## Mitsubishi General-Purpose Programmable Controller Renewal Tool

**Conversion Adapter** Model **ERNT-ASQT64TCTT ERNT-ASQT64TCTTBW** 

## User's Manual



50CM-D180149-A(1307)

## A MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED

HEAD OFFICE: Hulic KUDAN BLDG 1-13-5 KUDANKITA CHIYODA-KU TOKYO 102-0073 JAPAN NAGOYA ENGINEERING OFFICE:139 SHIMOYASHIKICHO-SHIMOYASHIKI , KASUGAI , AICHI 486-0906 , JAPAN



(Always read these precautions prior to use.)

Before using this product, please read this manual carefully and pay full attention to safety to ensure that

The precautions presented in this manual are concerned with this product only. For Programmable Controller system safety precautions, refer to the user's manual of the MELSEC-Q series CPU module to

In this manual, the safety precautions are ranked as "WARNING" and "CAUTION."



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.

Indicates that incorrect handling may cause hazardous conditions. resulting in medium or minor injury and/or property damage.

Note that failure to observe the A CAUTION level instructions may lead to a serious consequence according to the circumstances. Always follow the precautions of both levels because they are important

Please keep this manual in an easy-to-access location for future reference, and be sure to provide the manual to the end user

## [Precautions before using]

#### CAUTION

● When making a switch from the MELSEC-AnS Series to the MELSEC-Q Series, be sure to consult user's manual supplied with individual module under the MELSEC-Q Series to confirm differences in various aspects including performance, function, CPU input/output signals and buffer memory addresses between the two series.

## [Installation Precautions]

## ♠ CAUTION

- Use the Conversion Adapter in the environmental conditions that are specified in the general specification contained in the user's manual supplied with the MELSEC-Q Series CPU Module. If the Products are used in any environment beyond the bounds of the general specification, electric shock, fire, malfunction, or damage to or degradation of the Products will
- Do not directly touch any conductive parts of Conversion Adapter. Contact will cause malfunction or failure in the system.
- Before attempting to replace the cold junction temperature compensation resistor, always discharge static electricity accumulated in the human body, etc. by touching a grounded (earthed) metal etc. Do not directly touch the conductive area. Failing to do so may cause
- Fasten the Conversion Adapter and the Mounting Bracket securely with retaining screws, and tighten the screws by applying torque within specified limits. Loose screws can lead to the dropping of the Conversion Adapter or Mounting Bracket, possibly causing breakage thereof. Excessive tightness of the screws can lead to breakage of the screws, Conversion Adapter, Mounting Bracket, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and
- Always check for correct match between MELSEC-Q Series and the Conversion Adapter Incorrect match can cause damage to the MELSEC-Q Series Module.
- When installing the Conversion Adapter, take care not to get your hand snagged on the Mounting Bracket or the like. Injury may result.
- When installing or removing the MELSEC-Q Series Module complete with a Converter Adapter. be sure to hold it with both hands. Dropping may lead to breakage.

#### [Wiring Precautions]

#### ↑ WARNING

- Before attempting to install the Unit or carry out the necessary wiring, make certain that the external power supply, used in the system, is shut off on all three phases. Failure to do so may result in electric shock or damage to the product.
- After installation and wiring, close the terminal block cover before turning on the module fo operation. Failure to do so may result in electric shock.

## [Wiring Precautions]

## **↑** CAUTION

- Carry out wiring for the Conversion Adapter correctly after checking the specification and erminal arrangement for the module used. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure
- Tighten the MELSEC-AnS Series terminal installation screws and terminal screw securely by applying torque within the specified limits. Loose screws will cause short circuit, fire of malfunction. Excessive tightening will damage the screws or the Conversion Adapter which in turn will cause dropping of parts, short circuit or malfunction
- Use care to prevent foreign materials including cuttings and wiring debris from entering the Conversion Adapter or the MELSEC-Q Series Module. These will be cause for fire, failure or malfunction.

