



PRODUCT SPECIFICATION						
MPA1960 series						
Power Supply for LED						
				 INNOVATOR IN ELECTRONICS		
<b>Ordering Guide</b>		Constant current power supply				
Model Name	Max current(±5%)	Output voltage range				
MPA1960A	1400mA	30~50V				
MPA1960B	1200mA	30~50V				
MPA1960C	1000mA	30~60V				
<b>RoHS-Y(B)</b>						
<b>Input Characteristics: (Ta=25°C)</b>						
		Min	Typ	Max	Units	
Input Voltage Operating Range		90	100/242	267	Vac	
Input Frequency		47	50/60	63	Hz	
Inrush Current		AC100V (25°C Cold start)		15	A	
		AC242V (25°C Cold start)		30	A	
Model Name	Input current(Typ)	Power Factor (Typ)		Input Power(Typ)		Input rated capacity
	At max current	At max current		At max current		
	Output Voltage: 50V	Output Voltage: 50V		Output Voltage: 50V		Output Voltage: 50V
	AC90V	AC267V	AC100V	AC242V	AC100V	AC242V
MPA1960A	0.93A	0.34A	0.9964	0.915	82.9W	81.7W
MPA1960B	0.79A	0.30A	0.9958	0.913	70.7W	70.3W
MPA1960C	0.80A	0.30A	0.9961	0.920	71.0W	71.1W
Stand-by Power	Non-communication state		AC100V: 0.13Wtyp, AC242V: 0.23Wtyp			
<b>Output Characteristics(*1): (Ta=25°C)</b>						
Model Name	Output current (±5%)			Efficiency (Typ) At max current		
	Average current(Typ)		Ripple current (p-p)	Output voltage: 30V		Output voltage: 50V
	Min (*2)	Max	Typ (At max current)	AC100V	AC242V	AC100V
MPA1960A	14~70mA	1400	190mA	82.3%	80.7%	84.9%
MPA1960B	12~60mA	1200	150mA	82.0%	80.1%	85.3%
MPA1960C	10~50mA	1000	145mA	80.2%	77.1%	85.5%
(*1) Output characteristics are measured by LE-5150-2(KEISOKUGIKEN) as a LED-load .						
(*2) Depend on Dimming method. Max current value × (1~5%)						
<b>Environmental Characteristics:</b>						
	Condition	Min	Typ	Max	Units	
Operating Temp. Range		-10 (*)		50	°C	
Operating Humidity		Non-condensing		95	%	
Storage Temp. Range		-20		55	°C	
Cooling condition		Natural air cooling				
MTBF		EIAJ RCR-9102B		10	year	
Estimated life		Ta=40°C, Max Voltage/Max load		40000	hour	
Weight				670	g	
Sinusoidal Vibration		Vibration frequency: 10~55Hz, Vibration acceleration: 2G				
Shock		10G				
RoHS		compliant				
Warranty		1 Year				
Manufacturing Country		China				
(*) Start-up at -20°C						
<b>Safety:</b>						
Safety standards		Electrical Appliance Safety Low (1st clause) EN61347-1, EN61347-2-13 (CB REPORT): planning				
Harmonics		EN61000-3-2 class C				
Conducted emission		PSE (1st clause), EN55015 CLASS B, EN55022 CLASS B				
Insulation resistance		30MΩ or more (Input to Output-Reinforced, Input to Chassis-Basic)				
Withstand voltage		AC4000V (60Hz Primary-Secondary), Leak current: 10mA or less AC1600V (60Hz Primary-FG), Leak current: 10mA or less				
Leakage current		0.5 rms or less (AC242V 60Hz normal temperature/normal humidity)				
<b>Protection Characteristics:</b>						
		Return method				
Output shortn Protection		Auto recovery(*)				
Output Open Protection		Auto recovery(*)				
(*) It's need about 10 seconds at the autorecovery.						
When LED is connected, be careful to be possible to flow rush current to LED.						
AC re-input as much as possible.						
<b>Immunity:</b>						
Electrostatic discharge		IEC61000-4-2	Level 3			
Electrical fast transient burst		IEC61000-4-4	Level 3			
Surge		IEC61000-4-5	Level 3			
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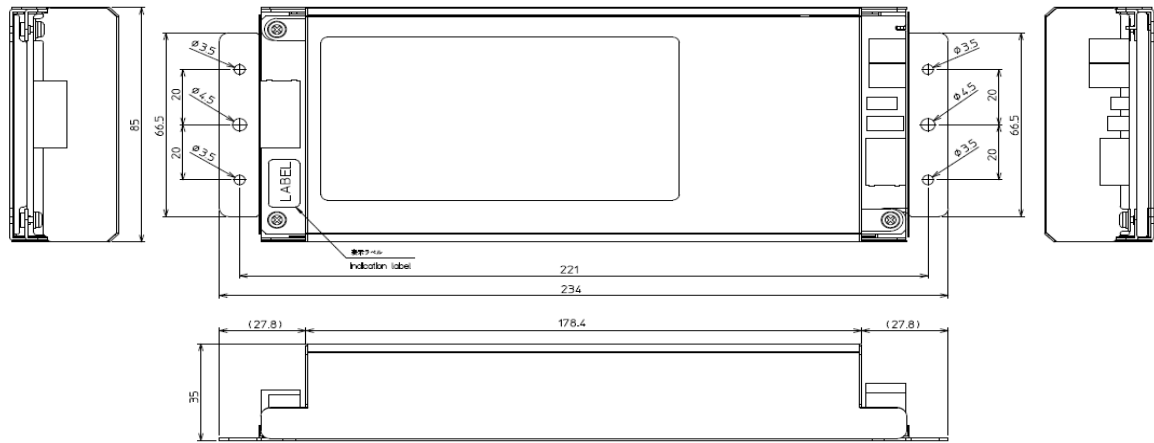
**MPA1960 series**

