Mitsubishi Electric Programmable Controller Upgrade Tool

Conversion Adapter

Model

ERNT-2YR35400
ERNT-2YR35410

User's Manual

50CM-D180415-A(1811)

MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED
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● SAFETY PRECAUTIONS ●

(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 "Safety Guidelines" for MELSEC iQ-R Series Modules.
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
In this manual, the safety precautions are ranked as "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 medium or minor injury and/or property damage.

Note that failure to observe the ⚠ 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 replacing the MEMOCON GL Series with the MELSEC iQ-R Series, be sure to refer to the Programmable Controller Module manuals to check the differences in performance, functionality, CPU input/output signals, buffer memory addresses and the like.

[Installation Precautions]

⚠ CAUTION

- Use the conversion adapter in the environment conditions described in the general specifications in "Safety Guidelines" for MELSEC iQ-R Series Modules. Failure to do so could lead to electric shock, fire, malfunction or product failure or deterioration.
- Do not come in direct contact with the conductive area of the conversion adapter. Doing so could lead to system malfunction or failure.
- Fully secure the conversion adapter using the installation screws, and tighten the installation screws securely within the specified torque range. Failure to do so could cause the conversion adapter and anchor base to fall, resulting in conversion adapter and conversion adapter anchor base damage.
- Always check for correct match between MELSEC iQ-R Series and the conversion adapter. Incorrect match can cause damage to the MELSEC iQ-R Series module.

[Wiring Precautions]

⚠ WARNING

- Be sure to shut off all phases of the external power supply before performing installation or wiring work. Failure to do so could result in electric shock or product damage..

⚠ CAUTION

- Properly wire the conversion adapter after verifying the specifications and terminal layout of the module to be used. Connecting a power supply with a different rating or improper wiring could lead to fire or product 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.
- Do not allow foreign matter such as cuttings or wiring shavings to enter the conversion adapter or module. Doing so could lead to fire, failure or malfunction.

[Startup and Maintenance Precautions]

⚠ WARNING

- Do not touch the terminals during energization. Doing so could result in electric shock or malfunction.
- Be sure to shut off all phases of the external power supply before cleaning and retightening the terminal screws. Failure to do so could lead to electric shock. Excessively tightened screws could result in conversion adapter or input/output module damage, causing the conversion adapter to fall, a short circuit or product malfunction.

⚠ CAUTION

- Do not disassemble or modify the conversion adapter. Doing so could lead to failure, malfunction, injury or fire.
- The conversion adapter case is made of resin. Do not drop or apply excessive impact to the case. Doing so could lead to conversion adapter damage.

[Disposal Precautions]

⚠ CAUTION

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

● 安全注意事项 ●

（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」。

⚠警告	表示错误操作可能造成危险后果，引起死亡或重伤事故。
⚠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⚠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】

⚠ 注 意

- 从 MEMOCON GL 系列替换为 MELSEC iQ-R 系列时，为了对性能、功能、针对 CPU 的输入输出信号、缓冲存储器地址等的差异进行确认，必须参照对象可编程控制器模块的手册使用。

【安装注意事项】

⚠ 注 意

- 应在 MELSEC iQ-R 系列“安全使用”中记载的通用规格环境下使用转换适配器及转换适配器固定台。如果在一般规格范围以外的环境中使用，可能导致触电、火灾、误动作、产品的损坏或劣化。
- 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、故障。
- 转换适配器及安装配件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及安装配件破损。
- 请务必确认 MELSEC iQ-R 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 iQ-R 系列模块损坏。

【接线注意事项】

⚠ 警 告

- 必须将外部供应全相断开断开后再进行安装作业等。如果未全相断开，可能会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。连接不符合额定值的电源或误配线，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模块内。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端子。可能会导致触电或误动作。
- 在清扫或重新紧固端子螺栓时，必须将外部供应全相断开断开后再进行。如果未全相断开，可能会导致触电。如果螺栓拧得过紧，可能会造成转换适配器或输入/输出模块的破损从而导致掉落，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、受伤或火灾。
- 转换适配器的外壳由树脂制成，因此请避免掉落或使其受到剧烈冲击。否则可能会损坏转换适配器。

【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。

(产品名) Renewal Tool的基于
「电器电子产品有害物质限制使用标识要求」的表示方式

Note: This symbol mark is for China only.

