DSE**Genset**® Data Sheet

DSE**7410 MKII** Auto Start & DSE**7420 MKII** Auto Mains (Utility) Failure Control Modules

Part Number: 7410-03 / 7420-03

DSE**7410 MKII**

DSE**7420 MKII**

Overview

The DSE**7410 MKII** is an Auto Start Control Module and the DSE**7420 MKII** is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications. Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC.The DSE**7420 MKII** will also monitor the mains (utility) supply. The modules include USB, RS232, RS485 and Ethernet ports as well as dedicated DSE**Net**® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and engine protections so the system can be easily adapted to meet the most demanding industry requirements.
The comprehensive list of features includes enhanced event and performance monitoring, remote communications & PLC functionality. Dual mutual standby is now available on both the DSE**7410 MKII** & DSE**7420 MKII** using RS232 or RS485 communications.

The modules also feature SNMP functionality for connection to SNMP systems. The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

Common Key Features

- Advanced PLC functionality including multi-purpose PIDs
- Flexible inputs and outputs
- DSE**Net**® expansion support
- PC configuration using DSE Configuration Suite
- Multiple language support
- Enhanced 4-line text display
- Integrated RS232 and RS485 ports providing Modbus RTU support
- Integrated Ethernet port providing Modbus TCP, SNMP v2c and in built web SCADA support.
- Data logging of up to 20 parameters
- Multi-level PIN protected front panel editor
- Manual front panel and automatic control modes
- Latest ECU / ECM support for a wide range of engine manufacturers
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Dual mutual standby between two generators for redundancy and balancing of engine hours
- Multiple selectable configurations in one unit to suit changing requirements
- Customisable module power-up & screen saver screens

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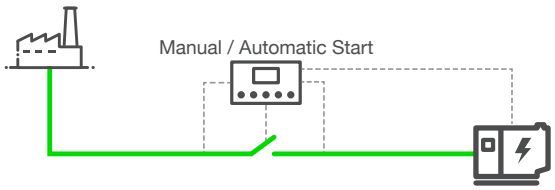
DSE**7410 MKII** Auto Start & DSE**7420 MKII** Auto Mains (Utility) Failure Control Modules

Part Number: 7410-03 / 7420-03

DSE**7410 MKII Manual / Automatic Start Controller Key Features**

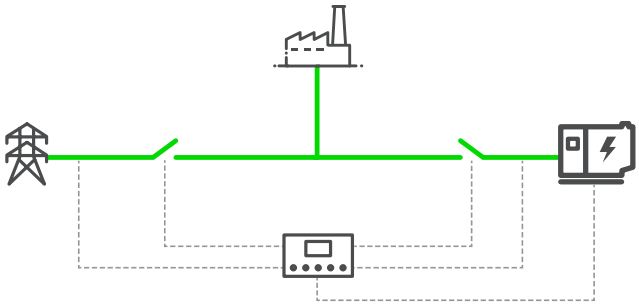
- 3 phase generator sensing with protection
- Manual starting / control by fascia button and automatic starting / control by inputs and other functions

Typical Applications



DSE**7420 MKII Automatic Mains (Utility) Failure (AMF) Controller Key Features**

- 3 phase generator and mains (utility) sensing with protection
- Manual starting / control by fascia button and automatic starting / control by inputs and other functions.
- Automatic start and stopping of generator and transfer of load based on mains (utility) availability
- Open and closed transition available with option for synchronisation when used with a CAN engine and DSE CAN AVR



Automatic Mains (Utility) Failure

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Part Number: 7410-03 / 7420-03

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	340 mA at 12 V, 160 mA at 24 V
Maximum Standby Current	160 mA at 12 V, 80 mA at 24 V
Charge Alternator Excitation / Fail Range	0 V to 35 V
Voltage Measurement	
Number	DSE**7410 MKII**: 1 DSE**7420 MKII**: 2
Measurement Inputs	3 Phase + Neutral DSE**7410 MKII**: Generator DSE**7420 MKII**: Generator and Mains
Voltage Range	15 V to 415 V Phase to Neutral 25 V to 719 V Phase to Phase
Frequency Range	3.5 Hz to 75 Hz
Resolution	1 V
Accuracy	±1 %
Current Measurement	
Number	4
Measurement Inputs	3 Phase with Earth Fault DSE**7410 MKII**: Generator DSE**7420 MKII**: Generator or Load
Current Range	0 A to 1 A 0 A to 5 A
Resolution	25 mA
Accuracy	±1 %

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Part Number: 7410-03 / 7420-03

