

DSE G8600

Parallel Genset Controller with Integral Heater

Part Number: G8600-01



Description

The G8600 is a parallel genset controller with integral heater designed for complex paralleling applications. The G8600 can be configured to provide paralleling for up to 4,032 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, multi-set controller, mains (utility) controller or group controller.

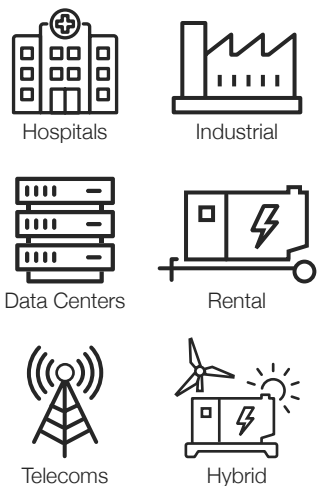
Key Features

- Multiple bus sectioning
- Group controller functionality
- Spinning reserve
- Load demand schemes
- Advanced MSC link (AMSC)
- Advanced PLC functionality
- Multi-purpose PIDs
- Phase locking
- Virtual inputs
- On-screen mimic (SLDs)
- Multiple application support
- Multi-level pin protected front panel editor
- Integral LCD display heater
- Enhanced high-resolution 240 x 128 pixel display
- Single or multiple generator control
- Latest ECU / ECM support
- Load sharing & VAr sharing
- Virtual shared inputs, outputs and data via AMSC
- Touch screen panel PC support (DSE SCADA)
- Zero sequence voltage protection
- Integral gasket (IP65 protection)

Features

- Built-in governor & AVR control
- DSE digital AVR support
- Base load (kW export) control
- Positive & negative kVAr export control
- Dead bus synchronising
- Mains (utility) decoupling protection
- Multiple language support
- 3-phase generator sensing & protection
- 3-phase mains (utility) sensing
- 3-phase bus sensing
- Mains (utility) failure detection
- Generator current, protection & power monitoring
- Configurable timers
- Integrated SNMP
- Data logging
- PC configuration
- DSENet® (Expansion support)
- Flexible I/O (inputs/outputs)
- Automatic and front panel breaker control
- Power-save mode

Key Applications



Product Documentation

Title	Part No.
DSEG8600 Installation Instructions	053-256
DSEG8600 Operator Manual	057-323
DSEG8600 Configuration Suite PC Manual	057-322

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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. LEDs and 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 Fail Excitation Range	0 V to 35 V
Real Time Clock Battery	Not replaceable
Voltage Measurement	
Measurement Inputs	3 ph + N
Measurement Range	15 V to 415 V (L-N) / 25 V - 719 V (Ph-Ph)
Accuracy	1% full scale
Frequency Range	3.5 Hz to 75 Hz
Input Impedance	450 K L-L
Current Measurement	
Measurement Inputs	3-phase & neutral
Measurement Range	0-1 A, 0-5 A
Max Allowed Continuous Current	5 A
Accuracy	1% full scale
Input Impedance	0.02 R
Inputs	
Analogue	4 sender inputs configurable 1 x 0-3 K, 3 x 0-5 K
Digital (Flexible)	3 configurable, active low / active high, 0-3 K resistance, 0-10 V, 0-32 V, 0-20 mA
Digital	9 active low digital outputs
Type	Standard senders with floating common, digital flex use system ground with separate return terminal
Resolution	1 R, 0.1 V, 0.1 mA
Accuracy	1% full range
Outputs	
Analogue	Governor / AVR configurable ± 10 V, ± 20 mA
Digital	Fuel / crank protected FET output 15 A
Auxiliary	8 protected FET @ 2 A
Switching To	Plant supply
Volt-Free Contact	2 volt-free contacts (C & D) 8 A at 250 V AC
AVR Governor Control	
Minimum Load Impedance	Voltage mode minimum = 500 R, Current mode max = 500 R
Gain Voltage	0-10 V, 0-20 mA configurable
Offset Voltage	0-10 V, 0-20 mA configurable

