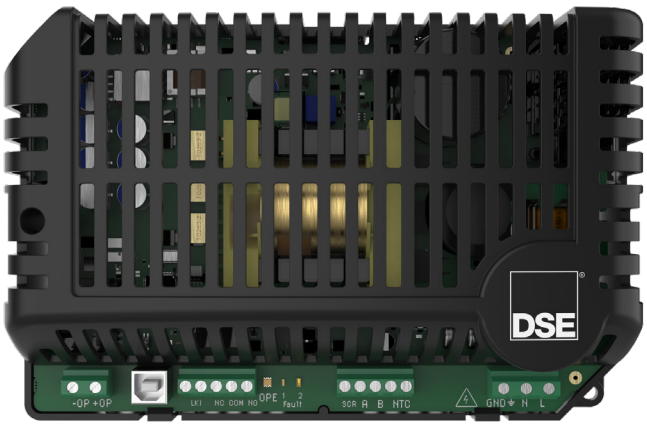
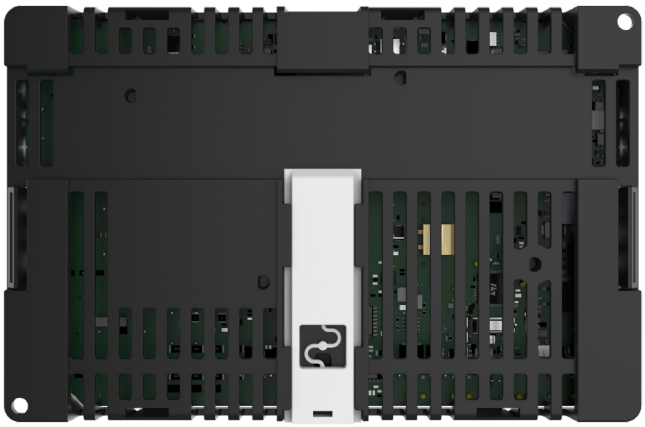
# DSE**9470 MKII** 24 Volt, 10 Amp Intelligent Battery Charger

**Part Numbers:** 9470-01, 9470-A4



## Overview

The DSE**9470 MKII** is an intelligent 12/24 volt, 10 amp switched-mode battery charger that has fully programmable charging curves, making it suitable for multiple different battery chemistry types. The battery charger is programmed using the DSE Configuration Suite PC Software and is mounted direct to a chassis or onto DIN rail for ease of integration and installation. There are also three integrated LEDs mounted to the battery charger to indicate current charging status and fault conditions.

## Key Features

- Fully configurable charging voltages and current limit provides compatibility for a wide range of different battery chemistries.
- Fully configurable two, three or four stage charging profiles.
- Automatic and / or manual boost, and storage charge functions.
- Configurable temperature compensation on charging voltage to optimisation charging efficiency and battery condition.
- Digital microprocessor and switched-mode power supply technology to provide high operating efficiency with low charge output ripple and superb line regulation.
- Periodic, automatic battery detection test with configurable timers.
- Designed to be permanently connected to a battery and AC Supply. There is no need to disconnect during high load conditions such as when an engine is cranking or running.
- Status and fault indication provided by three multi-colour LEDs.
- PC configuration using DSE Configuration Suite.
- Integrated DSE**Net**® / RS485 port providing ability to be connected to a DSE**Genset**® module as an expansion module, or Modbus RTU support.
- PSU mode, allowing the charger to be used as a power supply.
- Deep sleep mode, allows the charger to enter a low power consumption state, reducing the risk of draining the battery in the event of a mains supply failure.
- Soft start reduces inrush current when initiating the charging process.
- PIN protection, prevents unskilled operators making changes to the configuration that could result in battery/application damage.

**Product Documentation**

053-277 – DSE**9470 MKII** Installation Instructions
057-085 – DSE**9000 Series** Operator Manual
057-159 – DSE**9400 Series** Configuration Suite PC Manual

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# DSE**9470 MKII** 24 Volt, 10 Amp Intelligent Battery Charger