Power Supply for LED

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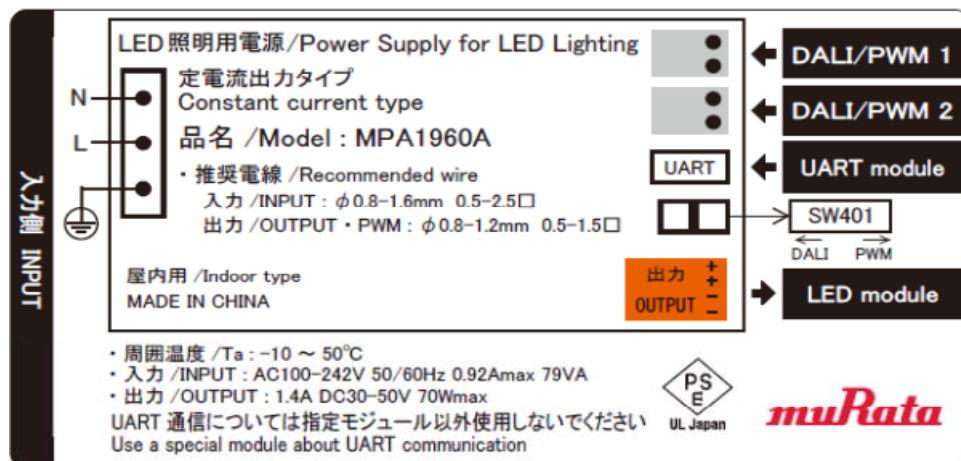
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Mechanical Dimensions • Label



Unit: mm

LABEL1 (Ex. MPA1960A)



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### Input/Output Terminal

#### AC Input wire

Parts Name	Maker Type Name	Terminal No.	Description
CN1	235-503/342-325 (WAGO)	1	AC Neutral
		2	AC LIVE
		3	FG

#### Output Connector

Connector No.	Maker Type Name	Terminal No.	Description
CN101	235-104/330-000 (WAGO)	1	LED Output- (Cathode)
		2	LED Output- (Cathode)
		3	LED Output+ (Anode)
		4	LED Output+ (Anode)

\* Terminal 1 and 2 are same voltage. Terminal 3 and 4 are same voltage.

