

8. Panel Indicator :



- 【1】 Power Switch
- 【2】 12 & 24 Battery Voltage Indicator
- 【3】 Charging Current Switch
- 【4】 Power Indicator
- 【5】 Error Indicator
- 【6】 Charging Indicator

- 【7】 Charging Complete Indicator
- 【8】 DC Current Meter
- 【9】 DC Output Cable
- 【10】 AC Input Cable
- 【11】 Fuse
- 【12】 Cooling Fan
- 【13】 AC 110/220V Toggle Switch

9. Operation :

1. Please make sure working area is well ventilated and prevent the charger to expose to the sun or get wet.
2. Please make sure the voltage of AC power socket is corresponded to the input voltage.
3. Please make sure the battery voltage is corresponded to the output voltage and battery liquid is full filled.
4. Please make sure the Power Switch 【1】 is in the OFF position, then connect the AC Input Cable 【10】 with AC power socket and select your charging current through Charging Current Switch 【3】 .
5. Connect the DC Output Cable 【9】 with your battery and do not reverse polarity.
(If connect wrongly, the charger will not turn on)
6. Turn on the Power Switch 【1】 , the Power Indicator 【4】 will light on, and Charging Indicator 【6】 will light on green which means charging starts.
7. When charging is completed, the Charging Complete Indicator 【7】 will light on. The charger will stop charging and turn to Float charging to keep battery in full charging for a long time.
8. If you would like to disconnect your battery from the car, please disconnect the AC Input Cable 【10】 from AC power socket, and turn off the Power Switch 【1】 then remove the battery.



When the charger cannot effectively charge the battery up to 80% within 12 hours, then the charger will stop charging and the Error Indicator 【5】 will light on yellow.

※ Charging the wrong battery or select the wrong charging current will cause the charger misjudging.

Ver.180704_A



(C Case: FEB-1224-15 / FEB-1224-20)

(B Case: FEB-1224-08)

Mashin Intelligent BATTERY CHARGER

FEB-1224 SERIES

**Microprocessor Controlled
Automatic Battery Charger**

User Guide

MASHIN 麻新電子股份有限公司
MASHIN ELECTRIC CORP.

⚠ WARNING : Electric Shock Hazard

Do not disassemble the IntelliCHARGER. The IntelliCHARGER does not contain any internal user-serviceable parts and attempting to service the unit yourself could result in electrical shock or burn.

FEB-1224 SERIES USER MANUAL

1. Specification :

Models	FEB-1224-08	FEB-1224-15
Charging Current	1A / 3A / 6A	5A / 10A / 15A
Output Voltage	12VDC (max.15V) / 24VDC (max.30V)	
Input Voltage	110VAC 50 / 60HZ ± 10% / 220VAC 50 / 60HZ ± 5%	
Charging Mode	Constant Voltage, Constant Current, Equalizing, Floating	
Battery Types	WET, MF, SLA, AGM	
Recommended Battery Capacity (AH)	1A 3AH~9AH	5A 25AH ~ 50AH
	3A 9AH~30AH	10A 50AH ~ 100AH
	6A 30AH~70AH	15A 90AH ~ 150AH
Operating Temp.	-20°C~ 50°C	
Storage	-30°C~ 70°C	
Dimension (mm)	238 × 180 × 142mm	277 × 215 × 172mm
Weight	3.6 kgs	10.6 kgs

2. Protection :

1. **Reverse Polarity** : When the battery terminal is wrongly connected, the charger will not start charging.
2. **AC Input Protection** : The fuse will perform when it is over-current.
3. With intelligent microcomputer to detect charging voltage automatically and prevents over-temperature and over-charge.
4. **Spark Proof** : When the charger is in the ON position, there will not generate sparks if the clamps touch together.
5. **Battery Abnormal** : When the charger cannot effectively charge the battery up to 80% within 12 hours, then the charger will stop charging and the Error Indicator will light on.

3. Description :

Constant Voltage Charging Mode : Effectively control the charging voltage to prevent the damage of battery cell plate when over-charging.

Constant Current Charging Mode : Control the charging current at certain steady point to prevent the battery absorbs too much current and cause the temperature increase rapidly to affect the battery service life and efficiency.

Equalizing Charging Mode : Charge each battery cell by 2.4V~2.45V to make sure both old and new battery can achieve saturated and not over and keeps saturation in 100% degrees.

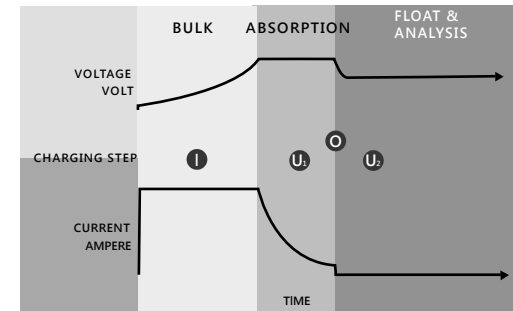
Floating Charging Mode : Charge each battery cell in 2.25V to make sure battery stays in the best saturation condition and last longer.

Auto-detection : Check if the battery is well-connected with the charger then will start charging automatically.

12 & 24 Battery Voltage Detection : Detect the battery voltage automatically to prevent human error of connecting wrongly.

Auto-recharge : If battery is over-discharged or in low power, the charger still can start charging automatically even 12V battery only lefts 6V.

4. Charging Curve :



Technology-Characteristic (IUoU)

- ① CONSTANT CURRENT U₁ CONSTANT VOLTAGE ② COMPLETE DETECT U₂ FLOAT VOLTAGE

5. Caution :

- A. Please store the charger in well-ventilated area and do not use the charger in the area over 45°C temperature.
- B. Do not let the charger expose to the sun or get wet.
- C. Keep the charger away from strong acid and alkali.
- D. Please do not modify or disassemble the charger without qualified professional.
- E. When connecting the charger with battery, please make sure red clamp is connected with battery positive terminal (+) and black clamp with battery negative terminal (-).
- F. Please make sure you are using the right battery charger.
- G. This charger is for charging battery only, do not use in other purposes.

6. Troubleshooting :

Ans 1 : Please make sure if the AC power is well-connected.

Ans 2 : Please make sure if the AC power indicator is lighted on.

Ans 3 : Please check if the fuse is burned.

Ans 4 : Please make sure if the power switch is turned on.

Ans 5 : Please make sure if the battery is short-circuit or reverse polarity.

Ans 6 : Please check if the battery is over-discharged or in low power.

Ans 7 : Please make sure the clamps are well-connected or if they are wrongly connected.

Ans 8 : If the Charging Indicator 【6】 is flashing, please make sure if the clamps are well-connected.