#### [Startup and Maintenance Precautions]

#### ♠ WARNING

- Do not touch live terminals. There is a danger of electric shock or malfunction.
- Shut off the external power supply for the system in all phases before cleaning o retightening the terminal screws. Failure to do so may result in electric shock or cause the MELSEC-Q Series module to fail or malfunction. Loose screws can lead to dropping shorting, and malfunction. Excessive tightness of the screws can lead to breakage of the screws, Conversion Adapter, Mounting Bracket, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and malfunction thereof.

## ♠ CAUTION

- Do not modify the Conversion Adapter or take it apart. Doing so will cause failure
- Do not drop the Conversion Adapter and Mounting Bracket or do not give a strong impact to it. This will cause damage.

#### [Disposal Precautions]

CAUTION

When disposing of the product, treat it as industrial waste

#### **EMC AND LOW VOLTAGE DIRECTIVES**

Compliance to the EMC Directive, which is one of the EU Directives, has been a legal obligation for the products sold in European countries since 1996 as well as the Low Voltage Directive

Manufacturers who recognize their products are compliant to the EMC and Low Voltage Directives are required to declare that print a "CE mark" on their products.

#### Authorized representative in Europe

Authorized representative in Europe is shown below Name: Mitsubishi Flectric Europe BV Address: Gothaer Strasse 8, 40880 Ratingen, Germany

## 1. Overview

This manual describes specifications, handling and other information about the Conversion Adapter "ERNT-ASQT64TCTT, ERNT-ASQT64TCTTBW" available as Renewal Tools for the Mitsubishi General-Purpose Programmable Controller.

The Conversion Adapter is a product for effecting conversion to transcend difference in pin assignment between the MELSEC-AnS Series and the MELSEC-Q Series.

Before attempting to make a switch from MELSEC-AnS Series to MELSEC-Q Series in your installation, consult the user's manual supplied with individual module under the latter series to learn about how they differ in various aspects including performance and function.

## Once you have opened the packaging, verify that it contains the following products.

	Quantity			
Product	ERNT-ASQT64 TCTT	ERNT-ASQT64 TCTTBW (*1)		
Conversion Adapter (ERNT-ASQT64TCTT)	1	1		
Mounting bracket	1	1		
Mounting bracket fixing screw (M3.5x6)	2	2		
Terminal block cover	1	1		
Cold junction temperature compensation resistor	1	1		
Disconnection detector connector conversion cable	-	1		
Disconnection detector connector conversion cable installation screw (M3×8)	-	2		
This manual	1	1		

1: ERNT-ASQT64TCTTBW is a model (product) name of a set of ERNT-ASQT64TCTT conversion adapter and the disconnection detector connector conversion cable

## 2. Product Specifications

For detail specification and general specification which do not appear in the specification comparison charts contained herein, see the user's manual supplied with the MELSEC-Q Series module you use. Those parts of the specification that differ between the MELSEC-Ans Series and the MELSEC-O Series are where a switch from the first series to the second is subjected to specification-related restrictions. Check the specification of the devices to be connected for more details.

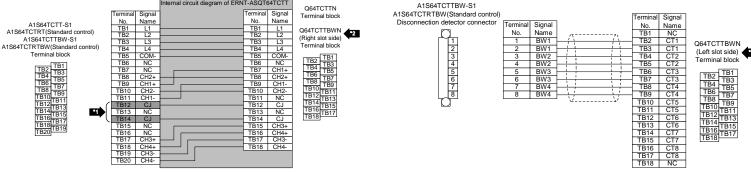
Furthermore, it is recommended to refer to the "Transition from MELSEC-AnS/QnAS (Small Type) Series to Q Series Handbook (Intelligent Function Modules): L (NA)-08220ENG" issued by Mitsubishi Electric.

