OPZTS THYRISTOR SWITCH

Operation manual

Lafaelt

LAFAELT ELECTRIC

Safety Instruction

- Electrical equipment should be installed, operated, used and maintained by qualified professionals. This manual is an operation manual for trained professionals, our company will not be responsible for any adverse consequences caused by failure to follow the instructions.

- Make sure to read, understand and obey all the descriptions of this operation/manual before installation and maintaining equipment. Do not wait until problems happening or help needed. Keep this manual for future using, and every operation personal can read this manual.
- This indicator is very important for the products under working, ignoring these instructions may cause physical damage or even death.

Live Operation is Forbidden!

- All the electrical devices should be installed and daily maintained under power off status. Do not try to maintain products that are operating. The electric shock may be fatal, do not touch electric components. The ace spark may hurt eyes, burn skin, damage devices and ignite explosive objects. Prevent tools from causing short circles. Inappropriate use may damage this product and the equipment

connected to it.

- After Cutting off the main circle, wait at least 3 minutes to ensure that the load side voltage drops to 0V for maintenance. The load side voltage may exceed the safety voltage. Make sure that the secondary steps of the transformer are short-connected when operating the current transformer. Do not allow any secondary opening of the current transformer.
- An exposed conductor or output circuit connector and non-ground-strip equipment may cause personnel to shock. Let the qualified electrical engineer to confirm that this product is fully grounded, and know which lines and components are charged. Do not touch the live part on the product.
- Use appropriate safety clothing, safe operation procedures and testing tools. In wet conditions, the resistance of the human body will drop, and dangerously high currents may pass through the human body at this time. Do not check and repair the products on wet locations. When working in wet or sweaty conditions is unavoidable, stand on a dry rubber mat or dry board, use insulated gloves, keep clothing dry, and do not work alone.

Safety Precaution

This chapter contains some safety tips that must be followed before installing and maintaining the product. The tips listed below should be read carefully and followed.

The danger of electric shock, burn and explode.

- Only qualified professionals can install this device, after reading this manual. Do not work alone. Power off all electrical connection before checking, testing and maintaining this device.
- Pay special attention to the design of power system, considering all power sources, including the possibility of reverse power transmission.
- Use properly regulated voltage test device to make sure all the power resources have been cut off.
- Beware of the potential dangers, take personal protection, and carefully check the working area inside the device to ensure no tools and other objects left behind.
- Be careful not to touch live busbars when moving or installing panels to avoid personal injury.
- The successful operation of this device depends on proper installation and operation. Neglect of basic installation requirements may

result in personal injury, as well as damage to electrical device or other objects.

- When performing dielectric strength and insulation tests on the device, all input and output wires connected to it should be disconnected. High voltage test may damage this device.

Attention

The product has been fully checked and inspected before leaving the factory, and has been prepared for transportation according to the requirements of safe transportation. However, during long distance transportation, the fixed parts on the product may still become loose due to vibration and bumps. Therefore, please check as follows after receiving the product:

- Visually inspect the shipping box for damage. If any damage is found, ask the shipping agent to check the transportation situation and record the damage on the shipping receipt.
- If there is no obvious damage on the package box, open the package as follow steps:

