



Toho Technology

YOSHIDA



PLC Renewal Adaptor

For Yaskawa 2000/1000 I/O series

For Sharp JW/ZW series

PS_{series}



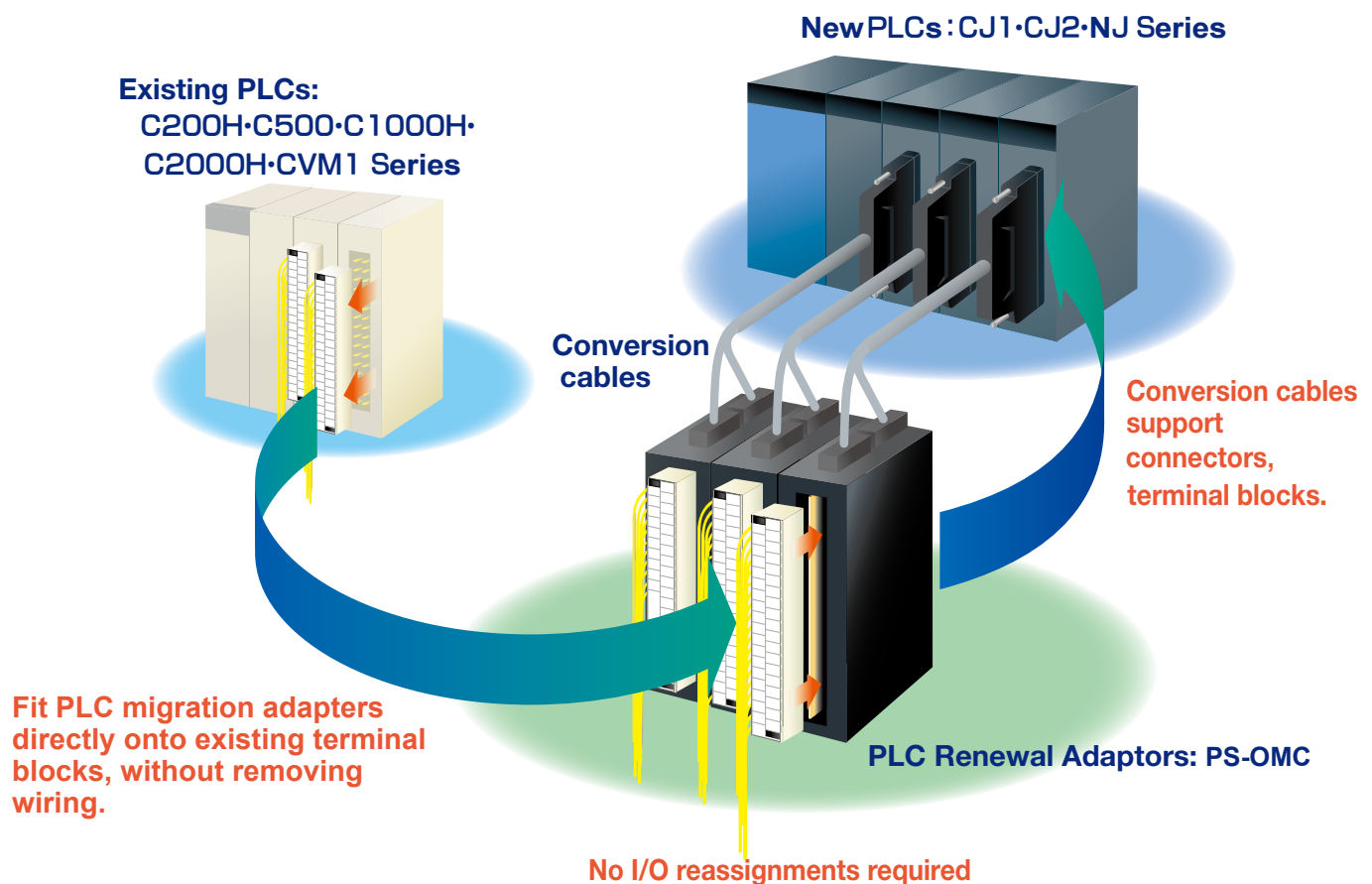
Toho Technology

Migrating outdated PLCs into new PLCs without wiring

The PLC Renewal Adaptor allows you to migrate Omron C200H, C500, C1000H, C2000H, CVM1 I/O series PLCs into new CJ1, CJ2, NJ series PLCs without rewiring and reconnecting cables and rechecking I/O assignments.

● Features

- Voltage conversion models allow new PLCs to be rated at 24 VDC
- Toho custom-builds cable that adapt PLCs from all major manufacturers with changing connector pin assign.
- Small-footprint installation mounts available upon request.
- “Low-profile” models with reduced depth available.



