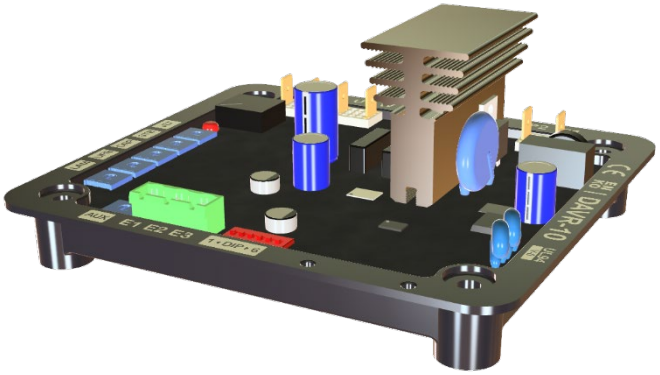
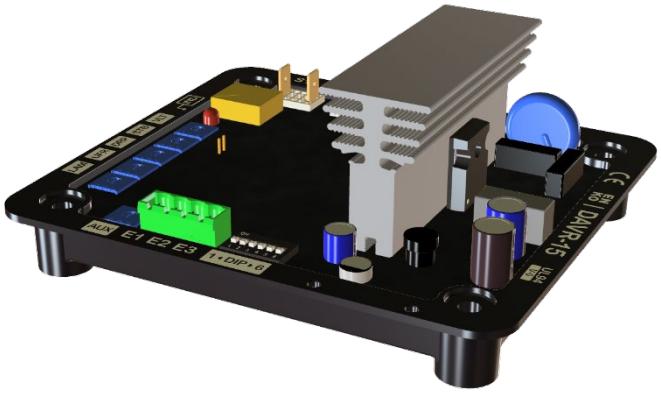
Digital Voltage Regulators





DAVR-10

DAVR-15

Digital Voltage Regulators for Synchronous Alternators

Product Description:

AVR10 and AVR15 are designed as **"Automatic Voltage Regulators"** for synchronous alternator applications to regulate the stator voltage of the alternator, according to applied load.

These AVR units are aimed for applications, where high-performance is required with relatively low part cost investment, with superior characteristics compared to the classic Analogue AVR units. The FIELD drive stage can feed 5Adc (DAVR-10) or 10Adc (DAVR-15) continuous EXCITATION current, which improves dynamic performance of the generator. Alternator stability is digitally controlled over a wide range of load harmonics and can increase efficiency at the customer site.

Voltage regulation is also better compared to the analogue AVR units. The voltage sensing circuit measures and calculates the TRUE RMS value of the input sense terminals and this results in better voltage regulation at high harmonic distorted load conditions, especially with inverter type switching loads.

One of the main advantages of DAVR1x series regulators is the high BLOCK-LOAD handling capability (LAM function), which calculates the loading behaviour of the prime-mover from the frequency value and sets the conditions for the engine to recover faster from the low-speed state. This feature allows the generator manufacturer to down-size the prime mover to handle the same amount of load with analogue AVR units.

These AVR units can also be used for parallel applications, with an excellent performance in sharing the reactive load content between the generators. This allows quicker commissioning in the field when generators are connected in parallel. Reactive load sharing can also be controlled via the analogue inputs of the AVR. For custom OEM applications, the AVR characteristics can be modified according to specific customer requirements.

MAIN FEATURES:

