HELMAR
PERFORMANCE TECHNOLOGY PARTS

# INDUSTRIAL BATTERIES/CHARGERS

CATALOG


Exclusive Deals made just for you

FREE FREIGHT OPTIONS
Call Today

# Industrial Batteries

Best value for low-maintenance replacement batteries!

**Industrial Batteries** | **Batteries from 12 Volts up to 48 Volts**

**Full-Power Ratings**
**Low Maintenance For Life (30%-40% reduced)**
**Built-in over-flow prevention keeps batteries/environments clean**

**"Maintenance is required" indicators**
**Fast-Charge Compatible, extra-heavy Construction**
**MADE IN USA since 1950**

**12 VOLTS**

| Battery Model | Length | Width | Height | Cover | Battery Model | Length | Width | Height | Cover |
|---|---|---|---|---|---|---|---|---|---|
| BT6-85-11 | 26" | 7 3/4" | 23 3/4" | Yes | BT6-85-13-1 | 30 5/8" | 7 3/4" | 23 3/4" | Yes |
| BT6-85-11-1 | 26 1/8" | 6 1/2" | 23 3/4" | Yes | BT6-100-13 | 30 5/8" | 7 3/4" | 26 3/4" | Yes |
| BT6-85-13 | 30 5/8" | 7 3/4" | 23 3/4" | Yes | BT6-125-13 | 30 9/16" | 7 3/4" | 31" | Yes |

**24 VOLTS**

| Battery Model | Length | Width | Height | Cover | Battery Model | Length | Width | Height | Cover |
|---|---|---|---|---|---|---|---|---|---|
| BT12-85-05 -1 | 24 7/8" | 6 1/2" | 22 7/8" | No | BT12-85-23 | 35 5/8" | 19 7/32" | 22 7/8" | No |
| BT12-85-05-2 | 24 7/8" | 6 1/2" | 23 3/4" | Yes | BT12-100-13 | 30 9/16" | 12 3/4" | 26 1/4" | No |
| BT12-85-05-3 | 24 3/4" | 7 5/8" | 23 3/4" | Yes | BT12-125-11 | 31 7/8" | 11" | 31" | Yes |
| BT12-85-05-4 | 30 5/8" | 6 1/2" | 23 3/4" | Yes | BT12-125-11-1 | 31 7/8" | 11" | 30 1/4" | No |
| BT12-85-05-5 | 20 3/4" | 8 3/8" | 23 3/4" | Yes | BT12-125-13-1 | 35 3/4" | 11 3/4" | 30 1/4" | No |
| BT12-85-07-1 | 30 9/16" | 7 3/4" | 31" | Yes | BT12-125-13-2 | 30 5/8" | 12 3/4" | 31" | Yes |
| BT12-85-07-3 | 30 3/8" | 8 11/16" | 23 3/4" | Yes | BT12-125-13-3 | 30 5/8" | 12 3/4" | 30 1/4" | No |
| BT12-85-07W-2 | 25 3/8" | 8 11/16" | 22 7/8" | No | BT12-125-13-4 | 35 3/4" | 11 3/4" | 31" | Yes |
| BT12-85-13-1 | 30 5/8" | 12 13/16" | 23 3/4" | Yes | BT12-125-13-5 | 35 3/4" | 13 1/2" | 30 1/4" | No |
| BT12-85-13-2 | 30 9/16" | 12 3/4" | 22 7/8" | No | BT12-125-15-1 | 35 1/8" | 12 7/8" | 30 1/4" | No |
| BT12-85-13W-6 | n/a | n/a | n/a | n/a | BT12-125-15-2 | 35 1/8" | 12 7/8" | 31" | Yes |
| BT12-85-15 | 35 5/8" | 12 7/8" | 22 7/8" | No | BT12-125-15-3 | 36" | 14" | 30 1/4" | No |
| BT12-85-15-1 | 35 5/8" | 12 7/8" | 23 3/4" | Yes | BT12-125-15-4 | 38" | 12" | 30 1/4" | No |
| BT12-85-19 | 29 5/8" | 19 7/32" | 22 7/8" | No | BT12-125-17 | 38" | 13" | 30 1/4" | No |
| BT12-85-21 | 32-5/8" | 19 7/32" | 22 7/8" | No | | | | | |

# Best value for low-maintenance replacement batteries!

## Battery Sizing Chart

Batteries from 12 Volts up to 48 Volts

| 36 VOLTS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Battery Model | Length | Width | Height | Cover | Battery Model | Length | Width | Height | Cover |
| BT18-85-13 | 38 1/8" | 15 3/8" | 22 7/8" | No | BT12-85-23 | 38 1/8" | 26 7/8" | 23 3/4" | Yes |
| BT12-85-15-1 | 31 13/16" | 23 9/16" | 22 7/8" | No | BT12-85-23-1 | 38 1/8" | 26 7/8" | 22 7/8" | No |
| BT12-85-15-2 | 38 1/8" | 17 11/16" | 22 7/8" | No | BT12-85-25 | 38 1/8" | 29 15/16" | 23 3/4" | Yes |
| BT12-85-17 | 38 1/8" | 20 1/16" | 22 7/8" | No | BT12-85-25-1 | 38 1/8" | 29 1/8" | 22 7/8" | No |
| BT12-85-17-1 | 33 1/16" | 25 9/16" | 23 3/4" | Yes | BT12-85-27 | 38 1/8" | 31 3/8" | 22 7/8" | No |
| BT12-85-17-2 | 33 1/16" | 25 9/16" | 22 7/8" | No | BT12-85-29 | 38 1/4" | 33 3/4" | 22 7/8" | No |
| BT12-85-17-3 | 32" | 26 1/2" | 22 7/8" | No | BT12-100-17 | 38 1/8" | 20 1/16" | 25 5/8" | No |
| BT12-85-17-4 | 31 13/16" | 26 9/16" | 23 3/4" | No | BT12-100-21 | 38 1/8" | 24 5/8" | 25 5/8" | No |
| BT12-85-17-5 | 38 1/8" | 20 1/8" | 23 3/4" | Yes | BT12-125-11 | 38 1/8" | 13 1/8" | 30 1/4" | No |
| BT12-85-19 | 35" | 25 1/2" | 22 7/8" | No | BT12-125-13 | 38 1/16" | 15 3/8" | 30 1/4" | No |
| BT12-85-19-1 | 35 7/8" | 25 5/8" | 22 7/8" | No | BT12-125-15 | 38 1/8" | 17 11/16" | 30 1/4" | No |
| BT12-85-19-2 | 38 1/8" | 22 5/16" | 22 7/8" | No | BT12-125-17 | 38 1/8" | 20 1/16" | 30 1/4" | No |
| BT12-85-21 | 38 1/8" | 26 7/8" | 22 7/8" | Yes | | | | | |

| 48 VOLTS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Battery Model | Length | Width | Height | Cover | Battery Model | Length | Width | Height | Cover |
| BT24-85-13 | 30 5/8" | 25 3/8" | 22 7/8" | No | BT24-85-19 | 38 1/8" | 29 1/2" | 22 7/8" | No |
| BT24-85-13-1 | 37 3/4" | 20 7/16" | 22 5/8" | No | BT24-85-19-1 | 44 1/4" | 25 5/8" | 22 7/8" | No |
| BT24-85-15 | 38 1/8" | 23 7/16" | 22 7/8" | No | BT24-85-21 | 38 1/8" | 32 5/8" | 22 7/8" | No |
| BT24-85-15-1 | 35 1/8" | 25 5/8" | 22 7/8" | No | BT24-85-25 | 38 3/4" | 38 1/8" | 22 7/8" | No |
| BT24-85-17-1 | 38 1/8" | 26 7/8" | 23 3/4" | Yes | BT24-125-09 | n/a | n/a | n/a | n/a |
| BT24-85-17-2 | 38 1/8" | 26 7/8" | 22 7/8" | No | BT24-125-13 | 38 1/8" | 20 9/16" | 30 1/4" | No |
| | | | | | BT24-125-13-1 | 44" | 20 9/16" | 30 1/4" | No |

### WARRANTY INFORMATION

IF THE BATTERY BUILDERS BATTERY BECOMES UNSERVICEABLE DUE TO DEFECTIVE WORKMANSHIP OR MATERIAL WITHIN 60 MONTHS FROM DATE OF SHIPMENT, IT WILL BE REPAIRED OR REPLACED AT BATTERY BUILDERS OPTION. THERE WILL BE NO COST FOR PARTS OR LABOR, F.O.B. THE NEAREST BATTERY BUILDERS SERVICE LOCATION. REPAIRS WILL BE MADE BY A BATTERY BUILDERS SERVICING AGENT IN THE AREA OR A PRE-APPROVED BATTERY REPAIR CENTER. IF THE BATTERY IS TO BE REPLACED, IT WILL BE REPLACED WITH A BATTERY OF COMPARABLE SIZE AND TYPE.