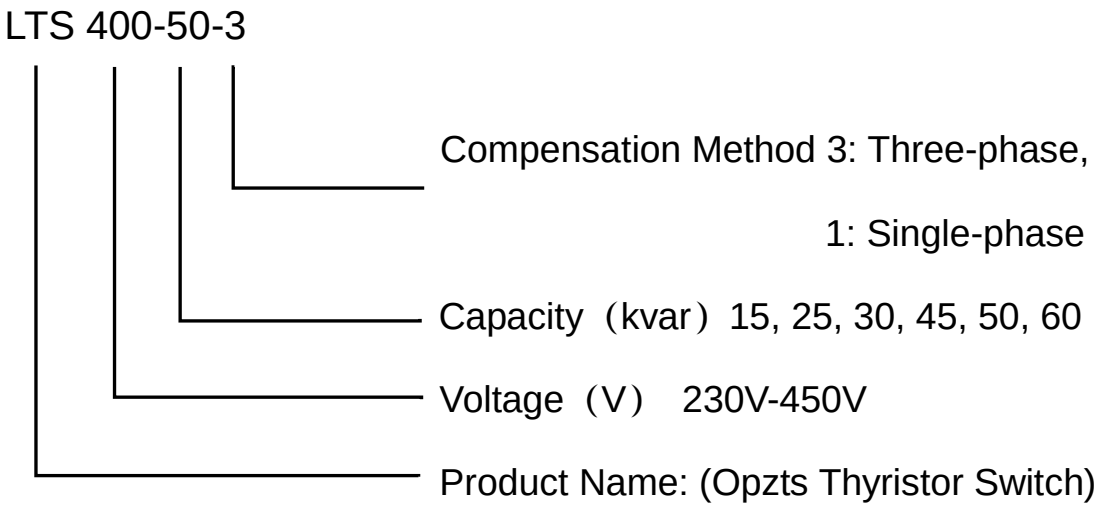
  ① Disassemble the package box as carefully as you can to avoid damaging the device.

  ② Visually inspect the product for external damage such as panel scratches, chipped paint, dents, etc. Check for loose components

and wiring. Claim for compensation if there is a damage in transportation. Contact with our company for help if needed in the process of claiming.

③ When unpacking the product, please check carefully for any damage. If there is any damage, please notify our company or authorized partner in time, and keep the damaged packaging. If it is their responsibility, the package will be replaced in time.

Model Description



Technical Parameters

Rated Voltage	230-450V 50/60Hz
Control Voltage	DC 12V
Control Current	20 mA/ Circuit
Response Time	20mSec
Zero Crossing opening voltage	＜10V

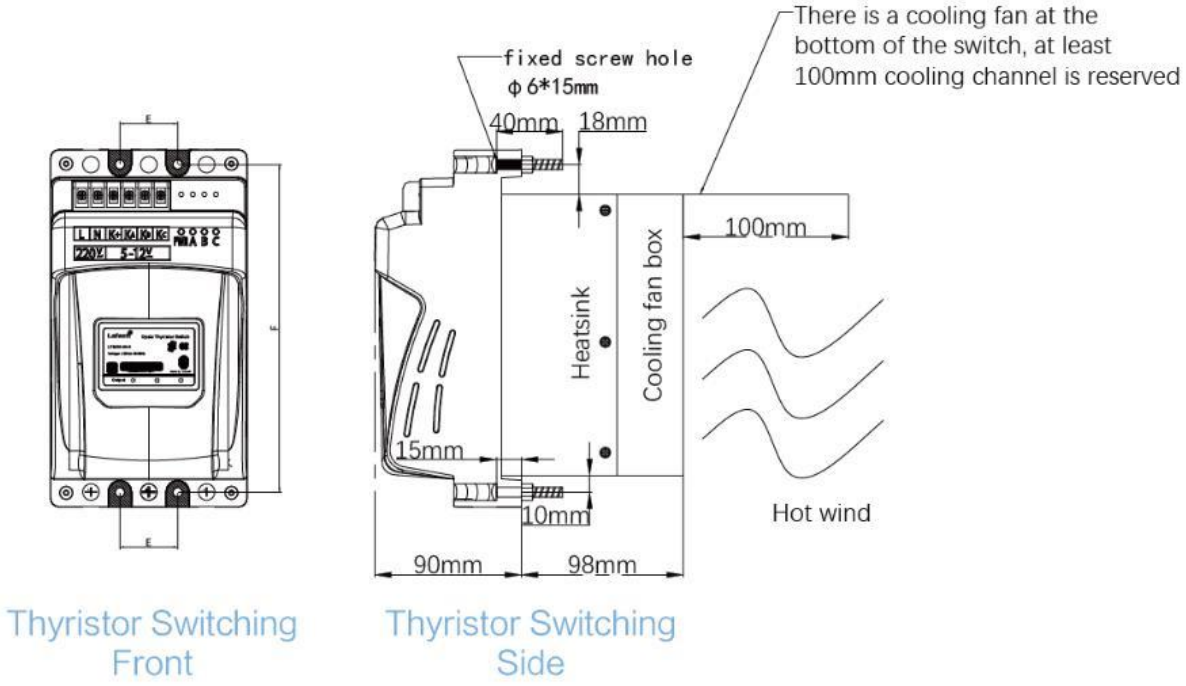
Over Load Capacity	60 seconds continuous under 1.5 times rated current
Over temperature Protection	Strat cooling fans at 40℃ Automatically cut off the capacitor bank at 80℃
Working Temperature	Temperature: -25℃～50℃ Humidity: 40℃ 20%～90% No violent vibration and shock No conductive dust and corrosive gas
Protection Grade	IP30

