

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 many others.
Use with Booter IVT-1260/IVT-2460 as an add-on module improving generator motor starting capacity for generators without PMG.

* Use for reference purpose only and do not imply that any part listed above is the product of the manufacturer.

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 selectable

Power Input (X1, X2)

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

Auxiliary Input (Aux1, Aux2)

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

Output (F+, F-)

Voltage Max. 63 Vdc @ power input 110 Vac
Max. 125 Vdc @ power input 220 Vac
Current Continuous 8A
Intermittent 15A for 10 sec.
Resistance \geq 8 ohms @ power input 110 Vac
 \geq 16 ohms @ power input 220 Vac
Fuse Spec. 5 x 20mm S505-10A (slow blow type)

Burden in SHUNT & PMG Wiring

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

Voltage Regulation

< +/- 0.5% (with 4% engine governing)

Typical System Response

AVR response 20 ms

Build Up Voltage

Residual voltage at AVR power input terminal
> 6 Vac @ 25 Hz

Voltage Thermal Drift

0.03% per °C change in AVR ambient

External Volts Adjustment (VR1, VR2)

+/- 5% 500 ohms 1 watt potentiometer
+/- 10% 1K ohms 1 watt potentiometer

Soft Start Ramp Time

4 sec.

Over Excitation Protection

Inverse-time 125 +/- 5 Vdc @ power input 220 Vac

Unit Power Dissipation

Max.6 watts

EMI Suppression

Internal EMI filtering

Quadrature Droop Input (S1, S2, S3)

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

Analogue Input (A1, A2)

Maximum input +/- 5 Vdc
Sensitivity +/- 25% Generator Volts (adjustable)
Input resistance > 2K ohms

Under Frequency Protection (Factory Knee Point Setting)

50 Hz system presets knee point at 47 Hz
60 Hz system presets knee point at 57 Hz
Knee point Frequency Drift : 0.1 Hz @ -40 – +70 °C

Environment

Operation Temperature -40 – +70 C
Storage Temperature -40 – +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
6.7" L x 4.7" W x 2" H

