6/12V 6Amp Intelligent
Car & Motorcycle
Smart Battery Charger
Instruction Manual Model: SWIBC2

IMPORTANT:

READ THESE INSTRUCTIONS BEFORE USE AND RETAIN FOR FUTURE REFERENCE

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1) SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important safety instructions for this battery charger.

Read all instructions and cautionary markings on battery charger, battery, vehicle and any equipment before using battery charger.

Always hand out these instructions to third persons together with the battery charger.

Risk of explosion!
Gases produced by a battery are highly explosive. While charging the battery, explosive gases could emit.

- Do not smoke, strike a match, place metal tools on battery or cause a spark in the vicinity of the battery.
- While charging, explosive and flammable substances such as fuel or solvents should not be kept near charger or battery.
- Never charge in a closed-in or restricted area.
- If necessary to take out battery from the vehicle to charge, always turn off all accessories in the vehicle and remove ground cable from the frame first.
- Clean terminals before charging battery. During cleaning, keep airborne corrosion from eyes, nose and mouth. Use baking soda and water to neutralize acid and help eliminate airborne corrosion.
- Never allow clamps on charger cables to touch each other.
- Make sure charger cable clamps make tight connections.

- Do not expose charger to rain, snow or wet conditions.
- Do not cover the charger.

Risk of chemical burns!
Battery acid is highly corrosive sulphuric acid.

- Wear safety goggles, gloves and protective clothing.
- Stay away from battery when possible.
- Never come close to the battery with your face.
- Make sure someone can hear you or is close enough to provide aid when working near battery.
- Do not touch eyes while working near battery. Battery acid can burn eyes and skin.
- Have plenty of fresh water and soap nearby. If battery acid contacts skin, clothing or eyes, flush the exposed area with soap and water for 10 minutes. Seek medical help immediately.

Risk of electric shock and fire
Electric shock or fire can cause injury.

- Use charger only for 12 V seal-lead-acid (SLA) batteries. Do not use charger for charging dry-cell batteries. It may cause an explosion.
- Do not operate charger with damaged cord or plug. It must be replaced by an authorized technician immediately.
- Position power cord and charger cables away from the hood, doors or hot/moving engine parts where they could be damaged.
- Do not use the charger with damaged cables. They have to be replaced by an qualified electrician.
- Unplug power cord using plug rather than cord when disconnecting charger from outlet.
- Plug only into a 220 - 240 V AC mains supply.
- Unplug power cord from mains supply and disconnect the cables from battery before cleaning or maintaining charger.
- Do not operate charger after a sharp impact, dropping or any other damage.
- Do not disassemble charger. Incorrect reassembly may result in a risk of electric shock or fire.
- Use only recommended attachments.
- Do not charge a frozen battery.
- Charging must be ceased immediately if battery is found to be too hot or leaks out liquid during charging.
- In case of malfunction or damage: immediately disconnect the charger from the mains. Do not use vehicle when charging

permanently installed batteries.

- The charger is not intended for use by young children or infirm persons without supervision. They do not understand or recognize possible risks of handling the battery charger.
- Before charging, make sure the input is within stipulated rating level, otherwise charging performance may be seriously affected.
- While connecting the charger to the battery, maintain correct polarity connection and avoid short- circuiting.
- Disconnect the battery from the charger when charger is not connected to the mains.
- Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Always disconnect battery charger from the mains before starting any installation, maintenance or cleaning.
- Do not attempt to charge any other batteries than described in the chapter „Intended Use“.

2) INTENDED USE

- The battery charger is intended to charge a variety of 12V sealed lead acid (SLA) batteries, used in cars, motorbikes and other vehicles.
- With this charger it is possible to charge these various batteries at different ambient temperature also in cold conditions to almost 100% of their original capacity.
- It is a 5-step fully automatic switch mode charger which adjusts itself to thw charge current and voltage required to charge and maintain the battery.
- The charger is able to recover slightly sulphated batteries, to diagnose and rescue drained battery and to provide trickle charge and maintenance charge, which increases battery life.

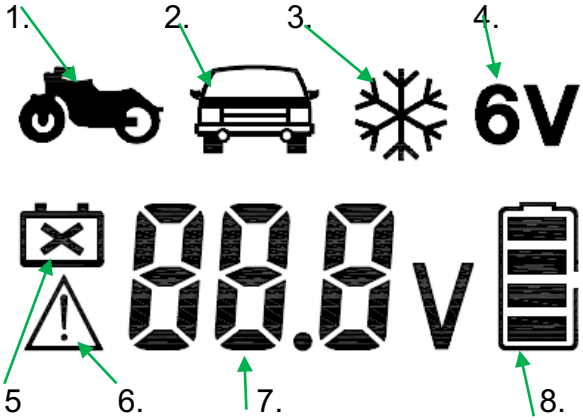
Battery types	**Battery capacity range**
● SLA (Sealed lead acid): ● WET/FLOODED (Liquid electrolyte) ● GEL (Gelatine type electrolyte, absorbed into the plates) ● AGM (Absorbed glass mat)	6/12V / 3Ah – 150Ah

3) PACKAGING CONTENT

1 Battery charger
1 Power cord with power plug
1 Instruction manual
1 Positive pole connection cable with clamp (red)
1 Negative pole connection cable with clamp (black)

Check all parts for transport damage. In case of damage contact your dealer immediately. Check the package for completeness. Inform your dealer about missing any parts immediately.

