



CL1XY8-DR1B2 CC-Link/LT Remote I/O Module

Thank you very much for purchasing this product.

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

User's Manual

CC-Link/LT

CL1XY8-DR1B2
 MODEL
 CL1XY8-DR1B2

 MANUAL Number
 JY997D04501K

 Date
 November 2021

●SAFETY PRECAUTIONS●

(Read these precautions before using)

Please read this manual carefully and pay special attention to safely in order to handle this product properly. Also pay careful attention to safely and handle the module properly.

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.

If the equipment is used in a manner not specified by the manufacturer, the

if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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. **_**MARNING 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

Depending on circumstances, procedures indicated by (**CAUTION**) 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 I/O modules. Therefore build an external monitoring circuit that will monitor any input signals that could cause a serious accident.

⚠CAUTION

- Do not have control cables and communication cables bundled with or placed near by the main circuit and/or power cables. Wire those cables at least 100mm(3.94 inch) away from the main circuit and/or power cables. It may cause malfunction due to noise interference.
- interierence. Use the module and the flat cable dedicated to CC-Link/LT without applying any forc on them. Otherwise, such cables may be broken or fail.

IINSTALLATION PRECAUTIONS

ACAUTION

- Use the module in an environment that meets the general specifications contained in this manual. Using this module in an environment outside the range of the general specifications 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.

 Tighten the module securely using DIM on a court in the module securely using DIM on the modul
- requery range. If the screews are too less, the module may drop from its installation position by old circuit, or mailtonition. If the screws are too light, the screws may be amaged, which may cause the module to drop from its installation position or short circuit, and the module on a flat surface. If the mounting surface has concare and/or convex an excessive force may be applied on the module, aud nonconformity may be caused.
- [WIRING PRECAUTIONS]

WARNING
tion and wiring after disconnecting the power supply at all phases power is not disconnected at all phases an electric shock or product externally. If the power is not disconnected at all phases and damage may result. The temperature rating of the cable should be 80°C or more.

∴CAUTION

Terminal screws which are not to be used must be tightened always.

Otherwise there will be a danger of short circuit against the bare solderless terminals

CAUTION correct wiring for the module according to the product's rated voltage and term ent. Connecting to a power supply different from rating or miss-wiring may ca

- Perform correct wiring for the module advantage of the product failure or mailured or mail
- ISTARTING AND MAINTENANCE PRECAUTIONS

MARNING

- Do not touch the terminals when the power is ON. It may cause an electric shock or malfunctic Perform cleaning the module or retightening of terminal screws after turning OFF the all extern power supply for sure. Failure to do so may cause failure or malfunction of the modules. For cleaning, perform dry wiping without using chemicals. If there is the possibility of touching the PLC inside a control panel in maintenance, make sure to discharge to avoid the influence of static electricity.

♠CAUTION

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

When disposing of this product, treat in the configuration of the product, treat in the configuration of the confi ITRANSPORTATION AND MAINTENANCE PRECAUTIONS

ACAUTION

During transportation avoid any impact as the module is a precision instrument. Doing so could cause trouble in the module I ils necessary 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. Compliance to LVD standards 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
Electromagnetic Compatibility Directive (EMC):
Models: Products manufactured:
from November 1st. 2002 to April 30th, 2006 are compliant with
EN6100-6-4 and EN61131-2:1994+A11:1996+A12:2000.

Low Voltage Directive (LVD):
Models: Products manufactured:
from November 1st, 2002 to April 30th, 2006 are compliant with
EN6100-6-4 and EN61131-2:1994+A11:1996+A12:2000.

Low Voltage Directive (LVD):
Models: Products manufactured:
from November 1st, 2002 to April 30th, 2006 are compliant with
EN6100-6-4 and EN61131-2:1994+A11:1996+A12:2000
from May 1st, 2006 to February 28th, 2018 are compliant with EN61010-221017 after March 1st, 2018 are compliant with EN61010-2Tor products manufactured after January 1 2018, there may be compliant cases.

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 High-energy surge Voltage drops and interruptions Conducted RF Power frequency magnetic field
Low Voltage Directive (LVD)	Remark
EN61131-2:1994/A11:1996 /A12:2000 :2007 Programmable controllers -Equipment requirements and tests	The equipment has been assessed as a component for fitting in a suitable control box which meets the requirements of EN61131-2:1994 + A11:1996 + A12:2000, :2007

Low Voltage Directive (LVD) Remark The equipment has been assessed as a component for fitting in a suitable control box which meets the requirements of EN61010-2-201:2013 EN61010-2-201:2013 Safety of electrical equipment for measurement, control, and test Notes For compliance to EMC Directive and LVD

- It is necessary to install the CL1 series module in a shielded metal control panel. For more details, please contact the local Mitsubishi Electric sales site.

 Use this product in Zone A² as defined in EN61131-2.

 The terminal and the wiring for the output signals and load power supply can
- be used in zone B*2.
 *2 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
- 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. (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. (120V or less in the rated voltage is assumed.)

 For the control panel, use the product having sufficient strength, fire protectiveness and shielding property to an installation environment.

