

LED controller

Instruction Manual

OPTEX

FA

OPPD-15 Series

• Thank you for purchasing this "OPPD-15 Series" LED controller.

• Before using this product, please read this manual carefully to ensure proper use.

• Please keep this instruction manual at hand for proper use.

• This product is a dedicated LED controller for industrial LED lighting as a machine vision light source.

• The warranty period of this product is one year after delivery. However, any fault attributable to natural disasters or any other similar disasters or modification or repair will be excluded from the scope of the warranty.

1. Safety Precautions

Safety precautions for ensuring safe operation of this product are displayed as follows with the following symbols. Precautions listed here describe important information about safety. Make sure to follow them accordingly.

■ Safety Symbols

The safety symbols and their meanings are as follows.

Table with 2 columns: Symbol and Description. Row 1: Warning symbol (exclamation mark in triangle) - Indicates that any improper operation or handling may result in moderate or minor injury, and in rare cases, serious injury or death. Also indicates a risk of serious property damage. Row 2: Caution symbol (exclamation mark in triangle) - Indicates that any improper operation or handling may result in minor injury or property damage.

Table with 2 columns: Symbol and Description. Row 1: Warning symbol (exclamation mark in triangle) - Do not disassemble, repair, modify, deform under pressure, or attempt to incinerate this product. Doing so may cause injury or fire. Row 2: Warning symbol (exclamation mark in triangle) - Do not use this product in water or in a location where it may be exposed to water. Do not use this product if wet. Doing so may cause a fire or damage the product. Row 3: Warning symbol (exclamation mark in triangle) - This product is not explosion-proof and should not be used around flammable or explosive gases or liquids. Doing so may cause ignition resulting in a fire. Row 4: Warning symbol (exclamation mark in triangle) - Do not use air dusters or any spray that uses flammable gas around the product or on the inside of the product. Doing so may cause ignition resulting in a fire. Row 5: Warning symbol (exclamation mark in triangle) - Do not install this product in any of the following locations. Doing so may cause a fire, damage, or a malfunction. 1. Locations where dust, salt, iron powders, or vapor (steam) is present. 2. Locations subjected to corrosive gases or flammable gases. 3. Locations where water, oil, or chemical splashes may occur. 4. Locations where heavy vibrations or impacts may occur. 5. Locations where the ambient temperature exceeds the rated range. 6. Locations subject to rapid temperature changes (or where condensation occurs). 7. Locations with strong electric or magnetic fields. 8. Outdoor locations or locations subject to direct sun light. Row 6: Prohibition symbol (no open flame) - Do not use this product in a non-industrial environment. Doing so may cause induction or radiation interference. Row 7: Prohibition symbol (no open flame) - In the event of a malfunction such as smoke comes out from the product If you detect any malfunction including emission of smoke, abnormal smells or sounds, or the housing becoming very hot, immediately stop operating the product and turn off the power to the controller. Doing so may cause a fire. Repairing the product is dangerous and should in no way be performed by the customer. Contact the Optex FA sales office. Row 8: Prohibition symbol (no open flame) - In case water enters the product If water or any other liquid enters the product, immediately stop operating the product and turn off the power to the controller. Using the product in this condition may cause a fire.