Weight

820 g +/- 2% - 1.8Lbs

ATTENTION

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

SECTION 2 : OUTLINE / SIZE / INSTALLATION REFERENCE

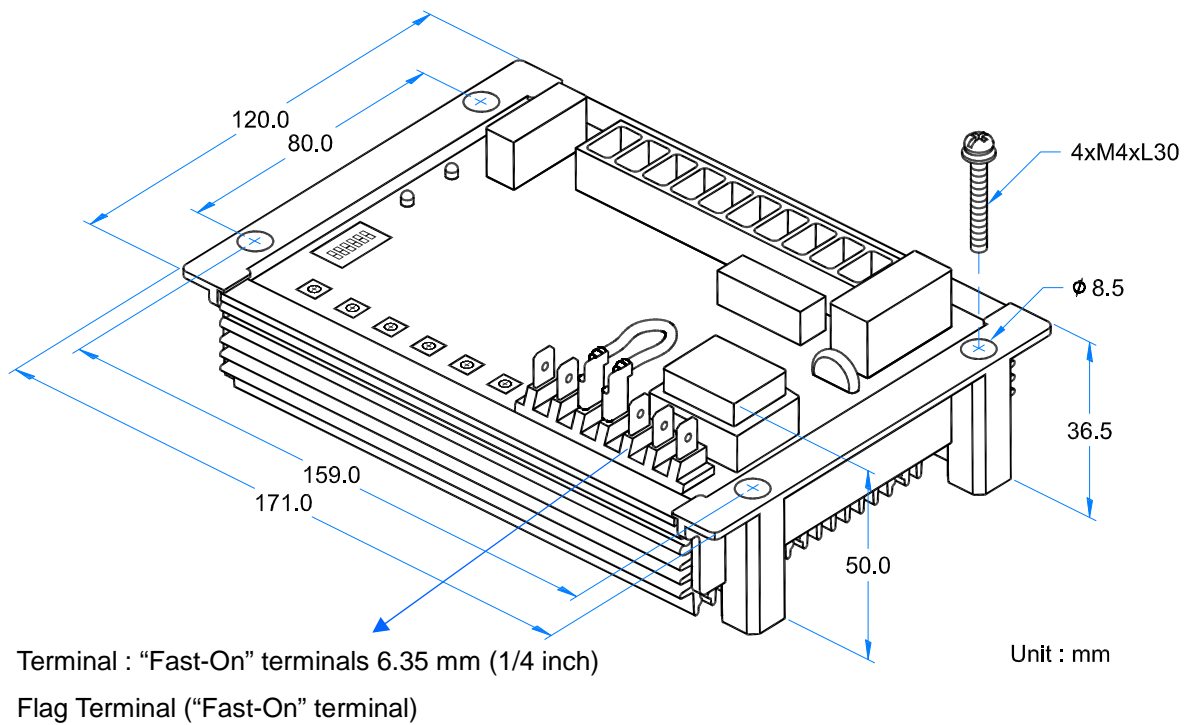
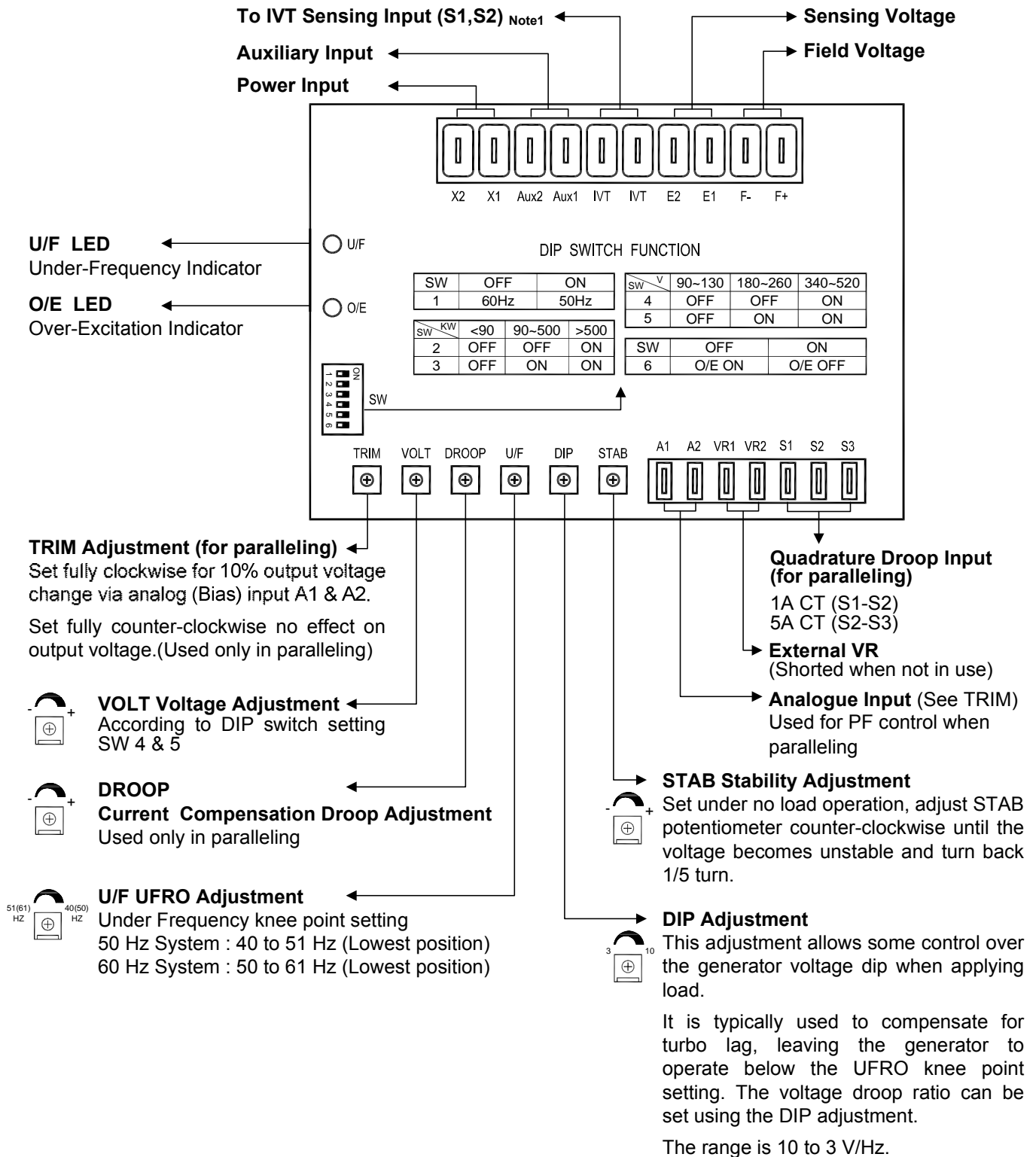


