LED Light Source

LUMINAR ACE

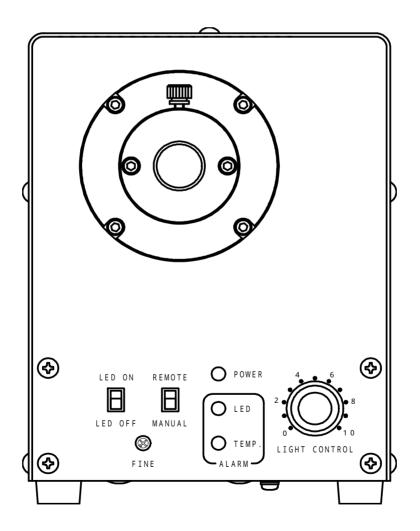
Model LA-HDF5010RL LA-HDF7010RL

Instruction Manual

Thank you for purchasing our product.

Prior to using it, please read the instruction manual thoroughly for safe and correct operation.

Be sure to keep the instruction manual carefully at hand.



HAYASHI-REPIC CO.,LTD.

This LED light source is used for the illumination of image processing, microscope, science observation.

↑ CAUTION

Caution labels and statements provided in this manual are the description of potentially hazardous situation which if not avoided could result in moderate or minor injury. It could also advise safety precautions against unsafe practices.

♠ CAUTION

Please carefully follow the instruction as misuse of the product may lead an accident of fire, electric shock or malfunction of the product.

Please use the light guide specifically provided for the product by manufacturer. It may cause malfunction or insufficient performance of the product in case you use no light guide or non-specified light guide.

↑ CAUTION

Please use the AC power supply included.

When using something other than the included AC power supply. please use the high-performance products more than accessory.

♠ CAUTION

AC power supply cable must be properly grounded.

It may lead an accident or malfunction of the product if you do not make the proper ground.

Do not move while it is being illuminated.

Do not drop, or give a shock to the light source apparatus. (A trouble may result)

Do not disassemble or modify the light source apparatus. (A trouble may result.)

1. Accessories

Accessories	Instruction Manual, Ethernet installation instructions, Command manual, AC power supply (AC100V)
Options	AC power supply: US type (AC120V), UK type (AC240V), European type (AC230V)

2. Part Names

Front Panel

❖

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Light Guide Socket

This is a socket to introduce a light from the LED lamp built in this apparatus to the light guide.

* Please Using Hayashi standard light guide.

Control function change switch

Front switch [UP:REMOTE / DOWN:MANUAL]

* Regarding the switching of control function, please see to [3. Operation method].

Light quantity control knob (LIGHT CONTROL)

This knob is used when controlling brightness of the LED lamp manually. A light quantity is increased by turning the knob in the clockwise direction.

Indicator

POWER (Green): When the power ON, the light up.

LED(Orange): When an abnormality occurs for LED ramp, the light up.

TEMP. (Red): When an abnormal temprature rise by inside the light box, the light up.

* LED ramp light is turn off.

Current adjustment volume (FINE)

For maintenance, so usually do not touch.

LED ON/LED OFF change switch

This function is enabled when the control function change switch is "MANUAL".

LED ON : LED ramp light is light up.

LED OFF: LED ramp light is turn off.

* Even LED is switched off, the cooling fan still remains to work as the main power supply is active yet.

Rear Panel

- ·INPUT connector (REMOTE IN)
- ·RS232C connector
- · LAN port

This is a connector for external control. Please connect with a function to be used.

Power Switch (POWER)

This switch is used to turn ON/OFF the power.

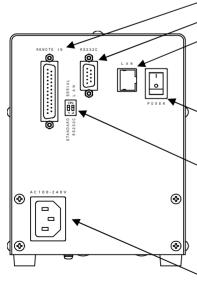
Control function change switch

- ·Rear switch 1 UP: SERIAL DOWN: STANDARD
- Rear switch 2 UP: LAN DOWN: RS232C
- * Regarding the switching of control function, please see to [3. Operation method].



It is an AC power cord socket.

*When the input voltage is other than AC100V, please use another power supply cord provided as an option.



3. How to use

- 1) Insert the light guide in to the light guide socket of the apparatus.
- 2) Please insert the power supply into the AC inlet.
- 3) Switch the control function selector switch to the desired control function.

