

SPECIFICATION

Product Name	LED fiber Optic illuminator
Model	SLG-55 series

Customer's Approval Signature
Date:

The number of copies

Issued Date: December 14, 2012
Revised Date:

Approved	Checked	Checked	Written

Revision history

No.	Description	Date	Approved	Written
0	issue	2012.12.14	Hirose	Motomi
1				

<Precautions>

Please read the instructions below carefully and follow them when using the SLG-55.

- The SLG-55 is designed for only an industrial use such as image inspections.
- Use the SLG-55 only indoor and avoid condensation.
- Be sure to connect to ground using AC cable with 2-flat-blade and a round grounding pin in order to protect a user from electric shock.
- Select the appropriate power cable for the region and your working environment.
- Use the AC power supply in accordance with the range in this specification.

- DO NOT look at the LED light directly.
- DO NOT dismantle the product.
- DO NOT remodel the product such as adding parts, arranging parts or drilling a hole on the panel. It can result in decreased reliability.
- DO NOT touch the products with wet hands.
- DO NOT cover the ventilation holes on the top and the air inlets on the rear in order to prevent overheating.

- Turn off the main power switch immediately if the cooling fan stops or an abnormal signal is detected.
- While the main power switch is on, cooling fan is always running even if the LED is OFF.
- If you have any questions or concerns about the SLG-55, please feel free to contact us.

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1. Application

This specification applies to the fiber optic LED illuminator SLG-55 series.
Specifications are subject to change without advance notice.

2. General specification

Input voltage	AC100 to 240V $\pm 15\%$ (50/60Hz)	
Luminous flux of LED device	2,100 lm at a maximum	
Power consumption	Approximately 91 VA (at maximum illuminance)	
Operating ambience	Temperature: 5 to 40 degC Humidity: 20 to 80%(No condensation)	
Dimming range	0 to 100%	
Illuminance control	Manual	Manual dimming knob
	External	Analog signal control (0-5V)
		Digital control 8 Bit
		Digital control 9 Bit
		Digital control 10 Bit
		Serial communication commands(RS232C)
Analog signal lock	Available in analog control and manual mode	
Error detection	LED abnormal high temperature error	
Attachable light guide	Fiber bundle diameter: 6 to 14mm	
Replacement of LED	Available by sending back the product	
Expected lifetime of LED	30,000 hours (Calculated value until the light output decreases to 70%)	
Applicable standards	EU RoHS compliant	

3. Optical specification

(1) Wavelength range

1) White (SLG-55-W): 400 to 750 nm

(Correlated color temperature: 6,000 to 9,000K, CRI 70)

