

ELETRONIC BALLAST FOR INDUCTION LAMP

Product Manual

Following instruction manual should be read carefully before the use of induction lamp system for the safety. This manual should be kept within operator's sight.

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1. Instructions for Safety

- ▶ Instructions for safety shall be kept to prevent an accident or hazard from improper use.

Safety signs are “Danger”, “Warning” and “Attention” which mean are as follows.

	WARNING!	When you violate a direction of this sign, severe injury or death can be happen.
	CAUTION!	When you violate a direction of this sign, light injury or damage can be happen.

The meaning of symbols in this manual is as follows.



Attention sign about the probably dangerous operation. At this sign, operation should be conducted according to this manual to avoid an accident.



Attention sign about the possibility of electric shock under a specific condition

FCC Notice :

Any changes or modifications (including the antenna) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

FCC Notice(part 18.213(D))

This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45 – 30 MHz.



WARNING!



- **Please check the ground-state of the product before using**
If the ground state is an unstable, it cause electric shock and serious injury or death.
- Operation or inspection should be exclusively done by the only person who is an expert on the system or instruction manual. If not, it may be a cause of malfunction of the system or body injury.
- Ballast Temperature(T_{case}) does not exceed 70°C
Ferrite Core temperature does not exceed 150°C
- Do not disconnect the connector between Lamps and ballasts, During power-on state
- Inspection or maintenance should be done after cooling down of induction lamp to the near ambient air temperature. If not, it may be a cause of a injury or burn.
- Debris(working tools, wire, or bolts) should be cleaned up from the system after installation, inspection or maintenance. If not, it may be a cause of electric short or fire.
- Turn off the power before an inspection or maintenance
If not, it may be a cause of electric shock.



CAUTION!

- When installing the lamp in a vertical position, Please install amalgam portion facing down
- In order to get out of the lamp rated power(maximum of 90% or more), amalgam temperature must be maintained between 55–125
- The distance between lamp and ballast must be separated enough
- Do not change circuit randomly. Malfunction and damage of the product may occur.
- Must store in a place that does not occur Moist or corrosive gases.
Products can become damaged.
- Ballast Output cable length(basic) : 320mm
(Do not change the length of the output cable without the consent of the manufacturer)
- Should not damaged the insulation cable before installing the lamp.
(Please check the Connector connection.)
- If you need to restart the lamp, for maintaining the lamp and electronic ballast's performance, turn them on after two minutes at least.(Recommendations)
- Must be sure to consult with the manufacturer employee, whether the system can be applied in place before installing the application.

2. Unpacking and System Operation Condition

▶ Unpacking

1. Take care not to get damaged of main system, accessories and parts during unpacking and check the parts described in this manual.
2. Confirm the product manual inside the package.
3. Contact an agent or an A/S center, when accessories and parts have been damaged.
4. If the damage is from improper delivery, claim damages to the related company.

▶ Operation Condition

1. General Condition

■ Ambient temperature

- * Upper limit : +50℃ * Maximum average temperature for 24 hour : +40℃
- * Lower limit : -20℃

■ Humidity

- * Average humidity for 24 hour : Under 85%
- * Average humidity for 1 month : Under 80%

2. Special Condition

The system is able to be used in the special conditions under the agreement with ETECH Corporation.

