



Digital power supply with enhanced lighting control functions

NEW



Estimated availability date: June 2023

PD4-12024 Series

PD4-6024 Series

Features

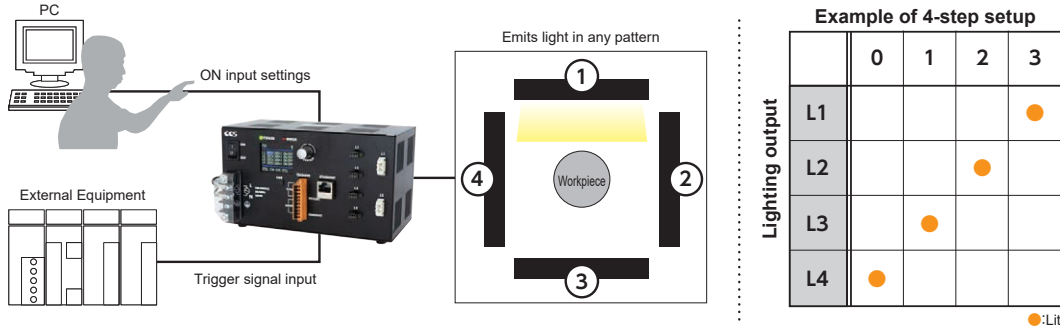
- Continuous lighting, ON/OFF lighting, or strobe lighting
- Lighting output of 60 W/120 W available
- Number of channels: 2 channels / 4 channels
- Ethernet / parallel external control
- Parallel type supports both NPN and PNP connections
- 1,024 steps of precise intensity settings
- All types have natural air cooling for easier installation

Various Lighting Control Functions

- Turn lights on in desired pattern with sequence control function
- Supports PLC link function for easy integration with PLCs
- Trigger output function simplifies the synchronization of the camera and lighting
- With Recipes setting, save lighting settings in a maximum of 8 recipes
- Real-time information monitoring from applications, such as operating status and operation logs

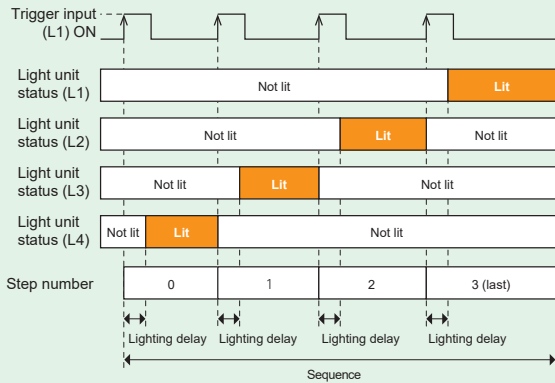
Sequence

Program a maximum of 16 steps of ON input, turn lights on in desired pattern. For example, when using 4-quadrant bar lights or segmented lights to illuminate from multiple directions, the emission patterns for each channel can be stored and switched ON / OFF by trigger input.

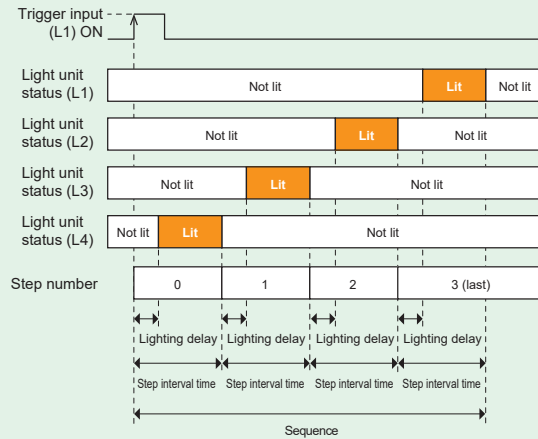


Difference in lighting operation depending on trigger operation mode setting values

● When the Set Value of the Trigger Operation Mode Is 1-Trigger 1-Step Sequence Operation



● When the Set Value of the Trigger Operation Mode Is 1-Trigger N-Steps Sequence Operation

