Control Unit for LED Light Units

PD3-3024-3-PT

With Parallel Communications

Instruction Guide

Thank you for purchasing a CCS product. To ensure proper use of the product, please read this Instruction Guide before use and keep it for your future reference.

This Control Unit is specifically designed to control the light intensity of CCS LED Light Units. It is mainly used to control LED Light Units that are used for machine vision and industrial inspections.

Features

- One Control Unit can individually control three different Light Units.
- The light intensity can be manually controlled with a dial on the front panel, or externally controlled using a PLC or machine vision equipment.
- PWM control is used to control the light intensity at a frequency of 125 kHz.
- Data can be written in high-speed with parallel external control.
- External trigger inputs can be used to turn lights ON or OFF, or to strobe lights.
- The Control Unit can be used for CCS LED Light Units with a voltage of 24 V and a power consumption of up to 28 W.
  The total power consumption of the connected Light Units must be 28 W or less.

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1 Important Information for Equipment Safety — Read before Use

This product has been designed with full consideration of safety. Incorrect usage of the product may result in fire, electric shock, or other serious damages. Observe the following precautions.

The following symbols are used in this instruction guide to indicate and classify the relative importance of warnings and cautions.

⚠ WARNING	Indicates that incorrect usage may result in serious injury or death.	⚠ Caution	Indicates that incorrect usage may result in injury or property damage.

The following symbols in the instruction guide indicate and classify the precautions.

PROHIBITED / DISASSEMBLY PROHIBITED / DO NOT TOUCH WITH WET HANDS / DO NOT SUBJECT TO MOISTURE	MANDATORY ACTIONS
These symbols indicate prohibited actions.	This symbol indicates required actions.

⚠ WARNING

Do not disassemble or modify the product. Doing so may result in fire or electric shock. DISASSEMBLY PROHIBITED	Do not touch the plugs or switches with wet hands. Doing so may result in electric shock. DO NOT TOUCH WITH WET HANDS
Make sure that the product is free of moisture or any liquid. Doing so may result in fire or electric shock. DO NOT SUBJECT TO MOISTURE	Before connecting or disconnecting cables, make sure that the power source is turned OFF. Not doing so may result in fire or electric shock. MANDATORY ACTIONS
Do not touch the power cords during lightning. This may result in electric shock. PROHIBITED	If abnormal condition occurs such as fuming, heat, smell, noise, or so on, stop using the product immediately, and turn off the power source. A fire or electric shock may result if the product is kept used. MANDATORY ACTIONS

⚠ Caution

Do not connect any Light Units other than CCS LED Light Units. Doing so may cause overcurrent and the device may overheat or ignite. PROHIBITED	Do not bundle product cables with high-voltage lines or power lines. Allow leeway when installing the cables. MANDATORY ACTIONS
Do not use user-made branch cables. Doing so may cause product failure. PROHIBITED	Use Light Units that are suitable for the product ratings. Exceeding the ratings may cause product failure. MANDATORY ACTIONS
Do not place the product in direct sunlight or in a high-humidity environment. Doing so may result in fire due to internal temperature rise. PROHIBITED	Use a standard Extension Cable that is manufactured by CCS. However, if the cable is too long, the light intensity will decrease due to the DC resistance of the cable. MANDATORY ACTIONS
Always place the product on a stable and flat location. Not doing so may result in the product falling or toppling, which may cause malfunction, accidents, or bodily injury. PROHIBITED	Always hold onto the plug or connector when disconnecting the cables. Pulling on the cable may damage the cable and result in fire or electric shock. MANDATORY ACTIONS
Do not drop the product or subject it to impact. Doing so may cause product failure. PROHIBITED	Before moving the product, disconnect all connection cables. Damaging the cables may result in fire or electric shock. MANDATORY ACTIONS
Do not bend cables or jam them between objects when wiring. Doing so may cause product failure. PROHIBITED	When mounting products in system racks or cases, do not insert the screws more than 5 mm. Doing so may cause short-circuits in internal components. MANDATORY ACTIONS
Do not intentionally short-circuit the positive and negative output terminals. PROHIBITED	Use a dry cloth to remove dust or other foreign matter from the electrodes. Failure to do so may result in fire. MANDATORY ACTIONS
Be sure to use the product within the range of input voltage. Applying the voltage beyond the range may cause product failure. PROHIBITED	Do not wipe the product with volatiles such as paint thinner or benzene. Discoloration or deterioration of the product surfaces may occur. PROHIBITED

2 Names of Parts and Installation

Names and Functions of Parts

Setting Switch
Press: Switches between the light intensity setting and lighting mode setting.
Press for at least 2 seconds: Locks the settings.
Rotate: Sets the light intensity or lighting mode.

