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. For the safety precautions of the programmable controller system, refer to the user's manual for the CPU module and the master module used.

In this manual, the CC-Link IE TSN/Ethernet network interface module is referred to as the module, and 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.

[Design Precautions]

⚠ WARNING

- In the case of a communication failure in the network, data of the master station are held. Check the data link status of each station (SW00B0 to SW00B7) and configure an interlock circuit in the program to ensure that the entire system will operate safely. Failure to do so may result in an accident due to an incorrect output or malfunction.
- When the network interface module (digital output) is disconnected from the network due to a communication failure or when the CPU module is in the STOP status, the module maintains or turns off the output according to the output HOLD/CLEAR setting. Configure an interlock circuit in the program to ensure that the entire system will operate safely. Failure to do so may result in an accident due to an incorrect output or malfunction.
- Do not use any "Use prohibited" remote I/O signals and remote register areas.
  If any is used, correct operation of the module cannot be guaranteed.
- Depending on the failure type of the module, the output may be held or an incorrect value may be outputted. Configure an external circuit for monitoring output signals that could cause a serious accident.
- 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) The analog output status differs depending on the setting status of the functions used to control analog output. Pay full attention to set each function. For details on the analog output status, refer to ☞ Page 135 Combination of analog output status.
  (2) Depending on the failure type of output elements or their internal circuits, proper output may not be obtained. Configure an external circuit for monitoring output signals that could cause a serious accident.

[Design Precautions]

⚠CAUTION

- Store the modules at the storage ambient temperature and humidity. Failure to do so can cause malfunction or failure of the module.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.

[Security Precautions]

⚠WARNING

- To maintain the security (confidentiality, integrity, and availability) of the programmable controller and the system against unauthorized access, denial-of-service (DoS) attacks, computer viruses, and other cyberattacks from external devices via the network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.

[Installation Precautions]

⚠WARNING

- Shut off all phases of the external power supply used in the system before installing. Failure to do so may result in electric shock, product damage or malfunction.

[Installation Precautions]

⚠CAUTION

- Use the module in an environment that complies with the general specifications described in this manual.
  Failure to do so can cause electric shock, fire, malfunction, or damage to or deterioration of the product.
- Fix the module securely using DIN rails or mounting brackets. Tighten the mounting screws within the specified torque range. Failure to do so can cause the dropping, short circuit, or malfunction of the module. Overtightening can damage the mounting screw and/or module, resulting in the dropping, or malfunction of the module.
- Do not directly touch the conductive part of the module. Doing so can cause malfunction or failure of the module.
- Fully mount the terminal block and connector of each connection cable to the module connector. Insufficient contact can cause malfunction of the module.

[Wiring Precautions]

⚠WARNING

- Shut off all phases of the external power supply used in the system before wiring. Failure to do so may result in electric shock, product damage or malfunction.

[Wiring Precautions]

⚠CAUTION

- Individually ground the FG terminal of the programmable controller with a ground resistance of 100 ohms or less. Failure to do so can cause electric shock or malfunction of the module.
- Place the cables such as communication cables and power cables in a duct or clamp them. Failure to do so can cause movement or shifting of the cables, damage to the module or cables due to careless pulling, or malfunction of the module due to insufficient cable contact.
- Check the rated voltage and terminal layout before wiring to the module, and connect the cables correctly. Failure to do so can cause fire or the module to fail or malfunction.
- Check the interface type and correctly connect the cable. Connecting a cable to an incorrect interface or miswiring can cause the module or external devices to malfunction.
- Tighten the terminal block mounting screws within the specified torque range. Failure to secure the terminal block may cause drop, short circuit, or malfunction of the module. Overtightening the screws may damage the module.
- When removing the cable such as the connection cable or power cable from the module, do not pull the cable by the cable part. While securely pressing the open/close button on the terminal block, remove the cables. Pulling the cable connected to the module can cause damage to the module and/or cable or malfunction due to poor contact.
- Prevent foreign matter such as dust or wire chips from entering the module. Failure to do so can cause fire, failure, or malfunction.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- Do not connect the polarities of +24V and 24G of external power supply conversely. Doing so can cause failure of the module.
- Install the module on the DIN rail or fix it with mounting screws in the control panel before using it.

