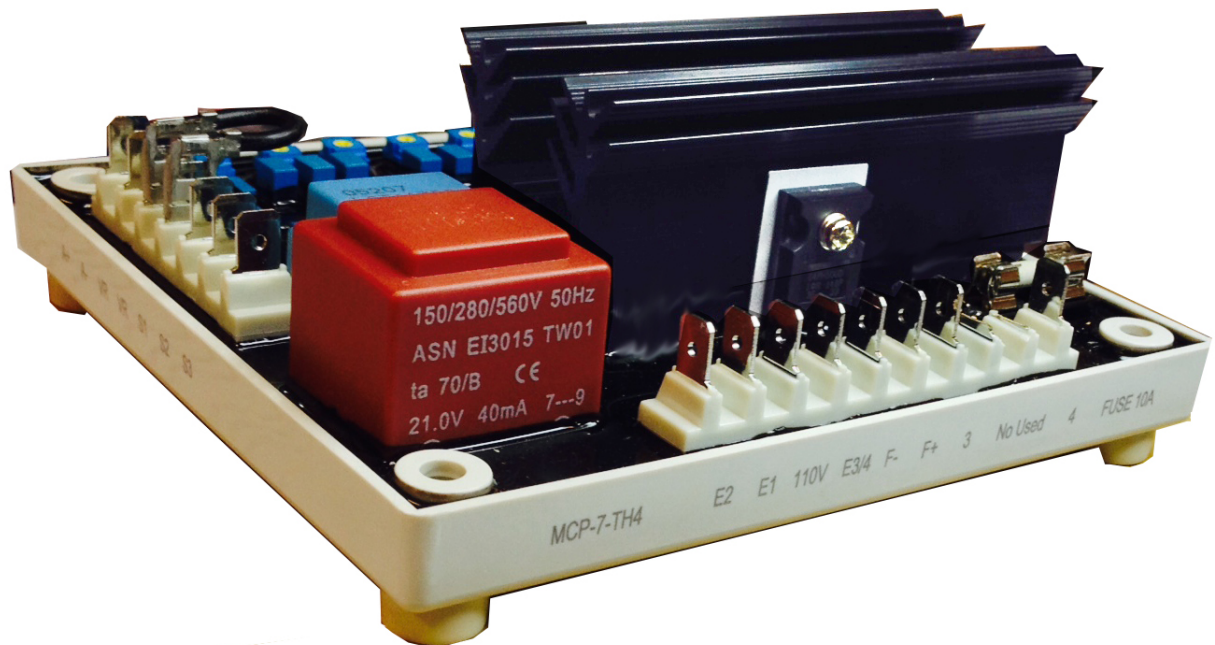


# MCP-7-TH4

## Generator Automatic Voltage Regulator Operation Manual



Self Excited Automatic Voltage Regulator  
For use in Brushless Full Harmonic or Auxiliary Winding  
Similar to WEG\* Model GRT-7-TH4

\* For Reference Purposes only this is not a WEG or Grameyer Product

The MCP-7-TH4 is a Special Generator Voltage Regulator that uses in its power stage UltraFast CoPack IGBTs Power Devices. This design gives us the flexibility for using PMGs with varied frequencies outputs from diverse alternator manufactures. Terminals are also included to power the AVR as a shunt regulator or from harmonic or auxiliary windings. The IGBT makes it flexible enough to easily substituting haft and full wave AVRs. In addition, A1 and A2 terminals for use in remote bias for Automatic Power Factor control and terminals to use 1 and 5 Amp Droop CTs.

### 1. Specifications

#### Sensing Input

Terminal 0 to 110V = 95 ~ 135V  
 Terminal 0 to 220V = 180 ~ 250V  
 Terminal 0 to 380V = 360 ~ 515V  
 Frequency 50/60 Hz, Jumper selectable

#### Harmonic Voltage

Voltage 25 ~ 300VAC

#### Voltage Regulation

< ±0.5% (with 4% engine governing)

