



INSTRUCTION MANUAL
INSULATING TRANSFORMER UNIT
MODEL TF-6503P

NOISE LABORATORY CO., LTD.

2.05 edition
AEK00005-00E-1F

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1. IMPORTANT SAFETY PRECAUTIONS

Thoroughly understand the following precautions before use, as they are important matters for handling this unit in safety.

- 1. This unit cannot be used in an explosive area, fire prohibited area, etc. Use of this unit in such an area is liable to cause combustion or ignition.**
- 2. This transformer is designed for use of ground leak current cancellation when required for a surge testing. Strictly follow the safety and operation procedures given in the manual of the surge generator being used. Negligence may result in a lethal wound.**
- 3. Please be sure to see AC voltages are not present at the terminals you are about to work with prior to any connection work.**
- 4. A number of safety recommendations are listed in “ BASIC SAFETY PRECAUTIONS TO USE THIS UNIT ” mentioned later. Be sure to read them before setting a test environment, connection and starting a test.**

2. APPLICATION FORM FOR INSTRUCTION MANUAL

We place an order for an instruction manual.

Model: TF-6503P

Serial No.: _____

Applicant:

Company name: _____

Address: _____

Department: _____

Person in charge: _____

Tel No.: _____

Fax No. _____

Cut off this page "APPLICATION FORM FOR INSTRUCTION MANUAL" from this volume and keep it for future use with care.

When an INSTRUCTION MANUAL is required, fill in the above Application Form and mail or fax it to the following sales department of our company.

To: Noise Laboratory Co., Ltd.

1-4-4, Chiyoda, Chuo-ku, Sagami-hara City, Kanagawa

Pref., 252-0237

Tel: +81-(0)42-712-2051

Fax: +81-(0)42-712-2050

E-mail: sales@noiseken.com

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line

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4. PREFACE

4-1 Preface

Thank you very much for your purchase of Insulating Transformer Unit Model TF-6503P. In order to obtain the highest performance of your TF-6503P, thoroughly read this manual and use it as ready reference for operation.

4-2 What the TF-6503P can do.

Model TF-6503P is the insulating transformer with maximum rating of single-phase AC600V/50A and dielectric strength of 4kV.

It can be used for AC power line to Lightning Surge Simulator Model LSS-15AX made by NOISE LABORATORY CO., LTD. and can also be widely used for various noise testers and measuring equipment.

5. BASIC SAFETY PRECAUTIONS TO USE THIS UNIT

5-1. Symbols of hazard



It expresses a DANGER.

DANGER indicates an impending dangerous condition resulting in a serious **injury or death**, if such a condition is not avoided.



It expresses a WARNING.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in **death or serious injury**.



It expresses a CAUTION.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in **minor or moderate injury**.

5-2. Basic safety precautions



1. This transformer is designed for use of ground leak current cancellation when required for a surge testing. Strictly follow the safety and operation procedures given in the manual of the surge generator being used. Negligence may result in a lethal wound.
【Precautions for human body, operation, environments and connection】
2. This unit cannot be used in an explosive area, fire prohibited area, etc. Use of this unit in such an area is liable to cause combustion or ignition.
【Precautions for human body and environments】
3. For connection of this unit, check to see that all related power are off: mains, surge simulator or other equipment, the equipment under test. Nonobservance may result in a shock hazard by mains supply voltages.
【Precautions for connections】
4. As the terminal base used in this unit is so designed that electric wire is directly caught by the terminal base. Single or stranded wires shall be used. Do not solder the stripped wires. Follow the instructions given in section 7 in this manual. 【Precautions for connections】

 **WARNING 警告**

5. **As high voltage is generated inside the unit, do not open the cover of this unit.** 【Precautions for human body】
6. **Our company and sales agents shall have no responsibility for any accident resulting in injury or death, any breakage or resultant damages due to irresponsible handling.** 【Precautions for human body, operation, environments and connection】
7. **Do not connect a cable etc. to any terminal unnecessary for setting a test. Do not mistake cable setting or connection. Otherwise, you may receive an electric shock or the internal unit of this unit and equipment connected to it may be damaged.**
【Precautions for human body, operation and connection】
8. **Connect each connector and cable securely. Otherwise, you may receive an electric shock or the internal unit of this simulator and equipment connected to it may be damaged.**
【Precautions for human body and connection】
9. **Use the accessories and optional equipment supplied by our company.**
【Precautions for human body and connection】
10. **Be sure to ground PE terminal (earth cover) of this unit.**
【Precautions for human body and connection】
11. **Avoid giving a strong shock to this unit. This unit weighs approx. 60 kgs. Lock the casters for installation.** 【Precautions for installation】