●PLC Renewal Adaptor Selection

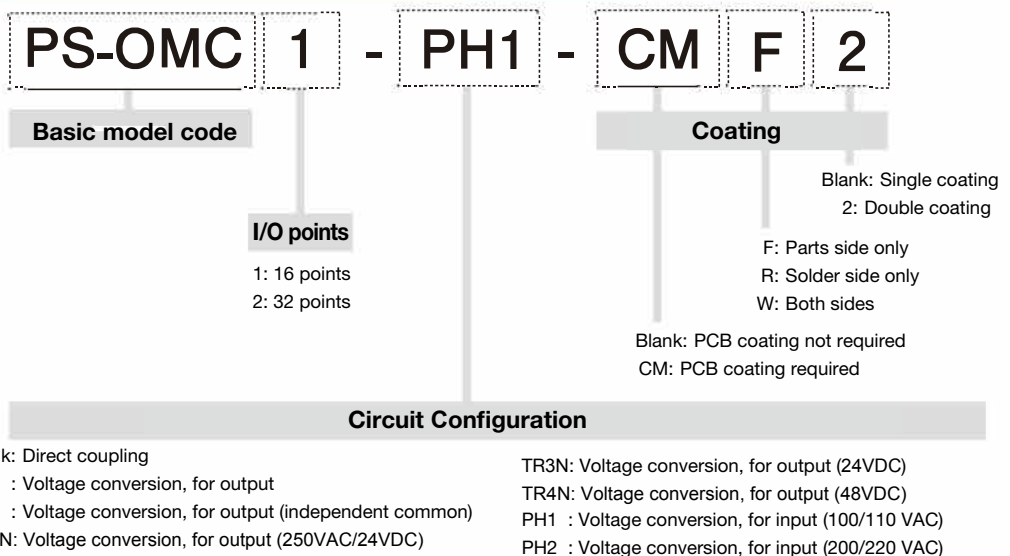
Existing PLC				New PLC	Toho Adapter		
Series	I/O Name	Voltage	I/OPoints	Voltage	P/N	Circuit	Page
Omron C500 C1000H C2000H CVM1	20P I/O unit	Less than AC/DC125V	16	Same as existing	PS-OMC1	Direct Coupling	5
	38P I/O unit	Less than AC/DC125V	32	Same as existing	PS-OMC2	Direct Coupling	6
					PS-OMC2-L	Direct Coupling	
	C500-OC221	AC250V/DC30V	16	DC24V	PS-OMC1-RY1	Relay	7
	C500-OC223	AC250V/DC30V	16	DC24V	PS-OMC1-RY2	Relay	
	C500-OC224	AC250V/DC30V	32	DC24V	PS-OMC2-RY1	Relay	8
				DC24V NPN	PS-OMC2-RY1N	Relay	
	C500-OD218	DC24V	32	DC24V NPN	PS-OMC2-TR3N	Photomos Relay	9
	C500-OD412	DC48V	32	DC24V NPN	PS-OMC2-TR4N	Photomos Relay	
	C500-IA121	AC100/110V	16	DC24V	PS-OMC1-PH1	Photocoupler	10
	C500-IA122	AC100/110V	32	DC24V	PS-OMC2-PH1	Photocoupler	
	C500-IA222	AC200/220V	16	DC24V	PS-OMC1-PH2	Photocoupler	11
	C500-IA223	AC200/220V	32	DC24V	PS-OMC2-PH2	Photocoupler	
Omron C200H		Less than AC/DC125V	8	Same as existing	PS-OMC200H-0	Direct Coupling	12
	19P I/O unit	Less than AC/DC125V	16	Same as existing	PS-OMC200H-1	Direct Coupling	

*Please contact for other combinations not on the list.

●Ordering Information

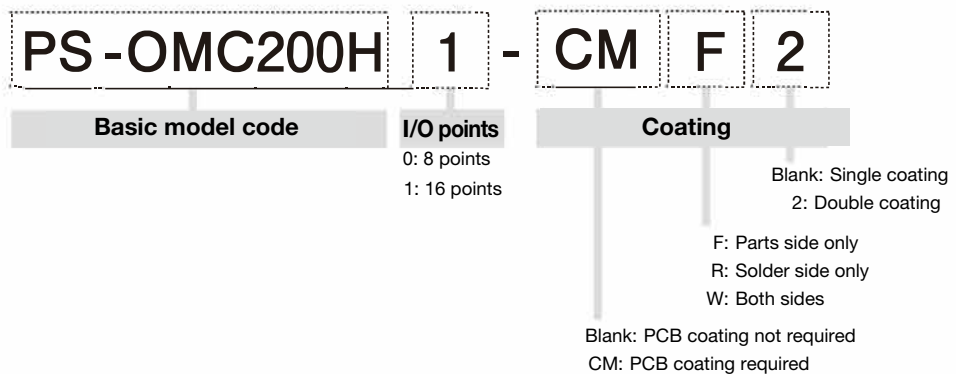
PLC Renewal Adaptor

C500・C1000H・C2000H・CVM 1 Series PLC



*1 Low-profile model PS-OMC1-L, PS-OMC2-L are available.

C200H Series PLC



Conversion Cables

●Can be custom-made according to your specification. See page 4.

Installation Mounts

●Can be custom-made according to your space availability. See pages 4 and 14.

Ordering Procedure

The following outlines the ordering procedure.

1

PLC Renewal Adaptor

Choose a new PLC model you want to use in place of the existing PLC model.

Advise us of the model names of the existing PLC and the new PLC you have chosen. (You may be requested to provide us with additional information on the PLCs concerned.)

We will provide a recommendation for a PLC Renewal Adapter model.

Choose what PLC Renewal Adapter model to use.

Some working or loading conditions could hinder the proper function of the Adaptor. Pay due attention to these conditions in advance.

2

Conversion Cable

Advise us of the I/O signal names of the existing and new PLCs.

We prepare a delivery specification and submit it for your approval.

The specification is checked.

The specification is confirmed.

3

Installation Mount

(see page 26)

Provide us with information including outer dimensions of the existing mount and the space available for the new mount.

We prepare a delivery specification and submit it for your approval.

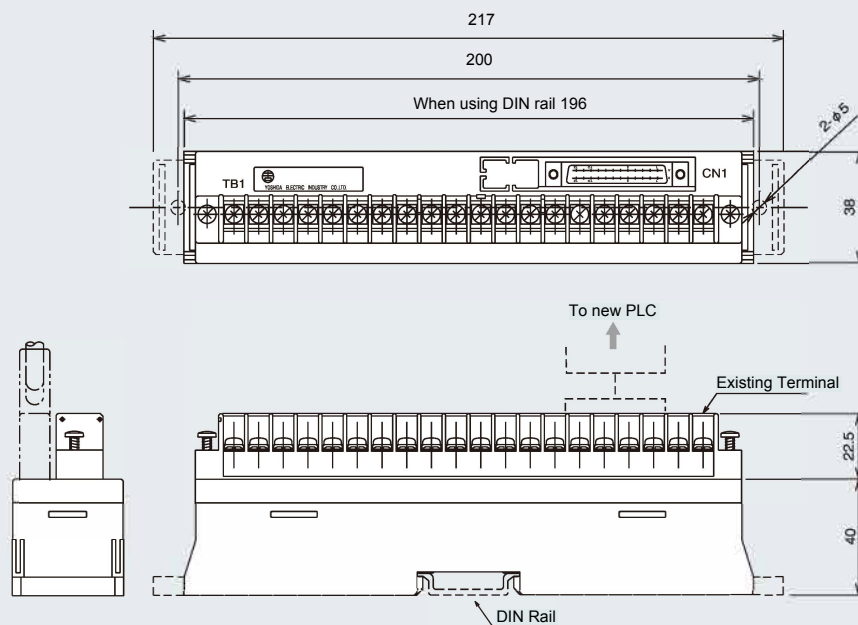
The specification is checked.

The specification is confirmed.

Direct-coupling models

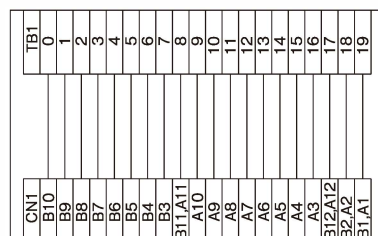
For 16-point input/output module

PS-OMC1 (16 Points 24~100V)



* The product comes with no terminal block.