Wiring Method

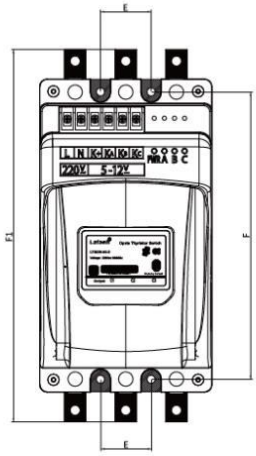
- Main circuit: C1、C2、C3 is the output terminal, connected to the tuning reactor (with reactance),or the capacitor (without reactance);
- Control circuit: K+ terminal is connected to the positive terminal of the DC control voltage, and the external supply voltage range is DC 5V～DC 12V;
- Working power: the working power is AC 220V, it is required to supply AC 220V power from L and N terminals externally.

Compensation Method	Model	Control Capacity	Wiring	Supply Voltage	Control Voltage
Single-phase sub-complement	LTS230-15-1	Single-phase≤5kvar	Eurobolck	AC220V	DC12V
	LTS230-30-1	Single-phase≤10kvar	Eurobolck		
	LTS230-45-1	Single-phase≤15kvar	Eurobolck		
	LTS230-60-1	Single-phase≤20kvar	Copper tip		
Three-phase co-complement	LTS400-25-3	Three-phase≤25kvar	Eurobolck		
	LTS400-30-3	Three-phase≤30kvar	Eurobolck		
	LTS400-40-3	Three-phase≤40kvar	Eurobolck		
	LTS400-50-3	Three-phase≤50kvar	Copper tip		
	LTS400-60-3	Three-phase≤60kvar	Copper tip		

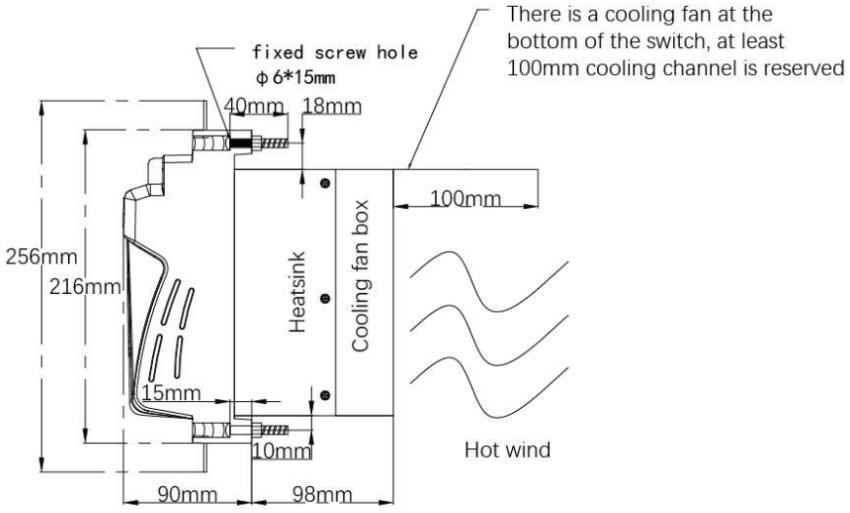
■ Eurobolck Outline Drawing：



■ Copper Tip Outline Drawing:

