

Customer :

SPECIFICATION

Product Name : 50W LED fiber Optic illuminator

Model SLG-50S series

Customer's Approval Signature

Date:

The number of copies :

Revox, Inc

Issued Date : 21-Dec-2010

Approved	Checked	Checked	Written

Revision history

No.	Description	Date	Approved	Written
0	issue	10.08.10	Mitome	Motomi
1	alteration •Average illuminance Over 3.6 million lx •NA filter (optional)	10.10.13	Hirose	Motomi
2	•Luminous flux of LED device 1,200→2,100 lm •Illuminance (Reference data) •Variations of Illuminance level	10.12.21	Hirose	Motomi

<Precautions>

Please read the instructions below carefully and follow them when using the SLG-50s.

- The SLG-50s is designed for only an industrial use such as image inspections.
- Use the SLG-50s 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.
- Choose 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 beam directly.
- DO NOT dismantle the product.
- DO NOT modify the product such as adding parts, arranging parts and drilling a hole on the panel. It can result in decreased reliability.
- DO NOT touch the products with wet hands.
- DO NOT cover the air inlets on both sides to prevent overheat.

- 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 LED is OFF.
- If the product doesn't work properly, see page 26.
- If you have any questions or concerns about the SLG-50s, please contact us.

EU RoHS

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, which is commonly known as the RoHS, took effect on 1 July 2006. This directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

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1. Application

This specification applies to the fiber optic LED illuminator SLG-50S series.
Specifications are subject to change without advance notice.

2. General specification

Input voltage	AC 100 to 240 V $\pm 15\%$ (50/60 Hz)	
Luminous flux of LED device	2,100 lm at a maximum	
Power consumption	Approximately 83 VA (at maximum illuminance)	
Operating ambience	Temperature: 5 to 40 deg C Humidity: 20 to 80 %RH (No condensation)	
Dimming range	10 to 100 %	
Illuminance control	manual	Manual Dimming Knob
		0 to 5 V analog control
	External	Bit digital signal control
		Serial communication commands (RS-232C)
		Ethernet (available as an option)
Stabilizer function	Available as an option	
Bit digital illuminance control mode	8 Bit : 256 levels	
	9 Bit : 512 levels	
	10 Bit : 1024 levels	
	12 Bit : 4096 levels	
Error detection (Error indicator: Red)	LED abnormal high temperature signal	
	Cooling fan error signal	
Attachable Light guide	Fiber bundle diameter: 6 to 14 mm	
Replacement of LED	Available by sending back the product	
Lifetime	30,000 hours (Calculated values until the light output decreases to 70 %)	
Applicable standard	EU RoHS compliant	

3 Optical specification

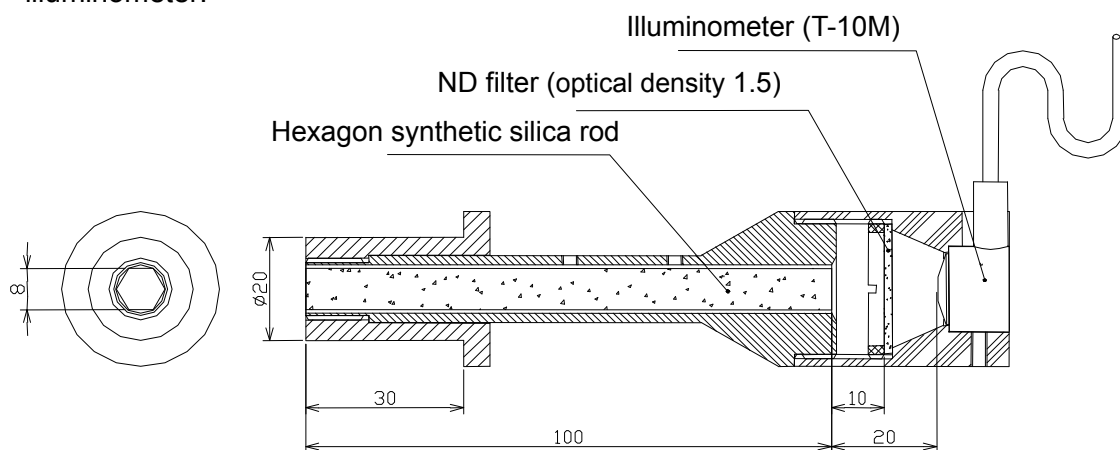
(1) Light wavelength range

LED color	
White (SLG-50S-W)	400 to 750 nm Correlated color temperature 6,500 K (± 500 K CRI70)
Red (SLG-50S-R)	625 nm ± 5 FWHM 20 nm (Full Width at Half Maximum)
Green (SLG-50S-G)	525 nm ± 5 FWHM 40 nm (Full Width at Half Maximum)
Blue (SLG-50S-B)	455 nm ± 5 FWHM 30 nm (Full Width at Half Maximum)

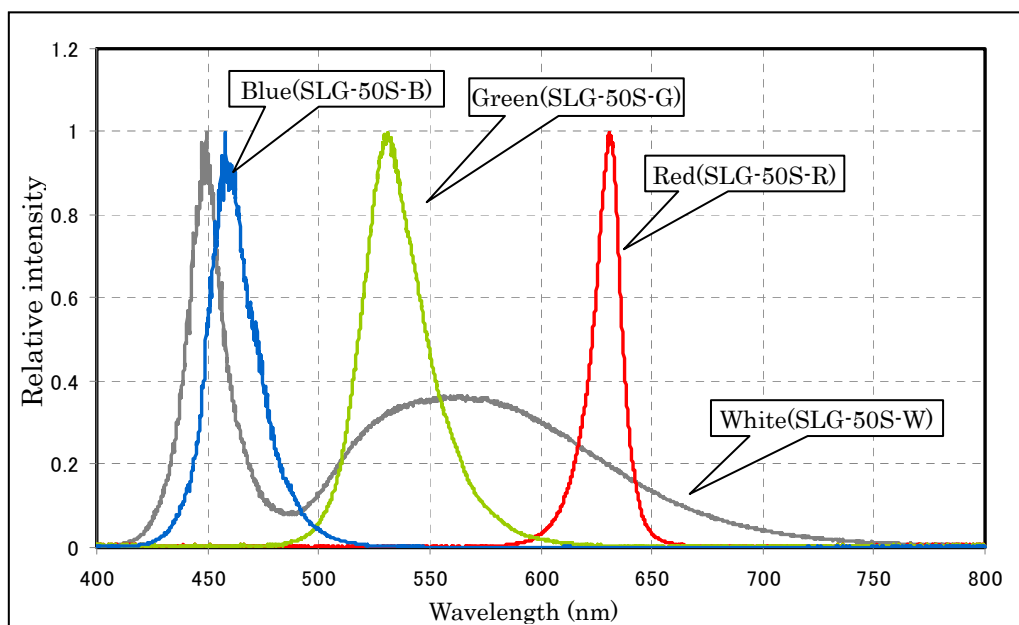
(2) Illuminance (Reference data)