The Q64TCTTBWN module cannot be installed to the MELSEC-Q series large type base unit (AnS series size). For replacement using the ERNT-ASQT64TCTTBW conversion adapter, install the Q64TCTTBWN

	inodule to the QLIDB type base unit.									
	Model	Before replacement MELSEC-AnS Series Model	No. of channels	After replacement MELSEC-Q Series Model	Use of the MELSEC-Q series large type base unit (AnS series size)	Weight (g)				
	ERNT-ASQT64TCTT	A1S64TCTT-S1 A1S64TCTRT(Standard control)	1 channels		Possible	70				
	EDNIT A GOTO (TOTTOW (to)	A1S64TCTTBW-S1		Q64TCTTBWN	11. (40)	400				
E	ERNT-ASQT64TCTTBW (*2)	A1S64TCTRTBW (Standard control)	4 channels	(Standard control)	Impossible (*3)	160				

- \*2:It is necessary to fix the disconnection detector connector conversion cable that comes with the product using the separately-sold "base adapter (for panel surface installation)" or "conversion adapter DIN rail mounting bracket (for DIN rail installation)". Refer to "4.3 ERNT-ASQT64TCTTBW Installation Procedure"
- \*3: The MELSEC-Q series module cannot be installed to the MELSEC-Q series large type base unit (AnS series size).

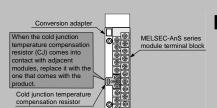
#### (Conversion adapter) (Disconnection detector connector conversion cable)



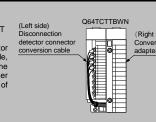
## Precaution for wiring

When the cold junction temperature compensation resistor (CJ) connected to the MELSEC-AnS series module terminal block (TB12 or TB14) comes into contact with adjacent modules, replace the cold junction temperature compensation resistor (CJ) with the one that comes with the product.

When the cold junction temperature compensation resistor (CJ) does not come into contact with adjacent modules, replacement is not required.



When using ERNT-ASQT64TCTT BWN, always install the disconnection detector connector conversion cable to the left side. and the conversion adapter to the right side. Installing them the other way around may cause failure of the MELSEC-Q series module.