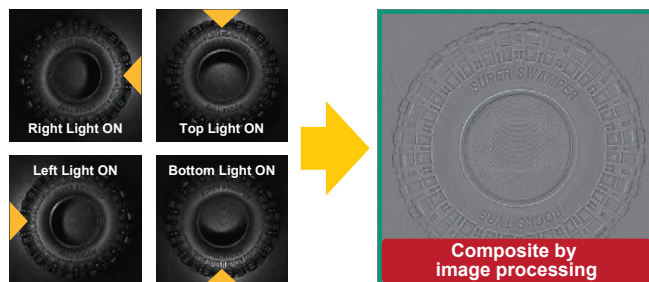


Sequence Control Application Examples: Imaging using photometric stereo method

The workpiece is illuminated and imaged in each direction. It is possible to generate images that highlight only the unevenness or extract only the pattern by using the differences of each captured image.

Imaging Example (4 Divisions)

Imaged by illumination from 4 directions

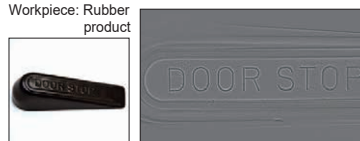


● Character inspection of patterned tiles



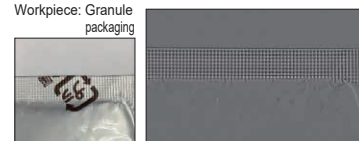
By removing patterns and extracting unevenness, it is possible to acquire images in which characters can be easily recognized.

● Surface imaging on rubber products



By enhancing the unevenness of the rubber product, it is possible to acquire images in which characters can be easily recognized.

● Heat seal inspection



Removes the pattern and halation and obtains information on the unevenness of the heat seal.

PD4 Series



Refer to our website for product details.

CCS PD4

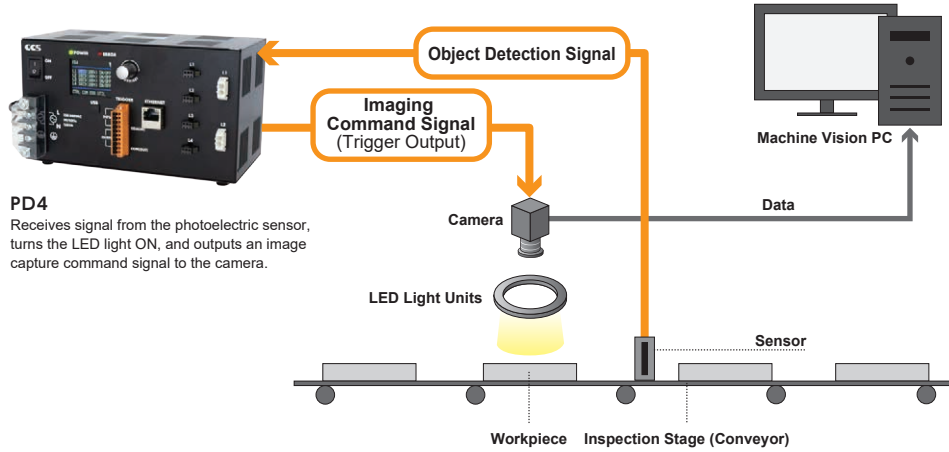
Search



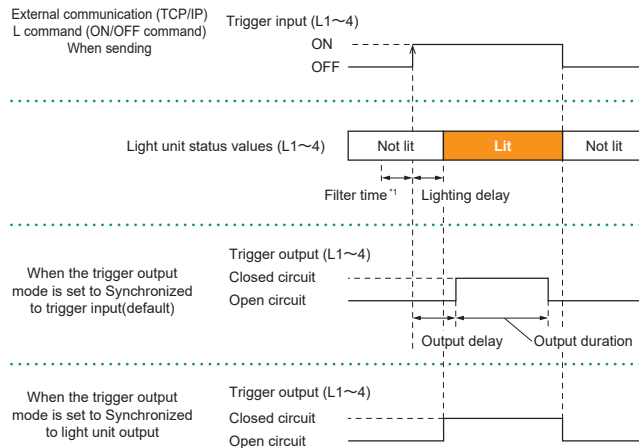
Trigger Output Mode

Sends an output trigger signal to the camera so the timing of the light and camera can be synchronized.

