



Instructions for use

EN



SAFETY INSTRUCTIONS

AIM OF THIS MANUAL

This manual is designed for use by any skilled worker wishing to use Hawker Lifetech® Modular battery chargers for recharging lead/acid vented, (with or without electrolyte mixing), valve regulated AGM and gel batteries.

This manual provides details of:

- The chargers' functions.
- Any adjustments required and how to use the chargers.

When producing this manual, EnerSys® has aimed to provide its information in as simple and precise a manner as possible but cannot assume any responsibility for any misinterpretation. The owner of the equipment is required to retain this manual throughout the equipment's life and to pass it on to any purchaser in the event of its resale.

The manufacturer covers the guarantee in accordance with the local regulations (contact local sales organization).

Recommended use

This manual should be read through carefully before using the equipment and also read by anyone likely to use the equipment.

The equipment:

- Presents no obstacles to the free circulation of air through the air inlet and outlet but, nevertheless, should be cleaned of dust every six months by a qualified person.
- Must be used in conformance with its indicated level of protection and never come into contact with water.
- Must be used within the temperature limits stated in the technical characteristics.
- Must not be installed on surfaces subject to vibration (near to compressors, engines, motors).

Operator safety

Take all necessary precautions when the equipment will be used in areas where there is the possible risk of an accident occurring. Ensure appropriate ventilation according to reference standard EN50272-3 (in addition to any local regulations) to allow any gases released to escape. Never disconnect the battery while it is being charged.

ELECTRICAL SAFETY

The prevailing safety regulations must be observed. The system protection installed on the power supply to the charger must conform to the charger's electrical characteristics. The installation of a suitable circuit breaker is recommended. It is imperative to ensure that when fuses are being replaced only fuses of the specified type and of the correct are used. It is strictly forbidden to use inappropriate fuses or to short-circuit the fuse holders. This equipment conforms to Class 1 safety standards, which means that the appliance must be earthed and requires to be powered from an earthed supply.

Never open the equipment: High voltage could be still present even after turning off the charger.

Any adjustment, maintenance or repairs to the equipment while it is open must only be carried out by an appropriately skilled person who is aware of the risks involved.

Contact one of the company's trained technicians if any problem is encountered when putting the charger into operation.

This equipment has been designed for indoor use. It is only designed to recharge lead/acid batteries on industrial premises. When the equipment becomes obsolete, the casings and the other internal components can be disposed of by specialist companies. Local legislation takes precedence over any instructions in this document and must be scrupulously observed (WEEE 2002/96 EC).

EnerSys reserves the right to make any improvements and/or modifications to the product described in this manual at any time and without prior notice and is not obliged under any circumstances whatsoever to update the contents of this manual nor the equipment concerned.

The equipment's production number must be supplied when requiring a service.

If the charger is to be stored before its use, it must be kept carefully sealed in its original packaging. It must be stored in a clean and dry location at a moderate temperature (-20°C to +40°C). Equipment stored at a temperature of less than 15°C must be brought progressively to operating temperature (over a period of 24 hours) to avoid any risk of condensation causing electrical faults (particularly short-circuits).

EC DECLARATION



EnerSys hereby declares that the chargers in the Lifetech Modular range covered by this declaration conform to the descriptions laid down in European Directives:

2004/108/EC:

EN61000-6-2, EN61000-6-4: Immunity and emissions limits for industrial electronics

2006/95/EC:

EN60950, EN60335 (Low Voltage Directive)

RoHS 2011/65/EC

AS 2548.1-1998

RCM (C TICK)

CEC

PRESENTATION & USE

INTRODUCTION

The Lifetech® Modular range of chargers enable batteries to be recharged from the mains supply. The microprocessor control automatically recognizes the battery's voltage, capacity, state of charge, etc., providing optimum battery control from highly efficient analyses of its condition.

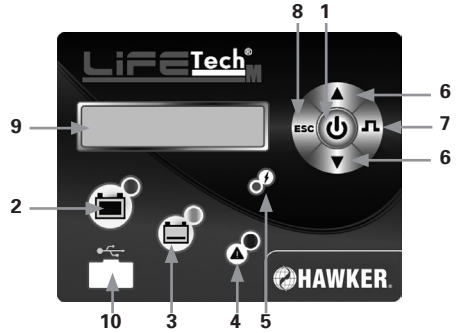
1ph	3ph
12Volt	
24Volt	24/36/48V
36/48V	72/80 V

Several charging profiles are available depending on the users configuration.

Vented Lead Acid batteries: Standard/WaterLess®, Heavy Duty & Electrolyte circulation

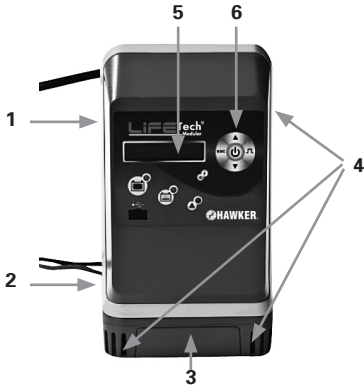
Valve Regulated Lead Acid batteries: AGM, Gel & XFC™ bloc Desulphation, Equalizing and Refreshing charges are also integrated.