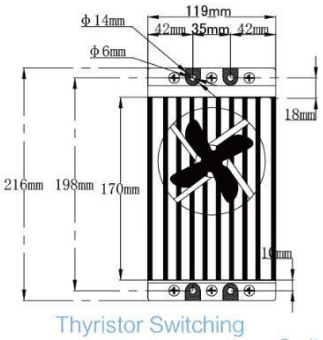


Thyristor Switching Front

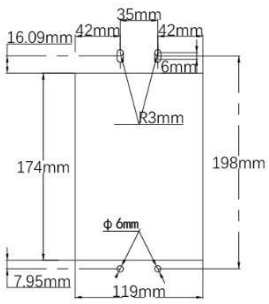


Thyristor Switching Side

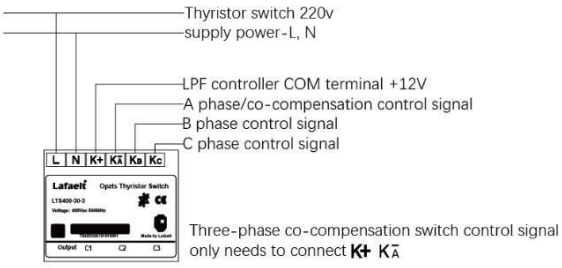
■ Hole Wiring Diagram：



Thyristor Switching Back



Switch installation open hole dimension



Thyristor switch wiring diagram

**The Thyristor switching control is embedded installation, the hole diameter is 6mm, and the installation hole spacing (E*F) is 35mm*198mm. The hole of embedded mounting plate is 174mm*119mm, and it is installed vertically. There is cooling fan inside the heatsink, it is recommended to reserve at least 100mm above and below for heat dissipation.

Special Note

When the Opzts series thyristor switch is not connected to a capacitor or a dummy load, the

discharge indicator light will generally light up after power-on. This is because an RC resistance-capacitance absorption circuit is connected in parallel at both ends of the thyristor, causing the discharge indicator light to light up. Of course, after the capacitor is connected, generally it will not light up. Very few occasions it may has micro-brightness, which is caused by the large leakage current of individual thyristor, and is generally harmless.

When user does the release test of the capacitor cabinet, if it is inconvenient to carry out the test with the capacitor, it is recommended to use three 150W incandescent bulbs, connect them into a Y connection, and connect them to the output terminal of the thyristor switch as a dummy load for switching test.

Equipment Maintenance

The product is maintained free of charge during the warranty period, but the following items should be noticed.

- Check whether the fan of the switch is in normal operation regularly, replace it if necessary, and ensure that it is the fan of the same capacity. In order to avoid the small air volume of the fan causing the thyristor to be damaged due to overheating.

- Clean the cooling unit regularly avoid reducing its cooling capacity.

Fault Resolution

- The control displays the input status, but the switch does not work, check whether the DC 12V switch exists, if there is no DC 12V, the control is damaged, replace it.
- There is no trigger signal, but the switch has been put into operation, the thyristor is straight through, replace it.
- There is a trigger signal, but the switch indicator light is off, the capacitor has been put into operation, the indicator light is damaged, replace it.

After-sale Service

The products of our company are guaranteed for 1 year, and the warranty period starts from the date of product sale. If the product faults or the parts are damaged during the warranty period, our company will provide free maintenance after it is identified by our technicians as occurring under normal use.

In the following cases, material costs and maintenance man-hours will be charged:

- Damage caused by not following the instructions in the manual
- Damage caused by unauthorized desoldering of parts or modification
- The operation exceeds the “Three Guarantees” period

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