A JAPANESE

B ENGLISH

Powered by

Anywire



MELSEC-F

# FX3U-128ASL-M

# INSTALLATION MANUAL



This manual describes the part names, dimensions, mounting, cabling and specifications of the product. Before use, read this manual and the manuals of all relevant products fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions. Store this manual in a safe place so that it can be taken out and read whenever necessary. Always forward it to the end user. Registration: Anywire and AnyWireASLINK are either registered trademarks or trademarks of Anywire Corporation. The company names, system names and product names mentioned in this manual are either registered trademarks or trademarks of their respective companies. In some cases, trademark symbols such as "ur or" are not specified in this manual

such as 'TM' or '®' are not specified in this manual.

Effective October 2022

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Safety Precautions (Read these precautions before use.)

#### This manual classifies the safety precautions into two categories MARNING 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 slight personal injury or physical damage.

Depending on the circumstances, procedures indicated by ACAUTION may also cause severe injury. It is important to follow all precautions for personal safety

### PRECAUTIONS REGARDING WARRANTY AND **SPECIFICATIONS**

The FX3U-128ASL-M is jointly developed and manufactured by Mitsubishi and Anywire Corporation. Note that there are some precautions regarding warranty and specifications of this product. <Warranty>

Item	FX3U-128ASL-M	Other programmable controller products (e.g. MELSEC-F series)
Repair term after discontinuation of production	1 year	7 years

<application of="" standards="" the=""></application>					
Item	FX3U-128ASL-M	Other programmable controller products (e.g. MELSEC-F series)			
Applicable EMC standard	EN61131-2 (Zone A)	EN61131-2			
Applicable UL	UL508*1	UL508			

tandard/cUL standard \*1 December 2014 and late

### Associated Manuals

Manual name	Manual No.	Description
FX3U-128ASL-M User's Manual		Describes details of the FX3U- 128ASL-M AnyWireASLINK system special adapter.

3. Wiring For wiring details, refer to the following manuals

<b>.</b>	→ Refer to the FX3U-128ASL-M User's Manual.
WIRING PRECAUTIONS	
Males some fo	and aff all all and a state a second and a second by a state all a factor

	Failure	e to de	o so	o ma	у са	use	electric	sh	ock c	or dama	ge to th	e product.	
٠	Make						phases	of	the	power	supply	externally	befo

#### RECAUTIONS

- Connect the DC power supply wiring to the dedicated terminals described in this manual. If an AC power supply is connected to a DC input/output terminal or DC power supply terminal, the PLC will burn out.
   Make sure to attach the top cover, offered as an accessory, before turning on the power or initiating operation after installation or wiring work.
   Failure to do so may cause electric shock.
   When drilling screw holes or wiring, make sure that cutting and wiring debris do not enter the ventilation sits.
   Failure to do so may cause fire, equipment failures or malfunctions.
   Make sure to properly wire to the terminal block (European type) in accordance with the following precautions.
   Failure to do so may cause electric shock, equipment failures, a short-circuit, wire breakage, malfunctions, or damage to the product.
   The disposal size of the cable end should follow the dimensions described in the manual.

- in the manual. Tightening torque should follow the specifications in the manual. Twist the end of strand wire and make sure that there are no loose wires
- Do not solder-plate the electric wire ends. Do not connect more than the specified number of wires or electric wires o unspecified size
  - Affix the electric wires so that neither the terminal block nor the connected 3.4.1 The AnyWireASLINK system external power supply should be turned ON simultaneously with or before the power supply of the PLC main unit it is connected to. (The order is inverted when the system is powered off.)
- parts are directly stressed. Do not apply the 24VDC power before wiring the entire AnyWireASLIN
- system. Connect a 24VDC external power supply to 128ASL-M for the AnyWireASLINK system. Make sure to observe the following precautions in order to prevent any damage to the machinery or accidents due to abnormal data written to the PLC under the influence of noise: Do not bundle the main circuit line together with or lay it close to the main
- circuit, high-voltage line or load line Otherwise, noise disturbance and/or surge induction are likely to take place. As a guideline, lay the control line at least 100mm (3.94") or more Othe
- away from the main circuit or high-voltage lines. 2) Ground the shield wire or shield of the shielded cable at one point on the PLC. However, do not use common grounding with heavy electrical
- ound the PLC as stated below. Perform class D grounding. (Grounding resistance: 100  $\Omega$  or less) Ground the PLC independently if possible. If it cannot be grounded independently, ground it jointly as shown below. For details, refer to the User's Manual Hardware Edition of the connect