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Specifications	
Magnetic Pick-Up	
Voltage Input Range	0.5 V to 70 V RMS
Frequency Input Range	1 Hz to 10 KHz
Frequency Measurement Tolerance	Better than 0.1%
Communications	
RS485	Fully isolated x 2
Ethernet	10/100 Ethernet Port
USB A	1 x storage device
USB B	1 x non isolated host / programming
CAN	Fully isolated x 3
Temperature	
Operating Temperature	-30° C to +70° C / -22° F to +158° F
Storage Temperature	-40° C to +85° C / -40° F to +185° F
Dimensions	
Overall (W x H x D)	248 mm x 182.6 mm x 45.2 mm / 9.77" x 7.19" x 1.78"
Panel Cut-Out (W x H)	220 mm x 160 mm / 8.66" x 6.3"
Maximum Panel Thickness	8 mm / 0.31"

Related Products		
Controllers		
G8660	ATS / Mains (Utility) Controller	G8660-01
G8680	Bus Tie Controller	G8680-01
G8900	7" Colour Parallel Genset Controller	G8900-01
Remote Displays		
G8015	15" Panel PC with DSE SCADA	G8015-01
G8021	21" Panel PC with DSE SCADA	G8021-01
Expansion Devices		
G0123	Analogue Load Share Lines Interface	G0123-01
DSE2130	DSENet® Input Expansion Module	2130-01
DSE2131	DSENet® Ratiometric Input Expansion Module	2131-01
DSE2133	DSENet® RTD/Thermocouple Input Expansion Module	2133-01
DSE2152	DSENet® Analogue Output Expansion Module	2152-01
DSE2157	DSENet® Output Expansion Module	2157-01
DSE2160	Bi-Directional DSENet® Expansion Module	2160-01
DSE2170	Thermocouple DSENet® Expansion Module	2170-01
DSE2548	DSENet® LED Output Expansion Module	2548-01
Remote Communications		
DSE890 MKII	DSEWebNet® Gateway	0890-04

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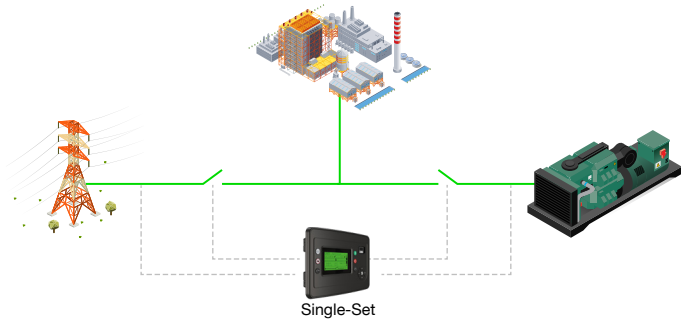
Parallel Genset Controller with Integral Heater

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% 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
Degrees of Protection Provided by Enclosures	
BS EN 60529	IP65 - Front of module when installed into the control panel (Integrated Gasket)

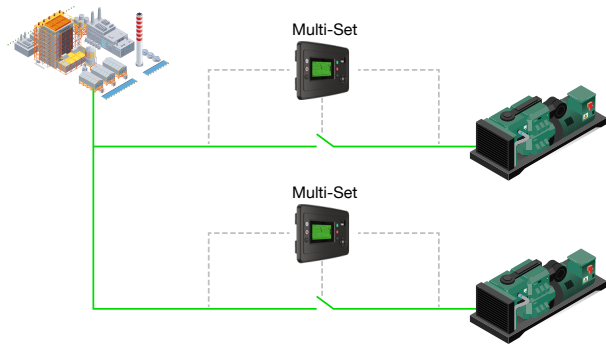
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Typical Applications