Circuit diagram



Specifications

Signal Output	Connector
Rated Voltage	AC/DC125V
Rated Current	1A
Mounting Scheme	Direct mounting, DIN rail mounting
Insulation Resistance	1000 Mohm min. (to GND)
Dielectric Strength	2000 VAC for one minute (to GND)
Lighting Impulse (1.2/50 μs)	±4000 V, three times each (to GND)
Vibration Resistance	10~55Hz, 0.5mm/p-p
Impact Resistance	98m/S ² (10G)

Cables supported

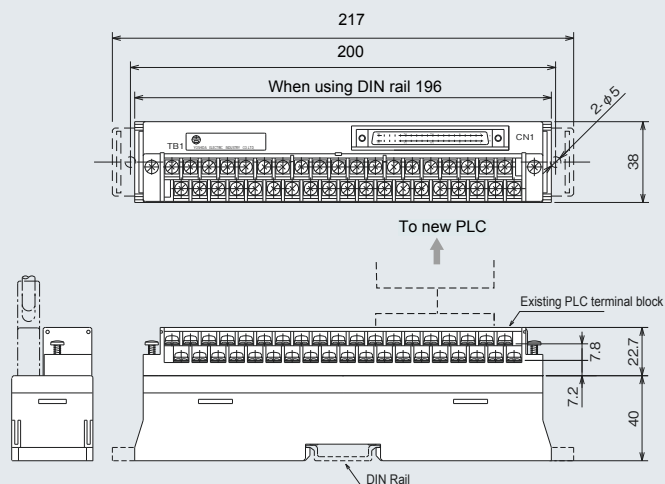
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-ID112	CS1W-MD561	160M-H0054-(※)
	CJ1W-MD563	160M-H0055-(※)
	C200H-ID501	160M-H0056-(※)
C500-ID213	CS1W-ID231	160M-H0054-(※)
	CS1W-ID211	160M-H0057-(※)
	CJ1W-ID211	160M-H0065-(※)
C500-IM211	CS1W-ID231	160M-H0054-(※)
	CS1W-ID211	160M-H0057-(※)
	CJ1W-ID211	160M-H0065-(※)
C2000-ID216	CS1W-INT01	160M-H0066-(※)
	CJ1W-INT01	160M-H0067-(※)
C500-OD217 C500-OD411 C500-OD219	CS1W-OD231	160M-H0058-(※)
	CJ1W-OD231	160M-H0069-(※)
	CS1W-OD211	160M-H0070-(※)
C500-OD211	C200H-OD215	160M-H0056-(※)
C500-IA121	CS1W-IA111	160M-H0057-(※)

Please specify cable length by cm into (※)

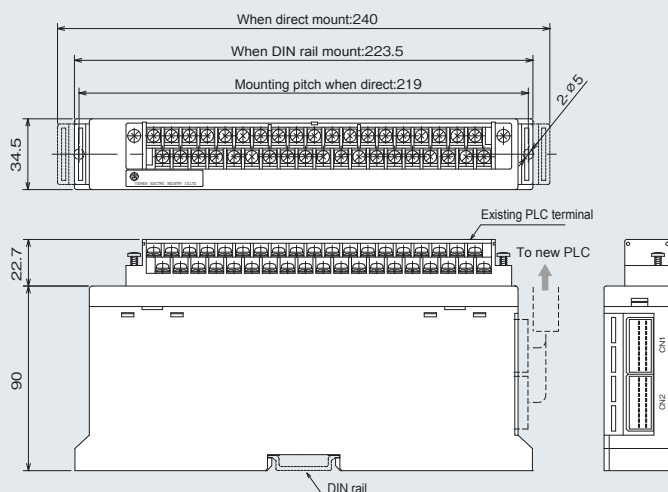
Direct-coupling models

For 16-point input/output module

PS-OMC2 (32 Points 24~100V)



PS-OMC2-L (32Points 24~100V)



* The product comes with no terminal block.

Circuit

PS-OMC2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

PS-OMC2-L

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Specifications

Signal Output (new-PLC side)	Connector
Rated Voltage	125 VAC/DC
Rated Current	1A
Mounting Scheme	Direct mounting, DIN rail mounting
Insulation Resistance (500 VDC megger)	1000 Mohm min. (to GND)
Dielectric Strength	2000 VAC for one minute (to GND)
Lighting Impulse (1.2/50 μs)	±4000 V, three times each (to GND)
Vibration Resistance	10 – 55 Hz, 0.5mm/p-p
Impact Resistance	98m/S ² (10G)

Cables

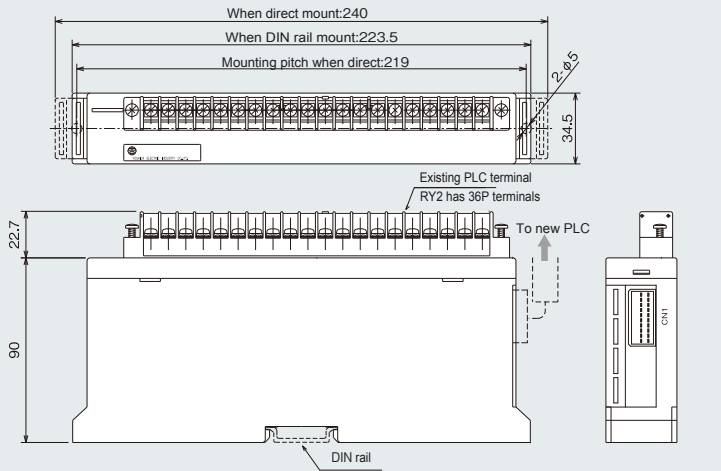
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable	
		PS-OMC2	PS-OMC2-L
C500-ID215 C500-ID218 C500-IM212	CS1W-ID231 CJ1W-ID231	320M-H0059-(※)	320M-H0151-(※)
C500-OD218 C500-OD412 C500-OD414	CS1W-OD231 CJ1W-OD231	320M-H0060-(※)	320M-H0152-(※)
C500-OD212	CS1W-OD232	320M-H0061-(※)	320M-H0153-(※)
C500-IA122	CS1W-IA111	320M-H0062-(※)	320M-H0154-(※)

Please specify cable length by cm into (※)

