



Digital Control Units for LED Light Units: PD3 Series

Patent Pending

High Performance and with Choice of External Control



PD3 series

Select from a total of nine models in three groups:

3-channel 28-W Models, 4-channel 46-W Models, and 8-channel 95-W Models.

Compact and Easy to Use: 3-channel, 28-W Models
 PD3-3024-3 Control Units



PD3-3024-3-PI

Parallel Communications

Capacity: 28 W
3 Channels

Connects to 24V Light Units



PD3-3024-3-SI

EIA-485 Communications

Capacity: 28 W 3 Channels

Connects to 24V Light Units



PD3-3024-3-EI

Ethernet Communications

Capacity: 28 W

Connecte to 24V/Light Unit

 Ample Capacity and Many Connectable Light Units: PD3-5024-4 Control Units 4-channel, 46-W Models



PD3-5024-4-PI

Parallel Communications

Capacity: 46 W

4 Channels

Connects to HI V2 Spotlights



PD3-5024-4-SI

EIA-485 Communications

Capacity: 46 W

4 Channels

Opening to the LULYO Opening



PD3-5024-4-EI

Ethernet Communications

Capacity: 46 W

4 Channels

Connects to 24V Light Units

Connects to HI V2 Snotlights

Connects to High-output Light Units: 8-channel, 95-W Models



PD3-10024-8-PI

Parallel Communications

Capacity: 95 W

4 Channels

Connects to 24V Light Units

Connects to HLV2 Spotlights



PD3-10024-8-SI

EIA-485 Communications

Capacity: 95 W

4 Channels

Connects to 24V Light Units

Connects to HLV2 Spotlights



PD3-10024-8 Control Units

PD3-10024-8-EI

Ethernet Communications

Capacity: 95 W

4 Channels

Connects to 24V Light Units
Connects to HLV2 Spotlights



Number of channels

Product Lineup Table

PD3-3024-3 Control Units			PD3-5024-4 Control Units		PD3-10024-8 Control Units					
Model numbers (PD3-)		3024-3-PI	3024-3-SI	3024-3-EI	5024-4-PI	5024-4-SI	5024-4-EI	10024-8-PI	10024-8-SI	10024-8-EI
Nu	umber of channels	3 channels		4 channels		8 channels				
Rated capacity (Total output for all channels		Total for all channels 28 W			Total for all channels 46 W *4		Total for all channels 95 W *4 *5 *6			
Applicable Light Units	24V Light Units Supported.		Supported.		Supported.					
Applicable	HLV2-series Spotlights	_			Supported.		Supported.			
nethod	Parallel communications	Supported.		_	Supported.	_	_	Supported.	_	_
External control method	EIA-485 communications	_	Supported.		_	Supported.		_	Supported.	_
Extern	Ethernet communications (TCP/IP or UDP/IP)	_		Supported.			Supported.	_	_	Supported.
	External light intensity control	Supported.			Supported.		Supported.			
S	ON/OFF control	Supported. (External trigger input)	Supported. (External trigger input or command input via EIA-485 communications)	Supported. (External trigger input or command input via Ethernet communications)	Supported. (External trigger input)	Supported. (External trigger input or command input via EIA-485 communications)	Supported. (External trigger input or command input via Ethernet communications)	Supported. (External trigger input)	Supported. (External trigger input or command input via EIA-485 communications)	Supported. (External trigger input or command input via Ethernet communications)
External controls	*2 *3 Strobe lighting (24V Light Units only)	Supported. (External trigger input)			Supported. (External trigger input)		Supported. (External trigger input)			
Exte	Lighting times	40 μs, 80 μs, 120 μs, 200 μs, 600 μs, 1 ms, 4 ms, 10 ms, 20 ms, or 40 ms			40 μs, 80 μs, 120 μs, 200 μs, 600 μs, 1 ms, 4 ms, 10 ms, 20 ms, or 40 ms		40 μs, 80 μs, 120 μs, 200 μs, 600 μs, 1 ms, 4 ms, 10 ms, 20 ms, or 40 ms			
	Lighting delay time	10 μs max.			20 μs max.		20 μs max.			
Po	ower consumption	78 VA typ.		70 VA typ.		130 VA typ.				
	ze '× D × H)	84 mm × 82.6 mm × 120 mm		197 mm × 82.6 mm × 120 mm		220 mm × 82.6 mm × 120 mm				
W	eight	600 g max.		1,200 g max.		1,500 g max.				