 **CAUTION 注意**

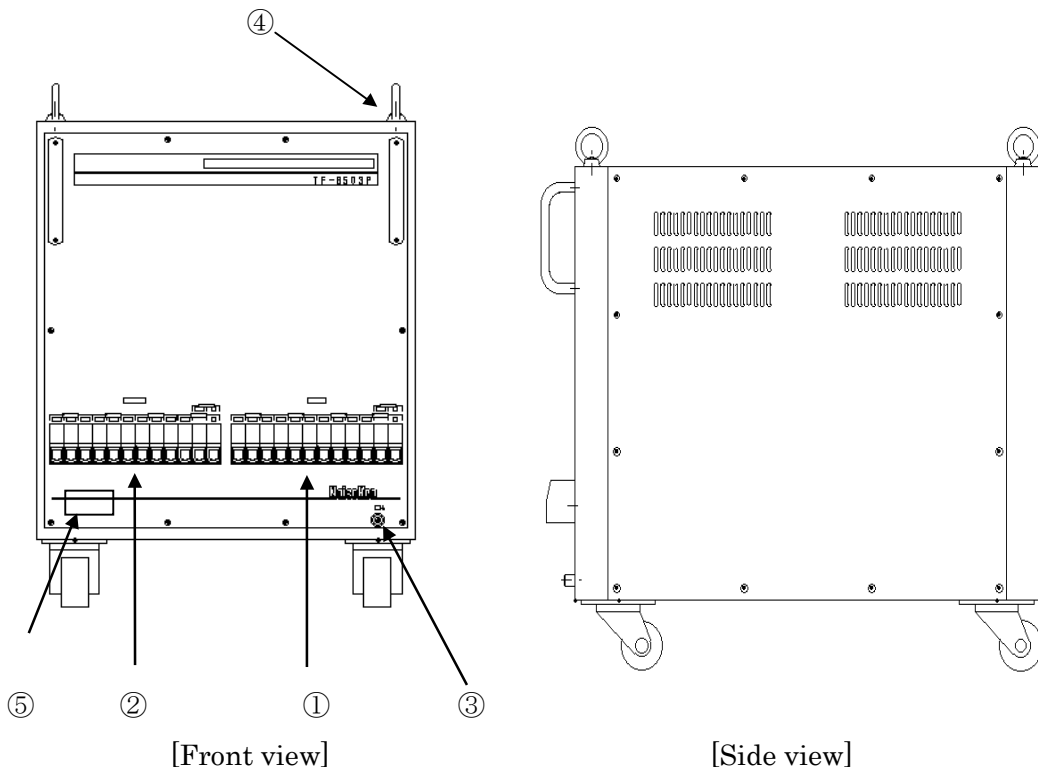
12. Use the unit within the range of AC100 to 600V. Avoid applying voltage exceeding this range. 【Precautions for connection】
13. Avoid using or storing the unit in high or low temperature environment. (Operating temperature range: 15 ~35°C/ Operating humidity range: 25~75%) 【Precautions for environments】
14. If dewing or condensation occurs, thoroughly dry it before operating the unit. 【Precautions for environments】
15. Avoid using this unit in an extremely humid or dusty place. 【Precautions for environments】
16. Repair, maintenance and internal adjustment of this unit should be performed by a qualified service engineer.
17. Do not wipe this unit with thinner, alcohol or similar solvent. When the body is dirty, soak a cloth in detergent, squeeze the cloth and wipe the body with it.

6. SPECIFICATIONS

Maximum input voltage.....	Single phase, 3-phase 4-line AC600V max (50/60Hz)
Maximum output current.....	50A maximum
Transformer wiring method.....	Star wiring
Dielectric strength.....	Primary side: Core AC4kV (1 minute) Secondary side: Core AC4kV (1 minute) Primary side: Secondary side AC4kV (1 minute)
Insulation resistance.....	100M Ω or more at DC500V
Dimensions.....	500(W) x 640(H) x 700(D) mm (Except eye bolt and handle)
Weight.....	Approx. 350kg

7. APPEARANCE AND SERIAL NUMBER POSITION

7-1. ENTIRE APPEARANCE



① AC LINE INPUT TERMINAL BASE

AC power line input terminal base

② AC LINE OUTPUT TERMINAL BASE

AC power line output terminal

③ PE TERMINAL (EARTH)

Protective Terminal of this unit. Be sure to connect this terminal to the ground to assure safety.