Control function Switch	MANUAL	REMOTE	RS232C	LAN
Front switch	MANUAL	REMOTE	-	-
Rear switch 1	STANDARD	STANDARD	SERIAL	SERIAL
Rear switch 2	-	-	RS232C	LAN

- · MANUAL: Manual light quantity control (using light control knob at Front panel).
- REMOTE: Remote light quantity control (Input the 8 bit parallel signal)
- · RS232C : Remote light quantity control (256 gradation command input from 0 to 255)
- · LAN : Remote light quantity control (256 gradation command input from 0 to 255)
- * Be sure to turn off the power supply switch before switching the control switch.
- 4) Insert the plug of the AC cord in the outlet. (Please take the ground)
- 5) Turn on the power switch.
- 6) Control the light quantity to your desired level to operate the lighting apparatus.
 - * LED lamp may slightly light on during minimum light volume operation.
 - * LED lamp may be un- stable during minimum light volume operation.
- 7) To finish, turn off the power switch.

⚠ CAUTION

Avoid looking irradiation light through light guide or light source.

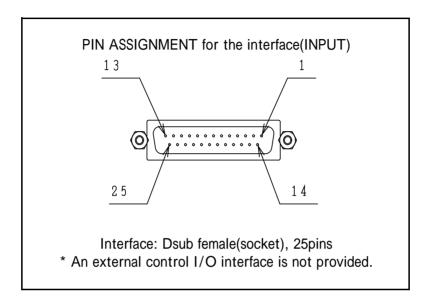
It may cause the pain of eyes or the sight injury.

4. External Control

4.1 REMOTE(parallel communication)

The interface (INPUT) allows an external control that turns on and off the product and adjust the light volume as the SELECTOR SWITCH is set REMOTE.

* Use as shorter shielded cable(2m max) as possible for the external control. Long cable may result in a noise interfusion, and a noise may hinder the product from working properly as the cable is placed near the source of noise.



Example of the recommendation for the external control I/O connector Connector: Japan Aviation Electronics Industry model Co., Ltd.: DB-25PF-N

Resin hood: Japan Aviation Electronics Industry DB-C8-J10-F1-1R us Co., Ltd.

These items are also available from us. Please contact with your sales representative.

⚠ CAUTION

The 2nd pin, the 3rd pin, the 13th pin, the 17th pin and the 24th pin are pins for services work. Never connect those pins by yourselves. It will cause malfunction.

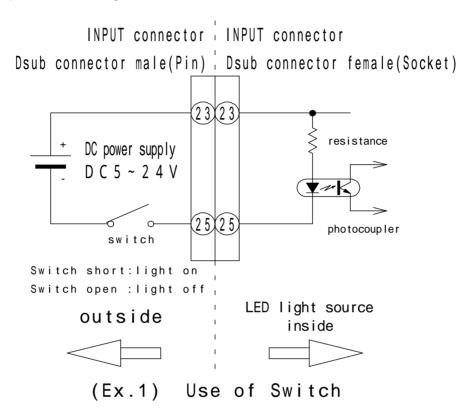
Pin No.	PIN ASSIGNMENT	Pin No.	PIN ASSIGNMENT	Pin No.	PIN ASSIGNMENT
1	LED abnormal output	12	Light quantity control 8	23	Supply power supply *1
2	No conect	13	No conect	24	No conect
3	No conect	14	COM	25	LED lamp on/off
4	Temperature error output	15	COM	* 1. 1	8,19,20,21,23 are common
5	Light quantity control 1	16	COM		
6	Light quantity control 2	17	No conect		
7	Light quantity control 3	18			
8	Light quantity control 4	19	Supply power supply		
9	Light quantity control 5	20	*1		
10	Light quantity control 6	21			
11	Light quantity control 7	22	SET signal		

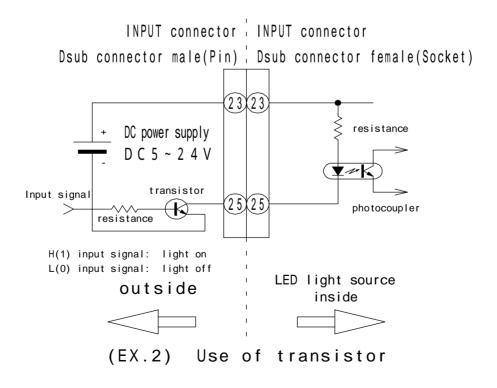
1) LED lamp on/off function

It is a function to turn on / off the LED lamp.