EXCEPTIONS: 5 & 7 PLATE BATTERIES AND UNITS WITH BUILT IN CHARGERS WILL BE WARRANTED FOR A PERIOD OF 2 FULL YEAR PLUS AN ADDITIONAL 12 MONTHS PRO-RATED OR 900 LIFE CYCLES WHICHEVER COMES FIRST.

### CONDITIONS

1. EACH BATTERY MUST BE PROPERLY SIZED IN REGARDS TO WEIGHT ANDCAPACITY FOR THE DUTY CYCLE IT IS TO PERFORM.
2. THE BATTERY MUST BE MATCHED TO THE PROPER SIZE CHARGER ANDPROPER CONTROL TO RECHARGE THE BATTERY.
3. THE SIXTY (60) MONTH WARRANTY IS BASED ON 1800 CYCLES ANDLIMITED TO ONE CHARGE AND ONE DISCHARGE WITHIN A TWENTY-FOUR(24) HOUR PERIOD TO 80% RATED CAPACITY AND NO MORE THAN 350CYCLES PER CALENDAR YEAR.
4. BATTERY BUILDERS WARRANTY WILL BE ACTED UPON IF THE BATTERYFAILS TO REACH 80% OF THE PUBLISHED RATED CAPACITY AMP HOUR ATTHE 6 HOUR RATE TO A FINAL VOLTAGE OF 1.70 VOLTS, WHEN TESTEDUNDER MANUFACTURER'S GUIDE LINES.
5. THE REPAIRED OR REPLACED BATTERY WILL BE WARRANTED ONLY FORTHE REMAINDER OF THE ORIGINAL PERIOD.
6. THIS WARRANTY IS INVALID IF THE BATTERY IS SUBJECT TO MISUSE, PHYSICAL DAMAGE, OR ABUSE OTHER THAN THE NORMAL WEAR AND TEAR.
7. THIS WARRANTY APPLIES ONLY TO THE ORIGINAL PURCHASER AND ISNONTRANSFERABLE.

THIS WARRANTY IS VOID IF THE BATTERY BECOMES UNSERVICEABLE DUE TO FIRE, WRECKAGE, FREEZING, NEGLECT, EVIDENCE OF HIGH TEMPERATURES, ANY ACT OF GOD, THE USE OF BATTERY ADDITIVES OR IF THE BATTERY HAS BEEN TESTED, SERVICED, OR REPAIRED BY SOMEONE OTHER THAN AN AUTHORIZED BATTERY BUILDERS SERVICING AGENT.

BATTERY BUILDERS SHALL NOT BE LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE SALE OR RELATING TO THE USE OF THIS PRODUCT. THE PURCHASER ASSUMES RESPONSIBILITY FOR PERSONAL INJURY AND PROPERTY DAMAGE RESULTING FROM THE HANDLING, POSSESSION OR USE OF THE PRODUCT. IN NO EVENT, SHALL THE LIABILITY OF BATTERY BUILDERS INC. FOR ANY AND ALL CLAIMS, INCLUDING CLAIMS OF BREACH OF WARRANTY OR NEGLIGENCE, EXCEED THE PURCHASE PRICE OF THE PRODUCT.

THIS WARRANTY IS UNDERSTOOD TO BE THE EXCLUSIVE AGREEMENT BETWEEN THE PARTIES RELATING TO THE SUBJECT MATTER HERE FOR. NO REPRESENTING AGENT UNLESS NOTED SO BY BATTERY BUILDERS IN WRITING IS AUTHORIZED TO ANY WARRANTY IN ADDITION TO THOSE MADE IN THIS AGREEMENT.

# Battery Chargers

Helmar is the Exclusive North America Distributor of PBM Chargers

## Battery Chargers Since 1973

### PBM Battery Chargers

### THREE MODELS FOR THE WHOLE RANGE

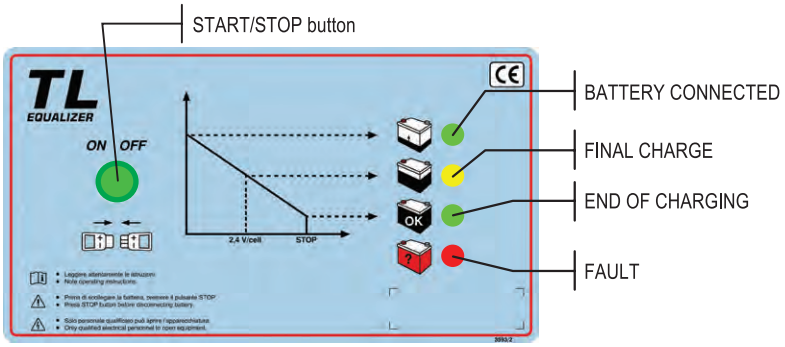
- Culus, Ccsaus, Fcc, Tuv, Ce Approved
- Ul Recognized Insulation System Of The Power Transformer
- Electronic Controller With Failure Diagnostics
- Last Charge Information Stored As Long As Battery Remains Connected
- Automatic Start/Stop
- Equalizing Charge
- Overload Cutout On Transformer Overload cutout on transformer.

c UL us LISTED 15JC E240675 · SP C US 241623 · FC · TÜV · CE

### TL EQUALIZER

### Single Phase

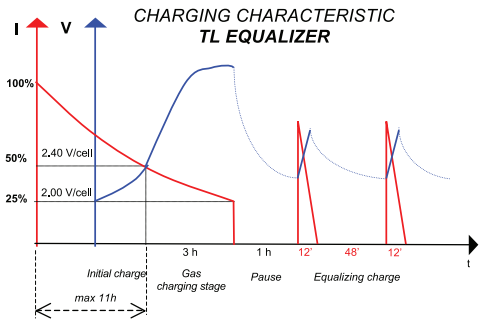
- Single-phase input voltage 120/208/240 VAC - Frequency 50/60 Hz.
- Transformer adjustments to ±5% VAC.
- Tropicalized stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.
- Transformer with UL recognized insulation system which ensures high reliability even in heavy-duty conditions.
- Overload cutout on transformer.
- Rectifier bridge equipped with interference suppressing filters.
- Protection fuses on mains input and D.C. output.
- Final acceptance test performed in compliance with UL, CSA, CE TÜV safety requirements.
- Equipped with power cord and battery cables. Complete with connectors.
- Electronic controller AP071 with microprocessor and failure diagnostics.
- Polycarbonate panel equipped with 4 LED's indicating the charging stages.
- 12/24/36/48V rated voltages selectable by jumpers and with 2.40 V/cell automatic threshold setting.




- DIP switches to program and set the charging parameters (Autostart, Final charge time, Quick test, Equalizing charge and Proportional charge).
- Charger complies with FCC and CE/TÜV rules and requirements on Electromagnetic Compatibility.

### 9-10H CHARGING CHARACTERISTICS

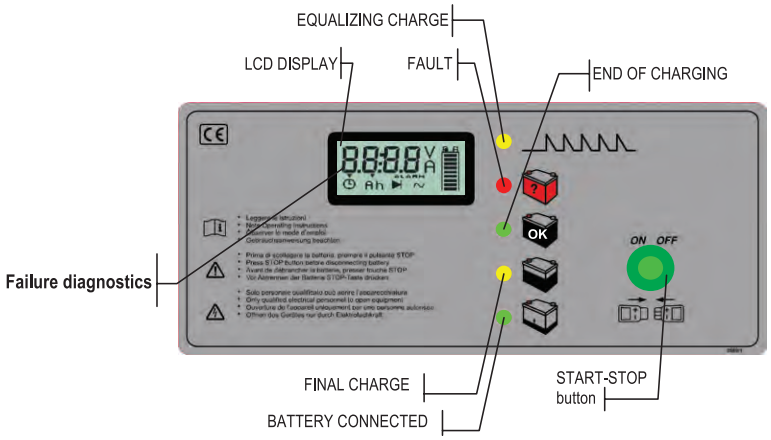
- Charging with decreasing current until a voltage of 2.40 V/cell is reached and the gas charging stage begins (adjustable).
- Time-controlled gas charging stage, adjustable by DIP switches (3 hours as standard).
- Foreseen charging time: 9 ÷10 hours (without equalizing charge).
- The equalizing charge is automatically performed 60 minutes after the last charge cycle. It is performed during the night and is repeated once a week as maintenance cycle.