 $^{^{\}star}1$ The HLV-14-R/-SW/-BL/GR and HLV-27-series Spotlights cannot be used.

^{*2} Strobe lighting is not possible for HLV2-series Spotlights.

^{*3} These Control Units do not include an overdrive.

 $^{^{\}star}4$ HLV2-series Spotlights: 3.9 W (700 mA) max. per connector.

^{*5 24}V Light Units: 60 W max. per connector.

^{*6} High-output Light Unit connector only: 95 W max.

PD3 series

PD3-series Basic Performance



One Power Supply for Constant Lighting, ON/OFF Lighting, and Strobe Lighting.

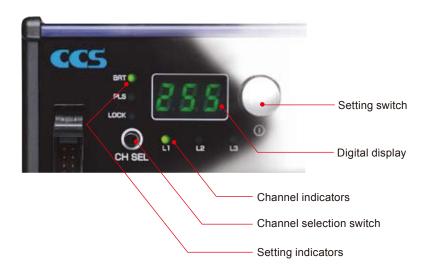
PWM control is possible at a frequency of 125 kHz. The light intensity can be adjusted to any of 256 levels. ON/OFF and strobe lighting control is synchronized with an external trigger signal. The lighting time can be set to any of 10 settings.

Strobe Lighting Times

 $40 \mu s$, $80 \mu s$, $120 \mu s$, $200 \mu s$, $600 \mu s$, 1 m s, 4 m s, 10 m s, 20 m s, or 40 m s

Easy to Use. Digital Displays for Easy Setting

The easy-to-use user interface emphasizes easy operation. The digital display and pushbutton dial are only part of the new design features of these Digital Control Units.



Quick Operation with a Pushbutton Dial

- Intensity setting to 256 levels.
- · Strobe lighting time setting
- Setting lock



^{*} These Control Units do not include an overdrive.

3

Ethernet Communications. Selection of Three Types of External Control

The lineup includes models with external control through parallel, EIA-485, or Ethernet communications to suit any network environment.



Standard DIN Rail Mounting. Selection of Installation Method to Match the Site

* These installation examples show a PD3-3024-3 Control Unit.



Free-standing Installation



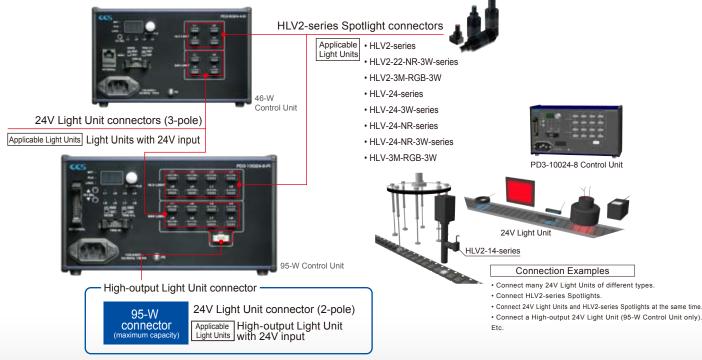
Bottom-mounted Installation (Option Required)



Installation on DIN Rail

5

Connection of Both 24V Light Units and HLV2-series Spotlights to 46-W or 95-W Control Units



Parallel Communications for Quick Changeover of Settings and High-speed Data Transfer.

PD3-3024-3-PI



Capacity: 28 W 3 Channels

Connects to 24V Light Units

PD3-5024-4-PI



Capacity: 46 W

4 Channels

Connects to 24V Light Units

Connects to HLV2 Spotlights

PD3-10024-8-PI



Capacity: 95 W

8 Channels

Connects to 24V Light Units

Connects to HLV2 Spotlights

External Light Intensity Control

Control the light intensity to 256 levels with parallel communications.

ON/OFF Control

Turn the Light Units ON or OFF by inputting an external trigger signal.

Strobe Lighting

* Possible only for 24V Light Uni

Turn ON the Light Units for the set time after inputting the external trigger signal.

Strobe Lighting Times 40 μs, 80 μs, 120 μs, 200 μs, 600 μs, 1 ms, 4 ms, 10 ms, 20 ms, or 40 ms

* These Control Units do not include an overdrive.