4) LCD DISPLAY



1. LOW charging 12V standard Lead-Acid Battery, AGM Battery, GEL Battery.

2. FAST charging 12V standard Lead-Acid Battery, AGM Battery, GEL Battery.

3. Winter mode for 12V standard Lead-Acid Battery, AGM Battery, GEL Battery.

4. 6V standard Lead-Acid Battery, AGM Battery, GEL Battery.

5. Bad battery indication.

6. Clamp reversal and short circuit show “!” warning.

7. Digital Voltage readout.

8. Battery level indicator, each level represents 25% power, outline border flashing means charging. Solid outline border and four levels lit mean the battery is full.

Protection class	Input voltage	Input Power	Output	Lead-acid battery
IP20	220-240V 50Hz	MAX:105W	12V DC, Slow 2A/Fast 6A 6V DC, Slow 2A	Max150Ah

III. Technical Specifications:

1) 12V  standard Lead-Acid Battery, AGM Battery ,GEL Battery, fast max charging current: 4A. Cut-off voltage: 14.5V.

2) 12V  (motor mode) standard Lead-Acid Battery, AGM Battery, GEL Battery, slow max charging current: 2A. Cut-off voltage: 14.8V.

3) Winter mode  (snow mode) for 12V standard Lead-Acid Battery, AGM Battery,GEL Battery, Suitable for 5℃ or less, max charging current: 4A. Cut-off voltage: 14.8V.

4) 6V (6V mode) standard Lead-Acid Battery, AGM Battery ,GEL Battery, max charging current: 2A. Cut-off voltage: 7.5V.

5) OPERATION

Warning notes for a safe operation:

- Always locate charger as far away from battery as DC cables permit.
- Only install battery charger when it is disconnected from the mains.
- Be sure the area around battery is well ventilated before and during the charging process.
- Do not place charger directly above or below battery.
- Do not allow battery gases or acid to contact charger housing.
- For permanently installation install the charger by the mounting holes (4).

Connecting the battery charger

ATTENTION!
Remove power plug (5) from the mains before connecting or disconnecting the pole clamps (6 & 7) to or from the battery.

Charging process
• Connect charger to battery and connect power plug (5) to the mains.

For charging a permanently installed battery in a vehicle	**For charging of a battery not connected in a vehicle**
Check the polarity of the battery. Usually a negative battery pole has a smaller diameter than a positive pole. Check which pole is connected to the chassis for the earthing. Normally the negative pole is earthed. **Negative earthed battery** Connect the red cable (8) with the clamp (6) to the positive pole and the black cable (9) with the clamp (7) to the vehicle chassis. Make sure the black cable (9) has no contact with the fuel line or the battery. **Positive earthed battery** Connect the black cable (9) with the clamp (7) to the positive pole and the red cable (8) with the clamp (6) to the vehicle chassis. Make sure the red cable (8) has no contact with the fuel line and the battery.	Connect the red cable (8) with the clamp (6) to the positive pole and the black cable (9) with the clamp (7) to the negative pole.

- The charger will automatically start in STANDBY mode.
- In STANDBY mode the charger automatically resets itself to basic settings.
- Select the correct charging mode by pressing MODE button until the LED for correct charging mode (1, 2 or 3) is lit **(see part 3). CHARGING MODE & TIME).**

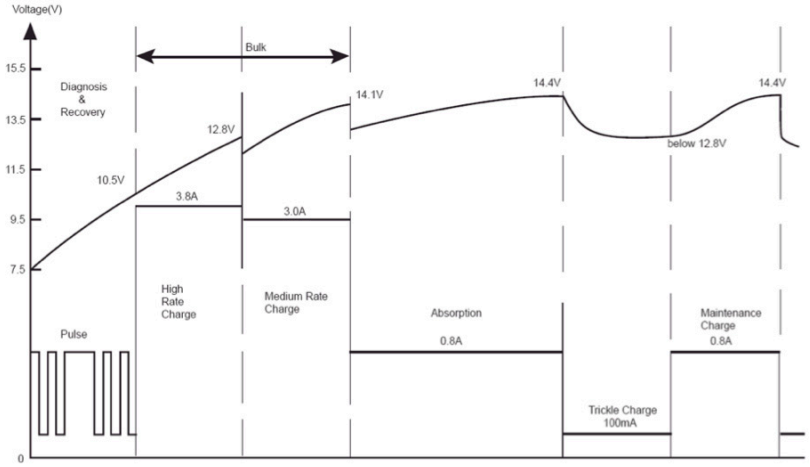
- If you press the MODE button repeatedly, charging mode toggles to the next operation mode and begins functioning in that specific mode.
- The charging process starts with the current of the individual charging mode. The LED CHARGE (7 & 8) is lit.
- The LED CHARGE (7 & 8) will remain lit during the entire charging process until the end of the charging process.
- The battery is fully charged when the battery LED (8) has ALL the bars ON and the Icon has ceased flashing.
- At this stage the trickle charge will be performed to maintain and protect the battery **(see 7 CHARGING PHASES).**

