

Automatic Voltage Regulation

TRIAC1-I821 series

8KVA to 20KVA

- Solid State TRIAC AVR -

Embedded with Isolation Transformer

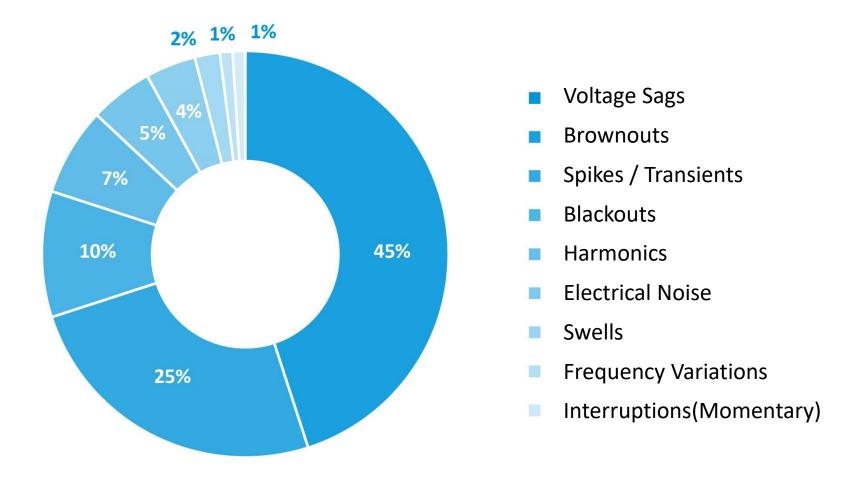






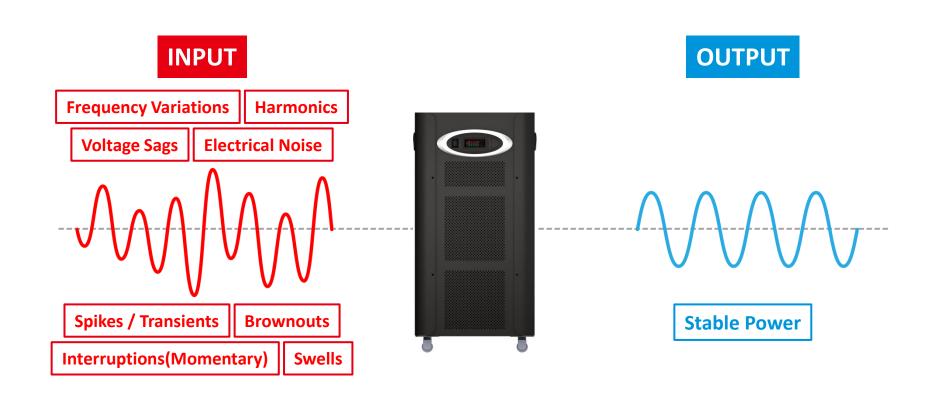
TRIAC1-I821 Series
8KVA / 10KVA / 12KVA / 15KVA / 20KVA

Typical Distribution of Power Quality Problems





Basic Functional Module and Power Topology



Why Isolation Matters?



Electrical Safety

- 1. Shock Protection: The primary and secondary windings are isolated, so the secondary isn't directly grounded, reducing shock risk.
- 2. Equipment Protection: Protects sensitive equipment from surges and spikes caused by power disruptions.



Noise & EMI Reduction

- 1. Effectively suppresses high-frequency noise and surges from the power source.
- 2. Reduce EMI noise from external sources.



Ground Loop Elimination

Isolation eliminates ground loops that create humming or noise.



Voltage Conversion

Besides isolation, it also adjusts the voltage to match the equipment's needs.