It is valid during the control function selector switch is set to "REMOTE setting". It is turned on by shorting the No.25(REMOTE IN) and No.23(GND(-)) pins at the INPUT connector.

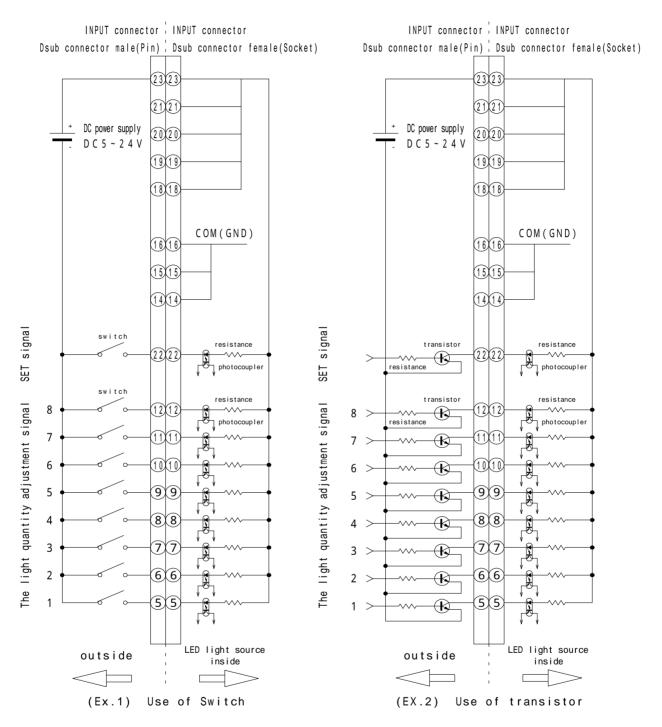
Examples of connecting





2) Light quantity control (REMOTE)

It is valid during the control function selector switch is set to "REMOTE setting". The following table shows a connection example and the light quantity at input. The light quantity can be changed by entering SET signal(<1ms pulse signal) with a interval more than 2ms after confirming the light quantity adjustment signal 1-8.



Note 1. Please observe the polarity of the supply power supply output at the time of the connection. LED light supply and the power supply may be damaged by the wrong polarity.

- Note 2. The external power supply the range is DC +5V DC +24V.

 LED light supply may become unstable or be damaged if it is out of the range.
- Note 3. Use the external power supply with the capacity of the output electric current more than 100 mA.

*The Light intensity table at input

THE LIGH	t intensity	table at III	Jul					
								INPUTconnector
No.5 pin	No.6 pin	No.7 pin	No.8 pin	No.9 pin	No.10 pin	No.11 pin	No.12 pin	Pin No.
(Low) ∢					-		(High)	Light quantity
0	0	0	0	0	0	0	0	Light quantity Min(0)
1	0	0	0	0	0	0	0	
0	1	0	0	0	0	0	0	
1	1	0	0	0	0	0	0	
0	0	1	0	0	0	0	0	
1	0	1	0	0	0	0	0	
0	1	1	0	0	0	0	0	Light quantity UP
1	1	1	0	0	0	0	0	Course
0	0	0	1	0	0	0	0	
1	0	0	1	0	0	0	0	
0	1	0	1	0	0	0	0	
1	1	0	1	0	0	0	0	
0	0	1	1	0	0	0	0	
1	0	1	1	0	0	0	0	
0	1	1	1	0	0	0	0	
1	1	1	1	0	0	0	0	
:	:	:	:	:	:	:	:	
1	1	1	1	1	1	1	1	Light quantity Max

0 : Short circuit

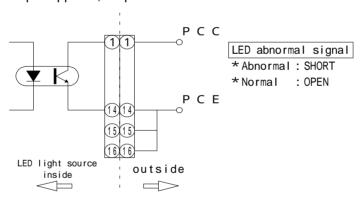
1 : Open

3) LED abnormal output

In the case of abnormality such as the opening circuit of a LED, it will internally make a short circuit between the first pin of the INPUT connector (REMOTE IN) and the 14th pins.

The LED (orange) of the front indicator also turns on.

If the LED abnormality output appears, stop to use it and ask the manufacturer for repair.

