

# DSEA109

## DIGITAL AUTOMATIC VOLTAGE REGULATOR (AVR) WITH CAN COMMUNICATIONS & PMG



### KEY FEATURES

- Power input compatible with 3-phase PMG, single phase PMG, auxiliary and shunt windings.
- 3-phase or single phase generator output voltage sensing.
- CAN port providing J1939 communications.
- Soft start ramping.
- Under Frequency Roll Off (UFRO) protection with optional instantaneous step.
- Loss of voltage sensing protection.
- Over excitation protection.
- Remote voltage adjustment.
  - 5 kΩ potentiometer with open circuit protection.
  - -10 V DC to 10 V DC.
- DIP switch selection for 6 configurations and 2 stability ranges.
- Potentiometer adjustment for voltage set points, droop, UFRO, proportional and integral gain.
- LED indication for fault and operating status.
- Configurable via DSE Configuration Suite PC software connected via the DSE815 configuration interface.
- Chassis mountable potted enclosure.
- Spade terminals for simple connection.

### KEY BENEFITS

- Digital electronics ensures a smooth, stable, regulated AC output voltage from the alternator.
- Configurable to suit a wide range of alternators with auxiliary winding or shunt power supplies as well as PMG.
- Suitable for generator synchronising and load sharing applications with connections for a quadrature droop CT and remote voltage adjustment.
- Compatible with all DSE synchronising and load sharing controllers.
- Licence-free PC software
- Comprehensive PC configuration using the DSE Configuration Suite PC Software and the DSE815 Configuration Interface.
- Simple to use with onboard set up using a combination of DIP switches and potentiometers.
- Communicates with 3rd party equipment using J1939 communications.

### RELATED MATERIALS

TITLE	PART NO.
DSEA109 Installation Instructions	053-245
DSEA109 Operator Manual	057-295
DSEA109 Configuration Suite PC Software Manual	057-294
DSE815 Datasheet	055-225

### SPECIFICATION

#### POWER SUPPLY

**VOLTAGE RANGE**  
100 V AC to 270 V AC (Ph to N & Ph to Ph)

#### FREQUENCY RANGE

40 Hz to 400 Hz

#### ALTERNATOR OUTPUT SENSING

##### VOLTAGE RANGE

15 V AC to 600 V AC (Ph to N & Ph to Ph)

#### FREQUENCY RANGE

40 Hz to 65 Hz

#### EXCITATION OUTPUT

##### EXCITER FIELD WINDING

**IMPEDANCE**  
5 Ω to 50 Ω

#### CONTINUOUS VOLTAGE RATING

0 V DC to 100 V DC

#### CONTINUOUS CURRENT RATING

0 A DC to 7 A DC

#### MAXIMUM CURRENT RATING

15 A DC for 10 seconds

#### QUADRATURE DROOP CT

**MAXIMUM SECONDARY CURRENT**  
5 A AC

#### BURDEN

0.25 VA

#### ACCURACY

1%

#### REMOTE VOLTAGE ADJUSTMENT

**POTENTIOMETER**  
5 kΩ

#### VOLTAGE INPUT

-10 V DC to 10 V DC

#### DIMENSIONS

##### OVERALL

180mm x 145 mm x 61 mm  
7.0" x 5.7" x 2.4"

#### STORAGE TEMPERATURE RANGE

-40 °C to +85 °C  
-40 °F to +185 °F

#### OPERATING TEMPERATURE RANGE

-40 °C to +70 °C  
-40 °F to +158 °F

#### WEIGHT

0.46 kg.

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# DSEA109

## DIGITAL AUTOMATIC VOLTAGE REGULATOR (AVR) WITH CAN COMMUNICATIONS & PMG

The DSEA109 Digital Automatic Voltage Regulator (AVR) with CAN is designed to regulate the output voltage of an AC alternator. The DSEA109 is supplied by either a 3 phase PMG, single phase PMG, stator auxiliary winding or a shunt system taking power from the output windings.

The DSEA109 eliminates the complexities involved with analogue AVR designs. Analogue AVR designs can be over sensitive to changes in temperature which affects stability whereas the DSEA109 AVR maintains a smooth, stable regulated AC output voltage, regardless of the electrical load connected. The DSEA109 also features 3-phase sensing for better regulation.

The DSEA109 is simple to install and set up using either the DSE Configuration Suite PC Software and the DSE815 configuration interface or five onboard potentiometers and 4 DIP switches, combined with a status LED providing a simple user interface.

The DSEA109 Digital AVR has numerous advanced features such as a CAN port providing J1939 communications, soft start ramping, connection for a quadrature droop CT and the ability to perform remote voltage adjustment, making it perfect for synchronising and load sharing applications.

The DSEA109 Digital AVR is an ideal option for both OEM and retro-fit solutions.

### ENVIRONMENTAL TESTING STANDARDS

#### ELECTRO-MAGNETIC COMPATIBILITY

BS EN 61000-6-2  
EMC Generic Immunity Standard for the Industrial Environment  
BS EN 61000-6-4  
EMC Generic Emission Standard for the Industrial Environment

#### ELECTRICAL SAFETY

BS EN 60950  
Safety of Information Technology Equipment, including Electrical Business Equipment

#### TEMPERATURE

BS EN 60068-2-1  
Ab/Ae Cold Test -30 °C  
BS EN 60068-2-2  
Bb/Be Dry Heat +70 °C

#### VIBRATION

BS EN 60068-2-6  
Ten sweeps in each of three major axes  
5 Hz to 8 Hz at +/-7.5 mm,  
8 Hz to 500 Hz at 2 gn

#### HUMIDITY

BS EN 60068-2-30  
Db Damp Heat Cyclic 20/55 °C at 95% RH 48 Hours  
BS EN 60068-2-78  
Cab Damp Heat Static 40 °C at 93% RH 48 Hours

#### SHOCK

BS EN 60068-2-27  
Three shocks in each of three major axes  
15 gn in 11 ms

## COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF ALTERNATOR MANUFACTURERS