Examples of Combining External Control Cables

* The External Control Cable is sold as an option.

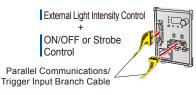
External Control with Parallel Communications

External Light
Intensity Control
Parallel Communications
Cable
(EXCB2-M20-3)

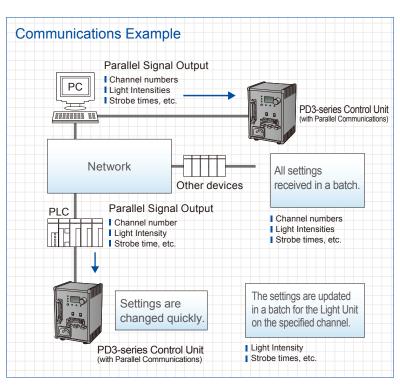
External Control with Trigger Input

ON/OFF or Strobe Control Trigger Input Cable (EXCB2-M10-3)

External Control with Parallel Communications and Trigger Input



(EXCB2-M10M20-3)



EIA-485 Serial Communications for ID Management on Multidrop Wiring. Manage Up to Four Control Units.

PD3-3024-3-SI



apacity: 28 W 3 Channels

PD3-5024-4-SI



Capacity: 46 W Channels cts to 24V Light Units

PD3-10024-8-SI



Capacity: 95 W ects to 24V Light Unit

External Light Intensity Control

Control the light intensity to 256 levels with command inputs on EIA-485 communications

ON/OFF Control

• External trigger signal input • Command input via EIA-485 communications Turn the Light Units ON or OFF with inputs.

Strobe Lighting

Turn ON the Light Units for the set time after inputting the external trigger signal

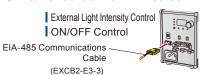
Strobe Lighting Times 40 μs, 80 μs, 120 μs, 200 μs, 600 μs, 1 ms, 4 ms, 10 ms, 20 ms, or 40 ms

* These Control Units do not include an overdrive.

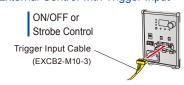
Examples of Combining External Control Cables

* The External Control Cable is sold as an option

External Control with EIA-485 Communications



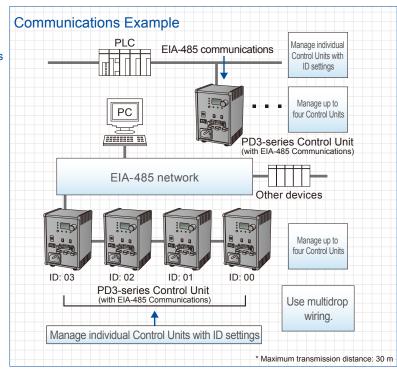
External Control with Trigger Input



You can also use the EIA-485 Communications Cable and the Trigger Input Cable together.

Communications Specifications

EIA-485 compliant	
19200 bps	
8 bits	
None	
1 bit	



^{*} For multidrop wiring, use the optional EXCB2-E3-E3-0.2 EIA-485 Communications Relay Cable.

Ethernet Communications with Standard TCP/IP and UDP/IP Protocols. The User-friendly Solution.

PD3-3024-3-EI



Capacity: 28 W 3 Channels

PD3-5024-4-EI



Capacity: 46 W

ects to 24V Light Units

PD3-10024-8-EI



Capacity: 95 W

ects to 24V Light Units

External Light Intensity Control

Control the light intensity to 256 levels with command inputs on Ethernet communications.

ON/OFF Control • External trigger signal input

- Command input via Ethernet Turn the Light Units ON
- or OFF with inputs.

Strobe Lighting

Turn ON the Light Units for the set time after inputting the external trigger signal.

Strobe Lighting Times 40 μs, 80 μs, 120 μs, 200 μs, 600 μs,

1 ms, 4 ms, 10 ms, 20 ms, or 40 ms

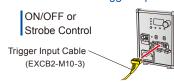
* These Control Units do not include an overdrive.