含有有害6物质的名称，含有量，含有部品
本产品中所含有的有害6物质的名称，含有量，含有部品如下表所示。

产品中有害物质的名称及含量

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电路板组件（包括印刷电路板及其构成的零部件，如电阻、电容、集成电路、连接器等）	○	○	○	○	○	○
安装金属零件	○	○	○	○	○	○
外壳	×	○	○	○	○	○

本表格依据SJ/T 11364 的规定编制。
○：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572 规定的限量要求以下。
×：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572 规定的限量要求。

EMC AND LOW VOLTAGE DIRECTIVES

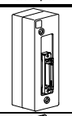
Compliance to the EMC Directive, which is one of the EU Directives, has been a legal obligation for the products sold in European countries since 1996 as well as the Low Voltage Directive since 1997.
Manufacturers who recognize their products are compliant to the EMC and Low Voltage Directives are required 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 the Mitsubishi Electric Programmable Controller Upgrade Tool conversion adapter (ERNT-2YR35400/ERNT-2YR35410). The conversion adapter is a product that converts the differences in MEMOCON GL series and MELSEC iQ-R series pin assignments.
When replacing the MEMOCON GL Series with the MELSEC iQ-R Series, be sure to refer to the Programmable Controller Module manuals to check the differences in performance, functionality, CPU input/output signals, buffer memory addresses and the like.
Once you have opened the packaging, verify that it contains the following products.

Product	Shape	Quantity
Conversion adapter		1
Mounting bracket		1
Mounting bracket fixing screw (M2.6×4)		2
This manual	–	1

2. Specifications

2.1 General Specifications

Item	Specifications					
Operating ambient temperature	0 to 55℃ (Maximum surrounding air temperature 55℃)					
Storage ambient temperature	-25 to 75℃					
Operating ambient humidity	5 to 95%RH, non-condensing					
Storage ambient humidity						
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2		Frequency	Constant acceleration	Half amplitude	Sweep count
		Under intermittent vibration	5 to 8.4Hz	–	3.5mm	10 times each in X, Y, Z directions
			8.4 to 150Hz	9.8m/s²	–	
		Under continuous vibration	5 to 8.4Hz	–	1.75mm	–
			8.4 to 150Hz	4.9m/s²	–	
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147m/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 *2					
Overvoltage category *3	II or less					
Pollution degree *4	2					

*1: Do not use or store under pressure higher than the atmospheric pressure of altitude 0m.
*2: The enclosure is suitably designed for those specific environmental conditions, as applicable, and enclosure rate meets IP20 and minimum type 1 of UL 50.
*3: 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.
*4: 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 must be expected occasionally.

2.2 Hardware Specifications

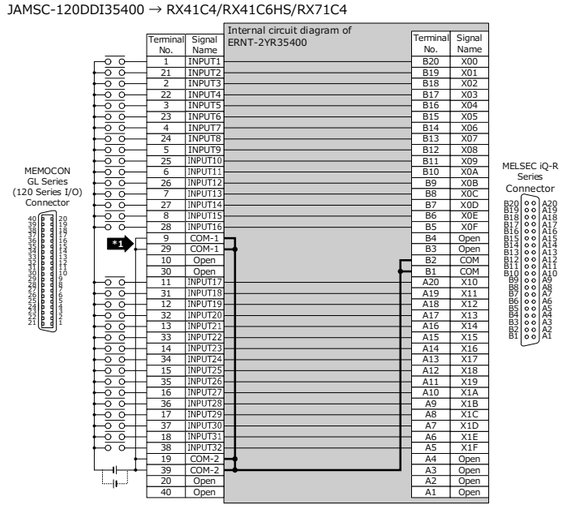
Conversion Adapter Model	Item	Specifications
ERNT-2YR35400	Rated input voltage / current	5-24VDC(+20/-15%), 6mA
ERNT-2YR35410	Rated input voltage / current	5-24VDC(+25/-15%), 0.2A/point, 2A/common

3. Conversion Adapter 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 iQ-R Series module you use. Also, check that the specifications of the connected devices meet the specifications of the MELSEC iQ-R Series Module.