Structural Diagram

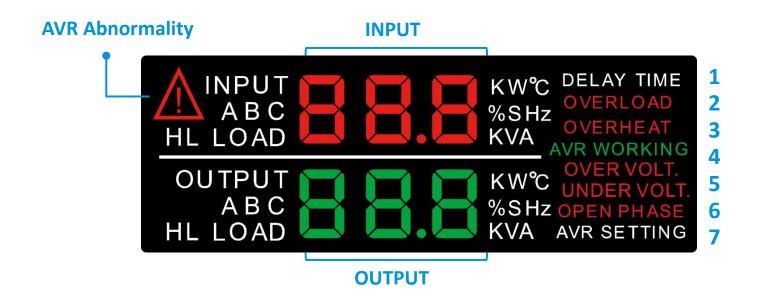




Front Panel

Rear Panel

LCD with Color Display



- 1. Delay Time for Startup
- 2. AVR is overloaded
- 3. AVR is overheated

- 5. Over Voltage
- 6. Only available for 2-phase and 3-phase models
- 7. In AVR setting mode
- 4. Voltage regulation is in normal operation

Features

- Microprocessor Controlled loop enables precise TRIAC switching operation, compatible with inductive, capacitive, and resistive loads.
- Built-in 4-steps boost and 3-steps buck regulation, achieving a voltage regulation rate of $\pm 2\%$ to ensure stable output voltage.
- Equipped with lightning and power surge protection to prevent equipment damage from electrical shocks.
- LCD interface allows configuration of rated voltage, delay time, voltage regulation rate, and input range.
- TRIAC components with low-frequency design regulate voltage without electromagnetic interference.
- Built-in delay time setting (2/30/60/180/300 seconds) can be configured through the LCD interface.
- Built-in environmental temperature monitoring ensures proper fan operation and protection.
- Electronic design ensures spark-free, noise-free, instant regulation and longer lifespan.
- Color LCD displays status and faults to support equipment maintenance.
- Isolation Transformer: Effectively isolates harmonic issues and power quality problems.



Key points to compare Solid State TRIAC AVR v.s. Servo AVR





TRIAC AVR

With no mechanical elements, it maintains reliable operation even when exposed to dust.





TRIAC AVR

The TRIAC AVR delivers output voltage accuracy within ±5%, meeting the requirements of most electrical devices.



Servo AVR

Dust accumulation affects the moving brush mechanism, causing increased electrical noise and interruptions in voltage regulation.



Servo AVR

Servo AVRs offer 0.5-1% accuracy, but most equipment doesn't need such tight control. Their mechanical parts also wear out faster due to constant use.

The AVR is designed to automatically reset

and restore a suitable output voltage when

mains power is interrupted.







TRIAC AVR

Servo AVR

in control systems.

The system utilizes microprocessor control to achieve rapid switching at zero voltage, thereby eliminating transient noise.

In environments with dust or debris, the

transformer may introduce noise, increasing the risk of operational faults or incorrect data

brush movement over the toroidal



POWER

BACK SURGE



Servo AVR

TRIAC AVR

When mains power fails, the servo boosts voltage by spinning the motor. If power comes back suddenly, it might over-boost and damage sensitive electronics.



Key points to compare Solid State TRIAC AVR v.s. Servo AVR





TRIAC AVR

Servo AVR

The design is entirely solid-state, incorporating no mechanical or moving components. Under normal usage conditions, the product has a lifespan of over 10 years.

Mechanical components are subject to wear

over time, requiring maintenance and leading

to downtime that diminishes the performance



SPEED

TRIAC AVR

The use of triacs and thyristors allows ultrafast switching, typically within microseconds, which supports immediate voltage adjustment when needed.



Servo AVR

Because motors respond more slowly than solid-state components, corrections are delayed. Fast reaction times are critical to safeguard electronics from voltage damage.





TRIAC AVR

Servo AVR

investment.

of the voltage regulator.

It uses a microprocessor and strong solidstate switches that can handle inrush currents hundreds of times higher than normal.

As servo motor systems become increasingly

outdated, transitioning to modern technology

provides greater protection for your



OPERATING

COST

TRIAC AVR

The use of sophisticated technology increases the AVR's initial cost; however, it requires minimal maintenance and operating costs.



Servo AVR

While the servo AVR has a lower initial cost. its mechanical components require frequent maintenance and replacement parts, which increase operating expenses.



IDEAL UPS FOR IDEAL CHOICE