

No.QT38 - 03007

**MYCOM**

Host card supporting MECHATROLINK

**MLH20-1030**

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**【User's manual】**

**MYCOM.INC.**

History of change for user's manual

Date of change	Mark	Description of change
Mar. 28, 2008		First edition.

## Attention on safety

Please read this operation manual thoroughly before starting any operation. This manual will guide the customers for proper use and avoid any mis-operation. This manual if properly read, will protect the users as well as other people from possibilities physical injuries, property damage and other serious accidents.



This danger shows the possibility that the user may die or get serious injures by fire or electrical shock and the contents which are high emergency of caution when danger is occurred if this warning is neglected and operated.



This warning shows the possibility that the user may die or get serious injures, fire or electrical shock if this warning is neglected and operated.



This caution shows the possibility that the user may be injured by electrical shock or the contents which expect to issue physical damage if this caution is neglected and operated.

### **DANGER**

- Do not operate this product if it is damaged or disassembled. Otherwise, it may cause fire or electrical shock.
- In any case, do not attempt to repair or modify this product as it may cause fire, electrical shock or serious injuries.
- Do not use this product, in a place where the air includes a corrosive gas, inflammable gas, or any type of explosive gas, or the water or oil splashes, or it is near a flammable material. Otherwise, it may cause fire or electrical shock.
- Leave works such as installation, wiring, operation, checking and maintenance to experts who have enough knowledge on this product. Operation without knowledge may cause electrical shock and other serious physical or property damages.
- Keep the power supply within the rated voltage range. Otherwise, it may cause fire or other damages.
- Make sure all the connections correctly done referring to the wiring diagram shown in this user's manual. Otherwise, it may cause fire or other damages.
- Do not touch or place objects such as metals or foreign substance on the board. Otherwise, it may cause fire or electrical shock.
- Do not bend, pull or place the cable by the extreme force. Otherwise, it may cause fire or electrical shock.



## WARNING

- Do not operate to move, wire, maintain and test etc. during power on. After power-off and ten seconds pass, please start to operate. It may cause electric shock.
- Do not touch the unit with wet hand by no means during power on. There is a reason of electric shock.
- Fix this product tightly when installing. It may cause injury.
- Do not touch this product during operation and for the time being after stop. Because the surface of this product is hot depending of operating condition, it may cause injury.
- Use power isolated from dangerous voltage. It may cause electric shock. (Only DC input type)



## CAUTION

- Avoid using or storing the unit where air is dusty. It may cause malfunctions.
- Do not give a large shock. It may cause malfunctions.
- Do not use or store this unit in a place of high or low temperature, extreme high or low humidity. It may cause a short circuit or malfunctions.
- Avoid dews to form. It may cause a short circuit or malfunctions.
- We do not have the responsibility about user's repair and modification because it is out of our guarantee.
- When abandoning this product, treat it as industrial wastes.
- Do not leave the name plate.
- There is possibility of malfunction and the part damage in the setting to a vibrating place.

## Index

<b>1. Foreword</b> .....	<b>1</b>
1.1. Operating environment .....	1
<b>2. Outline</b> .....	<b>1</b>
<b>3. List of specification</b> .....	<b>2</b>
<b>4. Configuration</b> .....	<b>3</b>
4-1. System configuration .....	3
4-2. MLH20-1030 configuration .....	3
4.3 Panel face.....	4
<b>5. Dimension</b> .....	<b>4</b>
<b>6. Pin assignment</b> .....	<b>5</b>
6.1. CN1. Connector for MECHATROLINK II communication .....	5
6.2 CN2. I/O connector .....	6
<b>7. Memory map</b> .....	<b>7</b>
7.1 Memory space .....	7
7.2. I/O space .....	7
7.2.1. Bit assignment of each register of I/O space .....	7

## 1. Foreword

Model number: MLH20-1030

The company name and product name described in this user's manual are trademark or brand name of each company.

Thank you for using our MLH20-1030, this time.

If the usage is wrong or operation is not correct, the feature of device cannot be displayed fully and there are possibility of wrong operation, cause of unexpected trouble or shortage of life of device. Please read this manual thoroughly in prior to using this unit then operate this unit correctly.

This product includes below items. We would ask you to confirm them. Meanwhile we carefully pack the products but please contact our agents or us if there are any defectiveness of contents in package.

