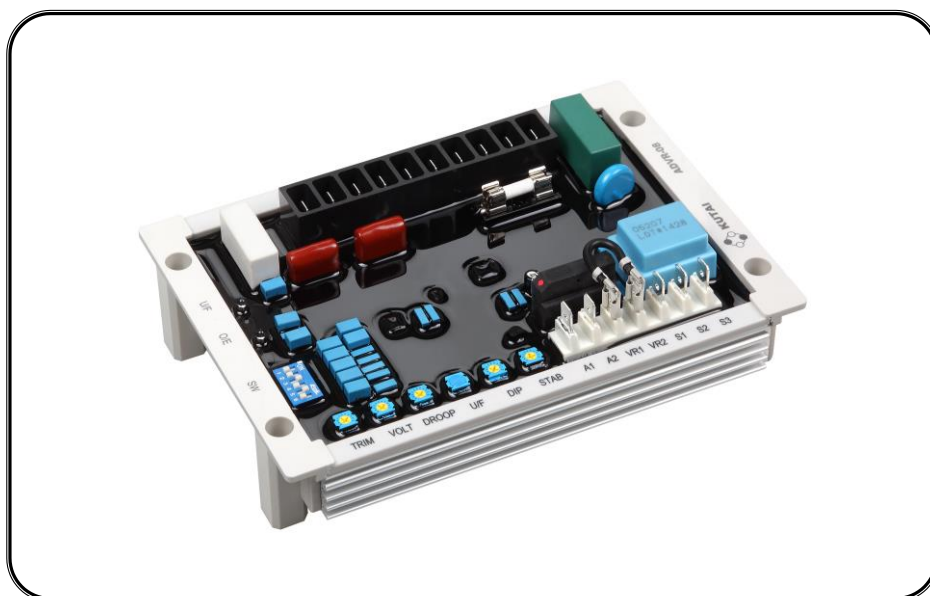


ADVR-08

Universal Hybrid Analog-Digital Voltage Regulator Operation Manual



An Universal Hybrid Analog/Digital 2 lines sensing 8 Amp AVR with multiple power input capability such as Full Harmonic (Compound Windings), Harmonic + Auxiliary Winding, PMG and SHUNT.

Compatible with Leroy Somer* R438, R448, R449 and more.
Use with KUTAI IVT-1260 / IVT-2460 add-on module can boost generator motor starting capacity.

SECTION 1 : SPECIFICATION

Sensing Input (E1, E2)

Voltage	110 – 480 Vac, 1 phase 90 – 130 Vac @ 110 Vac 180 – 260 Vac @ 220 Vac 340 – 520 Vac @ 380 Vac
Frequency	50/60 Hz, DIP switch setting

Power Input (X1, X2, Aux1)

Voltage	40 – 300 Vac, 1 phase / 3 phase
Frequency	50 – 500 Hz
	1 phase (X1、X2) / 3 phase (X1、X2、Aux1)

Auxiliary Input (Aux1, Aux2)

Voltage	40 – 300 Vac, 1 phase
Frequency	50 – 500 Hz

Excitation Output (F+, F-)

Voltage	Max. 63 Vdc @ power input 110 Vac Max. 125 Vdc @ power input 220 Vac
Current	Continuous 8A Intermittent 12A for 10 secs.
Resistance	≥ 8 ohms @ power input 110 Vac ≥ 16 ohms @ power input 220 Vac
Fuse Spec.	Slow blow 5 x 20mm S505-10A

External Voltage Adjustment (VR1, VR2)

Max. +/- 4%	@ 500 ohms 1 watt potentiometer
Max. +/- 8%	@ 1K ohm 1 watt potentiometer

Voltage Regulation

Less than +/- 0.5% (with 4% engine governing)

Build Up Voltage

6 Vac 25 Hz residual volts at power input terminal

Soft Start Ramp Time

4 seconds +/- 10%

Typical System Response

Less than 20 milliseconds

EMI Suppression

Internal electromagnetic interference filtering

Static Power Dissipation

Max.6 watts

Burden in SHUNT & PMG Wiring

880 VA @ power input 110 Vac
1760 VA @ power input 220 Vac

Quadrature Droop Input (S1, S2, S3)

CT 5A (S1-S2) or 1A (S2-S3) greater than 5VA
Max. +/- 5% @ P.F +/- 0.7

Analogue Voltage Input (A1, A2)

Input resistance greater than 2K ohms
Max. Input +/- 5 Vdc
Sensitivity +/- 25% Generator Volts (adjustable)

Under Frequency Protection (Factory Presets)

