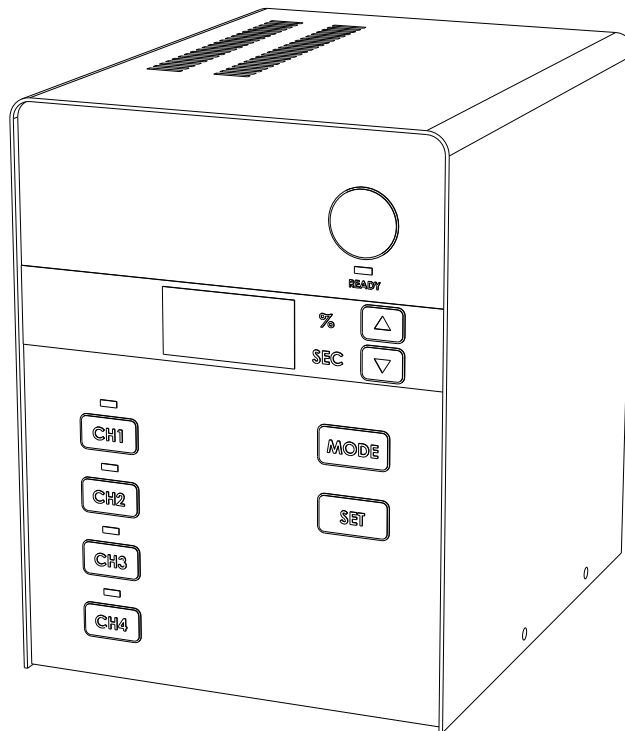


User Manual

Power LED UV 104

4 Channels

LED Spot-Curing System



Model Name: Power LED UV 104

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1. Introduction

1.1 Preface


Dear valued customer, thank you for selecting this industrial LED UV Light Curing unit. The curing unit is developed and manufactured by Rolence Enterprise Inc. for polymerization of UV composite and resin. The adequate setup and operation of this system will maximize safety and user-friendly performance. Therefore, you are highly encouraged to read through, understand and follow the instructions in this user manual and other related material before setting up and operating this system. Please contact with our distributors or write directly to us via sales@rolence.com.tw if you need further support.

Inappropriate use may damage equipment and be harmful to human body. Please read the relevant safety instruction in this user manual carefully. This will also help you use this equipment properly and easily.

 **Rolence designed this user guide for experienced process engineers, technicians and manufacturing personnel. If you are not familiar with UV light-curing systems and do not understand the instruction in this user manual, please contact with our distributor to be trained in advance before using this equipment.**

1.2 Signs and symbols

The signs and symbols in the user manual and on the curing unit facilitate the finding of important points and have the following meanings:

 : Caution, attention.

| : On (supply)


○ : Off (supply)

 : This product corresponds with CE standards.

2. Safety First

2.1 Safety Precaution

Equipment is designed to be used properly setup, with components fully connected and operated according to the instruction in this manual. Please read the following chapter of this manual for safety recommendation and operation instruction. In addition, this industrial LED UV Light Curing unit must only be used to cure light-curing composite and resin. Uses other than the one foresaid purpose are contraindicated. The manufacturer does not assume any liability for damage resulting from misuse.

 **Always wear UV protective goggles or face shield when working near the unit, where the high-intensity visible light might be emitted.**

 **Never look directly at the light-emitting end of the light head while the power is on.**

3. Product Description

3.1 Product Specification-Technical Data:

Power Supply Voltage:	
100 - 240V AC, 50/60 Hz	
Wattage: MAX 28 W	

Dimension:	
Height:	167 mm
Width:	123 mm
Depth:	155 mm
Weight:	1875 g

Operating Environment:	
AMBIENT TEMPERATURE:	0°C ~ +40°C
RELATIVE HUMIDITY:	30% ~ 75%
AMBIENT PRESSURE:	700hPa ~ 1060hPa

Transportation And Storage Conditions:	
AMBIENT TEMPERATURE:	-10°C ~ +60°C
RELATIVE HUMIDITY:	10%~90%
AMBIENT PRESSURE:	500hPa~1060hPa