LED color	LENS-1 ϕ 6 or less	LENS-2 ϕ 10 or less	LENS-3 ϕ 14 or less
White (SLG-50S-W)	130,000 lx or more	140,000 lx or more	90,000 lx or more

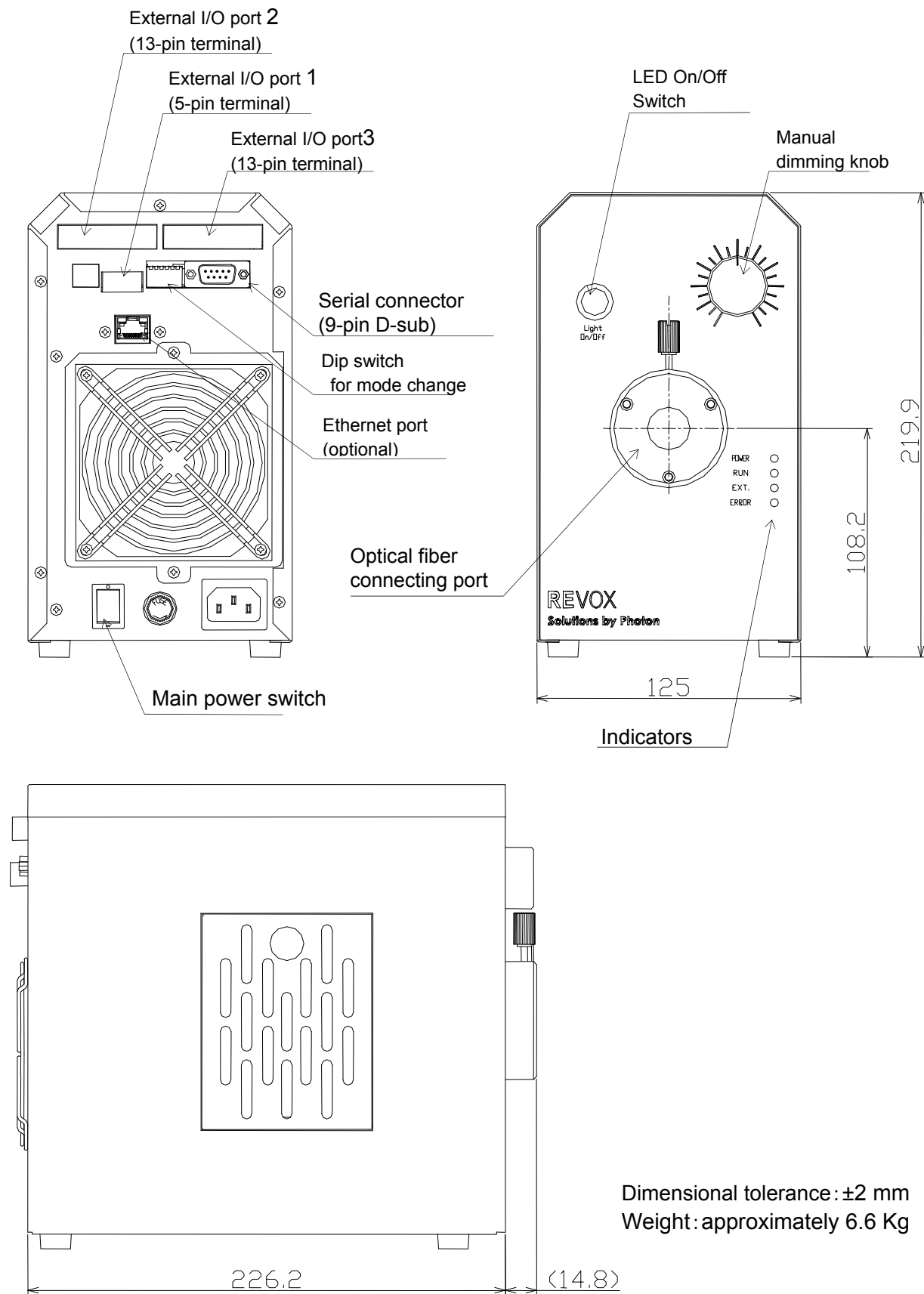
Note: Actual values observed by the following measuring tool made of a quartz rod and an illuminometer.



(3) Spectral characteristics (reference data)



4. External View



5. Part Numbering/labeling

(1)Part numbering

SLG-50S-□-□-□-□

① ② ③ ④

①LED color

W : white color temperature 6,500 K (CRI 70)
 R : red central wavelength 625 nm (average)
 G : green central wavelength 525 nm (average)
 B : blue central wavelength 455 nm (average)

②option 1: Ethernet control

0 : NONE
 1 : available

③option 2: Stabilizer function

0 : NONE
 1 : available

④option 3: AC Power cable

0 : NONE
 1 : attached

A Product label is affixed to the body of the SLG-50S.

①Part number (SLG-50S)

②Rated voltage

③Power consumption

④Rated frequency

⑤Rating of Fuse

⑥Light guide ferrule adapter(part number and name)

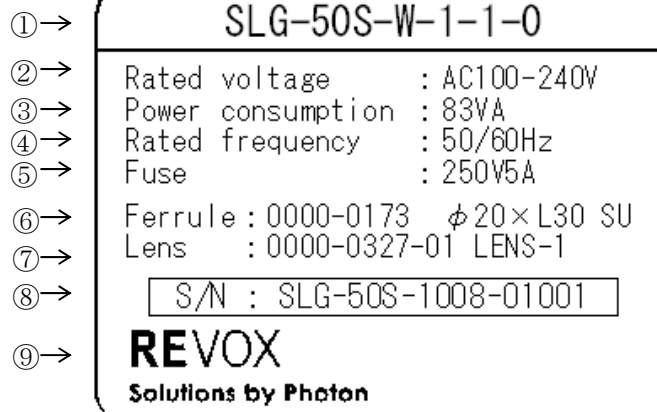
⑦Lens unit(part number and name)

⑧Serial No.

