



This document details the installation and operation requirements of the DSEG8600 module and is part of the DSE Genset® range of products.

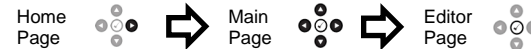
The DSEG8600 module contains two software applications, Multi Set (MS) and Single Set (SS). This allows to convert the DSEG8600 module into an Multi Set (MS) for multiple generator synchronising application, by selection in the Application menu.

CONTROL BUTTONS

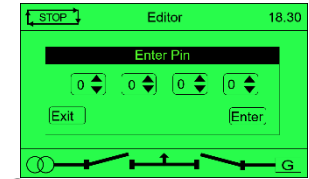
Icon	Description
	Mode Button In the G8600 the mode button is used to select Auto Mode, Test Mode or Manual Mode.
	Alarm Mute / Lamp Test This button silences the audible alarm in the controller, deactivates the Audible Alarm output (if configured) and illuminates all the LEDs on the module's fascia as a lamp test function.
	RHS Breaker Button Transfer to generator / electrical trip reset
	LHS Breaker Button Transfer to Mains
	Stop / Reset Mode This button places the module into its Stop/Reset Mode . This clears any alarm conditions for which the triggering criteria has been removed. If the engine is running and the module is put into Stop/Reset Mode , the module automatically instructs the generator off load. The fuel supply de-energises and the engine comes to a standstill. Should any form of <i>start signal</i> be present when in Stop/Reset Mode the generator remains at rest.
	Start This button is only active in the Stop/Reset Mode , Manual Mode Pressing the Start button in Stop/Reset Mode powers up the engine's ECU but does not start the engine. Pressing the Start button in Manual Mode starts the generator and runs it off load in Manual Mode
	Menu Navigation Used for navigating the instrumentation, event log and configuration screens.

ACCESSING THE MAIN CONFIGURATION EDITOR

- Ensure the generator bus is dead and the module is in STOP mode by pressing the (Stop/Reset) button.
- Navigate to Editor page:



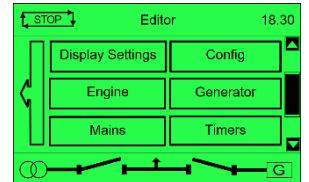
Once selected, the page remains on the LCD display until the user selects a different page, or after an extended period of inactivity (LCD Page Timer), the module reverts to the home display.



- Press the **Tick** button, the first '#' changes to '0'. Press the **Scroll** buttons to adjust it to the correct value.
- Press the **Next Page** button when the first digit is correctly entered. The digit previously entered now shows as '#' for security.
- Repeat this process for the other digits of the PIN number. Press the

Previous Page button to move back to adjust one of the previous digits.

- When the **Tick** button is pressed after editing the final PIN digit, the PIN is checked for validity. If the number is not correct, the PIN must be re-entered.
- If the PIN has been successfully entered (or the module PIN has not been enabled), the editor is displayed



EDITING A PARAMETER

- Enter the editor as described above.
- Press the **Next Page** or **Previous Page** buttons to cycle to the section to view/change.
- Press the **Scroll** buttons to select the parameter to view/change within the currently selected section.
- To edit the parameter, press the **Tick** button to enter edit mode. The parameter is highlighted to indicate editing.
- Press the **Scroll** buttons or **Next Page** or **Previous Page** buttons to change the parameter to the required value.
- Press the **Tick** button to save the value. The parameter ceases flashing to indicate that it has been saved.

NOTE: If the editor is left inactive for the duration of the **LCD Page Timer**, it is automatically exited to ensure security. The PIN number is automatically reset when the editor is exited (manually or automatically) to ensure security. Comprehensive module configuration is possible using the DSE Configuration Suite PC Software, refer to DSE publication 057-322 *DSE8600 Configuration Suite PC Software Manual* available from www.deepseaelectronics.com.