Wavelength Peak:	365±10 nm
Standard Color:	Gray


3.2 Unpacking and checking the contents

- 1 Main curing system
- 1 Power cord
- 1 User manual
- 1 Protective Goggle
- 1 4-mm Light head connected with cable (Optional; please refer to chapter 3.5)

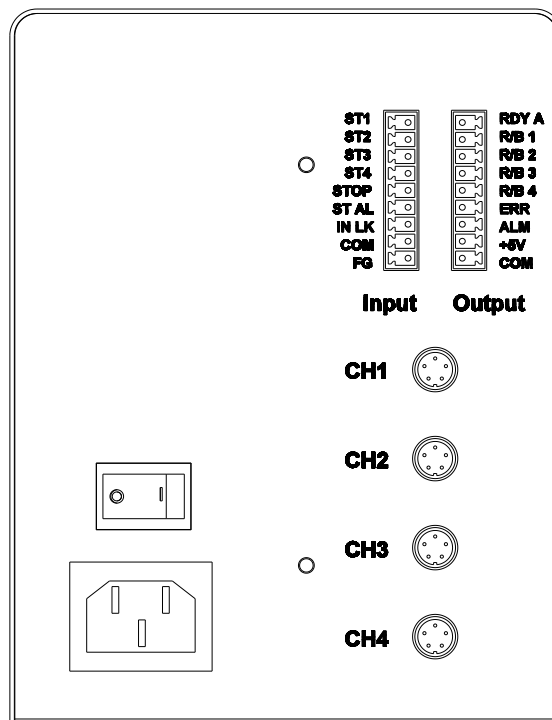
3.3 Installation & System Interconnect

1. Make sure that the voltage indicated on the rating plate complies with local standard.
2. Selecting location: Place the unit on a flat surface. Make sure it is not exposed to the immediate vicinity of heaters or other source of heat. Protect the unit from direct

sunlight. Make sure that the system is positioned at a dry location which does not hinder the airflow circulation around the system.

3. Connect the power cord to the rear side of the unit and then plug into the grounded wall socket.
4. Remove the protective cover from the light head and channel mount.
5. Install the light head cable to the channel mount sequentially. (From Ch1, Ch2, Ch3 to Ch4.)
6. Visually inspect if the connection between the light head cable and channel mount is firm.
7. Turn on the Power by switching to  (on) position.
8. No warm-up or cooling time needed. The system can be powered on and off instantly.

 **Make sure that there is no foreign material presented at the two ends of the light head before installation.**



3.4 Validation

You are recommended to conduct testing to determine the adequate time and light intensity required to fully cure your light-curable material in your specific application. You can start from fixing the light intensity and then validate the time needed, or do it reversely.

3.5 Optional Accessories

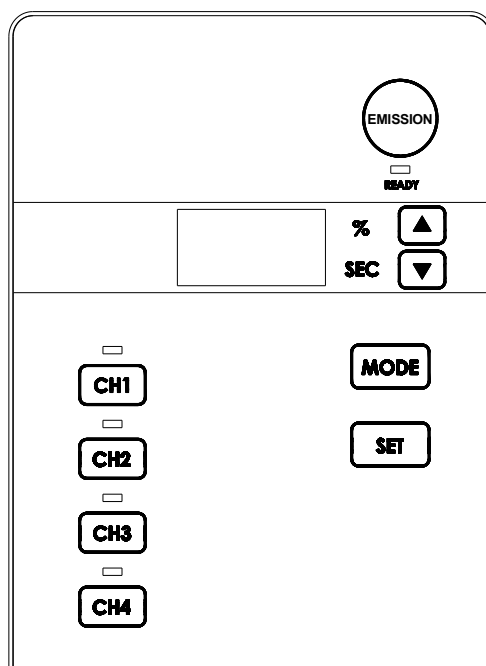
Different light heads can be purchased from authorized Rolence dealers, including:

LED light head spec

Cable length	1.5 meter (standard)		
LENS	φ3mm	φ4mm	φ8mm
Part number	LUV1043	LUV1044	LUV1048
Irradiation intensity (mW/cm ²)	8,000	6,850	1,740
Irradiation distance	10mm	10mm	25mm

