# omron Model ZUV-C40H

**UV-LED Irradiator Controller** 

# **INSTRUCTION SHEET**

Thank you for selecting OMRON product. This sheet primarily describes precautions required in installing and operating the product. Before operating the product, read the sheet thoroughly to acquire sufficient knowledge of the product. For your convenience, keep the sheet at your disposal.

TRACEABILITY INFORMATION:

Importer in EU: Omron Europe B.V. Wegalaan 67-69 2132 JD Hoofddorp, The Netherlands Manufacturer: Omron Corporation, Shiokoji Horikawa, Shimogyo-ku, Kyoto 600-8530 JAPAN

The following notice applies only to products that carry the CE mark: Notice:

This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.



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## PRECAUTIONS FOR SAFE USE

- Do not use the product in environments where it can be exposed to inflammable/explosive gas.
- To ensure safety of operation and maintenance, do not install the product close to high-voltage devices and power devices.
- When using an AC power supply, use the AC adaptor (supplied with the product, 100 to 240 VAC ±10%).
- 4. When using a DC power supply, the supply voltage must be within the rated range (24VDC  $\pm 10$ %). In addition, reverse connection of the power supply is not allowed. Recommended power source: S8VS-18024 (24 VDC 7.5A) by OMRON
- 5. Open-collector outputs should not be short-circuited.
- 6. Use the power supply within the rated load.
- High-voltage lines and power lines must be wired separately from this product.
   Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.
- 8. Should you notice any abnormalities such as smoke, abnormal heat of the product surface, and/or any foul odor, immediately stop use, turn OFF the power supply, and disconnect the power plug from the outlet. Contact your OMRON representative for repair of the product. Repairing it by yourself may cause danger.
- Do not attempt to dismantle, repair, or modify the product. Doing so may cause the product to not operate correctly as well as cause a malfunction resulting in a fire or an electric shock.
- 10. Dispose of this product as industrial waste.
- 11. Do not drop the product.
- If the product is dropped or damaged, turn OFF the power supply, disconnect the powerplug from the outlet, and contact your OMRON representative. Using it continuously without repair may cause a fire.
- 12. Do not insert any foreign objects into the product through the ventilation hole or any other opening. Doing so may cause a fire or electric shock.
- 13. Do not install multiple controllers close to others, or do not pile them up. Doing so may cause a fire or breakdown of the product.
- 14. Applicable standards
- EN6132
- Electromagnetic environment : Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)

### PRECAUTIONS FOR CORRECT USE

- 1. Do not install the product in locations subjected to the following
- Ambient temperature outside the rating
- Rapid temperature fluctuations (causing condensation)
- Relative humidity outside the range of 30 to 85%
- Presence of corrosive or flammable gases
- Presence of dust, salt, or iron particles
- Direct vibration or shock
- Reflection of intense light (such as other UV lights, laser beams, or electric arc-welding machines)
- · Direct sunlight or near heaters
- · Water, oil, or chemical fumes or spray, or mist environment
- · Strong magnetic or electric field

#### 2.Power Supply and Wiring

- When using a controller, make sure that the FG terminal on the main unit is grounded.
- When using a DC power supply, make sure that the power source is grounded.
- When using a DC power supply, observe the following points:
- When using a commercially available switching regulator, make sure that the FG terminal is grounded.
- If surge currents are present in the power lines, connect surge absorbers that suit the operating environment.
  Before turning ON the power after the product is connected, make sure
- that the power supply voltage is correct, there are no incorrect connections (e.g. load short-circuit) and the load current is appropriate.
- A third party product is used for the AC adapter (LTE90E-SW-306 by Li Tone Electronics Co.,LTD).
- The attached cable for the AC adapter can only be used in Japan. It cannot be used in other countries.
- When using the AC adapter, connect the power plug into the controller before inserting the power cord into an outlet.
  When removing the AC adapter, unplug the power cord from the outlet before
- removing the power plug from the controller.
- Before connecting/disconnecting the head, make sure that the controller is turned OFF.
- Use only combinations of the head and controller, extension cable specified in this manual.
- The exclusive extension cable can be used between head and controller. However, do not use multiple extension cables for conjunction use.

