

ITF Isolation Transformer

Operation Manual



Please read this manual carefully before construction, installation and operation of the product.

Please keep this manual properly for further reference.

Airsafe Airport Equipment Co., Ltd.

Revision Description

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1.0 Foreword

The content stated in this manual is absolutely important, so construction personnel must read it carefully before construction. After properly understanding the entire content of this manual, construction personnel should carry out the construction in strict accordance with the methods specified herein, to ensure that the product is safely and properly installed in place.

Routine airport maintenance personnel should carry out the routine maintenance in strict accordance with the methods specified by relevant provisions, to ensure that the lighting fixtures are in the best operation condition.

Related personnel must strictly follow safety criterion. Any personnel without specialized training is strictly forbidden to touch the lighting fixtures and devices. Live line work should be avoided under any circumstances. Construction or maintenance personnel should get acquainted with first-aid knowledge, in case of any unexpected events.

1.1 Illustrations and Meanings

- Following illustrations will appear in this manual where necessary to remind or warn construction or maintenance personnel.
- Please continue reading the subsequent content of this manual after properly understanding the meanings of these illustrations.



- To remind that the behavior may cause serious injury or death.
- ※ Detailed description will be given in the box.



- To remind that the behavior may cause injury to people or damage to product.
- ※ Detailed description will be given in the box.



- To notify that the behavior is prohibited.
- ※ Detailed description will be given in the box.

1.2 Safety Rules and Notices



- Using this product beyond the scope is strictly prohibited.
- ※ Otherwise it may cause damage and risk to the assy.



- Before installation and maintenance of the lighting fixtures, making sure that the isolation transformer is disconnected.
- ※ Current impact caused during installation of the wind direction indicator may damage the lamp.



- Isolation transformer shall be handled with care during handling.
- ※ Mass of the isolation transformer is great, which may cause personal injury.



- The power line shall be immediately replaced when its surface is damaged.
- ※ It may cause earthing short circuit and electric shock.

1.3 Quality Assurance and Responsibility

Any defect in design, material or workmanship, which may occur during proper and normal use over a period of one year from date of installation but less than 15 months from date of shipment, or within the warranty period of the tender, will be repaired or replaced by manufacturer free of charge. The warranty doesn't cover the failures resulting from lamp burnt out, improper maintenance, installation or operation, or damages due to snow ploughs. Manufacturer shall not be liable to any further claims or particularly claims for damages not affecting the goods themselves.

Due to continuous improvement of the equipment, the manufacturer reserves the right to modify this Manual without notice.

2.0 Introduction

This product is ITF isolation transformer.

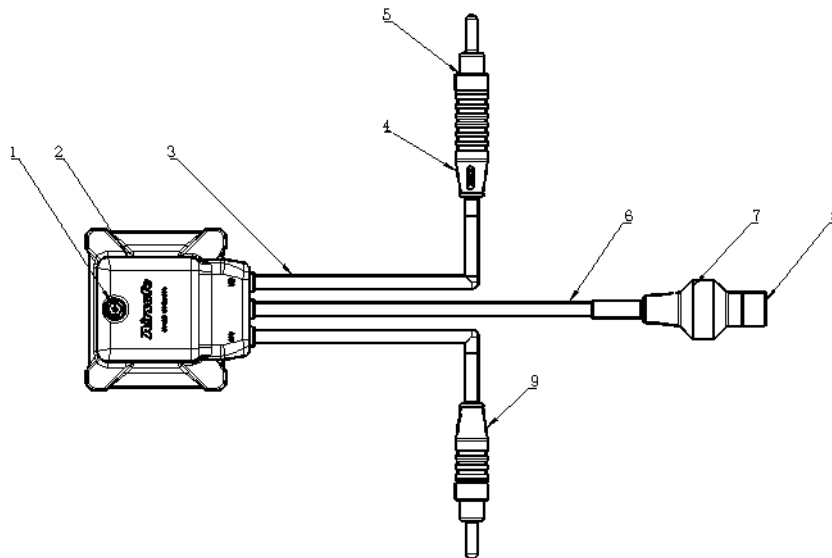
2.1 Overview of Isolation Transformer

Isolation transformer means the transformer whose input winding and output winding has the electric isolation, which is a safe power source and plays protection, anti-thunder and filter actions in the circuit.

