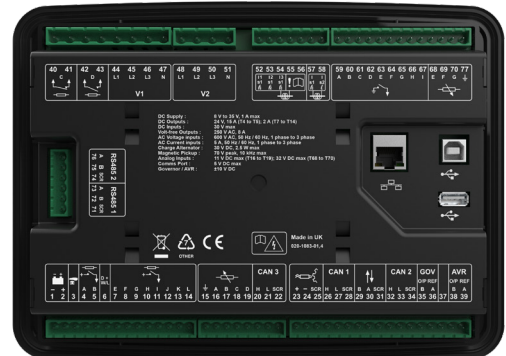




DSEG8500 Standard Parallel Genset Controller

Part Number: G8500-01



Overview

The DSEG8500 is a parallel genset controller with integral heater designed for complex paralleling applications. The DSEG8500 can be configured to provide paralleling for up to 64 generators on a single site and provides a wide range of high-end features for multiple application environments. The module is configurable for use as a single-set controller or multi-set controller, and can be used with the DSEG8600 configured as a multi-set or mains (utility) controller.

Common Key Features

- 2 module applications in one product (single-set or multi-set)
- Flexible bus segments
- Slip sync synchronising control
- Advanced multi-set communication (AMSC) link with optional redundancy
- Shared virtual inputs, outputs and data via AMSC
- Advanced PLC functionality including multi-purpose PIDs
- Flexible inputs and outputs
- DSENet® expansion support
- PC configuration using DSE Configuration Suite
- Multiple language support
- Enhanced 6-line high-resolution heated display (240 px x 128 px) with on screen application diagrams
- Integrated gasket (IP65 protection)
- 2 integrated RS485 ports providing Modbus RTU support
- Integrated Ethernet port providing Modbus TCP and SNMP v2c support
- Data logging of up to 20 parameters
- Multi-level PIN protected front panel editor
- Manual front panel and automatic control modes

Product Approvals

- + CE
- + UL Listed: Standard - UL 6200:2019

Product Documentation

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057-382 – DSEG8500 Configuration Suite PC Manual



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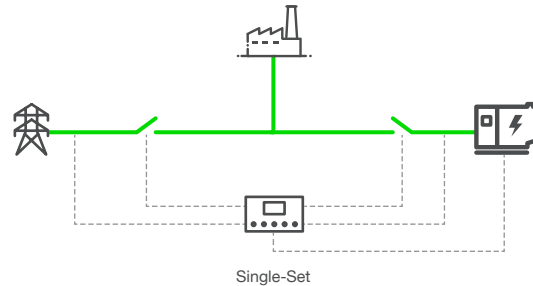
DSEG8500 Standard Parallel Genset Controller

Part Number: G8500-01

Single-Set Controller Key Features

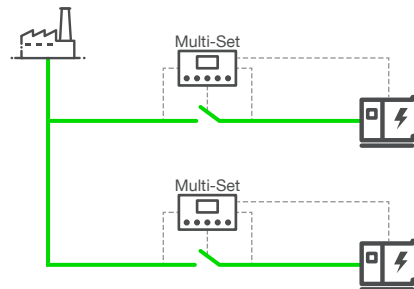
- Single generator, single mains (utility), synchronising ATS with short / long-term parallel control
- 3 phase generator and mains (utility) sensing with protection
- Mains (utility) failure detection including mains (utility) decoupling detection
- Based load and peak lopping / shaving control
- Latest ECU / ECM support for a wide range of engine manufacturers
- Integrated governor and AVR control
- Mains (utility) and generator positive, negative and zero voltage sequence alarms

Typical Applications



Multi-Set Controller Key Features

- Multiple generator synchronising and droop / isochronous loadsharing control
- 3 phase generator and bus sensing with protection
- Latest ECU / ECM support for a wide range of engine manufacturers
- Advanced load demand schemes including spinning reserve / capacity and balance engine hours
- Integrated governor and AVR control
- Dead bus synchronising
- Generator and bus positive, negative and zero voltage sequence alarms



*When used with multi-set controllers

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**DSEG8500** Standard Parallel Genset Controller