## MATIC POINT

## Single Phase

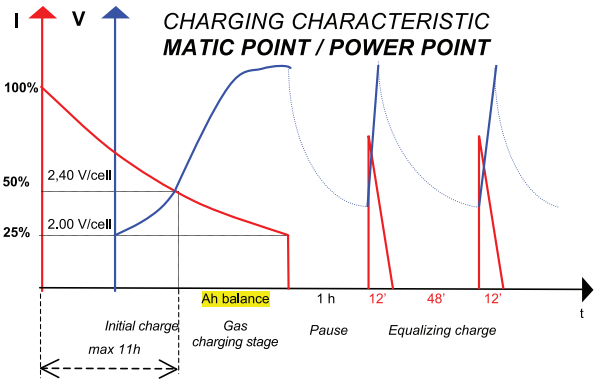
- Single-phase input voltage 120/208/240 VAC - Frequency 50/60 Hz..
- Transformer adjustments to ±5% VAC.
- Tropicalized stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.
- Transformer with UL recognized insulation system which ensures high reliability even in heavy-duty conditions.
- Overload cut-out on transformer.
- Rectifier bridge equipped with interference suppressing filters.
- Protection fuses on mains input, auxiliary circuits and D.C. output.
- Final acceptance test performed in compliance with UL, CSA, CE/TÜV safety requirements.
- Equipped with power cord and battery cables. Complete with connectors.
- Electronic controller AP735USA with microprocessor and failure diagnostics powered from battery voltage.
- Storage of the charging parameters of the last charge (only as long as battery remains connected) displayed on the LCD: Voltage, Current, Ah, and Time.
- Polycarbonate panel with LED's indicating the charging stages.
- Charger switching off on battery disconnection while on charge.
- Short check of functions and times.




- 4 digit LCD with 12 multifunctional symbols displaying the charging data recalled by pushing the ON-OFF button.
- Charger complies with FCC and CE/TÜV rules and requirements on Electromagnetic Compatibility.

## 9-10H CHARGING CHARACTERISTICS

- Charging with decreasing current until a voltage of 2.40 V/cell is reached and the gas charging stage begins (adjustable).
- Ah and dV/dt controlled gas charging stage available to optimize the overcharging factor, making it indpendent of mains fluctuations, battery discharge factor and status, thus ensuring a longer battery life.
- Time-controlled gas charging stage as an alternative adjustable by DIP switches (3 hours as standard).
- Foreseen charging time: 9 ÷10 hours (without equalizing charge).
- The equalizing charge is automatically performed 60 minutes after the last charge cycle. It is performed during the night and is repeated once a week as maintenance cycle.




# Battery Chargers

Helmar is the Exclusive North America Distributor of PBM Chargers

STANDARD SINGLE PHASE

## POWER POINT

Single Phase & Three Phase

- Single-phase input voltage 208/240/480 VAC - Frequency 50/60 Hz.
- Three-phase input voltage 208/240/480/600 VAC - Frequency 50/60 Hz.
- Transformer adjustments to ±5% VAC.
- Tropicalized stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.
- Transformer with UL recognized insulation system which ensures high reliability even in heavy-duty conditions.
- Low voltage control circuit (24 VAC).
- Overload cutout on transformer.
- Rectifier bridge equipped with interference suppressing filters.
- Protection fuses on mains input, auxiliary circuits and D.C. output.
- Final acceptance test performed in compliance with UL, CSA, CE/ TÜV safety requirements.
- Complete with battery cables and connector.
- Power cord to be installed by the customer.
- Electronic controller AP735USA with microprocessor and failure diagnostics powered from battery voltage.
- Polycarbonate panel with LED's indicating the charging stages.
- Charger switching off on battery disconnection while on charge.
- LED's indicating charging stages or faults, if any.
- 4 digit LCD with 12 multifunctional symbols displaying the charging data recalled by pushing the ON-OFF button.
- Charger complies with FCC and CE/TÜV rules and requirements on Electromagnetic Compatibility.


Failure diagnostics with alarm display


## LCD DISPLAYING CHARGING DATA :

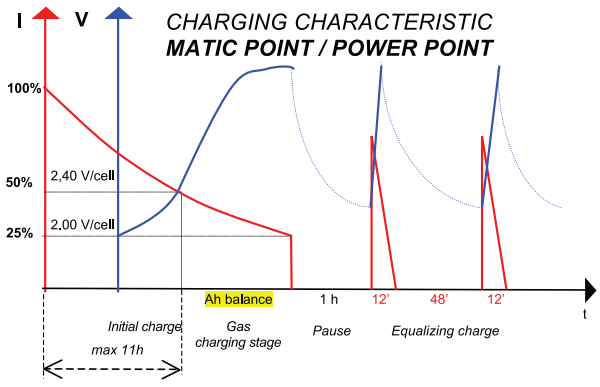
- Real Time Delivered Current (A) and Battery Voltage (V)
- Battery Voltage before charging (V) and Initial Current of the Charge (A)
- Delivered Charge (Ah)
- Overall charging time (hours : minutes)
- Final Voltage reached by battery (V) and Final Current delivered (A)

## THE FOLLOWING CHARGING PARAMETERS CAN BE PROGRAMMED BY MEANS OF DIP SWITCHES:

1. Automatic start (Autostart)
2. Final charge timer settable from 1h to 5h 30m
3. Safety timer on the initial stage settable to 7h or 11h (standard)
4. Equalizing charge
5. Proportional charge

## 9-10H CHARGING CHARACTERISTICS

- Charging with decreasing current until a voltage of 2.40 V/cell is reached and the gas charging stage begins (adjustable).
- Ah and dV/dt controlled gas charging stage available to optimize the overcharging factor, making it independent of mains fluctuations, battery discharge factor and status, thus ensuring a longer battery life.
- Time-controlled gas charging stage as an alternative adjustable by DIP switches (3 hours as standard).
- Foreseen charging time: 9 ÷10 hours (without equalizing charge).
- The equalizing charge is automatically performed 60 minutes after the last charge cycle. It is performed during the night and is repeated once a week as maintenance cycle.



OPPORTUNITY THREE PHASE

## POWER POINT

## OPPORTUNITY CHARGER - 7-8 hour charging time for Multi-shift Operation

- 7-8h CHARGING TIME
- Three-phase input voltage: 240/480/600 VAC - Frequency 50/60 Hz.
- Transformer adjustments to ±5% VAC.
- Tropicalized stray-flux transformer, copper windings with double enamel insulation, class H, impregnated with non-toxic resins, kiln-dried.
- Transformer with UL recognized insulation system which ensures high reliability even in difficult operating conditions.
- Low voltage control circuit (24 VAC).
- Overload cutout on transformer.
- Rectifier bridge equipped with interference suppressing filters.
- Protection fuses on mains input and D.C. output.
- Final acceptance test performed in compliance with UL, CSA, CE/ TÜV safety requirements.
- Complete with charging cables and battery connectors.
- Power cord to be installed by the customer.
- It can be stacked up to three units high.