Digital Display
Displays the setting of the light intensity or the setting of the lighting mode.

Setting Indicators
BRT lit: The light intensity can be set.
PLS lit: The lighting mode can be set.
LOCK lit: The settings are locked.

Channel Selection Switch
Selects L1, L2, or L3.

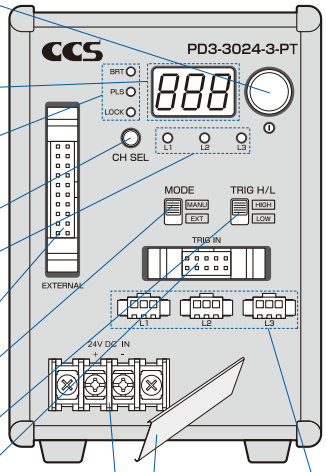
Channel Indicators
L1 lit: Lit when changing settings for Light Unit connected to output connector L1.
L2 lit: Lit when changing settings for Light Unit connected to output connector L2.
L3 lit: Lit when changing settings for Light Unit connected to output connector L3.

External Control Connector
For external control with parallel communications.

Manual/External Mode Selector
Selects manual (MANU) or external (EXT) control mode of the intensity.

Trigger Logic Switch
Selects the logic of the trigger signal

External Trigger Input Connector
Inputs the ON/OFF signal for ON/OFF Mode.
Inputs the trigger signal for Strobe Mode.



Terminal Block
Connects the power source to the Control Unit.

Terminal Block Cover
Attached to the Terminal Block in shipping.

Output Connectors
Supply power to the Light Units.

Mounting the Unit to DIN Rail

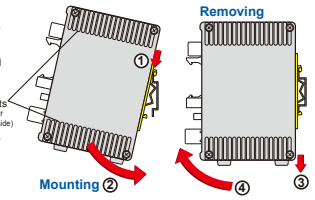
WARNING Do not place any objects within 20mm from the air vents on the side panels. Insufficient ventilation may cause heat to accumulate inside the product and result in a fire.

Mounting to DIN Rail

Hook the tab on the upper part of the Unit on the DIN rail and press the Unit in the direction indicated by arrow 1. While pressing it in the direction indicated by arrow 2

Removing from DIN Rail

Press the Unit down in the direction indicated by arrow 3 and pull it out in the direction indicated by arrow 4.



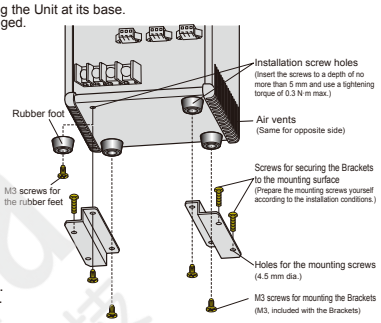
Securing the Unit with Base Brackets (Optional, Sold Separately)

Always use Base Brackets (model: BK-PD3) when securing the Unit at its base.
If it is secured without the Brackets, the Unit may be damaged.

1 Removing the Rubber Feet from the Bottom of the Unit
Remove the screws that hold the rubber feet in place using a Phillips screwdriver.

2 Securing the Brackets to the Base of the Unit
Secure the Brackets to the base of the Unit with the four mounting screws that come with the Brackets.

3 Securing the Unit with Mounting Screws
Secure the Unit in place with mounting screws.
The mounting screws must be provided by the user.

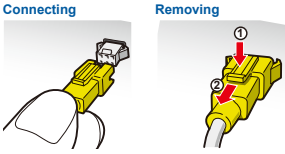


Connections

WARNING Before connecting the Control Unit, make sure that the main power source is turned OFF. Making connections with the power turned ON may result in a fire or electric shock.

■ **Optional Cables** Three models of optional cables (sold separately) are available. In case using a self-made cable, cable length should be within 3 m at maximum.
- External Control Cable (Model: EXCB2-M20-3)
- External Trigger Input Cable (Model: EXCB2-M10-3)
- External Control/External Trigger Input Cable (Model: EXCB2-M10M20-3. The external control and external trigger input can be connected with one cable.)

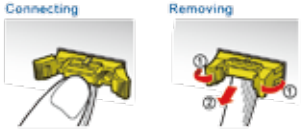
Output Connectors (L1 to L3)



Insert the connector to the Light Unit all the way in.

Press the lock and pull out the connector.

External Trigger Input Connector (TRIG IN)



Press the connector in until it locks in place.

Release the lock and remove the connector.