Voltage conversion model

Relay Conversion

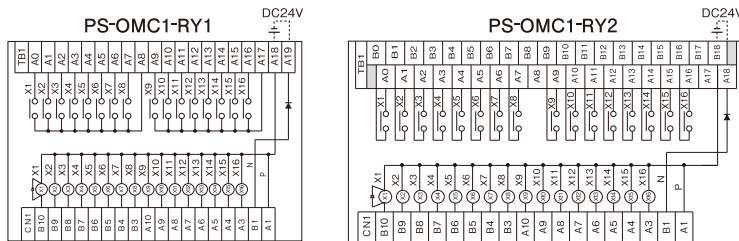
PS-OMC1-RY1 16 points output PS-OMC1-RY2 16 points output Independent common



Specifications

Number of common	Existing PLC	8 points / 1 common *RY2 is independent common
	New PLC	16 points / 1 common
Signal Output (new-PLC side)	Connector	
Rated Voltage	Existing PLC	250 VAC/30 VDC
	New PLC	24 VDC
Rated Current (output side)	2A (8A per common)	
Circuit Configuration	Relay	
Mounting Scheme	Direct mounting, DIN rail mounting	
Insulation Resistance	1000 Mohm min. (to GND) (500 VDC megger)	
Dielectric Strength	2000 VAC for one minute (to GND)	
Lighting Impulse (1.2/50 μ s)	\pm 4000 V, three times each (to GND)	
Vibration Resistance	10~55Hz, 0.5mm/p-p	
Impact Resistance	98m/S ² (10G)	

Circuit

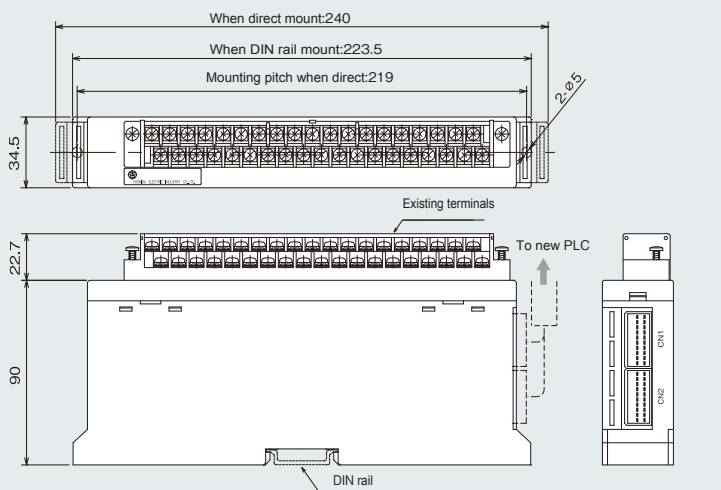


Cables

Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-OC221 C500-OC223	CS1W-OD231 CJ1W-OD231	320M-H0125-(※)

Please specify cable length by cm into (※)

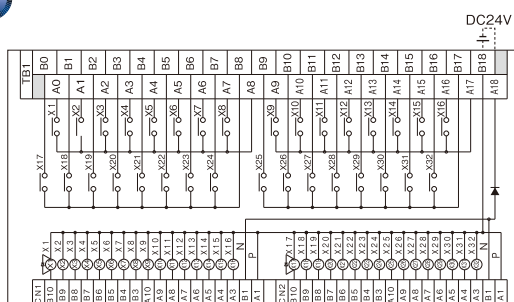
PS-OMC2-RY1 32 points output



Specifications

Number of common	Existing PLC	8 points / 1 common *RY2 is independent common
	New PLC	16 points / 1 common
Signal Output (new-PLC side)	Connector	
Rated Voltage	Existing PLC	250 VAC/30 VDC
	New PLC	24 VDC
Rated Current (output side)	2A (8A per common)	
Circuit Configuration	Relay	
Mounting Scheme	Direct mounting, DIN rail mounting	
Insulation Resistance	1000 Mohm min. (to GND) (500 VDC megger)	
Dielectric Strength	2000 VAC for one minute (to GND)	
Lighting Impulse (1.2/50 μ s)	\pm 4000 V, three times each (to GND)	
Vibration Resistance	10~55Hz, 0.5mm/p-p	
Impact Resistance	98m/S ² (10G)	

Circuit



Cables

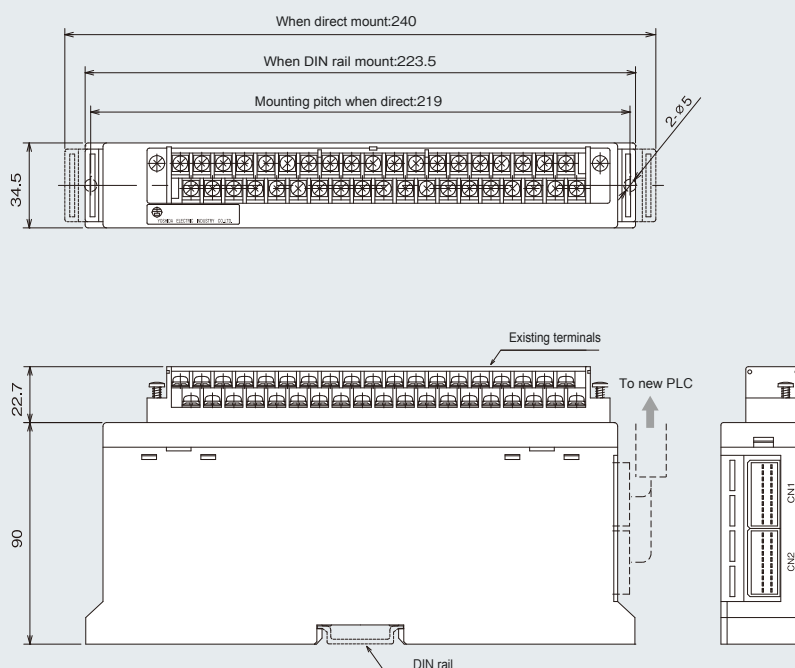
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-OC224	CS1W-OD231 CJ1W-OD231	320M-H0125-(※)

Please specify cable length by cm into (※)

Polarity conversion model

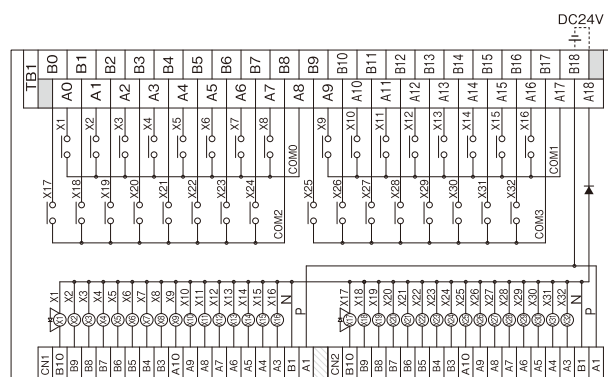
32 points Relay Conversion

PS-OMC2-RY1N 32 points 250VAC NPN ->24VDC PNP output



The product comes with no terminal block.