< Specification comparison >

Specification comparison > Model			MELSEC-A	MELSEC-Q Series							
Specification			AASSATOTT SA AASSATOTTBW SA A1S64TCTRT A1S64TCTRTBW				Q64TCTTN Q64TCTTBWN				
			7(100+1011 01	ALCOTICITEM CI	(Standard control)	(Standard control)	(Standard control)	(Standard control)			
Control or			Transistor output								
	f temperature input points		4 channels/module Refer to the table on the back								
Supported	thermocouples	Ambient temperature 22 . F	Full sools	(.0.20/).1diait	Refer	to the table on the back					
	Indication accuracy	Ambient temperature 23 ±5 Ambient temperature 25 ±5	Full-scale	×(±0.3%)±1digit	Full social	- ex(±0.3%)±1digit	Follows				
	indication accuracy	Ambient temperature 25 ±5 Ambient temperature 0 to 55		- Full-scalex(±		€x(±0.5%)±1aigit	Full-scalex(±0.3%) Full-scalex(±0.7%)				
		Temperature process value:		ruii	-Scalex(±0.7 %)						
Accuracy	Cold junction temperature	-100 or more Temperature process value:	Within ±1.0								
	compensation accuracy (ambient temperature :	-150 to -100 Temperature process value:	Within ±2.0								
0 1:	0 to 55 )	-200 to -150		500 //		Within ±3.0					
Sampling				500ms/4	channels (constant i	ndependently of the number	of channels used)				
	utput cycle				D-4	1 to 100s to the table on the back					
	n wiring resistance of 1Ω				Keter	to the table on the back 1ΜΩ					
Input impe					0 +0 1	1MΩ 00s (0:Input filter OFF)					
			Software versi	on A:-5.00 to 5.00%			I				
	prrection value setting	,		or least:-50.00 to 50.00%		0 to 50.00%	-50.	00 to 50.00%			
	at sensor input disconnecti ure control method	on	Upscale processing PID ON/OFF pulse or two-position control								
remperat	ule control metriou				I FID ON/OF	pulse of two-position contro					
PID constants range Proportional band (P) Integral time (I)		· ·	Can be se	et by auto tuning	,	uto tuning or self tuning	Can be set by auto tuning				
						0% (0:Two-position control)					
				1 to 3	0 to 3600s (0:P control and PD control)						
		Derivative time (D)		0 to 3600s (0	0 to 3600s (0:P control and PD control)						
Set value	setting range		Within the temperature range set by the temperature sensor to be used								
Dead ban	d setting range		0.1 to 10.0%								
		Output signal	ON/OFF pulse								
		Rated load voltage Max, load current	10.2 to 30VDC 10 to 30VDC 10 to 30VDC								
Transistor	output	Max. ioad current Max. inrush current	0.1A/point, 0.4A/common								
Halisisioi	output	Leakage current at OFF	0.4A 10ms 0.1mA or less								
		Max. voltage drop at ON									
		Response time	1.0VDC(TYP)at 0.1A 2.5VDC(MAX) at 0.1A OFF→ON:2ms or less ON→OFF:2ms or less								
Insulation	method	Tresponde unio	Between input and grounding: Transformer insulation  Between input terminal and programs			put terminal and programma	mable controller power supply: Transformer insulation shannels:Transformer insulation				
Heater disconnection detection specifications		Current sensor fications	-	U.R.D.co.,LTD. CTL-12-S36-8 (0.0 to 100.0A) CTL-6-P(-H) (0.00 to 20.00A)	-	U.R.D.co.,LTD. CTL-12-S36-8 (0.0 to 100.0A) CTL-6-P(-H) (0.00 to20.00A)	-	U.R.D.co.,LTD. CTL-12-S36-8 (0.0 to 100.0A) CTL-12-S36-10 (0.0 to 100.0A) CTL-12-S56-10 (0.0 to 100.0A) CTL-6-P(-H) (0.00 to 20.00A)			
		Input method	-	Multiplexor method A/D conversion	-	Multiplexor method A/D conversion	=	-			
		Input accuracy	-	=	-	Full scalex(±1.0%)	-	Full scalex(±1.0%)			
		Alarm delay count	-	3 to 255	-	3 to 255	-	3 to 255			
I/O occupied points				32 pc	16 points	32 points					
Connection			20-point terminal block	20-point terminal block and 8-point connector		20-point terminal block and 8-point connector	18-point terminal block	Two 18-point terminal blocks			
Internal cu	urrent consumption (5VDC)		0.33A	0.42A	0.33A	0.39A	0.29A	0.33A			
				•							

## Precautions for the program

(1) AnS series module and Q series module differ from each other in the way input/output signals (X, Y) and buffer memory addresses are allocated. Therefore, you need make necessary changes to the sequence inal Block)" in the "Cold junction temperature compensation selection (address 182)" of the buffer memory of the MELSEC-Q series module

Point

(1) When the measured temperature has a margin of error, the sensor compensation function of Q64TCTTN/Q64TCTTBWN can compensate the error

