

# Instruction Manual for Adjustable digital Power Supply for LED Lights OPPA-100M4 (100W Power supply)

## 1 . Product outline

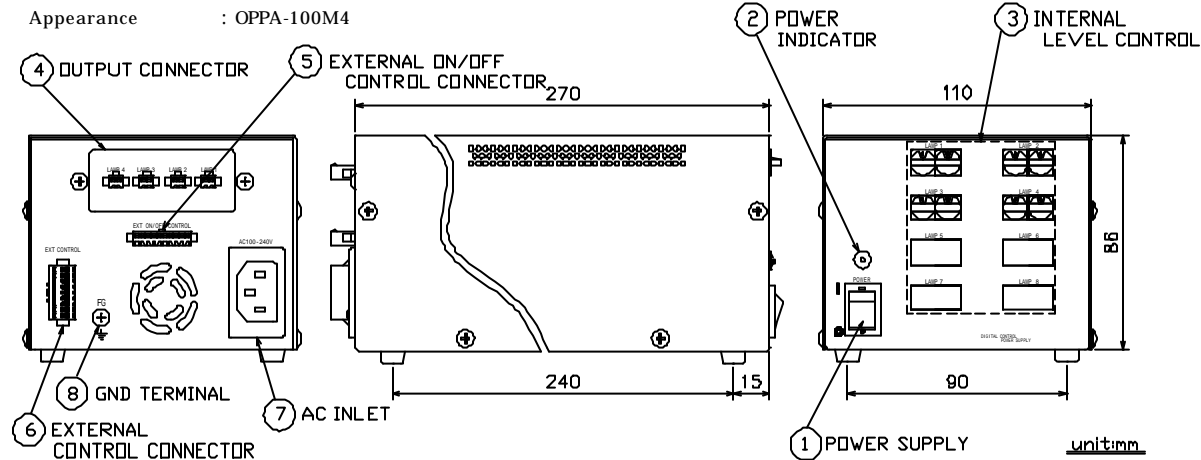
- This product is a digital adjustment power supply only for LED Lights. Please do not use it in addition to our company's LED Lights.
- The LED Light brightness can be adjusted by 8bit signal control system. ( Negative-true logic )
- This product operates under AC100V-240V.
- LED Light can be turn on/off 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 : OPBA-100M4



## 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 2.4A/100V 1.2A/200V (MAX)
Frequency of operation	: 47 ~ 440Hz
Rated output	: DC12V 8.3A 100W

### 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~ff) 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)

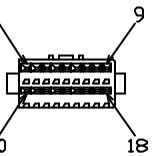
Pin No.	Signal	Color of option cable	Pin No.	Signal	Color of option cable
1	LAMP 1 ON/OFF	White	6	LAMP 6 ON/OFF	Ash
2	LAMP 2 ON/OFF	Yellow	7	LAMP 7 ON/OFF	Orange
3	LAMP 3 ON/OFF	Brown	8	LAMP 8 ON/OFF	Light blue
4	LAMP 4 ON/OFF	Green	9	External control change	Red
5	LAMP 5 ON/OFF	Blue	10	GND	Black



"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)