Main unit	MLH20-1030
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Table 1-1. Contents of package for confirmation at delivery

Connector set for CN2
MECHATROLINK II Communication cable

Table 1-2. List of optional accessories

### 1.1. Operating environment

MLH20-1030 is board to use inserting to PCI bus slot.

Please confirm that the PC is available condition to install the board.

Please refer PC's user manual for installing the board.

## 2. Outline

MLH20-1030 is controller card for PCI bus supporting MECHATRLINK II which is proposed network by Yaskawa Electric Corp. MLH20-1030 has 1 ch of MECHATRLINK II communication port.

Communication with supporting product for MECHATORLINK is available by direct command accessing from PCI bus to communication IC for MECHATROLINK on MLH20-1030.

### 3. List of specification

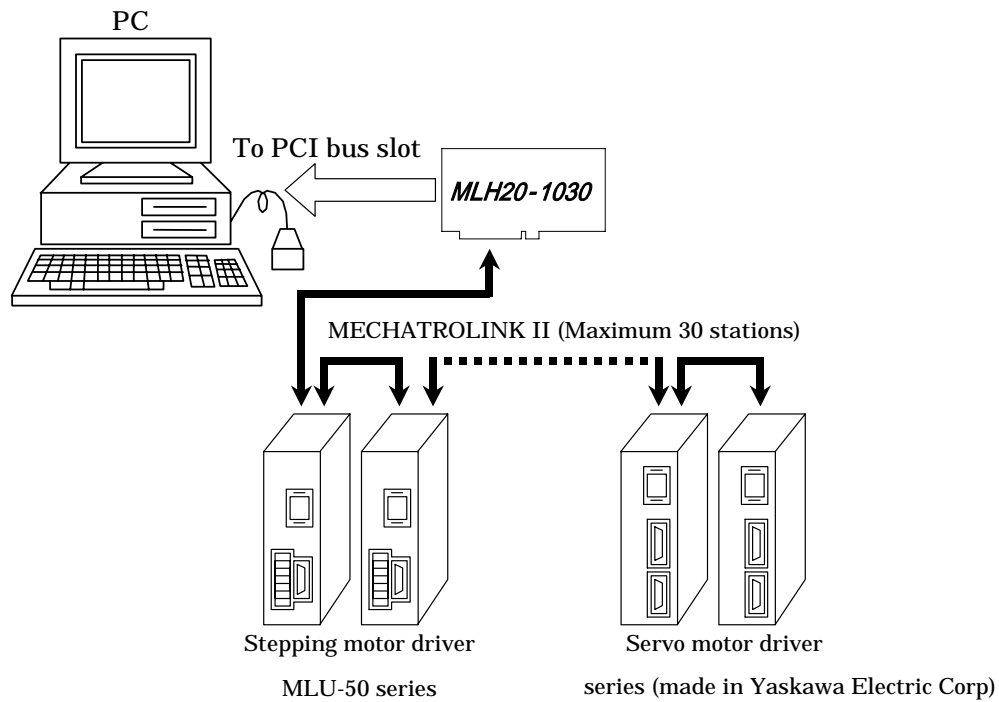
Items	Description		
Bus specification	PCI bus Vendor ID:1453H、 Device ID:0006H、 Revision ID:00H		
Communication type	MECHATROLINK II conformity		
Control item	MECHATROLINK supporting item		
Numbers of controllable station	Maximum 30 stations		
External I/F	MECHATROLINK II communication port		1 ch
	2 inputs (Start, Emergency stop)	Input circuit	Photo coupler input
		Control capacity	Maximum 10mA, using 24V of external input power
	1 output (RDY)	Output circuit	Photo coupler output
Control capacity		Maximum 10mA, using 24V of external input power	
PC side occupation source	Memory space	256 bite(100H) is occupied by base address which is assigned by PCI configuration.	
	I/O space	4 bite(04H) is occupied by base address which is assigned by PCI configuration.	
	Interrupt I/F	One of IRQ, which is assigned by PCI configuration, is used.	
	Board select	Automatic setting by PCI configuration.	
Power supply	Bus logic power supply	DC5V $\pm$ 5%	Less than 1.0A
	Power for sensor I/F	DC+24V(External)	Less than 0.2 A
Board dimension	120 x 64 x 20.0 mm		
Weight	55g		
Environment	Operating environment	Temperature : 0 to 40 (No freezing), Humidity : 30% to 80%(No condensation)	
	Storing environment	Temperature : 0 to 60 (No freezing) Humidity : 30% to 90%(No condensation)	

