

LED controller 1MHz

Instruction Manual

OPPD-15-f1M Series

OPTEx

FA

- Thank you for purchasing this "OPPD-15-f1M 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 two years, starting from the delivery date.

Optex FA will repair or replace the product free of charge if it should fail to function within the specified warranty period. However, any fault attributable to natural disasters or any other similar disasters or undue alteration 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.

	Warning	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.
	Caution	Indicates that any improper operation or handling may result in minor injury or property damage.

	Warning
	Do not disassemble, repair, modify, deform under pressure, or attempt to incinerate this product. Doing so may cause injury or fire.
	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.
	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.
	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.
	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.
	Do not use this product in a non-industrial environment. Doing so may cause induction or radiation interference.
	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.
	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.

	Caution
	Do not touch the product with wet hands. Doing so may damage the product.
	Do not drop the product or subject the product to strong impacts. Doing so may damage the product.
	During operation, this product becomes very hot. Do not keep touching it. Doing so may cause a low-temperature burn.
	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.
	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.
	Do not excessively twist or apply stress to the cable. Doing so may damage the cable or the connector.
	When connecting the cable, make sure to hold it by the connector portion, and do not apply excessive force to the cable.
	When disconnecting the connector, be careful not to touch the terminals inside the connector, and do not allow foreign objects to enter the connector.
	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.
	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.
	Use the product within the rated ranges.
	Install this product and the dedicated controller securely. Failure to ensure secure installation can result in the products falling and becoming damaged.
	Make sure to turn the power off before connecting or disconnecting the cable. Connecting or disconnecting while energized may damage the product.

■ Handling Precautions

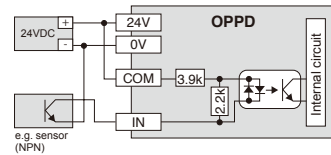
1. After carefully considering the intended use, required specifications, and usage conditions, install and use the product within the specified ranges.
2. All specifications may be changed without notice.
3. When using this product, it is the responsibility of the customer to ensure necessary safety 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.
6. Do not use this product as a detection device for protecting the human body.
7. 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

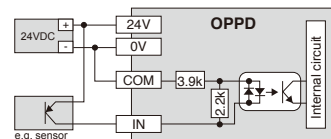
Model	OPPD-15-f1M
Supply voltage	DC24V±10%
Power consumption	Max. 0.9A
Brightness control	Method: PWM, Frequency: 1MHz, Control Step: 64
Dimming setting	Rotary knob / push switch built-in, 7segment 3digit display
Output	DC12V, 1ch, 15W Max.
Control input voltage	DC12~30V, Turn-ON voltage: 8 V or over, turn-OFF voltage: 1.7 V or lower maximum input voltage: 30 V, Input impedance: 3.9 kΩ, in isolated
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

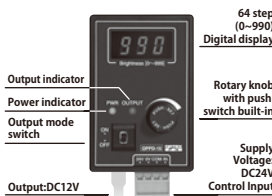


PNP equipment



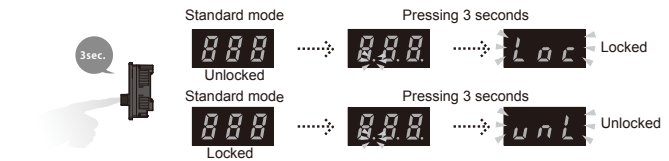
*In case of connecting this product to the control instrument of voltage output, please input DC12~30V between IN and COM.

5. Operation



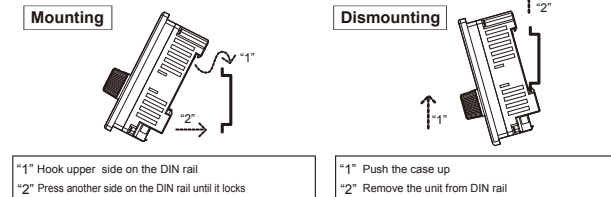
Indicator and Display	
Power indicator (PWR)	ON when power supply is ON.
Output indicator (OUTPUT)	ON when output is ON.
Digital display (Brightness)	It shows output level of PWM. "000" : Minimum, "990" : Maximum (0,15,30,45,...,990)

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 - 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.



6. Mounting / Dismounting

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



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

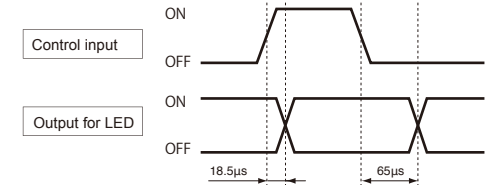
7. Output mode and Control input

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

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

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	ON	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	** included with the product
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: 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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OPTEx FA Homepage	http://www.optex-fa.jp
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