

# Falcon Series

## Single Phase

Instructions manual (UK)

Warranty (UK)



**Read the following instructions carefully before connecting the rectifier to the supply line and to the battery.**

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☐ **INDEX**

1. **INSTALLATION** ..... 5

2. **CONNECTION TO THE SINGLE PHASE LINE**..... 5

3. **MAINTENANCE** ..... 6

4. **METHOD OF OPERATION**..... 7

    4.1 **RECHARGE PHASE** ..... 7

5. **WARRANTY** ..... 9

6. **REQUEST OF SPARE PARTS**..... 10

**CONFORMITY DECLARATION** ..... 11

**WARRANTY CERTIFICATE**..... 14

# Falcon Series 12V - 20A

## Battery Charger

### Versions: Single Phase

**All battery chargers Falcon Series are conform to the following European standard**

<b>DIN 41772-3-4</b>	<b>“Charging method and curve of transformers”.</b>
<b>EN 60335-2-29</b>	<b>“Safety of electrical appliances and similar”.</b>
<b>EN 55014</b>	<b>“E.M.C. standards”.</b>
<b>73/23/EEC</b>	<b>“Electric material used within specific voltage limits”, later modified by directive 93/68/EEC.</b>
<b>89/336/EEC</b>	<b>“Electromagnetic compatibility”, later modified by directive 92/31/CEE - 93/68/CEE.</b>

Il The following equipment is covered by warranty.

The warranty certificate is attached to the following manual. If not, request it to your dealer.

The information contained in the present manual is Powergen s.r.l.'s property.

Powergen s.r.l. reserves the right to provide it to its own customers for their exclusive use.

No other use is allowed without Powergen s.r.l.'s written authorization.

Powergen is not liable for inexact data, misprint and clerical errors.

The data of the present manual may be altered without notice, also in the end user's interest.

## INSTALLATION - USE - OPERATION

To use the charger, you have to abide by safety prescriptions contained in law and regulation and in provisions of local authorities.

Obligations of the “USER” : conforming to the operating instructions, the “USER” is any natural or juridical person using directly Powergen srl battery chargers or anyone using them for account of the above mentioned person.

Under special circumstances, e.g. leasing renting, the “USER” is the person who takes following obligations according to the agreements made by owner and “USER”.

The “USER” will be responsible for the installation site of the charger. He shall check, whether very sensitive appliances are disturbed by the influence of the battery charger. He shall choose such an installation site, that the operation of the charger (a high current produces interferences magnetic fields) does not affect the functioning of electromagnetic devices and magnetic data carriers (f.e. pace makers, monitors, magnetic disks and diskettes, magnetic tapes, magnetic card, etc...).

The “USER” shall make sure that “USER”s and operators have read and understood the operating instructions and that they abide by accident prevention and safety rules and the use and maintenance provisions.

***N.B. Read the following instructions carefully before connecting the rectifier to the supply line and to the battery.***



## 1. INSTALLATION

- The installation environment shall be capable of ensuring the user's safety and the conditions for a correct operation
- Powergen Processor battery charger is exclusively designed to recharge traction batteries and each unit is assigned to a specific battery.
- Powergen Processor battery charger has IP 20 protection degree, therefore it shall be protected from rain and water sprays. It shall be installed away from easily inflammable materials and shall not be used as a supporting top. The presence of dust and/or corrosive environments may damage the components seriously.
- Do not lay any materials which may obstruct the cooling air flow.
- The rectifier shall be laid on the floor in horizontal position. For special requirements it may also be placed on special raised shelves.

### **ATTENTION :**

**VIBRATIONS DURING TRANSPORT COULD CAUSE UNPLEASANT DRAWBACKS, SO BEFORE STARTING UP THE UNIT, PLEASE CHECK NUTS AND BOLTS FOR TIGHTNESS.**

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## 2. CONNECTION TO THE SINGLE PHASE LINE

- It is absolutely necessary to plug into a current outlet being proportional to the power of the installed battery charger (s.the KW value on the rating plate put on the side or on the rear)
- Make sure also the EARTH cable has been correctly connected.**
- The unit comes is pre-set for a 230/240 VAC.