Figure 1 Outline Drawing

ATTENTION

Meggers and high-potential test equipment must not be used as it could damage the AVR.

SECTION 3 : DIP SWITCH PROGRAMMING & ADJUSTMENTS



NOTE

For more detail about "IVT Generator Auxiliary Excitation Booster" please visit MTS website.

SECTION 4 : WIRING CONNECTIONS

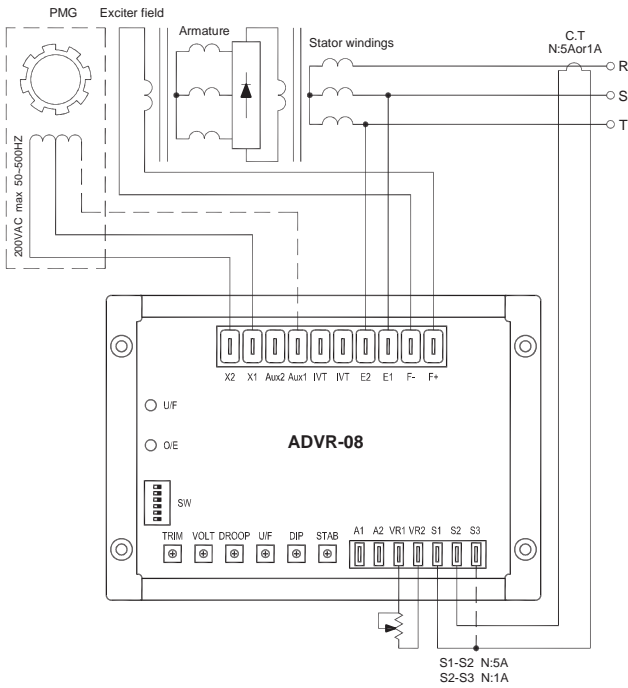


Figure 2 Single & Three Phase PMG

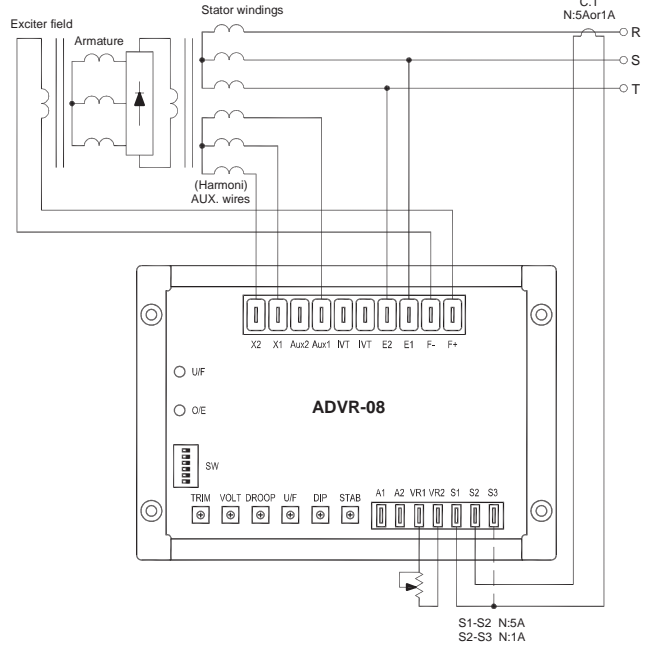


Figure 3 Three Phase Auxiliary Winding (Full Harmonic)

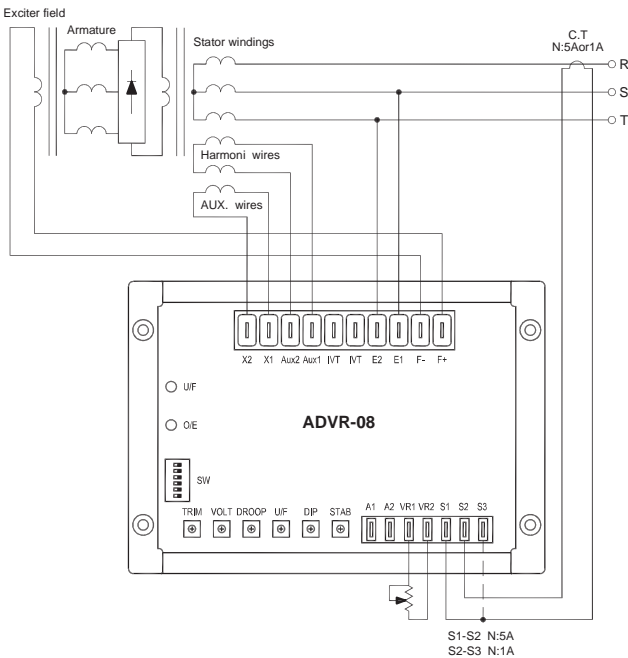


Figure 4 Auxiliary & Harmonic

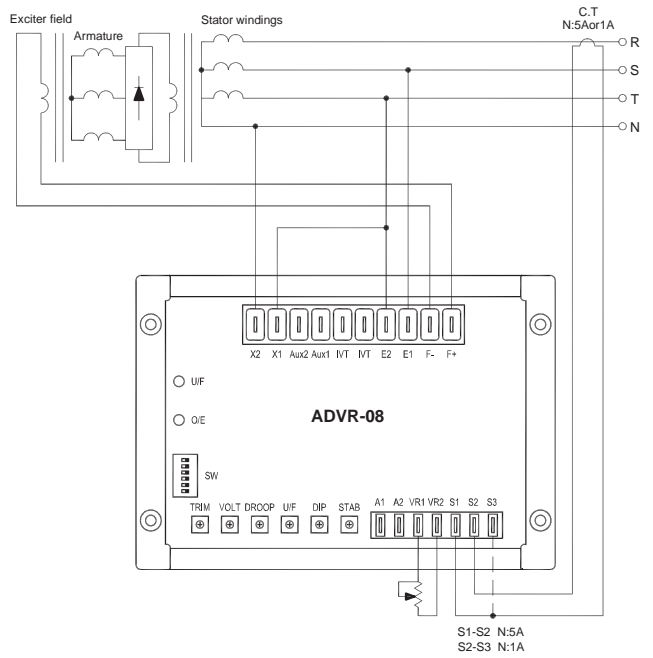


Figure 5 Self-Excited (SHUNT)