External Control Connector (EXTERNAL)

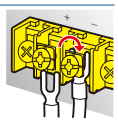
Press the connector in until it locks in place.

Release the lock and remove the connector.

Terminal Block

Connect the power cord to the Terminal Block and the main power source, then attach the Terminal Block Cover onto the Terminal Block.

The Control Unit will turn ON when power is supplied from the main power source. When the Unit is ON, the digital display will light.

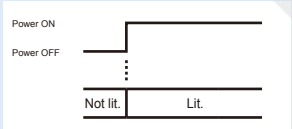
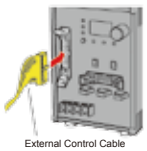
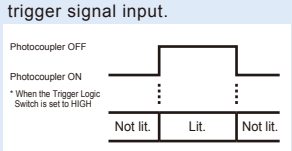
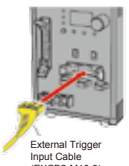
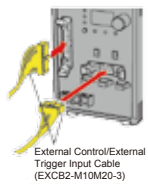
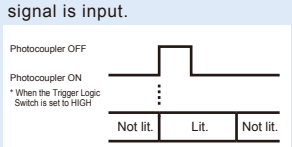
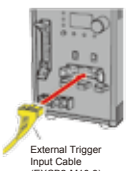
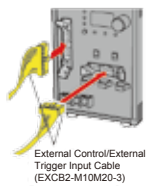


Caution
- Be sure to connect cables properly with insulated M3 crimp terminals (width: 6.2mm max.). Improper connections may cause fires or product failure.
- Pay attention to the polarity(+/-) when connecting the power cord.

3 What You Can Achieve with This Control Unit

Select the intensity control mode and lighting mode from the following Application Guide and proceed to the indicated reference items.
* Data that has been set is retained even after the power is turned OFF with manual or external control.

■ Application Guide

Lighting mode \ Intensity control mode	MODE ▲ — Intensity control on the front panel	MODE ▼ — External control of the intensity using a PLC or image process device
Continuous Mode	The Light Units are always ON. 	To use manual control in Continuous Mode, refer to items 1, 2, and 3 under 4 Manual Control.	To use external control in Continuous Mode, refer to items 1, 2, and 3 under 6 Control with External Signals. 
ON/OFF Mode	The Light Units are turned ON or OFF according to the external trigger signal input. 	To use manual control in ON/OFF Mode, refer to items 1, 2, and 3 under 4 Manual Control and 5 Inputting the External Trigger. 	To use external control in ON/OFF Mode, refer to items 1, 2, and 3 under 6 Control with External Signals and 5 Inputting the External Trigger. 
Strobe Mode	The Light Units are turned ON for a set time after the external trigger signal is input. 	To use manual control in Strobe Mode, refer to items 1, 2, 3 and 4 under 4 Manual Control and 5 Inputting the External Trigger. 	To use external control in Strobe Mode, refer to items 1, 2, 3, and 4 under 6 Control with External Signals and 5 Inputting the External Trigger. 

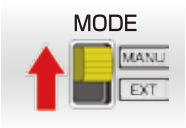
4 Manual Control

- Make sure that the main power source is turned ON.
- Set items 1, 2, and 3 when using Continuous Mode or ON/OFF Mode.*
- Set items 1, 2, 3, and 4 when using Strobe Mode.

* If you have changed the lighting mode from the default value, set it to "Continuous Mode or ON/OFF Mode" in item 4.

1 Setting the Manual/External Mode Selector to Manual

Set the Manual/External Mode Selector to MANU to set Manual Mode.



Check Make sure that the LOCK setting indicator is not light and that the trigger logic switch is set to HIGH. Otherwise you may not be able to perform the rest of this procedure.

2 Selecting the Channel

Press the channel selection switch to select the channel to set (L1 to L3). The channel indicators will change.

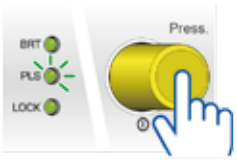
3 Setting the Light Intensity

Press the setting switch to light the BRT setting indicator.

Turn the setting switch to set a value between 0 and 255.
(Default setting: 000, Minimum: 000, Maximum: 255)
* The Light Units are light dimly at the minimum value.

4 Selecting the Lighting Mode

Press the setting switch to light the PLS setting indicator.



Turn the setting switch to select the lighting mode from Continuous Mode, ON/OFF Mode, or Strobe Mode.

(Default value: F00)

Continuous Mode

Turn the setting switch and set F00 to turn ON the Light Units continuously.

ON/OFF Mode (If the external trigger is not used, the Light Units are ON continuously.)

