Mitsubishi Electric Programmable Controller Renewal Tool

Conversion Adapter Model **ERNT-1JQ64NC**



User's Manual

50CM-D180231-C(2211)

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 product is used correctly

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 be used.

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 Λ CAUTION level instructions may lead to a serious consequence according to the circumstances. Always follow the precautions of both levels because they are important to personal safety.

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 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 between the two modules.

[Installation Precautions]

CAUTION

- Use the Conversion Adapter in the environmental conditions that are specified in the general specification. 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
- Fasten the Conversion Adapter 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, possibly causing breakage thereof. Excessive tightness of the screws can lead to breakage of the screws, Conversion Adapter, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and malfunction thereof.
- 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 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.

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 connector screws securely by applying torque within the specified limits. Loose screws will cause short circuit, fire or 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

[Startup and Maintenance Precautions]

- Do not touch live connectors. There is a danger of electric shock or malfunction
- Shut off the external power supply for the system in all phases before cleaning or retightening the 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, or MELSEC-0 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, malfunction personal injury, or fire.
- Do not drop the Conversion Adapter or do not give a strong impact to it. This will cause

[Disposal Precautions]

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

(使用前请务必阅读)

使用本产品时,请仔细阅读本手册,并充分注意安全,正确地使用产品。 本手册中标注的注意事项仅记载了与本产品相关的内容。关于可编程控制器系 统的安全注意事项,请参阅所使用的MELSEC-Q系列CPU模块的用户手册。 在本●安全注意事项●中,安全注意事项的等级分为「警告」和「注意」



表示错误操作可能造成危险后果, 引起死亡或重伤

⚠注意

表示错误操作可能造成危险后果,引起中度伤害,轻 | 伤及财产损失。

另外,根据情况不同,即使是<u>《</u>注意中记载的事项,也可能引发严重后果。不 管哪个记载的都是非常重要的内容, 请务必遵守。

请妥善保管本手册,以便需要时取阅,并请将本手册交给最终用户。

【使用前的注意事项】

介 注 意

● 替换至MELSEC-Q系列时,为确认性能,功能,CPU对应的输入输出信号等 方面的差异,请务必参照MELSEC-Q系列的各模块的手册进行使用。

【安装注意事项】

/注意

- 应在一般规格环境下使用转换适配器。如果在一般规格范围以外的环境 中使用转换适配器,可能导致触电,火灾,误动作,产品损坏或性能劣
- 请不要直接触摸转换适配器的导电部分。否则可能会造成系统误动作,
- 转换适配器应通过安装螺钉切实地加以固定,安装螺钉应在规定的扭矩 范围内切实地拧紧。如果螺钉拧得过松,有可能因掉落而导致转换适配器 破损。如果螺钉拧得过紧,有可能造成螺钉,转换适配器及MELSEC-Q系列 模块破损,从而导致掉落,短路或误动作。
- 请务必确认MELSEC-Q系列模块和转换适配器的组合是否正确。在错误组 合下使用时,可能会导致MELSEC-Q系列模块损坏。
- 在对安装了转换适配器的 MELSEC-Q 系列模块进行装卸时, 请务必用双手 拿住产品。否则会因落下而导致损坏。

【接线注意事项】

<u>/</u>() 警告

● 在进行安装,配线作业等时,必须将系统使用的外部供应电源全部断开 后再进行操作。如果未全部断开,有可能导致触电或产品损坏。

⚠ 注 意

- 请确认所使用模块的规格及端子排列后正确地进行转换适配器的接线。 如果输入不符合额定值的电压,连接不符合额定值的电源或接错线,可 能会导致火灾或故障。
- 连接器安装螺钉应在规定的扭矩范围内切实地拧紧。如果螺钉拧得过松, 有可能导致短路,火灾或误动作。如果螺钉拧得过紧,有可能造成螺钉 及转换适配器破损从而导致掉落,短路或误动作。
- 请注意不要让切屑或接线头等异物进入转换适配器及MELSEC-Q系列模块 内。否则可能会导致火灾, 故障, 误动作。