### 3. MAINTENANCE

- ❑ No scheduled maintenance is provided, though control and cleaning inspections may be performed within the battery charger system depending on its work environment. However such operations shall only be carried out by qualified staff.
- ❑ Any maintenance intervention shall only be carried out after disconnecting the rectifier from mains and from the battery.
- ❑ For a correct operation we recommend to check the mechanical tightening of electric connections and the good status of wires and connections and to remove the existing dust.

### ***FRONT PANEL COMMON TO THE FALCON SERIES***



#### **Listing the common principal characteristics to the *Falcon series*:**

1. Advanced mosfet technology at **high frequency**.
2. Charging process entirely controlled by the microprocessor.
3. Visualisation on luminous display of the selected charge curve.
4. Possibility to change the charging curve, select among 16 pre-programmed standard curves valid for Pb-acid, GEL.
5. Possibility to change battery tension and charge current with buttons on front.
6. Beginning of charge process in «soft start» mode, visualisation of the charging cycle stage, with the led placed on the front panel.
7. Electronic protection against polarity inversions, short circuits, over tensions and anomalies.
8. Connection to the battery with potency clamps (Anderson).
9. Alphanumerical signalling of possible anomalies.
10. Thermal protection against over heating.

## 4 METHOD OF OPERATION

### 4.1 RECHARGE PHASE:

The recharge electric current is limited by the settings selected with the SET button and visualised on the display:

**A; no selection and awaiting set-up setting, pressing button START/STOP, the battery charger doesn't start the charge.**

- 1; maximum electric current set-up at 23 A**
- 2; maximum electric current set-up at 21 A**
- 3; maximum electric current set-up at 20 A**
- 4; maximum electric current set-up at 18 A**
- 5; maximum electric current set-up at 17 A**
- 6; maximum electric current set-up at 15 A**
- 7; maximum electric current set-up at 14 A**
- 8; maximum electric current set-up at 12 A**

Keeping the SET button pressed for 3 seconds, you exchange the Pb charge mode (14,4V) or Gel (14,1V), visualised through the Pb Led and the Gel Led.

To start or stop the charge, press the START/STOP button, in the mass phase the C1 Led, flashes and the C2 Led, the C3 Led, form an ammeter to detect the achievement of the selected current; if the current exceeds of 15% the set-up current, the led bar composed of C1, C2, C3, flashes.

In this charge phase the current is increased, it becomes constant at I<sub>max</sub> setting and terminates when tension has achieved 14,4V or 14,1V set-up by SET.

***During the MASS phase (Bulk), the battery recuperates up-to 80% of it's nominal capacity.***

Achieved and maintained for at least 2 seconds of the tension of 14,4V or 14,1V, the battery charger passes to ABSORPTION mode:

### **ABSORPTION**

In this mode the recharge the tension is kept constant at 14,4V or 14,1V, controlling however the max current set-up, to avoid possible anomalous absorption's.

In this phase the current is decreased, up-to the I<sub>min</sub> value, set-up by SET. At the beginning of the charge.

In the ABSORPTION phase or CONSTANT TENSION, the Led TC flashes, and the C1, C2, C3 bar functions as a decreasing ammeter (from C3 to C1).

Achieved and maintained for 2 seconds I<sub>min</sub>, the battery charger passes to the final charging phase:

## FINAL PHASE

In this phase the current and the tension are controlled: the maximum current is equal to I<sub>min</sub>, and the tension rises until the absorbed current falls.

This phase is visualised by the flashing of the LED MAN, and by the C1, C2, C3 Led bar that works as a decreasing ammeter.

Achieved and maintained for 2 seconds the tension of 16 V (pb) 15,25V (gel) at the battery terminals, the charge cycle TERMINATES, emitting a BEEP of 1 second, returning to the initial settings, set-up by SET.