Table 3-1. List of specification

## 4. Configuration

### 4-1. System configuration

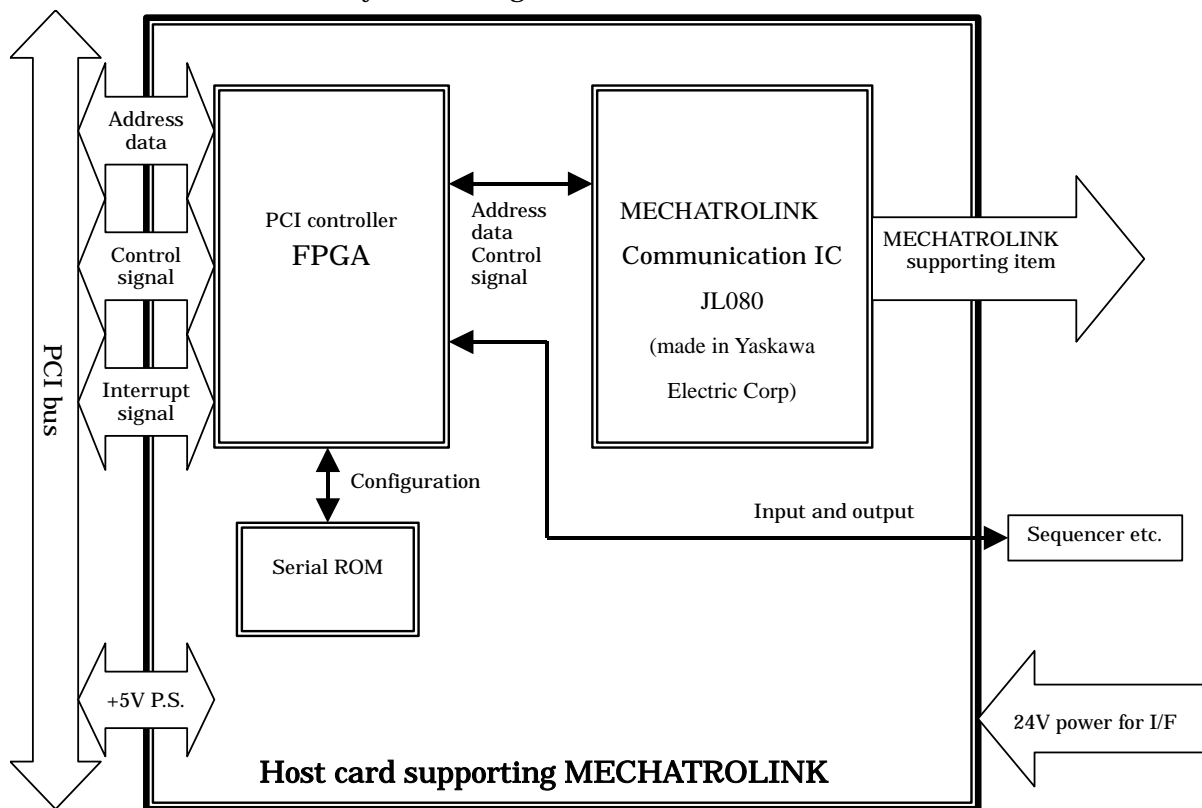
The below shows system configuration using MLH20-1030.



**Fig. 4-1. System configuration**

### 4-2. MLH20-1030 configuration

The below shows system configuration.