#### 3 Cleaning

- Do not use paint thinner, benzene, acetone, or kerosene for cleaning since these solutions dissolve the product surface.
- Use commercially available alcohol.
- To remove dirt or dust particles from the lens, wipe gently with a soft cloth (for cleaning lenses) moistened with a small amount of alcohol.

#### 4. About Resin Hardening

 The hardening state of resin varies depending on various factors. Check the hardening state of resin on an ongoin basis and set the optimum conditions.

#### 5.Replacing the Head

When replacing the head, be sure to initialize the target channel on the controller.
 If the target channel is not initialized, the information (cumulative irradiation energy,power tuning data) of the head before replacement may still remain and prevent normal functioning of the head.

#### 6.Connecting the Head

 When removing and re-connecting the head, be sure to connect to the same channel. If the head is connected to a different channel, information (cumulative irradiation energy, power tuning data) specific to the head is not inherited, preventing the head from functioning normally.

#### 7. LED safety measures

- If a mirror-surface object stands in the light path, install a light shielding cover to the object. When using the product without termination, avoid to set the light at the eye level.
- Although the safety distance, Nominal Ocular Hazard Distance (NOHD) is 1 m, terminate the light path where possible. Termination material with less reflective and lusterless painted surface is the best choice.
- When not using the product, turn OFF the product key and remove it.
- When installing or adjusting the head part, wear protection glasses.

#### 8. Combinations of the head and controller, extension cable

 When using, connect with the following combinations. If different combinations, the head connection will not be recognized and can not irradiate UV light.

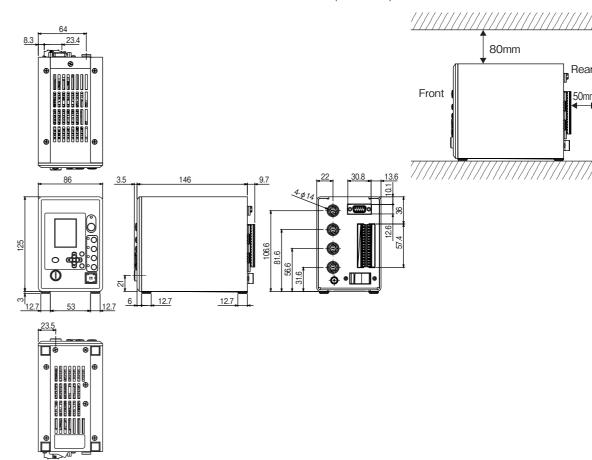
Controller : ZUV-C40H(-D) Head Unit : ZUV-HN□□ Extension Cable : ZUV-XCN□□

If "POW" and "TIME" of the target CH are displayed as "---" on the CH SET screen, the head is not recognized for connection. Check if the connection head type is ZUV-HN series.

# Dimensions

# ■Installing the controller

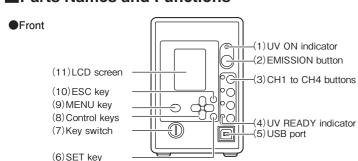
(UNIT: mm)