Trigger Output Application Example



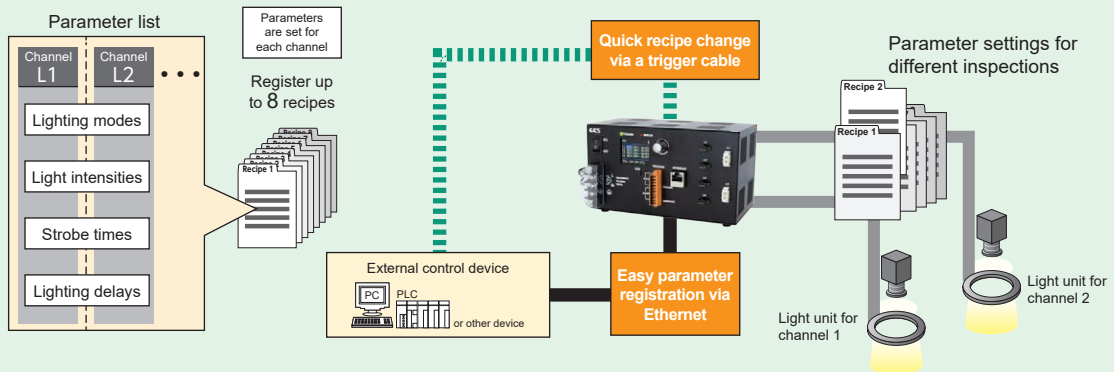
Trigger Output Signal Connection Example



*1 Filter time can be set when noise is mixed in with the signal input from the trigger pin.

Recipes

Save lighting settings in a maximum of 8 recipes. Parameter settings such as intensity values for each channel and other inspection-specific parameter settings can be registered in advance, allowing for easy setting changes simply by recalling recipes.



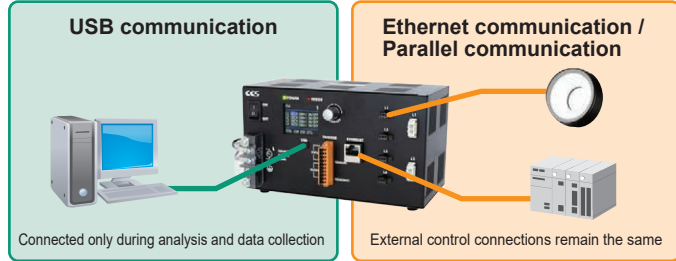
➤ USB Communication

Equipped with a USB connector (Mini-B) to enable data communication with a PC while connected to external control devices.

Various settings and operations can be verified via USB communication.

Use a USB cable with a ferrite core.

