ADVR-2300M

New Type Hybrid Analog/Digital Voltage Regulator, built to substitute some Digital Regulators used with Marathon* Generators With PMG.
Easy to Set-Up and Program

Installation Manual

Mounting Plate included

1. SPECIFICATION

Sensing Input E1, E2, E3

Voltage	220 ~ 600VAC, 60Hz
	DIP Switch SW1, 2 Selectable
	175 ~ 280VAC @ 220VAC
	330 ~ 490VAC @ 380/480VAC
	500 ~ 660VAC @ 600VAC
Frequency	Single or 3 phase Input
	DIP Switch SW3 Selectable

Power Input P1 & P2

Input

Voltage	30 ~ 260VAC, 60Hz
	Single phase

Output F+ and F-

Voltage	85VDC @ 110VAC input
	170VDC @ 220VAC input
Current	Continuous 5A Max.
	Intermittent 10A for 60 sec

Voltage Regulation

< ± 0.5% (with 4% engine governing)

Voltage Build-up

Residual voltage at AVR terminal > 5 VAC @ 25Hz

Thermal Drift

0.45% per ˚C change in AVR ambient

External Volts Adjustment VR1 and VR2

5% with 500ohm 1 watt trimmer

10% with 1000ohm 1 watt trimmer

Excitation Resistance

> 9 ohm

Max. Power Dissipation

12 watt

Current Compensation

1 or 5A > 0.2VA (DIP Switch SW8 Selectable)

Droop input (C1,C2)

Max. ±7% @ P.F ±0.7

Analogue Voltage Input A1 and A2

Un 0 ~ 15% @ 0 ~ 10VDC or 0 ~ ±5VDC

Frequency Knee Point

60Hz Factory setting is 57 Hz

50Hz Factory setting is 47 Hz

Response Time

<1 Cycle

Dimensions

150mm L * 135mm W * 55.5mm H

Weight

460g ± 2%

2. FIGURE AND SIZE

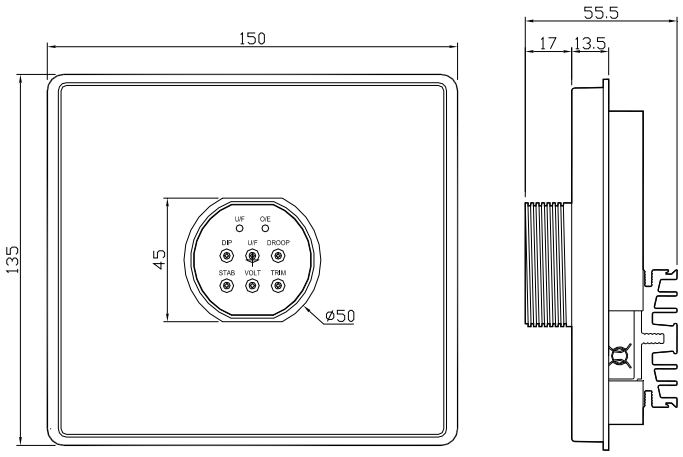
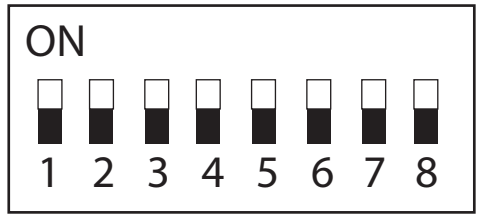


Figure 1 Outline Drawing

ATTENTION

1. AVR can be mounted directly on the engine, genset, switchgear, control panel, or any position that will not affects operation. For dimension reference, see Figure 1.
2. 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.
3. Fuse Specification：6.3A / 250V Slow Blow Type
4. Terminal："Fast-On" terminals 6.35mm (1/4 inch).