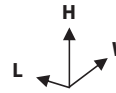
**7 TO 8 HOUR CHARGING TIME FOR MULTISHIFT OPERATION**

### CHARGING PARAMETERS PROGRAMMED BY MEANS OF DIP SWITCHES:

1. Automatic start (Autostart)
2. Final charge timer settable from 1h to 5h 30m
3. Safety timer on the initial stage settable to 7h or 11h (standard)
4. Equalizing charge
5. Proportional charge


### LCD DISPLAYING CHARGING DATA :

- Real Time Delivered Current (A) and Battery Voltage (V)
- Battery Voltage before charging (V) and Initial Current of the Charge (A)
- Delivered Charge (Ah)
- Overall charging time (hours : minutes)
- Final Voltage reached by battery (V) and Final Current delivered (A)




| | BOX DIMENSIONS (inches) | | | |
|---|---|---|---|---|
| | BOX | L | H | W |
| TL EQUALIZER | L | 16.7 | 11.0 | 10.6 |
| | XL | 19.7 | 11.8 | 11.8 |
| MATIC POINT | L | 16.9 | 11.0 | 10.6 |
| | XL | 19.7 | 11.8 | 11.8 |
| POWER POINT | LP B | 22.1 | 26.2 | 21.1 |
| | LP C | 25.3 | 33.1 | 24.6 |

## **POWER POINT** - Standard & Opportunity Charger Specifications & Model Numbers

| Type | Cells | Ah (9÷10H) for std. Ah (7÷8H) for Dual. | TL Equalizer Single Phase | | Matic Point Single Phase | | Power Point Single Phase | | Power Point Three Phase | | Power Point Three Phase Opportunity | | A.C. Input Single Phase 120 Volts | 208 Volts | 240 Volts | 480 Volts | A.C. Input Three Phase 208 Volts | 240 Volts | 480 Volts | 600 Volts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12V/20A | 6 | 100÷140 | L | 30-003 | L | 30-063 | | | | | | | 3,4 | 2,0 | 1,6 | | | | | |
| 12V/30A | 6 | 150÷210 | L | 30-005 | L | 30-065 | | | | | | | 5,1 | 2,9 | 2,6 | | | | | |
| 12V/40A | 6 | 200÷280 | L | 30-007 | L | 30-067 | | | | | | | 6,7 | 3,9 | 3,4 | | | | | |
| 12V/50A | 6 | 250÷350 | L | 30-009 | L | 30-069 | | | | | | | 8,4 | 4,8 | 4,2 | | | | | |
| 12V/60A | 6 | 300÷420 | XL | 30-011 | XL | 30-071 | | | | | | | 10,1 | 5,9 | 5,0 | | | | | |
| 12V/80A | 6 | 400÷560 | | | | | LPB | 30-108 | LPB | 30-308 | LPB | 60-308 | | 7,6 | 6,5 | 3,3 | 4,2 | 3,7 | 1,9 | 1,4 |
| 12V/90A | 6 | 450÷630 | | | | | LPB | 30-110 | LPB | 30-310 | LPB | 60-310 | | 8,5 | 7,4 | 3,7 | 4,7 | 4,1 | 2,1 | 1,7 |
| 12V/100A | 6 | 500÷700 | | | | | LPB | 30-112 | LPB | 30-312 | LPB | 60-312 | | 9,4 | 8,2 | 4,1 | 5,3 | 4,6 | 2,3 | 1,9 |
| 12V/120A | 6 | 600÷840 | | | | | LPB | 30-116 | LPB | 30-316 | LPB | 60-316 | | 11,3 | 9,8 | 4,9 | 6,4 | 5,6 | 2,8 | 2,2 |
| 24V/20A | 12 | 100÷140 | L | 30-019 | L | 30-079 | | | | | | | 6,4 | 3,7 | 3,2 | | | | | |
| 24V/30A | 12 | 150÷210 | L | 30-021 | L | 30-081 | | | | | | | 9,6 | 5,6 | 4,8 | | | | | |
| 24V/40A | 12 | 200÷280 | XL | 30-023 | XL | 30-083 | | | | | | | 12,8 | 7,4 | 6,4 | | | | | |
| 24V/50A | 12 | 250÷350 | XL | 30-025 | XL | 30-085 | | | | | | | 16,0 | 9,3 | 8,0 | | | | | |
| 24V/60A | 12 | 300÷420 | | | | | LPB | 30-145 | LPB | 30-345 | LPB | 60-345 | | 10,8 | 9,3 | 4,7 | 6,18 | 5,3 | 2,6 | 2,1 |
| 24V/80A | 12 | 400÷560 | | | | | LPB | 30-149 | LPB | 30-349 | LPB | 60-349 | | 14,3 | 12,4 | 6,2 | 8,0 | 7,0 | 3,5 | 2,8 |
| 24V/100A | 12 | 500÷700 | | | | | LPB | 30-153 | LPB | 30-353 | LPB | 60-353 | | 17,9 | 15,5 | 7,8 | 10,1 | 8,8 | 4,3 | 3,5 |
| 24V/120A | 12 | 600÷840 | | | | | LPB | 30-157 | LPB | 30-357 | LPB | 60-357 | | 22,5 | 18,6 | 9,3 | 12,1 | 10,5 | 5,3 | 4,2 |
| 24V/140A | 12 | 700÷980 | | | | | LPB | 30-161 | LPB | 30-361 | LPB | 60-361 | | 25,1 | 21,8 | 10,9 | 14,1 | 12,2 | 6,1 | 4,8 |
| 24V/160A | 12 | 800÷1120 | | | | | LPB | 30-165 | LPB | 30-365 | LPB | 60-365 | | 28,7 | 24,9 | 12,4 | 16,1 | 13,9 | 7,0 | 5,6 |
| 24V/180A | 12 | 900÷1260 | | | | | | | LPB | 30-369 | LPB | 60-369 | | | | | 18,1 | 15,7 | 7,8 | 6,3 |
| 24V/200A | 12 | 1000÷1400 | | | | | | | LPB | 30-373 | LPB | 60-373 | | | | | 20,1 | 17,4 | 8,8 | 7,0 |
| 36V/20A | 18 | 100÷140 | L | 30-035 | L | 30-095 | | | | | | | 9,4 | 5,5 | 4,7 | | | | | |
| 36V/30A | 18 | 150÷210 | L | 30-037 | L | 30-097 | | | | | | | 14,1 | 8,1 | 7,1 | | | | | |
| 36V/40A | 18 | 200÷280 | XL | 30-039 | XL | 30-099 | | | | | | | 18,9 | 10,9 | 9,5 | | | | | |
| 36V/50A | 18 | 250÷350 | | | | | LPB | 30-184 | | | | | | 13,2 | 11,4 | 5,7 | | | | |
| 36V/60A | 18 | 300÷420 | | | | | LPB | 30-186 | LPB | 30-386 | LPB | 60-386 | | 15,8 | 13,7 | 6,9 | 8,9 | 7,7 | 3,8 | 3,1 |
| 36V/80A | 18 | 400÷560 | | | | | LPB | 30-190 | LPB | 30-390 | LPB | 60-390 | | 21,1 | 18,3 | 9,2 | 11,9 | 10,3 | 5,2 | 4,1 |
| 36V/100A | 18 | 500÷700 | | | | | LPB | 30-194 | LPB | 30-394 | LPB | 60-394 | | 26,4 | 22,9 | 11,4 | 14,8 | 12,9 | 6,4 | 5,2 |
| 36V/120A | 18 | 600÷840 | | | | | LPB | 30-198 | LPB | 30-398 | LPB | 60-398 | | 31,7 | 27,5 | 13,7 | 17,8 | 15,5 | 7,7 | 6,2 |
| 36V/140A | 18 | 700÷980 | | | | | LPB | 30-202 | LPB | 30-402 | LPB | 60-402 | | 37,0 | 32,0 | 16,0 | 20,7 | 18,0 | 9,0 | 7,2 |
| 36V/160A | 18 | 800÷1120 | | | | | LPC | 30-206 | LPB | 30-406 | LPC | 60-406 | | 42,3 | 36,6 | 18,3 | 23,7 | 20,5 | 10,3 | 8,2 |
| 36V/180A | 18 | 900÷1260 | | | | | LPC | 30-210 | LPC | 30-410 | LPC | 60-410 | | 47,5 | 41,2 | 20,6 | 26,7 | 23,1 | 11,5 | 9,3 |
| 36V/200A | 18 | 1000÷1400 | | | | | | | LPC | 30-414 | LPC | 60-414 | | | | | 29,7 | 25,7 | 12,9 | 10,3 |
| 36V/220A | 18 | 1100÷1540 | | | | | | | LPC | 30-418 | LPC | 60-418 | | | | | 32,7 | 28,2 | 14,1 | 11,3 |
| 36V/240A | 18 | 1200÷1680 | | | | | | | LPC | 30-422 | LPC | 60-422 | | | | | 35,5 | 30,8 | 15,5 | 12,4 |
| 48V/20A | 24 | 100÷140 | XL | 30-039 | XL | 30-103 | | | | | | | 12,8 | 7,4 | 6,4 | | | | | |
| 48V/30A | 24 | 150÷210 | XL | 30-039 | XL | 30-105 | | | | | | | 18,9 | 10,9 | 9,5 | | | | | |
| 48V/50A | 24 | 250÷350 | | | | | LPB | 30-226 | LPB | 30-426 | LPB | 60-426 | | 17,5 | 15,1 | 7,6 | 9,8 | 8,5 | 4,2 | 3,4 |
| 48V/60A | 24 | 300÷420 | | | | | LPB | 30-227 | LPB | 30-427 | LPB | 60-427 | | 20,9 | 18,1 | 9,1 | 11,7 | 10,2 | 5,1 | 4,0 |
| 48V/80A | 24 | 400÷560 | | | | | LPB | 30-231 | LPB | 30-431 | LPB | 60-431 | | 27,9 | 24,2 | 12,1 | 15,7 | 13,6 | 6,8 | 5,5 |
| 48V/100A | 24 | 500÷700 | | | | | LPB | 30-235 | LPB | 30-435 | LPB | 60-435 | | 34,9 | 30,2 | 15,1 | 19,6 | 17,0 | 8,5 | 6,8 |
| 48V/120A | 24 | 600÷840 | | | | | LPC | 30-239 | LPB | 30-439 | LPB | 60-439 | | 41,9 | 36,3 | 18,1 | 23,5 | 20,4 | 10,2 | 8,2 |
| 48V/140A | 24 | 700÷980 | | | | | | | LPB | 30-443 | LPC | 60-443 | | | | | 27,4 | 23,8 | 11,9 | 9,5 |
| 48V/160A | 24 | 800÷1120 | | | | | | | LPC | 30-447 | LPC | 60-447 | | | | | 31,3 | 27,2 | 13,6 | 10,8 |
| 48V/180A | 24 | 900÷1260 | | | | | | | LPC | 30-451 | LPC | 60-451 | | | | | 35,2 | 30,5 | 15,2 | 12,3 |
| 48V/200A | 24 | 1000÷1400 | | | | | | | LPC | 30-455 | LPC | 60-455 | | | | | 39,1 | 33,9 | 17,0 | 13,6 |
| 48V/220A | 24 | 1100÷1540 | | | | | | | LPC | 30-459 | LPC | 60-459 | | | | | 43,1 | 37,3 | 18,6 | 14,9 |
| 48V/240A | 24 | 1200÷1680 | | | | | | | LPC | 30-463 | LPC | 60-463 | | | | | 47,0 | 40,7 | 20,4 | 16,3 |
| 72V/80A | 36 | 400÷560 | | | | | LPB | 30-272 | LPB | 30-472 | LPB | 60-472 | | 42,5 | 36,0 | 18,0 | 23,3 | 20,2 | 10,1 | 8,0 |
| 72V/100A | 36 | 500÷700 | | | | | LPC | 30-276 | LPC | 30-476 | LPC | 60-476 | | 51,9 | 45,0 | 22,5 | 29,1 | 25,2 | 12,6 | 10,1 |
| 72V/120A | 36 | 600÷840 | | | | | LPC | 30-280 | LPC | 30-480 | LPC | 60-480 | | 62,2 | 53,9 | 27,0 | 34,9 | 30,3 | 15,1 | 12,1 |
| 72V/140A | 36 | 700÷980 | | | | | | | LPC | 30-484 | LPC | 60-484 | | | | | 40,7 | 35,3 | 17,7 | 14,1 |