50 Hz system presets knee point at 45 Hz
60 Hz system presets knee point at 55 Hz

Over Excitation Protection

Set point 170 Vdc +/- 5 % @ power input 220 Vac

Voltage Thermal Drift

Less than 3% at temperature range -40 to +70 °C

Under-Frequency Knee Point Thermal Drift

Less than +/- 0.1 Hz at -40 to +70 °C

Environment

Operating Temperature	-40 to +70 °C
Storage Temperature	-40 to +85 °C
Relative Humidity	Max. 95%
Vibration	3 Gs @ 100 – 2K Hz

Dimensions

171.0 (L) x 120.0 (W) x 50.0 (H) mm

Weight

820 g +/- 2%

ATTENTION

Carefully set the AVR sensing voltage from 110 to 480 Vac using DIP Switch SW 4 & 5.

SECTION 2 : OUTLINE / SIZE / INSTALLATION REFERENCE

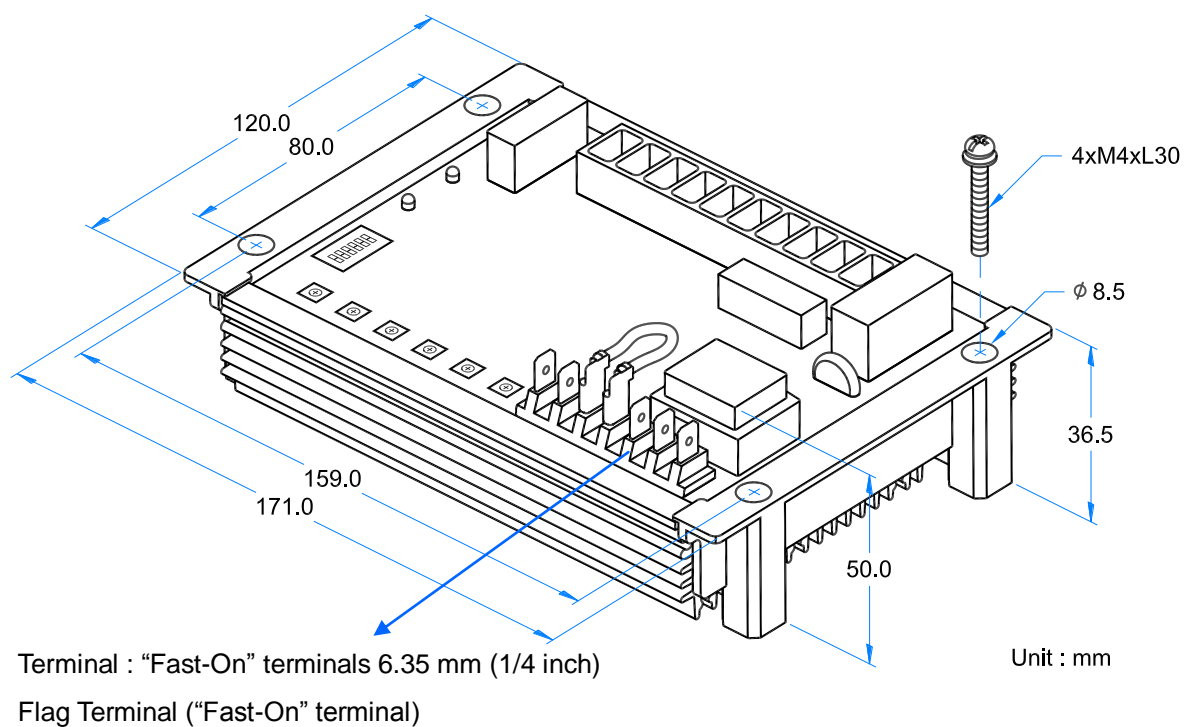
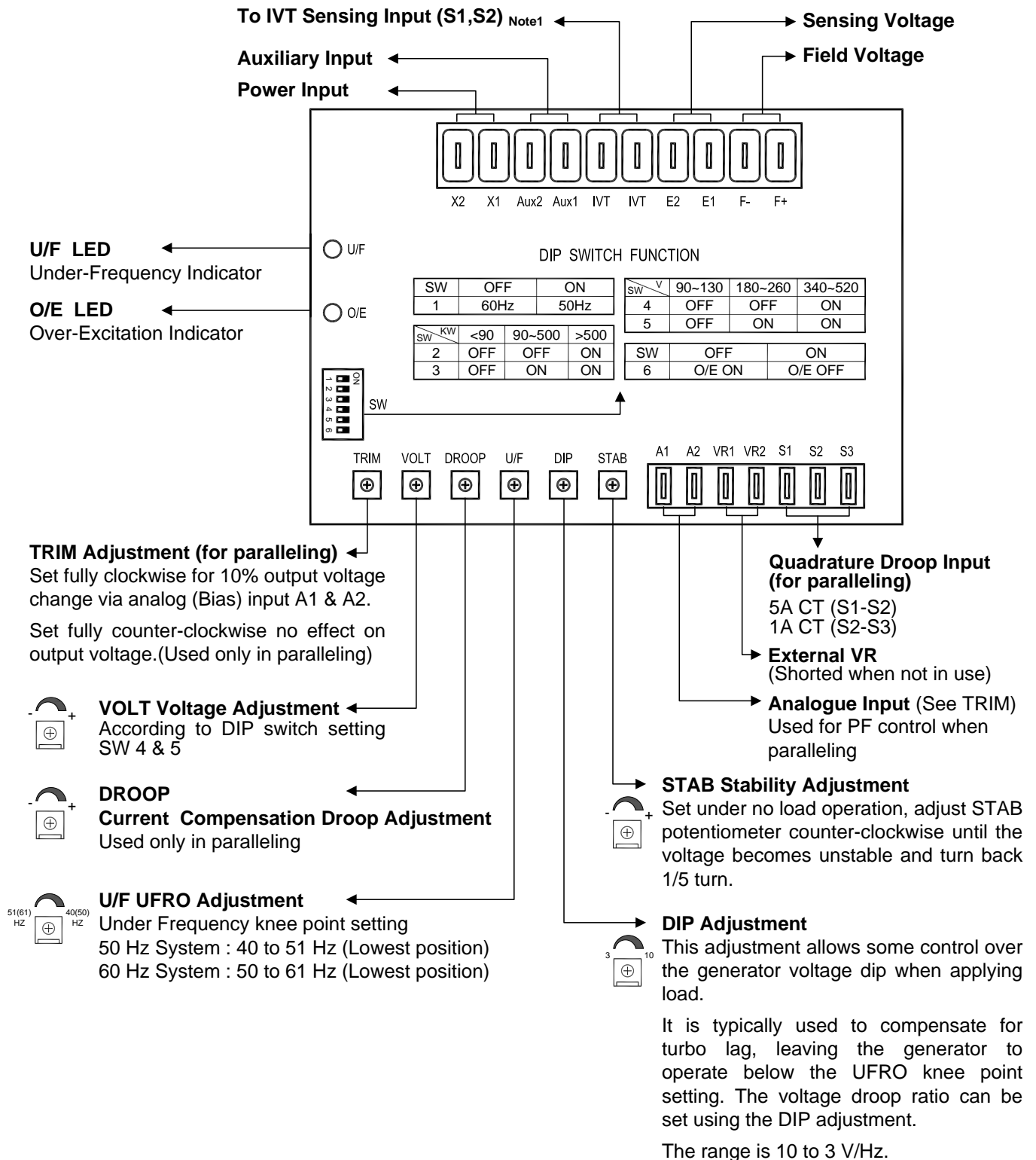