**Fig. 4-2. Configuration of MLH20-1030**

### 4.3 Panel face

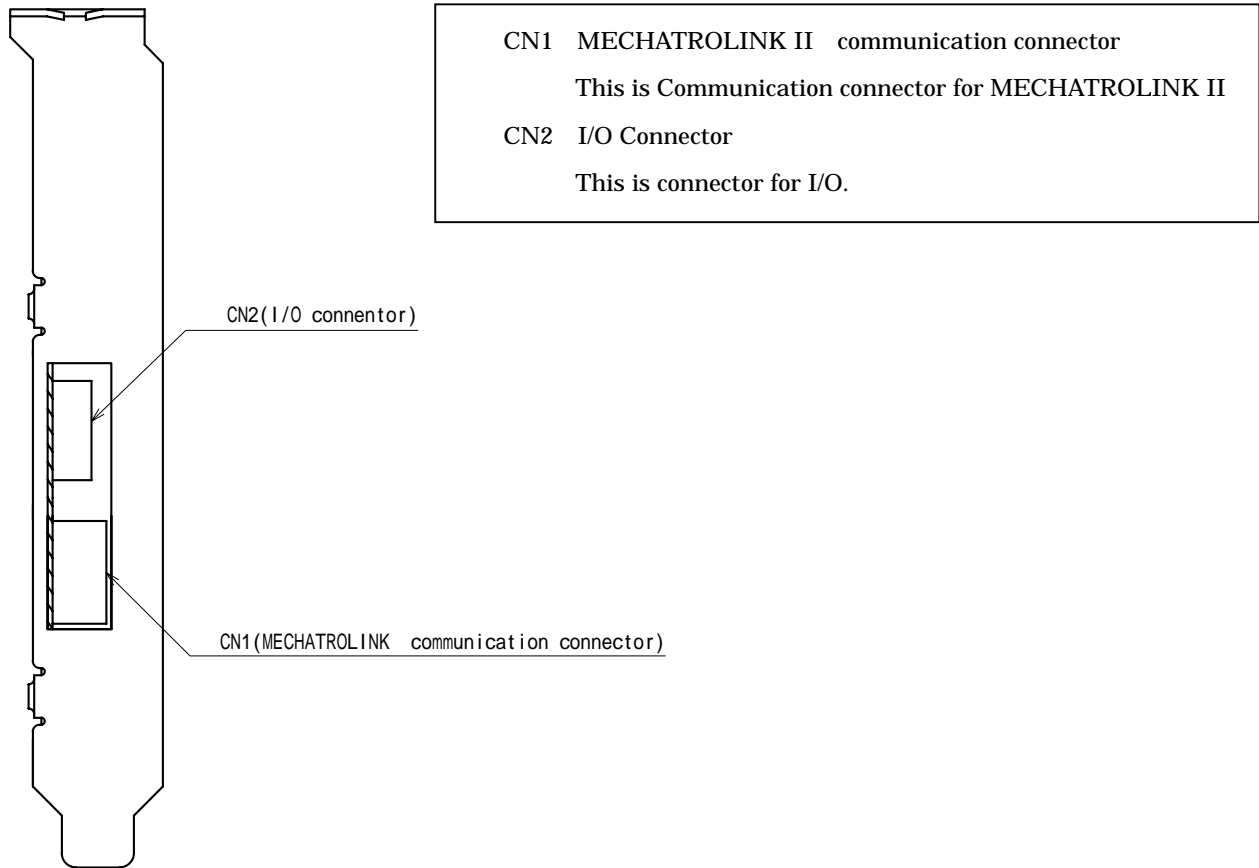


Fig. 4-3. Panel face

### 5. Dimension

The below shows the dimension of this module.