■ USB Connection Image

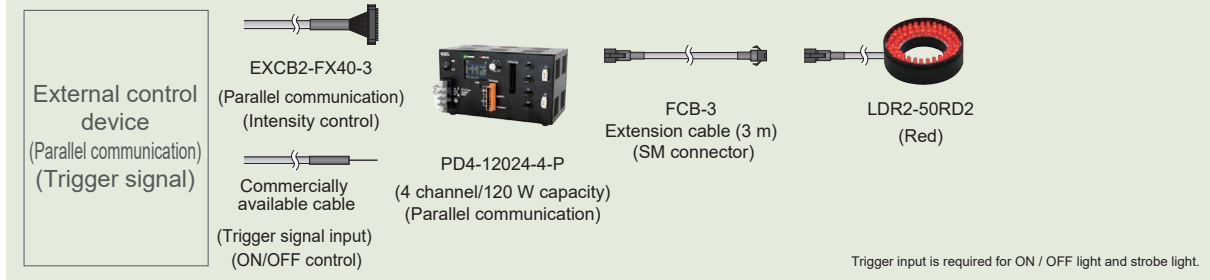


➤ Example System Configuration

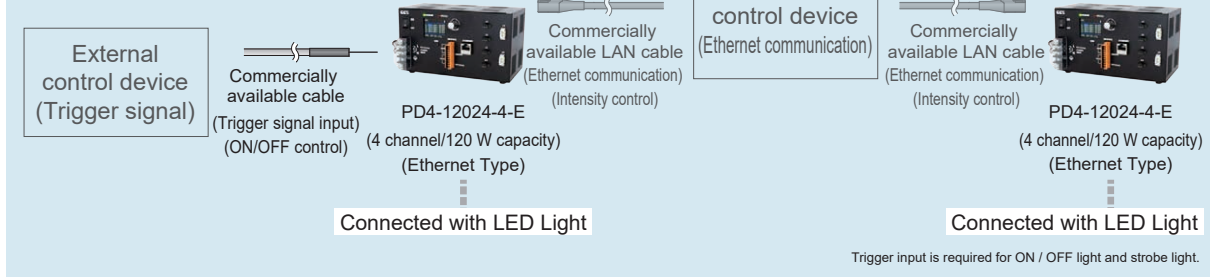
Example:

External control device — External control cables — Control unit — Extension cables — LED light

● Parallel Type



● Ethernet Type (TCP/IP UDP/IP)



➤ Light and power adapter compatibility table (example)

To connect to the HLV3 Series, use a power adapter (sold separately).

Light Model Name	Emitting Color					Power Adapter Model Name (Custom Order)
HLV3-14	RD	SW	BL	GR	—	Model Name: RB-82-24-15SP Quantity of Light: 0.9X, Power Consumption: 7.3W ^{*1}
HLV3-22-1 / -1C	RD	SW	BL	GR	—	Model Name: RB-56-24 Quantity of Light: 0.8X, Power Consumption: 11W ^{*1}
HLV3-22-2 / -2C	RD	SW	BL	GR	—	Model Name: RB-56-24 Quantity of Light: 0.8X, Power Consumption: 18W ^{*1}
HLV3-22-4S / 4M / -4C HLV3-22-NR-4 HLV3-22IR860	RD	SW	BL	GR	IR	Model Name: RB-56-24 Quantity of Light: 0.7X, Power Consumption: 25W ^{*1}

^{*1} Power consumption is the total value of the applicable light and power adapter. *Note) Quantity of light will be lower than when using the PJ Series control unit dedicated for spot lights.*

PD4 Series



Refer to our website for product details.

CCS PD4

Search



Common Specification: Parallel Type

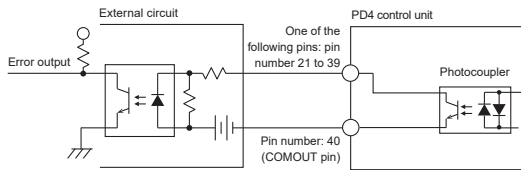
Model name	PD4-6024-4-P	PD4-6024-2-P	PD4-12024-4-P	PD4-12024-2-P
Input voltage (rated)	AC 100 to 240 V(±10 %)			
Lighting method	Continuous / Strobe lighting (no overdrive)			
Drive method	Constant-voltage system			
Intensity control method	PWM control			
No. of channels	4 channels	2 channels	4 channels	2 channels
Applicable light unit (rated)	Light units with 24 VDC input, Total channels: 60 W (SM connector: one 60 W connector)		Light units with 24 VDC input, Total channels: 120 W (SM connector: one 60 W connector, EL connector: one 120 W connector) *When using EL connector: L1 (CH1), L2(CH2)	
PWM frequency	125 kHz			
Power consumption (typ.)	155 VA		170 VA	
Frequency	50/60 Hz			
Output voltage (rated)	DC 24 V			
Intensity setting	1,024 step			
External control	Parallel control			
Operating temperature and humidity	Temperature: 0 to 40°C, Humidity: 20% to 85% (with no condensation) Altitude: 2,000 m max., protective ground class: class I, pollution degree: 2, indoor use only			
Storage temperature and humidity	Temperature: -20 to 60°C, Humidity: 20% to 85% (with no condensation)			
Cooling method	Natural air cooling			
Material/Surface processing	Steel sheet, cover thickness: 1.6 mm, chassis thickness: 1.0 mm, black (leather satin)			
Weight	1.5 kg max.			
Accessories	One hardware manual, one Power Terminal Block Cover, two M4 screws for the cover, one 2-m-long 3-prong AC power cable with ground terminal *1, one Trigger Terminal Block			

*1 Model available that does not include an AC cable as an accessory. Models not supplied with extension cables have "-NC" at the end. Eg. PD4-6024-4-P-NC
The model number of the AC cable alone is ACC-JIS-125-7-M4-2.

