IDEAL POWER SYSTEMS

Automatic Voltage Regulation

TRIAC1-I586 series & **TRIAC1-I544 series**

3KVA to 20KVA

- Solid State TRIAC AVR -

TRIAC1-I586 Series & TRIAC1-I544 Series

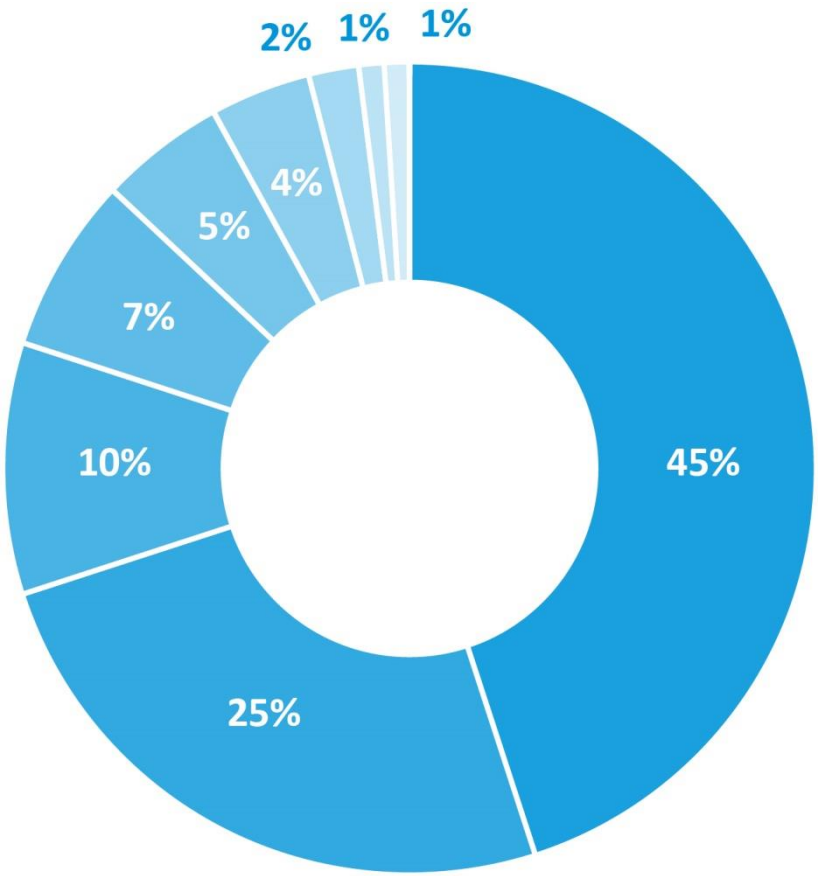
TRIAC1-I586 Series

3KVA to 10KVA

TRIAC1-I544 Series

8KVA to 20KVA

Typical Distribution of Power Quality Problems

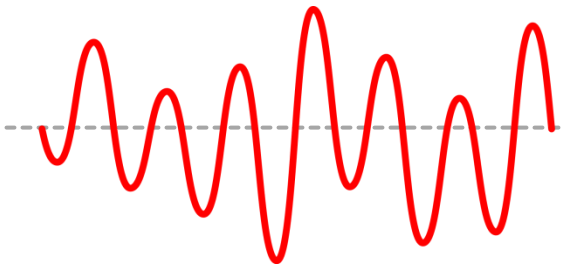


- Voltage Sags
- Brownouts
- Spikes / Transients
- Blackouts
- Harmonics
- Electrical Noise
- Swells
- Frequency Variations
- Interruptions(Momentary)