SLG-50S—production year/month (4-digit)—product number (5-digit)

⑨Revox logo

< Example >



6. Interface

6.1. Indicators on the front panel

- OPOWER Orange indicator lights while power is ON.
 ORUN Green indicator lights while LED is lighting or blinks when you use stabilizer.
 OEXT Yellow indicator lights in external control mode.
 OERROR Red indicator lights in case of error.
 (Cooling fan error: lighting, LED temperature error: blinking)

NOTE: LED temperature error indicator on the rear panel starts to blink in case of over 130℃.
 If LED temperature exceeds 140℃, LED will be automatically shutdown.
 When the LED temperature drops below 70℃, the LED restarts lighting.

6.2. Dip Switch configuration (Mode change switch)

1) To use Manual control

Manual dimming knob and LED On/Off switch on the front panel are become effective.

1	2	3	4	5	6
OFF	OFF	OFF	OFF	OFF	ON

2) To use External 0~5V analog control (see 6.3.)

External control via 5-pin terminal on the rear panel is available.

1	2	3	4	5	6
ON	OFF	OFF	OFF	OFF	ON

3) To use Bit digital control (see 6.4.)

External bit digital control via 13-pin terminal (External I/O port 2) is available.

1	2	3	4	5	6
OFF	ON	OFF	OFF	OFF	ON

4) To use Serial communications control (see 6.5.) / Ether net control (see 6.7.)

External control via D-sub 9 (RS-232C) or Ethernet port is available

* You can use either Serial control or Ethernet control.

1	2	3	4	5	6
ON	ON	OFF	OFF	OFF	ON

Attention:

Do not change settings of pin 5 and pin 6 because they are used by the system.

In Bit control mode, pin 3 and pin 4 are used to change bit digital illuminance control mode.
 For details, refer to the page 11.

6.3. Illuminance control via 0V to 5V analog signal

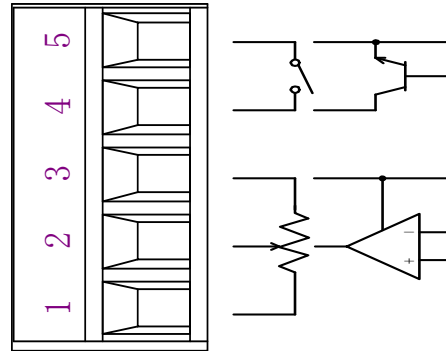
To use illuminance control by analog signal, set pin 3 as COM and apply voltage to pin2.
Applied voltage must be DC 5 V or below.

When you want to turn ON the LED, set pin 5 as COM and connect pin 4 to pin 5.

5-pin terminal (External I/O port 1)

Part number: OS-85-5P (OSADA CO,LTD)

No.	SIGNAL
5	COM
4	ON
3	COM
2	Analog input
1	+5V



For use of potentiometer, 5V voltage is output from pin 1.

The resistance of the potentiometer must be 10K-ohm.

Make the cable length as short as possible in order to prevent effect of electrical noise.

6.4. Illuminance control via Bit digital

(1) 13-pin terminal (External I/O port 2)

Bit digital control is available by supplying pin 13 with +12 to +24 V power and connecting pin 1 to pin 12 with the minus side of the power supply.

To turn OFF the bit digital control, make all the pins 1 to 12 open.

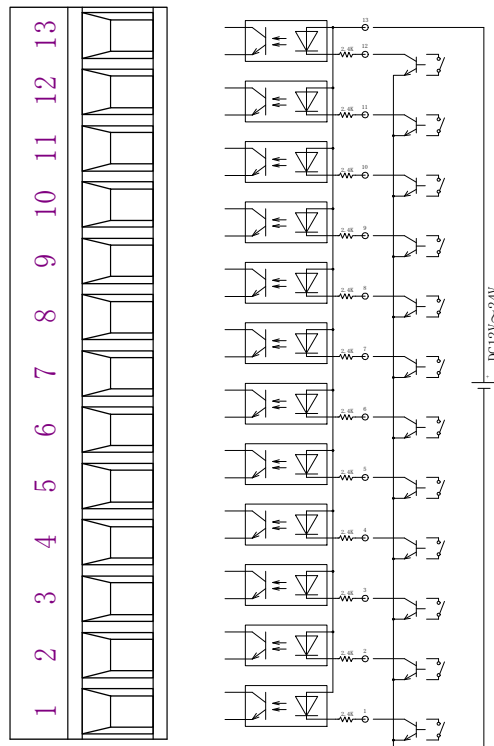
Attention :

Bit connection must be made in numerical order, starting from pin 1 (8LSB).

Power supply must be in range of DC 12 to 24 V.

OS-85-13 (OSADA CO., Ltd.)

No.	
13	Power
12	12Bit
11	11Bit
10	10Bit
9	9Bit
8	8Bit
7	7Bit
6	6Bit
5	5Bit
4	4Bit
3	3Bit
2	2Bit
1	1Bit



<How to change bit digital illuminance control mode>

Change the settings of DIP switch pin 3 and 4 as follows.

#3	#4	
OFF	OFF	8 Bit : 256 levels
ON	OFF	9 Bit : 512 levels
OFF	ON	10 Bit : 1024 levels
ON	ON	12 Bit : 4096 levels

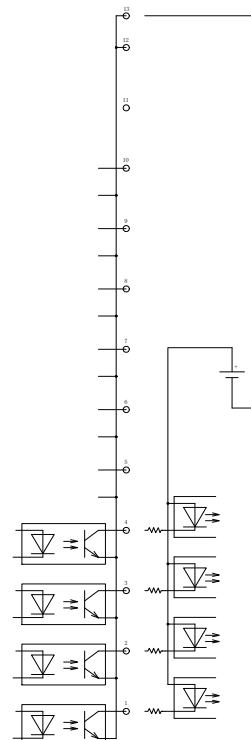
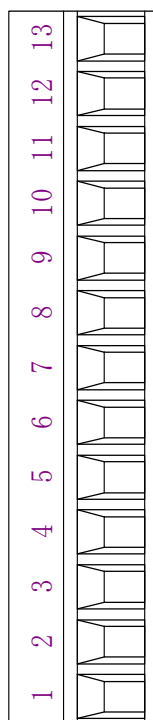


(2) Error output connector (External I/O port 3)

Error signals and LED ON/OFF signal are sent via 13-pin terminal (External I/O port 3).