Circuit



Specifications

Number of common	Existing PLC	8 points / 1 common
	New PLC	32 points / 1 common
Signal Output (new-PLC side)	Connector	
Rated Voltage	Existing PLC	250 VAC
	New PLC	24 VDC
Rated Current (output side)	2A (8A per common)	
Circuit Configuration	Relay	
Mounting Scheme	Direct mounting, DIN rail mounting	
Insulation Resistance	More than 100 Mohm min. (to GND) (500 VDC megger)	
Dielectric Strength	2000 VAC for one minute (to GND)	
Lighting Impulse (1.2/50 μ s)	\pm 4000 V, three times each (to GND)	
Vibration Resistance	10~55Hz, 0.5mm/p-p	
Impact Resistance	98m/S ² (10G)	

Cables

Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-OC224	CS1W-OD232	320M-H0147-(※)
	CJ1W-OD232	320M-H0170-(※)

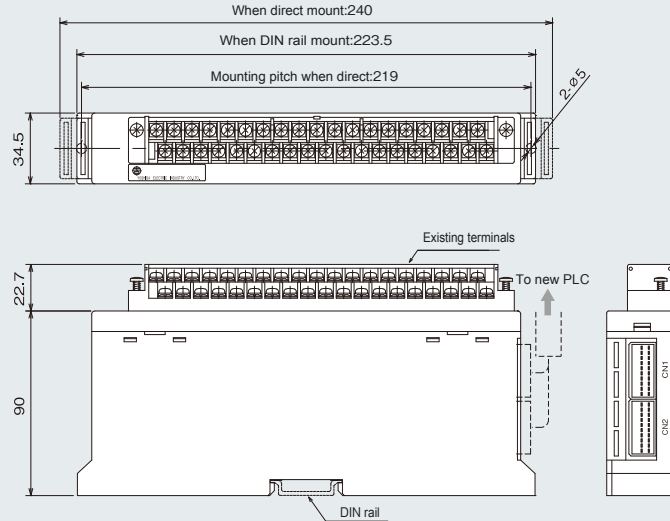
Please specify cable length by cm into (※)

Polarity conversion model

32 points Photomos Relay Conversion

PS-OMC2-TR3N 32 points 24VDC NPN ->24VDC PNP output

PS-OMC2-TR4N 32 points 48VDC NPN ->24VDC PNP output



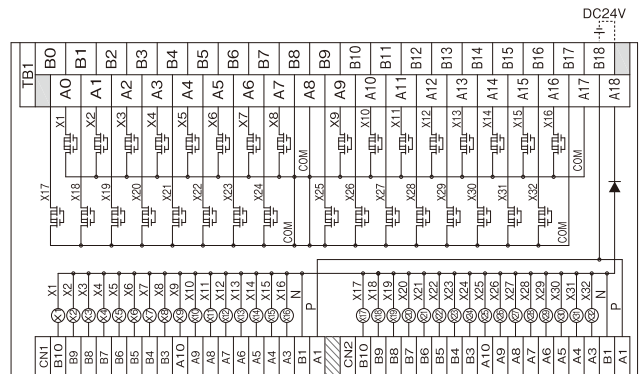
*The product comes with no terminal block.

Circuit

PS-OMC2-TR3N



PS-OMC2-TR4N



Specifications

Number of common		Existing PLC	16 points /1 common(PS-OMC2-TR3N), 32 points/ 1 common(PS-OMC2-TR4N)
		New PLC	32 points / 1 common
Signal Output (new-PLC side)			Connector
Rated Voltage	PS-OMC2-TR3N	Existing PLC	DC24V
		New PLC	DC24V
	PS-OMC2-TR4N	Existing PLC	DC48V
		New PLC	DC24V
Rated Current (output side)			0.3A (4.8A per common)
Circuit Configuration			Photomos Relay
Mounting Scheme			Direct mounting, DIN rail mounting
Insulation Resistance			More than 100 Mohm min. (to GND)(500 VDC megger)
Dielectric Strength			2000 VAC for one minute (to GND)
Lighting Impulse (1.2/50 μs)			±4000 V, three times each (to GND)
Vibration Resistance			10~55Hz, 0.5mm/p-p
Impact Resistance			98m / S ² (10G)

Cables

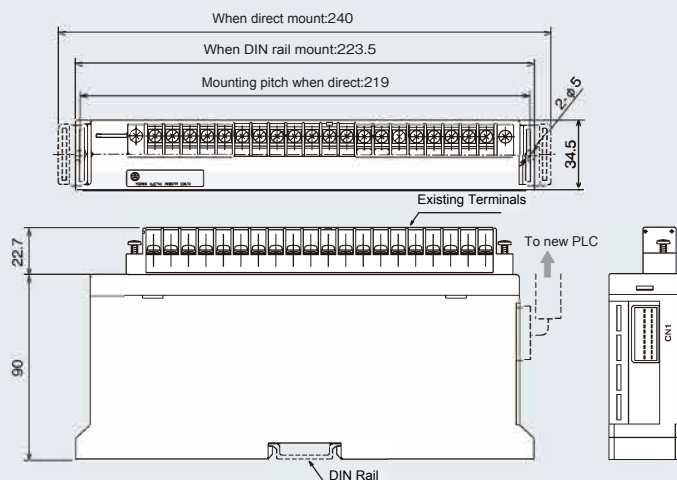
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-OD218	CS1W-OD232	320M-H0147-(※)
C500-OD412	CJ1W-OD232	320M-H0170-(※)

Please specify cable length by cm into (※)