Examples of Combining External Control Cables

External Control via Ethernet Communications



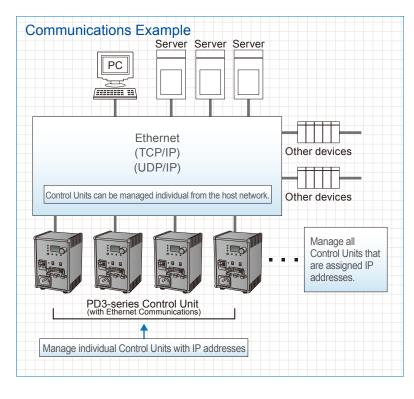
External Control with Trigger Input



- * The External Control Cable is sold as an option
- * You can also use the LAN cable and the Trigger Input Cable together.

Communications Specifications

Communications protocol	TCP/IP UDP/IP
Standards	IEEE802.3, IEEE802.3u, and IEEE802.3x
Baud rate	10 Mbps/100 Mbps (Automatically detected.)
Transmission medium	10Base-T or 100Base-TX
	Standards Baud rate



PD3-3024-3 Series

Common Specifications

• • • • • • • • • • • • • • • • • • • •				
Lighting method	Constant lighting/strobe lighting			
Drive method	Constant-voltage system			
Light intensity control method	PWM control and lighting time control			
Number of channels	3 channels			
Applicable Light Units (rated)	24V DC input, Total for all channels: 28 W			
PWM frequency	125 kHz			
Error detection display	Front-panel digital OCP display			
Overcurrent protection*	Operates at 107% of rated output current or higher. Reset by pressing operation setting switch for at least 1 second or by cycling the power supply.			
Input voltage (rated)	100 to 240V AC			
Power consumption (typ.)	78 VA			
Frequency	50/60 Hz			
Output voltage (rated)	24V DC			
Output current (rated)	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)			
Cooling method	Natural air cooling			
CE Marking	Safety standard: Conforms to EN 61010-1, EMC standard: Conforms to EN 61326, Class A.			
Material and surface processing	ce processing Material: Aluminum and resin, Surface processing: Blue alumite			
Weight	600 g max.			
Accessories 2-m long 3-prong power cord with ground terminal				

^{*} Do not intentionally short-circuit the positive and negative output terminals.

● PD3-3024-3-PI (Control Unit with Parallel Communications) Specifications

2000775		
Manual	Set to any of 256 levels on front-panel setting switch.	
External	8-bit input (B0 to B7), write pulse (BRTWR), and channel selection (CHSEL0 to CHSEL2)	
External trigger input		
Manual	Set to any of 11 levels on front-panel setting switch.	
External	4-bit input (M0 to M3), write pulse (TRGWR), and channel selection (CHSEL0 to CHSEL2)	
NPN transistor output between pins 19 (OC) and 20 (OE) of external control connector Normal: Open Overcurrent output detected: Closed		
Trigger input	MIL connector, 10 pins	
Lighting intensity/lighting mode setting	MIL connector, 20 pins	
	Manual External trigger input Manual External External NPN transistor output betwee Normal: Open Overcurrent Trigger input	

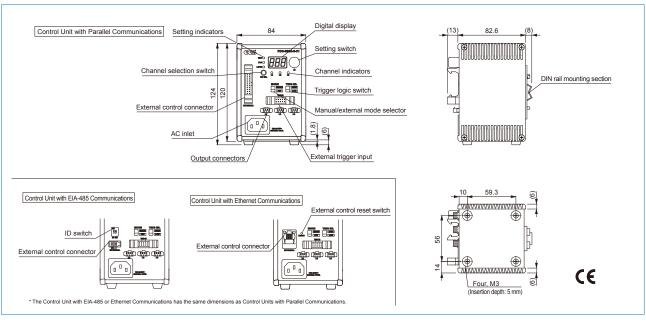
● PD3-3024-3-SI (Control Unit with EIA-485 Serial Communications) Specifications

Direct number	2000777			
Light intensity actting	Manual	Set to any of 256 levels on front-panel setting switch.		
Light intensity setting	External	Command input via EIA-485 communications		
ON/OFF setting	External trigger input or command input via EIA-485 communications			
Linking and a still	Manual	Set to any of 11 levels on front-panel setting switch.		
Lighting mode setting	External	Command input via EIA-485 communications		
Error detection output	Command sent when overcurrent output is detected.			
Fitzeral control consists	Trigger input	MIL connector, 10 pins		
External control connector	Lighting intensity/lighting mode setting	e-CON connector, 3 pins		