Table with 2 columns: Symbol and Description. Row 1: Caution symbol (exclamation mark in triangle) - Do not touch the product with wet hands. Doing so may damage the product. Row 2: Prohibition symbol (no open flame) - Do not drop the product or subject the product to strong impacts. Doing so may damage the product. Row 3: Warning symbol (exclamation mark in triangle) - During operation, this product becomes very hot. Do not keep touching it. Doing so may cause a low-temperature burn. Row 4: Warning symbol (exclamation mark in triangle) - Follow the instructions in this manual or the specified instruction manual when wiring the product for the correct wiring method. Incorrect wiring can damage the product or cause a malfunction. Output cannot be concerned with other LED controller in series nor in parallel. Row 5: Warning symbol (exclamation mark in triangle) - Use the dedicated cable for connecting the product to the lighting. Use of anything other than the dedicated cable may cause a malfunction or damage the product. Row 6: Warning symbol (exclamation mark in triangle) - Do not excessively twist or apply stress to the cable. Doing so may damage the cable or the connector. Row 7: Warning symbol (exclamation mark in triangle) - When connecting the cable, make sure to hold it by the connector portion, and do not apply excessive force to the cable. Row 8: Warning symbol (exclamation mark in triangle) - When disconnecting the connector, be careful not to touch the terminals inside the connector, and do not allow foreign objects to enter the connector. Row 9: Warning symbol (exclamation mark in triangle) - Route wiring separately from high-voltage circuits and power circuits. If the wires are routed together, induction may occur, which can cause a malfunction or damage the product. If this is unavoidable, use a conductive object such as a properly grounded conduit as a shield. Row 10: Warning symbol (exclamation mark in triangle) - Install this product as far away from high-voltage equipment, power equipment, equipment that generates large switching surges, welders, inverter motors, or any equipment that can be a source of noise. Row 11: Warning symbol (exclamation mark in triangle) - Use the product within the rated ranges. Row 12: Prohibition symbol (no open flame) - Install this product and the dedicated controller securely. Failure to ensure secure installation can result in the products falling and becoming damaged. Row 13: Prohibition symbol (no open flame) - Make sure to turn the power off before connecting or disconnecting the cable. Connecting or disconnecting while energized may damage the product.

■ Handling Precautions

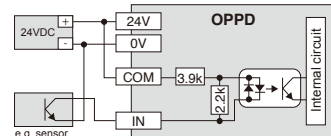
- 1. After carefully considering the intended use, required specifications, and usage conditions, install and use the product within the specified ranges.
- 2. All specifications may be changed without notice.
- 3. When using this product, it is the responsibility of the customer to ensure necessary safety designs in hardware, software, and systems in order to prevent any threat to life, physical health, and property due to product malfunction or failure.
- 4. This product is not intended for use with nuclear power, railways, aviation, vehicles, medical equipment, food-handling equipment, or any application where particular safety measures are required. Absolutely do not use this product for any of these fields.
- 5. This product cannot be used in applications that directly or indirectly detect human bodies for the purpose of ensuring safety. Do not use this product as a detection device for protecting the human body.
- 6. Do not use this product for the development of weapons of mass destruction, for military use, or for any other military application. Moreover, if this product is to be exported, comply with all applicable export laws and regulations, including the "Foreign Exchange and Foreign Trade Act" and the "Export Administration Regulations," and carry out the necessary procedures pursuant to the provisions therein.
- 7. For more details on conformity to the Restriction of Hazardous Substances Directive for this product, please contact an Optex FA sales representative. Before using this product, fully examine the applicable environmental laws and regulations, and operate the product in conformity to such laws and regulations. Optex FA does not assume any responsibility for damages or losses occurring as a result of noncompliance with applicable laws and regulations.

2. Specifications

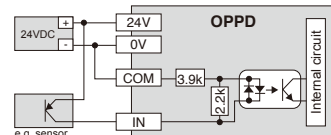
Table with 2 columns: Model and Specifications. Model: OPPD-15. Supply voltage: DC24V±10%. Power consumption: Max. 0.9A. Brightness control: Method: PWM, Frequency: 100kHz, Control Step: 1,000. Dimming setting: Rotary knob / push switch built-in, 7segment 3digit display. Output: DC12V, 1ch, 15W Max. Control input voltage: DC12~30V, Turn-ON voltage: 8 V or over, turn-OFF voltage: 1.7 V or lower maximum input voltage: 30 V, Input impedance: 3.9 kΩ, in sulated. Response time (typ.): 24V Power supply: OFF to ON: 18.5μs, ON to OFF: 65μs 12V Power supply: OFF to ON: 22.0μs, ON to OFF: 65μs. Applicable regulations: EMC (2014/30/EU), RoHS (2011/65/EU, MIIT Order No.32). Applicable standards: EN 61000-6-2:2005 / AC:2005, EN 55011:2009 / A1:2010. Protection rating: IP30 (IEC 60529:1989 / A1:1999+A2:2013). Ambient Temp./humid.: 0~50℃ / 35~85%RH (no condensation). Storage Temp./Humid.: -20~70℃ / 35~95%RH (no condensation). Vibration resistance: 10~55Hz 1.5mm X, Y, Z 2hours. Shock resistance: Approximately 10G X, Y, Z 3 times. Material: PC. Weight: Approximately 60g excluding accessories. Accessories: A terminal block for power supply and control input. Options: Bracket for panel mounting: BKT-OPPD.

