

EA-08A

Generator Automatic Voltage Regulator Operation Manual



Self Excited Automatic Voltage Regulator
For use in Brushless Full Harmonic or Harmonic and Auxiliary Winding

The EA08A 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 and 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 and other terminals adding the ability to use 1 and 5 Amp 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%

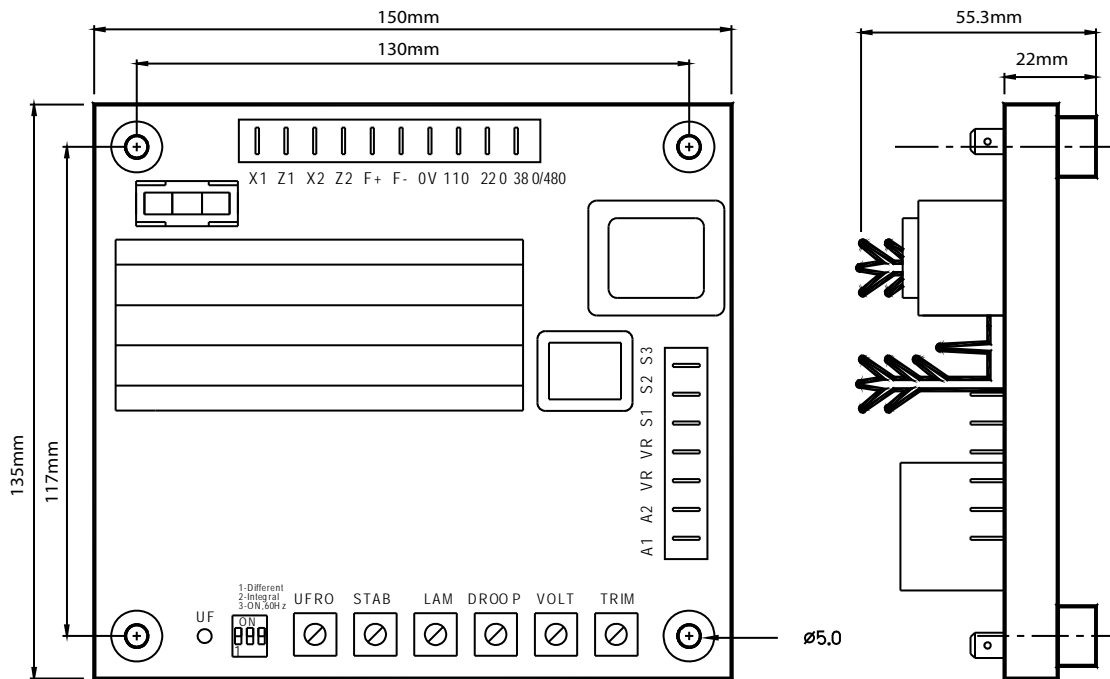


Figure 1 Outline Drawing

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. X1-X2, Z1-Z2 power input terminals.
We can use all types of power input arrangement. Harmonic, Auxiliary, PMG (single/3 phase) & shunt, from 45 to 600Hz. See Drawings
4. S1, S2 & S3 Terminals. Current Compensation inputs. S1 to S2 use 5A CTs - S2 to S3 use 1A Cts.
5. VR - VR Terminals used to external voltage Adjustmnet using a 1K Ohm POT. Keep shorted if not used.
6. 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