NOTE: Depending upon module configuration, some parameters in the Main and Running Editors may not be available. For more information refer to DSE publication 057-322 *DSE8600 Configuration Suite PC Software Manual* available from www.deepseaelectronics.com

MAIN CONFIGURATION EDITOR PARAMETERS

Section	Parameter As Shown On Display	Values
Display	Contrast	0%
	Language	English, Other.
	Current Date and Time	DD:MM:YY, hh:mm:ss
Alt Config	Default Config	Default Config / Alternative Config
Engine	Oil Pressure Low Shutdown	0.00 bar
	Oil Pressure Low Pre Alarm	0.00 bar
	Coolant Temperature Low Warning	0 °C
	Coolant Temp High Pre Alarm	0 °C
	Coolant Temp High Shutdown	0 °C
	Start Delay Off Load	0 h 0 m 0 s
	Start Delay On Load	0 h 0 m 0 s
	Start Delay Mains Fail	0 h 0 m 0 s
	Start Delay Telemetry	0 h 0 m 0 s
	Pre Heat Temp	0 °C
	Pre Heat Timer	0 h 0 m 0 s
	Post Heat Temp	0 °C
	Post Heat Timer	0 h 0 m 0 s
	Cranking	0 m 0 s
	Cranking Rest	0 m 0 s
	Safety On Delay	0 m 0 s
	Smoke Limiting	0 m 0 s
	Smoke Limiting Off	0 m 0 s
	Warming	0 h 0 m 0 s
	Cooling	0 h 0 m 0 s
	Under Speed Shutdown	Active / Inactive
	Under Speed Shutdown	0 RPM
	Under Speed Warning	Active / Inactive
	Under Speed Warning	0 RPM
	Over Speed Warning	Active / Inactive
	Over Speed Warning	0 RPM
	Over Speed Shutdown	0 RPM
	Overspeed Overshoot	0 m 0 s
	Overspeed Overshoot	0 %
	Fail To Stop Delay	0 m 0 s
	Battery Under Voltage Warning	Active / Inactive
	Battery Under Voltage Warning Delay	0 h 0 m 0 s
	Battery Under Voltage Warning	0.0 V
	Battery Over Voltage Warning	Active / Inactive
	Battery Over Voltage Warning Delay	0 h 0 m 0 s
	Battery Over Voltage Warning	0.0 V
	Charge Alternator Failure Warning	Active / Inactive
	Charge Alternator Failure Warning	0.0 V
	Charge Alternator Warning Delay	0 h 0 m 0 s
	Charge Alternator Failure Shutdown	Active / Inactive
	Charge Alternator Failure Shutdown	0.0 V
	Charge Alternator Shutdown Delay	0 h 0 m 0 s
	Droop (CAN Engine Only)	Active / Inactive
	Droop (CAN Engine Only)	0 %
	Fuel Usage Running Rate	0 %
	Fuel Usage Stopped Rate	0 %
	DPF Auto Regen Inhibit	Active / Inactive
	Specific Gravity	0.80 to 1.00
	CAN Termination (CAN Engine Only)	Active / Inactive





MAIN CONFIGURATION EDITOR PARAMETERS (CONTINUED)

Section	Parameter As Shown On Display	Values	
Generator	Under Voltage Shutdown	0 V	
	Under Voltage Pre-Alarm	0 V	
	Loading Voltage	0 V	
	Nominal Voltage	0 V	
	Over Voltage Pre-Alarm	0 V	
	Over Voltage Shutdown	0 V	
	Under Frequency Shutdown	0.0 Hz	
	Under Frequency Pre-Alarm	0.0 Hz	
	Loading Frequency	0.0 Hz	
	Nominal frequency	0.0 Hz	
	Over Frequency Pre-Alarm	0.0 Hz	
	Over Frequency Shutdown	0.0 Hz	
	Full Load Rating	0 A	
	kW Overload Trip	0 %	
	Delayed Over Current	Active / Inactive	
	Gen Over Current Trip	0 %	
	AC System	3 Phase, 4 Wire	
	CT Primary	0 A Power Cycle After Exit	
	CT Secondary	0 A Power Cycle After Exit	
	Short Circuit Trip	0 %	
	Earth CT Primary	0 A	
	Earth Fault Trip	Active / Inactive	
	Earth Fault Trip	0 %	
	Transient Delay	0.0 s	
	Gen Reverse Power Delay	0.0 s	
	Full kW Rating	0 kW	
	Full kvar Rating	0 kvar	
	Ramp Up Rate	0 %	
	Ramp Down Rate	0 %	
	Load Level For More Sets	0 %	
	Load Level For Less Sets	0 %	
	Load Demand Priority	1	
	Gen Reverse Power Trip	0 kW	
	Insufficient Capacity Delay	0 m 0 s	
	Insufficient Capacity Action	None / Indication / Warning / Shutdown / Electrical Trip	
	Reactive Load Control Mode	None / VAr Share / VAr Fixed Export	
	Load Parallel Power	0 kW In Mains Parallel Mode	
	Load Power Factor	0 % In Mains Parallel Mode	
	Gen Over Zero Seq Volt	Active / Inactive	
	Gen Over Zero Seq Volt	0.0 V	
	Gen Under Pos Seq Volt	Active / Inactive	
	Gen Under Pos Seq Volt	0.0 V	
	Gen Over Neg Seq Volt	Active / Inactive	
	Gen Over Neg Seq Volt	0.0 V	
	Gen Asymmetry High	Active / Inactive	
	Gen Asymmetry High	0.0 V	
	Mains	Under Voltage Trip	0 V
		Over Voltage Trip	0 V
		Under Frequency Trip	0 Hz
		Over Frequency Trip	0 Hz
		Transient Delay	0.0 s
		CT Primary	0 A Power Cycle After Exit
		CT Secondary	0 A Power Cycle After Exit
Full kW Rating		0 kW	
Full kvar Rating		0 kvar	
Mains Over Zero Seq Volt		Active / Inactive	
Mains Over Zero Seq Volt		0 V	