Part number: OS-85-13 (OSADA CO., Ltd.)

No.	
13	COM
12	COM
11	NC
10	NC
9	NC
8	NC
7	NC
6	NC
5	NC
4	OUT4 (NC)
3	OUT3 (TEMP ERR)
2	OUT2 (FAN ERR)
1	OUT1 (LED ON)

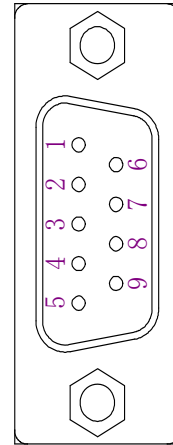


6.5. Serial communication control

The SLG-50S can be controlled by serial communication commands.

9-pin D-SUB (Serial communication connector)

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



Use a straight cable and inch-sized screws.

(1)Communication settings

Transmission speed	38400 bps
Data length	8 bit
Parity	NONE
Stop bit	2 bit
Flow control	NONE

(2)Control functions

- ON/OFF change
- Illuminance control by 8 bit
- Illuminance control by 12 bit
- Illuminance control by 16 bit
- LED temperature monitor
- Illuminance level sensor monitor
- Cooling FAN error signal output
- LED abnormal temperature error signal output

—communication commands—

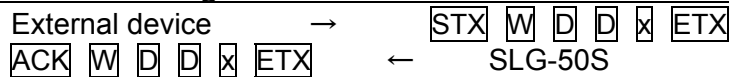
Commands are exchanged by ASCII code in capital letters in accordance with the following procedure.

Commands from external device must begin with STX (0x02) and end with ETX (0x03).

Response command from the SLG-50s must begin with ACK (0x06) and end with ETX (0x06).

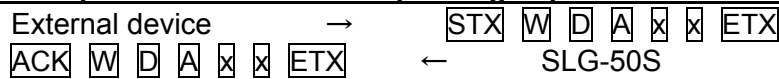
The SLG-50s always answers each command from external device.

1. ON/OFF change



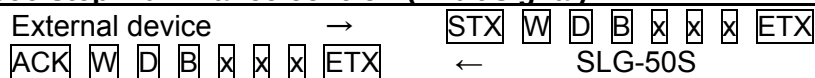
* X indicates the LED status. 1 : LED ON 0 : LED OFF

2. 256-step illuminance control (8bit signal)



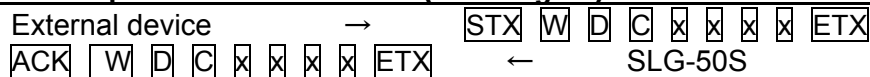
* X X are 256-step data from 00 to FF.

3. 4096-step illuminance control (12bit signal)

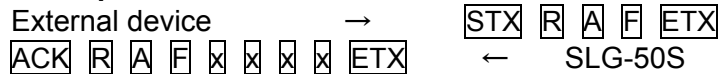


* X X X are 4096-step data from 000 to FFF.

4. 65536-step illuminance control (16bit signal)

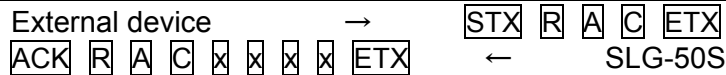


* X X X X are 65536-step data from 0000 to FFFF.

5. LED temperature monitor

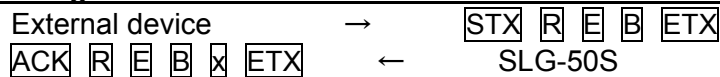
LED temperature is monitored, as a 16 bit data.

* XXXX are temperature data from 0000 to FFFF (MSB first).

6. illuminance level sensor monitor (*Stabilizer function)

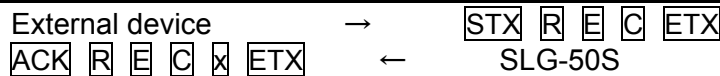
Illuminance level is monitored, as a 16 bit data.

* XXXX are illuminance level data from 0000 to FFFF (MSB first).

7. Cooling FAN error monitor

FAN error is checked.

* X indicates the FAN behavior status. 0 : normal 1 :shutdown

8. LED abnormal temperature error monitor

LED Temperature error is checked.

* X indicates the LED temperature status. 0 : normal 1 :abnormal (over 130°C)

NOTE: If LED temperature exceeds 140 deg C, LED is forced to stop lighting.

When the LED temperature drops below 70°C, LED restarts lighting.

6.6 Analog signal lock

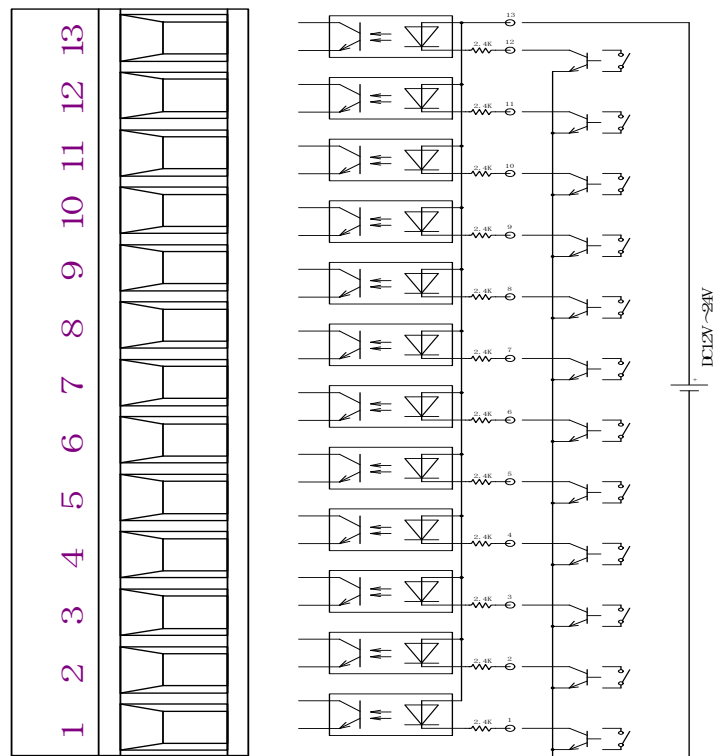
Analog signal lock is available to eliminate the effects of voltage variations in 0-5V analog control mode. (see 6.3.) During analog signal lock ON, illuminance level is kept stable even if voltage varies.