 To an external connect the circuit separated from a dangerous voltage by a double/reinforced insulation.

 For crimp terminals to be used for the wiring applied with 30 V AC or higher, use the products with insulating sleeves.

 Cutoff device such as a breaker or a circuit protector should be installed in accordance with the following precautions.

 Use EN60947-1 or EN60947-3 standards.

 Place the cutoff device so that it can be operated easily.

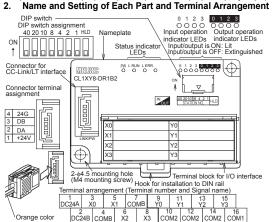
 Specify that the cutoff device is for this equipment.

The requirements for compliance with UKCA marking

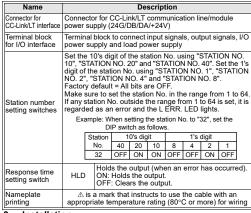
The requirements for compliance with UKCA marking are the same as that with EC directive (CE marking).

Outline of Product

This product is a terminal block type composite I/O module connected to CC-Link/LT. This product has four input points (24V DC) and four output points (relay output).



Pall I	(M4 mo	0 X1 COMB Y0 Y1 Y2 Y3 4 6 8 10 12 14 16			
Name		Description			
	PW	ON while the power is supplied.			
	L RUN	ON while normal operation is executed.			
Status indicator LEDs	L ERR.	ON: When a communication error or DIP switch setting error occurred Flickering at a constant interval: When the setting of the DIP switch was changed while the power was supplied (even while the LED is flickering, the operation continues. The new setting becomes valid when the power is turned OFF once, then ON again.) Flickering at a inermittent interval: When a terminal resistor is not attached or when the module or a connection cable is affected by noise			
I/O operation indicator LEDs	ON while or output Extinguis while the output is	hed OOO Output operation indicator Output operation indicator			
		<u> </u>			



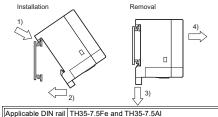
Installation

The CL1XY8-DR1B2 can be installed to DIN rail or directly installed using mounting screws.

Each installation procedure is described below.

All Installation to DIN rail
Align the upper DIN rail installation groove in the module with the DIN rail
1), and press the module in that status 2).
When removing the module, pull downward the hook for installation to DIN rail 3), then remove the module 4).

DIN rail mounting screw pitch
When installing the module to the DIN rail, tighten the mounting screws at
the pitch of 200mm(7.87") or less.

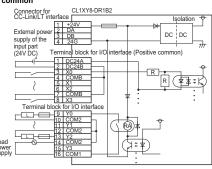


3.2 Direct installation

Screw-tighten the module by attaching M4 screws to the upper and lower mounting holes (two holes in all) provided in the module. Install the module so that the clearance of 1 to 2mm (0.04" to 0.08") is assured for each module.

4. Wiring
4.1 External wiring
The input terminals of the CL1XY8-DR1B2 can be wired as positive common or negative common depending on the used sensor.

Positive common



Negative common

External power supply of the input part (24V DC) Terminal block for I/O interface (Negative common) 1 DC24A 2 DC24B

4.2 Connection to sensor

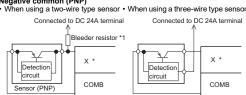
Positive common (NPN)

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

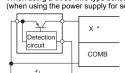
Connected to DC 24A terminal Connected to DC 24A terminal Ø \$ X * Detection Detection circuit COMB COMB Sensor (NPN) When using a three-wire type sensor (when using the power supply for sensor other than 24V DC)

 \mathbb{Q}^{r} X * Detection circuit COMB

Negative common (PNP)



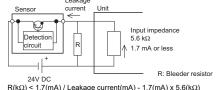
When using a three-wire type sensor (when using the power supply for sensor other than 24V DC)



Replace * in the figure with the used input No

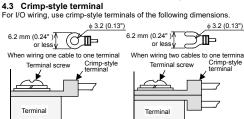
Notes: *1 Bleeder resistor

When connecting a two-wire type sensor or input equipment containing a parallel resistor, select a sensor or equipment whose leakage current is 1.7mA or less. If the leakage current is more than 1.7mA, connect a bleeder resistor obtained in the following calculation formula. Circuit image



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

 $W = (Input \ voltage)^2/R$ Make sure that both the ON and OFF time of the input signal are 1.5ms or more



KAV 1.25-3 V1.25-3 (manufactured by JST Mfg. Co., Ltd.) 1.25-3 and TG1.25-3 (manufactured by NICHIFU Co., Ltd.) Applicable crimp-style Applicable wire size 0.3 to 1.25 mm²

Use a crimp-style terminal in a status in which no force is applied on the cable. 4.4 Module terminal screw

Tighten the terminal screws (M3 screws) on the terminal block with a tightening torque of 0.42 to 0.58 N·m. Do not tighten terminal screws exceeding the specified torque. Failure to do so may cause short circuit, equipment failures, or malfunctions. Specifications 5.