[Startup and Maintenance Precautions]

⚠WARNING

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
- Shut off the external power supply (all phases) used in the system before cleaning the module or tightening the mounting screws for the terminal block for module power supply and FG. Failure to do so may result in electric shock, product damage or malfunction.

[Startup and Maintenance Precautions]

⚠CAUTION

- Do not disassemble or modify the module. Doing so may cause failure, malfunction, injury, or a fire.
- Shut off the external power supply (all phases) used in the system before installing or removing the module to/from the control panel. Failure to do so may cause the module to fail or malfunction.
- Shut off the external power supply (all phases) used in the system, and then, tighten terminal screws or module fixing screws within the specified torque range. Failure to do so may cause the module to fail or malfunction. 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.
- Do not drop or apply strong shock to the module. Doing so may damage the module.
- Before handling the module or cables connected to the module, touch a conducting object such as grounded metal to release the static electricity from your body. Failure to do so may cause the module to fail or malfunction.
- Do not use thinner, benzene, acetone, or kerosene when cleaning the module. Doing so may damage the module.
- Do not insert water or wire through the gaps in the case. Doing so can cause fire or electric shock.
- Do not use this product as a detector for physical protection. Doing so can cause an accident due to an incorrect output or malfunction.
- In the unlikely event that something is abnormal with the product, stop using the product immediately, turn off the power supply, and please consult your local Mitsubishi Electric representative. Continued use of the module in this condition can cause the module to fail or malfunction.
- Do not use the product in locations where chemical products and oil are scattered. Doing so can cause fire or the module to fail or malfunction.
- When using the product, be sure to observe the defined ambient temperature and humidity. Doing so can cause fire or the module to fail or malfunction.
- When the module is powered, do not touch the module, cables between the network interface module and the digital signal converter or analog signal converter, and the terminal block for module power supply and FG. Doing so may result in injury or cause the module to malfunction due to the static electricity in your body.
- 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.
- The ESD susceptibility symbol shown below is placed on the left side of a connector for the digital signal converter or analog signal converter. This symbol indicates that a module is susceptible to static electricity passed through the connector. Before handling the connector, touch a conducting object such as a grounded metal to release the static electricity from your body. Failure to do so may cause the module to fail or malfunction. Do not touch the connector when the module is powered. Doing so may result in injury or cause the module to malfunction due to the static electricity in your body.

[Disposal Precautions]

⚠CAUTION

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

CONDITIONS OF USE FOR THE PRODUCT

(1) This Mitsubishi Electric Engineering Company Limited (hereinafter referred to as “MEE”) product shall be used in applications that will not lead to a major accident even in the unlikely event any failure or defect should occur in the product in which this Mitsubishi product is incorporated, and shall be systematically provided with external backup and fail-safe functions that operate in the event of any failure or defect.

(2) This MEE product has been designed and manufactured as a general purpose product for general industry applications and the like.

Thus, the product shall be excluded from use in special equipment, system, and other applications such as those listed below. If used in such applications, Mitsubishi shall not bear any responsibility whatsoever for the quality, performance, and safety of the Mitsubishi product (including but not limited to non-performance of main obligation, defect liability, quality assurance liability, tort liability, and product liability):

- Applications in which the public could be greatly affected such as the applications of the nuclear and other power plants operated by the respective power companies
- Applications in which a special quality assurance system is required, such as the applications of railway companies or government or other public offices
- Use in aircraft, medical applications, railway applications, incineration and fuel devices, passenger vehicles, manned transport devices, equipment for recreation and amusement, and safety devices, in which human life or assets could be greatly affected

Note that such an application of the Mitsubishi product may be permitted as determined by Mitsubishi if the user accepts that the application is to be limited and a special quality is not to be required (a quality that exceeds the general specifications). For details, please consult with Mitsubishi.

(3) MEE shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.

INTRODUCTION

Thank you for purchasing the CC-Link IE TSN/Ethernet network interface module manufactured by Mitsubishi Electric Engineering Company Limited.

This manual describes the specifications, handling, functions, and troubleshooting of the relevant products listed below. Before using the products, please read this manual and relevant manuals carefully to develop familiarity with the functions and performance of the CC-Link IE TSN/Ethernet network interface module to handle the products correctly.