				Į F							
Thermocouple	Temperature measurement		Effect from wiring resistance of 1Ω		Temperature measurement		Effect from wiring resistance				
type	range	Resolution	A1S64TCTT-S1 A1S64TCTTBW-S1	A1S64TCTRT A1S64TCTRTBW	Q64TCTTN Q64TCTTBWN	ICIIN ' range		Resolution	A1S64TCTT-S1 A1S64TCTTBW-S1	A1S64TCTRT A1S64TCTRTBW	Q64TCTTB
R	0 to 1700	1			0.030( /Ω)	0 to 3	000	1			0.054(° F/9
	0 to 500, 0 to 800, 0 to 1300	1	1			0 to 1000,	0 to 2400	1			
K	-200.0 to 400.0 , 0.0 to 400.0 , 0.0 to 500.0 , 0.0 to 800.0	0.1			0.005( /Ω)	0.0 to 1	0.000	0.1			0.008(° F/
	0 to 500, 0 to 800, 0 to 1200	1			0.003( /Ω)	0 to 1000, 0 to 1	600,0 to 2100	1			
J	0.0 to 400.0 , 0.0 to 500.0 0.0 to 800.0	0.1				0.0 to 1	0.000	0.1			0.006(° F/9
Т	-200 to 400 , -200 to 200 0 to 200 , 0 to 400			0.004( /Ω)	0 to 7					0.008(° F/9	
	-200.0 to 400.0 , 0.0 to 400.0	0.1			``		0.0 to 700.0				
S	0 to 1700	1			0.030( /Ω)	0 to 3000		1			0.054(° F/
B (*4)	MELSEC-AnS Series module 400 to 1800	1	0.35 μ V/	0.15 μ V/	0.038( /Ω)	MELSEC-AnS Series module	800 to 3000	1	0.35 μ V/	0.15 μ V/	0.068(° F/
5(4)	MELSEC-Q Series module 0 to 1800	'				MELSEC-Q Series module	0 to 3000	· .			0.000( 17
E	0 to 400 , 0 to 1000	1			0.003( /Ω)	0 to 1	800	1			0.005(° F/s
-	0.0 to 700.0	0.1			0.003( /12)	-		-			-
N	0 to 1300	1			0.006( /Ω)	0 to 2300		1		0.011( F/	
U	0 to 400 , -200 to 200 1				0.004( /Ω)	0 to 700, -3	00 to 400	1			0.009(° F/
	0.0 to 600.0	0.1			0.001( 722)	0 to 800 , 0 to 1600 		-			
L	0 to 400 , 0 to 900	1			0.003( /Ω)			1			0.006(° F/
DI .	0.0 to 400.0 , 0.0 to 900.0	0.1			` ′			-			0.040/
PL W5Re/W26Re	0 to 1200 0 to 2300	1			0.005( /Ω) 0.017( /Ω)			1 1	ł		0.010( F/ 0.021( F/
Worke/WZbke	0 10 2300				0.017( /\(\Omega)\)	0 10 3	000				0.021

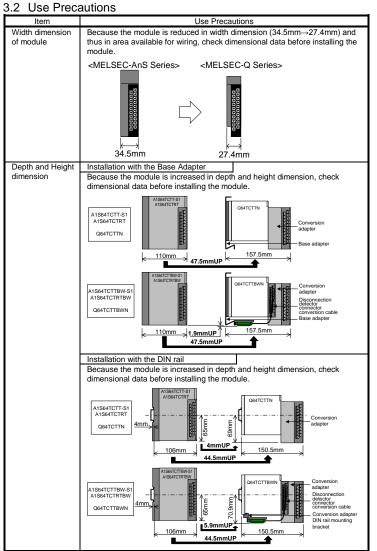
\*4:The temperature measurement ranges are different between the MELSEC-AnS series and MELSEC-Q series modules. While temperature can be measured within less than 400°C/800°F using the MELSEC-Q series, the accuracy cannot be guaranteed.

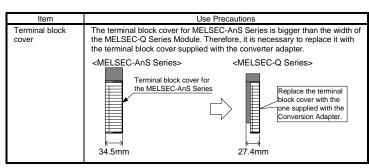
## 3. Mounting and Installation

#### 3.1 Handling Precautions

- (1) Before attempting to install the Unit or carry out the necessary wiring, make certain that the external power supply, used in the system, is shut off on all three phases. Failure to do so may result in electric shock or damage to the product.