2) Red (SLG-55-R): 625 nm $\pm$ 5 FWHM 20nm

3) Green (SLG-55-G): 525 nm $\pm$ 5 FWHM 40nm

4) Blue (SLG-55-B): 455 nm $\pm$ 5 FWHM 30nm

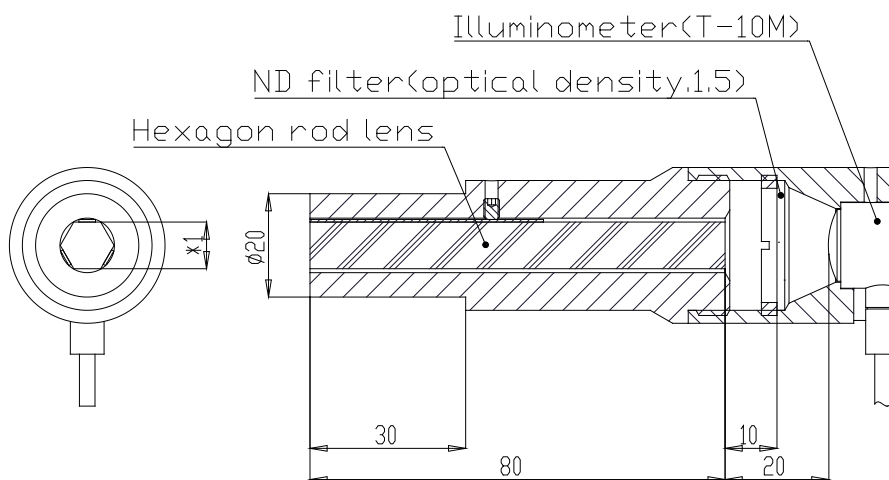
(2) Illuminance of White LED

Diameter of Hexagon rod lens= $\phi 8$: 150,000 lx or more

Diameter of Hexagon rod lens= $\phi 10$: 160,000 lx or more

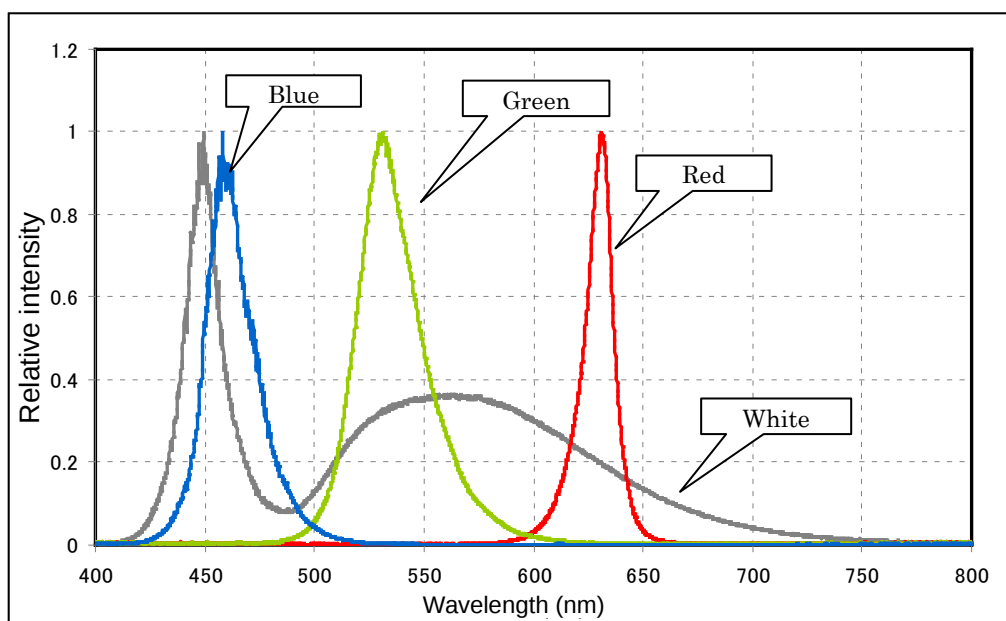
Diameter of Hexagon rod lens= $\phi 14$: 130,000 lx or more

(These are actual measured illuminance observed by the following measuring tool)