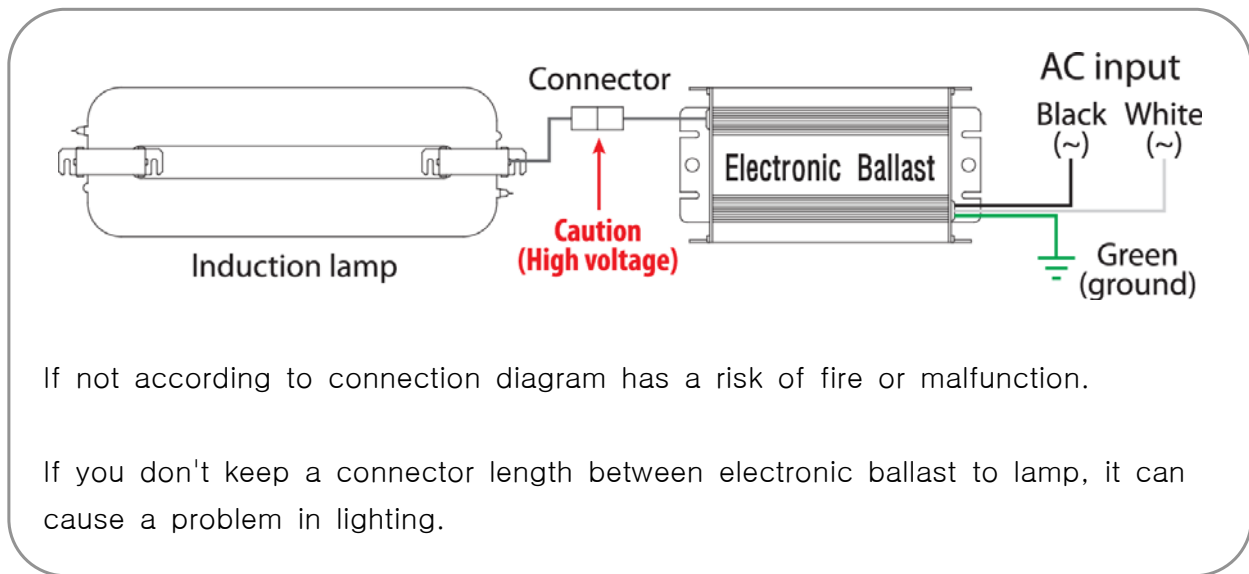
Contact with ETECH Corp. before the use in the below special conditions.

- Altitude and ambient temperature is out of the general range.
- If power is unstable.(Where welding operations be often.)
- If there is a lot of humidity.
- If there is a lot of steam or oil vapor.
- If there is explosive materials, flammable or toxic gas around the system.
- If there is a lot of dust or dirt air around the system.
- If there is abnormal vibration and physical impact.
- If there is a lot of ice or snow around the system.
- And the others special conditions.

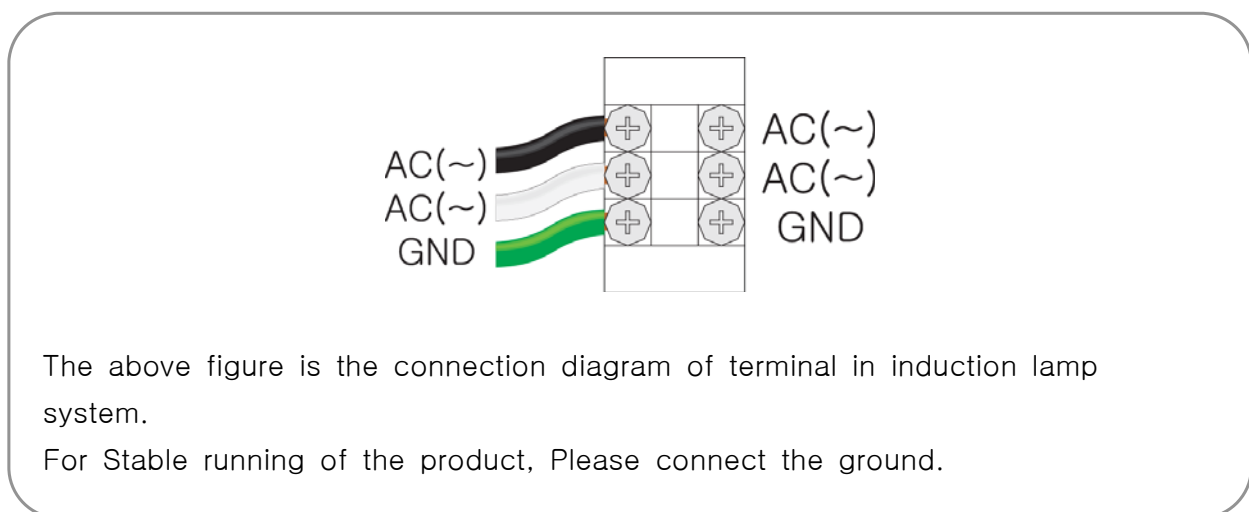
3. Check points during the installation

► Check points before installation

1. Electric power : Connect the system within $\pm 10V$ voltage deviation the system capacity.
2. Check the connector connection of the Lamps and electronic ballasts.