DIP SW Programming



1.OFF 2.OFF	175 to 280V
1.OFF 2.ON	380 to 480V
1.ON 2.ON	600V

SW1 & SW2 Sets the Generators Sensing Voltage
NOT THE WORKING VOLTAGE

6.OFF 7.OFF	<90KW
6.ON 7.OFF	90-500KW
6.ON 7.ON	>500 KW

Generator Size

SW6 and SW7- Sets Generator Size

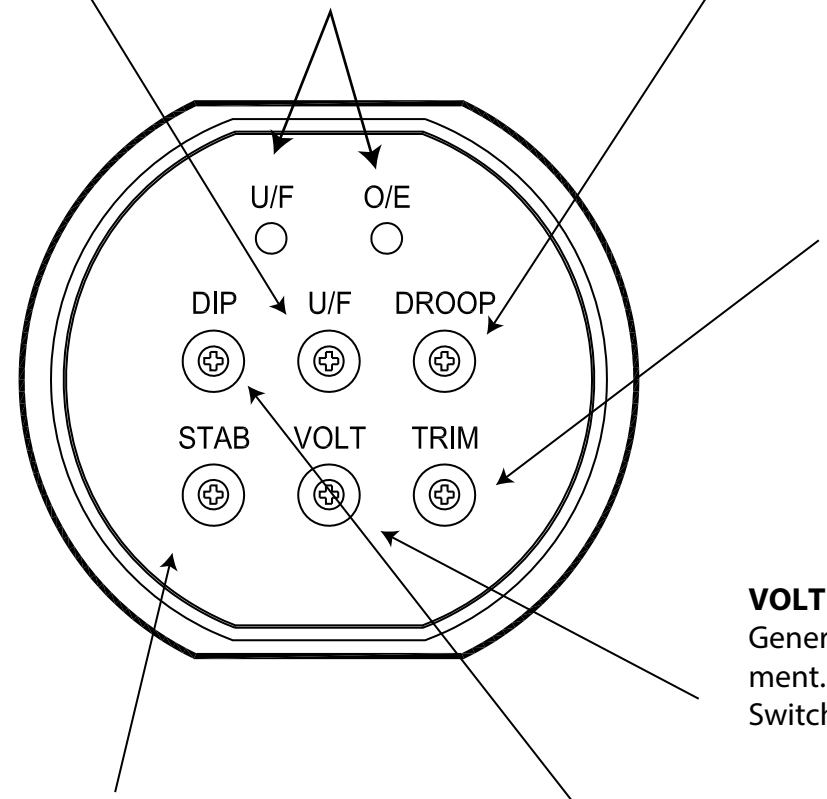
Genenerators can sense at 240v (reference Voltage) but the generator is wired to work at 480v

	OFF	ON	
3	3 PHASE	1 PHASE	SW3 -Set Sensing for 1 Phase or 3 Phase
4	60Hz	50Hz	SW4 - Set Generator Frequency
5	O/E PROTECT ON	O/E PROTECT OFF	SW5 - Set Over Excitation Protection ON or OFF
8	CT 1A	CT 5A	SW8 - Sets Size of Droop CT

Adjustments

U/F Under Frequency Protection Adjustment When generator RPM falls below the knee point, the under frequency protection circuit will activate and the voltage and frequency begin to decrease in linear descend.
Select frequency 60 or 50Hz according to the generator in use.

LED Indicator lights when the genera-tor is U/F Under-Frequency and when the generator is in Over-Excitation protection.



DROOP Droop Adjustment
When paralleling, the AVR increase or decrease its voltage output, when phase current leads or lag the voltage. The increase and decrease range can be preset by the DROOP adjustment.