Section	Parameter As Shown On Display	Values
	Mains Under Pos Seq Volt	Active / Inactive
	Mains Under Pos Seq Volt	0 V
	Mains Over Neg Seq Volt	Active / Inactive
	Mains Over Neg Seq Volt	0 V
	Mains Asymmetry High	Active / Inactive
	Mains Asymmetry High	0 V
Timers	LCD Page Delay	0 h 0 m 0 s
	LCD Scroll Delay	0 h 0 m 0 s
	Engine Pre Heat Timer	0 h 0 m 0 s
	Engine Post Heat Timer	0 h 0 m 0 s
	Engine Cranking	0 m 0 s
	Engine Cranking Rest	0 m 0 s
	Engine Safety On Delay	0 m 0 s
	Engine Smoke Limiting	0 m 0 s
	Engine Smoke Limiting Off	0 m 0 s
	Engine Warming	0 h 0 m 0 s
	Engine Cooling	0 h 0 m 0 s
	Engine Overspeed Overshoot	0 m 0 s
	Engine Fail To Stop Delay	0 m 0 s
	Battery Under Voltage Warning Delay	0 h 0 m 0 s
	Battery Over Voltage Warning Delay	0 h 0 m 0 s
	Return Delay	0 h 0 m 0 s
	Generator Transient Delay	0 s
	Mains Transient Delay	0 s
	Mains Transfer Time	0 s
	Mains Over Zero Seq Volt Delay	0.0 s
	Mains Under Pos Seq Volt Delay	0.0 s
	Mains Over Neg Seq Volts Delay	0.0 s
	Mains Asymmetry High Delay	0.0 s
	Gen Over Zero Seq Volt Delay	0.0 s
Gen Under Pos Seq Volt Delay	0.0 s	
Gen Over Neg Seq Volts Delay	0.0 s	
Gen Asymmetry High Delay	0.0 s	
Schedule	Schedule	Active / Inactive
	Schedule Bank 1 Period	Weekly / Monthly,
	Island / Parallel / Off Load / Auto Start Inhibit, Week, Start Time, Run Time and Day. Selection (1 to 8)	Press the Tick  button to begin editing then up or down when selecting the different parameters.
	Schedule Bank 2 Period	Weekly / Monthly,
	Island / Parallel / Off Load / Auto Start Inhibit, Week, Start Time, Run Time and Day. Selection (1 to 8)	Press the Tick  button to begin editing then up or down when selecting the different parameters.

ACCESSING THE 'RUNNING' CONFIGURATION EDITOR

- The *'Running' Configuration Editor* is accessible without stopping the engine. All protections remain active whilst using the *'Running' Configuration Editor*.

- Press the **Next Page**  button to access the Main Menu page.
- Press the **Previous Page**  button followed by either the **Scroll**  buttons or the **Next Page** or **Previous Page**  buttons to locate the *'Running' Configuration Editor*.