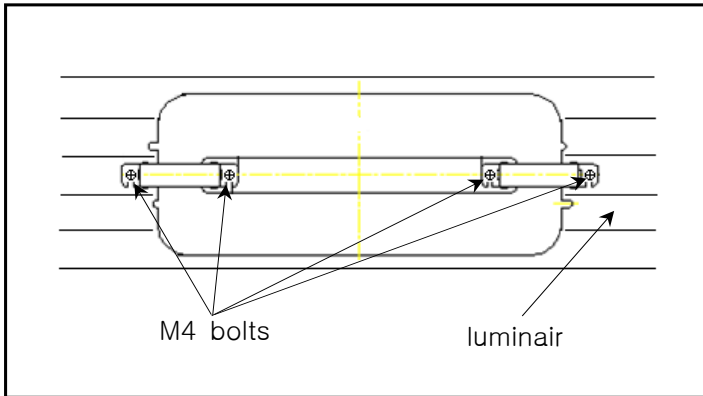


(Lamp + electronic ballast connection)



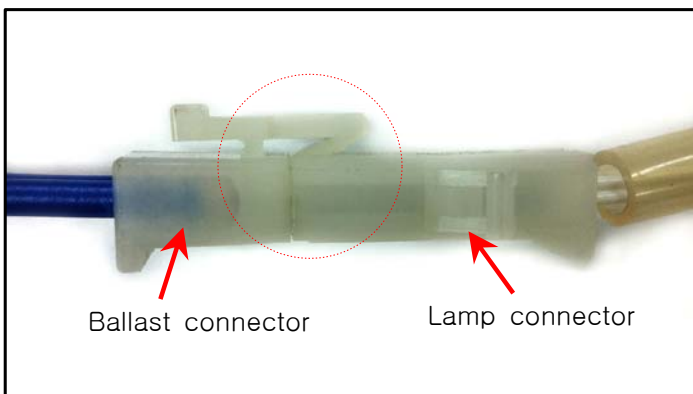
(Terminal connection)

► Assembly of lamps and Luminaire. [ETL/S/R-Type]



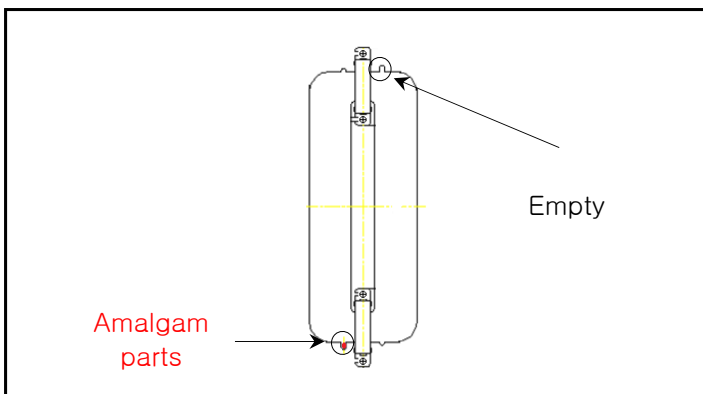
- ① Luminaire and lamps coupled using bolts(M4 TAP), please.
(Please be sure all 4 bolts)

► Connector Assembly.[ETL/S/R-Type]



- ① In case of design or assembly of fixtures , please consider the dimensions of connector, Because Connector is fixed to the lamp and ballast
- ② In case of the lamps and ballast exchange or installation, please surely disconnect after **disconnect the power connector**