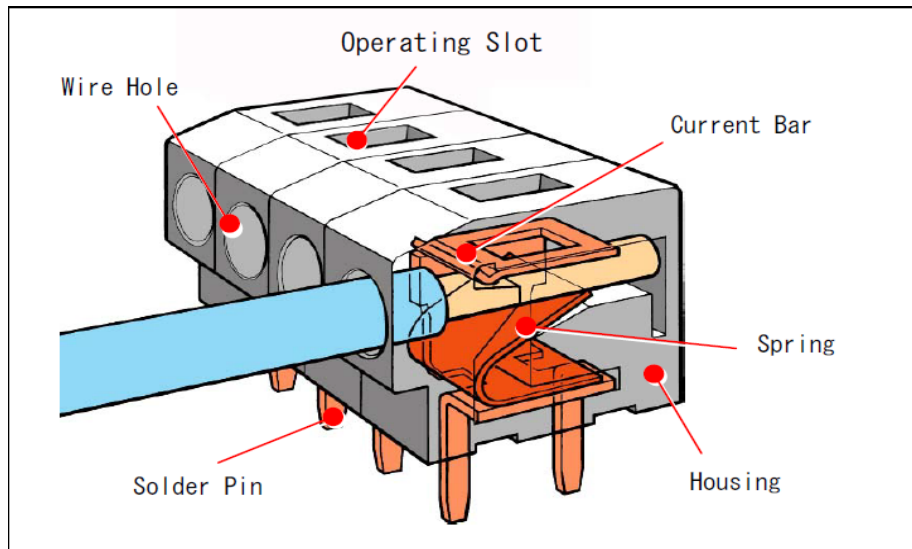
#### Signal Connector

Connector No.	Maker Type Name	Terminal No.	Description
CN201	B4B-PH-K-S (JST)	1	3.3V Output (200mAmax)
		2	UART_RX (Reception)
		3	UART_TX (Transmission)
		4	GND
CN401	250-202 (WAGO)	1	DALI or PWM SIGNAL
		2	DALI or PWM SIGNAL
CN402	250-202 (WAGO)	1	DALI or PWM SIGNAL
		2	DALI or PWM SIGNAL

\* CN401, CN402 No polarity. One is for connections.

## Instruction for Connecting Conductor

■ Structure : Part name and structure of terminal block.



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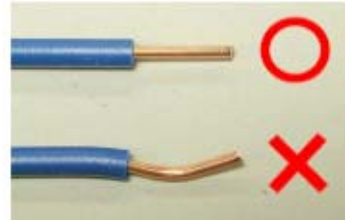
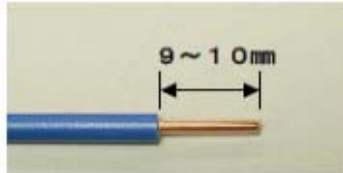
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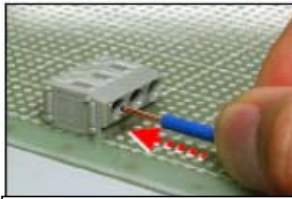
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### ■ Stripping of Wire

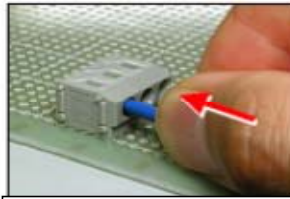
Please strip a conductor's stripped length related as drawings.  
Please fix splayed, bent or twisted wire.