RUNNING CONFIGURATION EDITOR PARAMETERS

Section	Parameter As Shown On Display	Values
Display	Contrast	75 %
	Units Pressure	kPa, bar, psi
	Units Temperature	°C, ° F
	Units Volume	Litres, Imp gal, Us gal
	Language	English, Other
Synchronising	Commissioning Screen	Active / Inactive
	Override Starting Alarms	Active / Inactive
	Voltage Adjust (Manual Mode Only With Gen Open)	0%
	Frequency Adjust (Manual Mode Only With Gen Open)	0%
Load Control	Injection Port	Active / Inactive
	Mains Decoupling Test Mode	Active / Inactive
	Power Control Mode	Constant Power / Frequency-Power / Voltage-Power
	Load Parallel Power	0 %
	Load Parallel kVArS	0 %
	Load Parallel PF	0.00 pf
	Governor Droop Offset	0%
	Governor Ramp Rate	0%
	AVR Droop Offset	0%
	AVR Ramp Rate	0%
	Load Priority	1-64

ELECTRICAL SPECIFICATIONS

Parameter	Specification
DC Supply Voltage	8 V _{DC} to 35 V _{DC}
Maximum Operating Current	530 mA at 12 V 280 mA at 24 V
Maximum Standby Current	320 mA at 12 V 120 mA at 24 V
Typical Power (Controller On, Heater Off)	3.8 W to 4.1 W
Typical Power (Controller On, Heater On)	6.8 W to 7.1 W
Mains Phase to Neutral Voltage Sensing	15 V _{AC} to 345 V _{AC}
Mains Phase to Phase Voltage Sensing	26 V _{AC} to 720 V _{AC}
Mains Voltage Sensing Offset from Earth	100 V _{AC}
Volt-Free Output Rating	8 A at 250 V _{AC} , 5 A at 30 V _{DC}

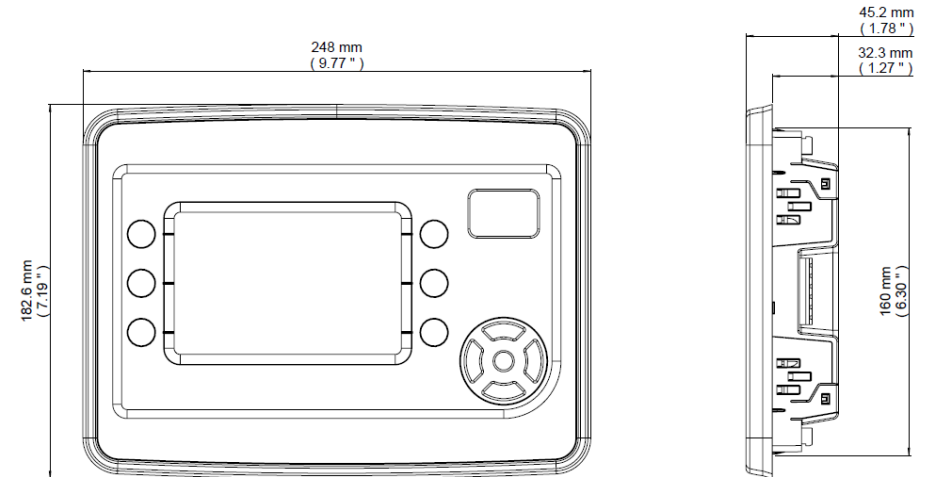
REQUIREMENTS FOR UL CERTIFICATION

⚠ WARNING! More than one live circuit exists, see diagram overleaf for further information.

Specification	Description
Screw Terminal Tightening Torque	<ul style="list-style-type: none"> 4.5 lb-in (0.5 Nm)
Conductors	<ul style="list-style-type: none"> Terminals suitable for connection of conductor size 13 AWG to 20 AWG (0.5 mm² to 2.5 mm²). Conductor protection must be provided in accordance with NFPA 70, Article 240 (USA) Low voltage circuits (35 V or less) must be supplied from the engine starting battery or an isolated secondary circuit. The communication, sensor, and/or battery derived circuit conductors shall be separated and secured to maintain at least ¼" (6 mm) separation from the generator and mains connected circuit conductors unless all conductors are rated 600 V or greater.
Current Inputs	<ul style="list-style-type: none"> Must be connected through UL Listed (if working to UL requirements) or recognized isolating current transformers with the secondary rating of 5 A max.
Communication Circuits	<ul style="list-style-type: none"> Must be connected to communication circuits of UL Listed equipment (if working to UL requirements)
DC Output Pilot Duty	<ul style="list-style-type: none"> 0.5 A
Mounting	<ul style="list-style-type: none"> Suitable for flat surface mounting in Type 1 Enclosure Type rating with surrounding air temperature -22 °F to +122 °F (-30 °C to +50 °C) Suitable for pollution degree 3 environments when voltage sensing inputs do not exceed 300 V. When used to monitor voltages over 300 V device to be installed in an unventilated or filtered ventilation enclosure to maintain a pollution degree 2 environment.
Maximum Operating Temperature	<ul style="list-style-type: none"> 122 °F (50 °C)