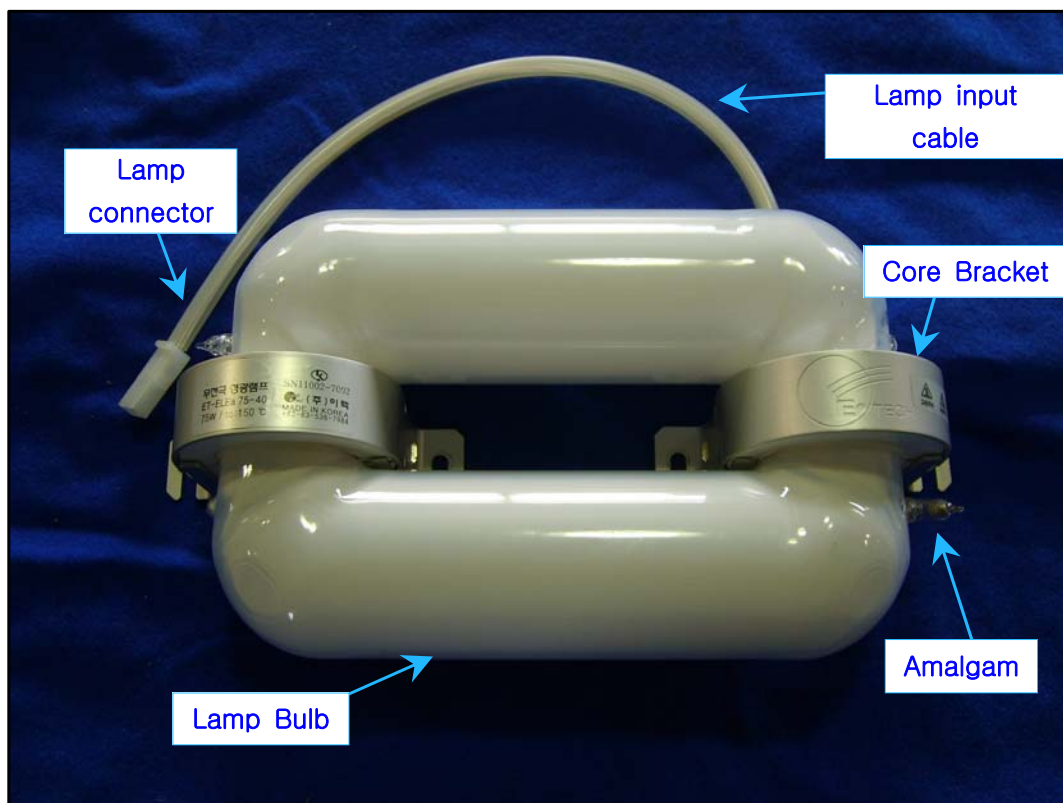
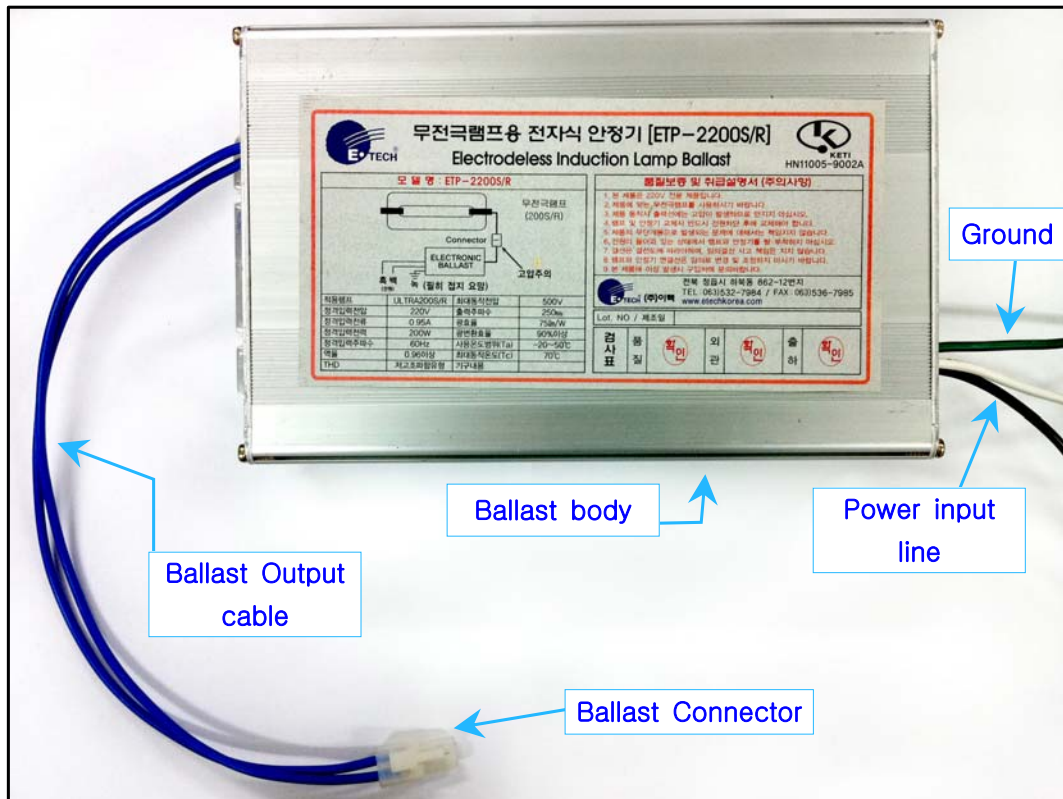
► Precautions when using the ramp vertical attached.[ETL/S/R-Type]



