



## CL1XY2-DT1D5S CC-Link/LT Remote I/O Module

Please read this manual thoroughly before starting to use the product and

MODEL

# User's Manual

CL1XY2-DT1D5S

# CC-Link/LT

MANUAL Number JY997D03801M Date November 2021

●SAFETY PRECAUTIONS●

(Read these precautions before using.)
Please read this manual carefully and pay special attention to safety in order to handle this product property. Also pay careful attention to safety and handle the module property.
These precautions apply only to Mitsubishi equipment. Refer to the user's manual of the CPU module to use for a description of the PLC system safety precautions.

precautions.
These ●SAFETY PRECAUTIONS● classify the safety precautions into two categories: "WARNING" and "CAUTION".



Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.

Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.

Depending on circumstances, procedures indicated by ACAUTION may also

be linked to serious results.

In any case, it is important to follow the directions for usage.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user. [DESIGN PRECAUTIONS]

# **⚠WARNING**

- Configure an interlock circuit in a sequence program so that the system operates on the safety side using the communication status information in the event the data link falls into a communication problem. Otherwise, erroneous output and malfunction may result in accidents. Remote input and output can not be switched ON or OFF when a problem occurs in the remote IO modules. Therefore build an external monitoring circuit that will monitor any input signals that the properties of the contract of the co

## **⚠CAUTION**

Do not have control cables and connection cables hundled with or placed near by the main cricuit and/or power cables. Wife those cables at least 100mm(3) of ind) away from the main circuit and/or power cables. It may cause malfunction due to noise interference. Use the module in the status in which any force is not applied on the module, flat cables flat force is applied, wire breakage or failure may be caused.

## [INSTALLATION PRECAUTIONS]

# **⚠** CAUTION

Use the module in an environment that meets the general specifications contained in thisi manual. Using this module in an environment outside the range of the general specification could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.
Do not directly touch the module's conductive parts. Doing so could cause malfunction or trouble in the module.

## [WIRING PRECAUTIONS]

## **<u>∧</u>WARNING**

## **∴**CAUTION

- errect wiring for the module according to the product's rated voltage and terminal int. Connecting to a power supply different from rating or miss-wiring may cause fire
- arrangement. Connecting to a power supply different from rating or miss-wiring may cau product failure or malfunction. Make sure foreign objects do not get inside the module, such as dirt and wire chips. It ma fire, product failure or malfunction. Do not short-circuit the 24G and +24V terminals. It may result in fire, product failure or malfunction.
- ion. warning label (hazard symbol 417-IEC-5036) concerning the electric shock to the

## [STARTING AND MAINTENANCE PRECAUTIONS]

# **<u>∧</u>WARNING**

he power is ON. It may cause an electric shock or malfunction. r turning OFF the all external power supply for sure. Failure to do so of the module

## 

Do not disassemble or modify the module. Doing so may cause failure, malfunction, injury, or fir The module case is made of resin; do not drop it or subject it to strong shock. A module damage result. result.

Make sure to switch all phases of the external power supply OFF before installing or removing the module to/from the panel. Failure to do so may cause failure or malfunction of the modules.

## [DISPOSAL PRECAUTIONS]

## **⚠CAUTION** · When disposing of this product, treat it a

[TRANSPORTATION AND MAINTENANCE PRECAUTIONS]

## **<u>∧</u>CAUTION**

ortation avoid any impact as an incomposite in a module.

y to check the operation of module after transportation, in case of any impact damage.

## ●Compliance with EC directive (CE marking)●

This notification does not guarantee that an entire mechanical module produced in accordance with the contents of the notification comply with the following standards. Compliance to EMC directive of the entire mechanical module should be checked by the user / manufacturer. Attention

This product is designed for use in industrial applications.

Standards with which this product complies
Type: Programmable Controller (Open Type Equipment) Remote I/O module
Models: Products manufactured:

Products manufactured: from November 1st, 2002 to April 30th, 2006 are compliant with EN6100-6-4 and EN61131-2:1994+A11:1996+A12:2000 after May 1st, 2006 are compliant with EN61131-2:2007

after May 1st, 2006 are compliant with EN61131-2.2007					
Electromagnetic Compatibility Directive (EMC)	Remark				
EN61000-6-4:2001 Electromagnetic compatibility -Generic standards - Emission standard for Industrial environment	Compliance with all relevant aspects of the standard. (Radiated Emissions and Mains Terminal Voltage Emissions)				
EN61131-2:1994/A11:1996/A12:2000 Programmable controllers -Equipment requirements and tests	Compliance with all relevant aspects of the standard.  Radiated electromagnetic field Fast transient burst Electrostatic discharge Damped oscillatory wave				
EN61131-2: 2007 Programmable controllers -Equipment requirements and tests	Compliance with all relevant aspects of the standard.  EMI Radiated Emission Conducted Emission EMS Radiated electromagnetic field Fast transient burst Electrostatic discharge Voltage drops and interruptions Conducted RF Power frequency magnetic field				