● PD3-3024-3-EI (Control Unit with Ethernet Communications) Specifications

Direct number	2000776			
Light intensity setting	Manual	Set to any of 256 levels on front-panel setting switch.		
Light intensity setting	External	Command input via TCP/IP or UDP/IP communications		
ON/OFF setting	External trigger input or command input via TCP/IP or UDP/IP communications			
Lighting mode setting	Manual	Set to any of 11 levels on front-panel setting switch.		
Lighting mode setting	External	Command input via TCP/IP or UDP/IP communications		
Error detection output	Command sent when overcu	rrent output is detected.		
External control connector	Trigger input	MIL connector, 10 pins		
External control connector	Lighting intensity/lighting mode setting	RJ-45 connector		

■ Dimension Diagrams (mm)



PD3-5024-4 Series

Common Specifications

• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •				
Lighting method	Constant lighting/strobe lighting				
Drive method	24V LIGHT connectors: Constant-voltage system, HLV LIGHT connectors: Constant-current system				
Light intensity control method	nethod 24V LIGHT connectors: PWM control and lighting time control, HLV LIGHT connectors: Variable-current control				
Number of channels 4 channels					
Applicable Light Units (rated)	24V LIGHT connectors: Light Units with 24V DC input, HLV LIGHT connectors: HLV2/HLV-series Spotlights, Total for 4 channels: 46 W				
PWM frequency	125 kHz				
Error detection display	Front-panel digital OCP display: Overcurrent error, EFN display: Fan Stop Error, and EID display: ID error (HLV2/HLV-series Spotlights only)				
Overcurrent protection Operates at 107% of rated output current or higher. Reset by pressing operation setting switch for at least 1 second or by cycling the power supply. *Do not intentionally short-circuit the positive and neg					
Input voltage (rated) 100 to 240V AC					
Power consumption (typ.)	70 VA				
Frequency	50/60 Hz				
Output voltage (rated) 24V DC					
Output current (rated) Total for 4 channels: 1.91 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)				
Cooling method	Forced air cooling				
CE Marking	Safety standard: Conforms to EN 61010-1, EMC standard: Conforms to EN 61326, Class A.				
Material and surface processing	Material: Aluminum and resin, Surface processing: Blue alumite				
Weight 1,200 g max.					
Accessories	2-m long 3-prong power cord with ground terminal, Base Brackets				

^{*} HLV LIGHT connectors: Strobe lighting is not possible for HLV2-series Spotlights. The HLV-14-RV-SWi-BL/GR and HLV-27-series Spotlights cannot be used. * Strobe lighting is possible only with 24V Light Units. (These Control Units do not include an overdrive.)

● PD3-5024-4-PI (Control Unit with Parallel Communications) Specifications

Direct number	2000778			
Light intensity potting	Manual	Set to any of 256 levels on front-panel setting switch.		
Light intensity setting	External	8-bit input (B0 to B7), write pulse (BRTWR), and channel selection (CHSEL0 to CHSEL2)		
ON/OFF setting	External trigger input			
Lighting made patting	Manual	Set to any of 11 levels on front-panel setting switch.		
Lighting mode setting	External	4-bit input (M0 to M3), write pulse (TRGWR), and channel selection (CHSEL0 to CHSEL2)		
Error detection output	NPN transistor output between pins 19 (OC) and 20 (OE) of external control connector			
Error detection output	Normal: Open Overcurrent output detected: Closed			
External control connector	Trigger input	MIL connector, 10 pins		
External control connector	Lighting intensity/lighting mode setting	g MIL connector, 20 pins		