Specification

5.1 General specifications

Item	
Operating ambient temperature	0 to 55°C (

Operating ambient temperature	0 to 55°C (32 to 131°F)						
Storage ambient temperature	-25 to 75°C ((-13 to 167°F))				
Operating ambient humidity	5 to 95%RH:	Dew conden	sation shall no	t be considered.			
Storage ambient humidity	5 to 95%RH: Dew condensation shall not be considered.						
	When interm	ittent vibratio	n is present	Number of times of sweep			
	Frequency	Acceleration	Half amplitude				
	10 to 57Hz	-	0.075mm	Ī			
Vibration	57 to 150Hz	9.8m/s ²	-	10 times in			
resistance (*1)	When continuous vibration is present each of X, Y and Z directions						
	Frequency	Acceleration	Half amplitude	(for 80 min)			
	10 to 57Hz	-	0.035mm	Ī			
	57 to 150Hz	4.9m/s ²	-	Ī			
Shock resistance (*1)	147 m/s ² , 3 times in each of X, Y and Z directions						
Operating ambience	Corrosive gas shall not be present.						
Operating altitude	2,000m(6561'8") or less (*2)						
Installation location	Inside control panel (*3)						
Overvoltage category	II or less (*4)						
Pollution level	2 or less (*5)						

- The criterion is shown in IEC61131-2. 11 The criterion is shown in IELD [13] -2.
 22 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 CC-LinkILT system is assumed to be installed in an environment equivalent to installed.
- 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.
 This index indicates the degree of conductive generating substances in the environment in which the module is used. The degree of contamination 2 indicates that contamination is caused by generation of only non-conductive substances. In this degree, however, temporary conduction may be caused by accidental condensation.

5.2 Innut specifications

.2 Input specifications					
ltem		Specification			
Input method		DC input (External power supply of the input part)			
Number of inpu	its	4 points			
Isolation metho	d	Isolation with photocoupler			
Rated input vol	tage	24V DC			
Rated input cur	rent	Approx. 4 mA			
Operating voltage range		20.4 to 28.8V DC (24V DC -15% to +20%) Ripple ratio: Within 5%			
Max. simultaneous ON input points		100% (at 24V DC)			
ON voltage/ON	current	19 V or more/3 mA or more			
OFF voltage/OF	F current	11 V or less/1.7 mA or less			
Input resistance		5.6 kΩ			
Response OFF→ON		1.5 ms or less (at 24V DC)			
time	ON→OFF	1.5 ms or less (at 24V DC)			
Common wiring method		4 points/1 common (2 points) (terminal block two-wire type)			

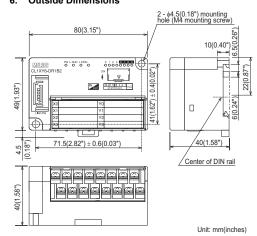
5.3 Output specifications

Iten	1	Specification		
Output method		Relay output		
Number of outputs		4 points		
Insulation meth	od	Mechanical insulation		
Rated load volt	age	240V AC/30V DC or less (250V AC or less when the unit does not comply with UL or cUL standards)		
Max. load curre	nt	2A/point 4 A/1 common		
Response	OFF→ON	Approx. 10ms or less		
time ON→OFF		Approx. 10ms or less		
Common wiring method		4 points/1 common (3points) (terminal block two-wire type)		
Internal protection for outputs		Internal protection circuit none Please connect the fuse in the connected load		

5.4 Performance specifications

	Item	Specification		
Current		20.4 to 28.8V DC (24V DC -15% to +20%) Ripple ratio: Within 5%		
		70mA (when all points are ON)		
supply	Initial current	70mA		
	Max. allowable momentary power failure period	PS1:1ms		
Number occupie	of stations d	4-, 8- or 16-point mode: 1 station		
Noise durability		DC type: 500 Vp-p AC type: 1,000 Vp-p Noise width: 1 µs (by noise simulator) Cycle: 25 to 60 Hz		
Withstand voltage		AC type: 1,500V AC for 1 min DC type: 500V AC for 1 min		
Isolation resistance		10 $\mathrm{M}\Omega$ or higher between primary area (external DC terminal) and secondary area (internal circuit) by 500V DC insulation resistance tester		
Protecti	on class	IP1X		
I/O part	connection method	Connection with terminal block		
Module installation method		DIN rail installation, mounted by screws of type $M4 \times 0.7$ mm(0.03") \times 16mm(0.63") or larger Can be installed in six directions		
Mass (weight)		0.11kg (0.24lbs)		
Contact life		200V AC - 1.5 A, 240V AC - 1 A (COSφ = 0.7): 100,000 times or more		
		200V AC - 1 A, 240V AC - 0.1 A (COSφ = 0.35): 100,000 times or more		
		24V DC - 1 A, 100V DC - 0.1 A (L/R = 7 ms): 100,000 times or more		

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

产品中有害物质的名称及含量							
		有害物质					
部件	‡名称	铅 汞 镉 六价铬 多溴联苯 (PBB) 二苯醚 (PBDE)				二苯醚	
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, non does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur at 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 from warranty liability Regardless of the gratis warranty term, Mitsubish ishall 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

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