Manual name	Manual No.	Description
FX3G Series User's Manual - Hardware Edition	JY997D31301 MODEL CODE: 09R521	Explains FX3G Series PLC specifications for I/O, wiring, installation, and maintenance.
FX3GC Series User's Manual - Hardware Edition	JY997D45401 MODEL CODE: 09R533	Explains FX3GC Series PLC specifications for I/O, wiring, installation, and maintenance.
FX3U Series User's Manual - Hardware Edition	JY997D16501 MODEL CODE: 09R516	Explains FX3U Series PLC specifications for I/O, wiring, installation, and maintenance.
FX3UC Series User's Manual - Hardware Edition	JY997D28701 MODEL CODE: 09R519	Explains FX3UC Series PLC specifications for I/O, wiring, installation, and maintenance.
FX3S/FX3G/FX3GC/FX3U/ FX3UC Series Programming Manual - Basic & Applied Instruction Edition	JY997D16601 MODEL CODE: 09R517	Describes PLC programming for basic/applied instructions and devices.
MELSEC iQ-F FX5S/FX5UJ/	SH-082452ENG	Describes the details of hardware

FX5U/FX5UC User's Manual (Hardware)	NODEL CODE.	of the FX5 CPU module, including performance specifications, wiring, installation, and maintenance.
How to obtain manuals	ments consult wit	h the Mitsubishi Electric dealer from

who you purchased your product.

Certification of UL, cUL standards

ASL-M adapter comply with the UL standards (UL, cUL). (December 2014 , cUL File Number: E95239 Regarding the standards that comply with the main unit, please refer to either the FX series product catalog or consult with your nearest Mitsubishi product provider.

Compliance with EC directive (CE Marking)

This note does not guarantee that an entire mechanical module produced in accordance with the contents of this note will comply with the following standards. Compliance to EMC directive and LVD directive for the entire mechanical module should be checked by the user / manufacturer. For more information please consult with your nearest Mitsubish product provider.

Regarding the standards that comply with the main unit, please refer to either the FX series product catalog or consult with your nearest Mitsubishi product provider. Regarding the standards that comply with the AnyWireASLINK slave module, please consult with AnyWire Corporation.

Consult with Allywine Computation. Requirement for Compliance with EMC directive The following products have shown compliance through direct testing (of the identified

The following products have shown compliance through direct testing (of the identified standards below) and design analysis (through the creation of a technical construction file) to the European Directive for Electromagnetic Compatibility (2014/30/EU) when used as directed by the appropriate documentation. Attention This product is designed for use in industrial applic

Programmable Controller (Open Type Equipment) MELSEC FX3U series manufactured per 1st, 2013 FX3U-128ASL-M Type: Models:

from October 1st, 2013

Standard		Remark
EN61131-2:2007 Programmable controllers - Equipment requirements and tests	Compliance with all relev EMI • Radiated Emission • Conducted Emission	rant aspects of the standard. EMS • Radiated electromagnetic field • Fast transient burst • Electrostatic discharge + High-energy surge • Voltage drops and interruptions • Conducted RF • Power frequency magnetic field
Caution for EC Direct	tive	

3.3 Wiring precautions

wires instead of single core wires.