| CONTROL FEATURES | BATTERY CHARGER MODELS TL Equalizer | Matic Point | Power Point |
|---|---|---|---|
| *Single phase mains supply* | X | X | X |
| *Three phase mains supply* | | | X |
| *Automatic START-STOP* | X | X | X |
| *Equalizing charge* | X | X | X |
| *LCD* | | X | X |
| *Failure diagnostics with alarm display* | | X | X |
| *Overload cutout on transformer* | X | X | X |

| CONTROL FEATURES | | BATTERY CHARGER MODELS TL Equalizer | Matic Point | Power Point |
|---|---|---|---|---|
| *Adjustable board on transformer* | | X | X | X |
| *Electronic control with failure diagnostics* | | X | X | X |
| *Configuration parameters setting* | | X | X | X |
| *VOLT battery* | *12V, 24V, 36V, 48V* | X | X | X |
| | *72V* | | | X |
| *Preset for wall mounting* | | X | X | |
| | | | | |

Multi-Voltage

## THE POKER

## Multi-Voltage Battery Charger

**GENERAL FEATURES:**

- Mains input: 120V AC ±5%, UL-listed 20A input fuse. Input Current: 15A AC max. Equipped with NEMA 5- 15A cables.
- Output: suitable for 12V, 24V, 36V, and 48V lead-acid batteries.

| .Model | AC Input | Battery Capacity |
|---|---|---|
| 12V/60A | 10.3 A | 12V 480Ah |
| 24V/45A | 13.9 A | 24V 360Ah |
| 36V/30A | 13.5 A | 36V 240Ah |
| 48V/25A | 13.9 A | 48V 200Ah |


- Electromechanical timer adjustable from 0 to 12 hours max.
- Electromechanical switch for output voltages selection.
- Ammeter: 100A/100mV.
- Cabinet with wheels and handlebar for easy handling.
- 24V AC auxiliary circuit with overload cut-out and 1.6A fuse.

**OPERATION:**

1. Set the timer to the OFF position.
2. Connect to mains.
3. Select correct battery voltage (12V-24V-36V-48V).
4. Connect to battery.
5. Set the timer to the requested charging time (12 hours max).
6. Check that the current shown on the ammeter does not exceed the rated current by 10% for the selected voltage.

| LAMP INDICATIONS | | | |
|---|---|---|---|
| **Lamps Status Description** | **CHARGING** (Red lamp) | **POWER ON** (Red lamp) | **PAUSE** (Green lamp) |
| Battery charger disconnected | Off | Off | Off |
| Battery charger in pause | Off | On | On |
| Battery charger operating | On | On | Off |
| Fault: overload cut-out or auxiliary fuse circuit | Off | On | Off |

**PHYSICAL SPECIFICATIONS:**

- Dimensions (LxHxW - Inches): 15.7x33.5x12.6 (without handlebar: 15.7x23.6x12.6)
- Weight: 88 lbs (40 Kg)

**ACCESSORIES:**

- Support for cable winding
- Handlebar for easy transport


***PK120-C43***

# HF Battery Chargers

Helmar is the Exclusive North America Distributor of PBM Chargers

HIGH FREQUENCY THREE PHASE

## High Frequency Battery Chargers

## HF9 Three Phase

**High Energy Savings • Easy Care • High Protection of Electronic Components • Efficiency of to 94%**

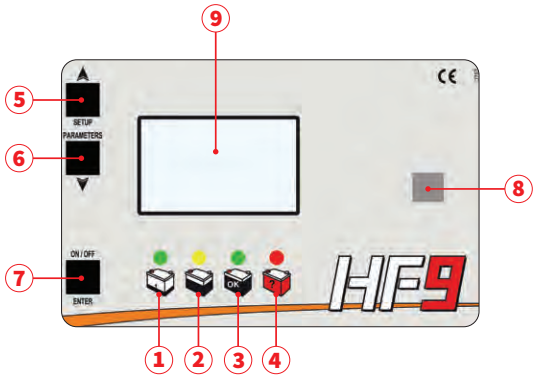
HF technology has already become standard for charging batteries in the industrial sector, but the new HF9 range offers a smart world, enabling charging in a Highly Efficient and flexible manner to meet demands from all over the World.

High Energy Saving with respect to previous charging technologies. The PBM charger will enable you to save energy and therefore reduce energy-related costs, as well as have a lower environmental impact.

Particular attention has been paid to the new ventilation concept developed on the new cabinet. Air is conveyed directly to the finned heat sink at the back of the charger. This means that the electronic components are located far from the main air flow during the cooling phase, with the aim of preventing the corrosion of these components.

