

# SURGE PROTECTOR : ES-T SERIES



*Protect your system with reliability*

## Product Description:

This series surge protector use international advanced complex lightning guard technique and imported lightning-proof components and assemble with special process. It is designed with the rules: multi-stage sectional shunt redundancy structure, parallel connection, isolation and fault auto indicator etc. Thus it operates at high speed and reliability. When the distribution net meet lightning attacks, this device will instantaneously release the surging over voltage and pulse current to earth ground and protect the important elector-equipment from lightning.

## Features:

- Fast : Response time less than 25ns effectively guard electro-equipment.
- Easy installation : parallel wiring with power line.
- Poor quality tendency indicator : LED indicates the state of work.
- Repeat use many times : It can repeat use after attack several times without destruction, lower investment cost.
- Communication function : A remote communication junction for monitor and warn when poor quality appears. Adopted use in no-man station at far area
- Long life : Normal operating period 10~20 years.
- Record the times of lightning or surge is available as required.

## ES-S/T Series Power Line Surge Protector

Lightning calamity has great damage to new generation electronic appliance. Although there is lightning protection as lightning arrester or rod on modern building, but will have not effective protection to modern electronic equipment within the building. Because as lightning takes place, there will induce up to 2KA—20KA surge current and result rapid change of magnetic field and produce transient surge or spikes high voltage in the power line , thus will be partially or completely destroy the electronic equipment on this power line. Some important department as SPC system building and computer house of post and telecommunication , Micro wave station, computer network of bank , Power management room , signal and navigation system of airport and railway station, UPS set house , medical instrument room , military equipment and many industries has equipped many modern electronic apparatus , so the probability of lightning attack is more and more increased . Once damage caused from lightning happen at these places , the losses is innumerable and personal harm and fire hazard may appear too.

For protect and avoid lightning damage and reduce the losses and series effects, Except to enforce the lightning protection of the building, also must apply high voltage surge suppression for lightning protection, at the power line and at entrance line of signal network

We are manufacturer “ ES-S/T series power line surge suppression for lightning protection” is a specially designed power line lightning surge over voltage suppressor used for 220V single phase and 380V three phase power supplied electronic equipment. It employed advanced lightning protection technique of world and high quality device for lightning protection and assembled with sophisticated technologies . As the power line is attacked by lightning.The induced huge pulse current and high surge over-voltage at the power line can instantaneously release into earth, therefore the modern electronic equipment has effectively protected from lightning .

### **Feature of ES-S/T series power line surge suppression for lightning protection**

- 1.High rated discharge capacity, withstand up to 8/20ns 80KA lightning surge current.
- 2.High reliability: Employed import lightning protection device and step divide current of redundant structure.
- 3.Complete protection: Protection complete earth connection, Line -Neutral 、 Line-Earth 、 Line – Earth.
- 4.Rapid Response : Response time  $\leq 25$  ns
- 5.Install convenience and simple: It is simply parallel ground connection installation.
- 6.LED display: Indicates operation status, and can understand clear at a glance.
- 7.Communication signal terminal : When the protector’s performance decreases or faults appears , the remote signal terminal is closed , then proceed remote signal monitor and warning alarm.
- 8.Repeat Useable: Can repeat normally work after frequent lightning.
- 9.Maintenance – free: Satisfy the demand of remote unmanned operated station.
- 10.Long Life: Operation life up to 20 years.