**Part Numbers:** 9470-01, 9470-A4

| Specifications | |
|---|---|
| **AC Supply** | |
| **Minimum Supply Voltage** | 90 $V_{AC}$ with Charge Output De-rate<br>110 $V_{AC}$ without Charge Output De-rate |
| **Maximum Supply Voltage** | 305 $V_{AC}$ |
| **UL Voltage Approval Rating** | **USA Only (9470-01)**<br>100 - 305 $V_{AC}$<br>**USA & Canada (9470-A4)**<br>110 - 150 $V_{AC}$ |
| **Frequency Range** | 48 Hz to 64 Hz |
| **Maximum Operating Current** | 4.0 $A_{AC}$ at 110 $V_{AC}$, 2.3 $A_{AC}$ 230 $V_{AC}$ |
| **Typical Standby Current (DC Charge Output Off)** | 0.05 $A_{AC}$ Regardless of Supply Voltage |
| **Efficiency** | Greater than 89 % |
| **Charge Output** | |
| **Voltage Range** | **Configured as 12 V:** 12 $V_{DC}$ to 15.5 $V_{DC}$<br>**Configured as 24 V:** 24 $V_{DC}$ to 31 $V_{DC}$ |
| **Voltage Ripple and Noise** | Less Than 1 % of Configured Boost Voltage |
| **Voltage Load Regulation** | 2 % |
| **Voltage Line Regulation** | Less Than 0.01 % Requested Charge Output Voltage |
| **Current Range** | 1 $A_{DC}$ to 10 $A_{DC}$ With Maximum Charge Output De-rate<br>0 $A_{DC}$ to 10 $A_{DC}$ Without Charge Output De-Rate |
| **Maximum Current Limit** | 7.5 $A_{DC}$ to 15 $A_{DC}$ |
| **Current Limit Accuracy** | ±10 % of Configured Maximum Current Limit |
| **Digital Input** | |
| **Number** | 1 |
| **Type** | Contact Between Terminals |
| **Closed Voltage Threshold** | Less than 2.1 $V_{DC}$ |
| **Open Voltage Threshold** | Greater than 6.6 $V_{DC}$ |
| **Temperature Sensor Input** | |
| **Number** | 1 |
| **Type** | PT1000 |
| **Charger Fail Output** | |
| **Number** | 1 |
| **Type** | Changeover Volt-Free Contact |

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# DSE**9470 MKII** 24 Volt, 10 Amp Intelligent Battery Charger

**Part Numbers:** 9470-01, 9470-A4

| Specifications | |
|---|---|
| **Protections** | |
| **AC Supply** | Over and Under Voltage<br>Over and Under Frequency |
| **Charge Output** | Reverse Polarity<br>Under and Over Voltage<br>Over Current<br>Short Circuit |
| **Battery Charger** | Battery Charger Over Temperature<br>Battery Charger Self Test |
| **Battery** | Disconnection<br>Over Temperature |
| **Communications** | |
| **USB B** | 1 Programming Port |
| **RS485 / DSENet®** | 1 Modbus RTU Port / 1 Expansion Port |
| **Temperature** | |
| **Operating Temperature** | -30 °C to +50 °C / -22 °F to +122 °F |
| **Operating Temperature with De-rate** | -30 °C to +70 °C / -22 °F to +158 °F |
| **Storage Temperature** | -30 °C to +50 °C / -22 °F to +122 °F |
| **Dimensions** | |
| **Overall (W x H x D)** | 204 mm x 134 mm x 78 mm / 8.0 ” x 5.27 ” x 3.0 ” |
| **Weight** | 0.78 kg (1.7 lb 27.5 oz) |
| **Mounting** | |
| **Type** | DIN Rail or Chassis Mounting |
| **DIN Rail** | 35 mm |
| **Chassis** | 4 x M4 Mounting Holes with 190 mm x 120 mm / 7.5 ” x 4.7 ” Centres |

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# DSE**9470 MKII** 24 Volt, 10 Amp Intelligent Battery Charger

**Part Numbers:** 9470-01, 9470-A4

| Related Products | | |
|---|---|---|
| **DSEGenset®** | | |
| **DSEG8900** | 7” Colour Parallel Genset Controller | G8900-01 |
| **DSEG8660** | Mains (Utility) Controller | G8660-01 |
| **DSEG8600** | Parallel Genset Controller with Integral Heater | G8600-01 |
| **DSE8660 MKII** | Auto Transfer Switch & Mains (Utility) Control Module | 8660-02 |
| **DSE8620 MKII** | Synchronising Auto Mains (Utility) Failure Load Share Control Module | 8620-02 |
| **DSE8610 MKII** | Synchronising & Load Sharing Auto Start Control Module | 8610-02 |
| **DSE7420 MKII** | Auto Mains (Utility) Failure Control Module | 7420-03 |
| **DSE7410 MKII** | Auto Start Control Module | 7410-03 |
| **DSE7320 MKII** | Auto Mains (Utility) Failure Control Module | 7320-03 |
| **DSE7310 MKII** | Auto Start Control Module | 7310-03 |
| **DSE6120 MKIII** | Auto Mains (Utility) Failure Control Module | 6120-05 |
| **DSE6110 MKIII** | Auto Start Control Module | 6110-05 |
| **DSEControl®** | | |
| **DSEE400** | Engine Only Control Module | E400-01 |

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# DSE**9470 MKII** 24 Volt, 10 Amp Intelligent Battery Charger