Specifications	
Analogue Inputs	
Number	6
Type	Negative Switching Digital Input (6), Resistive Analogue Input (6), Current Analogue Input (4) and Voltage Analogue Input (4)
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 240 Ω **Input B & F:** 0 Ω to 3 kΩ **Input C, D & E:** 0 Ω to 480 Ω
Current Analogue Measurement Range	**Input A, B, E & F:** 0 mA to 20 mA
Voltage Analogue Measurement Range	**Input A, B, E & F:** 0 V to 10 V
Analogue Resolution	1 %
Analogue Accuracy	±2 %
Digital Inputs	
Number	8
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	5 Hz to 10 kHz
Resolution	1 Hz
Accuracy	±1 %
Flywheel Teeth	10 to 500

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DSE**7410 MKII** Auto Start & DSE**7420 MKII** Auto Mains (Utility) Failure Control Modules

Part Number: 7410-03 / 7420-03

Specifications	
Digital Outputs	
Number	10
Type	1 Normally Open Volt-Free Contacts 1 Normally Closed Volt-Free Contacts 8 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 J:** 2 A_{DC} at module supply voltage
Communications	
USB A	1 Data Storage Port
USB B	1 Programming Port
DSENet®	1 Expansion Port
RS232	1 Modbus RTU Port
RS485	1 Modbus RTU Port
Ethernet	1 10/100 Ethernet Port
CAN	2 Fully Isolated Ports ECU - Engine ECU / ECM CAN - Configurable CAN Communication
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)	250.0 mm x 189.0 mm x 50.5 mm / 9.85” x 7.43” x 1.99”
Mounting	
Type	Panel Fascia Mounting
Panel Cut-Out (W x H)	220.0 mm x 160.0 mm / 8.66” x 6.30”
Maximum Panel Thickness	8 mm / 0.3”

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Related Products		
DSENet®		
DSE2548	DSENet® LED Output Expansion Module	2548-01
DSE2520 MKII	DSENet® Remote Display Module for DSE7420 MKII	7320-03
DSE2510 MKII	DSENet® Remote Display Module for DSE7410 MKII	7310-03
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	2130-01
DSEWebNet®		
DSE890 MKII	DSEWebNet® Gateway	0890-04

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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 ºC
BS EN 60068-2-2	Bb/Be Dry Heat +70 ºC
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 ºC at 95% Relative Humidity 48 Hours
BS EN 60068-2-78	Cab Damp Heat Static 40 ºC 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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DSE**7410 MKII**	
Pin	**Description**
1 to 2	DC Supply
3	Emergency Stop
4	Fuel
5	Start
6	Charge Alternator
7	Not Applicable
8 to 13	Digital Outputs
14 to 20	Analogue Inputs
21 to 23	Magnetic Pick-Up
24 to 26	Engine ECU/ECM
27 to 29	DSENet®
30 to 32	Configurable CAN
33 to 34	Normally Closed Volt Free Output
35 to 36	Normally Open Volt Free Output
37 to 40	Generator Voltage Sensing
41 to 44	Not Applicable
45 to 50	Generator Current Sensing
51 to 58	Digital Inputs
59 to 61	RS485

DSE**7420 MKII**	
Pin	**Description**
1 to 2	DC Supply
3	Emergency Stop
4	Fuel
5	Start
6	Charger Alternator
7	Not Applicable
8 to 13	Digital Outputs
14 to 20	Analogue Inputs
21 to 23	Magnetic Pick-Up
24 to 26	Engine ECU/ECM
27 to 29	DSENet®
30 to 32	Configurable CAN
33 to 34	Normally Closed Volt Free Output
35 to 36	Normally Open Volt Free Output
37 to 40	Generator Voltage Sensing
41 to 44	Mains (Utility) Voltage Sensing
45 to 50	Generator/Load Current Sensing
51 to 58	Digital Inputs
59 to 61	RS485