3. Wiring Diagram

NPN equipment



PNP equipment



*In case of connecting this product to the control instrument of voltage output, please input DC12~30V between IN and COM.

5. Operation

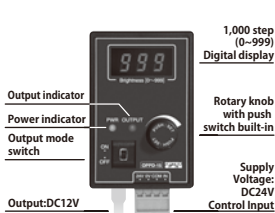


Table with 2 columns: Indicator and Display, and Switch and Knob. Indicator and Display: Power indicator (PWR) ON when power supply is ON. Output indicator (OUTPUT) ON when output is ON. Digital display (Brightness) It shows output level of PWM. "000": Minimum, "999": Maximum. Switch and Knob: Output mode switch: ON: Output is ON when control input is OFF. OFF: Output is OFF when control input is OFF. Rotary knob with push switch built-in: Turning clockwise: Output increase. Turning counterclockwise: Output decrease. 3rd digit will be blinking by clicking the knob once and can be adjusted. By clicking the knob again, 2nd digit will be blinking and can be adjusted. By clicking the knob again, then, the display will be standard mode. By pressing the knob for 3 seconds, the knob can be locked. By pressing the knob for 3 seconds again, the knob can be unlocked.

1st digit adjustable

3rd digit adjustable

2nd digit adjustable

Standard mode

Pressing 3 seconds

Locked

Standard mode

Pressing 3 seconds

Unlocked

Caution

The adjusted value on the display is saved in internal memory automatically even power is down though, please note that it won't be saved into memory when it's blinking. Please make sure the display is not blinking when you want to save it into memory.

6. Mounting / Dismounting

Mounting and dismounting on/from DIN rail can be proceeded as following way.

Mounting

1"

2"

Dismounting

1"

2"

1"

2"

1"

2"

** To mount on the panel, please check instruction manual of bracket for panel mounting (BKT-OPPD).

7. Output mode and Control input

Logic of output versus control input can be switched by Output mode switch.

Response time is different between ON and OFF of Output mode switch. When Output mode switch is OFF, the speed of output getting OFF to ON is faster than it's ON.

Output mode switch		Control input	
		OFF	ON
ON	LED ON	OFF	LED ON
OFF	LED ON	OFF	LED ON

Output mode switch		Control input	
		ON→OFF	OFF→ON
ON	LED to ON	65μs	LED to OFF 18.5μs
OFF	LED to OFF	65μs	LED to ON 18.5μs

8. Over current protection

- Output will be cut OFF when the output current exceeds its limit and shows on the display blinking.
- Output will be ON after 2 seconds.
- When this is shown on the display, please check capacity of the load (LED) and confirm the output wires are not shorted.

9. Usable connector and terminal

Output connector

SMR-02V : JST

Terminal block for Power supply and Control input

SL-4000-CP-4PGY : SATO Parts

1: + side of output

2: - side of output

Cable recommended for terminal block

Twisted wire: 0.50mm²(AWG20)

Acceptable cable

Solid wire: ø0.4~ø1.2mm(AWG26~AWG16)

Twisted wire: 0.2~1.25mm²(AWG24~AWG16)

Core wire: ø0.18mm Min.

Strip length

9mm

1 2 3 4

1 : 24V

2 : 0V

3 : COM

4 : IN

■ China RoHS compliant

Refer following homepage about "Commitment to China RoHS".
http://www.optex-fa.com/rohs_cn/

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Table with 2 columns: Optex FA Homepage and http://www.optex-fa.jp. Row 1: Optex FA Homepage, http://www.optex-fa.jp. Row 2: OPPD Series products do not use parts considered strategic materials.

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