- ① the Amalgam is included in the induction lamp, for maximum luminous efficiency which maintains mercury vapor properly.
- ② When installing the lamp in a vertical position, Please check the amalgam portion facing down
- ③ Please keep note of the above, for safe use of the product,

4. Structure and Specification

4.1 Name of the structure and main parts



Induction lamp system of E•TECH

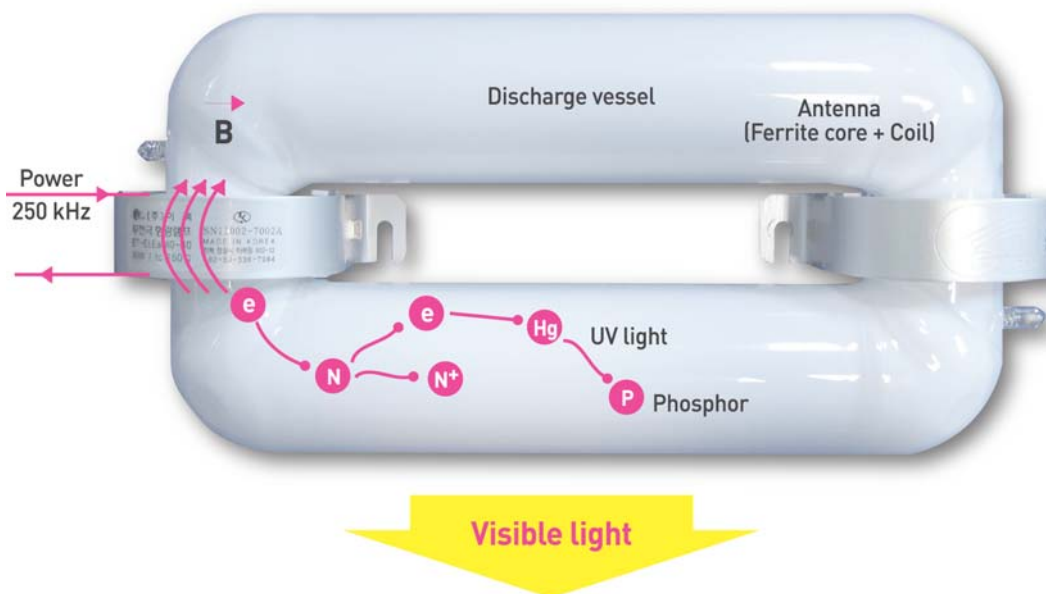
4.2 Principle and Structure of Induction lamp

1) Induction lamp system

- Ferrite core is built outside the bulb rather than inside electrodes(filament, glow tube)
Special inverter with which high frequency (250kHz) oscillating to ferrite core is possible Energy is supplied from(electronic Ballast for Induction lamp)
Ultraviolet is generated as Electromagnetic field occurs in lamp and it responds to filled gas inside the bulb.

Generated UV ray passes through three-wavelength fluorescent materials coated on inside the bulb and finally it is emitted as visible rays.