Part Number: G8500-01

Specifications	
DC Supply	
Continuous Voltage Rating	8 V to 35 V DC continuous
Cranking Dropouts	Able to survive 0 V for 100 ms, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. Backlight will not be maintained during cranking.
Maximum Operating Current	700 mA at 12 V, 350 mA at 24 V
Maximum Standby Current	350 mA at 12 V, 190 mA at 24 V
Charge Alternator Excitation / Fail Range	0 V to 35 V
Voltage Measurement	
Number	2
Measurement Inputs	3 Phase + Neutral Single-Set Controller: Generator and Mains (Utility) Multi-Set Controller: Generator and Bus
Voltage Range	15 V to 415 V Phase to Neutral 25 V to 719 V Phase to Phase
Voltage Accuracy	±0.3 % Phase to Neutral ±0.6 % Phase to Phase
Frequency Range	3.5 Hz to 75 Hz
Frequency Accuracy	±0.01 Hz
Current Transformer Measurement	
Number	5
Measurement Inputs	3 Phase with Earth Fault, and Single Phase Single-Set Controller: 3 Phase Generator Current with Earth Fault Current + Single Phase Mains (Utility) Current Multi-Set Controller: 3 Phase Generator Current with Earth Fault Current
Current Range	0 A to 1 A 0 A to 5 A
Accuracy	±1% of Nominal (excl. CT error)

Product Documentation

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**DSEG8500** Standard Parallel Genset Controller

Part Number: G8500-01

Specifications	
Analogue Inputs	
Number	7
Type	Negative Switching Digital Input, Resistive Analogue Input, Current Analogue Input or Voltage Analogue Input
Digital Input Closed Voltage Threshold	Less than 2.1 V
Digital Input Open Voltage Threshold	Greater than 6.6 V
Resistive Analogue Measurement Range	Input A: 0 Ω to 3 k Ω Input B to G: 0 Ω to 5 k Ω
Current Analogue Measurement Range	0 mA to 20 mA
Voltage Analogue Measurement Range	Input A to G: 0 V to 10 V Input E to G: 0 V to 32 V
Analogue Resolution	1 %
Analogue Accuracy	2 %
Digital Inputs	
Number	9
Type	Negative Switching Digital Input
Closed Voltage Threshold	Less than 2.1 V
Open Voltage Threshold	Greater than 6.6 V
Emergency Stop Input	
Number	1
Type	Positive Switching Digital Input
Closed Voltage Threshold	Greater than 5.0 V
Open Voltage Threshold	Less than 3.0 V
Magnetic Pick-up Input	
Voltage Input Range	0.5 V _{Peak} to 70 V _{Peak}
Frequency Input Range	1 Hz to 10 kHz
Resolution	6.25 RPM
Accuracy	± 25 RPM

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**DSEG8500** Standard Parallel Genset Controller

Part Number: G8500-01

Specifications	
Analogue Outputs	
Number	2
Type	Current Analogue Output or Voltage Analogue Output
Function	Governor and AVR control
Current Analogue Range	0 mA to 20 mA
Voltage Analogue Range	-10 V to 10 V
Analogue Resolution	1 %
Load Impedance	Current Analogue Output: Maximum 500 Ω Voltage Analogue Output: Minimum 500 Ω
Isolation	Governor: ± 1 kV AVR: ± 3 kV
Digital Outputs	
Number	12
Type	1 Normally Open Volt-Free Contacts 1 Normally Closed Volt-Free Contacts 10 Positive Switching DC Output
Volt-Free Contact Output Rating	5 A _{DC} resistive at 30 V _{DC} 8 A _{AC} resistive at 250 V _{AC}
Positive DC Output Rating	Output A to B (Fuel and Start): 15 A _{DC} at Emergency Stop input supply voltage Output E to L: 2 A _{DC} at module supply voltage

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**DSEG8500** Standard Parallel Genset Controller

Part Number: G8500-01

Specifications	
Communications	
USB A	1 Data Storage Port
USB B	1 Programming Port
DSENet®	1 Expansion Port
RS485	2 Fully Isolated RS485 Ports
Ethernet	1 10/100 Ethernet Port
CAN	3 Fully Isolated CAN Ports Single-Set Controller: CAN 1 – Engine ECU/ECM CAN 2 – Not Used CAN 3 – Not Used Multi-Set Controller: CAN 1 – Engine ECU/ECM CAN 2 – AMSC CAN 3 – Redundant AMSC
Temperature	
Operating Temperature	-40 °C to +70 °C / -40 °F to +158 °F
Storage Temperature	-40 °C to +85 °C / -40 °F to +185 °F
Dimensions	
Overall (W x H x D)	248.0 mm x 182.6 mm x 45.2 mm / 9.77 " x 7.19 " x 1.78 "
Mounting	
Type	Panel Fascia Mounting
Panel Cut-Out (W x H)	220 mm x 160 mm / 8.66 " x 6.3 "
Maximum Panel Thickness	8 mm / 0.31"