**ES-S/T series type and specification:**

Type	ES100 series		ES40 series	
	ES100-S	ES100-T	ES40-S	ES40-T
application	User's main-supply 1 <sup>st</sup> stage protection		User's Sub-supply 2 <sup>nd</sup> stage protection	
Operate Voltage rated(VAC)	1Φ 220	3Φ 380	1Φ 220	3Φ 380
Operate Voltage Max (VAC)	1Φ 280	3Φ 480	1Φ 280	3Φ 480
Surge current rated(8/20ns20times)	50KVA		20KVA	
surge current Max(8/20us times)	100KVA		40KVA	
Response time	25 ns		25 ns	
surge voltage Residual voltage (1KV/us)	≤0.40KV		≤0.42KV	
surge current residual voltage (8/20us)	3KA : ≤ 0.55 KV 5KA : ≤ 0.68 KV 10KV : ≤ 0.88 KV 20KA : ≤ 1.00 KV 30KA : ≤ 1.20 KV 40KA : ≤ 1.40 KV		1KA : ≤ 0.52 KV 3KA : ≤ 0.65 KV 5KA : ≤ 0.78 KV 10KA : ≤ 1.95 KV 15KA : ≤ 1.00 KV 20KA : ≤ 1.20 KV	
Surge adsorption redundant mode	ten sections Current divided		five sections Current divided	
LED Display	yes		yes	
Remote monitor	yes		yes	

**Installation Method and Important Details:**

For gain excellent protection function of ES-S/T Series lightning protection, must be agree following installation method and requirement

- 1.It must be installed at the nearest part of the power source line entrance, such as the entry terminal in main distribution cabinet of whole building, of every story, and of important department.
- 2.Wiring with parallel connection, as follow, the line terminal neutral terminal and earth terminal of lightning protector must directly connect to phase, neutral and earth line of power source

entrance respectively. Strand wire must be used. For ES100 series protector the wire cross section is 15-20 mm<sup>2</sup> .for ES40 series is 8-10 mm<sup>2</sup> The shortest length of connection wire less than 30cm should be used, and each connected wire should not be wind each other.

3. Lead wire terminal should be tightly secured. The electric conducting contact area between connection wire and source line wire, must be more large and more the best. Thus applied, the connection resistance can be decreased and maintain at the best conductive contact condition.
4. The potential voltage between neutral of source and earth should be less than 40V. Earth Line must be earth connect goodly. The earth resistance must be less than 0.4Ω
5. Installing as following procedure:
  - a. Tightly fix the Lightning Protector at the nearest place apart from the power source line entrance.
  - b. Release the wire connection box of the protector.  
ESxx-S : single phase Protector there are three connection terminals:  
L(phase line)、N(neutral line)、and E(earth line).  
ESxx-T : Three phase Protector there are five connection terminals:  
A(A phase line) 、B((B phase line) 、(C phase line) 、N(neutral line) 、E(earth line).
  - c. Wiring connection wire though the rubber entry hole at the protector and connect the terminal of protector to source line respectively (according this par. Requirement 2 and 3).
  - d. Replace the box. Fix the wiring wire for avoid the movement of these wire.

**Warning: For safety installation, make certain that input power is off before performing these steps.**

### **Operation and Maintenance**

1. Each phase there are two LED indicator-green and red.  
**Green bright** : The lightning protector is turn on and at normal operation.  
**Red and Green both bright** : The lightning protector is at warning alarm state, the protector Function is decreased and should be soon replaced.  
**Red only one bright** : The lightning protector is at warning alarm state, the protection function is lose, and should be replaced at once.  
**Red and Green both not bright** : power supply source faults or the connection wire of lightning protector is cut-off.
2. There is a pair of normally opened remote signal terminal in the protector, the contact capacity is current 2A、 voltage 250VAC. As red LED illuminated the normally opened terminal is closed. This remote signal terminal opened terminal is closed. This remote signal terminal can be connected to remote signal monitor system for remote warning alarm.
3. For user's system the highest reliability is required, install double stage or triple stage lightning protector:
  - a. At main power source entrance(generally at main distribution cabinet of the

building) connect “ES100 series power line surge suppression for Lightning protection” to perform first stage lightning protection.

- b. At power source subfeeder entrance (generally at every story distribution cabinet “ES40 series lightning protector”for second stage power line lightning protection.

4. Introduce maintenance inspection every half year. Inspect the earth resistance. the Tightness of the earthing connecting terminal screw, the condition of wiring wire, potential voltage between neutral line and earth line, make certain that the whole ES-S/T Series in protection system is at good operation condition .