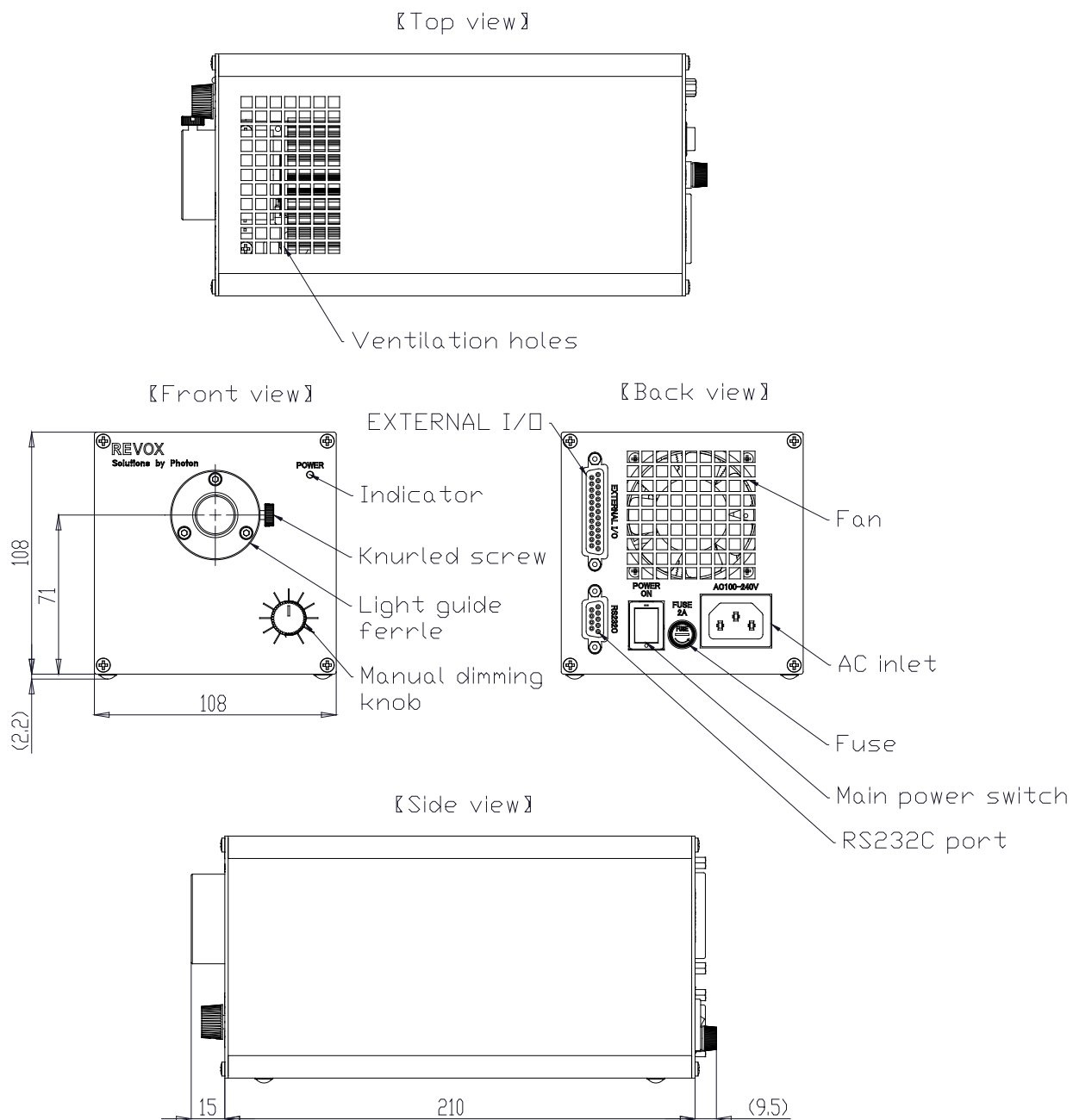


* 1 : Hexagon rod lens outer diameter: $\phi 8$, $\phi 10$ or $\phi 14$

(3) Spectral characteristics (Set a maximum value of each color as 1 on the vertical scale)



4. External View



Dimensional tolerance: ± 2 mm
Weight: approximately 1.9 kg

5. Part numbering /Labeling

SLG-55-(1)

A.Part number

(1) shows LED color.

- W : White color temperature range 6000 to 9000 K (CRI 70)
- R : Red center wavelength 625nm (average)
- G : Green center wavelength 525nm (average)
- B : Blue center wavelength 455nm (average)

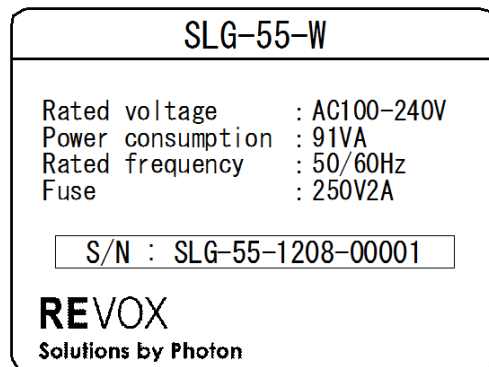
B. Product label affixed to the body

- 1.Part number
- 2.Rated voltage
- 3.Power consumption
- 4.Rated frequency
- 5.Rating of fuse
- 6.Serial No.

SLG-55- production year/month (4-digit) - production number (5-digit)

- 7.Revox logo

<Example>



6. Interface

6.1. Indicator on the front panel

Red indicator is ON while the main power is ON.

Red indicator blinks when LED temperature error occurs.

LED temperature status

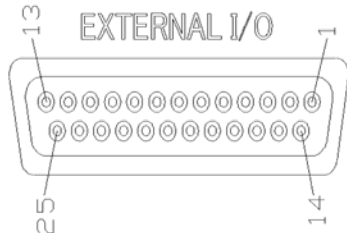
0: no error, 1: error occurs

LED temperature status	Indicator	LED	Communication command LED abnormal temperature error output
Normal	ON	ON	0
High	Blink	ON	0
Extremely high	Blink	Auto OFF	1

6.2. EXTERNAL I/O

In order to prevent adverse effects of electrical noise, make the cable length as short as possible especially in Analog signal control mode.