To use this function, supply pin 13 with power and connecting pin 12 with a minus side of the power supply.

Voltage range must be DC 12 to 24 V.

OS-85-13 (OSADA CO., Ltd.)

No.	
13	Power supply
12	Signal Lock
11	NC
10	NC
9	NC
8	NC
7	NC
6	NC
5	NC
4	NC
3	NC
2	NC
1	NC



6.7. Ethernet control (optional function)

Ethernet control can be used with the same commands in serial communication control.
For details, see page 14 and 15.

Use the following parts when using Ethernet control.

(1)connector : RJ-45

(2)cable : Cross-cable when you operate on one-to-one with your computer.
: Straight cable when you operate through a HUB.

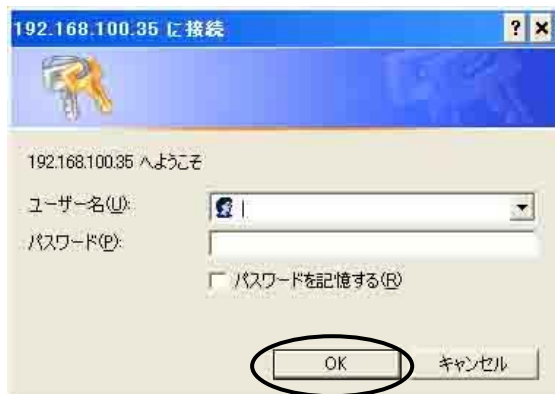
To make settings, confirm the connection between your PC and the SLG-50 with an Ethernet cable and then follow the instructions on the next page.

IP address	192.168.100.35 (Default setting)
Port number	10001
Network protocol	TCP/IP serial parameter 38400,8,N,2

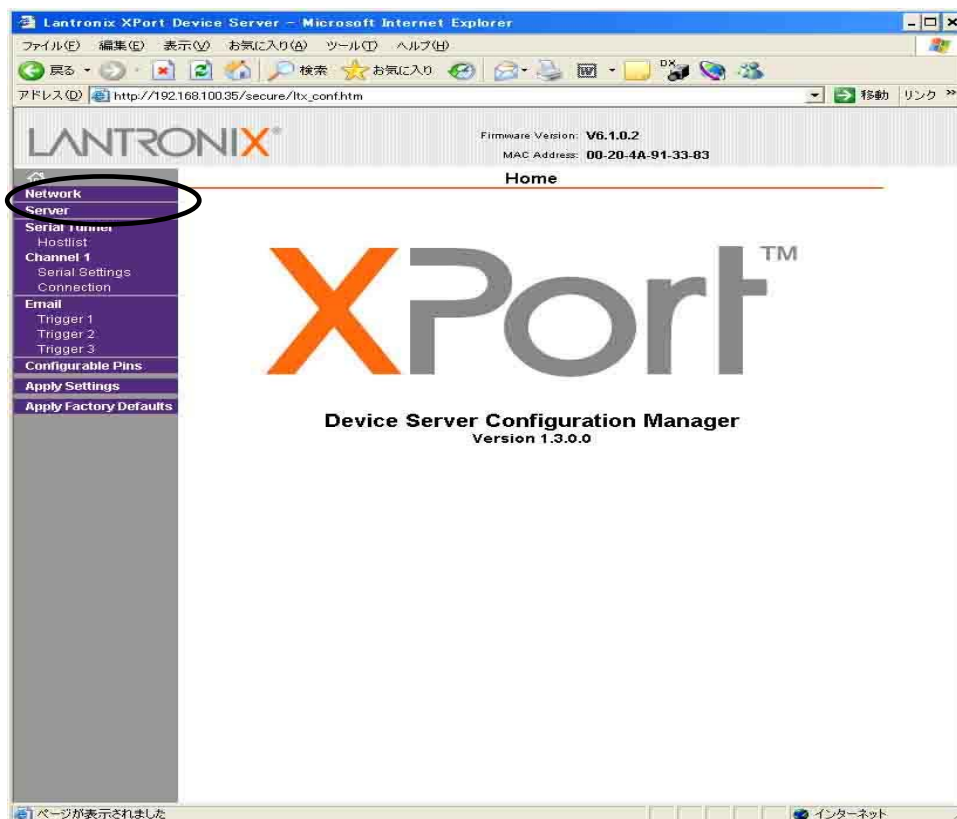
<How to change the IP address>

To change the IP address, follow the instructions below.