④ EYE BOLT

It is used to suspend this unit in case of transit.

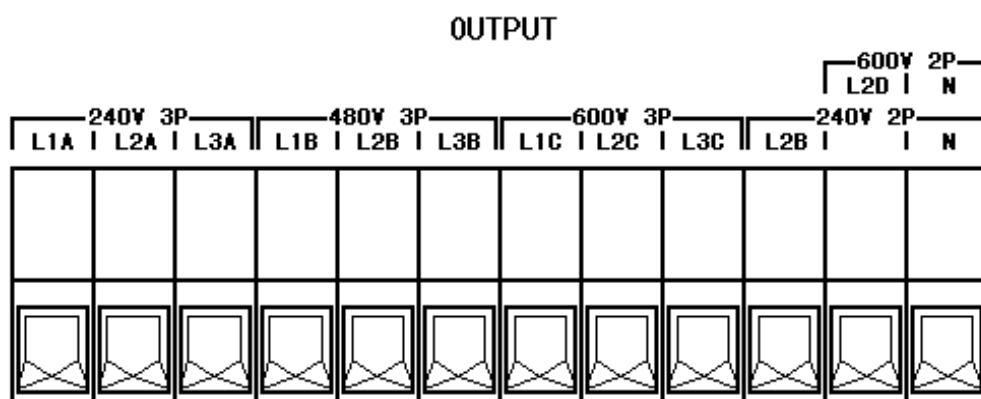
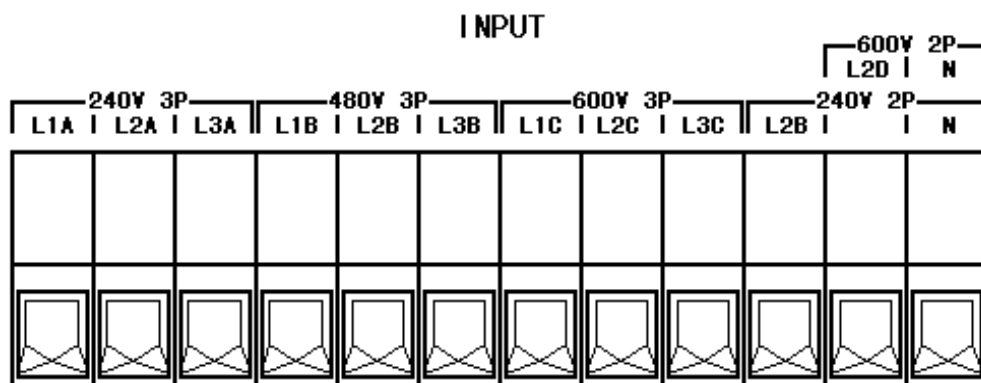
⑤ SERIAL NUMBER LABEL

It indicates Model Number and Serial Number of this unit.

★ As the terminal base used in this unit is so designed that electric wire is directly caught by the terminal base, peel off the coating of the supplied cable (VCT cable) or the electric wire and connect it directly to the terminal base.

★ The maximum output current of this unit is 30A. Never output an electric current exceeding 50A from this unit, otherwise it may be burn.

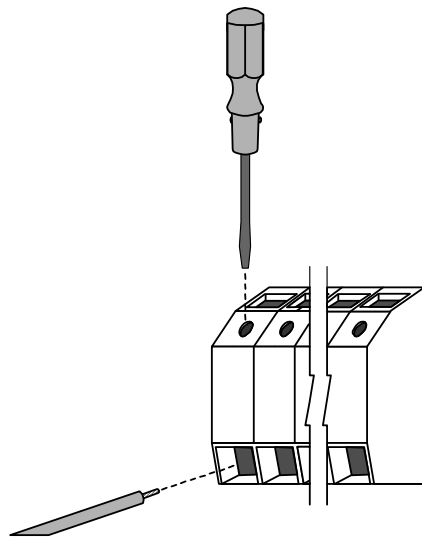
7-2. INPUT / OUTPUT TERMINAL BASE



The above drawing shows “Input and output terminal base” of TF-6503P. Different terminals are used according to the voltage and phase of power supply connected to the TF-6503P. The following table is a list of used terminals.