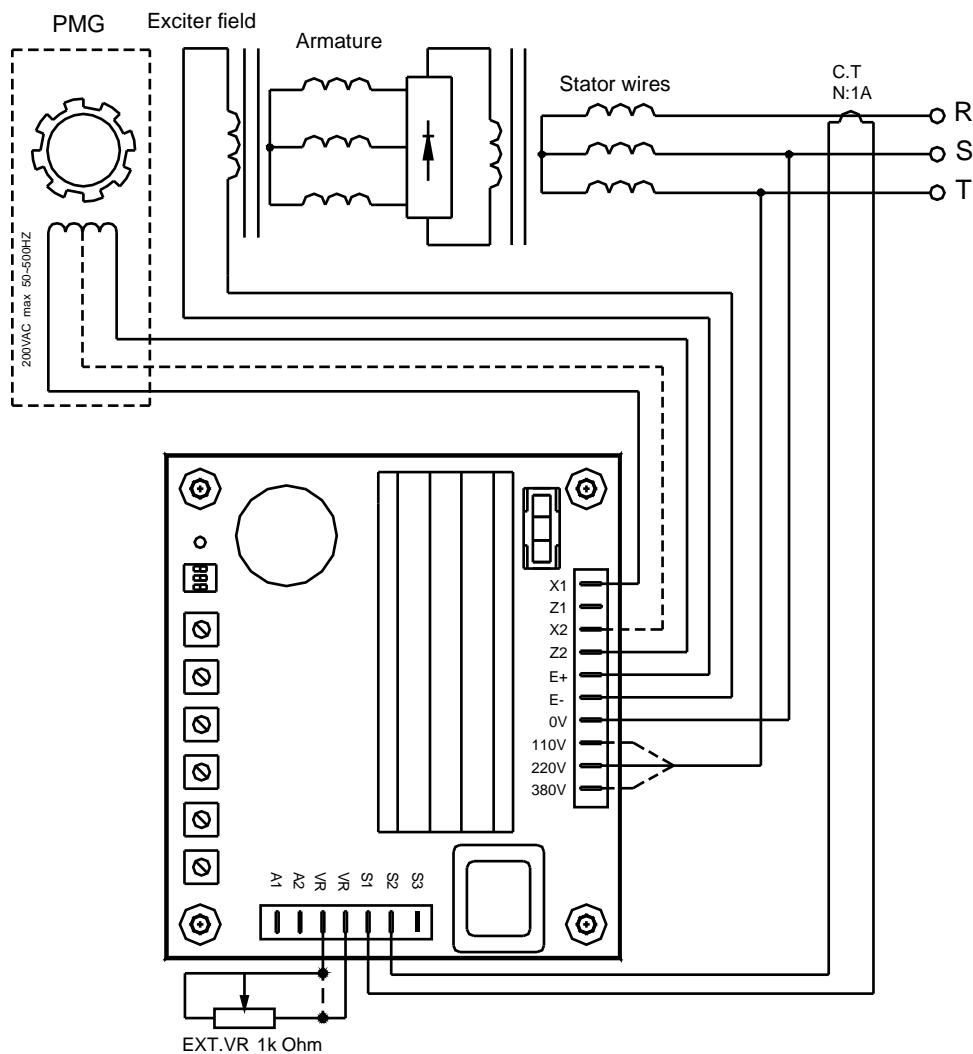


Figure 2 Single Phase / 3 Phase PMG Wiring