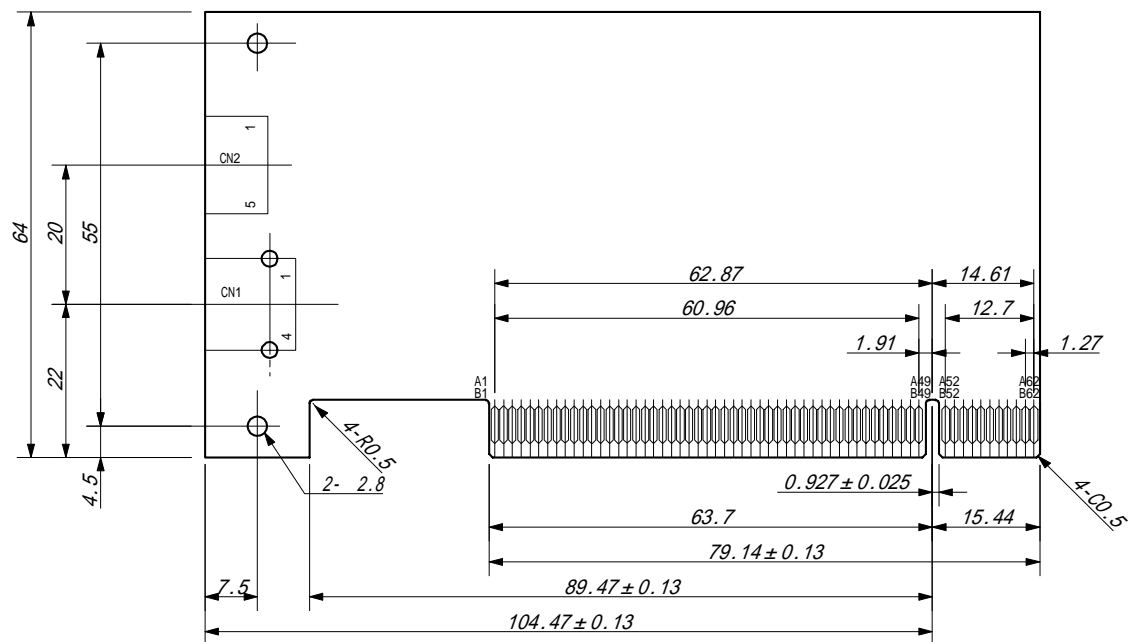


Fig. 5-1. Dimension

## 6. Pin assignment

### 6.1. CN1. Connector for MECHATROLINK II communication



Board side connector : AXJ111202T  
Brand : Matsushita Electric Works ,Ltd

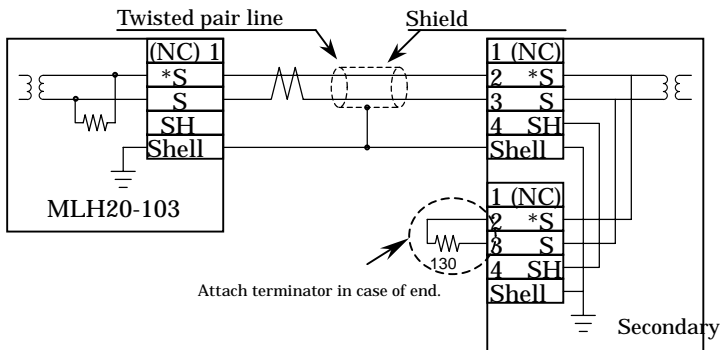
This is connector to connect with MECHATOLINK II

Pin number	Signal name	Description
1	(NC)	
2	*S	Serial data input / output
3	S	
4	SH	Shield

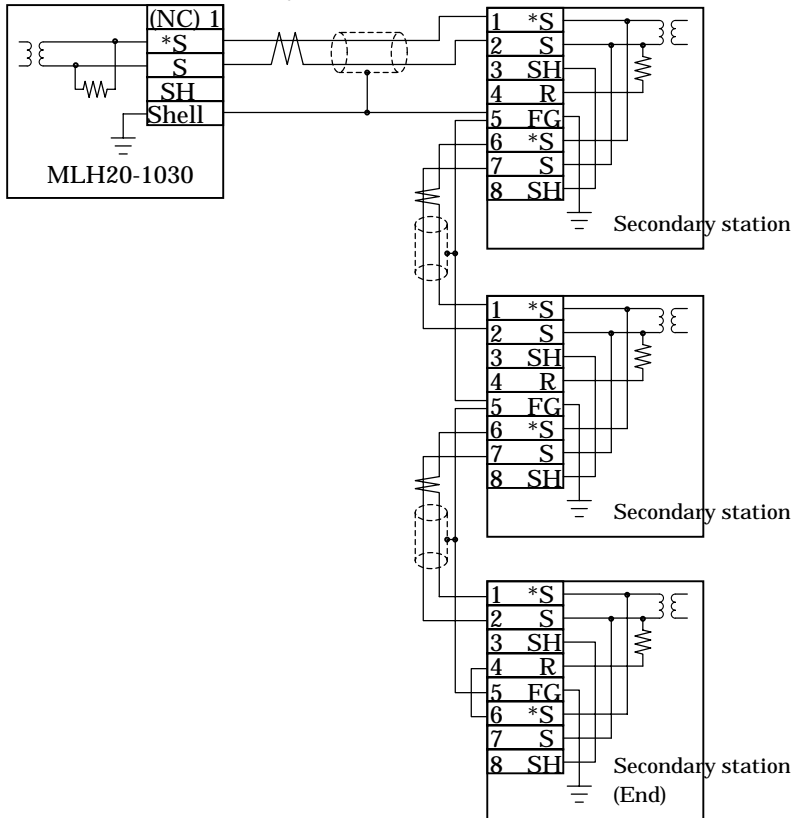
Table 6.1. Connector pin assignment for communication

