

# ETC-1

## AVR Generator Automatic Voltage Regulator

### Outline

ETC-1 automatic voltage regulator is applied to 50/60HZ brush excitation brushless excitation generator. Internal frequency compensation (low frequency protection) solid-state excitation filter EMI (electromagnetic interference filter). Stability of the regulatory function, multi-voltage selector function and fuse protection, suitable for 110V, 220V, 440V voltage AC synchronous generator machine.

### Parameter

#### INPUT

Voltage Jumper selectable

95-132V ac or

190-264V ac

Frequency 50-60 Hz nominal

2 Phase / 2 wire

#### OUTPUT

Voltage max 90V dc at 207V ac input

Current continuous 4 A dc

Intermittent 7.5 A for 10 secs

Resistance 15 ohms minimum

#### REGULATION

+/- 1.5% (With 4% engine governing)

#### TYPICAL SYSTEM RESPONSE

AVR response 20 ms

#### EXTERNAL VOLTAGE ADJUSTMENT

+/-5% with 1 k ohm 1 watt trimmer

#### UNDER FREQUENCY PROTECTION

Set point 47 Hz (50HZ nominal)

#### UNIT POWER DISSIPATION

10 watts maximum

#### BUILD UP VOLTAGE

5 Volts @ AVR terminals

#### ENVIRONMENTAL

Vibration 20-100 Hz 50mm/sec

100Hz --2kHz 3.3g

Operating temperature -40 to +70°C

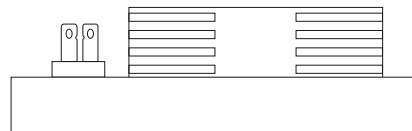
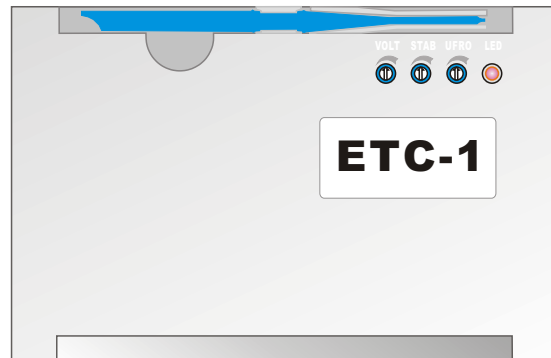
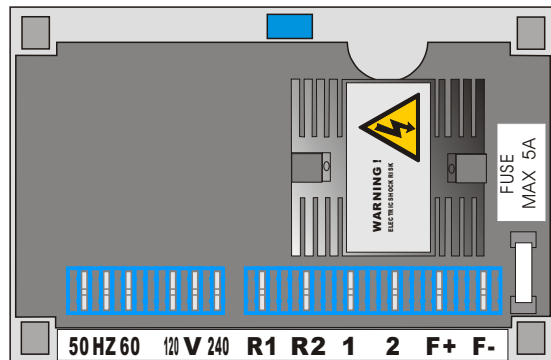
Relative Humidity 0-70°C 95% (Non condensing.)

Storage temperature -55 to +80°C

Over-current flow protection:

Built-in fuse holder, installed by the appropriate fuse tube according to the actual demand.

Weight: 420g ± 5%g



Outline drawing

## Warning!

In order to avoid encourage personal injury or equipment damage , Non electrical professional or personnel didn't understand the product information on the content shall not be set and operating this product, if you have any questions please calling our company.

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## AVR Generator Automatic Voltage Regulator

### Initial setup

ETC-1 have been detection of qualified by professionals before leaving the factory. In general use, only rotation the "VOLT" button for making the generator output voltage to reach the need voltage rating.

ETC-1: Speed protection knee point is 47HZ before leaving the factory. (50HZ model)

ETC-1: The initial voltage value is 380V before leaving the factory (according to the typical wiring diagram, the port "V" and "240" has been short-circuited).

### Wiring port description:

1. "50", "hz", "60" is the port for selection the generator frequency. The short-circuited "50" and "HZ" port for the 50 Hz use state; The short-circuited "HZ" and "60" port for the 60 Hz use state.
2. "120", "v", "240" is the port for selection generator checking voltage.
3. "R1", "R2" is the adjustable resistor port for remote generator 's voltage adjustment; the adjustable resistor must be 1 kilohm; without the adjustable resistor, the port must be short-circuited.
4. "F +", "F-" is the output port for export excitation power.
5. "1", "2" is the port for the AVR checking generator's voltage and the power for AVR.

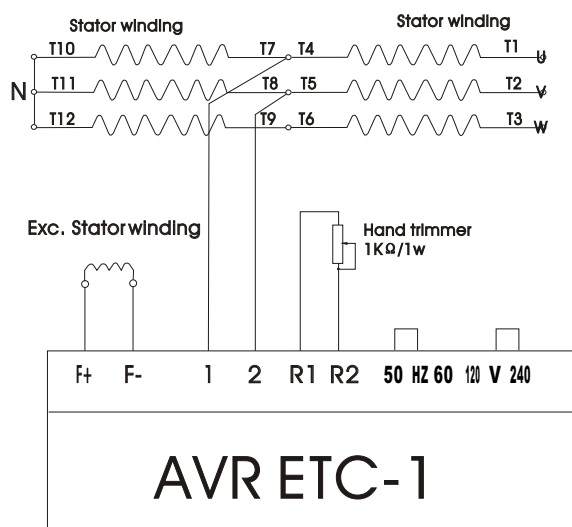
### Adjustment and setting

1. Voltage regulation: generator voltage adjustment can be adjusted by the "VOLT" on the AVR or by jumper adjustable resistor between port "R1" and "R2"; Clockwise "VOLT" adjustment can make the generator output voltage rise, reverse adjust "VOLT" can make the generator output voltage drop. Do not need to remote to adjust the generator output voltage, "R1" and "R2" must be short.

2. Stability adjustment: "STAB" clockwise to adjust for the generator output voltage tends to be stable, "STAB" reverse adjust generator output voltage tends to be unstable.

Slow adjustment "STAB" can change the response time between AVR and generator. Feedback time adjusted congress to make generator voltage instability. Adjust the response time shortly can make the full load generator fluctuation rate increase in an instant. The appropriate Settings can be reduce the generator voltage fluctuation rate with fully loaded.

3. Low frequency protection: "UFRO" is used to set the low frequency protection of knee point, the position of "UFRO" generally do not need to set. "UFRO" before leaving the factory setting is: Frequency 50 hz ac model of knee point for the protection of the 47 hz, frequency 50 hz ac model of knee point for the protection of the 47 hz. If need setting, first, start the generator, and turn the rotational speed of the generator to the position of Low speed protection frequency, adjust "UFRO" to the LED light.



Typical wiring diagram of the three-phase four-wire, 380V voltage mode

More applications and innovations consult the manufacturer.

## Note!

You must disconnect all links between the post from "ETC - 1" and the generators are being tested before testing the withstand voltage and the insulation for generator windings.

"ETC - 1" have been installed the fuse base, please install the maximum current of the fuse for the generator when you using the "ETC-1".