# Ratings / Characteristics

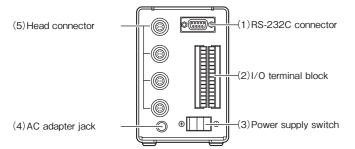
| Trainings / Characteristics |                      |  |  |  |  |
|-----------------------------|----------------------|--|--|--|--|
| Model                       |                      | ZUV-C40H/ZUV-C40H-D  |  |  |  |
| Irradiation                 | Constant irradiation | Irradiation power (0 to 100%). irradiation time (max. 999.9 seconds/unlimited)                                       |  |  |  |
| method                      | Pattern irradiation  | Can be set to step or ramp (linear) (16 points specified per setting)  |  |  |  |
| Number of settings          |                      | 16 banks   |  |  |  |
| Terminal                    | Inputs               | Emergency stop, Start/stop UV irradiation (4 channels), Select settings (banks)                                      |  |  |  |
| block I/O                   | Outputs              | Ready (4 channels), UV irradiating, errors   |  |  |  |
| RS-232C                     | Inputs               | Start/stop UV irradiation (4 channels), select settings (banks),   |  |  |  |
| and USB                     | Outputs              | get/change setting data, save/read data, execute power tuning, get cumulative irradiation energy                     |  |  |  |
| Cooling metho               | od                   | Natural air cooling  |  |  |  |
| Applicable He               | ead Unit             | ZUV-HN□□   |  |  |  |
| Applicable Extension Cable  |                      | ZUV-XCN□□  |  |  |  |
| Power supply voltage        |                      | Select AC or DC power supply.  |  |  |  |
|                             |                      | ·AC power supply : 100 to 240 VAC±10%, 50/60 Hz (AC adapter supplied)  |  |  |  |
|                             |                      | •DC power supply : 24 VDC±10% (supplied from the terminal block on rear of unit)                                     |  |  |  |
| Current consumption         |                      | ·With AC adapter : 1.5A (36 VA)  |  |  |  |
|                             |                      | •With DC power supply : 1.5A (36 VA)   |  |  |  |
| Vibration resistance        |                      | 10 to 150Hz: acceleration: 50m/s² single amplitude: 0.35mm each of the X, Y and Z directions for 8 minutes. 10 times |  |  |  |
| Drop impact resistance      |                      | 150m/s² each in 6 directions (up/down, left/right, forward/backward), for 3  |  |  |  |
| Ambient temperature range   |                      | Operating: 5 to 35 °C, Storage: -10 to 60 °C(with no icing or condensation)  |  |  |  |
| Ambient humidity range      |                      | Operating and storage: 30% to 85% (with no condensation)   |  |  |  |
| Degree of protection        |                      | IEC60529 IP20  |  |  |  |
| Material                    |                      | SECC, aluminum   |  |  |  |
| Weight (packed state)       |                      | Approx. 2600g(main unit : Approx. 1800g)   |  |  |  |
| Accessories                 |                      | Instruction Sheet, key, AC adapter(Not for ZUV-C40H-D)   |  |  |  |

# ■ Parts Names and Functions



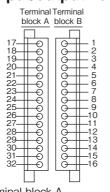
| Function  |   |  |  |  |
|---|---|--|--|--|
| LOCK Mode   | READY Mode  |  |  |  |
| Goes out.   | Lights during UV irradiation.   |  |  |  |
| _   | Pressing this button starts/stops UV light irradiation from the irradiation standby head.   |  |  |  |
| _   | The head corresponding to the pressed button starts/stops UV light irradiation.   |  |  |  |
| Goes out.   | Lights in the irradiation standby mode when the key switch is turned to the "READY" position. Note that the indicator goes out during UV irradiation. The channel corresponding to the connected head lights.   |  |  |  |
| Connect the USB cable to the USB port to connect to a personal computer.  |   |  |  |  |
| Selects and applies items when they art being set.  |   |  |  |  |
| Operating this key switches between the LOCK and READY modes.  LOCK mode: irradiation conditions can be set in this mode.  irradiation is disabled.  READY mode: irradiation is enabled in this mode. |   |  |  |  |
| Move the cursor and change numeric values.  | The $\leftarrow$ $\rightarrow$ L/R keys change the display screen during operation. The $\uparrow$ $\downarrow$ UP/DOWN keys change the display channel.  |  |  |  |
| Saves settings.   | _   |  |  |  |
| Cancels the setting, and returns to the one previous menu.  |   |  |  |  |
| 1) LCD screen Displays a display screen or setting menu during operation.   |   |  |  |  |
|   | LOCK Mode  Goes out.  Goes out.  Connect the USB cable to the USB port to connect to a personal of Selects and applies items when they art being set.  Operating this key switches between the LOCK and READY modes irradiation conditions can be set in this mode. irradiation is disabled.  READY mode: irradiation is enabled in this mode.  Move the cursor and change numeric values.  Saves settings.  Cancels the setting, and returns to the one previous menu. |  |  |  |

#### Rear



| Name                    | Function  |
|-------------------------|---|
| (1) RS-232C connector   | Connects to the personal computer or programmable controller via the serial cable to control input from external devices.   |
| (2) I/O terminal block  | Connects external devices such as the foot switch.  |
| (3) Power supply switch | Switches the main power supply ON/OFF. The ON/OFF direction differs between the AC power supply and the DC power supply. Check the ON/OFF direction printed on the main unit. |
| (4) AC adapter jack     | Connects to the AC power supply.  |
| (5) Head connector      | Connects to the head.   |