- Digitally control platform for high performance,
- Continuous Excitation drive capability, in excess of 5Adc and 10Adc,
- Integrated LAM function control to improve BLOCK-LOAD handling capability of the generator,
- TRUE RMS sense voltage measurement for precise voltage regulation in high-harmonic distorted load conditions,
- 2-phase and 3-phase sensing capability,
- AUXILIARY analogue inputs for external control of AVR functions,
- Excellent stability control through digital signal processing,
- Secure fast-on terminals for power connections,
- Encapsulated construction for extreme environmental operating conditions,
- Construction is resistant to high vibration mounting,
- CE compliant for EMC emissions,
- UL compliant safety standards,
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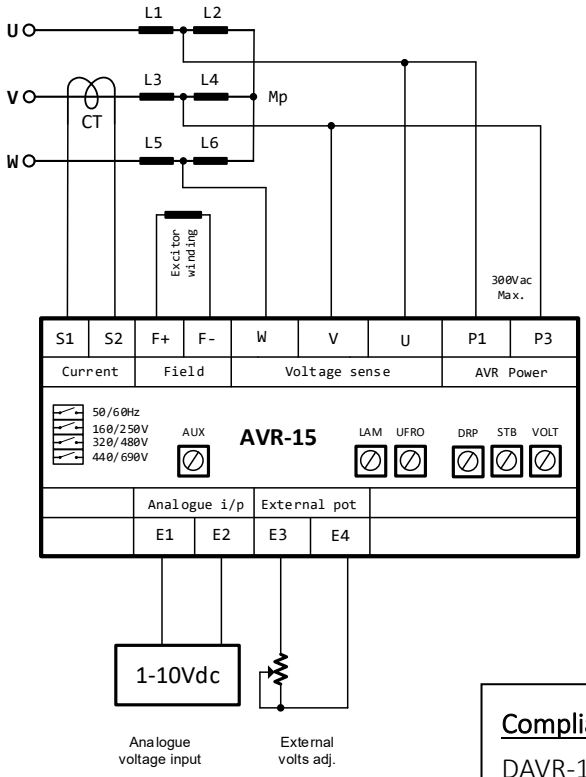
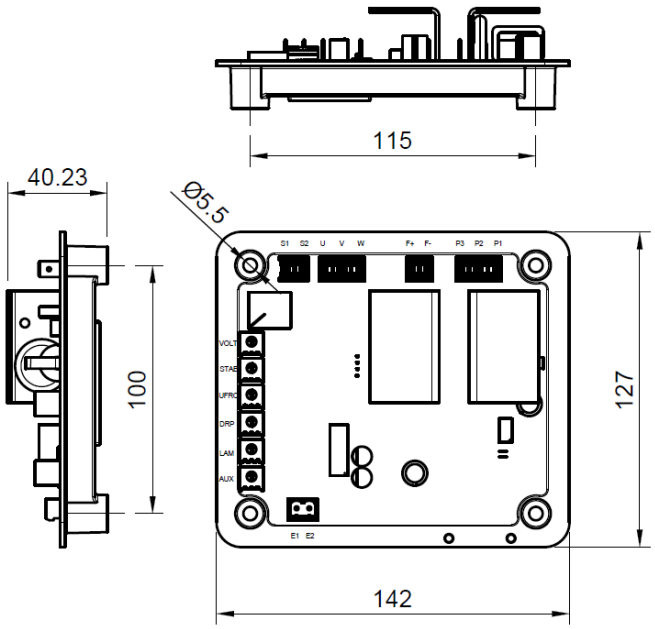
Technical Specifications

Technical Specifications	Value	Description
Sensing voltage range:	120Vac to 576Vac	3-phase (DAVR-15) / 2-phase (DAVR-10) connection
Power connection to AVR:	Shunt / Auxiliary	300Vac maximum limit
Voltage regulation:	<0.5%	No-load to full load, PF>0.8 and ΔT<40°C
Voltage sensing type:	TRUE RMS calculation, capable of operation with high harmonic loads	
Operating frequency:	45Hz to 70Hz	
Operating temperature range:	-35°C to +60°C	30%RH to 95%RH non-condensing
Voltage adjustment:	On-board trimmer	±20% of selected voltage range
	External pot trimming	±10% of set voltage value
	AUX input signal	±15% of set voltage value
Current sensing:	X/5 Class-1 CT (on-board)	Single-phase sensing, fitted on alternator phase-V
CT burden:	1VA (3VA maximum load)	
Excitation current:	5.0Adc continuous	Rated for DAVR-10 model
	6,25Adc 120 seconds	
	7.0Adc for 10 seconds	
Excitation current:	10.0Adc continuous	Rated for DAVR-15 model
	12.5Adc for 120 seconds	
	14.0Adc for 10 seconds	
FIELD impedance range:	5Ω to 50Ω	15Ω nominal winding impedance
AUX. signal input:	Analogue voltage input, External pot input	
LAM function:	BLOCK-LOAD acceptance limit setting with integrated comprehensive algorithm,	
Protection functions:	UFRO	Under Frequency Roll off protection
	LOS	Loss of sensing voltage protection
	OEX	Over Excitation protection
EMC Compliance:	EN61000-6-2/4 EN6068-1-2-14-30 UL94 V2 flammability safety compliance	
Enclosure protection class:	Electronic components protected with PU encapsulation	
Overall dimensions:	142x127x58 mm	
Weight:	220gr	

Connection Diagram:



Mechanical Dimensions:



UL94 V-2

Compliance:

DAVR-10 and DAVR-15 are tested and compliant to CE regulations for emitted and conducted RFI interference, according to EN61000-6-4. Immunity is tested against EN61000-6-2. Vibration: EN60068-6-2 Dielectric strength: IEC255, Flammability: UL94, Safety: UL508