Grounding

FX3G/FX3U PLC

Power on timing

3.4.2 Grounding Ground the PLC as stated belo

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Caution

3.4 Power supply and grounding wiring

Stabilized power supply 24 V DC

24V 0V LG

128ASL-M

Caution for EC Directive Installation in Enclosure Programmable logic controllers are open-type devices that must be installed and used within conductive control cabinets. Please use the programmable logic controller while installed within a conductive shielded control cabinet. Please secure the cabinet door to the control cabinet (for conduction). Installation within a control cabinet greatly affects the safety of the system and aids in shielding noise from the programmable logic controller. • Use the FX3U-128ASL-M in Zone A<sup>-1</sup> as defined in EN61131-2. • 11 Zone defined in EN61131-2 for EMC LVD regulation decided depending on condition in industrial setting.

on condition in industrial setting. Zone C = Factory mains which is isolated from public mains by dedicated

- transformers. Zone B = Dedicated power distribution which is protected by secondary surge protection. (300 V or less in the rated voltage is assumed.) Zone A = Local power distribution which is isolated from dedicated power distribution by AC/DC converters, isolation transformers, etc. (120 V or less in the rated voltage is assumed.)

Please attach a ferrite core less than 200 mm from the FX3U-128ASL-M side terminal block to the DP and DN signal wires. The wire should be wound twice around the ferrite core. The ferrite core should be a product equivalent to ZCAT3035-1330 by TDK Corporation.
 Please attach a noise filter to the 0 V and 24 V power cables. The noise filter should be a product equivalent to SNR-10-223 by COSEL CO., LTD.

The voltage should not fall below the lower limit of the allowable voltage range due

Do not connect soldered cables directly to the terminals. Doing so may loosen the screws, resulting in a poor contact.

It is recommended to use a 1.25 mm<sup>2</sup> lead wire for the main line because the power

supply is superimposed on the signal wire in the AnyWireASLINK system. General-purpose wire, VCTF cable and flat cable, etc. can be used. Use stranded

to voltage drop caused by the cable. If the voltage falls below the lower limit, malfunctions may occur

nission cables (DP, DN) using a multicore cable

Compliance with UKCA marking tive (CE marking).

Corporation. The AnyWireASLINK system is a sensor network system

→ System configuration details, refer to the FX3U-128ASI -M User's Manual. 1.1 Outline and features of AnyWireASLINK system

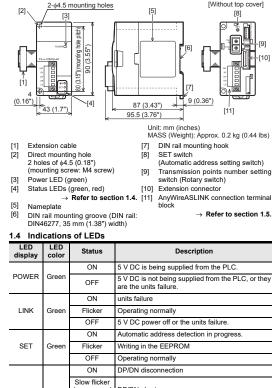
AnyWireASLINK is a high-speed and highly reliable system which relieves the work site from complicated and incorrect wiring. In this network, sensors at the end of a control system are connected to a programmable controller in the optimum form.

### 1.2 Incorporated Items

Check to ensure the following product and items are included in the package

Included Item	
FX3U-128ASL-M	1 unit
Special unit/block No. label	1 sheet
Dust proof protection sheet	1 sheet
Manuals (Japanese version, English version)	1 manual each

#### 1.3 External Dimensions and Each Part Names [Without top cover]



The 128ASL-M connects on the right side of an PLC main unit or extension units blocks (including special function units/blocks). An FX2NC-CNV-IF or FX3UC-1PS-5V is necessary to connect the 128ASL-M with the FX3GC/FX3UC PLCs. An FX5-CNV-BUS or FX5-CNV-BUSC is necessary to connect the 128ASL-M with the FX5U/FX5UC PLCs For installation method to PLCs, refer to the User's Manual - Hardware Edition of the connected PLC.

	ON	DP/DN disconnection
Red	Slow flicker (one-second intervals)	DP/DN short
Red	Fast flicker (0.2-second intervals)	24 V DC is not being supplied or the voltage is low.
	OFF	Operating normally

**CAUTION** 

Number of connectable units

One unit

One unit

One unit

One unit

One unit

Between all PLC erminals and

The product is a precision instrument. During transportation, avoid impacts large than those specified in the general specifications by using dedicated packagin boxes and shock-absorbing palettes. Failure to do so may cause failures in th product. After transportation, verify operation of the product and check for damage of the mounting part, etc.