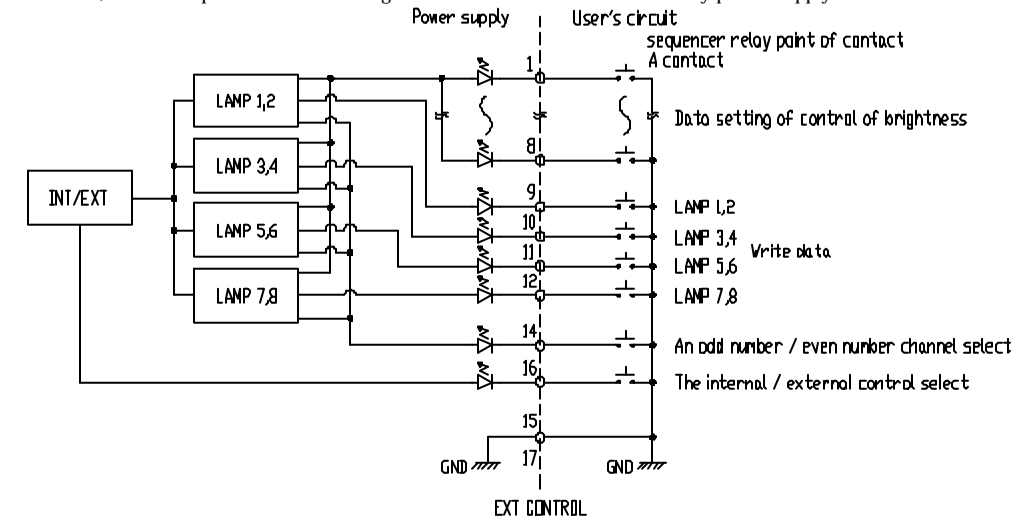
Pin No.	Signal	Color of option cable	Pin No.	Signal	Color of option cable
1	2 <sup>0</sup>	White	10	LAMP 3, 4 WRITE	Pink
2	2 <sup>1</sup>	Red	11	LAMP 5, 6 WRITE	Bright green
3	2 <sup>2</sup>	Green	12	LAMP 7, 8 WRITE	White / black
4	2 <sup>3</sup>	Yellow	13	RESERVED	Red / black
5	2 <sup>4</sup>	Brown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

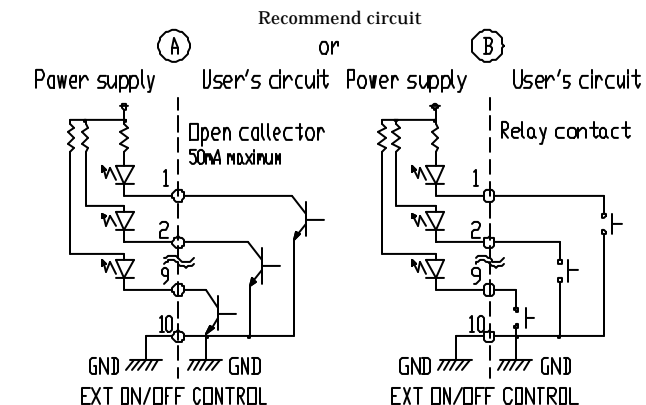
### 4 - 5 Connection example of external brightness control (EXT CONTROL)

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.



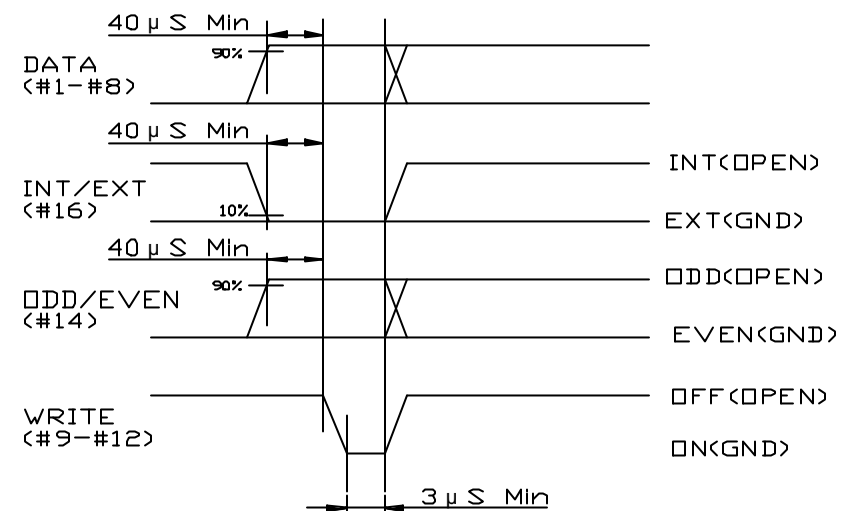
### 4 - 6 The method of external on/off control (EXT ON/OFF CONTROL)

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