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**DSEG8500** Standard Parallel Genset Controller

Part Number: G8500-01

Related Products		
DSEgenset®		
DSEG8900	7" Colour Parallel Genset Controller	G8900-01
DSEG8680	Bus Tie Controller	G8680-01
DSEG8660	Mains (Utility) Controller	G8660-01
DSEG8600	Parallel Genset Controller with Integral Heater	G8600-01
DSEG8015	15" Panel PC with DSE SCADA	G8015-01
DSEG0123	Analogue Load Share Lines Interface	G0123-01
DSENet®		
DSE2548	DSENet® LED Output Expansion Module	2548-01
DSE2170	DSENet® RTD / Thermocouple Input & Analogue Output Expansion Module	2170-01
DSE2160	DSENet® Input / Output Expansion Module	2160-01
DSE2157	DSENet® Output Expansion Module	2157-01
DSE2152	DSENet® Analogue Output Expansion Module	2152-01
DSE2133	DSENet® RTD/Thermocouple Input Expansion Module	2133-01
DSE2131	DSENet® Ratiometric Input Expansion Module	2131-01
DSE2130	DSENet® Input Expansion Module	2130-00
DSEWebNet®		
DSE890 MKII	DSEWebNet® Gateway / IoT Gateway - 4G (GSM/Ethernet)	0890-04
DSE891 MKII	DSEWebNet® / IoT Gateway - Ethernet Only	0891-04
Remote Monitoring Control		
DSE SCADA	DSE Paralleling SCADA	037-060

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Part Number: G8500-01

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 61010	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% Relative Humidity 48 Hours
BS EN 60068-2-78	Cab Damp Heat Static 40 °C at 93% Relative Humidity 48 Hours
Shock	
BS EN 60068-2-27	Three shocks in each of three major axes 15 Gn in 11 ms
Degrees of Protection Provided by Enclosures	
BS EN 60529	IP65 - From the front of the module when installed into a control panel (Integrated Gasket)

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DSEG8500 Standard Parallel Genset Controller

Part Number: G8500-01

Single-Set Controller	
Pin	Description
1 to 2	DC Supply
3	Emergency Stop
4	Fuel
5	Start
6	Charge Alternator
7 to 14	Digital Outputs
15 to 19	Analogue Inputs
20 to 22	Not Applicable
23 to 25	Magnetic Pick-Up
26 to 28	Engine ECU/ECM
29 to 31	DSENet®
32 to 34	Not Applicable
35 to 36	Governor Control
37	Not Applicable
38 to 39	AVR Control
40 to 41	Normally Closed Volt Free Output
42 to 43	Normally Open Volt Free Output
44 to 47	Generator Voltage Sensing
48 to 51	Mains (Utility) Voltage Sensing
52 to 56	Generator Current Sensing
57 to 58	Mains (Utility) Current Sensing
59 to 67	Digital Inputs
68 to 70 & 77	Analogue Inputs
71 to 76	2 x RS485

Multi-Set Controller	
Pin	Description
1 to 2	DC Supply
3	Emergency Stop
4	Fuel
5	Start
6	Charge Alternator
7 to 14	Digital Outputs
15 to 19	Analogue Inputs
20 to 22	Redundant AMSC Link
23 to 25	Magnetic Pick-Up
26 to 28	Engine ECU/ECM
29 to 31	DSENet®
32 to 34	AMSC Link
35 to 36	Governor Control
37	Not Applicable
38 to 39	AVR Control
40 to 41	Normally Closed Volt Free Output
42 to 43	Normally Open Volt Free Output
44 to 47	Generator Voltage Sensing
48 to 51	Bus Voltage Sensing
52 to 56	Generator Current Sensing
57 to 58	Not Applicable
59 to 67	Digital Inputs
68 to 70 & 77	Analogue Inputs
71 to 76	2 x RS485