Applicability

Ver. 1.00 or late

Ver. 1.40 or late

Ver. 2.20 or later

Ver. 2.20 or later

From first production

From first production

The version number can be checked by reading the last three digits of device D8001 or

\*1 An EX2NC-CNV-IE or EX3UC-1PS-5V is necessary to connect the 128ASI -M with

An FXA/C-UVI-IF OF ASULT 15-50 is necessary to connect the TZA/SL-W with the FX3/CFX3uc PLSS.
 An FX5-CNV-BUS or FX5-CNV-BUSC is necessary to connect the 128ASL-M with the FX5U/FX5UC PLCS.

Items other than the following are equivalent to those of the PLC main unit. For general specifications, refer to the User's Manual - Hardware Edition of the connected PLC.

5 MΩ or higher by 500 V DC

Specification

Please contact a certified electronic waste disposal company for the environmentally safe recycling and disposal of your device.

ALM

RECAUTIONS

TRANSPORTATION AND

4.1 Applicable PLC

Model name

FX3G Series PL0

FX3GC Series PLC

FX3U Series PLC

FX5U PLC\*2

FX5UC PLC\*

D8101

FX3UC Series PLC\*1

4.2 General Specifications

Dielectric withstand voltage 500 V AC for one minute

2 or less

Item

Insulation resistance

Pollutio

TORAGE PRECAUTIONS

1.5 Terminal Lavout

$\oslash$		Terminal name	Description
	24V	24V	24V terminal for sensor power and communication.
	0V	0V	0V terminal for sensor power and communication.
	DP	DP	Transmission signal (+) terminal. It connects with DP of the slave module and the Terminator.
	DN LG	DN	Transmission signal (-) terminal. It connects with DN of the slave module and the Terminator.
$\oslash$	•	LG	Functional earth terminal. The one point is grounded with the grounding terminal and functional earth terminal of the PLC (FG terminal).

AnyWireASLINK connection terminal block specifications Type: MSTB2,5/5-STF-5,08AU (Phoenix Contact Co., Ltd.)

Electric wire size: 0.2 to 2.5 mm<sup>2</sup> (AWG24 to 12)

- Each owner size, 0.2 of 0.5 model (Arr 02+ to 12) Tightening torque: 0.5 to 0.6 N+m (For both connector fixing screw and transmission line connection screw) Do not tighten terminal screws with a torque outside the above-mentioned range. Failure to do so may cause equipment failures or malfunctions.
- For details on the wiring needed to connect to the terminal blocks shown in the figure above, refer to the following manual. → Refer to the FX3U-128ASL-M User's Manual.
- 2. Installation

stallation details, refer to the following manuals. → Refer to the FX3U-128ASL-M User's Manual.

INSTALLATION RECAUTIONS

Make sure to cut off all phases of the power supply externally before attempting installation work. Failure to do so may cause electric shock

### INSTALLATION

- RECAUTIONS

2.1 Connection to the PLC

The product is mounted by the following method

2.2 Mounting

Item

Power cable

Communica

Number of I/O

occupied point

with PLC

Number of connectable units to the main unit

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示。

可编程

控制器

部件名称

外壳

印刷基板

规定的限量要求以下

DIN rail mounting

- RECAUTIONS Licka of the product within the generic environment specifications described in PLC main unit manual (Hardware Edition). Never use the product in areas with excessive dust, oily smoke, conductiv dusts, corrosvire gas (salt air, Cl2, H2S, SO2 or NO2). If animable gas, wharatio or impacts, or expose it to high temperature, condensation, or rain and wind. If the product is used in such conditions, electric shock, fire, malfunctions deterioration or damage may occur. Do not touch the conductive parts of the product directly. Doing so may cause device failures or malfunctions. Install the product or all surface. If the mounting surface is rough, undue force will be applied to the PC board they causing nonconformities. When drilling screw holes or wiring, make sure that cutting and wiring debri do not enter the ventilation sits. Failure to do so may cause fire, equipment failures or malfunctions.

- do not enter the ventilation slits. Failure to do so may cause fire, equipment failures or malfunctions. Be sure to remove the dust proof sheet from the PLC's ventilation slits whe installation work is completed. Failure to do so may cause fire, equipment failures or malfunctions. Make sure to attach the top cover, offered as an accessory, before turning of the power or initiating operation after installation or wiring work. Failure to do so may cause electric shock. Connect extension cables securely to their designated connectors. Loose connections may cause malfunctions.