Notes for compliance to EMC directive

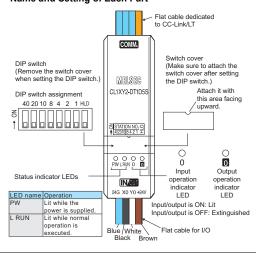
- It is necessary to install the CL1 series module in a shielded metal control
- For more details, please contact the local Mitsubishi Electric sales site
- Use this product in Zone A\*1 as defined in EN61131-2.
- \*1 Zone defined in EN61131-2
- Separation defined in EN61131-2 for EMC LVD regulation decided depending on condition in industrial setting
- Zone C = Factory mains which is isolated from public mains by dedicated transformers.
- Dedicated power distribution which is protected by secondary surge protection. (300V 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.)

●Compliance with UKCA marking●
for compliance with UKCA marking are the same as that with The requirements for comp EC directive (CE marking).

## 1. Outline of Product

This product is a cable type composite I/O module connected to CC-Link/LT. This product has one input point (24 V DC) and one output point (transistor

## 2. Name and Setting of Each Part



Name	Description					
Status indicator	PW ON while the power is supplied.					
LED	L RUN	ON while normal operation is executed.				
	ON while the input or output is ON.					
	Extingui	shed while the input or output is OFF.				
I/O operation indicator LED		0 0				
		X0 input operation Y0 output operation indicator LED indicator LED				
Flat cable	24G					
dedicated to CC-	DB	Connector for CC-Link/LT communication line/				
Link/LT	DA	module power supply				
	+24V					
	Blue	24G				
Flat cable for I/O	Black	X0				
i lat dable for # 0	White	Y0				
	Brown	+24V				
	Set the 10's digit of the station No. using "STATION NO. 10", "STATION NO. 20" and "STATION NO. 40". Set the 1's digit of the station No. using "STATION NO. 1", "STATION NO. 2", "STATION NO. 4" and "STATION NO. 8". Factory default = All bits are OFF.  Make sure to set the station No. in the range from 1 to 64.					
DIP switch	Example: When setting the station No. to "32", set the DIP switch as follows.					
		ation 10's digit 1's digit No. 40 20 10 8 4 2 1				
		32 OFF ON ON OFF OFF ON OFF				
	HLD	Holds the output (when an error has occurred). ON: Holds the output. OFF: Clears the output.				

## 3. Cautions on Handling

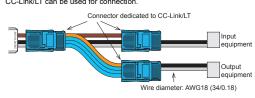
## 3.1 Handling of flat cable for I/O

The cable length from the module to a sensor shall be within 3m(9'10"). Measure the cable outside the module, and confirm that the driving voltage for the used sensor is assured.

# • Input switch, etc.

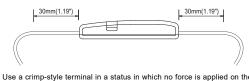
Crimp-style connection device with insulator or closed end connection device

If the diameter of the I/O equipment connection cable is equivalent to the diameter of the flat cable for I/O of this module, connectors dedicated to CC-Link/LT can be used for connection.



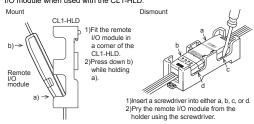
## 3.2 Handling of cable

Do not bend the cable within 30 mm (1.18") from the module



3.3 Mounting with the CL1-HLD (module holder)

Refer to the figures below for details on mounting or removing the rer I/O module when used with the CL1-HLD.

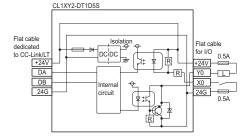


# 4. Wiring

## 4.1 External wiring

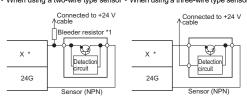
The input and output terminals of the CL1XY2-DT1D5S operate while using the power supplied from the interface. When connecting a sensor to the input terminal, use a sensor of the NPN open collector transistor type.

The output wiring is fixed to the sink output



## 4.2 Connection to sensor

When using a two-wire type sensor • When using a three-wire type sensor

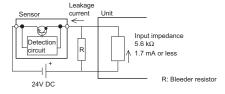


Replace \* in the figure with the used input No.

## \*1 Bleeder resistor

When connecting a two-wire type sensor or input equipment having parallel resistor, select a sensor or equipment whose leakage current is 1.7 mA or

If the leakage current is more than 1.7 mA, connect a bleeder resistor obtained in the following calculation for Circuit image



 $R(k\Omega) < 1.7 (mA) / Leakage current (mA) - 1.7 (mA) \times 5.6 (k\Omega)$ The power capacity W of the bleeder resistor R is as follows:

Make sure that both the ON and OFF time of the input signal are 1.5ms or

## 5. Specifications

5.1 General specifications				
Item	Specification			
Ambient working temperature	0 to 55°C (32 to 131°F)			
Ambient storage temperature	-25 to 75°C (-13 to 167°F)			
Ambient operating humidity	5 to 95%RH: Dew condensation shall not be considered.			
Ambient storage	5 to 95%RH: Dew condensation shall not be considered.			

