentioned above is not installed, follow the following procedure to identify which software product adversely affects the standard TCP/IP communication, and perform upgrade or uninstallation of the software product.

> **POINT**
>
> Registry values are referred in <Checking method> described below.
> <u>Be sure not to edit registry values</u> when referring them. The registry is an important component for the operating system. If registry values are erroneously changed, the computer may not work properly.

⬇

To next page

No.	Phenomenon	Cause and remedy

		From preceding page
		
		 ⬇
		
		 \<Checking method\>
		 1) Start the Registry Editor on Windows.
		   Click [Run] via [Start], type "regedit" on the displayed dialog box, and click OK.
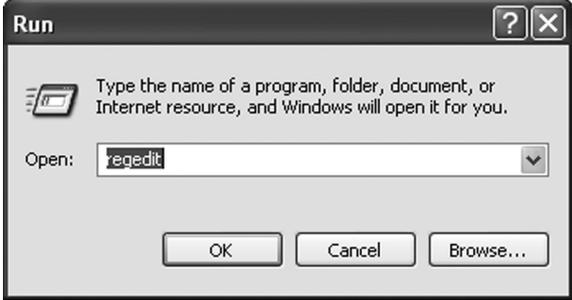		
		 2) In the Registry Editor, perform the following operation.
		   Under "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WinSock2\Parameters\Protocol_Catalog9\Catalog_Entries", double-click "PackedCatalogItem" in sequentially-numbered registry keys starting from "000000000001", such as "000000000001", "000000000002", "000000000003", and so on.
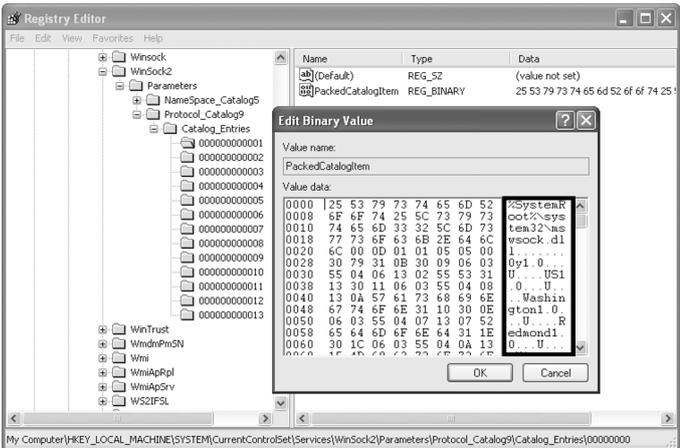		
		 If a displayed dll file name is other than "mswsock.dll" and "rsvpsp.dll", the dll file likely affects the standard TCP/IP communication.
		 When more than one sequentially-numbered registry key exists, check a dll file name in every registry key.
		
		 ⬇
		
		 To next page

No.	Phenomenon	Cause and remedy
		From preceding page ⬇ 3) Identify a software product made by another company. Identify the product name by opening the properties of the dll file checked in the above step 2 and confirming its "Product Name" and "Description" etc. or by searching for the dll file name on the web.
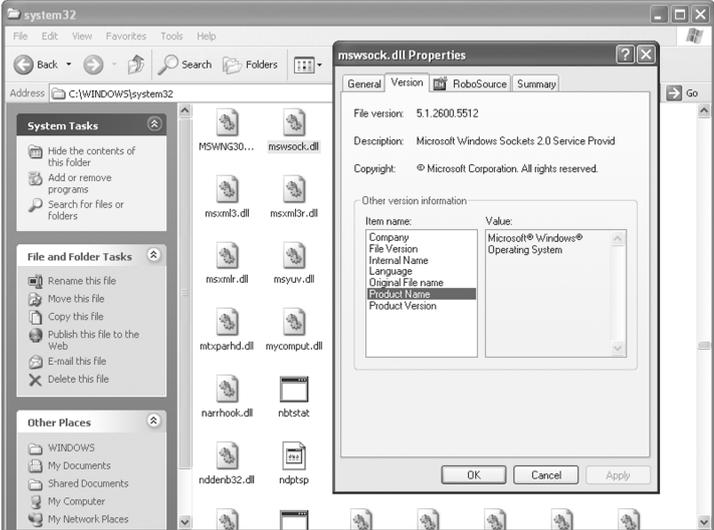
5. TROUBLESHOOTING

5.12 Start the Unexpected Auxiliary Screen in MT Developer2

No.	Phenomenon	Cause and remedy
1	In Windows8.1® (Simplified Chinese), unexpected auxiliary screen might be started on MT Developer2 setting screen when executing numerical entry. (Example) Servo Data Screen Fixed Parameter Item 	<Corrective action> OFF the Chinese (English ON) in IME language preferences.
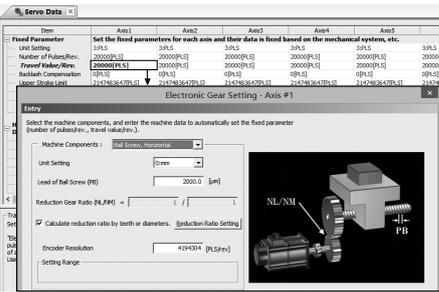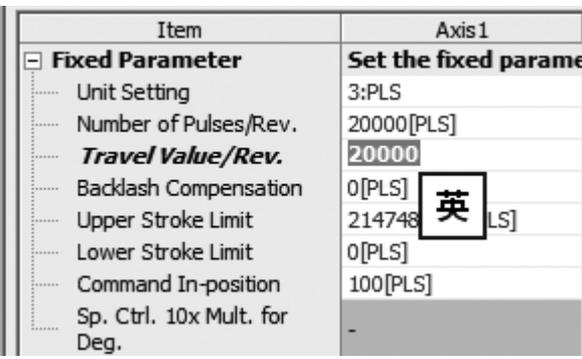
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WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.
However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
    1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
    2. Failure caused by unapproved modifications, etc., to the product by the user.
    3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
    4. Failure that could have been avoided if consumable parts (battery, fan, etc.) designated in the instruction manual had been correctly serviced or replaced.
    5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
    6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
    7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

6. Precautions for Choosing the Products

(1) For the use of our Motion controller, its applications should be those that may not result in a serious damage even if any failure or malfunction occurs in Motion controller, and a backup or fail-safe function should operate on an external system to Motion controller when any failure or malfunction occurs.

(2) Our Motion controller is designed and manufactured as a general purpose product for use at general industries. Therefore, applications substantially influential on the public interest for such as atomic power plants and other power plants of electric power companies, and also which require a special quality assurance system, including applications for railway companies and government or public offices are not recommended, and we assume no responsibility for any failure caused by these applications when used.

In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatments, railway service, incineration and fuel systems, man-operated material handling equipment, entertainment machines, safety machines, etc. are not recommended, and we assume no responsibility for any failure caused by these applications when used.

We will review the acceptability of the abovementioned applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.