(1) Pin configuration



No.	SIGNAL		Manual	Analog	8Bit	9Bit	10Bit	Serial
1	+12 to +24V	COM	●	●	●	●	●	—
2	Bit0	Input	—	—	●	●	●	—
3	Bit1	Input	—	—	●	●	●	—
4	Bit2	Input	—	—	●	●	●	—
5	Bit3	Input	—	—	●	●	●	—
6	Bit4	Input	—	—	●	●	●	—
7	Bit5	Input	—	—	●	●	●	—
8	Bit6	Input	—	—	●	●	●	—
9	Bit7	Input	—	—	●	●	●	—
10	Bit8	Input	—	—	—	●	●	—
11	Bit9	Input	—	—	—	—	●	—
12	Analog signal lock	Input	●	●	—	—	—	—
13	LED OFF	Input	●	●	●	●	●	—
14	8Bit mode	TTL Input	—	—	●	—	—	—
15	9Bit mode	TTL Input	—	—	—	●	—	—
16	10Bit mode	TTL Input	—	—	—	—	●	—
17	Analog control mode	TTL Input	—	●	—	—	—	—
18	Mode select COM	TTL COM	—	●	●	●	●	—
19	LED TEMP error	Output	●	●	●	●	●	●
20	LED ON	Output	●	●	●	●	●	●
21	Output COM	COM	●	●	●	●	●	●
22	NC	—	—	—	—	—	—	—
23	+5V for external VR	Output	—	●	—	—	—	—
24	Analog input	Input	—	●	—	—	—	—
25	Analog control GND	COM	—	●	—	—	—	—

<LED temperature error output (Pin 19)>

- If LED temperature error occurs, the photo coupler turns ON.
- Output signal is open collector output.
- Sink current must be 25 mA or less.

<LED ON output (Pin 20)>

- When LED is ON, the photo coupler turns ON.
- Output signal is open collector output.
- Sink current must be 25 mA or less.

<Analog signal (0-5V) control mode>

- Short-circuit pin 17 and 18.
- To control illuminance, set pin 25 as COM and apply voltage to pin 24.
- Applied voltage must be DC5 V or below.
- For analog control with a potentiometer, +5 V is output from pin 23.
- The resistance of the potentiometer must be 10 K-ohm.

<Digital 8 Bit control mode>

- Short-circuit pin 14 and 18.
- Apply +12 to +24 V to pin 1.

<Digital 9 Bit control mode>

- Short-circuit pin 15 and 18.
- Apply +12 to +24 V to pin 1.

<Digital 10 Bit control mode>

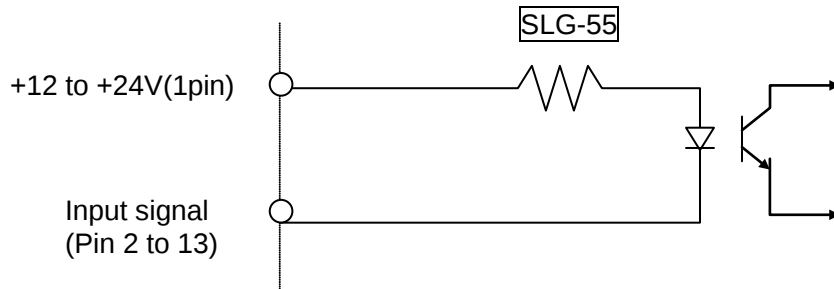
- Short-circuit pin 16 and 18.
- Apply +12 to +24 V to pin 1.

(2) Hardware specification

Input format:

Parallel I/O, photo isolator

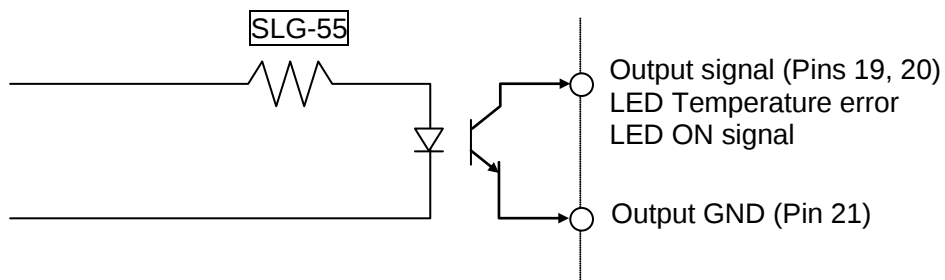
To turn active, apply +12 to +24 V to pin 1 and connect any pins between 2 to 13 with GND.