## Specification Item Number When intermittent vibration is present of times of Frequency Acceleration Half amplitude 10 to 57 Hz 0.075 mm 10 times Vibration n each of 7 to 150 Hz resistance (\*1) Vhen continuous vibration is prese requency (for 80 10 to 57 Hz 0.035 mm 57 to 150 Hz 4.9 m/s<sup>2</sup> Impact 147 m/s2, 3 times in each of X, Y and Z directions resistance (\*1) Operating Corrosive gas shall not be present. atmosphere Operating 2,000 m (6561'8") or less (\*2) altitude Installation nside control panel (\*3) place Over-voltage II or less (\*4) Degree of 2 or less (\*5)

- \*1 The criterion is shown in IEC61131-2.
- \*2 The module cannot be used in an environment pressurized above the atmospheric pressure which can be generated around the altitude of 0 m. If the module is used in such an environment, it may fail.
- \*3 The module can be used in any environment even outside the control panel as far as the requirements of the ambient operating temperature, the ambient operating humidity, etc. are satisfied.
- \*4 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. The surge voltage withstand level for up to the rated voltage of 300V is 2500V.
- \*5 This index indicates the degree of conductive generating substances in the environment in which the module is used. The degree of contamination 2 indicates ination is caused by generation of only non-conductive substanc In this degree, however, temporary conduction may be caused by accidental

# 5.2 Input specifications

Item		Specification			
Input method		DC input (using module power supply in common)			
Number of input		1 point			
Isolation method		Isolation with photocoupler			
Rated input voltage		24 V DC			
Rated input current		Approx. 4 mA			
Operating voltage range		Same as module power supply			
Max. simultaneous ON input points		100% (at 24 V DC)			
ON voltage/O	N current	19 V or more/3 mA or more			
OFF voltage/0	OFF current	11 V or less/1.7 mA or less			
Input resistan	ice	5.6 kΩ			
Response	OFF→ON	1.5 ms or less (at 24 V DC)			
time	ON→OFF	1.5 ms or less (at 24 V DC)			
Common wiring method		1 point/1 common (Mutually exclusive output)			

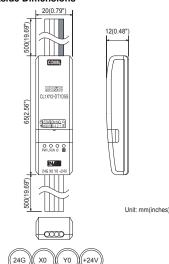
5.3 Output specifications				
Item	Specification			
Output method	Transistor output (using module power supply in common) (sink)			
Number of output	1 point			
Isolation method	Isolation with photocoupler			
Rated load voltage	24 V DC			
Operating load voltage range	Same as module power supply			
Max. load current	0.1 A/point 0.2 A/1 common			
Max. inrush current	0.4 A/10 ms			
Leakage current at OFF	0.1 mA or less/30 V DC			
Max. voltage drop at ON	1 V or less (max.)/0.1 A			

## Item Specification OFF→ON 1.0 ms or less Response $\mathsf{ON} {\rightarrow} \mathsf{OFF}$ 1.0 ms or less Surge suppression Zener diode Common wiring method 1 point/1 common (Mutually exclusive output) Internal protection circuit none Internal protection for Please connect the fuse in the connected load outputs

## 5.4 Performance specifications

Item		Specification		
	Voltage	20.4 to 28.8 V DC (24 V DC -15% to +20%) Ripple ratio: Within 5%		
Module power	Current consumption	40 mA (when all points are ON) (Current consumption contains neither the input current nor the load current.)		
supply	Initial current	70 mA		
	Max. allowable momentary power failure period	PS1:1 ms		
Number of stations occupied		4-, 8- or 16-point mode: 1 station		
Noise durability		500 Vp-p Noise width: 1µs Cycle: 25 to 60 Hz (by noise simulator)		
Withstand voltage		500 V AC for 1 min		
Isolation resistance		10 M $\Omega$ or higher between primary area (external DC terminal) and secondary area (internal circuit by 500V DC insulation resistance tester		
Protection	on class	IP2X		
I/O part of	connection method	Connection with cable		
Module installation method		Can be installed in six directions		
Flat cable for I/O (wire diameter)		AWG18 (34/0.18)		
Mass (weight)		0.07 kg (0.15 lbs) (including 500 mm (19.69") flat cable dedicated to CC-Link/LT and 500 mm (19.69") flat cable for I/C		

## 6. Outside Dimensions



# 「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

	有害物质						
部件	牛名称	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴 二苯醚 (PBDE)
可编程	外壳	0	0	0	0	0	0
控制器	印刷基板	×	0	0	0	0	0

本表格依据SJ/T 11364的规定编制。

- 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
- 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。
- 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, no does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur a a result of using the contents noted in this manual.

Warranty

Exclusion of loss in opportunity and secondary loss from warranty liability
Regardless of the gratis warranty 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 profits incurred to the user by Failures of Mitsubishi products.

(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.

⚠ For safe use

Z1) 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 incorporated in a device or system used in purposes related to human life.
 Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.
 This product has been manufactured under strict quality control. However

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