Figure 1 Outline Drawing

ATTENTION

1. 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. Improper setting of under-frequency protection could cause the output voltage of the unit to drop or become unstable under with changes in load. Avoid making any changes to the U/F setting unless necessary.

SECTION 3 : DIP SWITCH PROGRAMMING & VR ADJUSTMENTS



ATTENTION

For more detail about “ IVT Generator Auxiliary Excitation Booster ” please visit KUTAI website.

SECTION 4 : WIRING CONNECTIONS

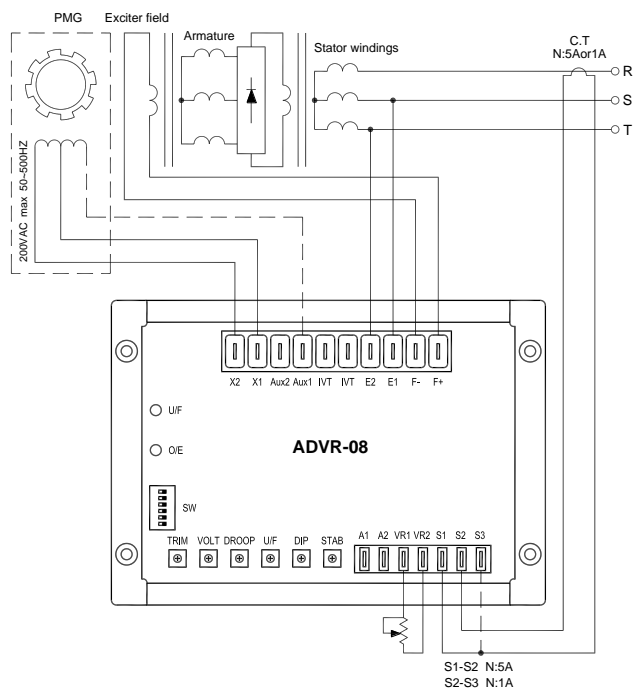


Figure 2 Single & Three Phase PMG

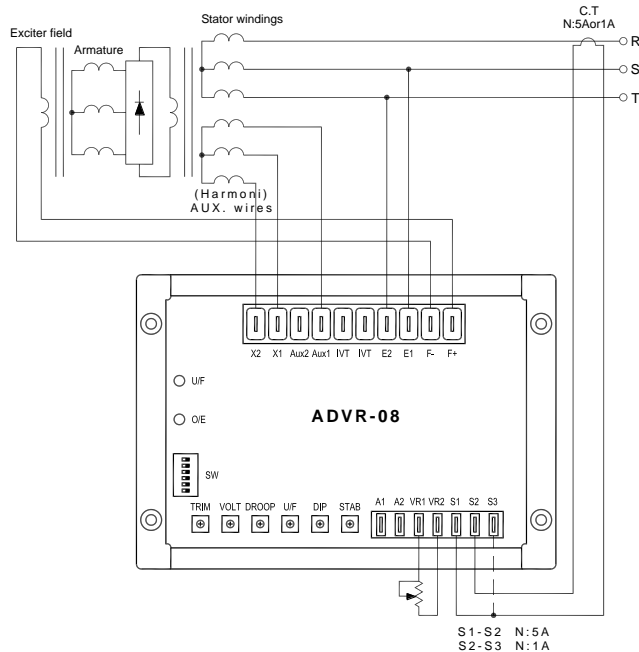


Figure 3 Three Phase Auxiliary Winding (Full Harmonic)

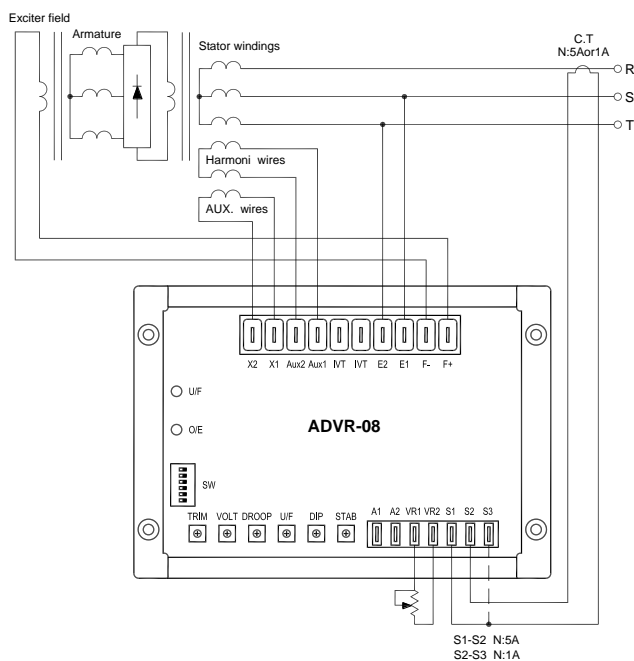


Figure 4 Auxiliary & Harmonic

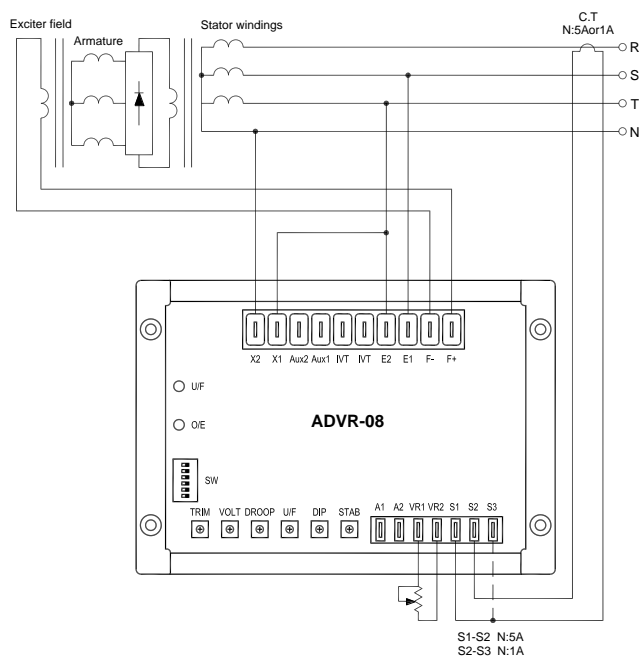


Figure 5 Self-Excited (SHUNT)