Turn the setting switch and set F00 to turn the Light Units ON and OFF.
The Light Units are turned ON or OFF according to the external trigger signal input.

Strobe Mode (If an external trigger is not used, the Light Units are OFF.)

To flash the strobe, turn the setting switch and select a setting from F01 to F10 (strobe time of 40 µs to 40 ms).
The Light Units are turned ON for the period of time set on the setting switch after the external trigger signal is input.

Digital display	F00	F01	F02	F03	F04	F05	F06	F07	F08	F09	F10
Status	Continuous Mode or ON/OFF Mode	Strobe Mode									
		40 µs	80µs	120 µs	200 µs	600 µs	1 ms	4 ms	10 ms	20 ms	40 ms

For details on the external trigger input, refer to 5. inputting the External Trigger.

Locking Settings

When the setting switch is pressed for 2 seconds or longer, the lighting mode and light intensity settings are locked, and the LOCK setting indicator lights. (The set values can be viewed.) Pressing the switch again for 2 seconds or longer releases the lock.

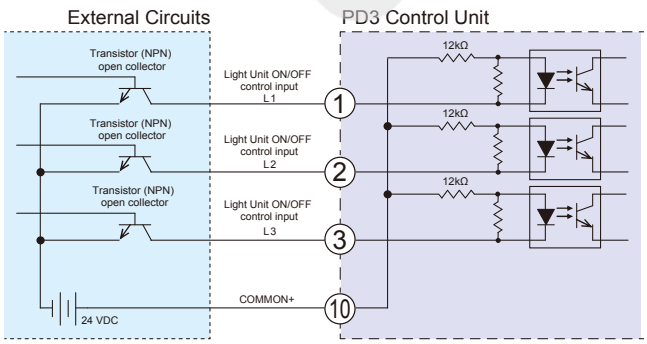
5 Inputting an External Trigger

Input Signal and Photocoupler

The input signal from the external trigger input connector can be used to control the photocoupler inside the Unit to turn the LED Light Units ON and OFF or to control strobe timing.
The operation depends on the setting of the trigger logic switch.

Trigger Logic Switch	Input signal	Photocoupler	ON/OFF Mode	Strobe Mode
HIGH	HIGH	OFF	Light Units ON	Light Units ON for the set time.
	LOW	ON	Light Units OFF	No change
LOW	HIGH	OFF	Light Units OFF	No change
	LOW	ON	Light Units ON	Light Units ON for the set time.

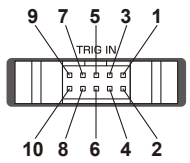
External Trigger Signal Connection Example



Connection Specifications (for Each Terminal)
Rated input voltage: 24 VDC
Maximum input voltage: 26.4 VDC
Photocoupler ON voltage/ON current: 14.4 VDC min./1 mA min.
Photocoupler OFF voltage/OFF current: 5 VDC max./0.4 mA max.
ON/OFF response time: Refer to the Trigger Input Sequence Diagram on page 5.

Connector Layout

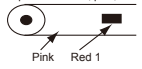
External Trigger Input Connector Plug



No.	Signal	Cable (EXCB2-M10-3/EXCB2-M10M20-3)	
		Wire color	Marks
1	Light Unit ON/OFF control input (L1)	Orange	Black 1
2	Light Unit ON/OFF control input (L2)	Orange	Red 1
3	Light Unit ON/OFF control input (L3)	Gray	Black 1
4 to 9	Not used.	- - -	- - -
10	COMMON+	Pink	Red 1

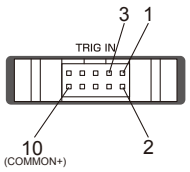
Example: Pin No. 10, pink, red 1

●Enlarged Cable Diagram



Setting Procedures

With the external trigger input connector pins 1 to 3, select the channels (L1 to L3) where you want to input an external trigger, and input the trigger.



Trigger signals are input from the external trigger input connector in ON/OFF Mode and Strobe Mode are regardless of either Manual Mode or External Mode.

ON/OFF Mode

The Light Units are turned ON or OFF according to the external trigger signal input.

Strobe Mode

The Light Units are turned ON for the set time after the external trigger signal is input.

Refer to 7. Signal Input Sequence for the sequence diagram.

Specifications for External Control

Input Signal and Photocoupler

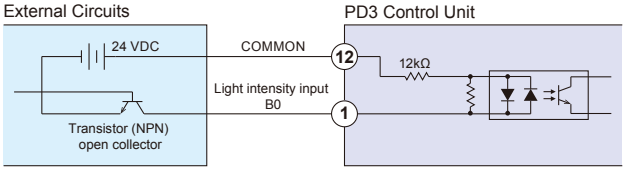
The input signal from the external control connector turns the photocoupler inside the Control Unit ON and OFF to set and write data. The input signal is compatible with both the sinking and sourcing devices. For a sinking device, the photocoupler is OFF when the input signal is high, and for a source type, the photocoupler is ON when the input signal is high.