When applying the program examples provided in this manual to an actual system, ensure the applicability and confirm that it will not cause system control problems.

Please ensure that the end users read this manual.

Compliant Module

FA3-TH1T16XC, FA3-TH1T16Y, FA3-TH1T16YE, FA3-AT1T8X, FA3-AT1T8Y

FA3-TH1M16XC, FA3-TH1M16Y, FA3-TH1M16YE, FA3-AT1M8X, FA3-AT1M8Y

Point

Unless otherwise specified, this manual provides examples in which the remote I/O signals and remote registers are assigned to the network interface module as follows.

- Remote input signal: RX0 to RX1F
- Remote output signal: RY0 to RY1F
- Remote register: RWr0 to RWr1F
- Remote register: RWw0 to RWw1F

For the assignment of remote I/O signals and remote registers, refer to the following.

☞ Page 156 Programming

CONTENTS

RELEVANT MANUALS

The following manuals are related to this product.

Please consult your local Mitsubishi Electric representative, if necessary.

Mitsubishi Electric Engineering products

■CC-Link IE TSN/Ethernet network interface module

Manual name [manual number]	Description
CC-Link IE TSN/Ethernet Network Interface Module User's Manual (Hardware Edition) [50D-FG0528]	Specifications and handling of the CC-Link IE TSN/Ethernet network interface module.
CC-Link IE TSN/Ethernet Network Interface Module User's Manual (Detailed Edition) [50D-FG0531] (this manual)	Specifications, handling, functions, and troubleshooting of the CC-Link IE TSN/Ethernet network interface module.

■Digital signal converter

Manual name [manual number]	Description
Input Digital Signal Converter (Terminal Module) User's Manual [50D-FG0233]	Specifications of the digital signal converter that is used in combination with the Mitsubishi DC input modules.
Output Digital Signal Converter (Terminal Module) User's Manual [50D-FG0232]	Specifications of the digital signal converter that is used in combination with the Mitsubishi DC output modules.
EMC and Low Voltage Directives Compliant Manual [50D-FA9010-108]	This manual summarizes the precautions on compliance with the EMC Directive and the Low Voltage Directive of the machinery configured with FA goods.

■Analog signal converter

Manual name [manual number]	Description
Analog Signal Converter (Input Type) User's Manual [50D-FA9010-122]	Specifications and handling of the base unit, conversion adapter, signal conversion module, I/O signal pass-through module, and conversion adapter between the terminal block for the MELSEC-Q (MELSEC iQ-R) series and the connector for the analog signal converter
Analog Signal Converter (Output Type) User's Manual [50D-FA9010-123]	Specifications and handling of the installation base, signal conversion module, I/O signal pass-through module, and conversion adapter between the terminal block for the MELSEC-Q (MELSEC iQ-R) series and the connector for the analog signal converter
EMC and Low Voltage Directives Compliant Manual [50D-FA9010-108]	This manual summarizes the precautions on compliance with the EMC Directive and the Low Voltage Directive of the machinery configured with FA goods.

GENERIC TERMS AND ABBREVIATIONS

Unless otherwise specified, this manual uses the following generic terms and abbreviations.

Generic term/abbreviation	Description
• FA3-AT • Network interface module (analog input/output)	A generic term for the CC-Link IE TSN/Ethernet network interface modules (FA3-AT1T8X, FA3-AT1T8Y, FA3-AT1M8X, and FA3-AT1M8Y) for analog signal converters.
• FA3-TH • Network interface module (digital input/output)	A generic term for the CC-Link IE TSN/Ethernet network interface modules (FA3-TH1T16XC, FA3-TH1T16Y, FA3-TH1T16YE, FA3-TH1M16XC, FA3-TH1M16Y, and FA3-TH1M16YE) for digital signal converters.
Analog signal converter	A generic term for the FA goods analog signal converter FA-AT series
Digital signal converter	A generic term for the FA goods digital signal converter (terminal module) FA-TH series
Engineering tool	A tool to perform the setting, programming, debugging, and maintenance of the programmable controller
Network interface module	An abbreviation for the CC-Link IE TSN/Ethernet network interface modules and a generic term for the following models. • FA3-TH • FA3-AT