**THE BATTERY CHARGER IS READY FOR ANOTHER RECHARGE.**

**TIMEOUTS OF THE CHARGE PHASES.**

TIMEOUT	1	2	3	4	5	6	7	8
<i>TIMEOUT FASE BULK</i>	10h45	10h	9h	8h	7h15	6h15	5h30	4h30
<i>TIMEOUT TOTALE</i>	15h45	15h	14h	13h	12h15	11M5	10h30	9h30

**- Before charging the unit, read the instruction manual carefully;**

### **ATTENTION :**

- Check the input voltage and adapt the regulation on the power transformer**
- For indoor use only - do not expose the unit to the rain or similar elements**

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**ATTENTION, PLEASE:**

***BEFORE DISCONNECTING THE CONNECTOR BETWEEN THE BATTERY AND THE CHARGER, PLEASE, MAKE SURE THE CHARGE LIFE CYCLE HAS FINISHED, OTHERWISE BEFORE DISCONNECTING YOU MUST STOP THE CHARGE MANUALLY, IN ACCORDANCE WITH THE SECURITY STANDARDS. THIS OPERATION GUARANTEES MORE RELIABILITY OF THE INNER ELECTRONIC COMPONENTS OF THE EQUIPEMENT.***

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**WARNING****5. WARRANTY**

- The duration of the battery charger warranty is 12 (twelve) months from its startup.
- The warranty is void due to improper use, incorrect installation or tampering
- The warranty is void if interventions on the equipment are performed by persons not qualified by Powergen S.r.l.

## 6. REQUEST OF SPARE PARTS AND/OR SERVICE REQUEST

We recommend to always advise the serial number of the battery charger.



## CONFORMITY DECLARATION



The Manufacturer Powergen S.r.l. with registered office in Via XXV Aprile, 5  
Corsalone Chiusi della Verna (AREZZO)

### DECLARES

that the battery charger of Powergenprocessor type Falcon Series

Serial N° \_\_\_\_\_ manufacturing year 200\_\_

#### Complies with the following standards:

- DIN 41772-3-4** : “Charging method and curve of transformers”.
- EN 60335–2-29** : “Safety of electrical appliances and similar”.
- EN 55014** : “E.M.C. standards”.
- 73/23/EEC** : “Electric material used within specific voltage limits”, later modified by directive 93/68/EEC;
- 89/336/EEC** : “Electromagnetic compatibility”, later modified by directive. 92/31/EEC.

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**WARRANTY CERTIFICATE**

Powergenprocessor \_\_\_\_\_

Serial N° \_\_\_\_\_

**Customer's stamp and signature**

**Fill in and send to:**

Powergen Italia S.r.l.  
Via XXV Aprile , 5 Loc Corsalone Chiusi della Verna (AR)  
tel 0575-531015 - Telefax 0575-511891  
[www.batterychargerpowergen.it](http://www.batterychargerpowergen.it) e mail adress [borri@elledi.it](mailto:borri@elledi.it)  
[info@batterychargerpowergen.it](mailto:info@batterychargerpowergen.it)

Thank you very much for choosing our product. Congratulations on your decision.

This equipment is the result of the most advanced technology and has been manufactured according to the most rigorous quality criteria.

### Powergenprocessor WARRANTY RULES

1. The purchaser shall fill in and send the coupon in order to be entitled to the warranty.
2. The warranty duration is 12 (twelve) months from the date resulting from the present certificate and it cannot be extended due to the inactivity of the equipment caused by repair.
3. The warranty only covers faults on the product which cause malfunctions. The guaranteed product shall also have the same serial number as the one specified on the present certificate, otherwise the certificate will be void. Warranty is exclusively meant as a free-of-charge repair or replacement of components which have been acknowledged to be faulty in their manufacture or material, labour included.
4. The warranty is not applied in case of damages caused by negligence, use or installation not complying with the delivered instructions, damages caused by interventions performed by unauthorized persons, damages due to accidental causes or to the purchaser's negligence. Moreover it is not applied in case of faults resulting from connections of the equipment to voltages other than those specified, or from sudden voltage changes of the mains to which the equipment is connected, as well as in case of faults caused by inductive/electrostatic discharges or flashovers caused by lightnings or other phenomena outside the equipment.
5. Parts subject to wear resulting from use are excluded from the warranty.
6. The warranty is void after twelve months from the purchase. In this case the service interventions will be performed charging for the replaced parts and the labour costs according to ANIE rates or equivalent ones.