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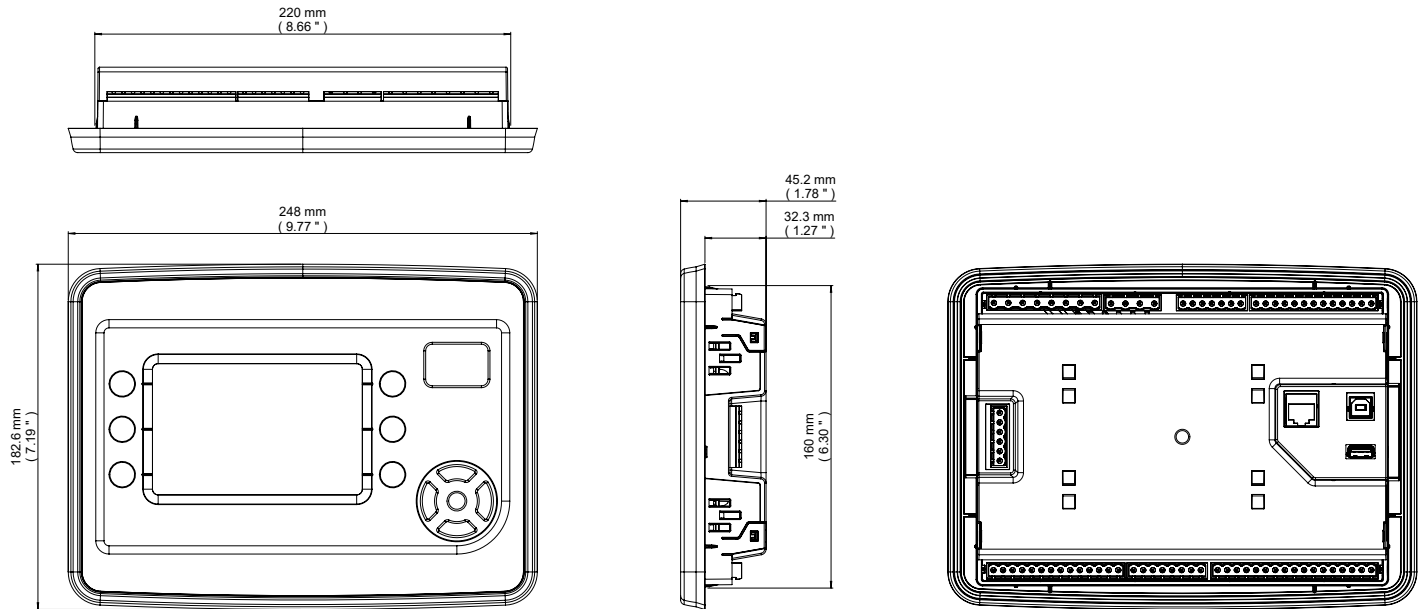
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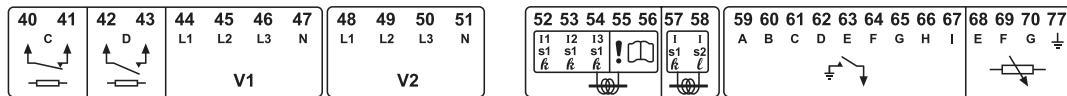
DSEG8500 Standard Parallel Genset Controller

Part Number: G8500-01

Technical Drawing



Connection Diagram

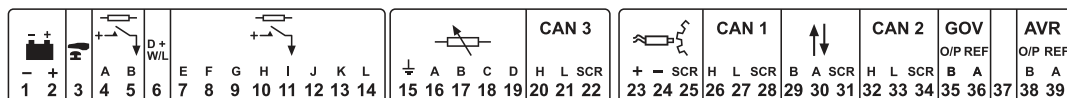


RS485 2	RS485 1
A B SCR A B SCR	A B SCR A B SCR
76 75 74	73 72 71

DC Supply : 8 V to 35 V, 1 A max
DC Outputs : 24 V, 15 A (T4 to T5); 2 A (T7 to T14)
DC Inputs : 30 V max
Volt-free Outputs : 250 V AC, 8 A
AC Voltage inputs : 600 V AC, 50 Hz / 60 Hz, 1 phase to 3 phase
AC Current inputs : 5 A, 50 Hz / 60 Hz, 1 phase to 3 phase
Charge Alternator : 30 V DC, 2.5 W max
Magnetic Pickup : 70 V peak, 10 kHz max
Analog Inputs : 11 V DC max (T16 to T19); 32 V DC max (T68 to T70)
Comms Port : 5 V DC max
Governor / AVR : ± 10 V DC



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020-1083-01,4



Refer to PIN out description charts for connection information on the operating mode controller is configured for.

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