	Signal input	Photocoupler	Data
Sinking	HIGH	OFF	1
	LOW	ON	0
Sourcing	HIGH	ON	0
	LOW	OFF	1

External Signal Connection Example

Sinking

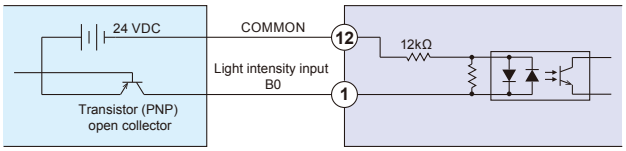
External Circuits



PD3 Control Unit

Sourcing

External Circuits



PD3 Control Unit

Connection Specifications (for Each Terminal)

Rated input voltage: 24 VDC

Maximum input voltage: 26.4 VDC

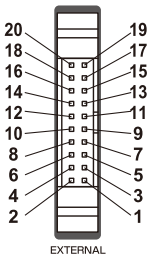
Photocoupler ON voltage/ON current: 14.4 VDC min./1 mA min.

Photocoupler OFF voltage/OFF current: 5 VDC max./0.4 mA max.

Response time: Refer to the Sequence Diagram for Writing Data on page 5.

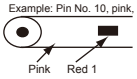
Connector Layout

External Control Connector Plug



•Enlarged Cable Diagram

Example: Pin No. 10, pink, red 1



No.	Bit	Signal	Cable			
			EXCB2-M20-3		EXCB2-M10M20-3	
			Wire color	Marks	Wire color	Marks
1	B0	Light Intensity Input (8 bits)	Orange	Black 1	Orange	Black 2
2	B1		Orange	Red 1	Orange	Red 2
3	B2		Gray	Black 1	Gray	Black 2
4	B3		Gray	Red 1	Gray	Red 2
5	B4		White	Black 1	White	Black 2
6	B5		White	Red 1	White	Red 2
7	B6		Yellow	Black 1	Yellow	Black 2
8	B7		Yellow	Red 1	Yellow	Red 2
9	CHSEL0	Channel Selection (3 bits)	Pink	Black 1	Pink	Black 2
10	CHSEL1		Pink	Red 1	Pink	Red 2
11	CHSEL2		Orange	Black 2	Orange	Black 3
12	COMMON		Orange	Red 2	Orange	Red 3
13	BRTWR	Light Intensity Write	Gray	Black 2	Gray	Black 3
14	TRGWR	Lighting Mode Write	Gray	Red 2	Gray	Red 3
15	M0	Lighting Mode Value Input (4 bits)	White	Black 2	White	Black 3
16	M1		White	Red 2	White	Red 3
17	M2		Yellow	Black 2	Yellow	Black 3
18	M3		Yellow	Red 2	Yellow	Red 3
19	OC	Error Output	Pink	Black 2	Pink	Black 3
20	OE		Pink	Red 2	Pink	Red 3

Setting Procedures

For the sequence of signal inputs, also refer to "Sequence Diagram for Writing Data" on the next page.

•Make sure that the main power source is turned ON.

•Set items 1, 2, and 3 when using Continuous Mode or ON/OFF Mode.*

•Set items 1, 2, 3, and 4 when using Strobe Mode.

* If you have changed the lighting mode from the default value, set it to "Continuous Mode or ON/OFF Mode" in item 4.

1 Setting the Manual/External Mode Selector to External

Set the Manual/External Mode Selector to EXT to set External Mode. The value set with external control is displayed on the digital display.

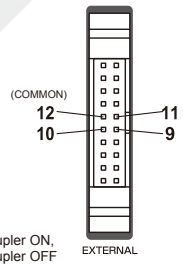
* Although it is possible to set the external control setting even the manual/external mode selector is set to manual mode, the setting will not be activated until the manual/external mode selector is set to external mode.

2 Selecting the Channel

Select the channel (L1 to L3) to set. Use pins 9 to 11 (CHSEL0 to CHSEL2) of the external control connector. Refer to the following table for the settings.
See "Sequence Diagram for Writing Data" on the next page, and hold the setting status of the channels while writing the data in item 3 (or in items 3 and 4).

No.	11	10	9
Bit	CHSEL2	CHSEL1	CHSEL0
L1	0	0	0
L2	0	0	1
L3	0	1	0

0: Photocoupler ON,
1: Photocoupler OFF
* Pins 011 to 111 are not valid.