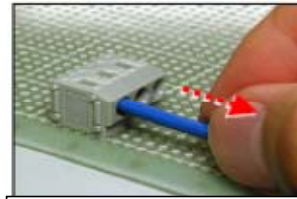
### ■ Connecting Please follow the instructions



① Insert a wire to the wire hole.



② A wire must be inserted to a stop position.

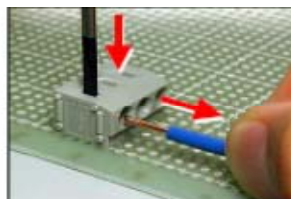


③ Pull a wire slightly to check if connecting has been done completely.

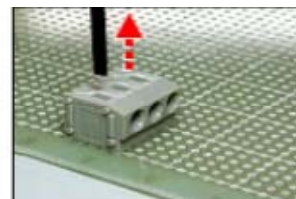
### ■ Removal Please follow the instructions



① Put a screwdriver to the operating slot.



② Hold down a screwdriver, a conductor can be released



③ Put off a screwdriver.

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## 【Dimming Specifications】

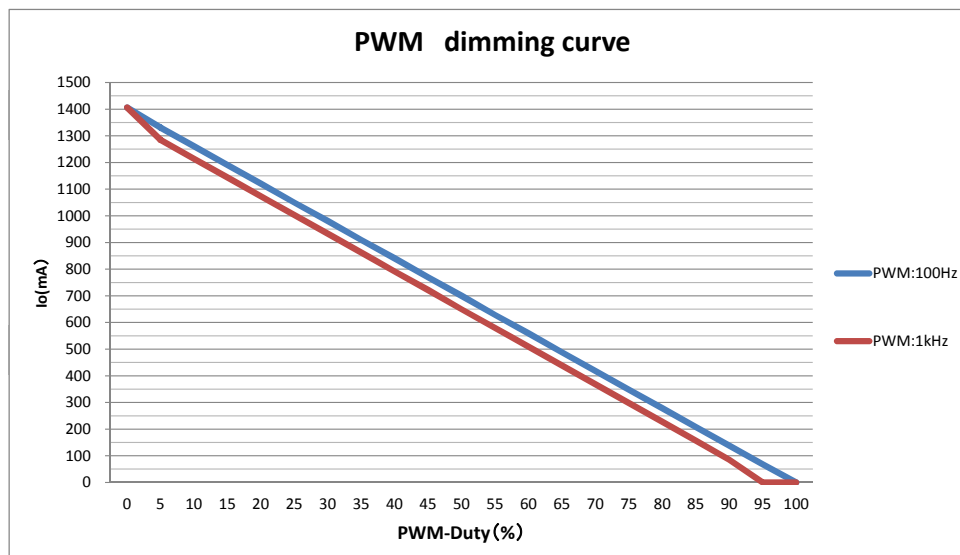
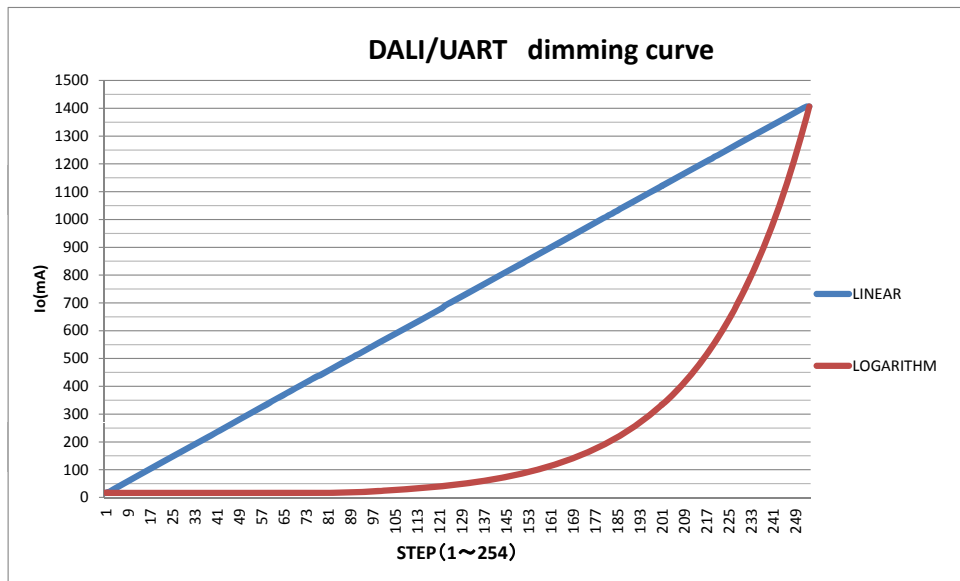
This product supports UART, DALI and PWM mode.