# Input/output Terminal Arrangement



Pay attention to the following points regarding the electric wire used for the terminal block:

The size of the recommended cross section is as follows:

Numbers 16, 31, and 32: 1.00 to 1.50 mm<sup>2</sup> Other than the above: 0.10 to 1.50 mm<sup>2</sup>

The stripped cable length is approximately 7 mm. Wire length: 30 m and less

#### ·Terminal block A

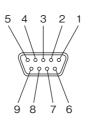
#### ·Terminal block B

|    |            |        |                         |    |            | -     |                          |
|----|------------|--------|-------------------------|----|------------|-------|--------------------------|
| No | Indication | 1/0    | Signal Name             | No | Indication | 1/0   | Signal Name              |
| 17 | RDY1       | Output | Ready output CH1        | 1  | AIN1       | Input | 0 to 5V analog input 1   |
| 18 | RDY2       | Output | Ready output CH2        | 2  | AIN2       | Input | Unused                   |
| 19 | RDY3       | Output | Ready output CH3        | 3  | AIN3       | Input | Unused                   |
| 20 | RDY4       | Output | Ready output CH4        | 4  | AIN4       | Input | Unused                   |
| 21 | TRGOUT1    | Output | Unused                  | 5  | AG         | _     | Analog input GND         |
| 22 | TRGOUT2    | Output | Unused                  | 6  | TRG1       | Input | UV irradiation start/end |
|    |            |        |                         |    |            |       | input CH1                |
| 23 | TRGOUT3    | Output | Unused                  | 7  | TRG2       | Input | UV irradiation start/end |
|    |            |        |                         |    |            |       | input CH2                |
| 24 | TRGOUT4    | Output | Unused                  | 8  | TRG3       | Input | UV irradiation start/end |
|    |            |        |                         |    |            |       | input CH3                |
| 25 | UVON       | Output | Output during UV        | 9  | TRG4       | Input | UV irradiation start/end |
|    |            |        | irradiation             |    |            |       | input CH4                |
| 26 | ERROR      | Output | Error output            | 10 | BANK0      | Input | Bank switching input 0   |
| 27 | COMOUT     | _      | Output COM              | 11 | BANK1      | Input | Bank switching input 1   |
| 28 | NC         | _      | No connection           | 12 | BANK2      | Input | Bank switching input 2   |
| 29 | NC         | _      | No connection           | 13 | BANK3      | Input | Bank switching input 3   |
| 30 | NC         | _      | No connection           | 14 | EMGCY      | Input | Input of emergency stop  |
| 31 | +24V       | _      | +24V power supply input | 15 | COMIN      | _     | OV (input COM)           |
| 32 | GND        | _      | 24V input GND           | 16 | FG         | _     | Frame GND                |
|    |            |        |                         |    |            |       |                          |

# ■RS-232C pin assignments

The D-SUB9 female pin is used for the RS-232C connector. Prepare a compatible connector.

Recommended part: XM3A-0921 (plug) XM2S-0911 (hood)



| Pin No. | Signal Name | Description       |
|---------|-------------|-------------------|
| 1       | FG(GND)     | Protective ground |
| 2       | SD(TXD)     | Send data         |
| 3       | RD(RXD)     | Receive data      |
| 4       | NC          | Not connected     |
| 5       | NC          | Not connected     |
| 6       | NC          | Not connected     |
| 7       | NC          | Not connected     |
| 8       | NC          | Not connected     |
| 9       | SG(GND)     | Signal ground     |
|         |             |                   |

# Internal Specification

| <input specification=""/> |                                 |  |  |
|---------------------------|---------------------------------|--|--|
| Internal circuit diagram  | Each input terminal  COM IN  OV |  |  |

# <Output Specification>

| Output voltage      | 12 to 24 VDC +/-10%  |
|---------------------|----------------------|
| Load voltage        | 45 mA max.           |
| ON residual voltage | 2 V max.             |
| OFF leakage current | 0.1 mA max.          |
| Internal circuit    |                      |
| diagram             | Each output terminal |

Regarding the detailed functions and operations, refer to the User's

(It can be download from HP.)

# Suitability for Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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