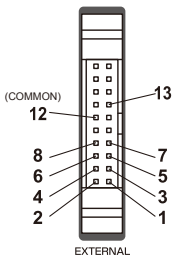


3 Setting the Light Intensity

There are 256 levels to the light intensity. Use pins 1 to 8 (B0 to B7) of the external control connector. Refer to the following table for the settings.
Continue writing data. Input a signal to pin 13 (BRTWR) that turns ON the photocoupler for at least 50 µs.
After that, turn the photocoupler OFF to complete writing.
(Default setting: **000**, Minimum: **000**, Maximum: **255**)

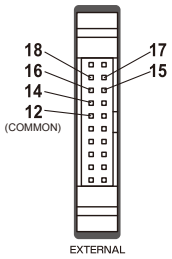
	Digital display	B7	B6	B5	B4	B3	B2	B1	B0	Radiant quantity
0	000	0	0	0	0	0	0	0	0	Dim
1	001	0	0	0	0	0	0	0	1	
2	002	0	0	0	0	0	0	1	0	
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	
254	254	1	1	1	1	1	1	1	0	
255	255	1	1	1	1	1	1	1	1	Bright

0: Photocoupler ON,
1: Photocoupler OFF



4 Selecting the Lighting Mode

Select the lighting mode form Continuous Mode, ON/OFF Mode, or Strobe Mode. Use pins 15 to 18 (M0 to M3) of the external control connector.
Refer to the following table for the settings.
(Default setting: **F00**)
Continue writing data. Input a signal to pin 14 (TRGWR) that turns ON the photocoupler for at least 50 µs.
After that, turn the photocoupler OFF to complete writing.



Continuous Mode

Refer to the following table and set the lighting mode to Continuous Mode.

ON/OFF Mode (If the external trigger is not used, the Light Units are ON continuously.)

Refer to the following table and set the lighting mode to ON/OFF Mode.
The Light Units are turned ON or OFF according to the external trigger signal input.

Strobe Mode (If an external trigger is not used, the Light Units are OFF.)

The strobe time can be set to between 40 µs and 40 ms in Strobe Mode.
Refer to the following table for the settings.
The Light Units are turned ON for the set time after the external trigger signal is input.

No.	18	17	16	15	
Digital display	M3	M2	M1	M0	Lighting mode
F00	0	0	0	0	Continuous Mode or ON/OFF Mode
F01	0	0	0	1	Strobe Mode (40 µs)
F02	0	0	1	0	Strobe Mode (80 µs)
F03	0	0	1	1	Strobe Mode (120 µs)
F04	0	1	0	0	Strobe Mode (200 µs)
F05	0	1	0	1	Strobe Mode (600 µs)
F06	0	1	1	0	Strobe Mode (1 ms)
F07	0	1	1	1	Strobe Mode (4 ms)
F08	1	0	0	0	Strobe Mode (10 ms)
F09	1	0	0	1	Strobe Mode (20 ms)
F10	1	0	1	0	Strobe Mode (40 ms)

0: Photocoupler ON,
1: Photocoupler OFF
* Pins 1011 to 1111 are not valid.

For details on the external trigger input, refer to 5. Inputting the External Trigger.

7 Signal Input Sequences

Trigger Input Sequence Diagram

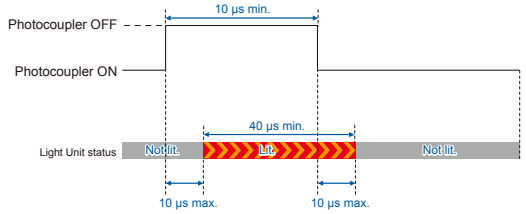
- A pulse width of ON signal shall be 10µs or more. The Light Units will be truned on for at least 40µs, even when the input ON signal is less than 40µs.
- If another trigger is input before the Light Unit turns OFF in Strobe Mode, the starting point of the reentered trigger is taken as the start time and the strobe light continues for the set time from that point.

ON/OFF Mode

TRIG H/L

• Trigger Logic Switch Set to HIGH

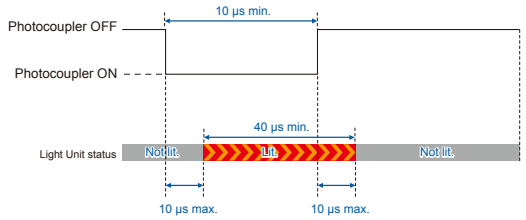
The Light Units turn ON when the photocoupler is OFF, and OFF when the photocoupler is ON.