DIMENSIONS AND MOUNTING

Parameter	Specification
Dimensions	248 mm x 182.6 mm x 45.2 mm (9.76" x 7.18" x 1.77")
Panel Cutout	220 mm X 160 mm (8.7" X 6.3")
Weight	0.76 kg (1.67 lb)
Operating Temperature with Standard Display	-30 °C to +70 °C (-22 °F to +158 °F)
Operating Temperature with Heated Display	-40 °C to +70 °C (-40 °F to +158 °F)
Storage Temperature	-40 °C to +80 °C (-40 °F to +176 °F)



FIXING CLIPS

⚠ NOTE: In conditions of excessive vibration, mount the control panel on suitable anti-vibration mountings

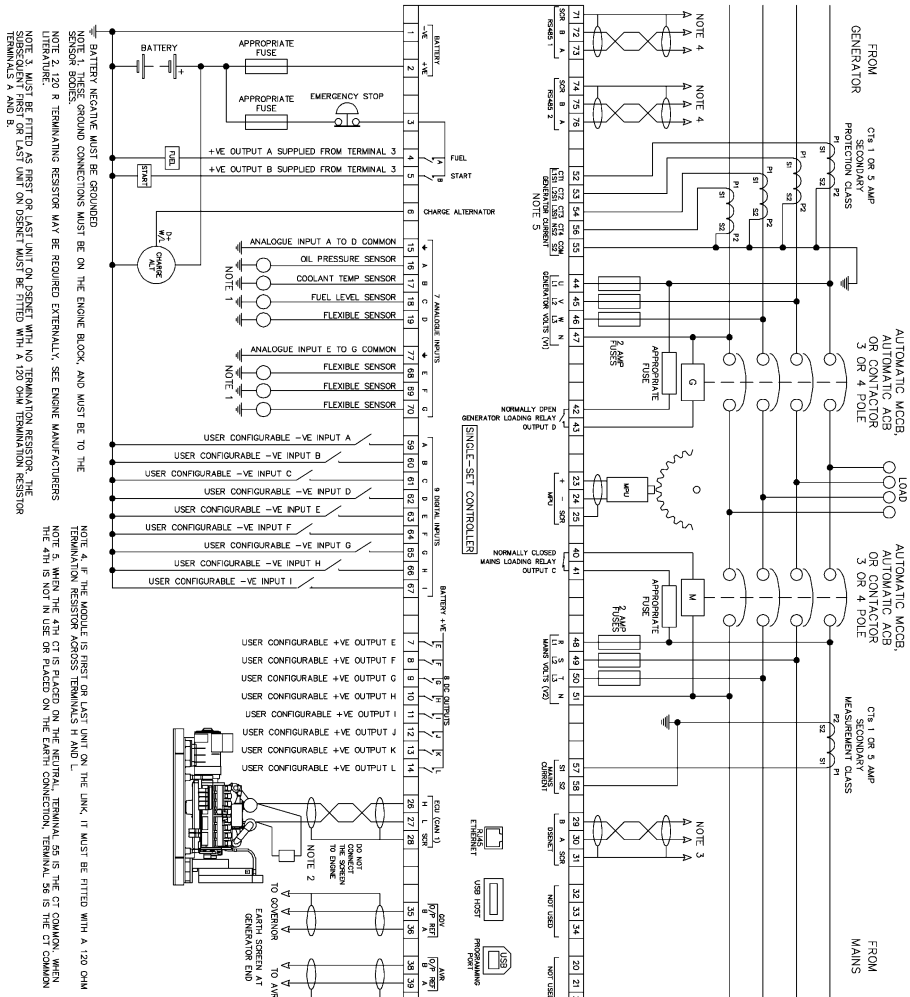
The module is held into the control panel fascia using the supplied fixing clips.