【启动和维护注意事项】

警 告

- 在通电状态下请勿触摸导电部分。否则可能导致触电或误动作。
- 在清洁模块或重新紧固螺钉时,必须将系统使用的外部供应电源全部断 开后再进行操作。如果未全部断开,有可能导致触电或MELSEC-Q系列模 块故障,误动作。如果螺钉拧得过松,有可能导致掉落,短路或误动作。 如果螺钉拧得过紧,有可能导致螺钉,转换适配器及MELSEC-Q系列模块 破损,从而导致掉落,短路或误动作。

⚠ 注 意

- 请不要拆卸,改造转换适配器。否则可能会导致故障,误动作,受伤或火
- 请勿使转换适配器掉落或受到强烈撞击。否则可能导致破损。

【废弃注意事项】

⚠ 注 意

● 废弃时请将本产品作为工业废弃物处理

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 Electric Europe B.V.

Address: Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany

1. Overview

This manual describes specifications, handling and other information about the Conversion Adapte "ERNT-1JQ64NC" available as Renewal Tools for the Mitsubishi Electric Programmable Controller. Before attempting to make a switch 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.

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Once you have opened the packaging, verify that it contains the following products.						
Product	Shape	Quantity				
Conversion Adapter		1				
This manual	_	1				

2. General Specifications

Item	Specifications						
Operating ambient temperature		0 to 55°C(Maximum surrounding air temperature 55°C)					
Storage ambient temperature		-25 to 75°C					
Operating ambient humidity Storage ambient humidity		5 to 95%RH, non-condensing					
•			Frequency	Constant acceleration	Half amplitude	Sweep count	
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2	intermittent vibration Under	5 to 8.4Hz	-	3.5mm	10 times each in	
			8.4 to 150Hz	9.8m/s ²	_	X, Y, Z directions	
			5 to 8.4Hz	-	1.75mm		
		continuous vibration	8.4 to 150Hz	4.9m/s ²	_	1 -	
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147 m/s², 3 times each in 3 directions X, Y, Z)						
Operating atmosphere	No corrosive gases						
Operating altitude *1	0 to 2000m						
Installation location	Inside a control panel						
Overvoltage category *2	II or less						
Pollution degree *3	2						

- : Do not use or store under pressure higher than the atmospheric pressure of altitude 0m
- *2 : This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises.

 Category II applies to equipment for which electrical power is supplied from fixed facilities.

 3: This index indicates the degree to which conductive material is generated in terms of the environment in
- which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing

3. Products Required by the Conversion Adapter

Conversion Adapter Anchor Base (Sold Separately)
The Conversion Adapter Anchor Base secures the bottom of the Conversion Adapter. One anchor

Conversion Adapter Anchor Base Model	Specifications	Weight (g)
ERNT-AQF12	12-slot conversion adapter anchor base	590
ERNT-AQF8	8-slot conversion adapter anchor base	410
ERNT-AQF5	5-slot conversion adapter anchor base	275
ERNT-AQF3	3-slot conversion adapter anchor base	185

(2) Base Adapter (Sold Separately)

Both the MELSEC-Q Series Base Unit and the Conversion Adapter Anchor Base can be installed on the Base Adapter without drilling screw holes

However, drilling screw holes (M5 screws) is required to install the Base Adapter to the panel

For the Base Unit models marked with *1 to *5, two or more Base Adapter models are applicable