TRIG H/L

• Trigger Logic Switch Set to LOW

The Light Units turn ON when the photocoupler is ON, and OFF when the photocoupler is OFF.

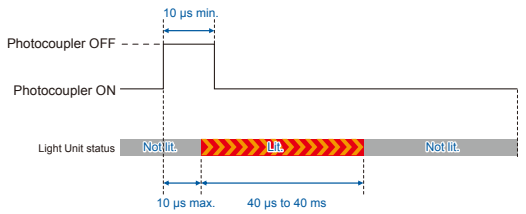


Strobe Mode

TRIG H/L

• Trigger Logic Switch Set to HIGH

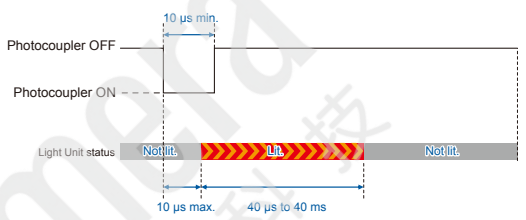
From the point where the photocoupler goes OFF, the Light Units are turned ON for the set time (40 µs to 40 ms).



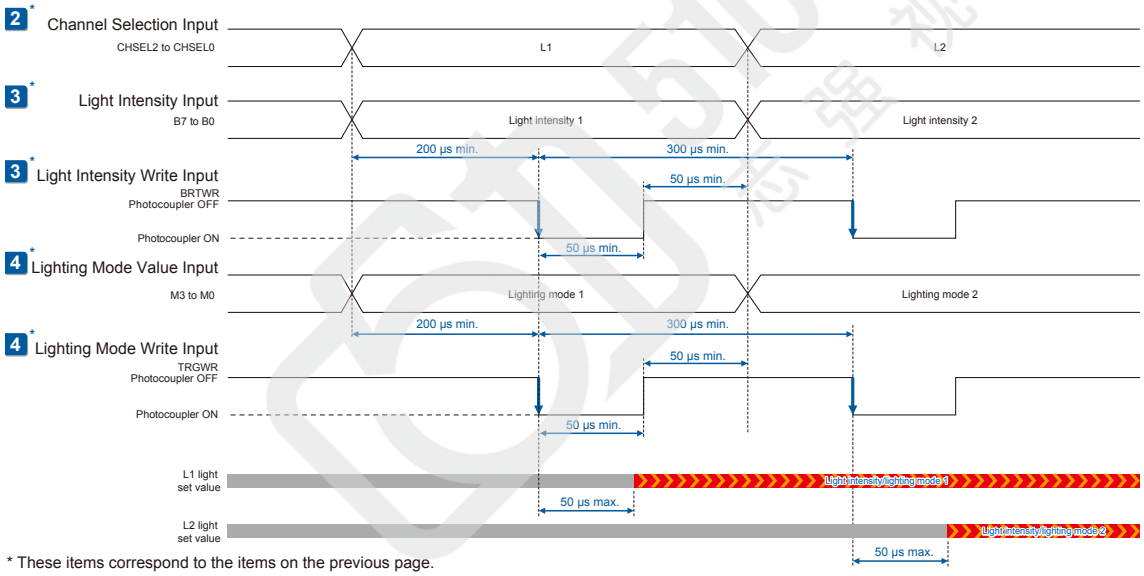
TRIG H/L

• Trigger Logic Switch Set to LOW

From the point where the photocoupler goes ON, the Light Units are turned ON for the set time (40 µs to 40 ms).



Sequence Diagram for Writing Data



	Signal input	Photocoupler	Data
Sinking	HIGH	OFF	1
	LOW	ON	0
Sourcing	HIGH	ON	0
	LOW	OFF	1

* These items correspond to the items on the previous page.

8 Troubleshooting

If the consumption current of Light Units exceeds 107% higher than the rated current, the overcurrent protection operates and stops the output.
OCP will be displayed on the digital display.
Please check the rated current of Light Units and connect the Light Units under the rated current of this control unit.
Please press Setting Switch for over a second to reset the OCP error.
(OCP error can be reset by rebooting.)

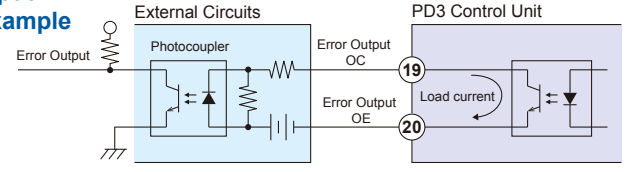
Error Output

The error status is output from pins 19 and 20 of the external control connector.