#### Voltage Build-up

Harmonic Residual Volt. > 5 VAC

#### Output Voltage

Maximum 150VDC @ 220VAC

#### Output Current

Maximum Continuous 8 A  
 Intermittent 12 A for 10 sec

#### External Volts Adjustment

±10% @ 1KΩ

#### Power Input

X1, X2 Z1, Z2  
 45 ~ 600HZ

#### Thermal Drift

0.05% per ° change in AVR ambient

#### Analog Voltage Input A1 & A2

10% generator voltage per 1VDC

#### Current Compensation

N : 5 A or N : 1A Input  
 Maximum 4% @ P.F. = 0.8

#### Dimensions

150mm L \* 135mm W \* 55.3mm H

#### Weight

600g ± 2%

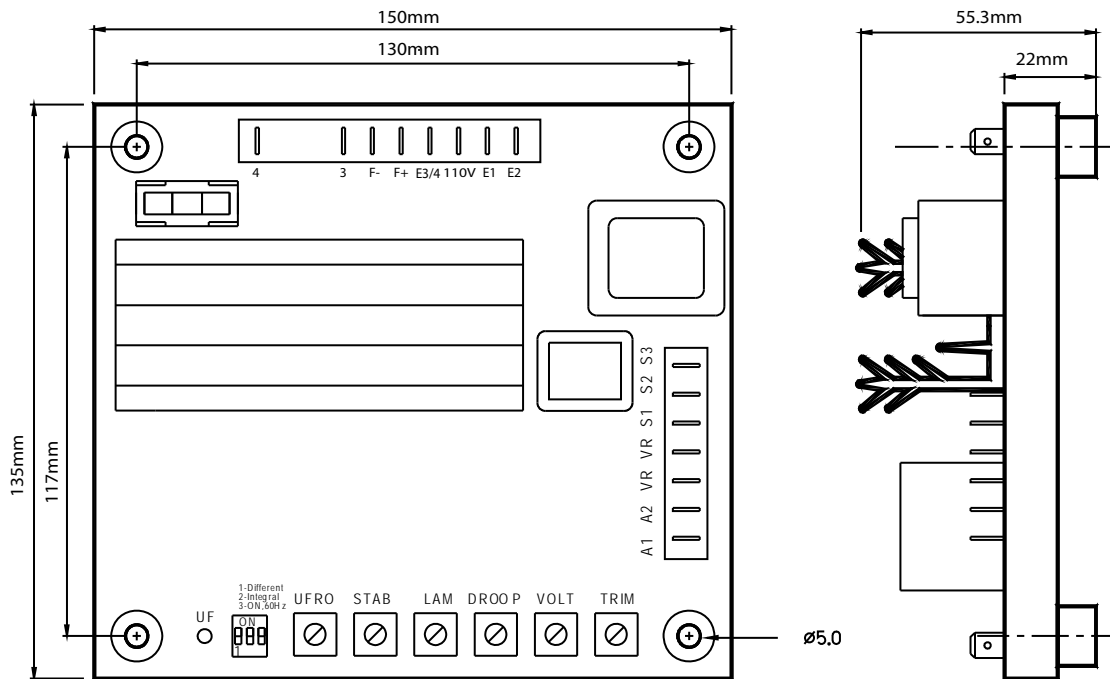


Figure 1 Outline Drawing

### Mechanical Specifications

AVR can be mounted directly on the engine, genset, switchgear or control panel that conforms to the mounting specification.

All voltage readings are to be taken with an average-reading voltmeter Meggers and high-potential test equipment must not be used. Use of such equipment could damage the AVR.

## 2. WIRING

1. Sensing Input terminals (single phase)
  - 0 to 110V
  - 0 to 220V
  - 0 to 380/480V
2. F+ F- : Field Output Terminals
3. S1, S2 & S3 Terminals. Current Compensation inputs. S1 to S2 use 5A CTs - S2 to S3 use 1A Cts.
4. VR - VR Terminals used to external voltage Adjustmnet using a 1K Ohm POT. Keep shorted if not used.
5. A1 & A2 Terminals accept remote DC voltage to adjust generator output voltage. The TRIM controls controls its sensibility

## 3. ADJUSTMENTS

- TRIM : Analog Voltage Input Adjustment A1, A2
- VOLT : Voltage Adjustment.
- DROOP : Droop Adjustment.
- DIP : To set the frequency related voltage dip
- STAB : Stability Adjustment.
- UFRO : UFRO Knee Point set.