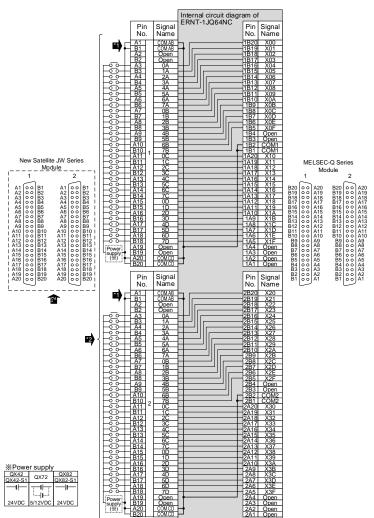
OCIOCI IIIC I	noor suit	abic Dasc	, naupter	accordi	ng to the	product difficisions.		
Base Adapter	Installable					Product dimensions	Weight	
Model	MELSEC-Q Series Base Unit					Conversion Adapter	Width×Height	(g)
	12 slots	2 slots 8 slots 5 slots 3 slots 2 slots Anchor Base		Anchor Base	(mm)			
ERNT-AQB38	Q312B			Ī	ĺ	ERNT-AQF12, ERNT-AQF8	400040	070
ERNT-AQB38		Q38B(*1)				ERNT-AQF8	480×240	970
ERNT-AQB35		Q38B(*1)		ERNT-AQF8, ERNT-AQF5		ERNT-AQF8, ERNT-AQF5	382×240	795
EKINT-AQB33			Q35B		1	ERNT-AQF5	302X24U	195
ERNT-AQB32				Q33B		ERNT-AQF3	247×240	675
ERNT-AQB68	Q612B			L		ERNT-AQF12, ERNT-AQF8	466×240	930
EKINT-AQD00		Q68B(*2)				ERNT-AQF8	400X24U	
		Q68B(*2)			i	ERNT-AQF8, ERNT-AQF5		
ERNT-AQB65			Q65B(*3) Q55B(*4)			ERNT-AQF5	352×240	790
ERNT-AQB62				Q63B	Q52B(*5)	ERNT-AQF3	238×240	650
ERNT-AQB58		Q68B(*2)			1	ERNT-AQF8	411×240	870
ERNT-AQB55			Q65B(*3) Q55B(*4)			ERNT-AQF5	297×240	655
FRNT-AOR52					O52B(*5)	EDNT-VOE3	183~2/0	505

4. Product Specifications

For detail specifications 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. Also, check that the specifications of the connected devices meet the specifications of the MELSEC-Q Series Module

Conversion Adapter Model	Before replacement Module Model	No. of input points	After replacement MELSEC-Q Series Module Model	No. of modules	Conversion Adapter Weight (g)
	JW-64NC	64	QX42 QX42-S1	1	
ERNT-1JQ64NC	JW-34NC	32*1	QX72 QX82 QX82-S1	1	105

a 64-point input module



Precautions for wiring

Because the switch concerned causes the number of points per common to change from 16 four circuits) to 32 (two circuit), an alteration to the wiring is required if the commons on the existing modules have been used in separation from each other.

To replace the JW-34NC with the MELSEC-Q Series Module, 32 points are not used because the MELSEC-Q Series Module is a 64-point input module.

< Specification Comparison >

opeolioation companion >									
\	Model	New Satellit	te JW Series	MELSEC-Q Series					
Iviouei		JW-64NC	JW-34NC	QX42	QX42-S1	QX72	QX82	QX82-S1	
		Positive	Positive			Positive			
\	\	/Negative	/Negative	Positive	Positive	/Negative	Negative	Negative	
		shared	shared	common	common	shared	common	common	
Specification	ns \	common	common	type	type	common	type	type	
		type	type			type			
No. of input		64 points	32 points	64 points	64 points	64 points	64 points	64 points	
Rated input	t voltage	12/24VDC	12/24VDC	24VDC	24VDC	5/12VDC	24VDC	24VDC	
		Approx.	Approx.			Approx.			
		7.5mA	7.5mA			3.3mA			
Rated input	current	(24V DC)	(24V DC)	Approx.	Approx.	(12VDC)	Approx.	Approx.	
tated input	Courtern	Approx.	Approx.	4mA	4mA	Approx.	4mA	4mA	
		3.5mA	3.5mA			1.2mA			
		(12V DC)	(12V DC)			(5VDC)			
nput imped	dance	Approx.	Approx.	Approx.	Approx.	Approx.	Approx.	Approx.	
• •		3.3kΩ	3.3kΩ	5.6kΩ	5.6kΩ	3.3kΩ	5.6kΩ	5.6kΩ	
nrush curre	ent	_	_	_	_		_	_	
Operating	DN	10.5V	10.5V	19V	19V	3.5V	19V	19V	
/oltage/		/ 3.2mA	/ 3.2mA	/ 3mA	/ 3mA	/ 1mA	/ 3mA	/ 3mA	
current	DFF	5V / 1.5mA	5V / 1.5mA	11V / 1.7mA	9.5V / 1.5mA	1V / 0.1mA	11V / 1.7mA	9.5V / 1.5mA	
	DFF			1/5/10/20	0.1/0.2/0.4	1/5/10/20	1/5/10/20	0.1/0.2/0.4	
	o ON	0.5ms or less	0.5ms or less	/70ms	/0.6/1ms	/70ms	/70ms	/0.6/1ms	
Response	O ON			or less	or less	or less	or less	or less	
ime	DN			1/5/10/20	0.1/0.2/0.4	1/5/10/20	1/5/10/20	0.1/0.2/0.4	
	o OFF	1.5ms or less	1.5ms or less	/70ms	/0.6/1ms	/70ms	/70ms	/0.6/1ms	
	0 0			or less	or less	or less	or less	or less	
solation me	ethod	Photocoupler isolation	Photocoupler isolation	Photocoupler isolation	Photocoupler isolation	Photocoupler isolation	Photocoupler isolation	Photocoupler isolation	
Common te	rminal	16 points	16 points	32 points	32 points	32 points	32 points	32 points	
arrangemei		/common	/common	/common	/common	/common	/common	/common	
	· · ·	40-pin		40-pin	40-pin	40-pin	40-pin	40-pin	
External		connector	40-pin	connector	connector	connector	connector	connector	
connections	S	22	connector	22	22	22	22	22	