Phase	Power supply voltage	Used terminals for input and output
Single phase	~240V	L2B, N
	~600V	L2D, N
3-phase	~240V	L1A, L2A, L3A, (N)
	~480V	L1B, L2B, L3B, (N)
	~600V	L1C, L2C, L3C, (N)

As shown in the below Fig., peel off the sheath of the cable or the electric wire and insert it in the connector. As there are screw holes, in which the cable are clamped, positioned at the upper part the connector, first loosen the screws also to loosen the movable contacts on the connectors and put the wires onto the contacts and then tighten the screws (slot head) with a screwdriver to fix it securely so that the cables may not be disconnected.

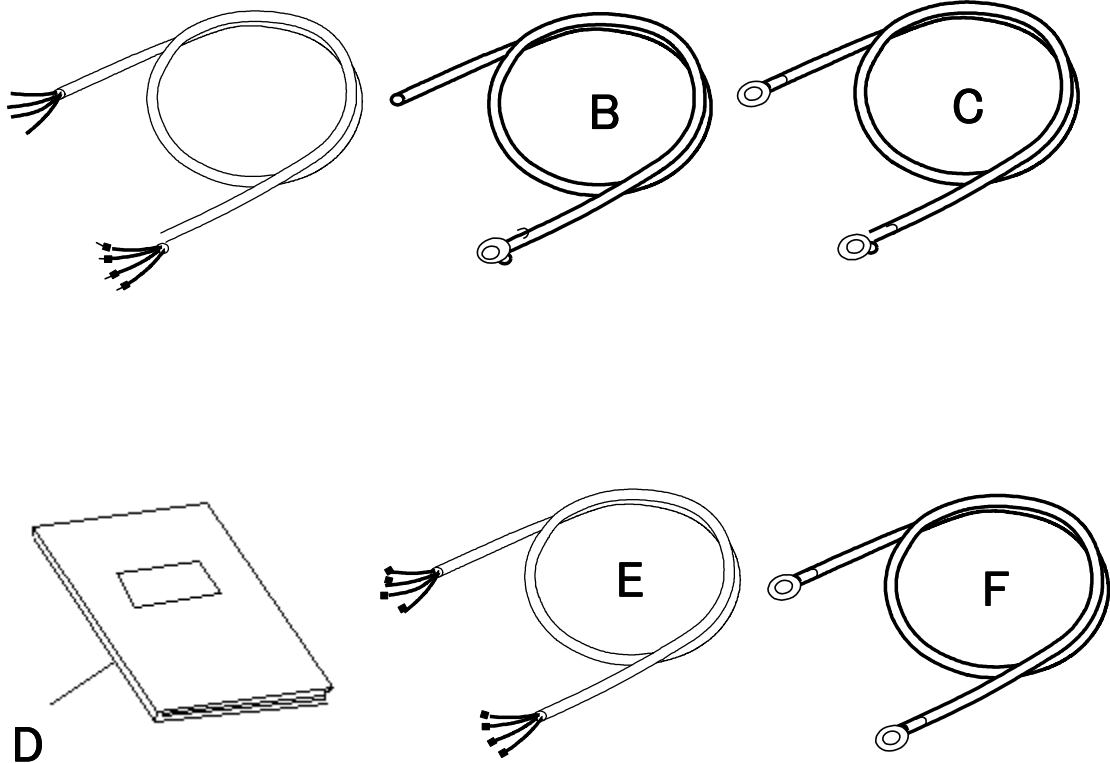


Peel off the sheath of the supplied AC line cable or a 16~50 mm² single or stranded wire by 24 mm and connect it to the connector without soldering. The screw above the connector shall be securely tightened with bigger torque (about 6-8 Nm) than usual by a dedicated screwdriver (Phoenix contact SZS1.2x8) or an equivalent that have enough torque.

8. ACCESSORIES

A set of standard accessories of this unit is as follows. If you should find any accessory is missing, contact your closest sales agent or Noise Laboratory.