Conversion Adapter Model	MEMOCON GL Series Module Model	Number of input/output points	MELSEC iQ-R Series Module Model	Conversion Adapter Weight (g)
ERNT-2YR35400	JAMSC-120DDI35400	32 points	RX41C4 RX41C6HS RY71C4	90
ERNT-2YR35410	JAMSC-120DDO35410	32 points	RY41NT2P	90

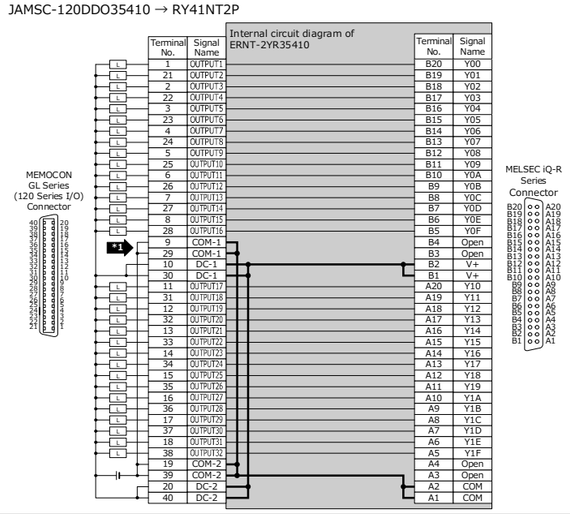
JAMSC-120DDI35400 → RX41C4/RX41C6HS/RY71C4



Precautions for wiring

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

JAMSC-120DDO35410 → RY41NT2P



Precautions for wiring

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

<Specification Comparison>

Specifications \ Model	MEMOCON GL Series 120 Series I/O	MELSEC iQ-R Series		
	JAMSC-120DDI35400 (Positive/Negative common Shared Type)	RX41C4 (Positive/Negative common Shared Type)	RX41C6HS (Positive/Negative common Shared Type)	RX71C4 (Positive/Negative common Shared Type)
Number of input points	32 points	32 points	32 points	32 points
Rated input voltage	12/24VDC (Maximum 30VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	5VDC(4.25 to 6VDC) 12VDC(10.2 to 14.4VDC)
Rated input current	4mA (24VDC) 2mA (12VDC)	4.0mA TYP.(at 24VDC)	6.0mA TYP.(at 24VDC)	1.7mA TYP. (at 5VDC) 4.8mA TYP. (at 12VDC)
ON voltage/ON current	9V or higher	19V or higher/3mA or higher	19V or higher/4mA or higher	3.5V or higher/1mA or higher
OFF voltage/OFF current	5V or lower	6V or lower/1.0mA or lower	6V or lower/1.7mA or lower	1V or lower/0.1mA or lower
Input resistance	5.6kΩ	5.3kΩ	4kΩ	2.3kΩ
Response time OFF to ON	5ms or less	0.1/0.2/0.4/0.6/1/5/10/20/70ms or less	1/10/20/50μs 0.1/0.2/0.4/0.6ms 1/5/10/20/70ms or less	0.2/0.3/0.5/0.6/1/5/10/20/70ms or less
Response time ON to OFF	5ms or less	0.2/0.3/0.5/0.7/1/5/10/20/70ms or less	1/10/20/50μs 0.1/0.2/0.4/0.6ms 1/5/10/20/70ms or less	0.21/0.3/0.5/0.6/1/5/10/20/70ms or less
Internal current consumption	80mA (All points ON)	150mA (TYP. All points ON)	150mA (TYP. All points ON)	140mA (TYP. all points ON)
Wiring method for common	16 points/common (2 circuits)	32 points/common	32 points/common	32 points/common
External connection system	40-pin connector	40-pin connector	40-pin connector	40-pin connector

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

Specifications \ Model	MEMOCON GL Series 120 Series I/O	MELSEC iQ-R Series
	JAMSC-120DDO35410 (Sink Type)	RY41NT2P (Sink Type)
Number of output points	32 points	32 points
Rated load voltage	12/24VDC (10.2 to 30.0VDC)	12/24V DC (10.2 to 28.8VDC)
Maximum load current	0.3A/point 0.4A/4 points	0.2A/point Pilot Duty 2A/common
Maximum inrush current	–	Current is to be limited by the overload protection function.
Leakage current at OFF	1mA or lower (24VDC)	0.1mA or lower
Maximum voltage drop at ON	1.5V or lower (0.3A)	0.2VDC (TYP.) 0.2A 0.3VDC (MAX.) 0.2A
Response time OFF to ON	1ms or less	0.5ms or less
Response time ON to OFF	1ms or less	1ms or less (rated load, resistive load)
Surge suppressor	None	Zener diode
Fuse	3.5A two fuses (One fuse/Common)	None
Internal current consumption	330mA(All points ON)	180mA (TYP. All point ON)
Wiring method for common	16 points/common (2circuits)	32 points/common
External connection system	40-pin connector ×2	40-pin connector

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

4. Mounting and Installation

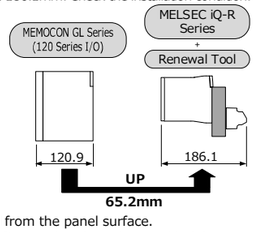
4.1 Handling Precautions

(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 the terminals during energization. Doing so could result in electric shock or malfunction.
(3) Do not disassemble or modify the conversion adapter. Doing so could result in failure, malfunction, 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 Adaptor, Mounting Bracket, or MELSEC iQ-R 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 iQ-R 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.
(8) Conversion Adapter is intended for indoor use only.