4. Operation

4.1 Definition of the LED and button



Display	Descriptions
EMISSION	Press to start irradiation.
READY	Indicates that irradiation is ready to start. Stays Green: While irradiation is ready to start. Stays Red: During irradiation.
CH1~CH4 indicator [rectangle LED]	Indicates CH selection and CH status. Stays Green: During activation (channel connected to LED head). Stays Red: Upon selection. Flashing : During Irradiation
Red 7-seg display (3 digits)	Display the setting of the selected channel. Note: For the first-time use, the display will show the default time setting. Irradiation time (0-999 sec.). UV intensity modulation (from 1-100%). Error code (E00-E04).
MODE	Press to enter "SET UP" mode which you can check/adjust irradiation time (SEC) and UV intensity (%).
SET	Press to save the setting and return to "Operation" mode.
%	Appears when UV intensity modulation is displayed.

SEC	Appears when irradiation time is displayed.
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4.2 "SET UP" mode and "Operation" mode

- (1). Turn on the power switch on the rear side.
- (2). The LED light above the CH1 to Ch4 will be ON if it is connected.
- (3). The default channel is CH1 Which is RED and other channel is Green
- (4). There are "SET UP" mode and "Operation" mode.
- (5). While the unit is at "SET UP" mode, the "READY" LED is red, and user can set the timer and light intensity for each channel
- (6). While the unit is at "Operation" mode, the "READY" LED is green and it is ready to operate.

4.3 Timer irradiation

Control the irradiation on-off by the EMISSION switch of the controller.

Note: The displayed values apply to the selected channel.

1) Starting irradiation

- I. Follow chapter 4.2 to set up irradiation time for each channel.

Note: If you want to disable an active channel, please set the timer to 0 SEC.

- II. Press the EMISSION switch

Note: Irradiation will start on all the active channels with green indicator while the EMISSION switch glows red during irradiation. The display will count irradiation time backward. Irradiation stops after irradiation is finished on all channels.

2) Stopping irradiation

While irradiation is in progress, press the EMISSION switch again to stop. The irradiation will be stopped on all channels accordingly.

4.4 Set up irradiation conditions

Set up the irradiation intensity and irradiation time separately for each channel

1) Channel select

Select the channel to be set by pressing CH1 to CH4. The selected channel would be indicated by red light.

Note: CH can not be selected if the corresponding LED head is not connected before

powering on the controller.

2) Irradiation time setup

After selecting the channel, "SEC" appears on the right side of the 7-seg display at this stage. Press down the MODE button to enter the set-up mode. Irradiation time could therefore be adjusted. Use ▲/▼ to set the desired time value.

3) Irradiation intensity setup

When you have finished setting up irradiation time, press down the MODE button again to set up irradiation intensity. You would see "%" appear on the right side of the 7-seg display at this stage. Use ▲/▼ to set the desired intensity level.

Note: To start irradiation at this stage, please press SET switch to return to operation mode/irradiation time setting mode and then press EMISSION button.

4) Return to operation mode

When you have finished setting up the irradiation time and intensity, press down the SET button to return to operation mode. You would see the READY display turn green, and the emission is ready to start.

To continue setting for other channels, repeat the procedure above from step I.



The displayed values are stored in memory even when the controller is powered off. After the controller is power on again, it will restore the display to its latest state. However, please be reminded that the display will show the factory setting of time for first-time use.

4.5 Irradiation using an external start signal

Irradiation can be started externally using the INPUT terminals on the rear side of the controller, either "START ALL" or "START 1-4".

1) Starting irradiation

I. Turn on the START signal

Irradiation is activated under the conditions summarized below.

Case of START ALL: When the START ALL signal is switched to ON, irradiation starts simultaneously on all channels.

Case of START 1-4: When the signal of a START No. terminal is switched ON, irradiation starts on the corresponding CH No.