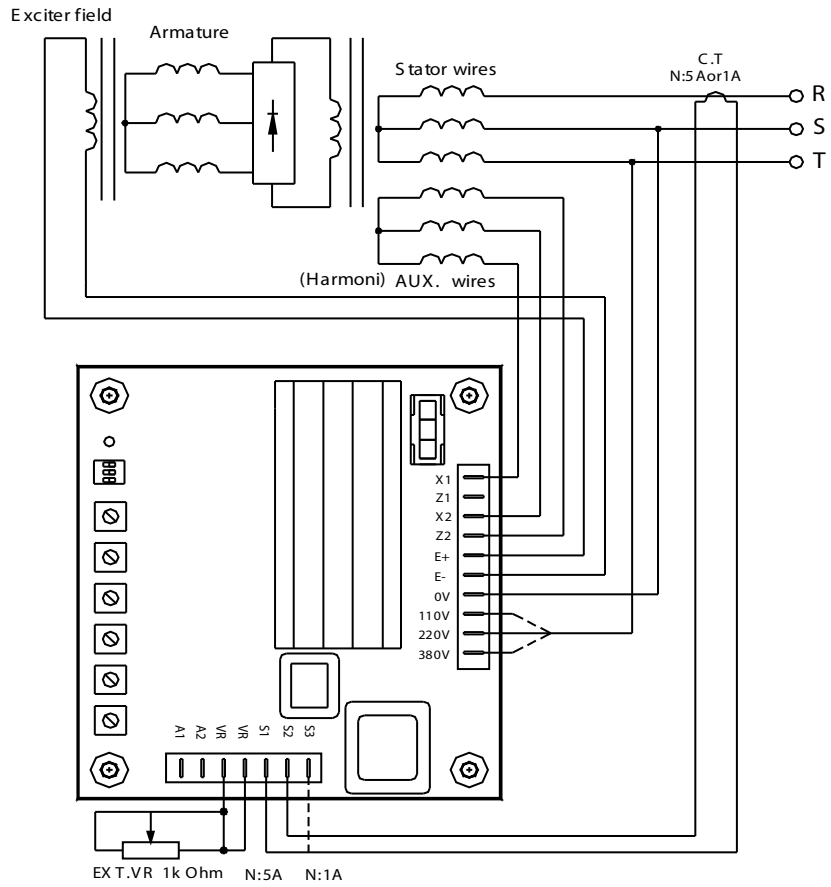


Figure 3 3 Phase (Auxiliary