● PD3-5024-4-SI (Control Unit with EIA-485 Serial Communications) Specifications

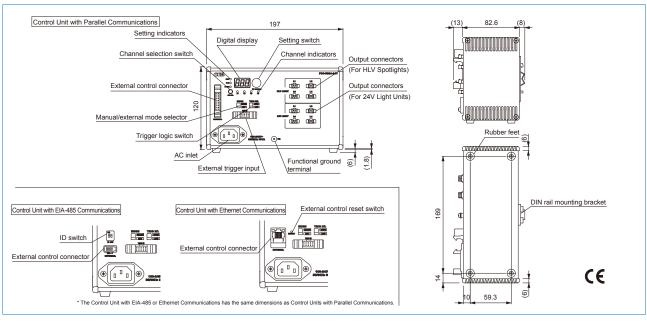
Direct number	2000780			
1 :	Manual	Set to any of 256 levels on front-panel setting switch.		
Light intensity setting	External	Command input via EIA-485 communications		
ON/OFF setting	External trigger input or command input via EIA-485 communications			
Linkting and a setting	Manual	Set to any of 11 levels on front-panel setting switch.		
Lighting mode setting	External	Command input via EIA-485 communications		
Error detection output	Command sent when overcurrent output is detected.			
Futured control consents	Trigger input	MIL connector, 10 pins		
External control connector	Lighting intensity/lighting mode setting	g e-CON connector, 3 pins		

● PD3-5024-4-El (Control Unit with Ethernet Communications) Specifications

Direct number	2000779			
Light intensity setting	Manual	Set to any of 256 levels on front-panel setting switch.		
Light intensity setting	External	Command input via TCP/IP or UDP/IP communications		
ON/OFF setting	External trigger input or command input via TCP/IP or UDP/IP communications			
Lighting mode setting	Manual	Set to any of 11 levels on front-panel setting switch.		
Lighting mode setting	External	Command input via TCP/IP or UDP/IP communications		
Error detection output	Command sent when overcurrent output is detected.			
External control connector	Trigger input	MIL connector, 10 pins		
External control connector	Lighting intensity/lighting mode setting	g RJ-45 connector		

^{*} Direct Numbers: You can easily access the information page for any of our products by entering the product's 7-digit direct number in the designated box on the CCS website (image processing page).

■ Dimension Diagrams (mm)



PD3-10024-8 Series

Common Specifications

Lighting method	Constant lighting/strobe lighting					
Drive method	24V LIGHT connectors: Constant-voltage system, HLV LIGHT connectors: Constant-current system					
Light intensity control method 24V LIGHT connectors: PWM control and lighting time control, HLV LIGHT connectors: Variable-current control						
Number of channels	8 channels					
Applicable Light Units (rated)	24V LIGHT connectors: Light Units with 24V DC input, HLV LIGHT connectors: HLV2/HLV-series Spotlights, Total for 8 channels: 95W (High-output Light Unit connector: 95W (1 connector)					
PWM frequency	125kHz					
Error detection display	Front-panel digital OCP display: Overcurrent error, EFN display: Fan Stop Error, and EID display: ID error (HLV2/HLV-series Spotlights only)					
Overcurrent protection Operates at 107% of rated output current or higher. Reset by pressing operation setting switch for at least 1 second or by cycling the power supply. *Do not intentionally short-circuit the						
Input voltage (rated)	100 to 240V AC					
Power consumption (typ.)	130 VA					
Frequency	50/60 Hz					
Output voltage (rated)	24V DC					
Output current (rated)	Total for 8 channels: 3.95 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)					
Cooling method	Forced air cooling					
CE Marking	Safety standard: Conforms to EN 61010-1, EMC standard: Conforms to EN 61326, Class A.					
Material and surface processing	Material: Aluminum and resin, Surface processing: Blue alumite					
Weight	1,500 g max.					
Accessories	2-m long 3-prong power cord with ground terminal, Base Brackets					

^{*}HLV LIGHT connectors: Strobe lighting is not possible for HLV2-series Spotlights. The HLV-14-R/-SW/-BL/GR and HLV-27-series Spotlights cannot be used.

*Strobe lighting is possible only with 24V Light Units. (These Control Units do not include an overdrive.)

PD3-10024-8-PI (Control Unit with Parallel Communications) Specifications

Direct number	2000781		
Light intensity setting	Manual	Set to any of 256 levels on front-panel setting switch.	
	External	8-bit input (B0 to B7), write pulse (BRTWR), and channel selection (CHSEL0 to CHSEL2)	
ON/OFF setting	External trigger input		
Lighting mode setting	Manual	Set to any of 11 levels on front-panel setting switch.	
	External	4-bit input (M0 to M3), write pulse (TRGWR), and channel selection (CHSEL0 to CHSEL2)	
Error detection output	NPN transistor output between pins 19 (OC) and 20 (OE) of external control connector		
	Normal: Open Overcurrent output detected: Closed		
External control connector	Trigger input	MIL connector, 10 pins	
	Lighting intensity/lighting mode settin	g MIL connector, 20 pins	