  (2) Do not touch live terminals. There is a danger of electric shock or malfunction.
- (3) Do not modify the Conversion Adapter or take it apart. Doing so will cause failure, malfunction, personal injury, or fire.
- (4) Do not touch the energized part of the Conversion Adaptor directly. Contact will cause malfunction or failure in the system.
- (5) Fasten the Conversion Adapter and the Mounting Bracket securely with retaining screws and tighten the screws by applying torque within specified limits. Loose screws can lead to the dropping of the Conversion Adapter or Mounting Bracket, possibly causing breakage thereof. Excessive tightness of the screws can lead to breakage of the screws, Converter Adapter Mounting bracket, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and
- (6) Use care to prevent foreign materials including cuttings and wiring debris from entering the Conversion Adapter or the MELSEC-Q Series Module. These will be cause for fire, failure or malfunction
- (7) Do not drop the Conversion Adapter and Mounting Bracket or do not give a strong impact to it. This will cause damage





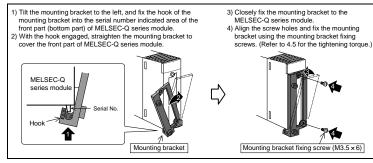
#### 3.3 Installation Environment

The installation environment is the same as MELSEC-Q series CPU Module to use. Refer to the user's manual of the MELSEC-Q Series CPU Module to be used

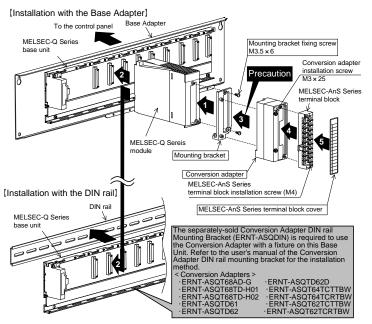
## 4 . Part Names and Installation Method

#### 4.1 Mounting Bracket Installation Method

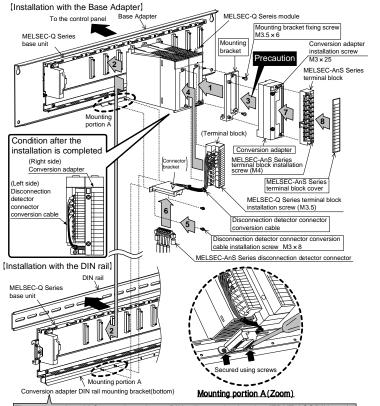
It is necessary to fix the hook of the mounting bracket into the front part (bottom part) of MELSEC-Q series module. Install the mounting bracket before installing the MELSEC-Q series module to the base



## 4.2 ERNT-ASQT64TCTT Installation Procedure



#### 4.3 ERNT-ASQT64TCTTBW Installation Procedure



The separately-sold Conversion adapter DIN rail mounting bracket (ERNT-ASQDIN ) is required to use this ERNT-ASQT64TCTTBW install with the DIN rail.

Refer to the user's manual of the DIN rail mounting bracket of the Conversion Adapter for

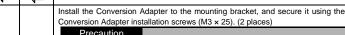
## 4.4 Installation Method

Installation with the Base Adapter Mount the MELSEC-Q Series Base Unit to the Base Adapter Refer to the Base Adapter's manual for now to install them to the control panel.

Installation with the DIN rail Mount the DIN rail mounting adapter manufactured by Mitsubishi Electric to the MELSEC-Q Series Base Unit For how to install the adapter to the MELSEC-Q

Series Base Unit, refer to the QCPU User's Manual.

## RNT-ASQT64 TCTT ASQT64 TCTTBW Description temove the terminal block attached with the MELSEC-Q Series module after posening the terminal block installation screws (2 places up and down). (When using Q64TCTTBWN, remove the terminal blocks from both right and left The MELSEC-Q series terminal block (including the cold junction temperature MELSEC-Q Series module -1 MELSEC-Q Series terminal block installation screw (Secure it in two places, top and bottom.) Secure the mounting bracket to the MELSEC-Q Series module (to the right slot when using Q64TCTTBWN) using the mounting bracket fixing screws (M3.5 x 6). Refer to "4.1 Mounting Bracket Installation Method". 2 Install the MELSEC-Q Series module to the MELSEC-Q Series Base Unit 2



has been securely installed on the MELSEC-Q Series module. Tightening the screws in floating-off state or tilting state will damage the Conversion Adapter installation screws and the mounting bracket.