Innovative lighting system of long duration, high efficiency and high color rendition



4.3 Features

1) Long-life

- Effective duration : 60 thousand hours(up to 70% compared to initial luminous flux)

2) high luminous flux maintenance factor.

- 3) It minimizes eye fatigue as it does not flicker due to its high frequency drive(250KHz) and has low luminance as a surface light source.

4) Instant light-up and relighting is possible

- 5) Color rendering similar to natural color is realized as a three-wavelength lamp(above 80Ra)

6) High efficiency lamp (above 80lm/W)

7) EMC compliance with international standards

4.4 Application of Induction Lamp System

- ▶ Guard lamps, streetlights, and lighting for parks and other outdoor
- ▶ Lighting for places requiring low luminance high illumination such as department store and shopping center
- ▶ Lighting for densely crowded area
- ▶ Guard lamps, streetlights, and lighting for parks and other outdoor
- ▶ Lighting for various underground facilities such as underground passages and tunnels
- ▶ Lighting for dangerous and high places difficult of access

Induction lamp system of E•TECH

4.5 Specification and Performance

1) Induction lamp Specification

Model		Power Consumption [W]	Luminous Flux [lm]	Lamp Efficiency [lm/W]	Color Rendition [Ra]
Rectangular Type	ETL 120W/S	120	≥ 9,000	≥75	≥80
	ETL 150W/S	150	≥11,250	≥75	≥80
	ETL 200W/S	200	≥15,000	≥75	≥80
Circle Type	ETL 120W/S	120	≥ 9,000	≥75	≥80
	ETL 150W/S	150	≥11,250	≥75	≥80
	ETL 200W/S	200	≥15,000	≥75	≥80

2) Induction lamp Size

Model		L(mm)	W(mm)	H(mm)
Rectangular Type	ETL 120W/S	350	133	74
	ETL 150W/S	410	133	74
	ETL 200W/S	495	140	74
Circle Type	ETL 120W/S	304	268	74
	ETL 150W/S	345	300	74
	ETL 200W/S	395	350	74

3) Electronic Ballast Specification

Model	Power Consumption [W]	Input voltage [V]	Input current [A]	Input frequency [Hz]	Driving frequency [Hz]	Power factor [PF]
ETP-2120U	120	277	0.44	50~60	250K	≥0.96
ETP-2150U	150	277	0.55	50~60	250K	≥0.96
ETP-2200U	200	277	0.73	50~60	250K	≥0.96

4) Electronic Ballast Size

Model	L(mm)	W(mm)	H(mm)	Weight(g)
ETP-2120U	242	115	57	1,100
ETP-2150U	242	115	57	1,100
ETP-2200U	242	115	57	1,100

5. Inspection and Maintenance



WARNING!

Be sure to cut off main power before product (system) repairing and inspection
 Be sure to repair and inspect product(system) after temperature of the lamp goes down to the ambient temperature

5.1 Inspection and maintenance

No.	Inspection Items	Inspection Period	Check Points	Measures
1	Fixture Cleaning	6 month	When lots of dust & dirt stacked on the luminaire housing and front cover.	Remove dust & dirt with a dry cloth.
2				

5.2 Measures for troubles

No.	Items	Measures	Note
1	When the ambient temperature is below -20°C	Please keep the ambient temperature above -10°C	
2	If the part of amalgam portion(at the end of the lamp) is broken.	Lamp replacement is needed.	

6. Maintenance and Replacement



WARNING!

Main power must be "OFF" before maintenance and Replacement.

6.1 Replacement of electronic ballast

No.	Items	Replacement	Note
1	Power Off	Turn off power, before open ballast case of the luminaire. And then disconnect the power cable connected in terminal block or connector.	
2	Disconnect the Ballast	After disconnecting the output connector of ballast. And then Release the ballast, after screw off the fixing bolts.	
3	Connect the Ballast	Assemble the ballast & ballast case(Release ballasts in reverse order), then connect the lamp input and ballast output connector.	
4	Check the connection and operation	After connect the input ballast cable to terminal block. And then Input rated power and check the operating conditions.	