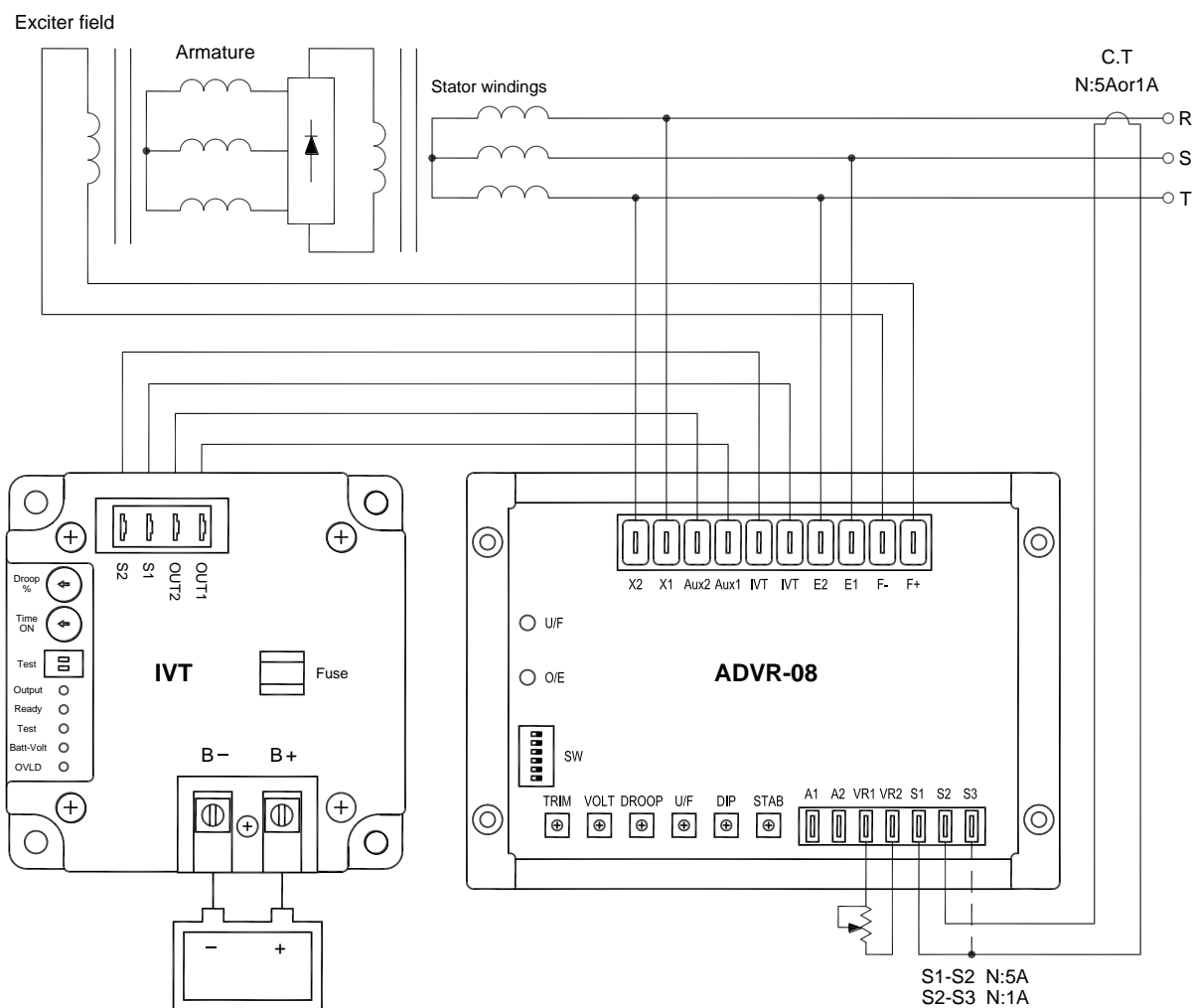


Figure 6 ADVR-08 & IVT-1260 / IVT-2460 Wiring Connection

ATTENTION

1. All AC voltage readings are average value only.
2. Use a remote 500 ohms 1 watt external VR for +/- 4% adjustment range. (keep shorted if not used)
3. Use a remote 1K ohm 1 watt external VR for +/- 8% adjustment range.
4. If your PMG is not working you can also power the AVR in shunt using terminals X1 & X2 connected to the output of the generator as long as it's less than 300 Vac.

- ※ Use only the replacement fuses specified in this user manual.
- ※ Appearance and specifications of products are subject to change for improvement without prior notice.