Output format:

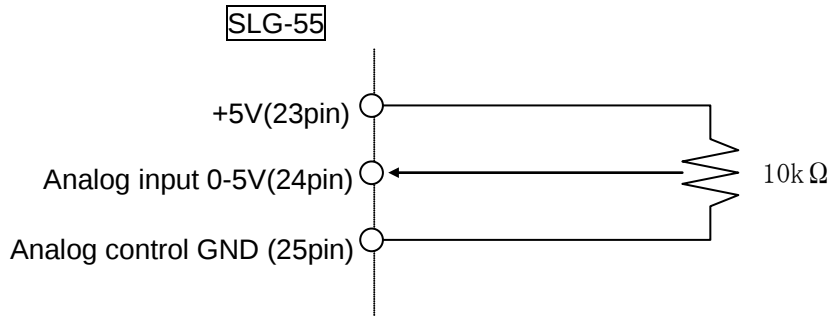
Open collector output, electrically-isolated

Output signals are active when the photo coupler is ON.



(3) Analog signal control

- To control illuminance, set pin 25 as COM and apply voltage to pin 24.
- Applied voltage must be DC5 V or below.
- For analog control with a potentiometer, +5 V is output from pin 23.
- The resistance of the potentiometer must be 10 K-ohm.



(4) Analog signal lock

Analog signal lock is available both in analog signal control mode and manual control mode.

To use analog signal lock function, apply +12 to 24 V to pin 1 and connect pin 12 with the minus side of an external power supply.

During analog signal lock ON, illuminance level is always kept stable even if voltage varies or turning the manual dimming knob.

(5) Turn LED ON/OFF

To turn LED OFF, activate pin 13.

- Photo coupler ON: LED OFF
- Photo coupler OFF: LED ON

6.3. How to change control mode

To change control mode, use pin 14, 15, 16, 17 and 18 of the External I/O.

EXTERNAL I/O

No.	SIGNAL
14	8 Bit mode
15	9 Bit mode
16	10 Bit mode
17	Analog control mode
18	Mode select COM

① Manual control

Illuminance control with Manual dimming knob on the front panel

EXTERNAL I/O	Leave pins 14 to 18 unconnected
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② Digital control 8 Bit

Illuminance control with 8 Bit digital signals

EXTERNAL I/O	Short-circuit pin 14 and 18.
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③ Digital control 9 Bit

Illuminance control with 9 Bit digital signals

EXTERNAL I/O	Short-circuit pin 15 and 18.
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④ Digital control 10 Bit

Illuminance control with 10 Bit digital signals

EXTERNAL I/O	Short-circuit pin 16 and 18.
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⑤ Analog signal control

Illuminance control with analog signal (0-5 V)

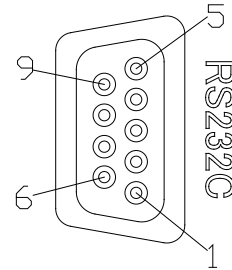
EXTERNAL I/O	Short-circuit pin 17 and 18.
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6.4. Serial control (RS232C)

You can control the SLG-55 with communication commands from external equipment connected to the RS232C port.

(1) Communication settings

Transmission speed	38400 bps
Data length	8 Bit
Parity	NONE
Stop bit	1 Bit
Flow control	NONE



No.	SIGNAL	No.	SIGNAL
1	NC	6	NC
2	Rx	7	NC
3	Tx	8	NC
4	NC	9	NC
5	GND		

Use a cross cable to connect and inch-sized screws to fix the cable.