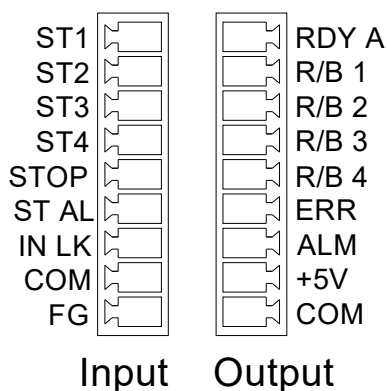
2) Stopping irradiation

I. Switch the STOP signal to ON.

Note: Irradiation can also be stopped by pressing the EMISSION switch.

5. 18-Pin Connector I/O Signals on Rear Side

5.1 Input/output terminal table



There are 18 pins for external control connectors.

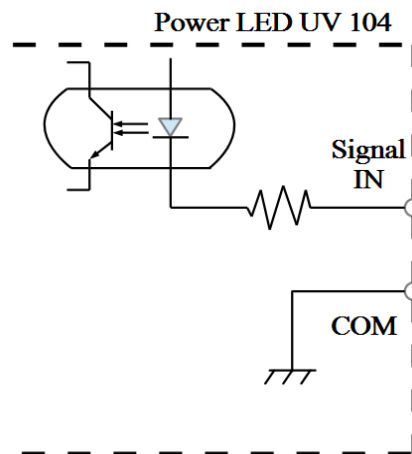
Input		
Pin Number	Signal name	Description
1	ST 1	CH1 irradiation start signal
2	ST 2	CH2 irradiation start signal
3	ST 3	CH3 irradiation start signal
4	ST 4	CH4 irradiation start signal
5	STOP	Irradiation stop signal
6	ST AL	CH1-CH4 irradiation start signal
7	IN LK	Interlock (Shall be ON during all operations)
8	COM	Common terminal for input/output signals
9	FG	No Use
Output		
Pin Number	Signal name	Description
1	RDY A	ON while all CHs irradiation is ready to start

2	R/B 1	ON while CH1 is ON
3	R/B 2	ON while CH2 is ON
4	R/B 3	ON while CH3 is ON
5	R/B 4	ON while CH4 is ON
6	ERR	Error signal
7	ALM	No Use
8	+5V	5V DC output
9	COM	Common terminal for input/output signals