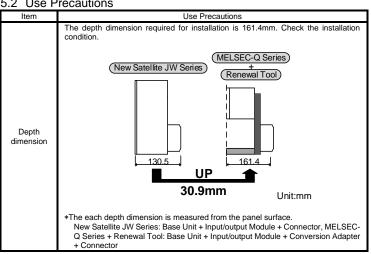
Make sure the section of the above table meets the specification of the machines and equipment connected to the MELSEC-Q Series Module.

5. Mounting and Installation

5.1 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 connectors. 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 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, possibly causing breakage thereof. Excessive tightness of the screws can lead to breakage of the screws, Conversion Adapter, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and malfunction thereof.
- (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
- (7) Do not drop the Conversion Adapter or do not give a strong impact to it. This will cause damage.

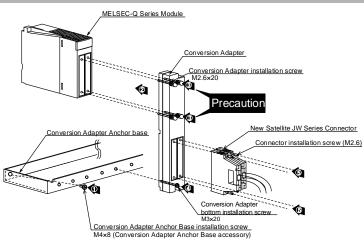
5.2 Use Precautions



5.3 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.

6. Part Names and Installation Method



6.1 Installation Method

Secure the Conversion Adapter Anchor Base to the Base Adapter or control panel using the Conversion Adapter Anchor Base installation screws (M4 \times 8) provided as an accessory. (Two

Mount the Conversion Adapter onto the MELSEC-Q Series Module.

 $\ensuremath{\mathfrak{G}}$ Secure the Conversion Adapter using the Conversion Adapter installation screws (M2.6 \times 20; 4

Before tightening the installation screws, check that the Conversion Adapter has been ecurely installed on the MELSEC-Q Series Module. Tightening the screws in floating-off state or tilting state will damage the Conversion Adapter installation screws

Secure the Conversion Adapter using the Conversion Adapter bottom installation screw (M3 \times 20: 1 location).

Secure the connector of the New Satellite JW Series to the Conversion Adapter with the connector installation screws (M2.6; two upper/lower locations).

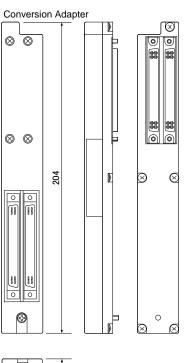
6.2 Tightening Torque

Tighten the 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 malfunctio

Screw Location	Tightening Torque Range
Conversion Adapter Anchor Base installation screw (M4x8)	1.39 to 1.89N·m
Conversion Adapter installation screw (M2.6x20)	0.20 to 0.29N·m
Conversion Adapter bottom installation screw (M3×20)	0.43 to 0.57N·m
Connector installation screw (M2.6)	0.20 to 0.29N·m

7. External Dimensions

Unit:mm





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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

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

The specifications given in the catalogs, manuals and technical documents are subject to change without

This document is a new publication, effective July 2022. Specifications are subject to change without