TRIAC Type

PlusTriac 1HV Series

12KVA to 20KVA

Key Features

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

Typical Application

Fridge | Coolers | Freezer | VSAT | Pumps | Lighting System

Washer & Dryer | Vending Machine | Plotter | Laser Printer | Multifuntion Printers/Copiers | Laboratory Equipments

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TRIAC Type

Specification

MODEL	PlusTriac 1HV-12K	PlusTriac 1HV-15K	PlusTriac 1HV-20K
Rated Capacity	12KVA/9.6KW	15KVA/12KW	20KVA/16KW
Technology	Fully electronic TRIAC-controlled voltage regulator		
INPUT			
Rated Voltage	200/220/230/240Vac, 1P2W+G		
Voltage Range	± 25% (default) ; ± 20%, or ± 30%, or ± 35% (selected via LCD)		
Voltage Tolerance Range	± 15%		
Frequency	50/60Hz ± 5%		
Power Factor	More than 0.98 (with resistive load)		
OUTPUT			
Rated Voltage	200/220/230/240Vac, 1P2W+G		
Regulation Rate	± 2% (default) ; ± 3%, or ± 4%, or ± 5% (selected via LCD)		
Transfer Time	0ms		
Distortion	No distortion (same as input waveform)		
Response Time	< 20ms		
Efficiency	More than 96% under full load		
Power Factor	More than 0.8		
Overload Capability	105%-125%, buzzer beeps twice per second, AVR does not shut down		
	125%-150%, buzzer beeps four times per second, AVR shuts down 3 minutes later		
	150%-300%, buzzer beeps continuously, AVR shuts down 10 seconds later		
	Over 300%, buzzer beeps continuously, AVR shuts down in 1.5 seconds		
STATUS INDICATION			
Alarm	Over input voltage, under input voltage, high temperature, overload		
LCD Display	Input voltage, output voltage, load, temperature, fault...etc.		
FUNCTIONS			
Surge Protection	600 Joules ; Inrush current capacity 12000Amp (8/20us)		
Soft Start	Yes, enables automatic startup with configurable time		
Protection	Electronic circuit: Over input voltage, under input voltage, overload, high temperature, short circuit protection		
ENVIRONMENT			
Operating Temperature	0-40°C (32°F-104°F)		
Operating Humidity	0-95% (Non-condensing)		
Noise Level	<40dB at 1M		
PHYSICAL			
Dimension (D*W*H)	390*182*285mm		

*Product specifications are subject to change without further notice.

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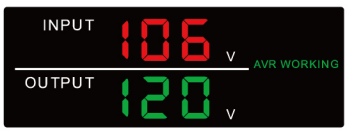
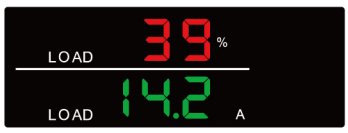
TRIAC Type

LCD Interface Introduction

Display panel with various information



Input and output voltage



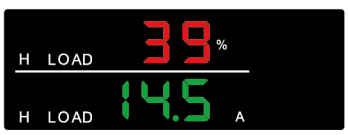
Load capacity and current

Input frequency and rated output voltage

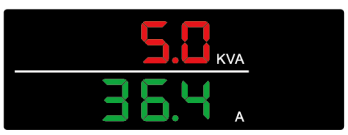
Temperature of autotransformer

Temperature of compensation transformer

Temperature of TRIAC components



Peak load of AVR operation (data updated every 10 minutes)



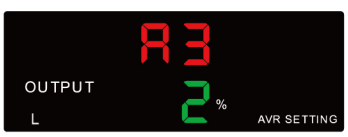
AVR rated capacity and max. inrush current

Configurable parameter values

OFF: AVR off mode

A1: Output delay time - 2S/30S/60S/180S/300S

A2: Rated output voltage - 100V/110V/115V/120V or 200V/220V/230V/240V



A3: Output regulation rate - 2%(default) or 3%/4%/5% (Energy-saving is achieved when output regulation rate is high)

A4: Input voltage range - 25%(default) or 20%/30%/35%

EE: Press On/Off button for 2 seconds, configuration parameter will be saved and exit “AVR SETTING ” mode

Error code

E01: Output short circuit

E02: Temperature of autotransformer is high

E03: Temperature of compensation transformer is high

E04: Temperature of TRIAC components is high

E05: Mode setting error

E06: Phase error

E07: NTC1 component abnormal

E08: NTC2 component abnormal

E09: NTC3 component abnormal

E10: Overload

*Image for illustrative purpose only, the voltage/frequency will be displayed based on actual specifications.

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TRIAC Type

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

DUST

TRIAC AVR

It is designed without mechanical parts, allowing it to perform steadily and reliably even in dust environment.

Servo AVR

It relies on a moving brush. It faces significant challenges in dusty environments, leading to increased contact noise and supply disruptions.

TECHNOLOGY

TRIAC AVR

It features microprocessor control and utilizes solid-state switching devices that are capable of withstanding hundreds of times the running current during inrush periods.

Servo AVR

Servo motor technology is outdated. Choosing modern technology can help protect your investments.

DURABILITY

TRIAC AVR

It uses exclusively solid-state components, without any mechanical or moving parts.Under normal usage conditions, the product has a lifespan of over 10 years.

Servo AVR

As mechanical parts wear out over time and will demand maintenance, downtime resulting from these issues reduces the voltage regulator's effectiveness.

NOISE

TRIAC AVR

It is controlled by a microprocessor and designed for ultra-fast operation. It can switch at zero voltage within the mains cycle to eliminate any noise generation.

Servo AVR

In less clean environments, the motor brush's movement on the toroidal transformer creates noise from dirt, potentially causing malfunctions or incorrect data in control systems.

SPEED

TRIAC AVR

With TRIACs and Thyristors, switching speeds can be achieved in microseconds, which helps make rapid corrections possible.

Servo AVR

Motors are slower than solid-state components, leading to delayed corrections. Faster responses are crucial to reduce exposure to harmful voltages, especially for electronics.

POWER BACK SURGE

TRIAC AVR

When mains power fails, the AVR will automatically reset and start up with a suitable output voltage.

Servo AVR

When mains power fails, the servo boosts voltage by winding the motor. If power is recovered suddenly, the servo may amplify the boost, risking damage to sensitive electronics.

OPERATING COST

TRIAC AVR

While the AVR is more expensive due to the use of sophisticated technology it incorporates, it has little operating costs.

Servo AVR

Although the servo AVR is more affordable, its mechanical nature demands constant maintenance and spare parts, raising operating costs.

ACCURACY

TRIAC AVR

The TRIAC AVR provides an output with 5% accuracy, which is sufficient for most electrical equipment.

Servo AVR

Servo AVR offers 0.5-1% accuracy, but this is not necessary since electrical equipment operates within a wider range. The constant operation of its mechanical parts can lead to faster wear and tear.

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