Normal operation	Error
Pins 19 and 20 are open.	Pins 19 and 20 are closed.

Signal Specifications
Rated input voltage: 24 VDC
Maximum input voltage: 26.4 VDC
Load current: 10 mA max.
Leakage current: 50 µA max.

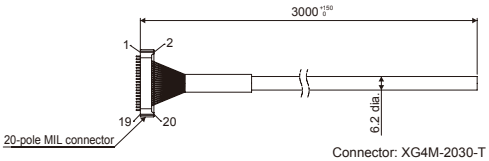
Error Output Circuit Example



9 Optional Accessories (Sold Separately)

(Unit: mm)

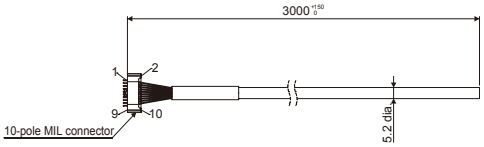
External Control Cable — Model: EXCB2-M20-3



Cut off on one end

Connector: XG4M-2030-T (manufactured by OMRON)

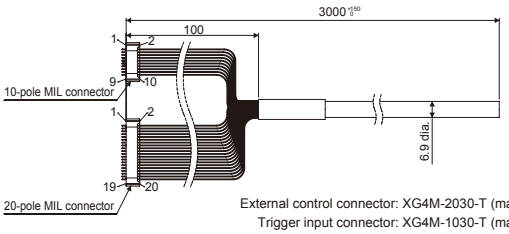
External Trigger Input Cable — Model: EXCB2-M10-3



Cut off on one end

Connector: XG4M-1030-T (manufactured by OMRON)

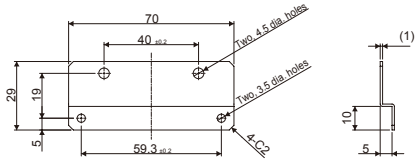
External Control/External Trigger Input Cable (Common) — Model: EXCB2-M10M20-3



Cut off on one end

External control connector: XG4M-2030-T (manufactured by OMRON)
Trigger input connector: XG4M-1030-T (manufactured by OMRON)

Base Brackets — Model: BK-PD3



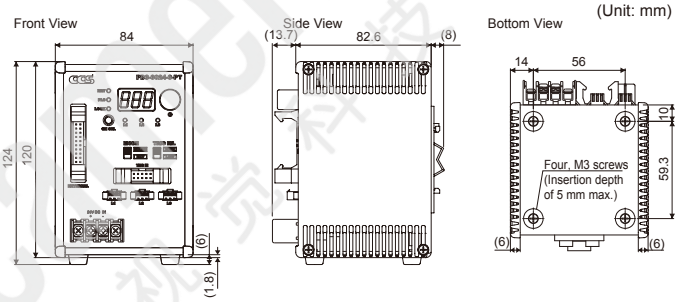
Includes two Base Brackets and four mounting screws

10 Main Specifications

Product name	Control Unit for LED Light Units
Model name	PD3-3024-3-PT
Applicable Light Unit rating	24 V, 28 W
PWM frequency	125 kHz
Input voltage (rated)	24 VDC
Input voltage (range)	21.6 to 26.4 VDC
Power consumption (typ.)	32W
Rated output voltage	24 VDC
Rated output current	Total for 3 channels: 1.1 A
Operating temperature and humidity	Temperature: 0 to 40°C, Humidity: 20% to 85% (with no condensation)
Storage temperature and humidity	Temperature: −20 to 60°C, Humidity: 20% to 85% (with no condensation)
Vibration resistance	Acceleration: 19.6 m/s^2, Frequency: 10 to 55 Hz, Cycles: 3 minutes, Sweep cycle: For 1 hour each in X, Y, and Z directions
Cooling method	Natural air cooling
CE marking	EMC standard: Conforms to EN 61326-1 Class A
Input connector	24 VDC input: 2-pin Terminal Block × 1
Output connectors	Light output: SMP-03V-BC (J.S.T. Mfg. Co., Ltd.) x 3
External control connector	Trigger input: MIL connector (MIL-C-83503 compliant), 10-pole For setting the light intensity/lighting mode: MIL connector (MIL-C-83503 compliant), 20-pole
Material and surface processing	Material: Aluminum and resin, Surface processing: Blue alumite
Weight	400 g max.
Accessories	Instruction Guide

11 Dimensions

(Unit: mm)



Do not use the product in the following situations.

- Under conditions or in an environment not described in this instruction guide.
- In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
- In applications involving serious risk to life or property, particularly applications demanding a high level of safety.

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