ITF isolation transformer is a transformer used for civil aid-to-navigation lighting fixtures, which is independently developed by Airsafe Airport Equipment Co., Ltd.. It meets the standard of FAA AC for the isolation transformer. The rubber and plastic materials are used for embedment of the transformer to ensure its such indexes as insulation, corrosion resistance and shock resistance.

ITF isolation transformer is applicable to the circuit of 2.8-6.6A constant current input power source, which is widely applied to the airport runway, taxiway and parking apron.

2.2 Structure



- | | | |
|-------------------------------------|------------------------------------|--------------------------------------|
| 1. Earthing nut M 5 (earthing type) | 2. Isolation transformer | 3. Primary plug/
receptacle cable |
| 4. Style 2 primary plug | 5. Primary cable protection head | 6. Secondary receptacle cable |
| 7. Style 8
secondary receptacle | 8. Secondary cable protection head | 9. Style 9 primary
receptacle |

2.3 Technical Features

- ★Full series of specifications, various performances such as electric performance comply with the requirements of FAA and national standard;
- ★Compact structure and light weight;
- ★Internal structure design ensures complete separation of the primary coil and secondary coil;
- ★E&I high quality silicon steel sheet greatly ensures the electric performance of the product;
- ★Withstand 15KV high voltage, the hot insulation resistance is greater than 7,500 megohm and the leakage current is less than 2 μ A;
- ★The ground resistance is less than 4 Ω , and thus earthing is reliable and it is safer;
- ★Earthing and non-earthing method are optional for the user;
- ★Made of the special rubber and plastic materials, with super-strong corrosion, kerosene and urea resistance; is super-strong anti-aging performance ensures ultrahigh insulation and reliability;
- ★Operating temperature: -55 $^{\circ}$ C~+65 $^{\circ}$ C;
- ★Multilayer shooting technique ensures reliable connection of the connector joint;
- ★Using the connector complying with the international standard complies with the connection of the FAA standard lighting fixtures;
- ★Made-to-order receptacle/ plug protective cover effectively prevents the primary and secondary plugs from being affected with damp and dust.

2.4 Application Scope

ITF isolation transformer is applicable to the circuit of 2.8-6.6A constant current input power source, which is widely applied to the airport runway, taxiway and parking apron.

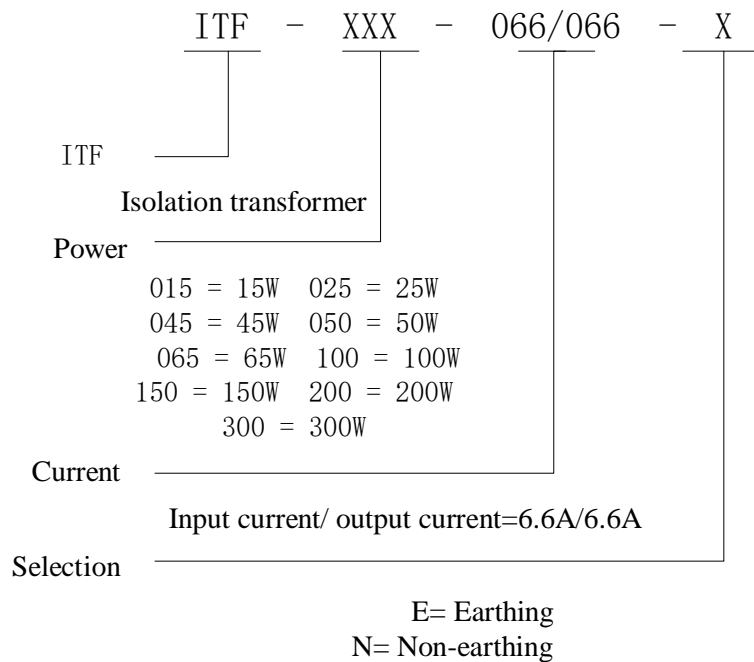
2.5 Licenses

- Passed the inspection of the National Lighting Fixture Quality Supervision and Inspection Center;
- Passed the inspection of Shanghai Institute of Quality Inspection and Technical Research.
- The special rubber elastomer used by the isolation transformer passes the inspection of the National Electric Wire Quality Supervision and Inspection Center.