External Signal Connection Example (Supports Both PNP / NPN Connections) Refer to the User Manual for details.

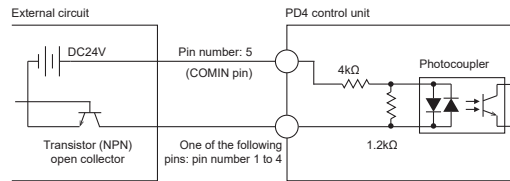
External Signal Connection Example (Parallel Type)

Sinking (NPN)

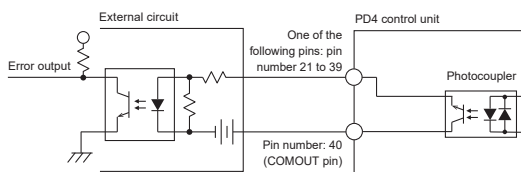


External Trigger Input Signal Connection Example

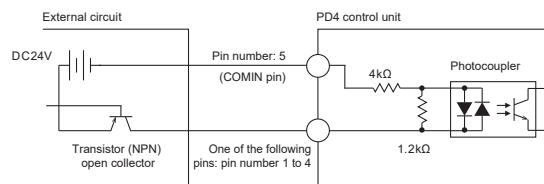
Sinking (NPN)



Sourcing (PNP)



Sourcing (PNP)



Connection Specifications (Per 1 Terminal)			
Rated input voltage	Maximum input voltage	Photocoupler ON voltage / ON current	Photocoupler OFF voltage / OFF current
DC24V ±10%	DC26.4V	DC21.6V min./ 1.4mA min.	DC1.5V max./ 0.05mA max.

Connection Specifications (Per 1 Terminal)			
Rated input voltage	Maximum input voltage	Photocoupler ON voltage / ON current	Photocoupler OFF voltage / OFF current
DC24V ±10%	DC26.4V	DC21.6V min./ 3mA min.	DC1.5V max./ 1mA max.

Set Values	Photocoupler	Data	Signal input through the write pin
ACTIVE HI (default)	OFF	0	OFF
	ON	1	ON
ACTIVE LO	OFF	1	ON
	ON	0	OFF

Set Values	Photocoupler	When in ON/OFF Mode	When in Strobe Mode
ACTIVE HI (default)	OFF	Light Unit OFF	When the photocoupler switches from OFF to ON, the light comes on with the specified ON time
	ON	Light Unit ON	
ACTIVE LO	OFF	Light Unit ON	When the photocoupler switches from ON to OFF, the light comes on with the specified ON time
	ON	Light Unit OFF	

Common Specification: Ethernet Type

Model name	PD4-6024-4-E	PD4-6024-2-E	PD4-12024-2-E	PD4-12024-4-E
Input voltage (rated)	AC 100 to 240 V(±10 %)			
Lighting method	Continuous / Strobe lighting (no overdrive)			
Drive method	Constant-voltage system			
Intensity control method	PWM control			
No. of channels	4 channels	2 channels	4 channels	2 channels
Applicable light unit (rated)	Light units with 24 VDC input, Total channels: 60 W (SM connector: one 60 W connector)		Light units with 24 VDC input, Total channels: 120 W (SM connector: one 60 W connector, EL connector: one 120 W connector) *When using EL connector: L1 (CH1), L2(CH2)	
PWM frequency	125 kHz			
Power consumption (typ.)	152 VA		168 VA	
Frequency	50/60 Hz			
Output voltage (rated)	DC 24 V			
Intensity setting	1,024 step			
External control	Ethernet comm. TCP/IP UDP/IP (CCS Command Comm, PLCCOM Comm (MC Protocol · FINS Command))			
Operating temperature and humidity	Temperature: 0 to 40°C, Humidity: 20% to 85% (with no condensation) Altitude: 2,000 m max., protective ground class: class 1, pollution degree: 2, indoor use only			
Storage temperature and humidity	Temperature: -20 to 60°C, Humidity: 20% to 85% (with no condensation)			
Cooling method	Natural air cooling			
Material/Surface processing	Steel sheet, cover thickness: 1.6 mm, chassis thickness: 1.0 mm, black (leather satin)			
Weight	1.5 kg max.			
Accessories	One hardware manual, one Power Terminal Block Cover, two M4 screws for the cover, one 2-m-long 3-prong AC power cable with ground terminal *1, one Trigger Terminal Block			