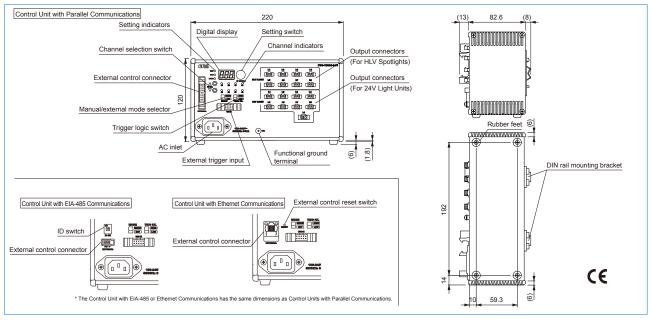
PD3-10024-8-SI (Control Unit with EIA-485 Serial Communications) Specifications

Direct number	2000783	
Light intensity setting	Manual	Set to any of 256 levels on front-panel setting switch.
	External	Command input via EIA-485 communications
ON/OFF setting	External trigger input or command input via EIA-485 communications	
Lighting mode setting	Manual	Set to any of 11 levels on front-panel setting switch.
	External	Command input via EIA-485 communications
Error detection output	Command sent when overcurrent output is detected.	
External control connector	Trigger input	MIL connector, 10 pins
	Lighting intensity/lighting mode setting	g e-CON connector, 3 pins

● PD3-10024-8-EI (Control Unit with Ethernet Communications) Specifications

Direct number	2000782		
Light intensity setting	Manual	Set to any of 256 levels on front-panel setting switch.	
	External	Command input via TCP/IP or UDP/IP communications	
ON/OFF setting	External trigger input or command input via TCP/IP or UDP/IP communications		
Lighting mode setting	Manual	Set to any of 11 levels on front-panel setting switch.	
	External	Command input via TCP/IP or UDP/IP communications	
Error detection output	Command sent when overcurrent output is detected.		
External control connector	Trigger input	MIL connector, 10 pins	
	Lighting intensity/lighting mode setting	g RJ-45 connector	

■ Dimension Diagrams (mm)



External Control Cables

>>> Parallel Communications Cable

This Cable is used for external control with parallel communications. The channel, light intensity setting, and lighting mode (constant mode, ON/OFF mode, or strobe mode) can be selected.



>>> Trigger Input Cable

This cable is used to input an external trigger signal using parallel bits. The external trigger signal can be used to turn Light Units ON or OFF, or to flash the strobes.



>> EIA-485 Serial Communications Cable

This Cable is used for external control with EIA-485 communications. The channel, light intensity setting, ON/OFF setting, and lighting mode (constant mode, ON/OFF mode, or strobe mode) can be selected.



>>> EIA-485 Serial Communications Relay Cable

This Cable is required to connect two or more PD3-series Control Units with EIA-485 communications.



>>> Parallel Communications/Trigger Input Branch Cable

This Cable includes the Parallel Communications Cable and the Trigger Input Cable in one cable.



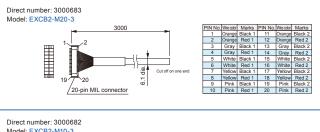
Base Brackets

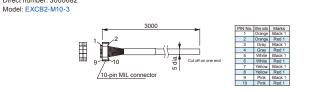
These Brackets are used to secure a PD3-series Control Unit to the floor, a shelve, or other surface.

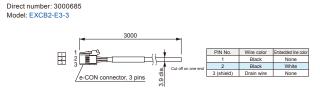
* The Base Brackets are included with the PD3-5024-4 and PD3-10024-8 Control Units.

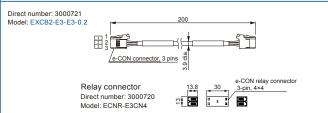


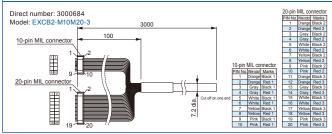
■ Dimension Diagrams (mm)

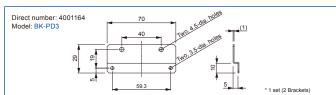












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Caution

- ●To ensure proper and safe use of the product, please read the Instruction Guide completely before using the product.
- •For product improvement, specifications and designs are subject to change without notice.



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