4.2 Use Precautions

Depth

The depth dimension required for installation is 186.1mm. Check the installation condition.



*: The each depth dimension is measured from the panel surface.
MEMOCON GL Series (120 Series I/O): Base Unit + Input/output Module,
MELSEC iQ-R Series + Renewal Tool: Base Unit + Input/output Module + Conversion Adapter + Connector

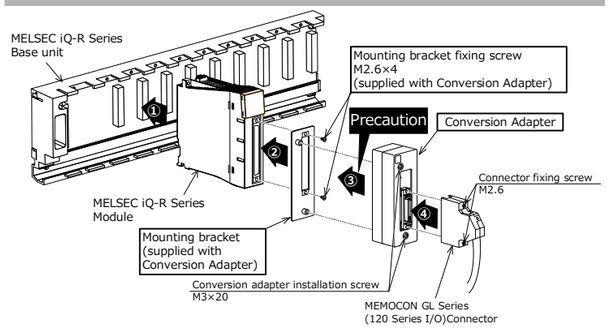
4.3 Installation Environment

Refer to "Safety Guidelines" for MELSEC iQ-R Series Modules.

4.4 Wiring module power source

External connection to 24VDC power supply circuit of Conversion Adapter must be powered from approved source that meets of SELV/PELV, Class 2, and limited energy according to UL 61010-2-201.

5. Part Names and Installation Method



5.1 Installation Method

Installation with the Control panel	Installation with the DIN rail
Install the MELSEC iQ-R Series Base Unit on the control panel. For how to install the Base Unit on the control panel, refer to the MELSEC iQ-R Module Configuration Manual.	Install the DIN rail mounting adapter manufactured by Mitsubishi Electric to the MELSEC iQ-R Series Base Unit. For how to install the Base Unit on the DIN rail, refer to the MELSEC iQ-R Module Configuration Manual.

① Mount the MELSEC iQ-R Series module to the MELSEC iQ-R Series Base Unit.

② Secure the mounting bracket to the Programmable Controller Module using the mounting bracket fixing screws (M2.6 × 4; 2 locations).

③ Mount the Conversion Adapter onto the Mounting Bracket, and secure the Conversion Adapter using the Conversion Adapter installation screws (M3 × 20; 2 locations).

Precaution

Before tightening the installation screws, check that the Conversion Adapter has been securely installed on the Programmable Controller Module.
Tightening the screws in floating-off state or tilting state will damage the Conversion Adapter installation screws and the mounting bracket.

④ Secure the connector of the MEMOCON GL Series (120 Series I/O) to the Conversion Adapter with the connector installation screws (M2.6; 2 locations).

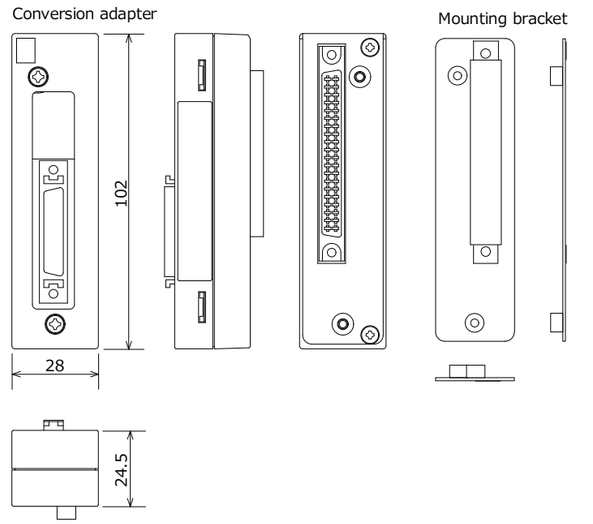
5.2 Tightening Torque

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 (M2.6×4)	0.20 to 0.29 N·m
Conversion Adapter installation screw (M3×20)	0.43 to 0.57 N·m
Connector installation screw (M2.6)	0.435 to 0.445 N·m

6. External Dimensions

Unit: mm



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) months.
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 Liability

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 without notice.

This document is a new publication, effective November 2018. Specifications are subject to change without notice.

Developed November 2018
50CM-D180415-A