FRONT PANEL



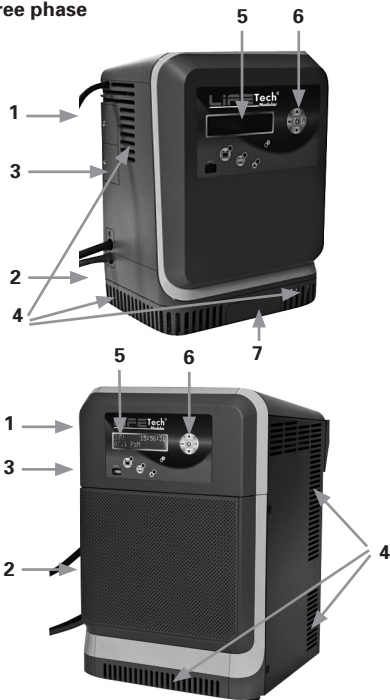
Ref	Button/LED	Function	Function
1	Start/Stop button	Start/Stop charge	Cancel active menu value (press 3s) Select of active menu
2	Greed LED	Battery available	
3	Yellow LED	Battery in charge	
4	Red LED	Fault	
5	Blue LED	AC supply ON (light)	AC supply OFF (AC missing)
6	Arrows	Navigation buttons	Return to top of list (press for 2 sec)
7	Equalization button	Start an equalization	Access a sub menu
8	Esc	Access a sub menu	Close windows
9	LCD panel	Shows details (refer to LCD display par.)	
10	USB port	Download memories	Upload firmware

Single phase stand alone 1kW



Ref	Function
1	Ac input cable
2	Dc output cable
3	Cable holder
4	Ventilation openings
5	LCD panel
6	Navigation buttons

Single phase 3 bay cabinet (2-3kW) & Three phase



Ref	Function
1	Ac input cable
2	DC output cable, only
3	Option port
4	Ventilation openings
5	LCD panel
6	Navigation buttons
7	Cable holder (only on single phase)

MECHANICAL INSTALLATION

The charger can be wall or floor mounted. If wall mounted make sure that the surface is free of vibrations and the charger is mounted in a vertical position. If floor mounted, make sure that the surfaces are free of vibration, water, humidity.

You must avoid areas where the chargers may be splashed with water.

The charger must be held by 2 or 4 fixings suitable for the type of support. The drilling pattern varies according to the model of charger (please refer to the technical data sheet).

ELECTRICAL CONNECTION

To the mains supply

You may only connect to 1-phase 230Vac (+/- 10%) or 3-phase 400Vac (+/- 10%) 50/60Hz mains supply (depending on the type of the charger) by means of a standard socket and an appropriate circuit breaker (not supplied). The current consumption is shown on the charger's information plate.

To the battery

The charger must be connected to the battery by the cables supplied:

- The RED cable to the battery's POSITIVE terminal.
 - The BLACK cable to the battery's NEGATIVE terminal.
- Polarity must be observed. Any reversal of polarity will blow the output fuse, prevent charging and cause DF2 fault code to be displayed. Please refer to the Messages and fault codes.

LCD DISPLAY

Off-charge display

With the charger in waiting mode, the display shows information concerning the charger (top and bottom lines):

1. Charger type
2. Software version.
3. Waiting indication.
4. Date and time of the charge

Off charge screens (3 screens in alternation)

```
24V35A 30/01/14
Bat +20°C
```

Charger type	Date
Batt temp (in menu)	Battery connected symbol

```
24V35A 30/01/14
Bat +20°C
```

Charger type	Date
Batt temp (in menu)	Battery not connected symbol (animation to indicate to plug the battery)

```
24V35A 14:32:45
PE02 P2M
```

Charger type	Time
Firmware version	Charging profile selected

Initiating charging

1. Connect the battery. If Default setting (Autostart ON) then the charge will start automatically or otherwise press the Start/Stop button.

The display will show 3 different alternating screens

```
CHARGE P2M
27A 24.8V 0Ah
```

Screen 1:

Line 1	Charge mode / charging profile / equal symbol (if selected) or no blocking fault
Line 2	Charging current / total voltage / Ah+

```
CHARGE P2M
32A 2.05V 00H00
```

Screen 1:

Line 1	Charge mode / charging profile / equal symbol (if selected) or no blocking fault
Line 2	Charging current / voltage/cell / charging time

```
CHARGE P2M
32A 25% 07H
```

Screen 1:

Line 1	Charge mode / charging profile / equal symbol (if selected) or no blocking fault
Line 2	Charging current / % state of charge / estimated remaining time

Completion of charging

1. The LCD screen will give you the message of availability (AVAIL)

The battery is charged and ready to use.

