

Instruction Manual for Adjustable digital Power Supply for LED Lights

OPPA-50M4 (50W Power supply)

1. Product outline

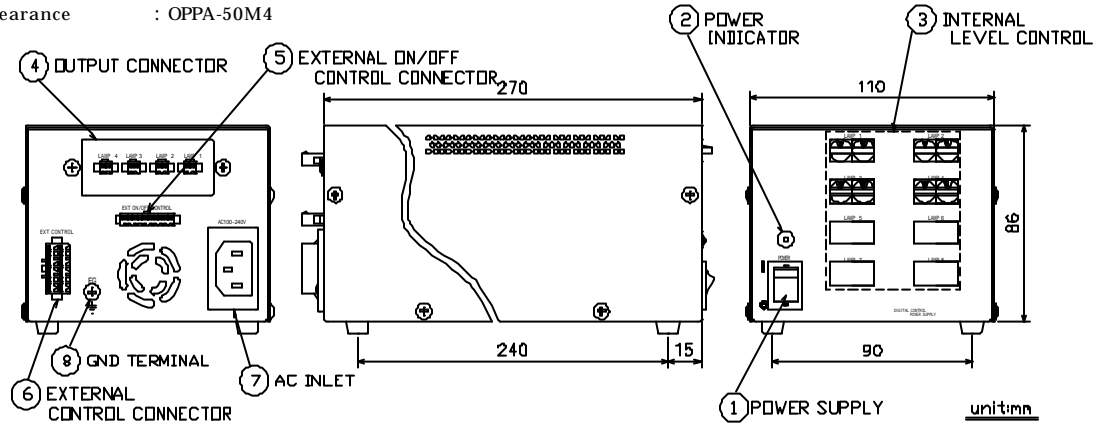
- This product is a digital adjustment power supply only for LED Lights. Please do not use it in addition to our company's LED Lights.
- The LED Light brightness can be adjusted by 8bit signal control system. (Negative-true logic)
- This product operates under AC100V-240V.
- LED Light can be turn on/off with an external on/off control connector. (10 pin connector, EXT ON/OFF CONTROL)
- LED Light can be control at 256 step with an external brightness control connector. (18 pin connector, EXT CONTROL)
- There is less wiring than an article conventionally by a bus line method and latch method.

2. Accessories and appearance

- Accessories :
- external on/off control connector set (10 pin connector) 1 set
 - external brightness control connector set (18 pin connector) 1 set
 - power cable (only AC100V) 1 piece
 - instruction manual (this sheet) 1 piece

Note : If you operate this product for input voltage exceeding AC100V, please prepare a suitable power cable by yourself

Appearance : OPPA-50M4



3. Safety

Warning	
(1) Do not open the cover of a unit. There is a portion of high voltage internal of a power supply, and there is a possibility of receiving an electric shock in it.	
(2) Connect directly the plug of a power supply to a wall socket. There is a cause of fire when you use an extension cable.	
(3) Do not touch a power supply plug by the wet hand. There is a possibility of receiving an electric shock.	
(4) Use a power supply, grounding it. When not grounded, there is a possibility of receiving an electric shock.	
(5) When abnormalities to which a main part gets hot, a strange smell and/or smoke comes out arise, stop use immediately, shut off a power supply and pull out a power plug from a wall socket.	
(6) Do not look at LED Light directly, it may have bad influence on your eyes.	

Cautions	
(1) Make connection of AC input cable and a LED Light cable after turning off the switch of a power supply unit.	
(2) Do not place any objects on a power supply.	
(3) Do not expose a power supply unit to sunlight or humidity directly.	
(4) When not used for a long period of time, pull out a power supply plug from the unit.	
(5) LED Light should be used at the strength of light at least in a half, when you use the constant light always, since a life will become short if used in the environment of a high temperature.	
(6) When abnormalities happen at power supply unit, stop use immediately and contact our company. Do not repair by the customer. (A product cannot be guaranteed, when a customer has an internal of a power supply changed or repaired.)	

Product warranties

- If it should break down within the term of a guarantee (delivery-of-goods day for 12 months) under a customer's normal use condition based on notes, such as this handling description, or when initial [poor] accepts. We will carry out repair and exchange of a failure part gratuitously.
- However, We cannot guarantee on condition that external factors [, such as strong shock / natural disaster / water, steam oil, acid, radiation, etc.], such as an error on use / use of the lighting equipment of those other than our company / unjust decomposition, and reconstruction / fall, etc.