In the case of UART, DALI and PWM Dimming mode, change a dip switch (SW401) to each mode before AC input. (Refer as follows)

Dimming	Input Connector	Communication standard・Dimming Specifications
UART	CN201	Smart Lighting System UART Command Specification SW401 position: DALI side  (Use a Murata special module about UART.)
DALI	CN401/CN402	IEC62386 SW401 position: DALI side
PWM	CN401/CN402	Input pulse 10-16V <sub>o-p</sub> Frequency 100Hz-1KHz DUTY 0-95%typ Ex.) Output current: Duty 0%...1400mA, 95%...OFF, f:1KHz Output current: Duty 0%...1400mA, 98%...OFF, f:100Hz SW401 position: PWM side PWM sink current: 2mA <sub>max</sub>

\* CN401 and CN402 can be used one, other is for connections.

Dimming characteristics (Masterpiece: MPA1960A)



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### 【Instruction Manual】

Before using the Power Supply Unit

Pay attention to all warnings and cautions before using the PSU.

Incorrect usage could lead to an electrical shock, damage to the PSU or a fire hazard.

#### ★Warning & Caution

- Do not modify and remove the cover.
- If any failure or trouble occurs because of utilizing the power supply unit without reflecting the described contents on this specification, Murata cannot assure such trouble.
- Do not touch the internal components, they may have high voltage or high temperature.  
You may get electrical shock or burned.
- Definitely avoid to use the power supply unit by the excessive input voltage, output voltage, output current and ambient temperature as defined on this specification.  
The excessive current, voltage and temperature will cause the deterioration of the components or abnormal heat, both of which may affect not only to shorten the unit's life-long but also to damage and break the unit.  
In a case of LED VF 30V or less because of LED chip dispersion, please make sure to evaluate and confirm the quality upon mounting the power supply unit to your product.  
But don't use it under the LED VF 25V or less.
- Use the PSU after confirm the correct connection of input and output.
- Be sure not to scratch and damage the input leads. Never transfer the unit by holding and pulling any lead wire.
- If PSU is dropped, absolutely not to use it any more.
- Make sure not to install and/or store the unit under the environment as stated below because such will cause the insulation deterioration.
  - ① Make sure to avoid storing the unit under the condition of high temperature, high humidity or direct sunlight which are out of the standard on this specification.
  - ② Ambient air containing the corrosive gas. (Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc.)
  - ③ Places which have the fear to be splashed with water, oil, organic solvent, etc.
  - ④ Places with a high concentration of dusty places.
  - ⑤ Other environment correspondingly mentioned above.
- Make sure not to install and/or store the unit under the environment as stated below because such will cause the insulation deterioration.
  - ① If any alien substance attached on terminals, it may cause the contact failure or insertion deterioration.
  - ② The use of the silicon rubber or silicon bond which contain a high percentage of dimethylpolysiloxane may cause to trigger the contact failure of volume, potentiometer volume or switch. Make sure to use such rubber or bond with the percentage of dimethylpolysiloxane 0.1% or less.
- PSU can not be used under the condition of the series operation.
- Rust may occur in the chassis because of use environment.
- This specification regulates the quality of the power unit, if nothing specially defined. When using the power supply unit, make sure to evaluate and confirm the quality upon mounting the power supply unit to your product.