Direct mounting (mounting screw: M4 screw)
 For details, refer to the User's Manual - Hardware Edition of the connected PLC.

Specification

0.75 mm<sup>2</sup> to 2.0 mm<sup>2</sup>, rated temperature 70 °C or higher) UL-listed general-purpose wire (0.75 mm<sup>2</sup> to 2.0 mm<sup>2</sup>, rated temperature 70 °C or higher)

By FROM and TO instructions or direct specification of buffer

8 points (taken from either the input or output points of the

UL-listed general-purpose 2-wire cable (VCTF, VCT

Dedicated flat cable (1.25 mm<sup>2</sup>, 0.75 mm<sup>2</sup>, rated

emory (FX3U/FX3UC) via the buffer memory

「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

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

有害物质

六价铬

(Cr (VI))

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多溴联苯

(PBB)

苯醚

(PBDE)

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产品中有害物质的名称及含量

〇: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

"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

含有有害6物质的名称,含有量,含有部品

汞 镉

铅

(Pb) (Hg) (Cd)

temperature 90 °C)\*1

PĹC)

One unit

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

#### 3.1 AnyWireASLINK connection terminal block

Item	Description
Model name	MSTB2,5/5-STF-5,08AU (Phoenix Contact Co., Ltd.)
Electric wire size	0.2 to 2.5 mm <sup>2</sup> (AWG24 to 12)
Tightening torque	0.5 to 0.6 N•m (It is common also on the connector fixing screw and the transmission line connection screw)
<ul> <li>To tighten the terminal block, a flathead screwdriver having a tip size of 0.6×3.5 mm is required</li> </ul>	

- When the AnyWireASLINK connection terminal block is removed When use AnyWiteASLINK Connection terminal block is removed Before removing the transmission cable terminal block, check that the fixing screws on both sides are completely loosened (removed from the socket). Pulling with excessive force while the fixing screws of both ends are still tightened may damage the device. When the AnyWireASLINK connection terminal block is attached Before tightening, check that there are no short circuits due to disconnected or frayed wires. Then tighten the screws at both sides securely. Circitetion forcure: 0.5 New to 0.6 New)
- Tightening torque: 0.5 N•m to 0.6 N•m)

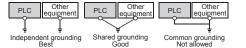
#### 3.2 Cable treatment

ected to the AnyWireASLINK connection terminal block; ons, it is recommended to connect the crimped bar Bare cables can be connected to the An however, for safety reasons, it is reco

Use UL-listed solderless terminals and, for processing, use a tool recomm by their manufacturer

### recommended bar terminals (Phoenix Contact Co., Ltd.)

Electric wire size	Electric wire connected number	recommended bar terminals model name (Phoenix Contact Co., Ltd.)
0.75 mm <sup>2</sup>	1 cable	AI 0,75-8 GY
	2 cables	AI-TWIN 2X 0,75-8 GY
1.25 mm <sup>2</sup>	1 cable	AI 1,5-8 BK
	2 cables	AI-TWIN 2X 1,5-8 BK



Position the grounding point as close to the PLC (128ASL-M) as possible to decrease the length of the ground wire.

If the PLC main unit is powered on before the 24 V DC external power supply in the

If the PLC main unit is powered on before the 24 V DC external power supply in the AnyWireASLINK system, a transmission cable voltage drop detection error is detected, the error (the error including transmission cable voltage drop detection error is detected, the error can be cleared by turning the error flag clear command (BFM#27 b0) from OFF to ON.