- Withdraw the fixing clip screw (turn anticlockwise) until only the pointed end is protruding from the clip.
- Insert the three 'prongs' of the fixing clip into the slots in the side of the DSE module's case.
- Pull the fixing clip backwards (towards the back of the module) ensuring all three prongs of the clip are inside their allotted slots.
- Turn the fixing clip screws clockwise until they make contact with the panel fascia.
- Turn the screws a quarter of a turn to secure the module into the control panel's fascia. Care must be taken not to over tighten the fixing clip screws.

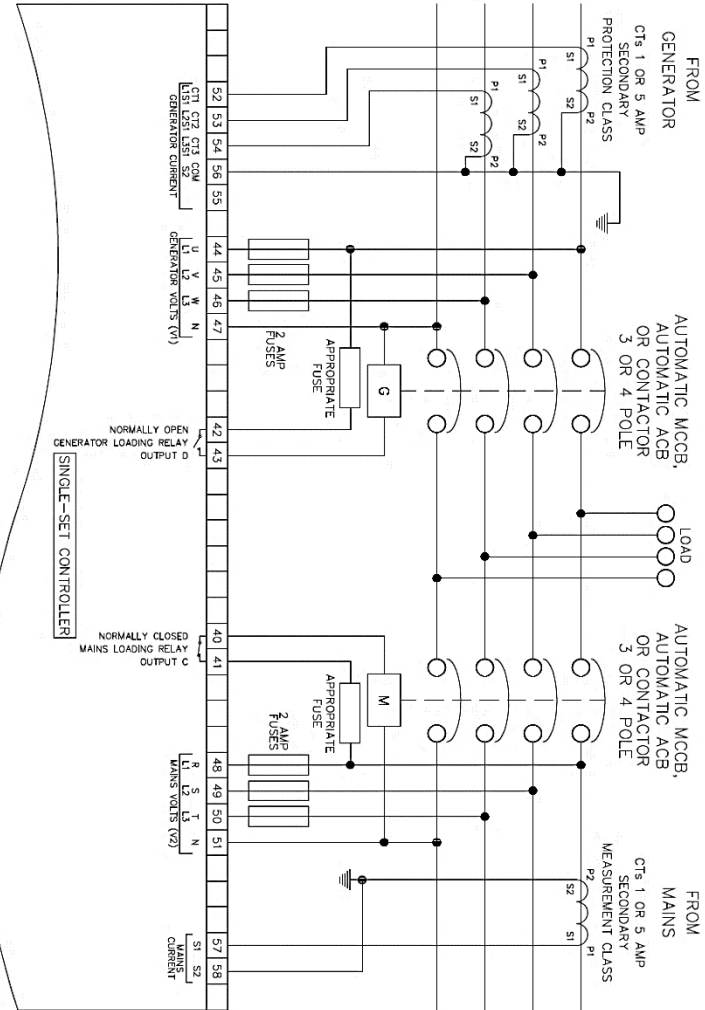
TYPICAL WIRING DIAGRAMS

NOTE: A larger version of the Typical Wiring Diagram is available in the product's operator manual, refer to DSE Publication: *057-323 DSE8600 Operator Manual* available from www.deepseaelectronics.com for more information.