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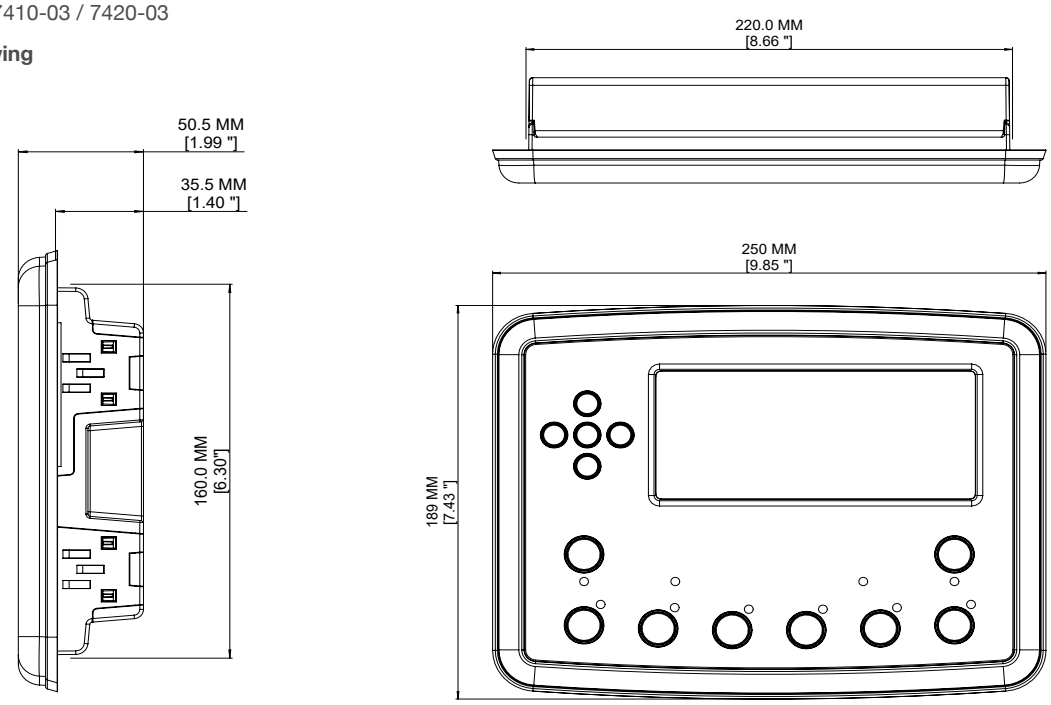
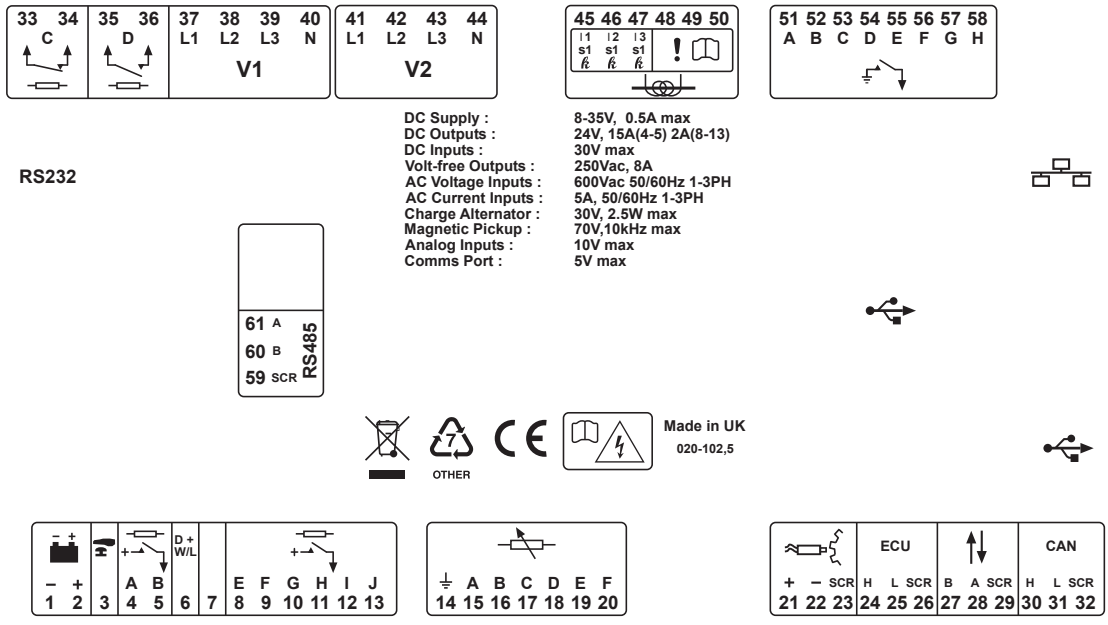
Part Number: 7410-03 / 7420-03

Technical Drawing



Connection Label



DC Supply :	8-35V, 0.5A max
DC Outputs :	24V, 15A(4-5) 2A(8-13)
DC Inputs :	30V max
Volt-free Outputs :	250Vac, 8A
AC Voltage Inputs :	600Vac 50/60Hz 1-3PH
AC Current Inputs :	5A, 50/60Hz 1-3PH
Charge Alternator :	30V, 2.5W max
Magnetic Pickup :	70V,10kHz max
Analog Inputs :	10V max
Comms Port :	5V max

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

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