Example of wiring

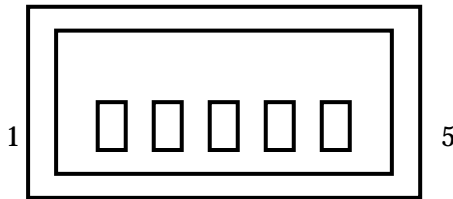
In case that secondary station is USB connector



In case that secondary station is MR connector



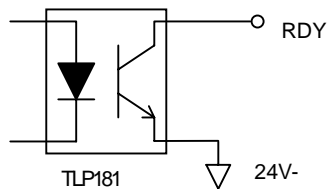
## 6.2 CN2. I/O connector



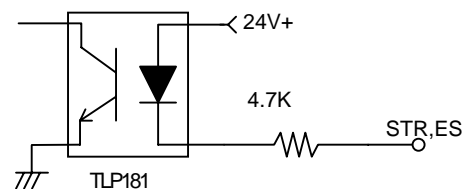
Board side connector	S5B-PH-SM4-TB
Housing	PHR-5
Contact	SPH-002T-P0.5S
Brand	J.S.T. Mfg. Co.,Ltd

Pin number	Signal name	Description	Circuit
1	RDY	Preparation completion output	Refer circuit
2	STR	Start signal output	Refer circuit
3	ES	Emergency stop input	
4	24V	Power input	-
5	0		

Table 6.2. General purpose I/O pin assignment



Circuit



Circuit

### RDY

This is preparation completion output. It is also available to use as general purpose output.

### STR

This is start signal input. It is also available to use as general purpose output.

### ES

This is emergency stop input. It is also available to use as general purpose output.

### 24V,0V

This is power input terminal for I/O.

## 7. Memory map

### 7.1 Memory space

Yaskawa brand MECHATROLINK II IC JL-080 is accessible directly.

Register of JL-080 is placed by each 4 byte with 1 WORD(16bit) block

### 7.2. I/O space

Address	Name of register
00h	Interrupt status
01h	Interrupt mask
02h	I/O status
03h	Changing of I/O logic

#### 7.2.1. Bit assignment of each register of I/O space

If the point of “-“ is read out, “0” is read. (Do not use because of reserved field)

R : Read    W : Write

##### 7.2.1.1. Interrupt status

	7	6	5	4	3	2	1	0
R	PCI	-	ES	STR	-	Int2	Int1	-
W	-	-	Clear	Clear	-	Clear	Clear	-
Default	0	0	0	0	0	0	0	0

PCI:        "OR" of ES, STR, Int2-1

ES:        This is interrupt of ES input. Writing “1” clears.

STR:       This is interrupt of “STR” . Writing “1” clears.

Int2-1:    This is interrupt of JL-080 input. Writing “1” clears.

##### 7.2.1.2. Interrupt mask

	7	6	5	4	3	2	1	0
R	PCI	-	ES	STR	-	Int2	Int1	-
W	PCI	-	ES	STR	-	Int2	Int1	-
Default	0	0	0	0	0	0	0	0

PCI:        This is mask of interrupt output to PCI bus. “0” permits.

ES:        This is mask of interrupt of ES input. “1” permits.

STR:       This is mask of interrupt of STR input. “1” permits.

Int2-1:    This is mask of Int2-1 interrupt of JL-080. “1” permits.

### 7.2.1.3. I/O status

	7	6	5	4	3	2	1	0
R	-	-	ES	STR	-	-	-	RDY( 2)
W	-	-	-	-	-	-	-	RDY( 3)
Default	0	0	( 1)	( 1)	0	0	0	0

ES: This is ES input status

STR: This is STR input status

RDY: This is setting of output status of RDY

1: Depending on input status, the value is different.

2: Regardless of logic, in case of OFF, "0" is read out and in case of ON, "1" is read out.

3: Depending on logic, the setting of writing changes as below table. Please pay attention.

Logic of RDY	Setting of writing
A connection	0 : OFF
	1 : ON
B connection	0 : ON
	1 : OFF

### 7.2.1.4. Changing of I/O logic

	7	6	5	4	3	2	1	0
R	-	-	ES	STR	-	-	-	RDY
W	-	-	ES	STR	-	-	-	RDY
Default	0	0	0	0	0	0	0	0

ES: This is logic change of ES input. "1" is A connection.

STR: This is logic change of STR input. "1" is A connection.

RDY: This is logic change of RDY input. "0" is A connection.

Please understand that we may make modifications to our products without notification in order to improve the capabilities and external appearance of our products.

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