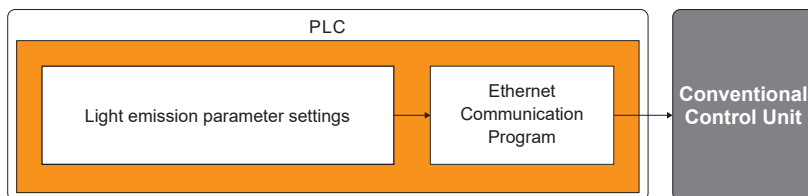
*1 Model available that does not include an AC cable as an accessory. Models not supplied with extension cables have "-NC" at the end. Eg. PD4-6024-4-E-NC
The model number of the AC cable alone is ACC-JIS-125-7-M4-2.

PLCCOM Communication

PLCCOM communication allows the product to be controlled by reading and writing memory areas on the PLC via Ethernet. Easy to install because there is no need to create a program specifically for the control unit.

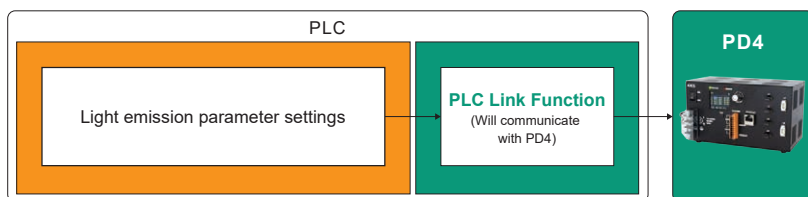
Without PLCCOM Communication <For Conventional Control Units>

A program is needed to communicate with the control unit separately from the various lighting parameter settings.



With PLCCOM Communication <For PD4>

Can be connected via the PLC function, so there is no need to build a communication program



PLCCOM Communication Specifications

For PLCs supporting MC protocol	For PLCs supporting FINS commands
<ul style="list-style-type: none"> ●Device : Data register ●Protocol : MC protocol for MELSEC-Q series ●Frame : 3E frame ●Transmission code : Binary ●Transport : TCP or UDP 	<ul style="list-style-type: none"> ●I/O Memory : DM Area ●Protocol : FINS Commands ●Transmission code : Binary ●Transport : TCP or UDP ●FINS node address :For the TCP setting, specify the address that is automatically assigned by the PLC. For the UDP setting, specify the 4th octet of the IP address of the control unit. (Eg. When the IP address is 192.168.0.123, specify 123.)

For details, see "Overview of PLCCOM Communication" on page 25 of the operation manual.

Can be downloaded from the web page. <https://www.ccs-grp.com/products/series/371>

You can inquire using our website.

- Sample Testing
- Light Unit Selection
- Free Product Trial
- Custom Orders
- Product Details
- Pricing/Quotation
- Discontinued Products

Inquire on our website here. <https://www.ccs-grp.com/contact/>

PD4 Series



Refer to our website for product details.