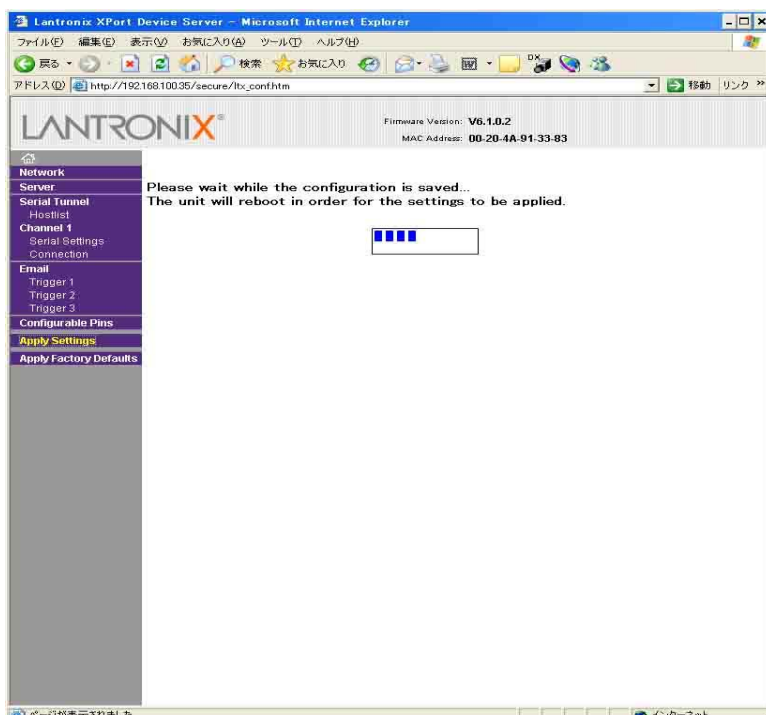
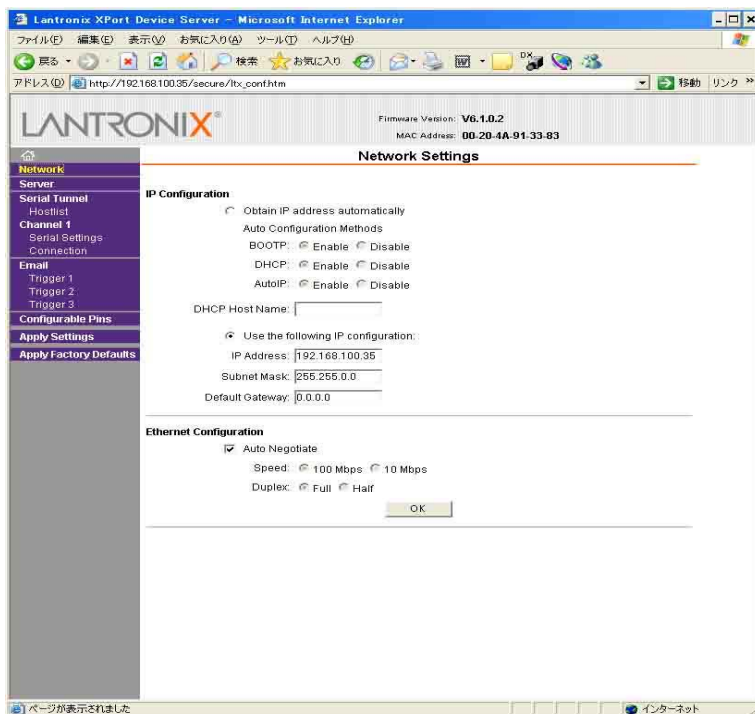
- ① Enter the IP address into the address bar of your browser.
(default :192.168.100.35)
- ② When the user name/ password dialog opens, click “OK” leaving both fields blank.



- ③ When the main screen below appears, click the “NETWORK”.



- ④ When the “Network settings” screen appears, change the IP Address and click “OK”.
Click the “Apply Settings” in order to activate the new IP Address.



When you change the IP address, the screen is not automatically reloaded.
Be sure to access the new IP address before using Ethernet control.

Note: Do not change all the other functions.

7. NA filter (optional)

NA filter can adjust the LED light output angle depending on the NA of your light guide's fiber. It can be attached to the inside of the ferrule with a dedicated attachment.

Available NA filters are as follows:

- ①NA0.3 part number:0000-1299
- ②NA0.5 part number:0000-1303

8. Stabilizer (optional)

8.1. Basic action of the Stabilizer

The SLG-50S has a stabilizer function that keeps stable illuminance by light photo sensor that monitors the illuminance of the LED. It maintains a constant illuminance level and minimizes the illuminance variations caused by temperature changes, which are general characteristics of LED.

Light photo sensor is subject to minor errors, aging failure and temperature drift.

8.2. How to switch stabilizer ON/OFF

You can select the stabilizer function ON or OFF.
Factory default is stabilizer ON.

In order to switch stabilizer from ON to OFF, push and hold the LED On/Off Switch on the front panel for 3 seconds. While the stabilizer is OFF, there are no feedbacks.

The setting of stabilizer (ON or OFF) remains the same even after Main Power is OFF. When you turn on the SLG-50S again, the setting is the same as when you turn off last time.

NOTE: Be sure to turn OFF the stabilizer while using 0 to 5 V analog control.

8.3 Indicator on the front panel

(1)Stabilizer ON

While using the stabilizer, "RUN" indicator (green) is always blinking.

(2) Stabilizer OFF

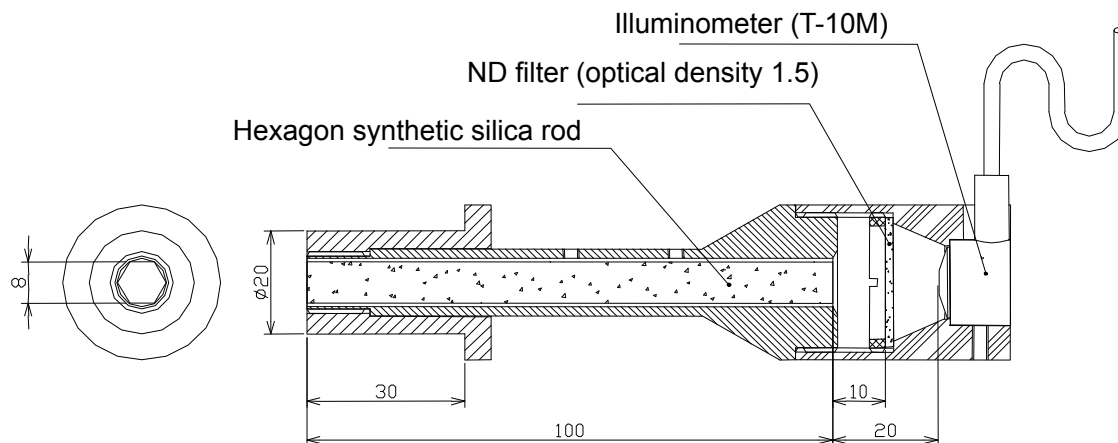
While not using the stabilizer, "RUN" indicator (green) is constantly on.

stabilizer	LED	RUN indicator(green)
ON	ON	blinking
OFF	ON	constantly on

8.4. Stability of Illuminance level (reference data)

<Measurement means>

- (1) Equipment: illuminometer (T-10M analog output)
data logger (GL200A)
- (2) ambient temperature: 26.3℃