Basic Functional Module and Power Topology

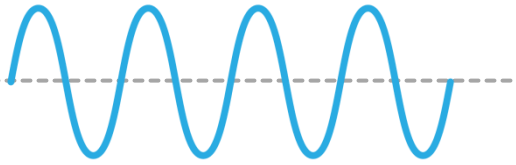
INPUT

- Frequency Variations
- Harmonics
- Voltage Sags
- Electrical Noise



- Spikes / Transients
- Brownouts
- Interruptions(Momentary)
- Swells

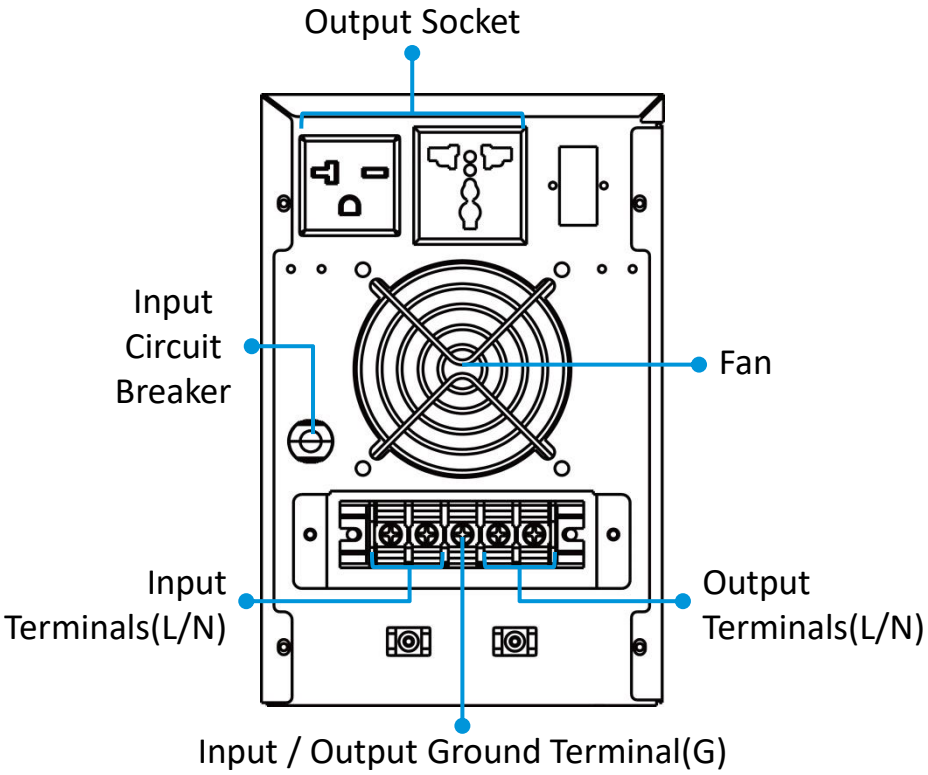
OUTPUT



- Stable Power

Structural Diagram: TRIAC1-I586 series 3KVA to 10KVA

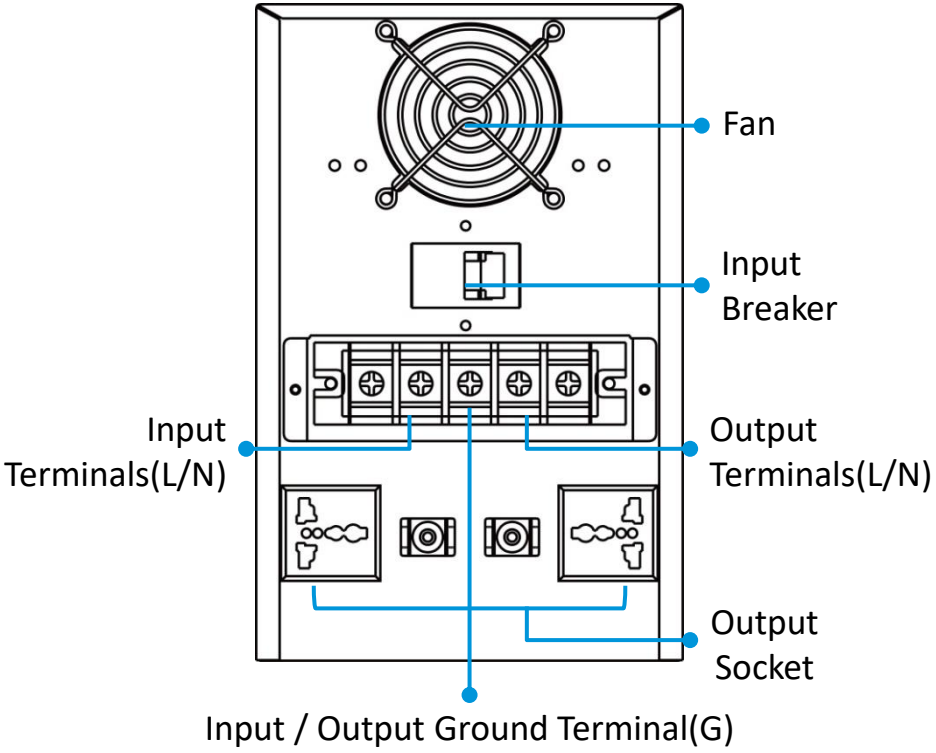
Front Panel



Rear Panel

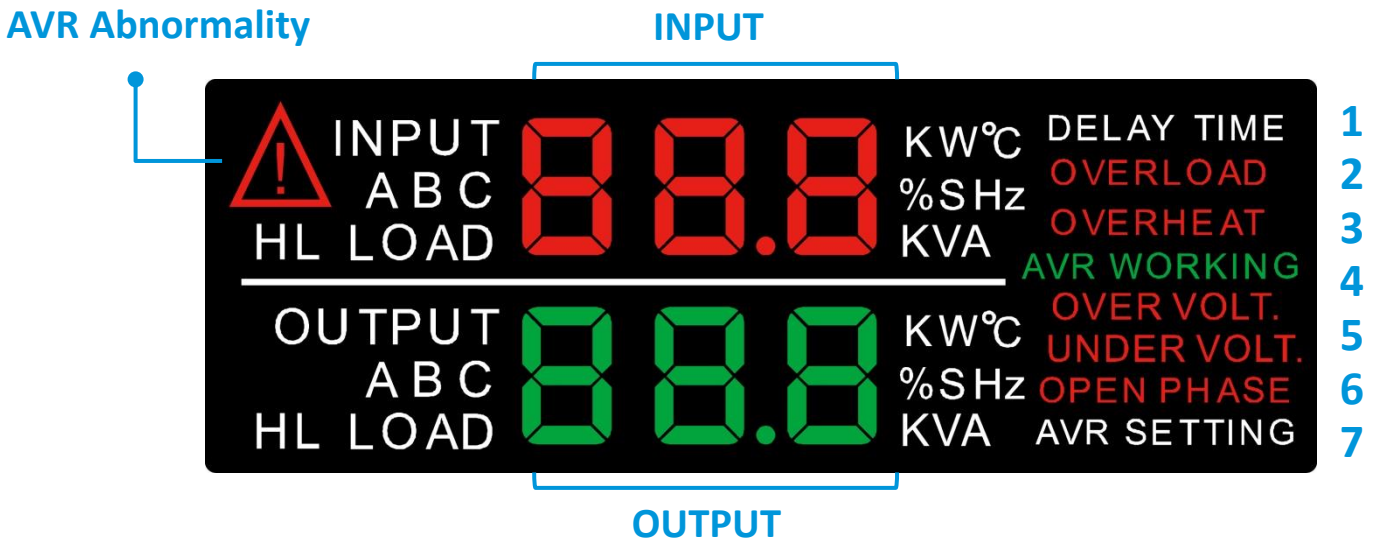
Structural Diagram: TRIAC1-I544 series 8KVA to 20KVA

Front Panel



Rear Panel

LCD with Color Display



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

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 ±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.

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

DUST

TRIAC AVR

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

Servo AVR

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

ACCURACY

TRIAC AVR

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

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.

NOISE

TRIAC AVR

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

Servo AVR

In environments with dust or debris, the brush movement over the toroidal transformer may introduce noise, increasing the risk of operational faults or incorrect data in control systems.

POWER BACK SURGE

TRIAC AVR

The AVR is designed to automatically reset and restore a suitable output voltage when mains power is interrupted.

Servo 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

DURABILITY

TRIAC 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.

Servo AVR

Mechanical components are subject to wear over time, requiring maintenance and leading to downtime that diminishes the performance of the voltage regulator.

SPEED

TRIAC AVR

The use of triacs and thyristors allows ultra-fast 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.

TECHNOLOGY

TRIAC AVR

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

Servo AVR

As servo motor systems become increasingly outdated, transitioning to modern technology provides greater protection for your investment.

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