The main objective is to simply repair the charger. An initial identification of the problem is provided by a fault code on the machine's LCD DISPLAY. You can intervene in just a few minutes by opening the back of the machine. Small LED lights on the single boards will make it easier to locate the problem, so operators can intervene as quickly as possible. All assembly and disassembly operations require a simple screwdriver. We have done our best to limit the huge costs deriving from moving the charger, which would normally be sent directly to the initial manufacturing plant


Wall and floor support included

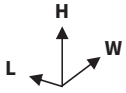



1. Battery Connected
2. Final Charging
3. End of Charging
4. Fault
5. SETUP Button
6. Control PARAMETERS Button
7. ON/OFF Button
8. USB Port
9. Backlit

**On Request:**

**480VAC±10%**

**230VAC±10%**




| BOX DIMENSIONS (inches) | | | |
|---|---|---|---|
| BOX | L | H | W |
| A | 15.40 | 26.40 | 11.80 |
| B | 17.70 | 31.90 | 14.20 |

| HF9 High Frequency Models & Specifications | | | | | | | |
|---|---|---|---|---|---|---|---|
| Volts | Amps | Input 480 Vac Supply 50/60Hz | Box | Input 208/240 Vac Supply 50/60Hz | Box | 7÷8h | 10÷12h |
| 24 V | 50 A | 90-Z4005 | A | 80-Z4005 | A | 300÷350 | 425÷500 |
| | 60 A | 90-Z4006 | A | 80-Z4006 | A | 360÷420 | 510÷600 |
| | 70 A | 90-Z4007 | A | 80-Z4007 | A | 420÷490 | 595÷700 |
| | 80 A | 90-Z4008 | A | 80-Z4008 | A | 480÷560 | 680÷800 |
| | 100 A | 90-Z4010 | A | 80-Z4010 | A | 600÷700 | 850÷1000 |
| | 120 A | 90-Z4012 | A | 80-Z4012 | A | 720÷840 | 1020÷1200 |
| | 140 A | 90-Z4014 | A | 80-Z4014 | A | 840÷980 | 1190÷1400 |
| | 160 A | 90-Z4016 | A | 80-Z4016 | A | 960÷1120 | 1360÷1600 |
| | 180 A | 90-Z4018 | A | 80-Z4018 | A | 1080÷1260 | 1530÷1800 |
| | 200 A | 90-Z4020 | A | 80-Z4020 | A | 1200÷1400 | 1700÷2000 |
| 36 V | 50A | 90-Z4030 | A | 80-Z4030 | A | 300÷350 | 425÷500 |
| | 60A | 90-Z4031 | A | 80-Z4031 | A | 360÷420 | 510÷600 |
| | 70A | 90-Z4032 | A | 80-Z4032 | A | 420÷490 | 595÷700 |
| | 80A | 90-Z4033 | A | 80-Z4033 | A | 480÷560 | 680÷800 |
| | 100A | 90-Z4035 | A | 80-Z4035 | A | 600÷700 | 850÷1000 |
| | 120A | 90-Z4037 | A | 80-Z4037 | A | 720÷840 | 1020÷1200 |
| | 140A | 90-Z4039 | A | 80-Z4039 | A | 840÷980 | 1190÷1400 |
| | 150A | 90-Z4040 | A | 80-Z4040 | A | 900÷1050 | 1275÷1500 |
| | 160A | 90-Z4041 | A | 80-Z4041 | A | 960÷1120 | 1360÷1600 |
| | 180A | 90-Z4043 | B | | | 1080÷1260 | 1530÷1800 |
| | 200A | 90-Z4045 | B | | | 1200÷1400 | 1700÷2000 |
| | 220A | 90-Z4047 | B | | | 1320÷1540 | 1870÷2200 |
| | 240A | 90-Z4049 | B | | | 1440÷1680 | 2040÷2400 |
| | 250A | 90-Z4050 | B | | | 1500÷1750 | 2125÷2500 |
| 48 V | 50A | 90-Z4055 | A | 80-Z4055 | A | 300÷350 | 425÷500 |
| | 60A | 90-Z4056 | A | 80-Z4056 | A | 360÷420 | 510÷600 |
| | 70A | 90-Z4057 | A | 80-Z4057 | A | 420÷490 | 595÷700 |
| | 80A | 90-Z4058 | A | 80-Z4058 | A | 480÷560 | 680÷800 |
| | 90A | 90-Z4059 | A | 80-Z4059 | A | 540÷630 | 765÷900 |
| | 100A | 90-Z4100 | A | 80-Z4100 | A | 600÷700 | 850÷1000 |
| | 110A | 90-Z4101 | A | 80-Z4101 | A | 660÷770 | 935÷1100 |
| | 120A | 90-Z4102 | A | 80-Z4102 | A | 720÷840 | 1020÷1200 |
| | 140A | 90-Z4104 | A | 80-Z4104 | A | 840÷980 | 1190÷1400 |
| | 150A | 90-Z4105 | A | 80-Z4105 | A | 900÷1050 | 1275÷1500 |
| | 160A | 90-Z4106 | B | | | 960÷1120 | 1360÷1600 |
| | 180A | 90-Z4108 | B | | | 1080÷1260 | 1530÷1800 |
| | 200A | 90-Z4110 | B | | | 1200÷1400 | 1700÷2000 |
| | 220A | 90-Z4112 | B | | | 1320÷1540 | 1870÷2200 |
| | 240A | 90-Z4114 | B | | | 1440÷1680 | 2040÷2400 |
| | 250A | 90-Z4115 | B | | | 1500÷1750 | 12125÷2500 |
| 80 V | 40A | 90-Z4140 | A | 80-Z4140 | A | 240÷280 | 340÷400 |
| | 50A | 90-Z4141 | A | 80-Z4141 | A | 300÷350 | 425÷500 |
| | 60A | 90-Z4142 | A | 80-Z4142 | A | 360÷420 | 510÷600 |
| | 70A | 90-Z4143 | A | 80-Z4143 | A | 420÷490 | 595÷700 |
| | 80A | 90-Z4144 | A | 80-Z4144 | A | 480÷560 | 680÷800 |
| | 90A | 90-Z4145 | A | 80-Z4145 | A | 510÷595 | 722÷850 |
| | 100A | 90-Z4146 | B | | | 600÷700 | 850÷1000 |
| | 120A | 90-Z4148 | B | | | 660÷770 | 935÷1100 |
| | 140A | 90-Z4150 | B | | | 840÷980 | 1190÷1400 |
| | 160A | 90-Z4152 | B | | | 960÷1120 | 1360÷1600 |
| 90 V | 40A | 90-Z4160 | A | 80-Z4160 | A | 230÷275 | 325÷400 |
| | 50A | 90-Z4161 | A | 80-Z4161 | A | 300÷350 | 425÷500 |
| | 60A | 90-Z4162 | A | 80-Z4162 | A | 360÷420 | 510÷600 |
| | 75A | 90-Z4164 | A | 80-Z4164 | A | 450÷525 | 640÷750 |
| | 100A | 90-Z4168 | B | | | 600÷700 | 850÷1000 |
| | 130A | 90-Z4168 | B | | | 780÷910 | 1105÷1300 |

# HF Battery Chargers

Helmar is the Exclusive North America Distributor of PBM Chargers

HIGH FREQUENCY SINGLE PHASE

**High Frequency Battery Chargers** | ***NEW HF1000*** | IP65 High Frequency / On-Board Charger


| SPECIFICATIONS | | | | |
|---|---|---|---|---|
| Model | Width (mm) | Depth (mm) | Height (mm) | Volts Amps |
| HF1000W | 280 | 230 | 105 | 12V / 30A |
| | | | | 24V / 30A |
| | | | | 36V / 20A |
| | | | | 48V / 15A |

## HF1000 TECHNICAL FEATURES

- Universal input voltage: 100 ÷ 240Vac ; 50÷60Hz
- Maximum input current: 13A (rms) at 110V / 6 A at 230V
- High frequency system with advanced technology
- Charging process fully managed by microprocessor
- Efficiency: 91% at full load (120Vac, 48VDC)
  92% at full load (230Vac, 48VDC)
- Thermal protection against overheating (Derating of the charging current)
- Environmental protection class IP65
- Maximum relative humidity >95% (non condensing)
- Operating room temperature: from -20 to +45°C
- CE Conformity
- Block relay (1A-30VAC/DC max) with NC contact for on-board installations
- Charge curves for Pb-acid, Gel and AGM batteries
- Remote signal (on request) of the charge status (red/yellow/green) and any faults
- Dimensions W 280 D 230 H 105 mm
- Centre distance for fixing: 220 x 205 mm
- Weight: 4.6 kg

**HF5, HF6, & HF7 Single Phase • Easy Care • High Protection of Electronic Components • Efficiency up to 94%**

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High Energy Saving with respect to previous charging technologies. The PBM charger will enable you to save energy and therefore reduce energy-related costs, as well as have a lower environmental impact.

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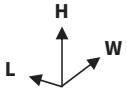
The main objective is to simply repair the charger. An initial identification of the problem is provided by a fault code on the machine's LCD DISPLAY. You can intervene in just a few minutes by opening the back of the machine. Small LED lights on the single boards will make it easier to locate the problem, so operators can intervene as quickly as possible. All assembly and disassembly operations require a simple screwdriver. We have done our best to limit the huge costs deriving from moving the charger, which would normally be sent directly to the initial manufacturing plant.