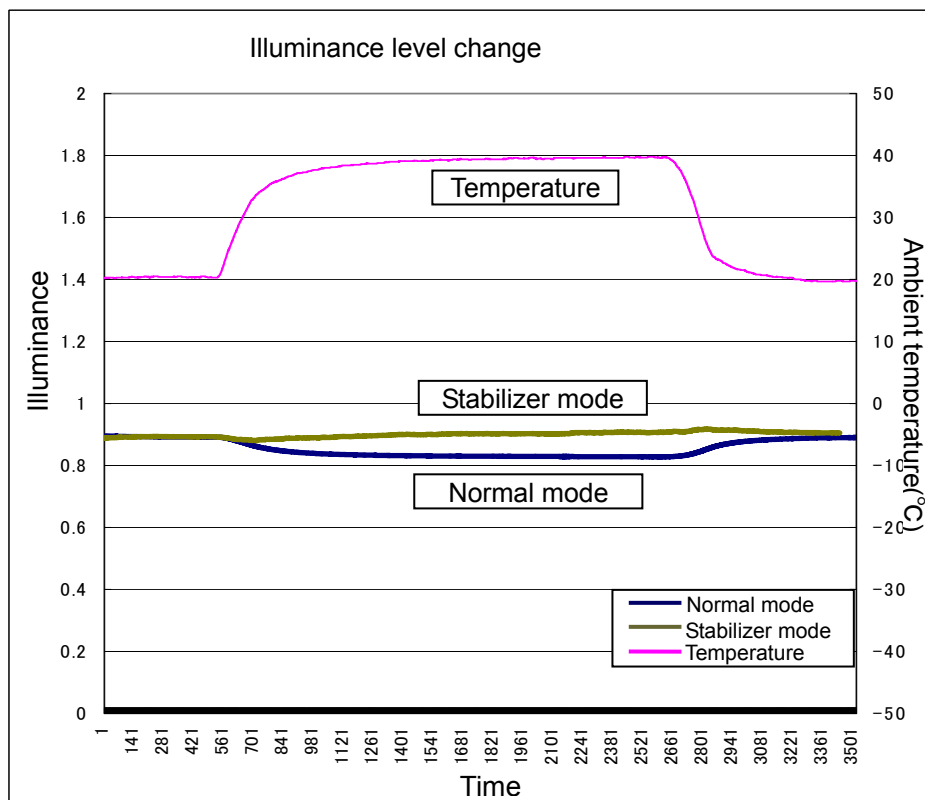


<measurement condition>

- (1) Stabilizer is ON/OFF
- (2) Illuminance control is set at 50 %
- (3) Operation is done for 10 consecutive minutes

<Variation of light output>

- Stabilizer OFF : Approximately ± 4.0 %
Stabilizer ON : Approximately ± 1.0 %



9. Packing

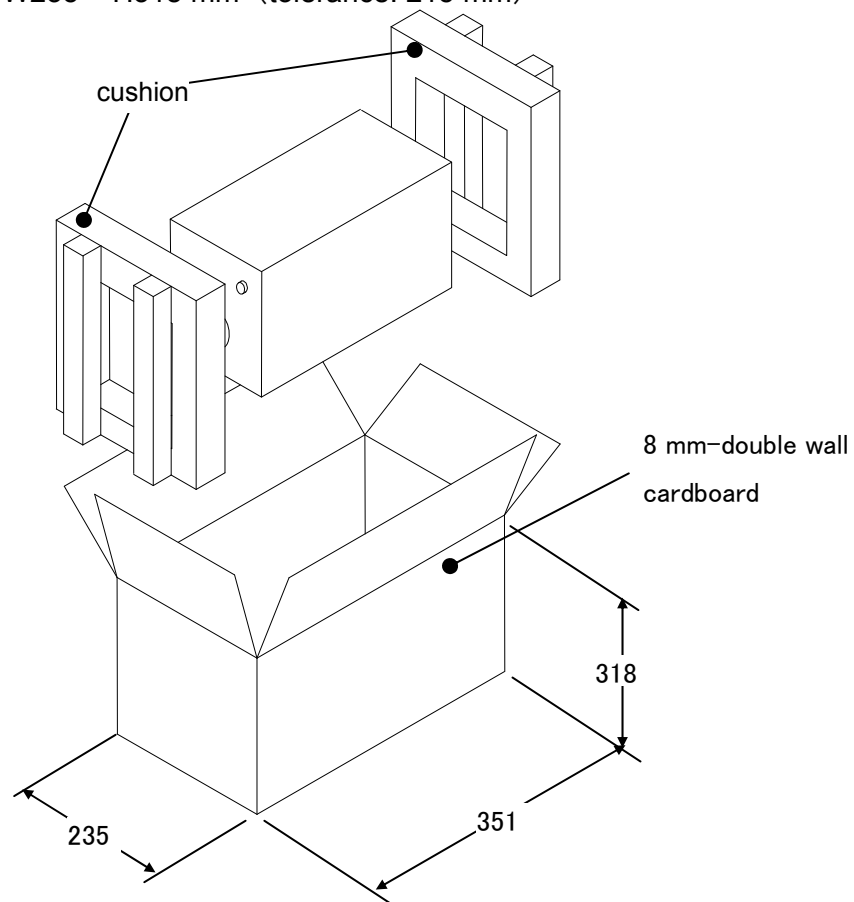
(1) Contents in a package

- ①SLG-50S
- ②Linearity correction value data sheet
- ③Spectral distribution data sheet
- ④accessory : ND filter and attachment adapter of ND filter

(2) Packing specification

SLG-50S is individually packed in a cardboard box (8 mm-double wall).

Packing box: L351 × W235 × H318 mm (tolerance: ±15 mm)



* Outer Box is containing 4 packing boxes : L729 × W497 × H353 (tolerance: ±20 mm)