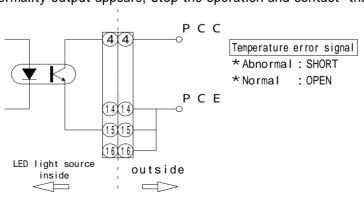


4) Temperature error output

When the temperature in the device rose abnormally, it will internally make a short circuit between the 4th pin and 15th pin of Input connector (REMOTE IN).

LED lamp will be light off and the indicator TEMP(red) in the front will be also light on.

If the temperature abnormality output appears, Stop the operation and contact the manufacturer.



4.2 RS232C, LAN(Serial communication)

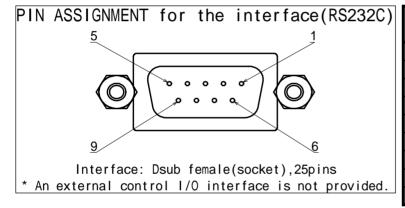
1) Communication specification

Communications protocol	RS232C
Baudrate	9600bps
Data length	8bit
Parity bit	none
Stop bit	1bit

^{*} All the data for transmission and reception except STX and ETX should be half-width capital letter. (ASCII code)

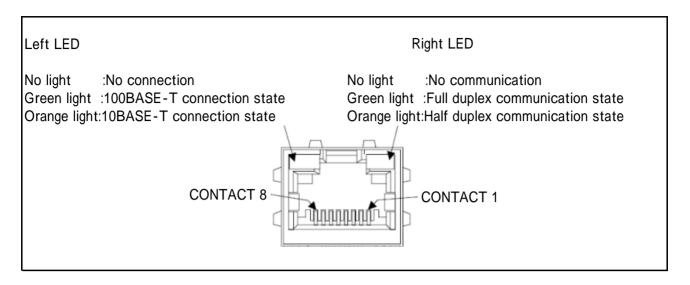
2) Connector specification

- ·RS232C Connector
 - * Use a straight cable to connect to a PC.



Pin No.	Signal	Wiring inside
FIII INO.	content	light source
1	-	No connect
2	RXD	To light source reception
3	TXD	To light source transmitter
4	-	Short circuit of 4pin - 6pin
5	GND	Grand
6	-	•
7	-	Short circuit of 7pin - 8pin
8	-	
9	-	No connect

- ·LAN port (X-PORT produced by Lantronix)
- * Use a crossing cable to connect to a PC and use a straight cable to connect to the hub.



Signal Name	DIR	Contact	Primary Function	
TX+	Out	1	Differential Ethernet transmit data +	
TX-	Out	2	Differential Ethernet transmit data -	
RX+	In	3	Differential Ethernet receive data +	
RX-	In	6	Differential Ethernet receive data -	
Not used		4	Terminated	
Not used		5	Terminated	
Not used		7	Terminated	
Not Used		8	Terminated	
SHIELD			Chassis ground	

Default value

Item	Set value	Note
Communications protocol TCP/UDP	TCP	At the factory
IP address	192.168. 0.101	At the factory
Subnet mask	255.255.255. 0	At the factory
Default gateway	0. 0. 0. 0	At the factory
Port	10001	At the factory

The initial setting of the PC side is necessary to operate with the PC. Please see "Ethernet introduction procedure "for initial setting"

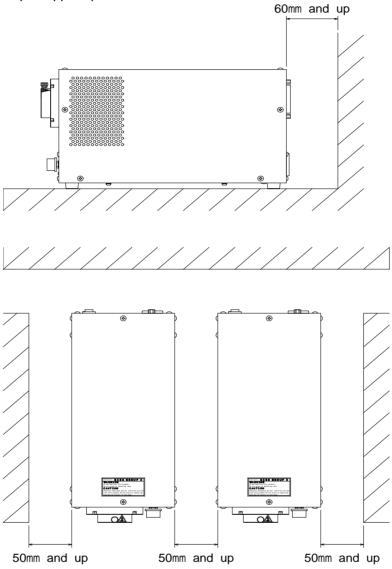
Please see "command manual" for the commands in detail.

5. Installation

Do not use the product in an enclosed area, where may result in malfunction. Do not Install to a product upside down.

Make room for ventilation so that the product's vent hole is not blocked off.

* Make sure an open upper space.