4. Specifications

4-1 Input and output voltage

- Input voltage : AC100V - 240V 1.3A/100V 0.7A/200V (MAX)
- Frequency of operation : 47 ~ 440Hz
- Rated output : DC12V 4.17A 50W

4-2 Control of brightness

- Method of control : Approx.60KHz PWM control
- System of control : Digital (256-step control)

Internal control of brightness : Control a set point (256 step of 00-f) with a switch of the front panel. Turn on with a value setting when it was switched on.

External control of brightness : When connected an external machinery and external control connector of back panel, control it at 256 step by signal control of 8bit of external control.

A connection method please watch a connection example of external brightness control. (4-5)

Range of control : 0 ~ 100% (At the environmental within the limits of operational condition)

External on/off control : When connected an external machinery and external control connector of back panel, control LED Light when control a signal at an open collector or the relay point of contact.

A connection method please watch a connection example of external control. (4-6)

Protection circuit : LED Light turns off the light at the overload state the output. To remove it, switch off a power supply and exclude Light. After put a power supply once again, please.

4-3 Environment of operation

- Circumferential temperature : 10 ~ +40
- Circumferential humidity : 20 ~ 70% RH (Don't dew)

4-4 Connectors

- Output connector (LAMP 1 ~ 4) : SM connector SMP-02V-BC (Made by JST)

Pin No.	12V output type
1	Output + (+12V)
2	Output -



- External on/off control connector (EXT ON/OFF CONTROL) : SM connector SMP-10V-BC (Made by JST)

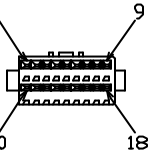
Pin No.	Signal	Color of option cable	Pin No.	Signal	Color of option cable
1	LAMP 1 ON/OFF	White	6	LAMP 6 ON/OFF	Ash
2	LAMP 2 ON/OFF	Yellow	7	LAMP 7 ON/OFF	Orange
3	LAMP 3 ON/OFF	Brown	8	LAMP 8 ON/OFF	Light blue
4	LAMP 4 ON/OFF	Green	9	External control change	Red
5	LAMP 5 ON/OFF	Blue	10	GND	Black



*OP-ECB8- " (is length[m]) should be used for an option cable.

- External brightness control connector (EXT CONTROL) : SM connector SMP-18V-BC (Made by JST)

Pin No.	Signal	Color of option cable	Pin No.	Signal	Color of option cable
1	2 ⁰	White	10	LAMP 3, 4 WRITE	Pink
2	2 ¹	Red	11	LAMP 5, 6 WRITE	Bright green
3	2 ²	Green	12	LAMP 7, 8 WRITE	White / black
4	2 ³	Yellow	13	RESERVED	Red / black
5	2 ⁴	Brown	14	OPEN=ODD/GND=EVEN	Green / black
6	2 ⁵	Blue	15	RESERVED	Yellow / black
7	2 ⁶	Ash	16	INT/EXT SELECT	Brown / black
8	2 ⁷	Orange	17	GND	Black
9	LAMP 1, 2 WRITE	Sky blue	18	RESERVED	Ash / black



*OP-ECBA- " (is length [m]) should be used for an option cable.

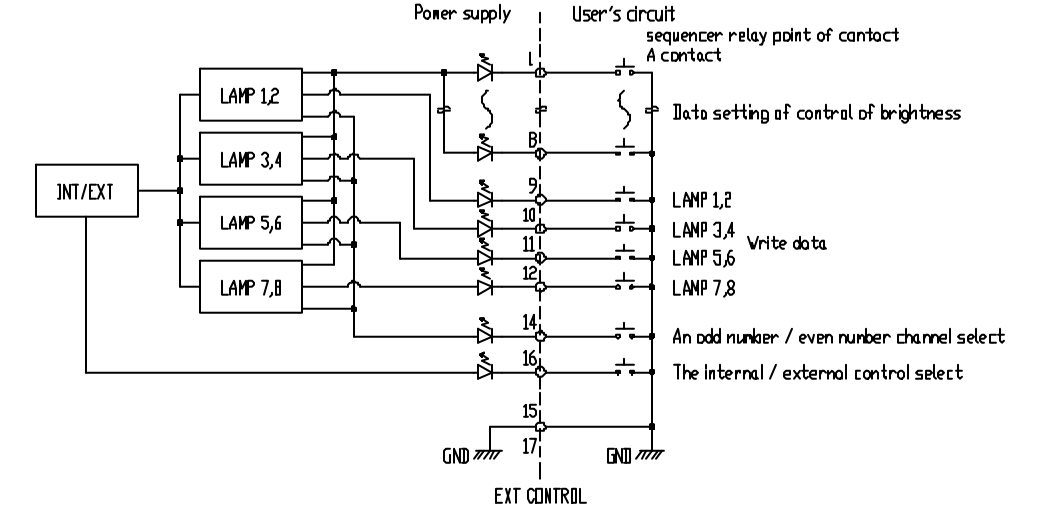
4-5 Connection example of external brightness control (EXT CONTROL)