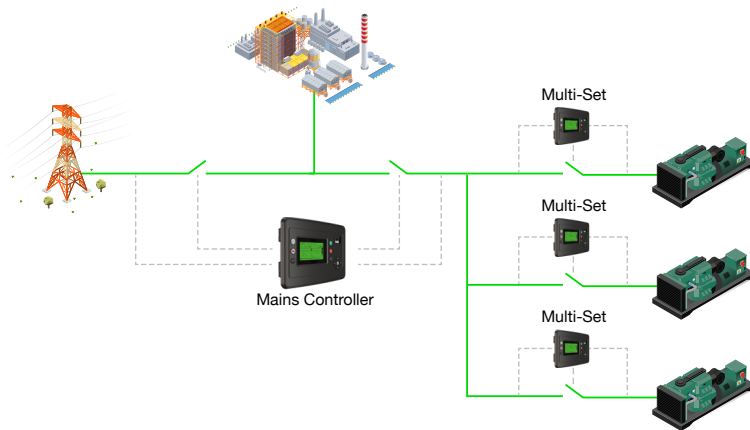
Single-Set (to mains/utility)



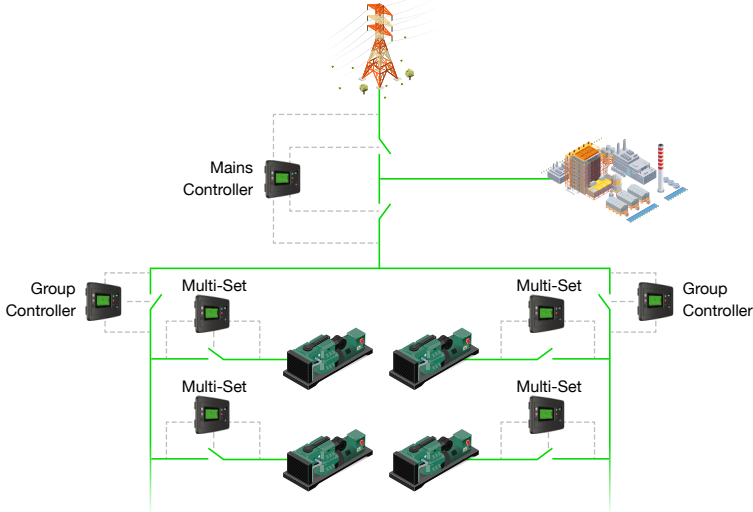
Multi-Set



Mains (Utility) Controller

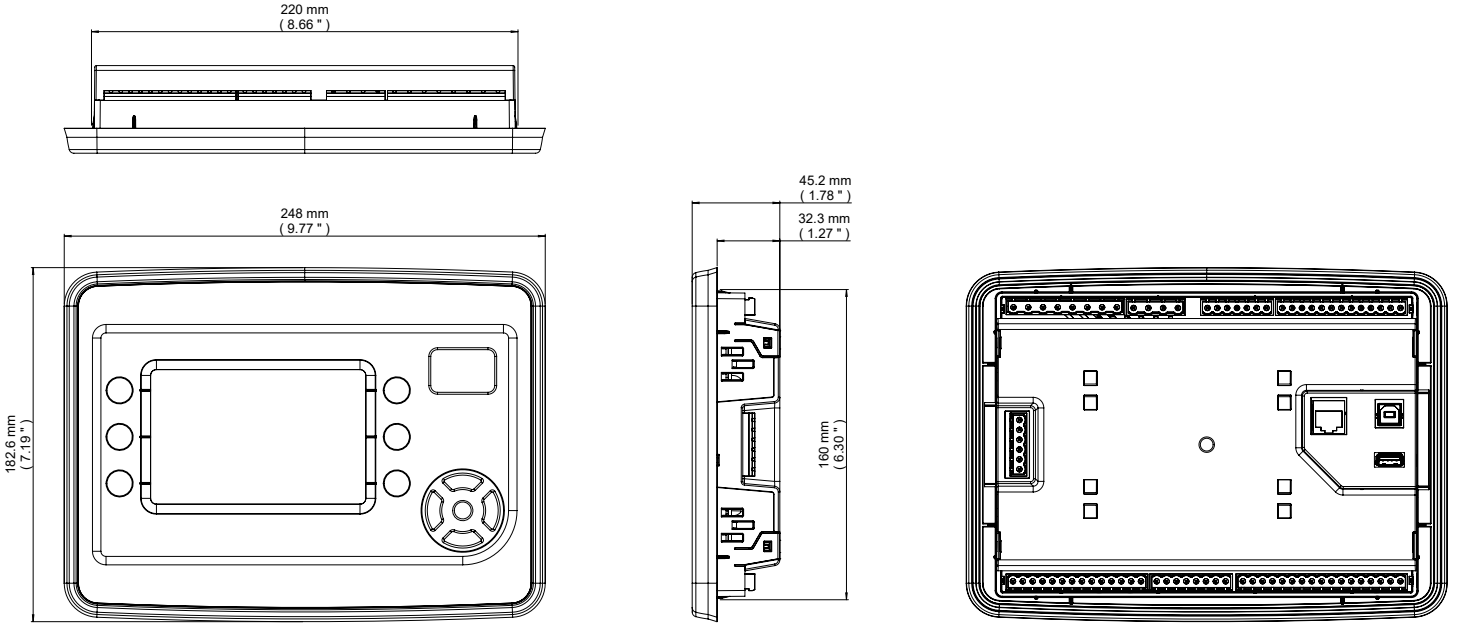


Group Controller

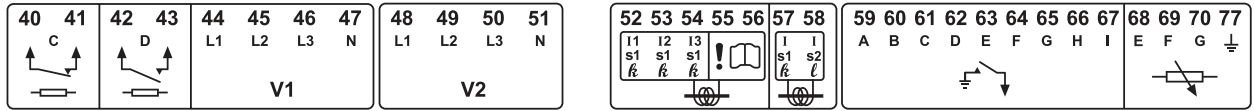


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Technical Drawing

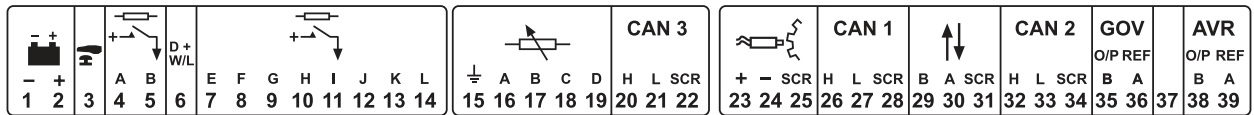


Connection Diagram



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

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



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

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PIN Out Description

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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PIN Out Description

Mains (Utility) Controller	
PIN	DESCRIPTION
1 to 2	DC Supply
3	Not Applicable
4 to 5	Not Applicable
6	Not Applicable
7 to 12	Digital Outputs
13 to 14	Not Applicable
15 to 19	Not Applicable
20 to 22	Redundant AMSC Link
23 to 25	Not Applicable
26 to 28	Not Applicable