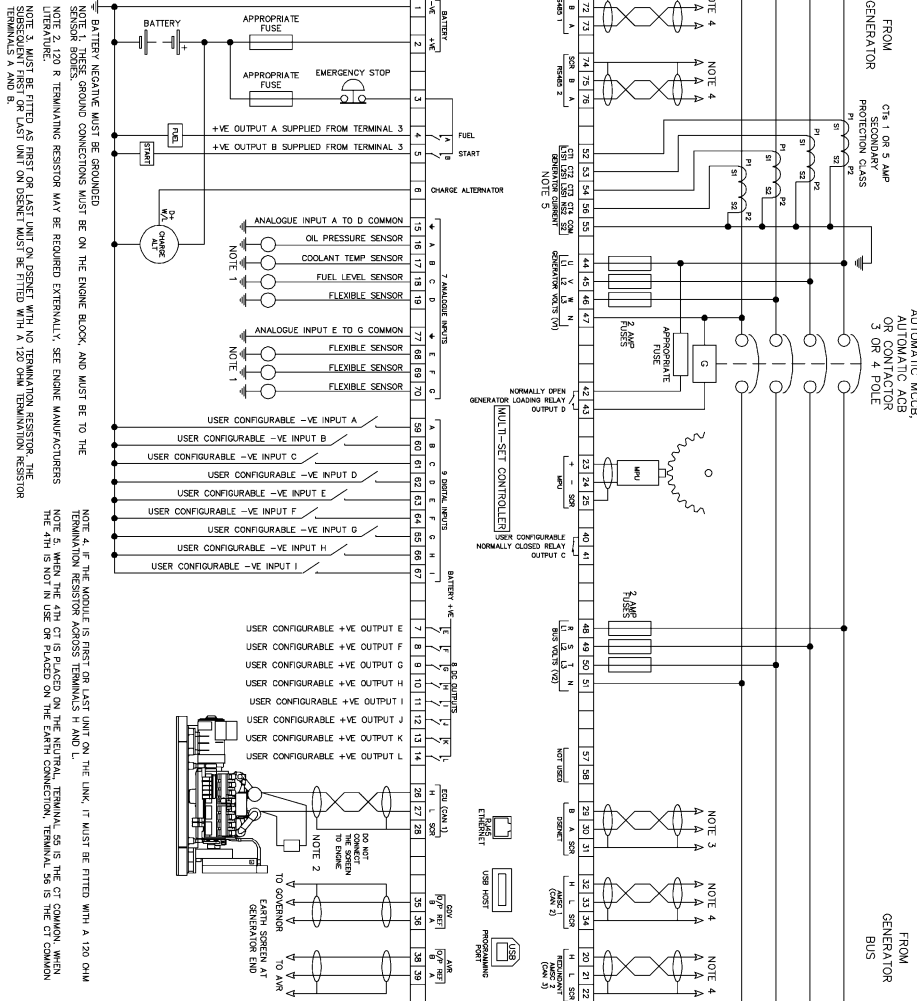
Single Set



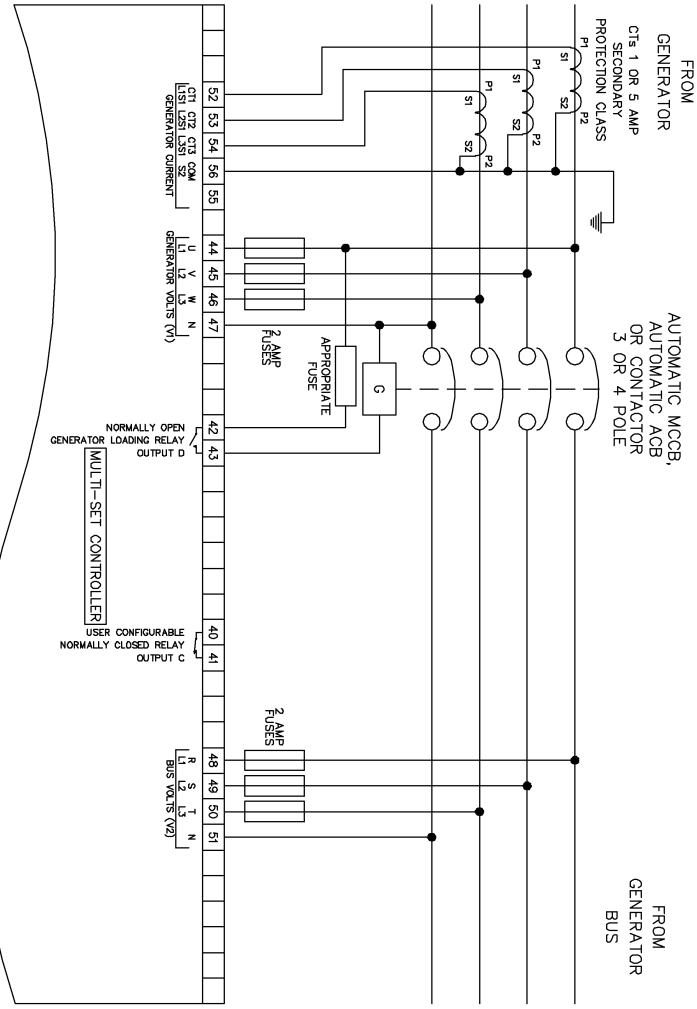
Single Set 3 Phase 4 Wire without Earth Fault



Multi Set



Multi Set 3 Phase 4 Wire without Earth Fault



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