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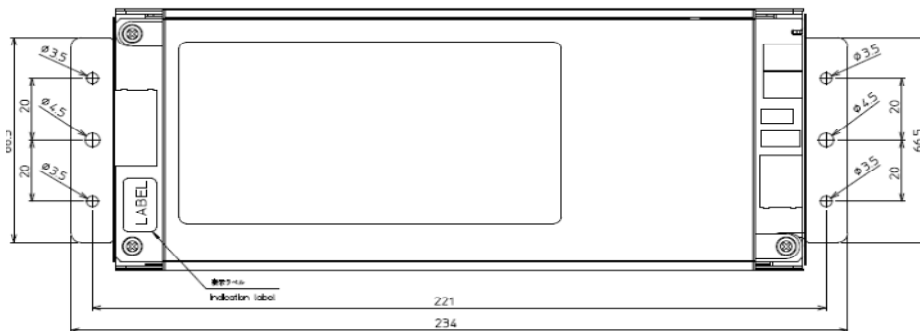
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### 【Mounting】

Mounting method

- Please use the place at 50°C or less around the PSU ambient.
- Please connect the thick and short wire to the FG terminal for safety and EMI.
- Please separate Input wire and Output wire surely.
- Please refer as follows about the recommended Wire for input, output and dimming.  
AC-input wire:  $\phi 0.8\text{--}1.6\text{mm}$ ,  $0.5\text{--}2.5\text{mm}^2$  single wire (Strip length 9–10mm)  
LED Output wire/Dimming wire for DALI and PWM:  
 $\phi 0.8\text{--}1.2\text{mm}$ ,  $0.5\text{--}1.5\text{mm}^2$  single wire (Strip length 9–10mm)
- Please fix a screw about the installation of the power supply more than one place of one side. (more than two places in total) (Screw hole:  $\phi 3.5 \times 4$ ,  $\phi 4.5 \times 2$ )

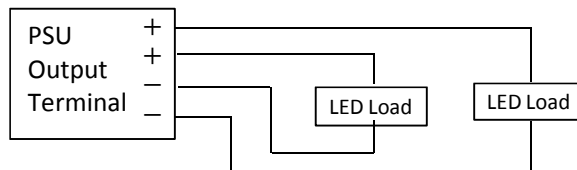


### 【Parallel Operation】

- Series Operation is not possible.
- For parallel operation, either method (1) or (2) is possible. But please caution as follows.  
\*) PSU output [+ ] and [+ ] are connected in PSU. [ - ] are the same.  
Therefore this PSU are not 2 output.

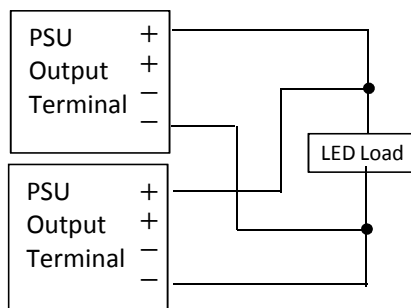
#### Parallel 1: In a case of operating the plural LEDs for one power supply.

If LED Vf voltage are different, the current may be partial.  
Please add a balance circuit not to become so.



#### Parallel 2: In a case of operating two Power supplies for one LED.

The total current of two power supplies pass through in the LED.  
And please confirm the leakage current as the system.



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**PACKING SPECIFICATION**

Use for the Model MPA1960A/MPA1960B series.

NO.	PARTS NAME	QTY
1	PACKING BOX	1/12
2	BASE PAD	2/12
3	PARTITION BOARD	1/12
4	Small PE Bag	12/12

**PACKING PROCESS :**

Note: 1. It contains 12 pieces of product in every box.