Winding, Full Harmonic, Self Excited) Wiring

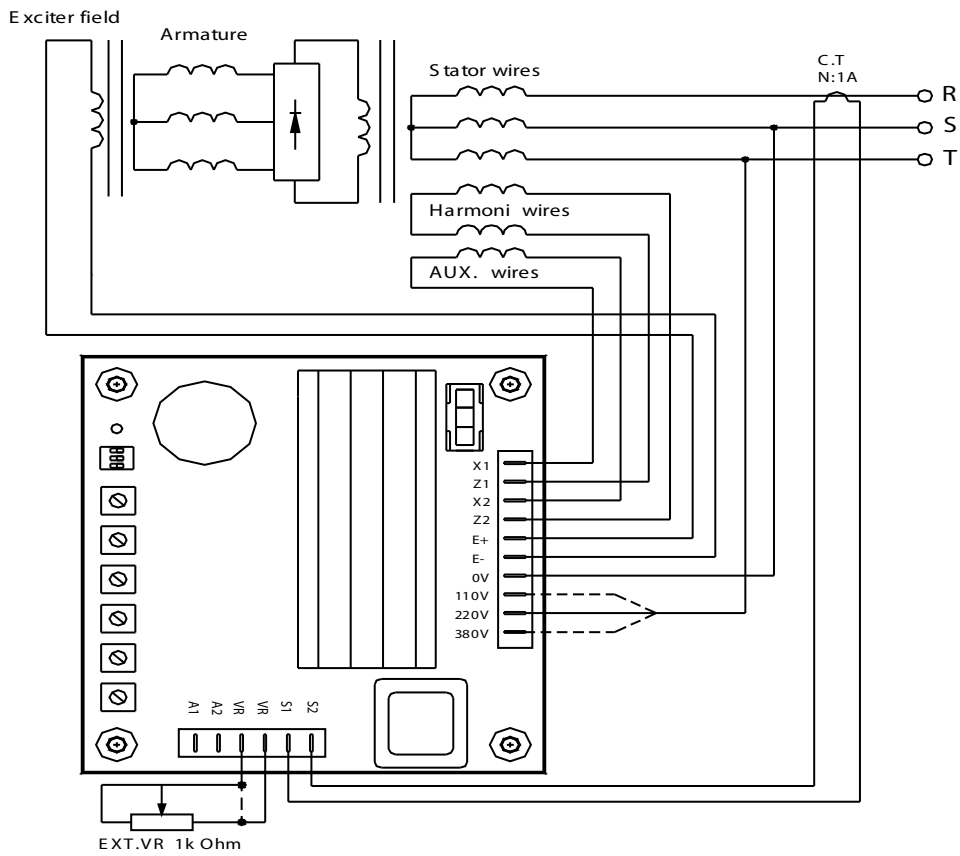