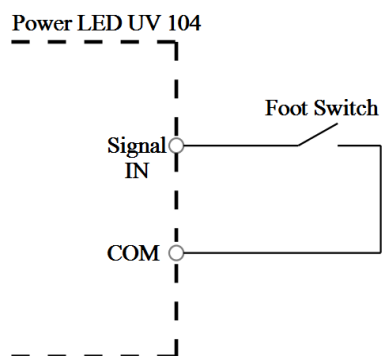
5.2 External connection diagram

§ Input

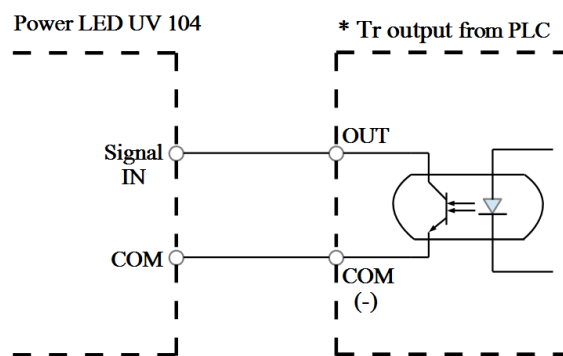
● Input internal circuit



● Contact input suggestion



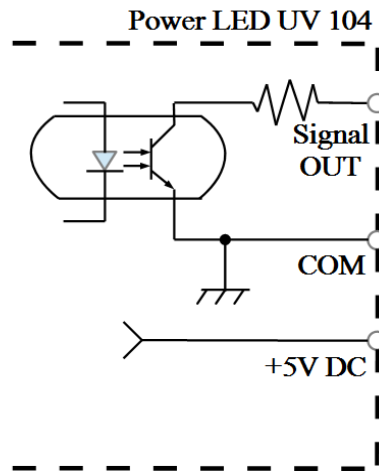
● Non-contact input suggestion



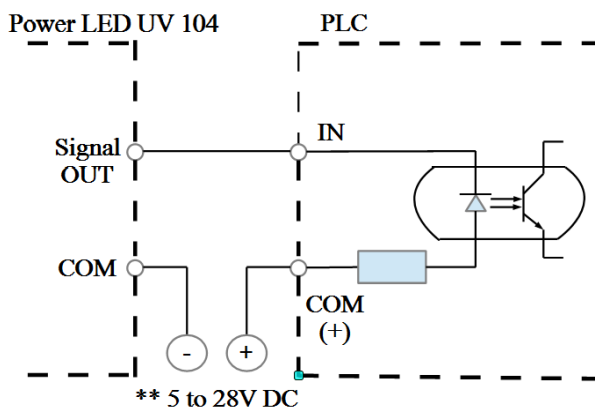
***Note:** No-voltage input from equipment such as open collector (Tr) and relay.

§ Output

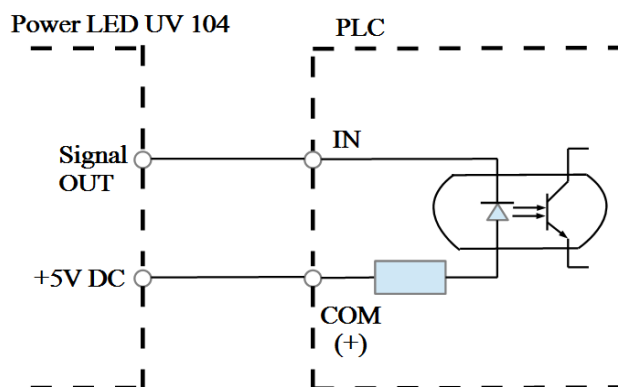
● Output internal circuit



● External power supply suggestion



● Internal power supply suggestion



****Note:** Rated operational voltage: 5 to 28V DC ; Output capacity: 100mA(Max).

6 Troubleshooting and Error Code

6.1 Troubleshooting



Please contact with Rolence authorized dealer for further help if the symptom can not be found below. Disassembling the system without the guidance of our authorized dealer is not suggested.

Symptom	Possible Cause	Verification	Solution
The LED light head will not illuminate.	Connection error	Inspect ALL the input and output connections such as power cord and light head.	Secure every connection cable. Make sure that the light head cable is connected sequentially prior to powering on the device.
Low output intensity or fail to cure the material.	Incorrect intensity setting	Use radiometer to measure the output intensity.	Adjust the intensity.
	Incorrect selection on light head	Please check if the light source frequency matches the one required to cure the desired resin.	Change the light head if the spec does not match with the requirement of the resin spec.
	Foreign materials on LENS	Visually inspect the LENS.	Clean it up carefully with isopropyl alcohol or the equivalent. Replace the light head if it can not be cleaned.

6.2 Error Code

When an error occurs, the error code was shown on the red 7-seg display.

Red 7-seg Display	Error description
E00	The interlock contact was off during irradiation.
E01	The faulty connection between light head cable and the mount. Before powering on the system, there shall be at least one channel connected to light head cable.
E02	The LED light head temperature reached overheated level.

7. Warranty

7.1 Malfunction

Rolence hereby warrants that for a period of one year from the delivery date, this device shall be free from defects in material and workmanship. In case the machine is found malfunctioned under normal use, Rolence will offer service of free maintenance and parts for replacement.

7.2 Repair

Repairs must be only carried out by an authorized Rolence engineer/dealer. If repairs during warranty period are not carried out by an authorized engineer/dealer, warranty will expire immediately.

7.3 Warranty Exception

The warranty stated herein is the sole warranty applicable to Rolence products. Rolence expressly disclaims the liability for warranty even within warranty period, if

- (1) Damages caused by natural disaster.
- (2) Operator's fault or wrong operation.
- (3) Application use other than curing light-cured material purpose.
- (4) A malfunction or damage caused by repair, adjustment, modification which is not carried out by authorized Rolence engineers/dealers.
- (5) A malfunction caused by abnormal power source or voltage.
- (6) It is a consumption part.