TF-6503P Standard accessories



- A: AC three-phase line input cable (14sq 4-line 3m, One end: with a stick-type soldering terminal, The other end: without terminal).....1
Connect the stick-type soldering terminal side to the AC line input terminal block (INPUT).
- B: PE cable (8sq 3m, One end: with a $\phi 6$ ring-type soldering terminal, The other end: without terminal).....1
Connect the PE terminal of this unit to PE terminal of the test room.
- C: PE/FG cable (8sq 3m Both ends: with a $\phi 6$ ring-type soldering terminal).....1
Connect the PE terminal of this unit to PE or FG terminal of the lightning surge simulator with this cable, if necessary.
- D: Instruction Manual (This booklet)1
- E: AC single phase line input cable (14sq 4-line 2m, One end: with stick-type soldering terminal, The other end: with a $\phi 5$ ring-type soldering terminal).....1
For connecting the LSS-F02 series lightning surge simulator. Connect the stick side to the AC line output terminal block (OUTPUT) of this unit and the $\phi 5$ ring side to the AC three-phase line input terminal block (AC EUT INPUT) on the input panel of the LSS-F02 series simulator.
- F: PE cable (8sq 2m, One end: with a $\phi 6$ ring-type soldering terminal, The other end: with a $\phi 5$ ring-type soldering terminal).....1
For connecting the LSS-F02 series lightning surge simulator. Connect the PE terminal of this unit to the PE of the AC three-phase line input terminal block (AC EUT INPUT) on the input panel of the LSS-F02 series simulator.

9. WARRANTY

Servicing terms

The following terms are applicable to servicing by Noise Laboratory Co., Ltd., (hereafter referred to as the Company) provided to maintain the intended performance of its products.

1. Scope

The following terms shall apply only to products made by the Company.

2. Technical servicing fee

In the event of a failure of a product within the warranty period (see warranty section), the Company will repair a product without charge. After the warranty expires, repairs will be billed at a nominal cost.

3. Ownership of defective parts

Any defective part exchanged under the Company's servicing belongs to it.

4. Limited liability

In the event that damages resulting from servicing by the Company are intentional or caused by negligence, the Company will pay the cost but at the purchase value of the relevant product maximum. But, notwithstanding the foregoing, the Company shall not be responsible for any incidental or consequential damages of any nature, including without limitation thereof loss of would-be profit or compensation demanded from a third party

5. Refusal to offer servicing

The company may not accept a repair order in the following cases:

- More than 5 years have passed since manufacture of a product discontinued
- More than 8 years have passed after delivery
- Repair part for a custom-made product is not available due to discontinued production on the supplier and there is no equivalent available.
- Product changed, repaired or remodeled without obtaining a prior permission from the Company.
- Product which lost its original form

Limited warranty

Noise Laboratory Co., Ltd. (hereafter referred to as the Company) warrants its products to be free from defects in materials and workmanship under normal use and service for a period of one year from date of delivery. In the event of failure of a product covered by this warranty, the Company will repair the product or may, at its option, replace it in lieu of repair without charge.

Notwithstanding the foregoing, the Company shall not be responsible for any incidental or consequential damages of any nature, including without limitation thereof loss of would-be profit or compensation demanded from a third party. This warranty is valid only in Japan.

1. Scope

This warranty shall only apply to products made by the Company.

2. Period

One year from date of delivery. The warranty may be valid in 6 months after servicing if the same failure on the same component has repeated.

3. Exclusions

The followings are exclusions from this warranty:

- Consumable parts (including HV relay)
- Failure caused by misuse, neglect, accident or abnormal conditions of operation
- Failure caused by remodeling on the user side without prior permission from the Company
- Failure caused by servicing by unauthorized personnel by the Company
- Failure due to force majeure including but not limited to, acts of God, fire, war, riot, rebellion and others
- Failure due to shock or drop in or after transit
- Failure due to operation in environment being out of ambient specifications.
- A unit shipped to overseas.

10. MAINTENANCE

1. When repair, maintenance or internal adjustment of the unit is required, a qualified service engineer takes charge of such work.
2. Maintenance on the user side is restricted to the outside cleaning and functional check of the unit.
3. When checking or replacing the fuse, turn off the switch of the unit and disconnect the plug socket beforehand.
4. When cleaning the unit, turn off the switch of this unit and the connected equipment and disconnect the plug socket beforehand.
5. Avoid using chemicals for cleaning. Otherwise, the coating of the unit may peel off or the sight glass may be broken.
6. Do not open the cover of this unit.

11. NOISE LABORATORY SUPPORT NETWORK

- If a symptom that seems a trouble is found, check the symptom against the following check sheet and inform the model name and serial Number of the product together with the symptom to Noise Laboratory or our nearest sales agent in your area.
- When the product is returned to Noise Laboratory, write the state of the trouble, contents of your request, model name and serial number in a repair order, pack the product and repair order sheet in the former package or equivalent suitable for transit, and send them back.

NOISE LABORATORY CO., LTD.

1-4-4, Chiyoda, Chuo-ku, Sagamihara City, Kanagawa Pref., 252-0237, Japan

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