Voltage conversion model

100/110VAC Photocoupler Conversion

PS-OMC1-PH1 16 points 100/110VAC ->24VDC conversion

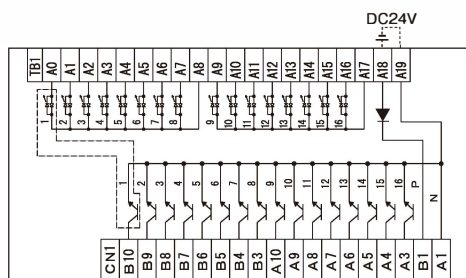


Specifications

Number of common	Existing PLC	8 points / 1 common
	New PLC	16 points / 1 common
Signal Output (new-PLC side)	Connector	
Rated Voltage	Existing PLC	AC100/110V
	New PLC	DC24V
Rated Current(output side)	10mA	
Operating Voltage	AC50V	
Circuit Configuration	Photocoupler	
Mounting Scheme	Direct mounting, DIN rail mounting	
Insulation Resistance	1000 Mohm min. (to GND)	
Dielectric Strength	2000 VAC for one minute (to GND)	
Lighting Impulse (1/2/50 μs)	±4000 V, three times each (to GND)	
Vibration Resistance	10~55Hz, 0.5mm/p-p	
Impact Resistance	98m/S ² (10G)	

*The product comes with no terminal block.

Circuit

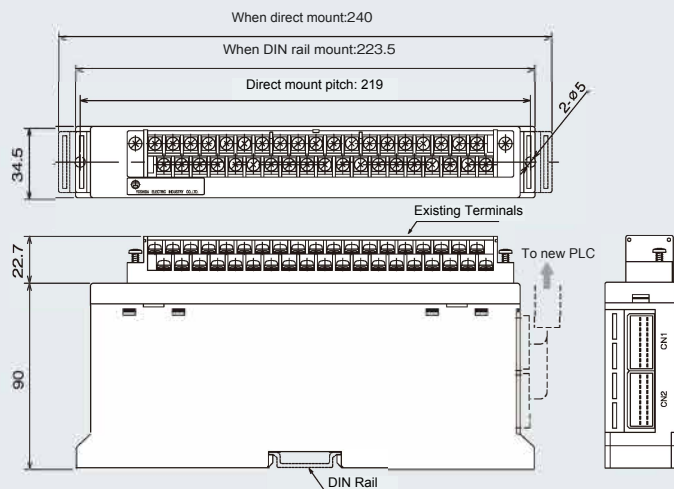


Cables

Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-IA121	CS1W-ID231	320M-H0123-(※)

Please specify cable length by cm into (※)

PS-OMC2-PH1 32 points 100/110VAC ->24VDC conversion

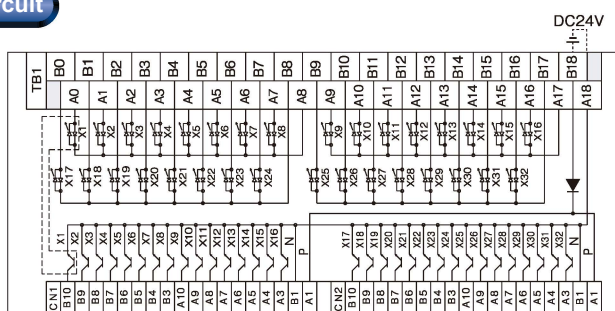


Specifications

Number of common	Existing PLC	8 points / 1 common
	New PLC	16 points / 1 common
Signal Output (new-PLC side)	Connector	
Rated Voltage	Existing PLC	AC100/110V
	New PLC	DC24V
Rated Current (output side)	10mA	
Operating Voltage	AC50V	
Circuit Configuration	Photocoupler	
Mounting Scheme	Direct mounting, DIN rail mounting	
Insulation Resistance	1000 Mohm min. (to GND)	
Dielectric Strength	2000 VAC for one minute (to GND)	
Lighting Impulse (1/2/50 μs)	±4000 V, three times each (to GND)	
Vibration Resistance	10~55Hz, 0.5mm/p-p	
Impact Resistance	98m/S ² (10G)	

Existing terminal block is not included in the product.

Circuit



Cables

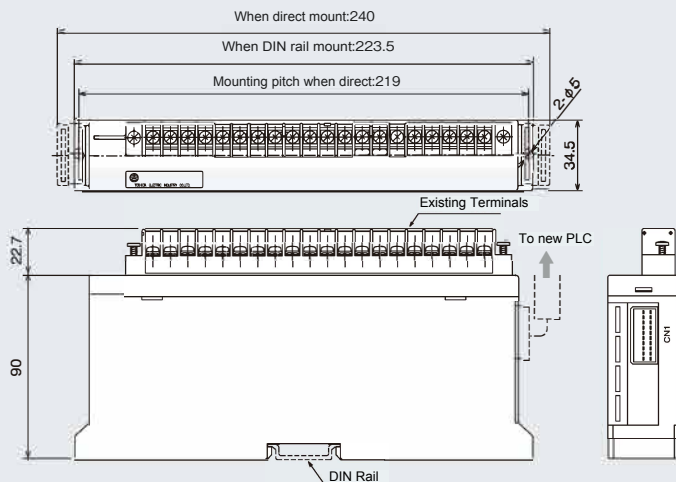
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-IA122	CS1W-ID231 CJ1W-ID231	320M-H0124-(※)

Please specify cable length by cm into (※)

Voltage Conversion Model

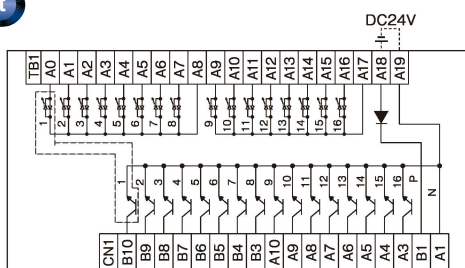
200/220VAC Input Photocoupler Conversion

PS-OMC1-PH2(16 points AC200/220V→DC24V)



Existing terminal block is not included in the product.