3.0 Usage of Isolation Transformer

3.1 Type Selection of Isolation Transformer

Types of the isolation transformers are as follows:

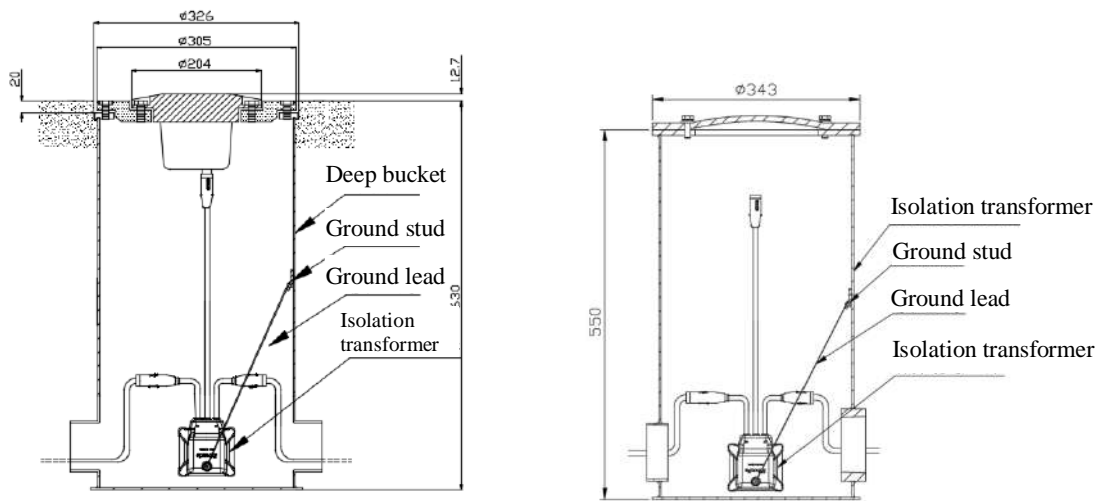


According to the actual requirements, select an earthing or non-earthing isolation transformer with appropriate power.

After selecting the isolation transformer, select the auxiliary isolation transformer box, primary plug/ receptacle cable, Style 2 primary plug, Style 9 primary receptacle, secondary receptacle cable and Style 8 secondary receptacle.

3.2 Connection of Isolation Transformer

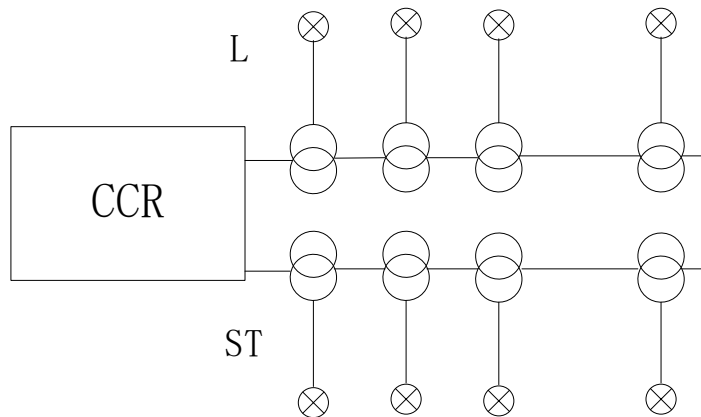
- For installation of the primary cable connector, please refer to Installation Guide for Primary Cable Connector (with Shield) in auxiliary instructions;
- For installation of the secondary cable connector, please refer to Installation Guide for Secondary Cable Connector in auxiliary instructions;
- If the earthing isolation transformer is selected, it shall be earthed in its box, with its connection diagram shown in Figure below:



a. Installation of Deep Bucket

b. Installation of Isolation Transformer

The wiring diagram of the isolation transformer is shown below and the isolation transformer is connected to the circuit of the airport lighting fixture in series.




