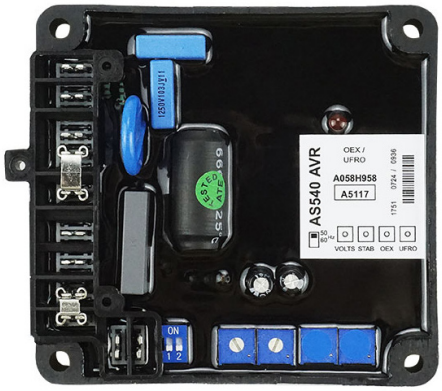
AS540 Voltage Regulator

AS540 is a half wave phase controlled thyristor type AVR and forms part of the excitation system for a brushless generator. The design employs Surface Mount Technology (SMT) for high integration of features in a small footprint AVR.



Voltage Adjustment

The screwdriver adjustable potentiometer adjusts the generator output voltage. Adjustment clockwise increases the generator output voltage.

When using a remote voltage adjust rheostat, remove the jumper wire across terminals 1 and 2 and install a 1k ohm 1 watt rheostat. This will give ±10% voltage variation from the nominal.

Stability Adjustment

The AVR includes a stability or damping circuit to provide good steady state and transient performance of the generator.

A switch is provided to change the response of the stability circuit to suit different frame size generators and applications.

The correct setting of the Stability adjustment can be found by running the generator at no load and slowly turning the stability control anti-clockwise until the generator voltage starts to become unstable.

The optimum or critically damped position is slightly clockwise from this point (i.e. where the machine volts are stable but close to the unstable region).

Under Frequency Roll Off (UFRO) Adjustment

The AVR incorporates an underspeed protection circuit which gives a volts/Hz characteristic when the generator speed falls below a presettable threshold known as the “knee” point.

The red Light Emitting Diode (LED) gives indication that the UFRO circuit is operating.

The UFRO adjustment is preset and sealed and only requires the selection of 50/60Hz using the jumper link.

For optimum setting, the LED should illuminate as the frequency falls just below nominal, i.e. 47Hz on a 50Hz system or 57Hz on a 60Hz system.

Specifications

Sensing Input	
Voltage	190VAC to 265VAC 1 phase
Frequency	50-60 Hz Nominal
Power Input	
Voltage	95 to 265VAC 1 phase
Frequency	50 to 60 Hz Nominal
Power Output	
Voltage	95 to 265VAC 1 phase only
Current	Continouous 4A Transient 7.5A for 10 secs
Resistance	15 ohms Minimum
Regulation +/- 1.0%	
Thermal Drift	
0.03% per 1ºC change in AVR ambient temperature	
Typical System Response	
AVR Response	20 ms
Field Current to 90%	80 ms
Machine Volts to 97%	300 ms
External Voltage Adjustment +/-10% with 1k ohm 1 watt trimmer	
Under Frequency Protection	
Set Point	95 to 98% Hz
Unit Power Dissipation 12 watts Maximum	
Build-up Voltage Required	
AVR Terminals	5VAC
Over-Voltage Detection	
Set Point	65VDC
Time Delay	10 to 15 seconds (Fixed)