Rescuing drained battery

- The charger is able to charge most drained batteries with voltages below 7.5 V ±0.5 V.
- Before the start of bulk charging process, the charger automatically detects the voltage of the battery.
- The charger will not start due its safety circuit when the voltage is below 7.5 V ±0.5 V.
- In the voltage range of 7.5 V ±0.5 V to 10.5 V ±0.5 V charger initiates a pulse charging mode.
- If the voltage rises above 10.5 V ±0.5 V, charger changes over to the previously selected normal charging mode which charges faster and safer.

6) CHARGING PHASES

- The charger performs 5-step fully automatic charging cycle.



Step		Description
1	Diagnosis & Recovery	Diagnostic function automatically checks battery status (detects voltage).
2	Bulk	Charging 80% of the energy 1) High rate charging Charger delivers constant current of 4.2 A until the voltage reaches to 12.8 V. 2) Medium rate charging Charger delivers constant current of 3.0 A until the voltage reaches to 14.1 V. Since current is not delivered at highest constant level, charger will minimize the heating up of the battery, and hence will eliminate the build up of gases. This ensures more efficient and safer performance.
3	Absorption	Charging up to almost 100% Use of a constant current of 4.2A for an extended period of time risks gasing the battery. Therefore a constant low charging current is given at 0.8 A to raise voltage from 14.1 V to 14.4 V. Charger switches to trickle charge phase after sensing that the battery is truly fully charged.
4	Trickle Charge	Battery is fully charged and ready to use. The battery will signal to the charger and will only take enough current to sustain small loads such as alarms or current leaks in the vehicle wiring circuit. Very low current of 100mA is given to the battery. When voltage drops below 12.8 V, monitoring circuit senses that battery needs more current to maintain its charge than available in trickle charge phase. The charger switches to maintenance charge phase.
5	Maintenance Charge	If the battery is loaded and/or terminal voltage falls below 12.8 V, the charger starts a maintenance charging pulse at constant 0.8 A until voltage reaches to 14.4 V. The maintenance charging is discontinued. Cycle of trickle charging and maintenance charging is repeated indefinitely to keep battery in good condition when it is not in use and enables charger to be left connected indefinitely.

7) CHARGING MODE & TIME

Battery size (Ah)	Mode	For about 80% charge (hours)
3	 (small batteries<14.4A)	2
8		8
20	 (large batteries, normal conditions)	4.5
60		14
100	 (large batteries, temps below 0°C)	23
120		28

8) SAFETY FEATURES

- The charger is safe against user errors and provides optimal condition without damage.
- No risk of over-charging!
- The charger will not damage vehicle electronics.

Protection	Description
Abnormal Operation	To avoid damage to charger and battery, the charger will turn off his own electronic system and will immediately reset the system to basic settings in the case of - short circuit - wrong connection - open circuit - reversed polarity connection - battery voltage below 7.5 V ± 0.5 V The charger will remain in STANDBY mode and FAULT LED is lit to indicate reverse polarity or fault.
Overheat	The charger is protected by NTC (negative temperature coefficient) control to protect itself from damage. During the charging process, if the charger becomes too hot or due to high ambient temperature, the power output is automatically reduced. The charger continues to trickle charge and automatically starts increasing power when the temperature drops.
MCU Control	Fully controlled by internal Micro-Computer-Unit (MCU), which assure a faster, powerful, reliable and smarter charging process. Plugged in, the charger - detects the state of charge of the battery. - initiates charging process.

Spark	To eliminate the possibility of sparks, the charger will not begin operation upon connection to the battery, unless charging mode has been selected. Housing protection Dust and splash proof (IP65) Double insulated

9) CLEANING AND MAINTENANCE

- The battery charger needs no specific maintenance.
- Always disconnect battery charger from the mains before starting any maintenance or cleaning.
- Clean the battery charger with a dry cloth or soft tissue.
- Do not use any cleaning agents or solvents.

10) DISPOSAL

Old electrical appliances are recyclable. Do not dispose them in the domestic waste! Separately deliver these in a valuable material collection point.
Dispose the packing material environmentally friendly. Please give cardboard and paper to the waste paper, foils to a valuable material collection point.

11) SPECIFICATION

Input	220~240 V AC, 50/60Hz ; 105W
Output	Nominal 12V DC
Efficiency	>85%
Charging voltage	14.4V or 14.7V +/-0.25V
Charging current	6A or 0.8A +/-10%
Back drain current	1 mA
Ambient temperature	-20 ~ 50°C
Type of batteries	12V SLA batteries (WET, AGM & GEL)
Battery capacity	3 ~ 150 Ah
Housing protection	IP20

IMPORTANT ADDITIONAL INFORMATION: This Battery Charger is NOT intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or have been given instruction concerning use of the Battery Charger by a person responsible for their safety

IP20 M17 1RY

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