**Part Numbers:** 9470-01, 9470-A4

| 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 Requirements for Electrical Equipment for Measurement, Control and Laboratory use. |
| **Temperature** | |
| **BS EN 60068-2-1** | Ab/Ae Cold Test -30 ºC |
| **BS EN 60068-2-2** | Bb/Be Dry Heat +80 ºC |
| **Vibration** | |
| **BS EN 60068-2-6** | Ten sweeps in each of three major axes<br>5 Hz to 8 Hz at ±7.5 mm,<br>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<br>15 Gn in 11 ms |
| **Degrees of Protection Provided by Enclosures** | |
| **BS EN 60529** | IP21 |

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**Part Numbers:** 9470-01, 9470-A4

| Terminal Description | |
|---|---|
| **Pin** | **Description** |
| OP- | Charge Output Negative |
| OP+ | Charge Output Positive |
| LK1 | Configurable Digital Input |
| LK1 | Configurable Digital Input |
| NC | Normally Closed Contact of Charger Fail Changeover Relay |
| COM | Common Contact of Charger Fail Changeover Relay |
| NO | Normally Open Contact of Charger Fail Changeover Relay |
| SCR | DSENet® / RS485 Screen |
| A | DSENet® / RS485 A |
| B | DSENet® / RS485 B |
| PTC | Temperature Sensor Input |
| PTC | Temperature Sensor Input |
| E | AC Supply Earth |
| N | AC Supply Negative |
| L | AC Supply Live |

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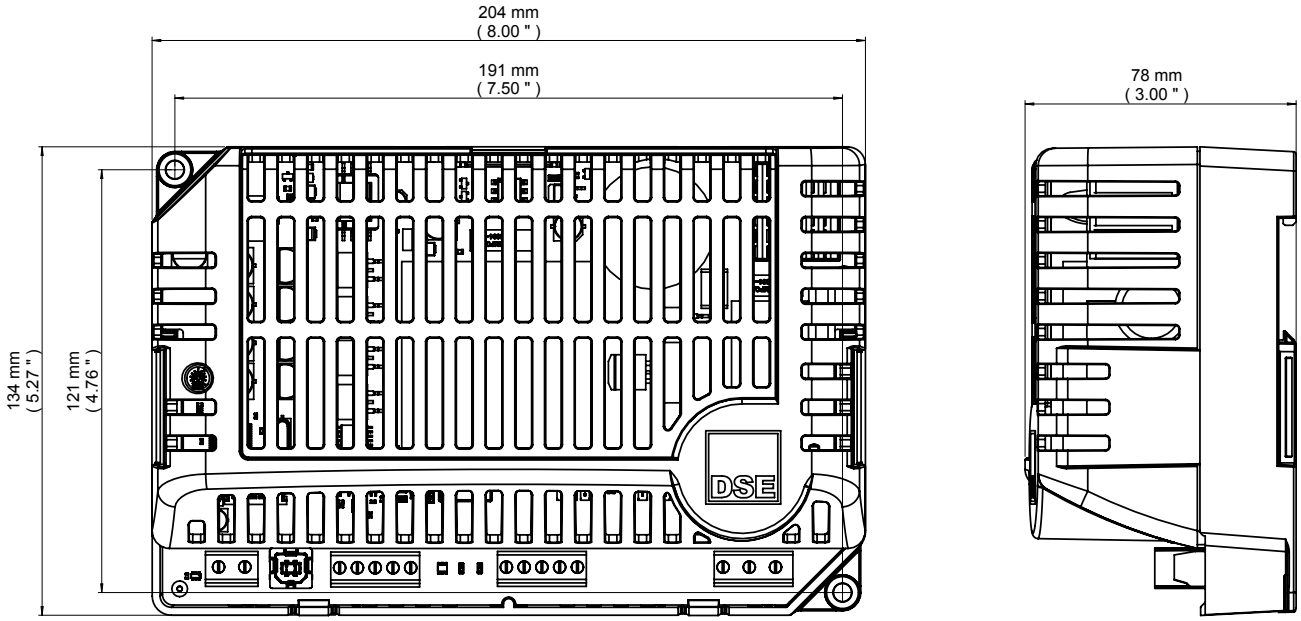
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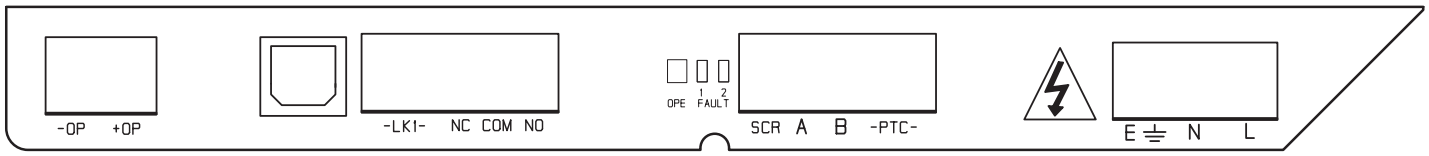
# DSE**9470 MKII** 24 Volt, 10 Amp Intelligent Battery Charger

**Part Numbers:** 9470-01, 9470-A4

**Technical Drawing**




**Connection Label**




**Product Documentation**

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