CCR: Constant current regulator L: Lighting fixture ST: Series connected isolation transformer

3.3 Preparation and Inspection of Isolation Transformer before Use

Prior to use, please prepare and inspect the isolation transformer according to Table 3-1:

Table 3-1 Preparation and Inspection of Isolation Transformer before Use

SN	Inspection Items	Conclusion	Remarks
1	Whether there are external rubber sleeves of the primary and secondary cable connectors.		
2	Whether the isolation transformer is applicable to the actual use power.		
3	Whether to include the isolation transformer box and whether it is matched.		
4	Whether the primary and secondary connection is correct.		
5	Whether the isolation transformer cable has obvious damage.		
6	Whether it is correctly connected with CCR and lighting fixture.		
7	Whether the isolation transformer is earthed in its box.		Earthing isolation transformer

	<ul style="list-style-type: none"> ■ During installation, removing the protective sleeve of the isolation transformer plug and receptacle too early is strictly prohibited. ※ Otherwise it may impact the insulation of the lighting fixture circuit.
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4.0 Maintenance

The product is not a consumable, but the auxiliary isolation transformer box uses the gasket. After maintenance each time, please check whether it is out of work. It shall be timely dismantled and replaced when it is abnormal. When replacing the parts, please note that any tiny error will cause adverse consequences. The manufacturer requires the user to pay attention to the following warnings. During dismantling, please take care to perform an overall inspection for the product and replace some vulnerable parts according to the requirements to ensure the waterproof and available performance of the product after dismantling.



- Using the nonstandard tools to dismantle the isolation transformer accessories is strictly prohibited.
- ※ Otherwise it may cause personal injury or damaged to the product.



- The manufacturer suggests to replace various gaskets when maintaining the product each time.
- ※ Gasket aging and damage are main causes of leakage.

4.1 Daily Maintenance

It is suggested to inspect the isolation transformer box in which the isolation transformer is stored every 6 months to observe whether there is water leakage and anomaly, so as to minimize the circuit problems due to change of the temperature or season.

Daily maintenance suggestions provided in this Section are only for reference. The airport may refer to other regulations or maintenance experience of the airport staff to formulate its own daily maintenance rules. The manufacturer does not specify them.



- The manufacturer suggests to increase the daily maintenance times in the rainy season.
- ※ Ensure more reliable use of the airport circuit.

4.2 Fault Analysis and Troubleshooting

During use of the isolation transformer, the users may turn off the power source and notify us when it is difficult for them to determine the fault causes or remove the faults in case of anomalies which are not listed in Table 4-1.

SN	Fault Description	Possible Causes	Solutions
1	Failure of isolation transformer	Failed or incorrect connection of the connecting cable	Check the connecting cable
2	Low insulativity	Damage to the power line	Replace the power line
3	Low insulativity	Damage to the isolation transformer	Replace the isolation transformer
4	No secondary output	Damage to the isolation transformer/ lighting fixture	Replace the isolation transformer/ check the lighting fixture



- The power line shall be immediately replaced when its surface is damaged.
- ※ Otherwise it may cause earthing short circuit and electric shock.

5.0 Accessories of Isolation Transformer

SN	Item No.	Model	Name	Remarks
1	971733	A4	Secondary cable plug	☆Style 4 combined suite
2	971730	A3 A10	Primary cable plug & receptacle suite	☆Style 3, 10 combined suites
3	70603	A6	Secondary cable plug	Style 6
4	70206	A2	Primary cable plug	Style 2
5	70906	A9	Primary cable receptacle	Style 9
6	970001		Thermoplastic accessory suite of isolation transformer	Style 6, 2 and 9 and installation accessories
7	044323	TJB-12	Isolation transformer box	For model selection of the isolation transformer, please refer to its specification.

Notes: 1. Items marked with ☆ mean accessories suggested.

The final right to interpret this manual is reserved by Airsafe Airport Equipment Co., Ltd.

Thanks for your purchasing and using AIRSAFE product!

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