#### 4. Specification

n ations, refer to the following manual. → FX3U-128ASL-M User's Manual

Stabilized

24V 0V LG

128ASL-M

nding

FX2NC-CNV-IF power supply 24 V DC

or FX3UC-1PS-5V

X3GC/FX3UC PLC [Main unit]

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- Grounding

DESIGN PRECAUTIONS		Trans	
	stem has no control function for ensuring safety. n failure occurs in the network, data in the master module	Maxir transı (total	
the sequence program	tion status information and configure an interlock circuit in to ensure that the entire system will operate safely.		
<ul> <li>Make sure to have the following safety circuits outside of the PLC to ensure safe system operation even during external power supply problems or PLC failure. Otherwise, malfunctions may cause serious accidents.</li> <li>Most importantly, have the following: an emergency stop circuit, a protection</li> </ul>			
circuit, an interlock circuit for opposite movements (such as normal vs reverse rotation), and an interlock circuit (to prevent damage to the equipmer		proto Error	
at the upper and lower positioning limits). 2)Note that when the PLC CPU detects an error, such as a watchdog timer error, during a off diagraphic all without a strain turned off. Also, when an error too			
during self-diagnosis, all outputs are turned off. Also, when an error that cannot be detected by the PLC CPU occurs in an input/output control block, output control may be disabled. External circuits and mechanisms should be		Numl	
designed to ensure s	afe machinery operation in such a case.	Maxii	
DESIGN PRECAUTIONS		I/O p	
external to the AnyWire	s, such as an emergency stop circuit and interlock circuit, ASLINK system. xcessive force will not be applied to the terminal blocks.	RAS	
<ul> <li>Failure to do so may re</li> <li>When executing contrinterlock circuit in the conservatively. Additio and operation status c</li> </ul>	sult in wire damage/breakage or PLC failure. ol (data changes) to an operating PLC, construct an sequence program so that the entire system operates nally, when executing control such as program changes hanges (status control) to an operating PLC, thoroughly ufficiently confirm safety in advance.	4004	
		-	

Driving power supply	130 mA / 5 V DC 5 V DC power is supplied internally from the main unit.		
External power supply for ASLINK communication	Voltage: 21.6 to 27.6 V DC (24 V DC -10 % to +15 %), ripple voltage 0.5 Vp-p or lower Rated voltage: 24 V DC * Please use a UL Class 2 power supply. Module current consumption: 0.1 A Transmission cable supply current: Up to 2 A		
4.4 Berformanos Specifications			

#### 4.4 Performance Specifications

4.3 Power Supply Specification

ltem	Specification	
Transmission clock	27.0 kHz	
Maximum transmission distance (total length)	200 m	
Transmission system	DC power supply transmission total frame cyclic system	
Connection type	Bus topology (multidrop system, T-branch system, tree branch system)	
Transmission protocol	Dedicated protocol (AnyWireASLINK)	
Error control	Double-check system, checksum	
Number of connected I/O points	Up to 128 points	
Number of connectable modules	Up to 128 (varies depending on the current consumption of each slave module)	
Maximum number of I/O points per system	Number of input points of the slave module + number of output points of the slave module $\leq$ 128 points	
RAS function	Disconnected transmission cable location detection function     Transmission cable short detection function     Transmission cable voltage drop detection function	
AnyWireASLINK transmission cable	<ul> <li>UL-listed general-purpose 2-wire cable (VCTF, VCT 1.25 mm<sup>2</sup>, 0.75 mm<sup>2</sup>, rated temperature 70 °C or higher)</li> <li>UL-listed general-purpose wire (1.25 mm<sup>2</sup>, 0.75 mm<sup>2</sup>, rated temperature 70 °C or higher)</li> <li>Dedicated flat cable (1.25 mm<sup>2</sup>, 0.75 mm<sup>2</sup>, rated temperature 90 °C)<sup>11</sup></li> </ul>	

# 26572规定的限量要求

本表格依据SI/T 11364的规定编制

### 基于中国标准法的参考规格: GB/T15969.2

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Warranty Exclusion of loss in opportunity and secondary loss from warranty liability Exclusion of loss in Opportunity and secondary loss norm warding nature Regardless of the gratis waranty term, Mitsubishi shall not be liable for compensation to: (1) Damages caused by any cause found not to be the responsibility of Mitsubishi (2) Loss in opportunity, lost profils incurred to the user by Failures of Mitsubishi (3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

# A For safe use

This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporate a device or system used in purposes related to human life. Before using the product for special purposes such as nuclear power, electri

power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.

This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

Anywire Anywire Corporation http://www.anywire.jp

## MITSUBISHI ELECTRIC CORPORATION

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