●Circuit



●Specifications

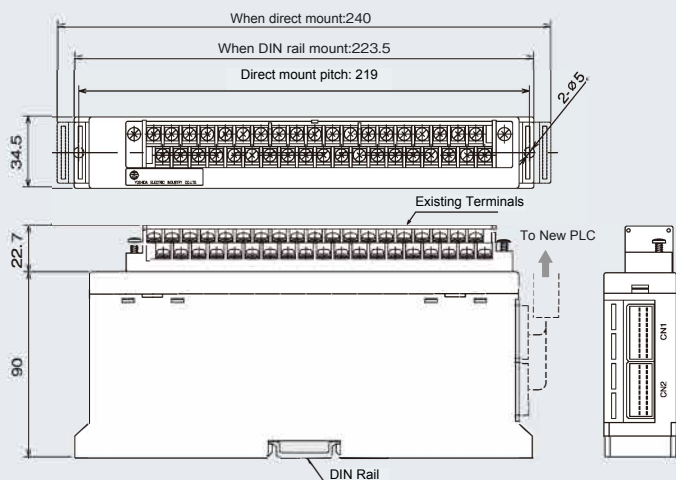
Number of common	Existing PLC	8 points / 1 common
	New PLC	16 points / 1 common
Signal Output (new-PLC side)		Connector
Rated Voltage	Existing PLC	200/220VAC
	New PLC	24VDC
Rated Current (output side)		10mA
Operating Voltage		100VAC
Circuit Configuration		Photocoupler
Mounting Scheme		Direct mounting, DIN rail mounting
Insulation Resistance		1000 Mohm min. (to GND)
Dielectric Strength		2000 VAC for one minute (to GND)
Lighting Impulse (1.2/50 μs)		±4000 V, three times each (to GND)
Vibration Resistance		10~55Hz, 0.5mm/p-p
Impact Resistance		98m/S ² (10G)

●Cables

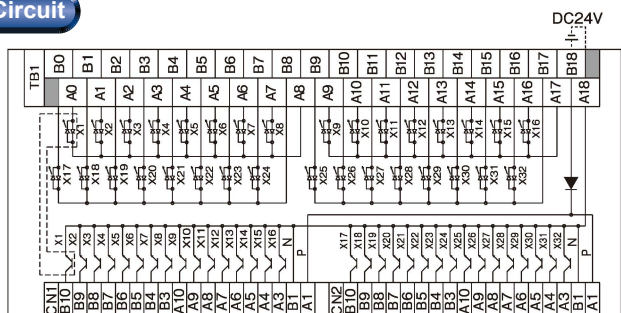
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-IA222	CS1W-ID231 CJ1W-ID231	320M-H0123-(※)

Please specify cable length by cm into (※)

PS-OMC2-PH2(32 points AC200/220V→DC24V)



●Circuit



●Specifications

Number of common	Existing PLC	8 points / 1 common
	New PLC	32 points / 1 common
Signal Output (new-PLC side)		Connector
Rated Voltage	Existing PLC	200/220VAC
	New PLC	24VDC
Rated Current (output side)		10mA
Operating Voltage		100VAC
Circuit Configuration		Photocoupler
Mounting Scheme		Direct mounting, DIN rail mounting
Insulation Resistance		1000 Mohm min. (to GND)
Dielectric Strength		2000 VAC for one minute (to GND)
Lighting Impulse (1.2/50 μs)		±4000 V, three times each (to GND)
Vibration Resistance		10~55Hz, 0.5mm/p-p
Impact Resistance		98m/S ² (10G)

●Cables

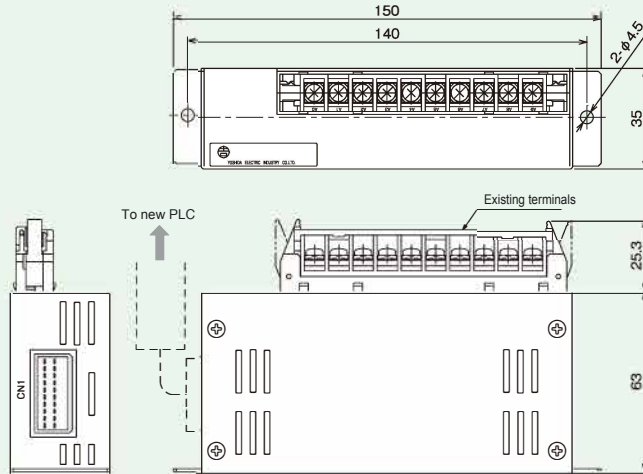
Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C500-IA223	CS1W-ID231 CJ1W-ID231	320M-H0124-(※)

Please specify cable length by cm into (※)

Direct Coupling

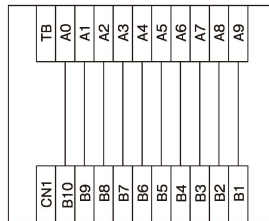
For 8/16 points Input / Output

PS-OMC200H-0 (8 points for 24 ~100V)



*The product comes with no terminal block.

Circuit



Specifications

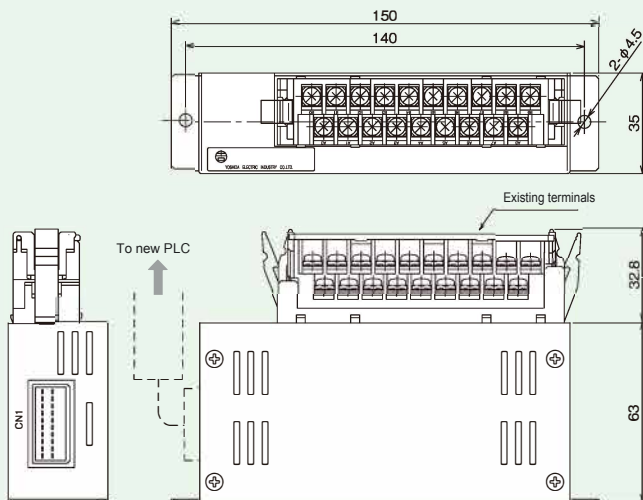
Signal Output	Connector
Rated Voltage	AC/DC125V
Rated Current	1A
Mounting Scheme	Direct mounting
Insulation Resistance	1000 Mohm min. (to GND)
Dielectric Strength	2000 VAC for one minute (to GND)
Lighting Impulse (1.2/50 μs)	±4000 V, three times each (to GND)
Vibration Resistance	10~55Hz, 0.5mm/p-p
Impact Resistance	98m/S ² (10G)

Cables

Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C200H-ID211	CS1W-ID211	80M-H0130-(※)
	CJ1W-ID211	80M-H0131-(※)
C200H-OD213	CS1W-OD211	80M-H0134-(※)
C200H-OD216	CS1W-OD212	80M-H0135-(※)

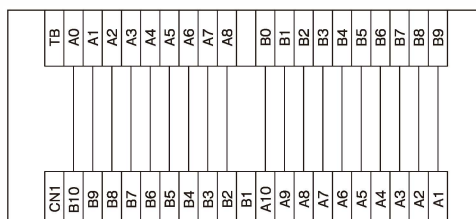
Please specify cable length by cm into (※)

PS-OMC200H-1 (16 points for 24-100V)



*The product comes with no terminal block.