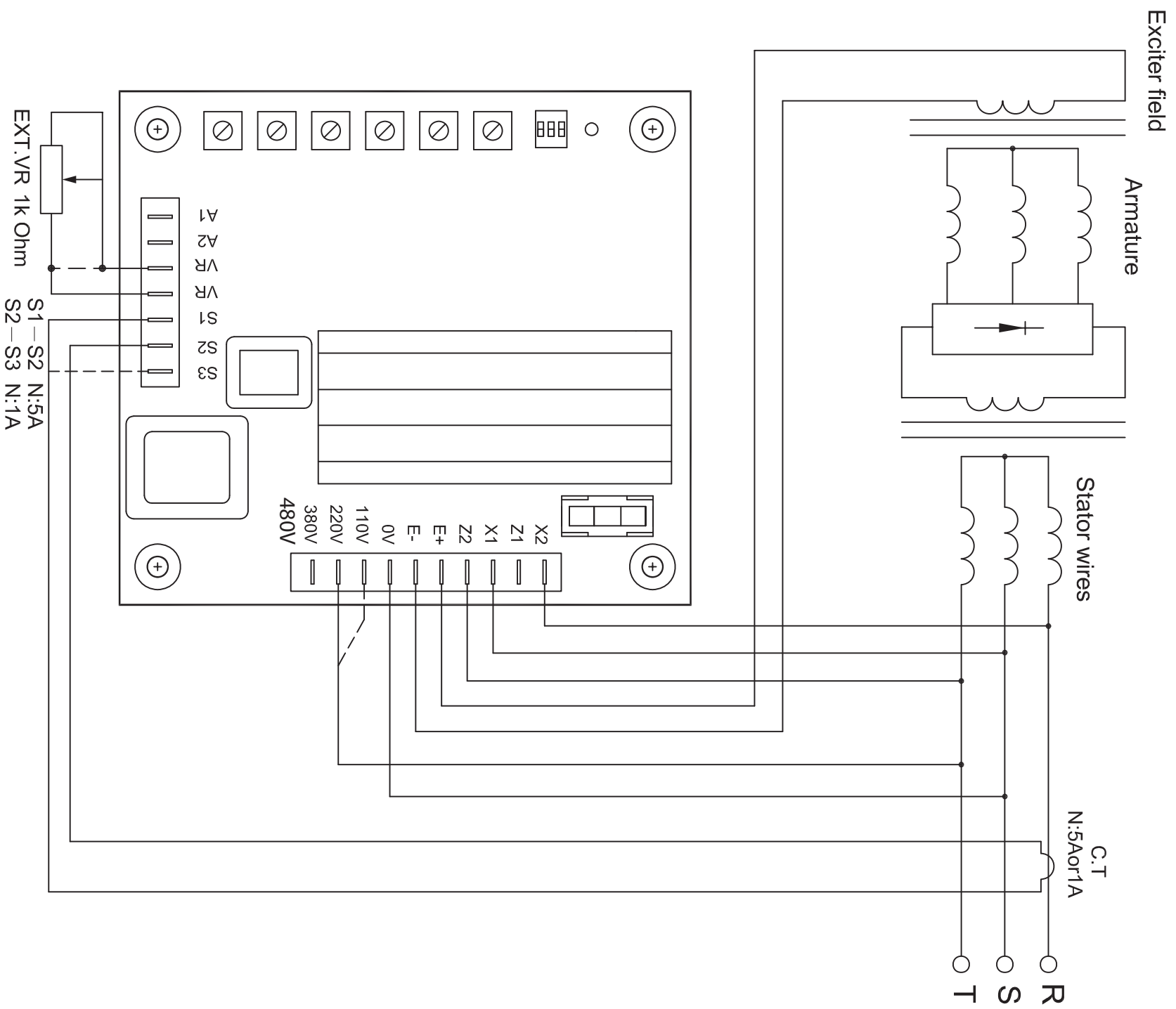
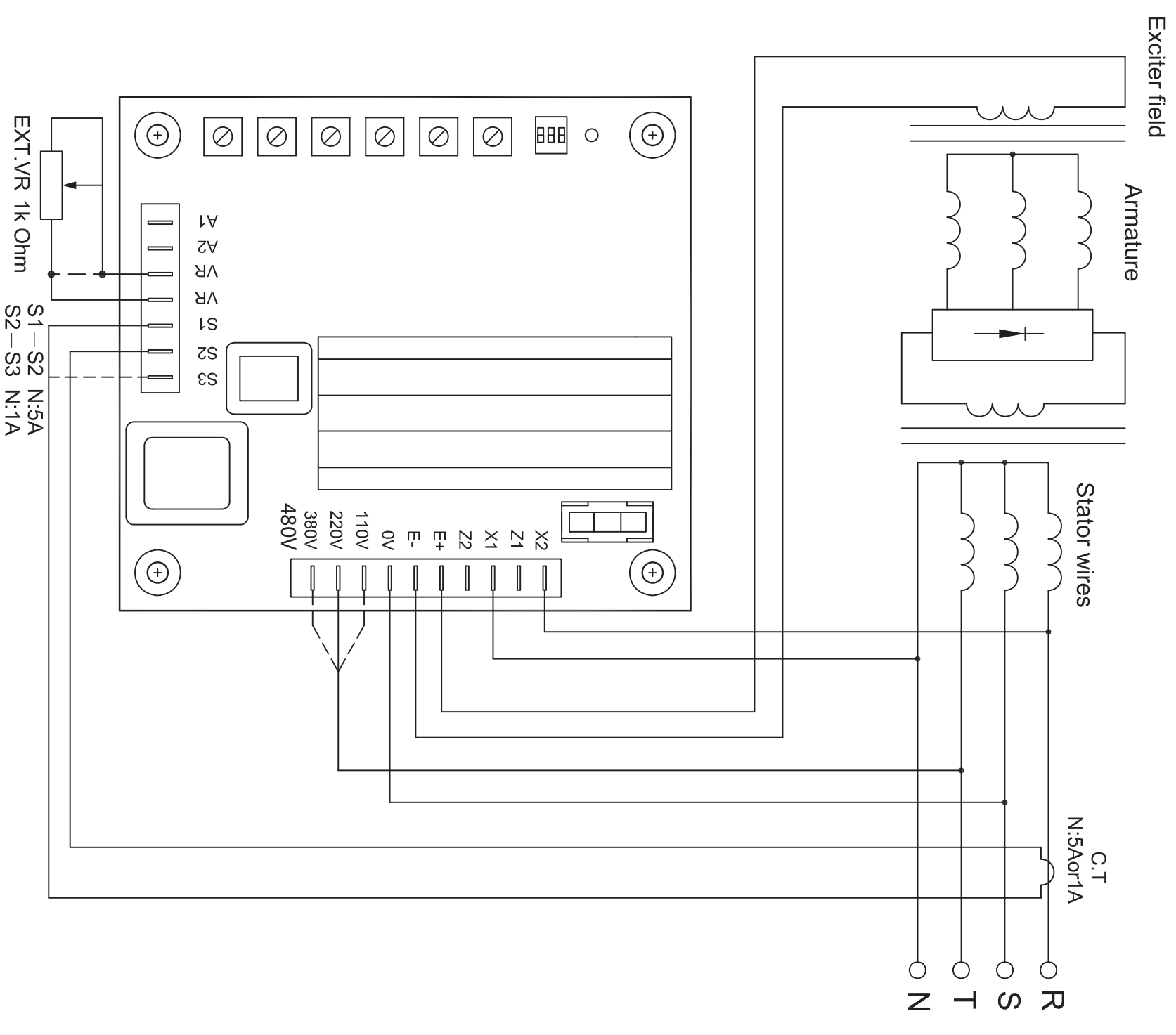