(2) Functions

1. Serial control ON/OFF change (WDS)
2. LED ON/OFF change (WDD)
3. Illuminance control 8 Bit (256 steps) (WD8)
4. Illuminance control 9 Bit (512 steps) (WD9)
5. Illuminance control 10 Bit (1024 steps) (WDA)
6. LED temperature monitoring data (RDT)
7. LED abnormal temperature error output (REC)

(3) Communication commands

- The commands are exchanged by ASCII code in capital letters.
- The commands from external equipment must begin with STX (0x02) and end with ETX (0x03).
- The SLG-55 always responds to correct commands. Response commands from the SLG-55 begin with ACK (0x06) and end with ETX (0x03).
If a command format is wrong, the response from the SLG-55 is "NAK(0x15)".
- Parameters of each command are shown as "xxxx". The number of "x" depends on the kind of command.

1. Serial control ON/OFF change (WDS)

To switch serial control ON/OFF

- * ☐ indicates serial communication control mode status. 1 : ON 0 : OFF

Command from external equipment	[STX]	WDS	x	[ETX]
Response from the SLG	[ACK]	WDS	x	[ETX]

2. LED ON/OFF change (WDD)

To turn LED ON/OFF

- * ☐ indicates LED status. 1 : LED ON 0 : LED OFF

Command from external equipment	[STX]	WDD	x	[ETX]
Response from the SLG	[ACK]	WDD	x	[ETX]

3. Illuminance control 8 Bit (WD8)

To control illuminance by 8 Bit (256 steps)

- * ☐☐ indicate 256-step data from 00 to FF.

Command from external equipment	[STX]	WD8	xx	[ETX]
Response from the SLG	[ACK]	WD8	xx	[ETX]

4. Illuminance control 9 Bit (WD9)

To control illuminance by 9 Bit (512 steps)

- * ☐☐☐ indicate 512-step data from 000 to 1FF.

Command from external equipment	[STX]	WD9	xxx	[ETX]
Response from the SLG	[ACK]	WD9	xxx	[ETX]

5. Illuminance control 10 Bit (WDA)

To control illuminance by 10 Bit (1024 steps)

* $\boxed{x}\boxed{x}\boxed{x}$ indicate 1024-step data from 000 to 3FF.

Command from external equipment	[STX]	WDA	xxx	[ETX]
Response from the SLG	[ACK]	WDA	xxx	[ETX]

6. LED temperature monitoring data (RDT)

LED temperature is monitored, as a 16-bit data.

* $\boxed{x}\boxed{x}\boxed{x}$ indicate temperature data from 000 to 0FF

Example: 03C = 60°C

Command from external equipment	[STX]	RDT		[ETX]
Response from the SLG	[ACK]	RDT	xxx	[ETX]

7. LED abnormal temperature error output (REC)

LED Temperature error is monitored.

* $\boxed{x}$ indicates LED temperature status. 0 : normal 1 : error occurs

Command from external equipment	[STX]	REC		[ETX]
Response from the SLG	[ACK]	REC	x	[ETX]

- Sudden change of temperature is not monitored simultaneously.

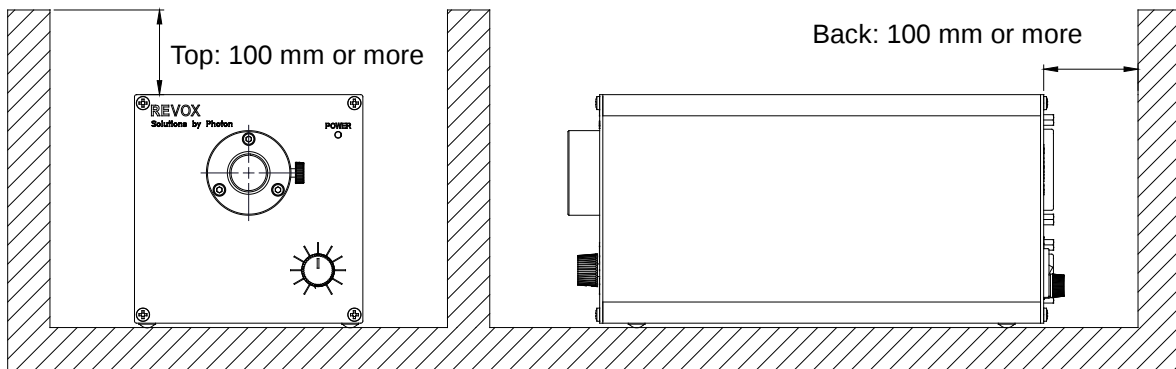
7. Packing

The SLG-55 is individually packed in a cardboard box (8 mm-double wall).