Circuit



Cables

Existing PLC I/O (C500-C1000H-C2000H)	New PLC I/O (CS1W/CJ1W)	Toho Cable
C200H-ID212	CS1W-ID211	160M-H0132-(※)
	CJ1W-ID211	160M-H0133-(※)
C200H-OD212	CS1W-OD211	160M-H0136-(※)
C200H-OD21A	CS1W-OD212	160M-H0137-(※)

Operating Precautions

Reference information regarding models having relays

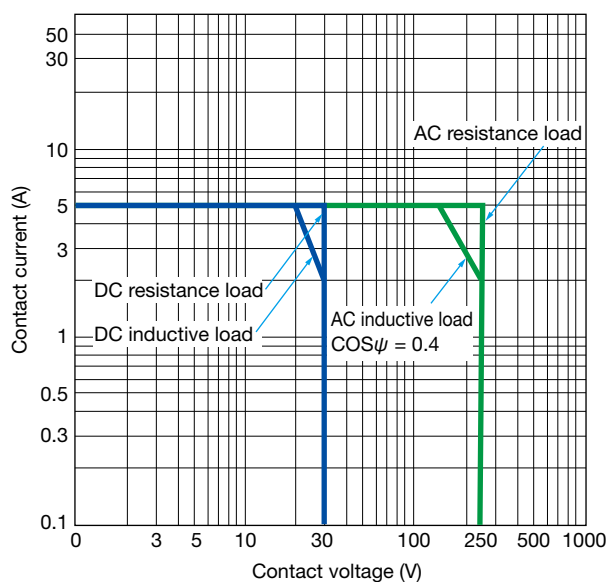
1. Relay Ratings

Rated voltage	Rated current	Coil resistance	Operating voltage	Release voltage	Max. permissible voltage	Power consumption
24 VDC	8.3 mA	2.880Ω±10%	70% max.	10% min.	Approx. 110%	200 mW/point

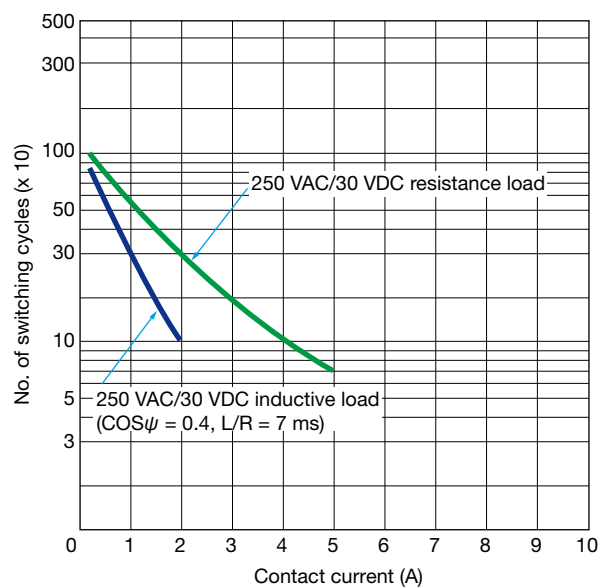
2. Switching Performance

Item	Load	
Resistance load	250 VAC/2 A, 24 VDC/2 A	
Contact resistance	100 Mohm max. (initial value)	
Durability	Mechanical	At least 20 × 10 ⁶ switching cycles at a rate of 1800 cycles/h
	Electrical	At least 3 × 10 ⁵ 250 VAC/2 A resistance load cycles
		At least 3 × 10 ⁵ 30 VDC/2 A resistance load cycles at a switching rate of 1800 cycles/h
Failure rate (P level)	5 VDC/10 mA	

Max. Switching Capacity



Durability Curves



3. Notes

- The applicable adapter models are rated at 2 A although the relays used are rated at 5 A.
- Relays used are not of socket type, and cannot be replaced.
Pay due attention to working and operating conditions of the adapters prior to using them.
- The durability of relays may vary significantly depending on the switching conditions.
- L-load actuated by a relay may cause reverse voltage to occur at switching off, resulting in generation of noises.
Be sure to use a surge absorption circuit when using L-load.

Installation Mount



● Features

- The installation mount allows you to take advantage of the space in the depth direction of the control panel so as to install new PLCs without the need for occupying a space outside the control panel.
- The lockable upper cover of the installation mount can be opened for smooth and easy installation and maintenance of PLC modules, and is able to withstand up to 10 kg of weight.
- Installation mounts are custom-made, depending on the size and number of PLCs from various manufacturers that are available at time of order.
- The mounting space of existing PLC modules can be used for the installation mount.

● Installation procedure



1

Place PLC renewal adapters on the bottom of the installation mount and fit terminal blocks to the adapters.



2

Connect conversion cables to the adapters.

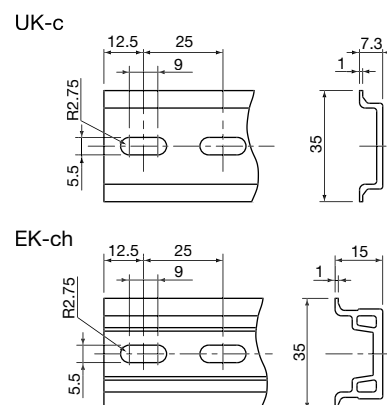


3

Place new PLC modules on top of the installation mount and plug the connector of the conversion cables into new modules.

Accessories

Item	Model name	Applicable Rail	Length	No. of pieces per package
Mounting Rail	UK-c	—	1000, 1500, 2000	10
	EK-ch	—	1000, 1500, 2000	10
Rail End Cap	UK-ec	UK-c	—	100
	EK-ec	EK-ch	—	100
End Bracket	UK-b	UK-c, EK-ch	—	100
	EK-b	UK-c, EK-ch	—	100



Mounting Rail



UK-c

Rail End Cap



EK-ec

End Bracket



UK-b



EK-b

Safety Precautions



- Please use appropriate current and voltage according to the manual.
- Our products were not designed or manufactured for use in devices or systems directly related to human life. Users who intend to use the product described in this manual for special purposes must contact Toho Technology Inc. beforehand.
- If this product is to be involved in a life and death situation or in a facility where failure may cause a serious accident, safety devices MUST be installed to minimize the likelihood of any accident.

★The products and specifications described in this manual or the content and presentation of the manual may be changed without notice to improve the product and/or the manual.



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