CCS PD4

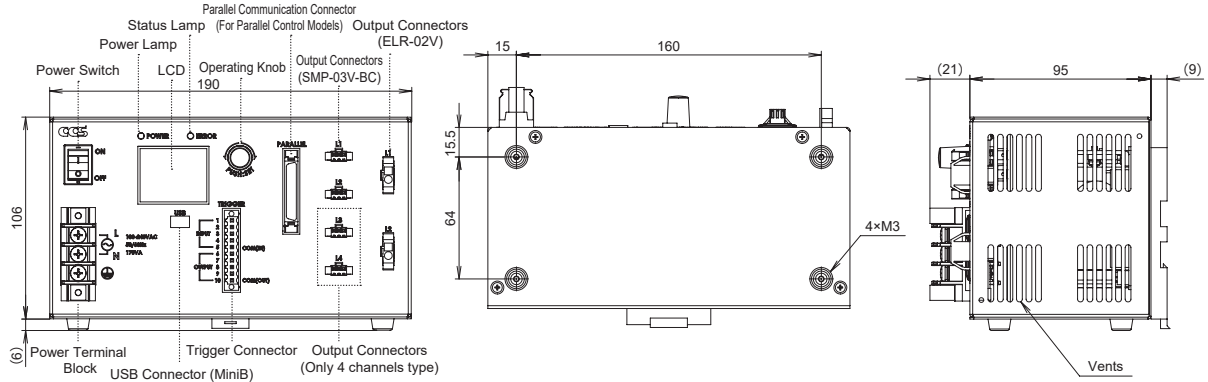
Search



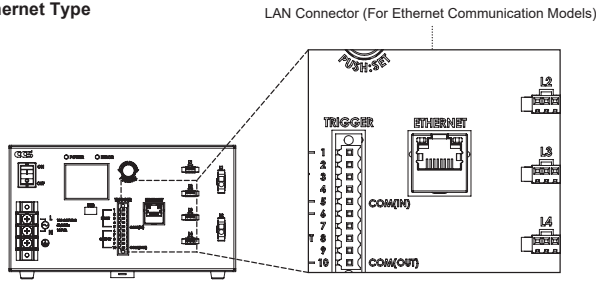
Dimensions (mm)