**HF5**

**HF6**

**HF6** (1K8)

**HF7**




| BOX DIMENSIONS (inches) | | | | |
|---|---|---|---|---|
| Model | Box | L (mm) | H (mm) | (mm) |
| HF5 | A | 133 | 112 | 60 |
| HF5 | B | 133 | 145 | 60 |
| HF5 | C | 134 | 240 | 63 |
| HF6 | D | 190 | 310 | 130 |
| HF6 (1K8) | E | 208 | 320 | 180 |
| HF7 | F | 360 | 531 | 180 |

| SINGLE PHASE - HF5 High Frequency Models & Specifications | | | | |
|---|---|---|---|---|
| Type | Power kVa | Battery Capacity | Box | Model |
| 12V / 5A | 0,12 | 20÷50 | A | HF5012005 |
| 12V / 10A | 0,25 | 60÷100 | B | HF5012010 |
| 12V / 15A | 0,37 | 110÷150 | C | HF5012015 |
| 12V / 20A | 0,50 | 145÷200 | C | HF5012020 |
| 24V / 5A | 0,25 | 20÷50 | A | HF5024005 |
| 24V / 10A | 0,50 | 60÷100 | B | HF5024010 |
| 24V / 15A | 0,75 | 110÷150 | C | HF5024015 |
| 24V / 20A | 1,00 | 145÷200 | C | HF5024020 |

| SINGLE PHASE - HF6, & HF7 High Frequency Models & Specifications | | | | | |
|---|---|---|---|---|---|
| Type | 7÷8 h | 10÷12h | Input | Box | Model |
| 12V / 20A | 100÷120 | 160÷200 | 115Vac ±15% | D | HF6012020 |
| 12V / 25A | 125÷150 | 200÷250 | 115Vac ±15% | D | HF6012025 |
| 12V / 30A | 150÷180 | 240÷300 | 115Vac ±15% | D | HF6012030 |
| 12V / 40A | 240÷280 | 320÷400 | 208÷240 Vac | E | 60-20490 |
| 12V / 40A | 240÷280 | 320÷400 | 100÷240 Vac | E | 70-8792 |
| 12V / 50A | 300÷350 | 420÷500 | 208÷240 Vac | E | 60-20500 |
| 12V / 50A | 300÷350 | 420÷500 | 100÷240 Vac | E | 70-8793 |
| 12V / 60A | 360÷420 | 495÷600 | 208÷240 Vac | F | 60-20493 |
| 12V / 60A | 360÷420 | 495÷600 | 100÷240 Vac | F | 70-8794 |
| 12V / 70A | 430÷490 | 580÷700 | 208÷240 Vac | D | 60-20495 |
| 12V / 70A | 430÷490 | 580÷700 | 100÷240 Vac | D | 70-8795 |
| 24V / 100A | 580÷690 | 810÷1000 | 208÷240 Vac | D | 70-8842 |
| 24V / 120A | 720÷840 | 1000÷1200 | 208÷240 Vac | E | 70-8843 |
| 24V / 20A | 100÷120 | 160÷200 | 115Vac ±15% | E | HF6024020 |
| 24V / 25A | 125÷150 | 200÷250 | 115Vac ±15% | E | HF6024025 |
| 24V / 30A | 150÷180 | 240÷300 | 115Vac ±15% | F | HF6024030 |
| 24V / 40A | 240÷280 | 320÷400 | 208÷240 Vac | E | 60-20499 |
| 24V / 40A | 240÷280 | 320÷400 | 100÷240 Vac | F | 70-8799 |
| 24V / 45A | 270÷315 | 360÷450 | 208÷240 Vac | E | 60-20501 |
| 24V / 50A | 300÷350 | 420÷500 | 208÷240 Vac | F | 60-20502 |
| 24V / 50A | 300÷350 | 420÷500 | 100÷240 Vac | F | 70-8800 |
| 24V / 60A | 360÷420 | 495÷600 | 208÷240 Vac | F | 60-20504 |
| 24V / 60A | 360÷420 | 495÷600 | 100÷240 Vac | F | 70-8801 |
| 24V / 70A | 430÷490 | 580÷700 | 208÷240 Vac | F | 60-20506 |
| 24V / 70A | 430÷490 | 580÷700 | 100÷240 Vac | D | 70-8802 |
| 24V / 80A | 500÷570 | 675÷800 | 208÷240 Vac | D | 70-8840 |
| 24V / 90A | 540÷630 | 720÷900 | 208÷240 Vac | D | 70-8841 |
| 36V / 100A | 580÷690 | 810÷1000 | 208÷240 Vac | E | 70-8851 |
| 36V / 15A | 75÷95 | 120÷150 | 115Vac ±15% | F | HF6036015 |
| 36V / 20A | 100÷120 | 160÷200 | 115Vac ±15% | E | HF6036020 |
| 36V / 25A | 150÷175 | 200÷250 | 208÷240 Vac | E | 60-20512 |
| 36V / 25A | 125÷150 | 200÷250 | 115Vac ±15% | F | HF6036025 |
| 36V / 30A | 170÷200 | 240÷300 | 208÷240 Vac | E | 60-20513 |

| SINGLE PHASE - HF6, & HF7 High Frequency Models & Specifications | | | | | |
|---|---|---|---|---|---|
| Type | 7÷8 h | 10÷12h | Input | Box | Model |
| 36V / 30A | 170÷200 | 240÷300 | 100÷240 Vac | F | 70-8804 |
| 36V / 35A | 210÷245 | 280÷350 | 208÷240 Vac | F | 60-20514 |
| 36V / 40A | 240÷280 | 320÷400 | 208÷240 Vac | F | 60-20515 |
| 36V / 40A | 240÷280 | 320÷400 | 100÷240 Vac | F | 70-8805 |
| 36V / 45A | 270÷315 | 360÷450 | 208÷240 Vac | F | 60-20516 |
| 36V / 45A | 270÷315 | 360÷450 | 100÷240 Vac | D | 70-8806 |
| 36V / 50A | 300÷350 | 420÷500 | 208÷240 Vac | E | 70-8846 |
| 36V / 60A | 360÷420 | 495÷600 | 208÷240 Vac | D | 70-8847 |
| 36V / 70A | 430÷490 | 580÷700 | 208÷240 Vac | E | 70-8848 |
| 36V / 80A | 500÷570 | 675÷800 | 208÷240 Vac | E | 70-8849 |
| 36V / 90A | 540÷630 | 720÷900 | 208÷240 Vac | F | 70-8850 |
| 48V / 15A | 75÷95 | 120÷150 | 115Vac ±15% | E | HF6048015 |
| 48V / 20A | 120÷140 | 160÷200 | 208÷240 Vac | F | 60-20521 |
| 48V / 20A | 100÷120 | 160÷200 | 115Vac ±15% | F | HF6048020 |
| 48V / 25A | 150÷175 | 200÷250 | 208÷240 Vac | F | 60-20522 |
| 48V / 25A | 150÷175 | 200÷250 | 100÷240 Vac | F | 70-8807 |
| 48V / 30A | 170÷200 | 240÷300 | 208÷240 Vac | F | 60-20523 |
| 48V / 30A | 170÷200 | 240÷300 | 100÷240 Vac | F | 70-8808 |
| 48V / 35A | 210÷245 | 280÷350 | 208÷240 Vac | E | 60-20524 |
| 48V / 40A | 240÷280 | 320÷400 | 208÷240 Vac | E | 70-8809 |
| 48V / 40A | 240÷280 | 320÷400 | 100÷240 Vac | F | 70-8809-1 |
| 48V / 50A | 300÷350 | 420÷500 | 208÷240 Vac | E | 70-8853 |
| 48V / 60A | 360÷420 | 495÷600 | 208÷240 Vac | F | 70-8854 |
| 48V / 80A | 500÷570 | 675÷800 | 208÷240 Vac | F | 70-8856 |
| 48V / 95A | 560÷650 | 780÷950 | 208÷240 Vac | F | 70-8857 |
| 72V / 10A | 70÷80 | 90÷100 | 208÷240 Vac | F | 60-20528 |
| 72V / 15A | 90÷110 | 125÷150 | 208÷240 Vac | E | 60-20529 |
| 72V / 15A | 90÷150 | 125÷150 | 100÷240 Vac | E | 70-8790 |
| 72V / 20A | 120÷140 | 160÷200 | 208÷240 Vac | F | 60-20530 |
| 72V / 20A | 120÷140 | 160÷200 | 100÷240 Vac | E | 70-8810 |
| 72V / 30A | 170÷200 | 240÷300 | 208÷240 Vac | F | 70-8811 |
| 72V / 40A | 240÷280 | 320÷400 | 208÷240 Vac | F | 70-8812 |
| 72V / 50A | 300÷350 | 420÷500 | 208÷240 Vac | F | 70-8858 |
| 72V / 60A | 360÷420 | 495÷600 | 208÷240 Vac | F | 70-8859 |
| 80V / 10A | 70÷80 | 90÷100 | 208÷240 Vac | | 60-20535 |
| 80V / 15A | 90÷110 | 125÷150 | 208÷240 Vac | | 60-20536 |
| 80V / 15A | 90÷110 | 125÷150 | 100÷240 Vac | | 70-8813 |
| 80V / 20A | 120÷140 | 160÷200 | 208÷240 Vac | | 60-20537 |
| 80V / 20A | 120÷140 | 160÷200 | 100÷240 Vac | | 70-8814 |
| 80V / 30A | 170÷200 | 240÷300 | 208÷240 Vac | | 70-8815 |
| 80V / 40A | 240÷280 | 320÷400 | 208÷240 Vac | | 70-8860 |
| 80V / 50A | 300÷350 | 420÷500 | 208÷240 Vac | | 70-8863 |