Figure 4 Auxiliary Winding & Harmonic Wiring

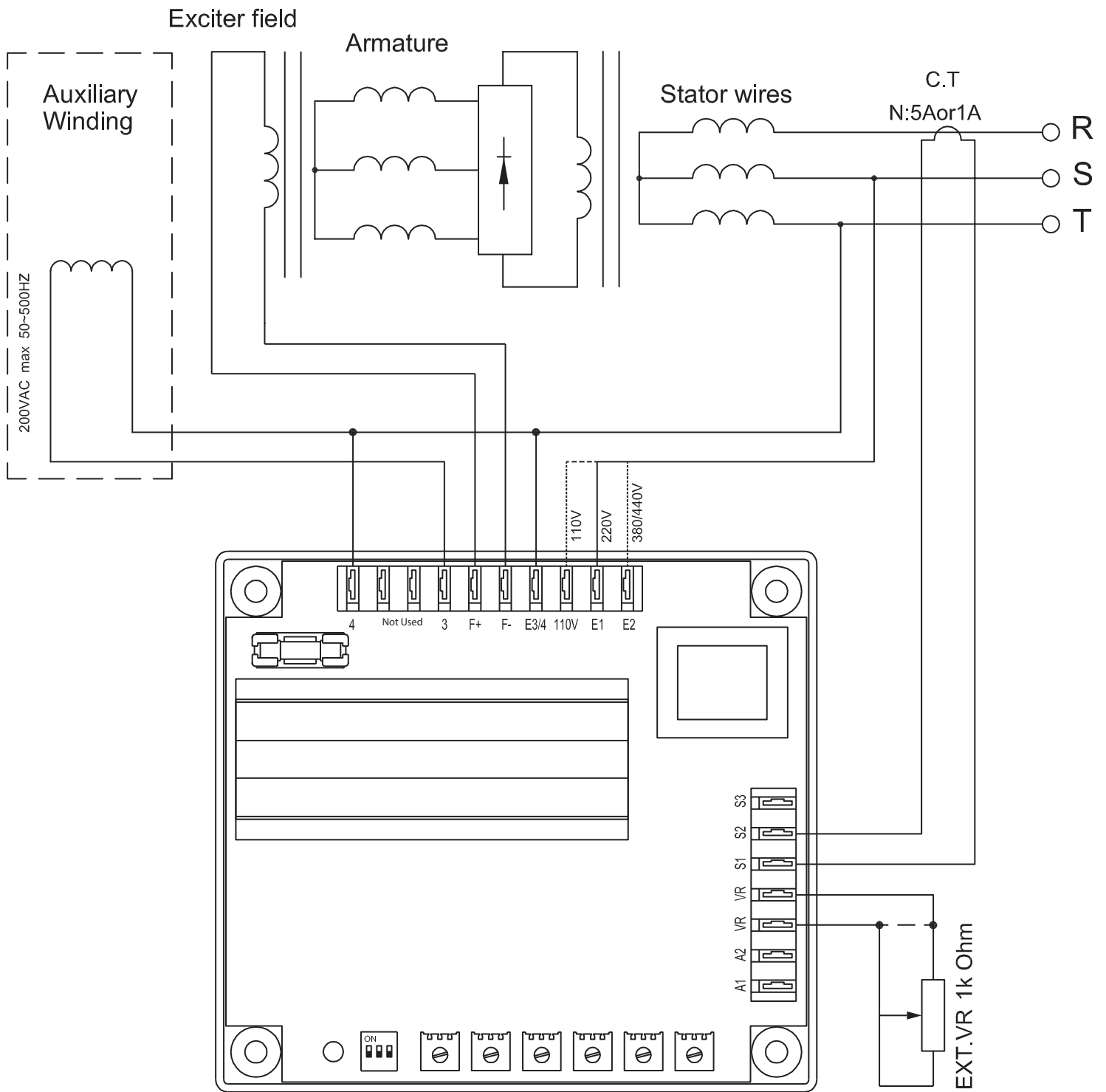
- ※ Please use original spare fuse (10A).
- ※ Product Performance, specification and appearance are subject to change (Improvement) without prior notification.



3φ 110/220V Shunt type connection



3φ 380/480V Shunt type connection



Replace the Grameyer GRT7-TH4 With the McPherson EA-08A