Turn into external brightness control when short-circuit in 16pin and 17pin in an external control brightness connector. Write a set point (1-8pin) in 9-12pin after doing select of a channel setting in 14pin.

(Odd number channel =OPEN/Even number channel =GND)

Set control of light in 8bit signal (Negative-true logic, ON=GND / OFF=OPEN) and can control it at 256 step.

In addition, all the set points of external brightness control are reset in main body power supply off.



4-6 The method of external on/off control (EXT ON/OFF CONTROL)

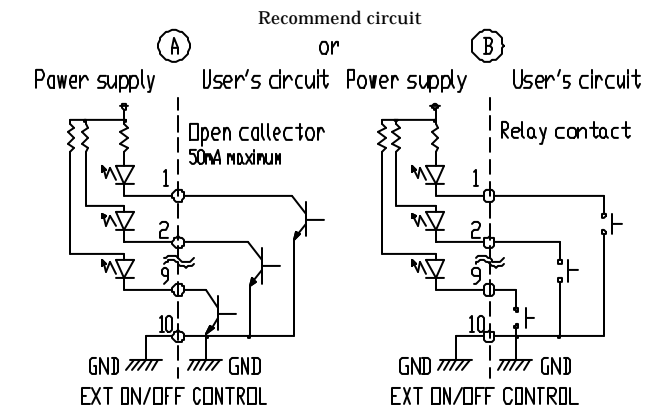
In order to work the external control function, short pin #9 and pin #10 circuit. (LED putting out lights)

Under the above condition, when short the pin #1 and pin #10 circuit, LED Light (connected to ch1) will light on.

Furthermore, when short pin #2 and pin #10 circuit, the LED Light (connected to ch2) will light on.

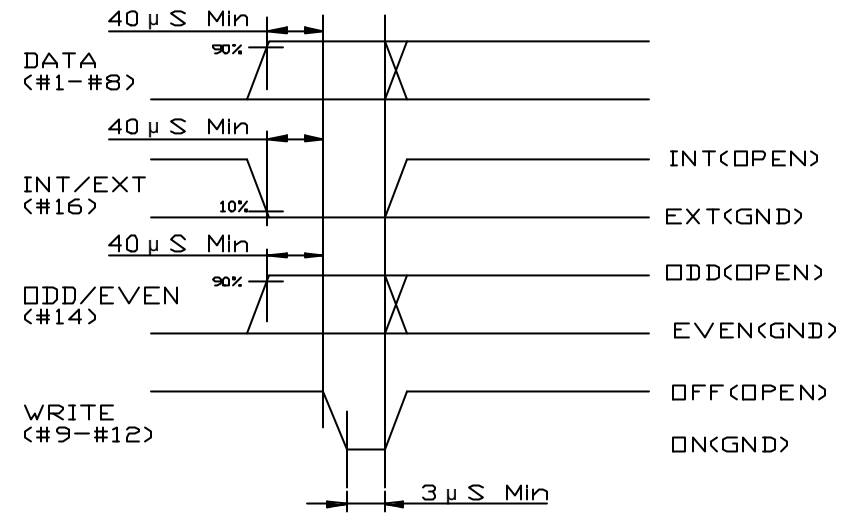
LED Light turns on by a similar method about LAMP3-8 as follows.

In addition, reshuffling of external on/off control is effective at all the channels same time.



There are approx. 10mA current from pin #1,2, ... to pin #10. Please see a margin and use the open collector circuit with the current capacity of about 50mA.

4 - 7 Timing chart of external brightness control



(Attention 1) Set each signal of data · INT/EXT · ODD/EVEN, and send a write signal, and please maintain it more than 3 micro seconds after progress more than 40 micro seconds.
 (Attention 2) Data become negative-true logic (ON=GND OFF=OPEN).

5 - 2 Delay line at the time of external control
 Lighting time (ON) : about 1.6 μ S, Lights out (OFF) : about 33 μ S

5 . Reference data

5 - 1 Going straight characteristics of PWM brightness control