2. STOP the charge and disconnect the battery.

To stop the charge press the Stop/Start button.

Never disconnect the battery during charge without stopping the charging process.

This could lead to dangerous sparks or charger damage.

3. Completion of charging with equalization

Manual equalization only concerns vented lead/acid batteries. It will be initiated manually or automatically by switch. All other technologies will have an automatic preset equalization time.

To force manual equalization keep pressed the equalization button (right button) and click the On/Off (only charging profiles for flooded). If automatic then the screen will also show the following message:

```
AUTO 11 MTWTFSS
      11
```

- Equalization mode auto
- Days of the week (the symbol below indicates when the equalization is programmed (e.g. Saturday and Sunday))

```
EQUAL.
32A 25.1V 02H50
```

- During equalization
- Line 1. mode equal
- Current / total voltage / remaining time

4. Completion of charging with Float

If the float function has been selected the screen will show the message floating:

```
FLOATING ON
5A 2.25V
```

- During equalization
- Line 1. mode floating
- Current / voltage per cell

5. Completion of charging without equalization

The green 'charging complete' light is illuminated and the message AVAIL is displayed. The display shows, in alternation:

```
AVAIL
07H40
```

- The charging time taken.

```
AVAIL DF4
07H40
```

- Non-blocking faults if present

```
AVAIL
420Ah
```

- The number of Ah recharged

LCD FAULT MESSAGES CODES

Fault	Cause	Remedial action
No display and Blue LED off	No mains supply.	Check the power supply and the input fuse(s).
DF CURRENT	Appears before a DF1 fault is displayed.	
DF1*	Charger fault.	DF1 appears when the charger is not able to supply its output current. Check the power supply voltage.
DF2*	Charger fault.	Check the correct connection of the battery (reversed polarity cables) and check the output fuse.
DF3*	Unsuitable battery.	Battery voltage too high or too low. Battery voltage must be between 1.6V and 2.4V per cell. Use proper charger for battery.
DF4	The battery has been discharged more than 80% of its capacity.	Charging continues.
DF5	Battery requires inspection.	Charging profile has been achieved with a fault condition, that can be a current increase in regulation phase demonstrating a battery heating or a badly programmed regulation voltage, or the charging time is too long and has exceeded the safety limit. Check charging parameters: profile, temperature, capacity, cables. Check the battery (defective cells, high temperature, water level, terminals).
DF7	Pneumatic mixing air circuit fault (the red light flashes).	Check the proper operation of the pump via the menu Option-Option test. Check the air circuit (pump, tubes).
TH*	Thermal fault resulting in interruption of charging.	Check that the fans are working correctly and/or that the ambient temperature is not too high or whether there is poor natural ventilation to the charger.
MOD TH	Alternating with charge parameters - one or more module in thermal fault - the charge process continues - the faulty modules are displayed + red led flashing.	Check that the fans are working correctly and/or that the ambient temperature is not too high or whether there is poor natural ventilation to the charger. If all modules are in thermal fault then a TH* fault will follow.
MOD DFC	Alternating with charge parameters - one or more module in DF1 fault - the charge process continues - the faulty modules are displayed + red led flashing.	Check power supply. If all modules are in DF1 fault then a DF1* fault will follow.
DEF ID	Blocking fault - one or more module are not compatible with the charger configuration (for example 24V charger with one 48V module). This can happen if the user replaces one module with another one with a different voltage setting.	Use correct module.

(*) A blocking fault preventing charging from continuing. Please contact EnerSys® Service.

Subject to technical modification without any prior notice. E&OE
www.enersys-asia.com



Asia Headquarters

Suite 3 Floor 11
Gateway East Building
152 Beach Road
Singapore, 189721

Australia / New Zealand

46 Egerton St
Silverwater, NSW, 2128
+61 2 9739 9999

China

Room 902, Sheng Gao Int. Plaza
No. 137 Xian Xia Road
Shanghai, PRC, 200131
+86 21 6273 6558

Japan

5F Mitaka Mitsubishi Bldg
Shimorenjaku 3-26-12
Mitaka, 181 0013, Tokyo
+81 0422 70 3831

Singapore

No. 85 Tuas Ave 1
Singapore, 639518
+65 6558 7333

Malaysia

No.10 Jalan Anggerik Mokara 31/47
Kota Kemuning, Seksyen 31
40460 Shah Alam
Selangor Darul Ehsan, Malaysia
+60 3 5125 1111

India

Plot No: 1057M, 1st Floor
Road No: 45, Jubilee Hills
Hyderabad, 500033
+91 40 670 46701



Please refer to the website address for details of your nearest EnerSys office: www.enersys-asia.com

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