CAUTION

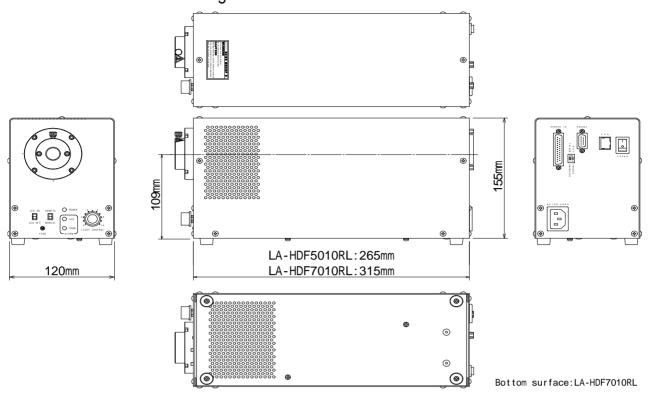
The AC power supply plug or AC inlet should be set for quick disconnection for emergency case. It is customer's responsibility to take care of the emergency case if the product assembled in the customer's system.

⚠ CAUTION

Do not use in the place exposed to dust, oil, or iron powder, where a liquid or powder is splashed. It causes the trouble.

Do not install the LED light source near a strong electromagnetic field.

6. Outer dimensions drawing



7. Specifications

(Subject to change without prior notice due to product improvement)

Input rated Voltage	AC100V-AC240V ± 10%
Input rated frequency	50/60Hz
Power Consumption	LA-HDF5010RL: 95W / LA-HDF7010RL: 155W
LED Color	White
Illuminance	LA-HDF5010RL: 1,400,000Lx *1 LA-HDF7010RL: 1,800,000Lx *1
Color Temperature(typ.)	6,500K (typ.) *2
LED Lifetime	30,000H *3
Light quantity control	MANUAL: Consecutive dimming by adjusting the light quantity control knob. REMOTE: 8 bit digital light quantity control RS232C: 256 gradation command input LAN: 256 gradation command input
Function	1) LED lamp ON / OFF function : External input and Front switch 2) LED abnormal output : External output and Front indicator 3) Temperature error output : External output and Front indicator
Cooling System	Fan
Environmental Conditions	Ambient Temperature: 0 +40 Ambient Humidity: 20% 80%RH (No dew condensation) Indoor Use, Altitude up to 2,000m
Dimmension	LA-HDF5010RL: $120mm(W) \times 163mm(H) \times 265mm(D)$ (except protrusions) LA-HDF7010RL: $120mm(W) \times 163mm(H) \times 315mm(D)$ (except protrusions)
Weight	LA-HDF5010RL: 4.0kg / LA-HDF7010RL: 4.6kg

^{*1.} Illuminance: L=500mm, reference value measured at 50mm distance from the 11 optical fiber end. (reference value)

^{*2.} Color temperature. (reference value)

^{*3.} LED Lifetime: The lifetime may differ as you use the product under specific environment and temperature.

8. Trouble shooting

Check again before asking for repair.

Malfunctions	Check	Handing	
The LED cannot be	A power supply cord may be unplugged.	Plug in.	
illuminated even if the power is turned on.	A light quantity control knob may be set on zero level.	Turn the control knob (LIGHT CONTROL) to adjsut the light volume.	
The light quantity cannot be controlled by turning the light quantity control knob.	Is the control function selector switch set to a setting other than MANUAL?	Set the control function change switch to MANUAL.	
Phenomenon: The temperature abnormality output appeared.	The temperature might be beyond the limit of the operational temperature range due to in the closed place etc.	Use it within the operational temperature range. The device can be reset after cooling the device by turning off the power supply.	

⚠ CAUTION

In case of malfunction, disconnect the power supply immediately.

The repair service should be performed by manufacturer.

The product must be shipped to manufacturer for repair.

⚠ CAUTION

This product contains no replaceable parts. Please send the product to manufacturer in case you need replacement for such as LED lamp etc.

9. After-sale services

When you ask for a repair, let us know the following:

- · Model Name: LA-HDF5010RL or LA-HDF7010RL
- · Serial Number: Inscribed on the serial number label pasted to this product.
- Details of trouble : Detailed information such as a period of use, the operating condition at the time of trouble.
- · Date of purchase : Date of purchasing this product.
- · Your name, your company name, address, phone number and fax number.

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