# On-Board Battery Chargers

## On_Board Battery Chargers

### Many Models to Suit Your Needs

| Part # | 20-105 |
|---|---|
| Volts/Amps | 24V / 15A |
| Height | 7" |
| Width | 4.5" |
| Depth | 11" |

| Part # | 20-126 |
|---|---|
| Volts/Amps | 24V / 15A |
| Height | 7" |
| Width | 5.5" |
| Depth | 11.75" |

| Part # | 20-134 |
|---|---|
| Volts/Amps | 24V / 25A |
| Height | 6.5" |
| Width | 8" |
| Depth | 13" |

| Part # | 20-143 |
|---|---|
| Volts/Amps | 36V / 25A |
| Height | 6.5" |
| Width | 8" |
| Depth | 13" |

| Part # | 20-152 |
|---|---|
| Volts/Amps | 24V / 25A |
| Height | 6" |
| Width | 9" |
| Depth | 6.5" |

| Part # | 20-261 |
|---|---|
| Volts/Amps | 120V / 60hz |
| Height | 7" |
| Width | 4.5" |
| Depth | 11" |

| Part # | 20-271 |
|---|---|
| Volts/Amps | 12V / 5A |
| Height | 5" |
| Width | 5.75" |
| Depth | 10.25" |

| Part # | 20-282 |
|---|---|
| Volts/Amps | 12V / 10A |
| Height | 5" |
| Width | 5.75" |
| Depth | 10.25" |

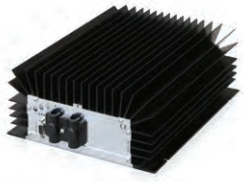
| Part # | 20-293 |
|---|---|
| Volts/Amps | 24V / 15A |
| Height | 6" |
| Width | 3" |
| Depth | 23" |

| Part # | 20-304 |
|---|---|
| Volts/Amps | 36V / 40A |
| Height | 7" |
| Width | 8" |
| Depth | 12.5" |

| Part # | 20-315 |
|---|---|
| Volts/Amps | 24V / 25A |
| Height | 8" |
| Width | 6" |
| Depth | 11" |

| Part # | 20-325 |
|---|---|
| Volts/Amps | 36V / 25A |
| Height | 5.5" |
| Width | 7" |
| Depth | 9" |

| Part # | 20-337 |
|---|---|
| Volts/Amps | 24V / 20A |
| Height | 5.5" |
| Width | 3" |
| Depth | 6" |



| Part # | HF1000W |
|---|---|
| Volts/Amps | 12V / 30A |
| | 24V / 30A |
| | 36V / 20A |
| | 48V / 15A |

## PBM BATTERY CHARGERS

## Warranty Information

**1.) DEFINITION OF WARRANTY:**

Warranty is an indemnity promise made by a Manufacturer to a Customer. A warranty claim can be filed if a defect/failure is detected after charger delivery to End Customer. If an End Customer notifies a warranty claim, the Dealer shall make sure that the warranty period has not expired yet. PBM warranty covers finished and tested battery chargers, incl. their electrical and electronic components, proven to be defective in workmanship.

**2.) COMING INTO FORCE:**

PBM guarantee PBM chargers for a 48 month period from the date of delivery and installation at end customer's site. Charger's serial number, written on rating plate, has to be made known to PBM.

**3.) VALIDITY:**

- PBM assume no obligations or liability for defects or damage from improper installation (see user and service manuals).
- An improper installation will automatically void the warranty.

**4.) WARRANTY TERMS:**

- PBM guarantee PBM chargers for a period of 12 months from the date of delivery to End Customer.
- Special agreements may provide for different terms, for example:

- Any unauthorized technical change will void the warranty immediately.
- PBM maintain an Insurance Policy (Product Liability) covering damages caused by PBM battery chargers to batteries, electrical systems and/or facilities (in case of fire).
- Should such an accident occur, further actions should be taken:

a) The Dealer shall immediately send a written report to PBM, describing nature of the accident and specifying charger and battery data and address of End Customer ;

b) The End Customer shall keep apart all components/equipment involved in the accident, in order to prevent them from being touched and/or tampered with by anyone ;

c) PBM will immediately notify the accident to its Insurance Company. The End Customer shall keep materials/components available for the estimation of damage by an Insu ance Assessor.

- Warranty does not cover any damage caused/suffered by the battery charger during shipment: It is recommended to always check the integrity of packaging on charger receipt.
- Furthermore it is suggested to always accept goods received by shipping agents with "qualified acceptance" to be entitled to file a claim if damages are detected later. When returning chargers/components, carefully pack them using original boxes and packing material, if possible. Please note have always to remain upright during shipment.

**5.) SPARE PARTS FOR WARRANTY REPAIRS:**

- The Dealer shall make use of original spare parts only when performing warranty repairs and shall install the charger as described in the user and service manuals.
- When placing an order, the Dealer shall notify that he is going to use the spare parts for a warranty repair. The order will be processed by PBM as a standard purchase order: replacement parts will be delivered along with a delivery note and a sales invoice. Replacement parts will be sent free of charge to the customer.
- The Dealer shall also specify charger data (type, model, and serial number) on the purchase order.
- The Dealer can also make use of original spare parts from his stock to perform warranty repairs.

**6.) SPARE PARTS FOR WARRANTY REPAIRS:**

- The warranty does not cover any labour, travel expenses, day allowances etc.
- Replacement parts or a replacement charger will be sent free of charge to the customer (if warranty claim is acknowledged).
- Defective parts or chargers shall be returned to PBM for warranty inspection.
- Shipping charges for returning defective items to PBM will be refunded by PBM if warranty claim is acknowledged.
- Shipments to and from PBM shall be performed only by shipping agents/carriers having an arrangement with PBM.

**7.) WARRANTY CLAIM:**

- PBM will perform warranty inspection and testing of the returned items and/or spare parts and/or chargers.
- After inspection, notification of inspection results will be sent to the Dealer:

**7.1.) ACKNOWLEDGED WARRANTY CLAIM:**

If PBM determine that in fact the return is defective and acknowledge the warranty claim, a credit note will be issued. Credit notes will be issued once a month.

**7.2.) ACKNOWLEDGED WARRANTY CLAIM:**

After inspection, should any return be determined not to be defective, as reported, PBM will deny coverage stating the reasons for it. As a result, no credit note will be issued and all the relevant shipping costs will be charged to the customer.

**8.) MATERIALS MANAGEMENT:**

Defective materials shall always be returned to PBM for investigation. The Dealer shall proceed as follows:

- To avoid continuous and expensive shipments, the Dealer shall keep defective materials until reaching a certain volume and return them in a single shipment upon agreement with PBM.
- Returned items shall be delivered along with a delivery note listing:
  - Type, model and serial number of battery charger
  - Nature and description of failure
- Shipping charges for returning warranty items will be refunded by PBM only if shipment is carried out by shipping agents/carriers having an arrangement with PBM and provided that warranty claim is acknowledged.

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