## 1. SUMMARY

The ADVR-12 is a totally new hybrid 12 Amp universal voltage regulator with a comparable footprint as the Basler* AVC63-12 and AVC125-10, CAT* VR6, KATO* K65-12B and K125-10B, and the Leroy Somer* 202-8634, and many other. To simplify installation, voltage sensing without PT's up to 520 volts was added, also new DIP & TRIM adjustment compatible with many automatic paralleling and PF controllers in the market. The new CPU design makes the ADVR-12 exceedingly stable, however keeping the analog power circuit for fast response.

## 2. SPECIFICATION

**Sensing Input 1** or 3 Phase

Voltage 220 / 440VAC 50 / 60Hz (SW5 Selectable) 180 ~ 260VAC @ 220VAC 330 ~ 520VAC @ 440VAC

**Power Input 1Ø or 3Ø**

Voltage 100 ~ 300VAC, 40 ~ 500Hz
Output 63VDC @ 110VAC input
125VDC @ 220VAC input

**Output**

Current Continuous 12ADC
Maximum 25ADC for 10 sec

**Frequency**

50 / 60Hz (SW4 Selectable)
40 ~ 51Hz @ 50Hz Preset 47Hz
50 ~ 61Hz @ 60Hz Preset 57Hz

**Voltage Regulation**

< ± 0.5% ( with 4% engine governing )

**Voltage Build-up**

Residual voltage at AVR terminal > 6 VAC @ 25Hz

**Thermal Drift**

0.03% per °C change in AVR ambient

**Over Excitation Protection**

60% of Input Voltage

**External Volts Adjustment VR**

10K ohm 0.5 watt trimmer

**Excitation Resistance**

> 10 ohm

**Current Compensation**

1 or 5A > 0.2VA
Max ±7% @ P.F ±0.5

**Analogue Voltage Input**

Un0 ~ 10% @ ±5VDC <2mA

**Respond Time**

< 1 Cycle

**Unit Power Dissipation**

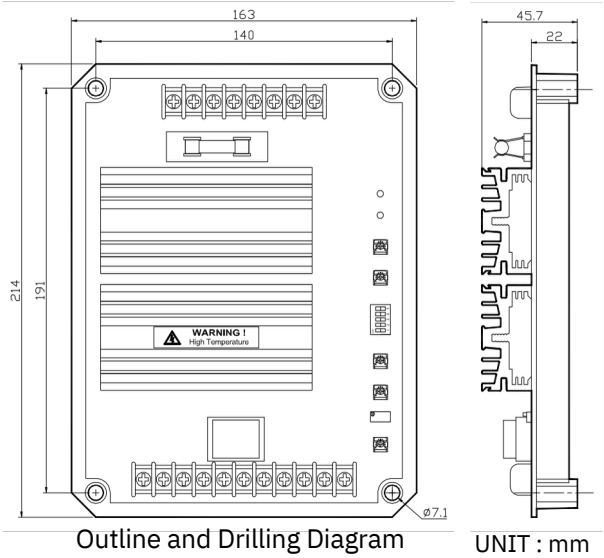
Max. 12 watt

**Dimensions**

214mm L * 163mm W * 45.7mm H

**Weight**

1130g ± 2%




Outline and Drilling Diagram
UNIT : mm

**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, please see Figure 1.

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

3.Secure all wiring connection. Do not install AVR at a place with high vibrations to prevent loose connections. For safety do not touch the heat sink while in operation.

4.Fuse specification: 12.5A/500V VF blow type.

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## 3.DIP SWITCH ADJUSTMENT (SW)

| SW \ KW | <90KW | 90~500KW | >500KW |
|---|---|---|---|
| 1 | OFF | OFF | ON |
| 2 | | | |

| SW | ON | OFF |
|---|---|---|
| 3 | O/E Deactivated | O/E Activated |
| 4 | 50Hz | 60Hz |
| 5 | 440V | 220V |

**ATTENTION**

**When 60Hz frequency setting is selected on a 50Hz generator, it could result in under voltage.**

**When 50Hz frequency setting in selected on a 60Hz generator, it could result in over excitation current when stopping the generator and cause sever damage to the generator or AVR.**

**After adjusting SW1 or 2, the STAB must be recalibrated to ensure maximum performance.**

**All adjustment of SW must be conducted when engine is not in operation.**

## 4. ADJUSTMENT

### 4.1 VOLT

- Voltage setting adjusting the genset rated output vo ltag e.
- When SW5 is “OFF” (220V) adjustable range is 175 ~ 260VAC.
- When SW 5 is “ON” (440V) adjustable range is 350 ~ 520VAC.
- When terminal 7 & 4 are bridged together, Volt adjust is done only on the regulator VOLT pot. But when using a external 10k volt pot connect to terminals 7 & 6a and opening terminals 7 & 4 makes the pot on the regulator useless.

**ATTENTION**

**AVR AC voltage readings are all average value.**

### 4.2 STAB

- Adjust STAB fully clockwise, the generator voltage will begin to fluctuate, whereas if adjust fully counterclockwise the voltage becomes stable.
- The correct stability setting is at a knee point, where the voltage is stable yet on the brink of becoming unstable.
- If Stability is over adjusted, it can result in high voltage fluctuation when load is connected.

### 4.3 U/F

Under frequency protection adjustment. When generator frequency falls below the knee point, the under frequency protection circuit will begin to intervene and voltage and frequency begin to decrease in linear descend. Coordinate with the DIP switch SW4 frequency selection 50/60Hz.

When selecting 50Hz the adjustable range is from 40 to 51Hz and the factory presets at 47Hz.

When selecting 60Hz the adjustable range is from 50 to 61Hz and the factory presets at 57Hz.

### 4.4 U/F LED

When under frequency protection is activated, the RED LED will light up.

### 4.5 DIP

When under frequency protection is activated, the voltage droop ratio is adjusted via the DIP VR. The adjustable range is 3 ~ 10 V/Hz.

### 4.6 DROOP

Droop adjustment. When paralleling, the AVR compensate the input rating and voltage shifting

basis on load current, through internal