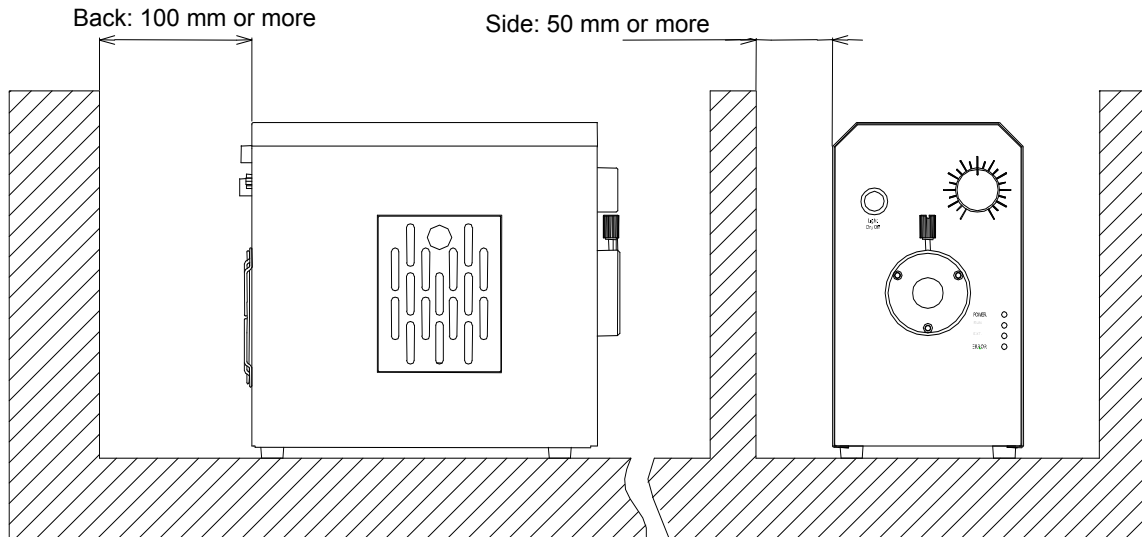
10. Replacement parts

- | | |
|-----------------------------------|-------------------------|
| ①Cooling fan | Part number : 0000-0265 |
| ②Air filter | Part number : 0000-0158 |
| ③Fuse (250V 5A) * 10 pcs per pack | Part number : 0000-0268 |

11. Installation instructions

The SLG-50S is precision equipment. In order to prevent a malfunction, please operate correctly in accordance with the instructions.

- (1) Be sure to install the SLG-50S 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 over 2.0m³/min.
- (3) Maintain a constant operating ambient temperature in accordance with this document.
(See page 5) Sudden change of temperature may cause variation of illuminance.
- (4) The SLG-50S is NOT waterproof. Do not use the product in places subject to rain, dripping, or enclosed places where condensation could occur.
- (5) Be sure to install the device in a room that does not have high temperature, high humidity, high levels of dust or corrosive gas.
- (6) Be sure to keep the device and attached cables as far away from any electrical noise source as possible, such as inverter and high voltage cables. And shield the device from electrical noise source. A power cable or communication cables connected to the device should be shorter than 5m in order to reduce noise.
- (7) Install the device on a stable surface, keeping the bottom panel with rubber feet down.
- (8) Put the device in the position in which you can turn the main power switch ON/OFF at any time.
- (9) If the device is not operated for an extended period of time, it may malfunction. Operate the device at least once every six months.
- (10) Replace the dust prevention filters regularly. Appropriate replacement cycle depends on the ambient conditions.

12. 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 during the warranty period, charges will be made 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 a fire, earthquake, flood, lighting or other natural disasters.
- (3)The SLG-50S 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-50S for any such special purpose, be sure to inform us before purchasing.
- (4)Repairs of the SLG-50S are basically acceptable by sending back the device. 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.
- (5)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.
- (6)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.

<Limitation of Liability>

- 1: Revox accepts no liability whatsoever for incidental damages arising out of the use or inability to use the product.
- 2: Revox accepts no liability whatsoever 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.

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

Warranty terms and conditions are subject to change without notice.

13. Trouble shooting

If 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 the light guide, wires or control cables firmly.
- (3) Make sure that the fuse does not blow.
- (4) Make sure the dip switch's settings.

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 indicators on the rear panel
- ④ Power source (commercial /UPS) and voltage
- ⑤ Operating environment: installation position, ambient temperature and any noise source.
- ⑥ External factor 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.

[Address]

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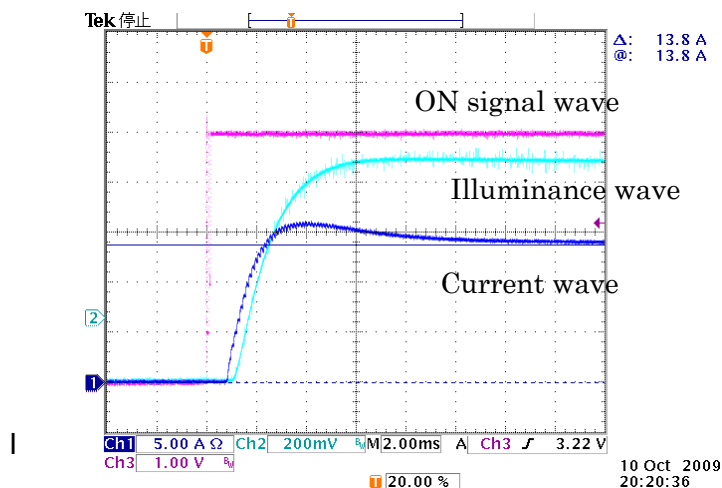
14. Reference data

(1). On/Off response speed and stability

Pink ON signal wave

Light Blue Illuminance level wave

Blue Current wave

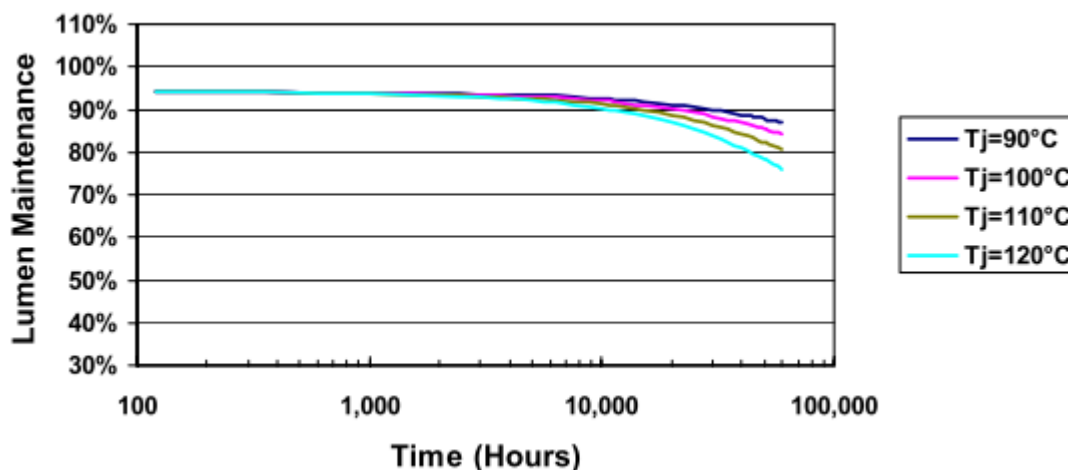


Illuminance level becomes stable after 20mS turning LED on.

(2) Extrapolated lumen maintenance

☐ junction temperature vs Lumen maintenance (White)

The figure below shows the lumen maintenance extrapolation out to 60,000 hours at different junction temperatures.



✖currency 13.5 A

※Operating Temperature 40°C, Tj=111.5 °C

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