PD4-12024-4-E / PD4-12024-4-P / PD4-12024-2-E / PD4-12024-2-P

Parallel Type

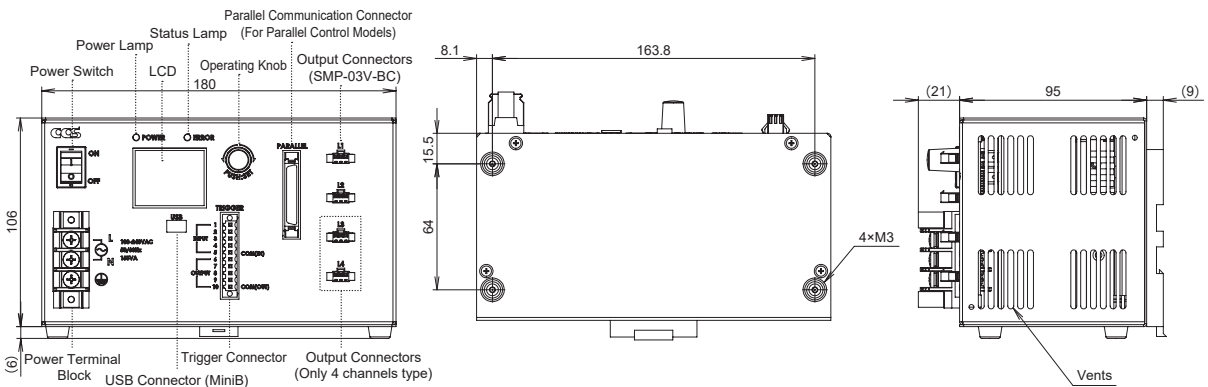


Ethernet Type

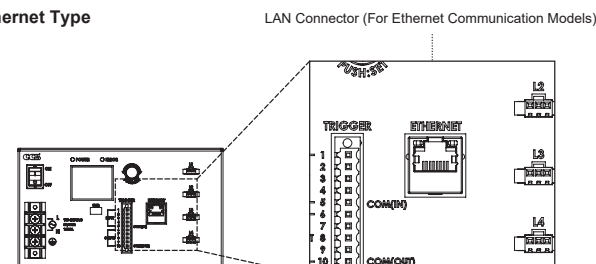


PD4-6024-4-E / PD4-6024-4-P / PD4-6024-2-E / PD4-6024-2-P

Parallel Type



Ethernet Type

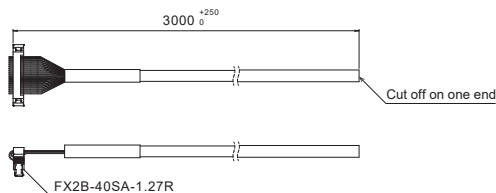


- Control Units and Controllers
- PD4
 - PD3
 - PD2
 - POD
 - PTU2
 - PF
 - CN-EPOE
 - CN-4024-2-EIPT
 - PB-2430-1
 - CC-ST-1024
 - PJ2
 - PJ
 - CC-PJ-0707
 - PSCC
 - PSB4
 - PSB3-30024
- Options
- Lens Filters
 - Diffusion Plates
 - Polarizing Plates
 - Light Control Films
 - Fixtures, etc.
 - Brackets
 - SM/EL Cables

Options

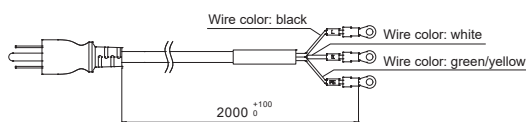
Parallel Communication Cable Model Name: EXCB2-FX40-3
Used for performing external control via parallel communication.

Dimensions (mm)



PIN No	Line Color	Marking	PIN No	Line Color	Marking	PIN No	Line Color	Marking	PIN No	Line Color	Marking
1	Orange	Red 1	11	Orange	Red 2	21	Orange	Red 3	31	Orange	Red 4
2	Orange	Black 1	12	Orange	Black 2	22	Orange	Black 3	32	Orange	Black 4
3	Gray	Red 1	13	Gray	Red 2	23	Gray	Red 3	33	Gray	Red 4
4	Gray	Black 1	14	Gray	Black 2	24	Gray	Black 3	34	Gray	Black 4
5	White	Red 1	15	White	Red 2	25	White	Red 3	35	White	Red 4
6	White	Black 1	16	White	Black 2	26	White	Black 3	36	White	Black 4
7	Yellow	Red 1	17	Yellow	Red 2	27	Yellow	Red 3	37	Yellow	Red 4
8	Yellow	Black 1	18	Yellow	Black 2	28	Yellow	Black 3	38	Yellow	Black 4
9	Pink	Red 1	19	Pink	Red 2	29	Pink	Red 3	39	Pink	Red 4
10	Pink	Black 1	20	Pink	Black 2	30	Pink	Black 3	40	Pink	Black 4

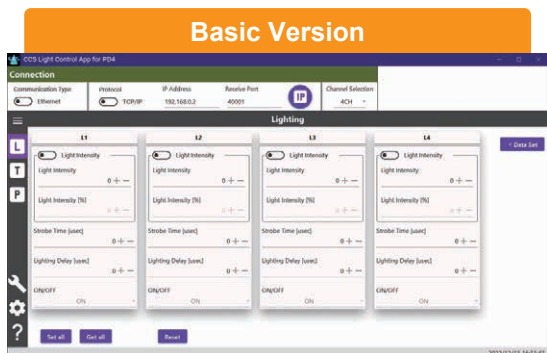
AC Power Cable Model Name: ACC-JIS-125-7-M4-2



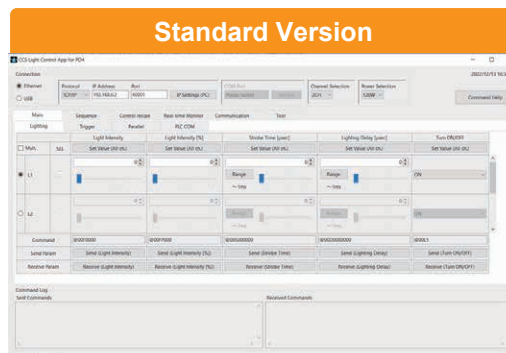
Application

You can choose between the basic version and the standard version. *The application can be downloaded from the web page.

System Requirements: Windows 10 / NET Framework 4.7.2 <https://www.ccs-grp.com/products/series/371>



Basic lighting settings such as intensity value and light emission time, as well as trigger input / output settings.



In addition to the functions of the basic version, all functions of the PD4 Series can be configured, including sequence control, real-time monitoring functions, etc.

Real-time monitoring of information such as lighting operation status, operation logs, etc.