Fix the terminal block for the disconnection detector connector conversion cable

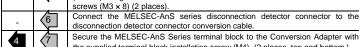


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to the target MELSEC-Q series module (left slot) using the MELSEC-Q series terminal block installation screws (M3.5) (2 places, top and bottom). Fix the connector bracket of the disconnection detector connector conversion cable to the base adapter or the conversion adapter DIN rail mounting bracket (bottom) using the disconnection detector connector conversion cable installation



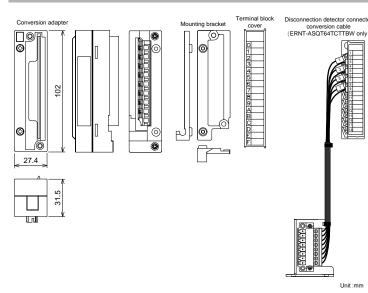
the supplied terminal block installation screw (M4), (2 places, top and bottom.) Remove the terminal block cover from the MELSEC-AnS Series terminal block and fit the terminal block cover supplied with the Conversion Adaptor in place.

## 4.5 Tightening Torque

Tighten the module installation screws to the specified torque below. An inappropriate tightening torque could cause the product to fall or result in a short circuit, product failure or malfunction

Screw Location	Tightening Torque Range
Mounting bracket fixing screw (M3.5x6)	0.68 to 0.92N⋅m
Conversion Adapter installation screw (M3x25)	0.43 to 0.57N⋅m
MELSEC-AnS Series terminal block installation screw (M4 screw)	0.78 to 1.18N·m
MELSEC-AnS Series terminal block terminal screw (M3.5 screw)	0.59 to 0.88N·m
MELSEC-Q Series terminal block installation screw (M3.5 screw)	0.66 to 0.89N·m
Disconnection detector connector conversion cable installation screw	0.61 to 0.82N⋅m

## 5 . External Dimensions



## **Product Warranty Details**

Please confirm the following product warranty details prior to product use

## **Gratis Warranty Terms and Gratis Warranty Range**

If any fault or defect (hereinafter referred to as "Failure") attributable to Mitsubishi Electric Engineering Company Limited (hereinafter referred to as "MEE") should occur within the gratis warranty period, MEE shall repair the product free of charge via the distributor from whom you made your purchase

#### Gratis Warranty Period

The gratis warranty period of this product shall be one (1) year from the date of purchase or delivery to the designated place.

Note that after manufacture and shipment from MEE, the maximum distribution period shall be six (6) months, and the gratis warranty period after manufacturing shall be limited to eighteen (18)

In addition, the gratis warranty period for repaired products shall not exceed the gratis warranty period established prior to repair

#### Gratis Warranty Range

The gratis warranty range shall be limited to normal use based on the usage conditions, methods and environment, etc., defined by the terms and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

## Warranty Period after Discontinuation of Production

(1) MEE shall offer product repair services (fee applied) for seven (7) years after production of the product has been discontinued. Discontinuation of production shall be reported via distributors. (2) Product supply (including spare parts) is not possible after production has been discontinued.

# Exclusion of Opportunity Loss and Secondary Loss from Warranty

Regardless of the gratis warranty period, MEE shall not be liable for compensation for damages arising from causes not attributable to MEE, opportunity losses or lost profits incurred by the user due to Failures of MEE products, damages or secondary damages arising from special circumstances, whether foreseen or unforeseen by MEE, compensation for accidents, compensation for damages to products other than MEE products, or compensation for other work carried out by the user.

## **Changes in Product Specifications**

The specifications given in the catalogs, manuals and technical documents are subject to change

This document is a new publication, effective July 2013. Specifications are subject to change without notice. The standard price does not include consumption tax. Please note that consumption tax will be added at the time of purchase. This manual was printed on recycled paper.

> Developed July 2013 50CM-D180149-A