29 to 31	DSENet®
32 to 34	AMSC Link
35 to 36	Not Applicable
37	Not Applicable
38 to 39	Not Applicable
40 to 41	Normally Closed Volt Free Output
42 to 43	Normally Open Volt Free Output
44 to 47	Mains (Utility) Voltage Sensing
48 to 51	Bus Voltage Sensing
52 to 56	Mains (Utility) Current Sensing
57 to 58	Bus Current Sensing
59 to 67	Digital Inputs
68 to 70 & 77	Not Applicable
71 to 76	2 x RS485

Group Controller	
PIN	DESCRIPTION
1 to 2	DC Supply
3	Not Applicable
4 to 5	Not Applicable
6	Not Applicable
7 to 12	Digital Outputs
13 to 14	Not Applicable
15 to 19	Not Applicable
20 to 22	Redundant AMSC Link
23 to 25	Not Applicable
26 to 28	Primary AMSC
29 to 31	DSENet®
32 to 34	Secondary AMSC Link
35 to 36	Not Applicable
37	Not Applicable
38 to 39	Not Applicable
40 to 41	Normally Closed Volt Free Output
42 to 43	Normally Open Volt Free Output
44 to 47	Primary Voltage Sensing
48 to 51	Secondary Voltage Sensing
52 to 56	Current Sensing
57 to 58	Not Applicable
59 to 67	Digital Inputs
68 to 70 & 77	Not Applicable
71 to 76	2 x RS485