6.2 Replacement of induction lamp

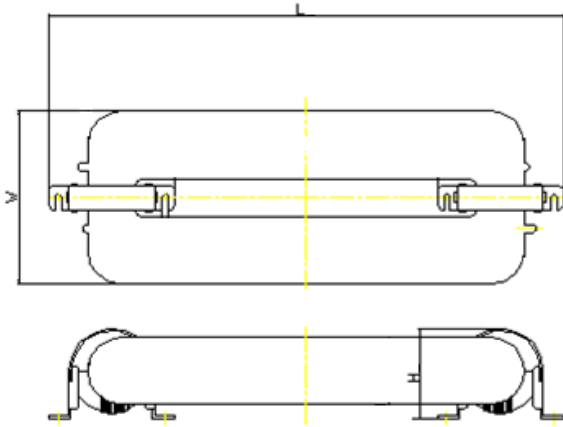
No.	Items	Replacement	Note
1	Power Off	Turn off power, before open ballast case of the luminaire. And then disconnect connector of the lamp and ballast	
2	Disconnect the Lamp	Open the front cover of the luminaire. And then Release the lamp, after screw off the fixing bolts.	
3	Connect the Lamp	Luminaire and lamps coupled using bolts M4 TAP. (Please be sure all 4 bolts)	
4	Connect the Connector	After the input line insert through a hole Inside the luminaire, then connect to the connector of the ballast output cables.	
5	Check the operation	After check the connector connection. And then Input rated power and check the operating conditions.	

APPENDIXES

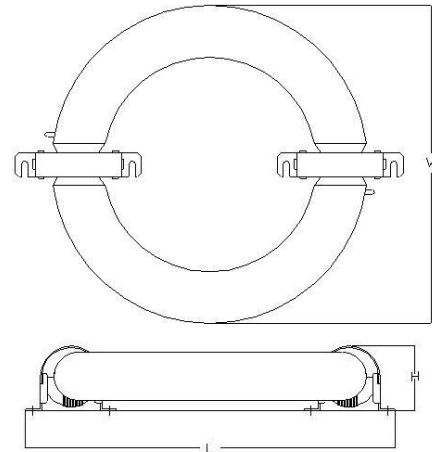
(ETL-LAMP + ETP-BALLAST)

Product drawing

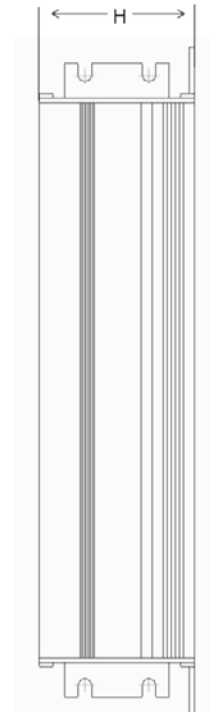
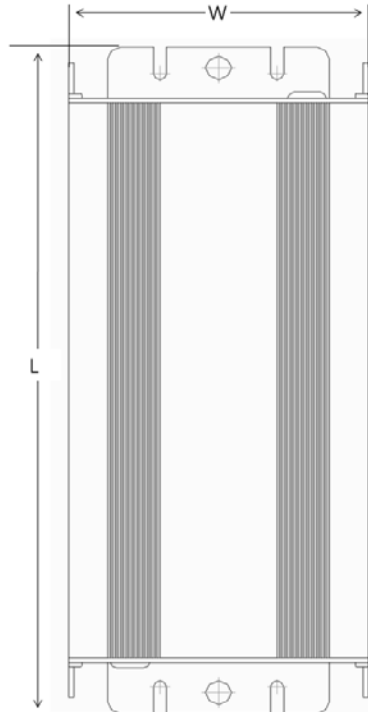
Induction lamp and ballast drawing



[ETL Lamp]



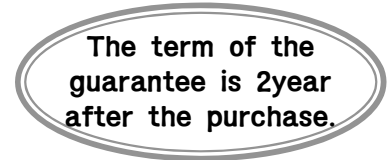
[ETL/R Lamp]



[ETP-Ballast]

Warranty of the product

Name of the product		Name of the Model	
The date of purchase		Serial No.	
Selling agency		Purchase amount of money	