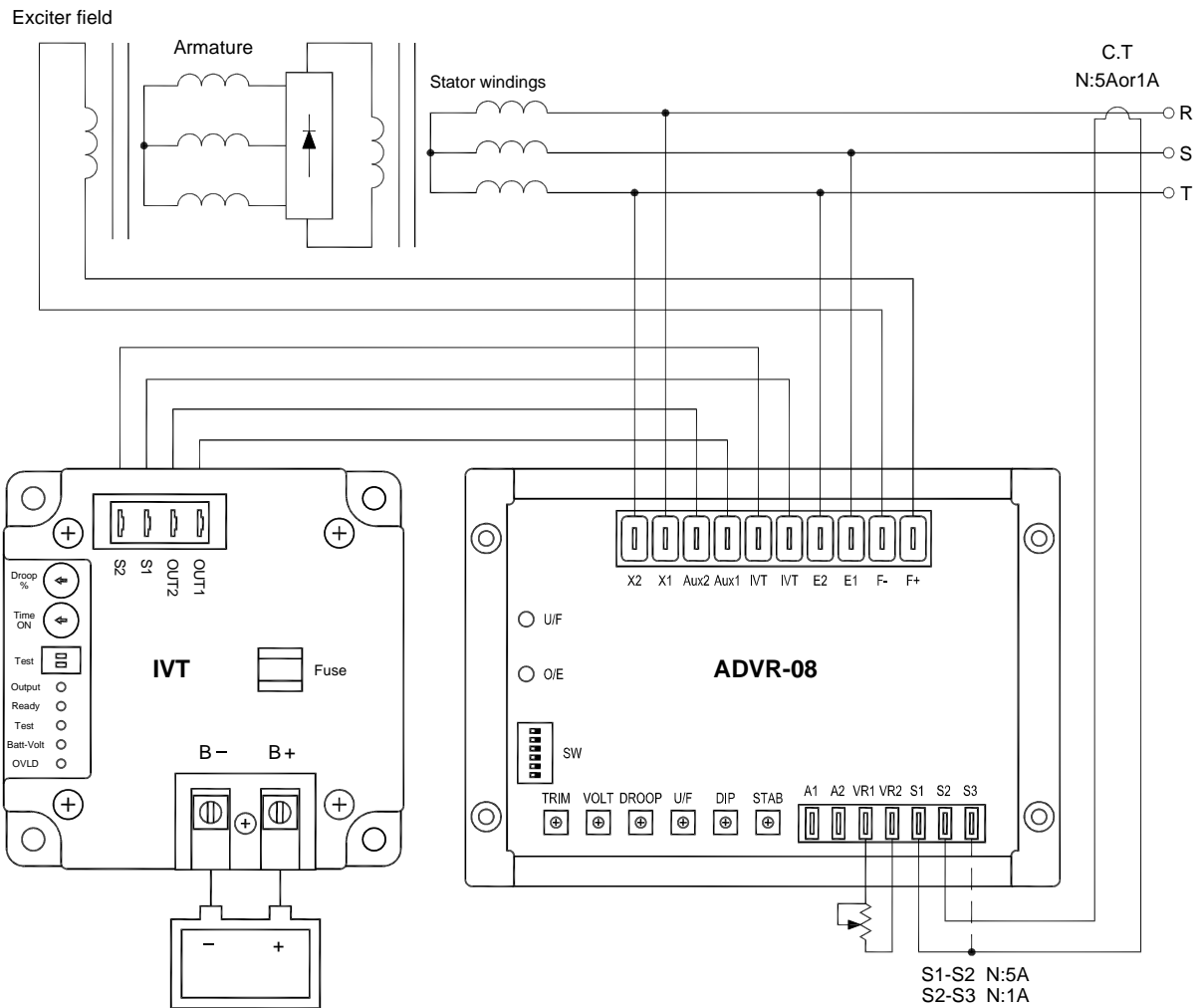


Figure 6 ADVR-08 with IVT-1260 / IVT-2460

ATTENTION

1. All AC voltage readings are average value only.
2. Use a remote 500 ohms 1 watt external VR for +/- 5% adjustment range. (keep shorted if not used)
3. Use a remote 1K ohms 1 watt external VR for +/- 10% 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.