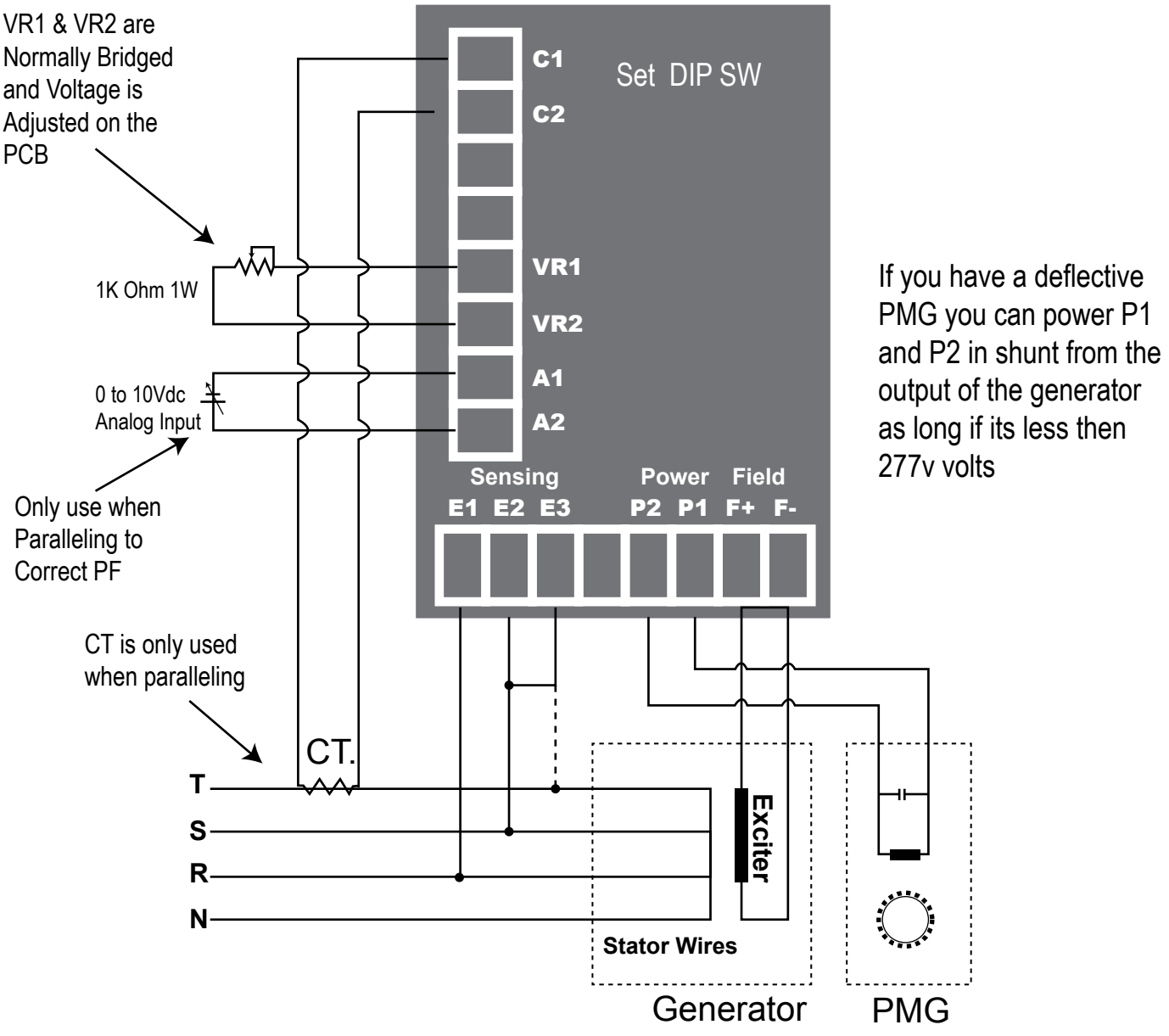
TRIM Trim Adjustment
When terminal A1 and A2 are biased with a DC voltage (0~10V), the TRIM is then used to adjust the influence this DC has on the output voltage of the AVR. If the TRIM (POT) is adjusted fully counter-clockwise, any bias voltage will not cause any influence. On the contrary if the TRIM is adjusted fully clockwise, then any signal will produce a maximum 10% effect.

VOLT Voltage Adjustment
Generator rated output voltage adjustment. Must be in accordance with the DIP Switch SW1-1 & 2 voltage range setting

STAB Stability Adjustment
Correct stability adjustment must be conducted while the generator is operating without load. First adjust the STAB potentiometer (POT) clockwise until the voltage becomes unstable, and then slightly adjust it anti-clockwise (About1/5 turn). When the voltage just reaches the critical point (Knee point) of stabilization, where the voltage is stable yet very close to becoming unstable.

DIP Adjustment
The DIP adjustment allows some control over the generator voltage dip when applying load. It is used, when the generator uses a turbo-charger that sometimes lags the load and briefly operates below the UFRO knee point, (LED ON). With the DIP pot set CCW, the generator voltage characteristics will follow the normal V/Hz line as the speed falls below normal. Turning the DIP potentiometer CW increases the V/Hz slope, providing a greater voltage dip and aiding engine recovery. The DIP potentiometer can be set at any position to suit any engine type.

Wiring Connections



Sensing Voltage can be set from 200 too 600 Volts Program SW 1 1&2 correctlly. . For single phase sensing bridge E2 & E3 and move SW3 to ON	ATTENTION The AC voltages recorded by the AVR are average values. External VR: 500 ohms 1 Watt gives 5% adjustment range External VR: 1K ohms 1 Watt gives 10% adjustment range