DIP SWITCH : Function Selection Switch.

1. Voltage Compensation : ON => for over 550KW
2. Reaction Time Range: ON = > for 90 ~ 550KW
3. Rated Frequency 50/60Hz Selection :
  - ON = 60Hz
  - OFF = 50Hz

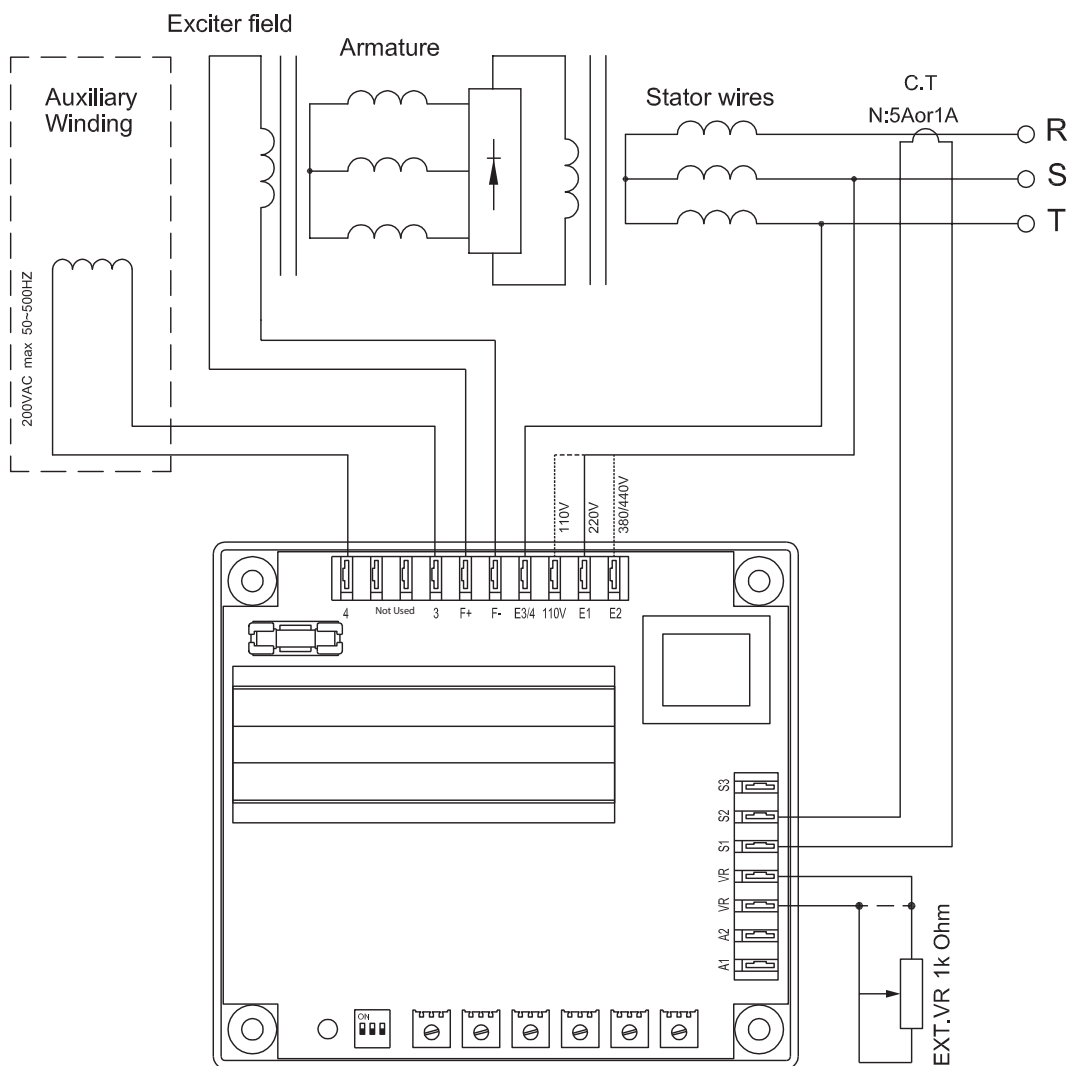


Figure 2 Single Phase / 3 Phase Wiring