Regarding services :

- ▶ We, Etech corporation, carry into effect the guarantee under the Korean Provision of the Compensation for the Consumers (the Ministry of Finance and Economy notice No. 2005-21).
- ▶ The requested service will be provided by Etech corporation or its partners.
- ▶ The result of the compensation will be informed to users within 7 days of the date of the request, and casualties compensation would be settled within 14 days.
- ▶ The term of components possession is 5 year

Free services

Types of the Consumers' damages		The expenditure of compensations		
		Within the warranty period	After the warranty period	
In case of malfunction originated in normal operating conditions by product's performance or functions within the term of components possession	In case of essential repair is required within 1 month after the purchase	Replace the product or component	Not applied	
	The damages occurred during the transport or installation on the purchase			
	Malfunction that requires essential repair detected on the replaced product within 1month after the replacement			
	In case of the replacement could not be done	Repair at free of charge	Charged repair	
	In case of repair could be done	In case of malfunction originated up to 3times by same defect.	Replace the product or component	Charged repair
		In case of malfunction originated more than 4 times by same defect.		Charged repair
	In case of malfunction originated more than 5 times by different defects.	Return the amount which is applied the fixed depreciation and added 10% of the depreciated amount.		
In case of businesses lost the product which was requested for a repair by consumers	In case of the repair could not be done for the components for repairs are not retained during the term of components possession	Replace the product or component	Refund the amount which is applied the fixed depreciation	
In case of product is beyond repair despite possession of the components for repair.			Replace the product after the collection of the amount that is equivalent to the Charged repair and balance between the product price and the amount which is applied fixed depreciation.	
In case of malfunction originated by consumers' intention or mistakes	In case of product is beyond repair	Replace the product after the collection of the amount that is equivalent to the Charged repair	Replace the product after the collection of the amount that is equivalent to the Charged repair and balance between the product price and the amount which is applied fixed depreciation.	
	In case of product could be repaired	Charged repair	Charged repair	

Charged services

In case of users request services not for malfunction, service charge will arise. Users should read the operating manual.

- 1) Cleaning the fixture, adjustment, explanation of the use and so on, are not included in free service.
 - ▶ Should the product is beyond repair, separate regulation would be applied.
 - ▶ Explanation of use or simple adjustment without any detaching process.
 - ▶ In case of reinstallation which caused by incomplete installation by the store.
 - ▶ In case of dust cleaning service or removal of something foreign inside of the fixture.
 - ▶ In case of incomplete installation which caused by carriage of the product and so on.
 - ▶ In case of reinstallation after the first installation which is requested by clients on the purchase.
 - ▶ In case of reinstallation caused by unskilled users' first installation.
 - ▶ In case of users request services caused by project something foreign into the fixture or wrong cleaning.
- 2) In case of malfunction is originated by Consumers' mistakes
 - ▶ Malfunction is originated by negligent handling or wrong repair.
 - In case of malfunction is originated by users' wrong electric capacity use.
 - In case of damages or malfunction is originated by drops during the installation or transport.
 - In case of malfunction is originated by the use of expendables or accessories that is not appointed by Payhouse incorporation.
 - In case of malfunction is originated by the repair which is done by someone who is not from Payhouse incorporation or collaborating company.
- 3) In case of others
 - ▶ In case of malfunction is originated by natural disasters such as fire, damages from sea water, flood damage, earth quake and so on.
 - ▶ In case of the expendable components are expended their life span, such as lamps, ballast and so on.

Induction lamp system of E•TECH

Address

Head office & Factory : 862-12, Habuk-Dong, Jeongeup-City, 580-020,
Jeollabuk-Do, Korea

Tel : 82-63-536-7984 Fax : 82-63-536-7985

Research Institute : 729, Palbokdong 2-Ga Deokjin-gu, Jeonju-City, 561-844,
Jeollabuk-Do, Korea

Tel : 82-63-212-7983 ~ 4 Fax : 82-63-212-7985

Should you let us know your correct name of the product, status of malfunction and contact address, we would provide you with our best counsel and agile services regarding your doubtful point.