MERLIN
POWER SYSTEMS

PowerGuard Lite

Flat Battery Protection System

User & Installation Guide

Version 2.2

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Declaration of Conformity:

CE

Company: Merlin Equipment Limited T/A Merlin Power Systems

Address: Unit 4, Cabot Business Village, Holyrood Close, Poole, Dorset BH17 7BA. United Kingdom

Declares that the following product(s):

Product Type: Merlin PowerGuard Lite

Part Numbers: 19-4015 Merlin PowerGuard Lite – 12V
19-4016 Merlin PowerGuard Lite – 24V
19-4017 Merlin PowerGuard Lite – OEM Version (CPU Only)

Are in conformity with the requirements of the following Directives of the European Union:

EMC Directive 2004/108/EEC

Standards to which conformity is declared:

EN55014-1:2007 EMC - Emission
EN55014-2:2008 EMC - Immunity
EN 61000-6-3:2007 EMC- Emission
EN 61000-6-1:2007 EMC- Immunity

Signed: James Hortop

Authority: Managing Director

RoHS 2002/95/EC

WARNING

Your attention is drawn to "Caution!" and "Warning!" statements throughout this manual.

"Caution!" refers to practices that may cause damage to the PowerGuard Lite or your electrical system.

"Warning!" identifies practices that may cause injury or death.

PowerGuard Lite is designed for installation by qualified and competent electrical engineers.

Qualified and competent engineers will be familiar with safe working practices, local health & safety legislation and the proper and safe use of tools and equipment. Therefore not all obvious practices that may lead to system damage, injury or death are detailed within this manual. If you are in anyway unsure about any aspect of the installation or use of PowerGuard Lite, contact your Dealer or Merlin Power Systems for advice.

1. Introduction

Many thanks for your recent purchase of a Merlin PowerGuard Lite.

PowerGuard Lite is a flat battery protection device designed to prevent 12 and 24V battery banks running flat. Please note that contactors used are specific to voltage so ensure that the part number ordered is correct for either 12 or 24V DC systems (The control unit may be used on 12 or 24V systems and are adjusted using an internal link).

Please take the time to fully read and understand this manual.

2. Package Contents

19-4015 Merlin PowerGuard Lite – 12V & 19-4016 Merlin PowerGuard Lite – 24V:

Merlin PowerGuard Lite Central Processing Unit (CPU)
Reset Switch with integrated warning LED
Battery Disconnect Contactor with bracket

19-4017 Merlin PowerGuard Lite – OEM Version (CPU Only):

Merlin PowerGuard Lite Central Processing Unit

3. Operation

The PowerGuard Lite is a flat battery protection device. When the battery voltage reaches a preset voltage, the LED within the reset switch will flash to warn that batteries are low. When the voltage has been at the preset level for longer than the preset time, the contactor will disconnect the battery from the loads. At the same time, the LED within the reset switch will stay on continuously.

To reconnect power, press the reset switch. We highly recommend that the engine is started or that an alternative charging source is connected immediately.

Note: If the reset switch is pressed after disconnection and a charge source is not connected, the timer will start again and disconnect the batteries.

CAUTION: Continual pressing of the rest switch without attaching a charging source will eventually cause excessive discharge to the battery.

4. Inhibit Function

PowerGuard Lite is fitted with an Inhibit Function. When there is +12V/24V on this wire, the PowerGuard Lite will not disconnect the batteries regardless of battery condition. We normally recommend the Inhibit wire to be connected to the engine ignition switch.

CAUTION: Not fitting the inhibit wire to the ignition or other circuit that becomes live when the engine is running could cause damage to the engine alternator, ECU or other components if the battery is disconnected while the engine is running.

5. By Pass Loads

Loads that should stay live at all times (regardless of battery state of charge) should be wired direct from the battery and not through the PowerGuard Lite Contactor.

6. Installation Locations

The CPU is not waterproof. It is designed to be located in a dry environment such as a closed engine room, in a locker or under the dashboard.

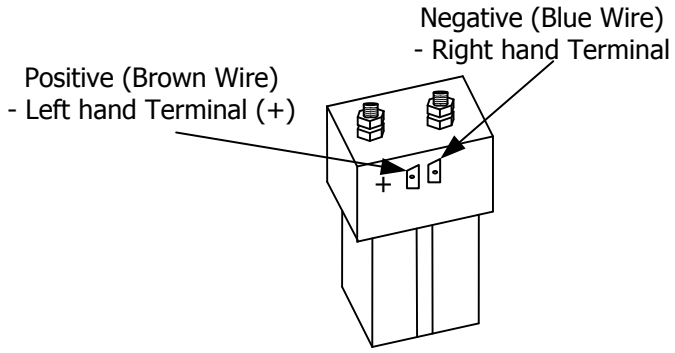
The contactor is IP66 rated and may be installed in wet environments.

The reset switch is IP66 rated and may be installed in wet environments.

CAUTION: Wet environments will damage the PowerGuard Lite CPU.

7. Contactor Wiring

The contactor should be wired in the positive battery cable adjacent to the battery. To insert, we recommend removing the existing battery cable from the battery terminal and fitting this to one of the PowerGuard Lite Contactor main terminals. A linking cable from the other main contactor terminal should then be made up to the battery positive terminal. This cable should be the same size and specification as the existing cabling.



The contactor control terminals are located on the side of the contactor.
CAUTION: The Contactor must NOT be installed upside down.

8. Installation Diagram:

WARNING! Ensure that the engine cannot be started if working in it's vicinity. Ensure that the battery positive (+) is disconnected during installation. Reconnect the battery positive (+) once installation is complete.

9. Adjusting Settings

The battery disconnect ('cut-out') voltage threshold and timer are user/installer adjustable. To access the controls, remove the four screws from the PowerGuard Lite CPU and remove the unit's cover. Within, you will see the Printed Circuit Board (PCB).

The PCB is fitted with two controls called 'trim potentiometer' or 'pre-set'. The left hand one allows you to set the disconnect voltage, the right hand one allows you to adjust the timer.