8. Installation instructions

The SLG-55 is precision equipment. In order to prevent a malfunction, please install properly in accordance with the following instructions.

(1) Be sure to install the SLG-55 in a well-ventilated room. In order to ensure enough room for air circulation around the device, maintain the clearance specified in the diagram below.



(2) If you use exhaust air duct, keep the air exhaust amount of 2.0 m³/min or more.

(3) Maintain a constant operating ambient temperature in accordance with this document. Sudden change of temperature may cause variation of illuminance.

(4) Be sure to keep the product and attached cables as far away from any electrical noise source as possible, such as inverter and high voltage cables. And shield the product from electrical noise source. A power cable and communication cables connected to the product should be shorter than 5 meters to reduce noise.

(5) Install the product on a stable surface with the bottom panel down.

(6) Put the product in the position in which you can turn the main power switch ON/OFF at any time.

(7) If the product is left unused for an extended period of time, it may malfunction. Operate the product at least once every six months.

(8) The SLG-55 is NOT waterproof. Do not use the product in places subject to rain, dripping, or enclosed places where condensation could occur.

(9) Avoid installing the product in a room that has corrosive gas, high temperature, high humidity or high levels of dust.

(10) To prevent deterioration of electrical and optical characteristics, shield the product from corrosive gas, which may corrode plated surface or soldered portions of electrical components.

9. Warranty terms and conditions

1. The warranty period under normal installation and handling conditions is one year from the date of purchase. Within the warranty period, Revox will repair or replace or adjust a defective product, provided the trouble is clearly due to a defect in Revox's design or manufacturing.
2. Even under warranty, charges will be needed for repair service in the following cases:
 - 1: Defects caused by dropping the product or damage in transit.
 - 2: Defects caused by improper use, remodeling or unauthorized repair.
 - 3: Defects caused by failure to follow installation instructions, improper operating environment.
 - 4: Defects caused by a fire, earthquake, flood, lighting or other natural disasters.
3. Revox accepts no liability whatsoever for any incidental damages arising out of the use or inability to use the product and for any damages arising from improper use not conforming to the instructions in the specifications and manuals, whether intentionally or negligent, or use under abnormal conditions.
4. The SLG-55 is intended to be used with general-use industry equipment or system. It is not designed or manufactured to be used with any equipment or system which requires an extremely high level of reliability such as a medical instrument, transportation equipment and nuclear-reactor controller. Malfunction or failure of the product in such applications may lead to a direct threat to human life or create a risk of human injury. If you consider using the SLG-55 for any such special purpose, be sure to inform us before purchasing.
5. Repairs of the SLG-55 are basically acceptable only by sending back the device to us. Services at your office or factory are not covered by the warranty. Charges may apply to repairs performed outside of Japan. Please contact us for inquiry about the cost and availability of repair services outside of Japan.
6. Maintenance will be available for five (5) years after the product is discontinued. In case a part or a component is discontinued, we will use a replacement part or a component. It might cause some difference in performance values specified in this document.
7. When sending a product for repair, please provide us with detailed information about the operating environment, external factors and malfunction description. If the information provided is insufficient, we could not offer a repair or maintenance service.

NOTE: This document is correct at the time of printing.

Warranty terms and conditions are subject to change without notice.

10. Trouble shooting

In case the product doesn't work properly, try the following suggestions.

- (1) Make sure to connect the power cord correctly/safely.
- (2) Make sure to connect a light guide firmly.
- (3) Make sure to connect wires or control cables firmly.
- (4) Make sure that the fuse does not blow.
- (5) Make sure that the control mode is correctly set as the way to use.

If the product still doesn't work even though you confirm the above points, please contact us. When sending a device for repair, please inform us of the following information as detailed as possible.

- 1.The serial number of the device
- 2.Total operating hours
- 3.The status of indicator on the front panel
- 4.Power source (commercial /UPS) and voltage
- 5.Operating environment: installation position, ambient temperature and any noise source.
- 6.External factors such as lightning, fire, earthquake, abnormal input voltage or any liquid gets into the device.
- 7.Malfunction description: unusually high temperature, cooling fan error or any other abnormal actions.

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