

Analog Battery charger

M A N U A L



T Series
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For your safety, please read the following before using.

1. Safety cautions:

⚠ Warning

1- Do not connect terminals while power on.

It may give an electric shock.

2- Do not disassemble and modify this unit. If it is necessary, please contact us.

It may give an electric shock and cause fire.

3- Please check the terminals numbers when connecting power lines.

It may cause fire.

4- When cleaning the unit, do not use water or an oil-based detergent.

It may cause an electric shock or fire and so the unit will be damaged.

5- Please connect properly after checking the polarity.

It may cause fire.

2. Features:

1- Float and Boost charging.

2- Manual and Automatic operation mode.

3- Charging voltage can be adjusted via control card.

4- Boost time can be controlled.

5- Current limit can be adjusted via control card.

6- Ramp at start.

7- AC over and under voltage limits protection can be adjusted digitally via display of protection unit.

8- DC over and under voltage limits protection can be adjusted digitally via display of protection unit.

9- Earth leakage voltage limits protection can be adjusted digitally via display of protection unit.

10- Indicate the fault in LCD and alarm red led.

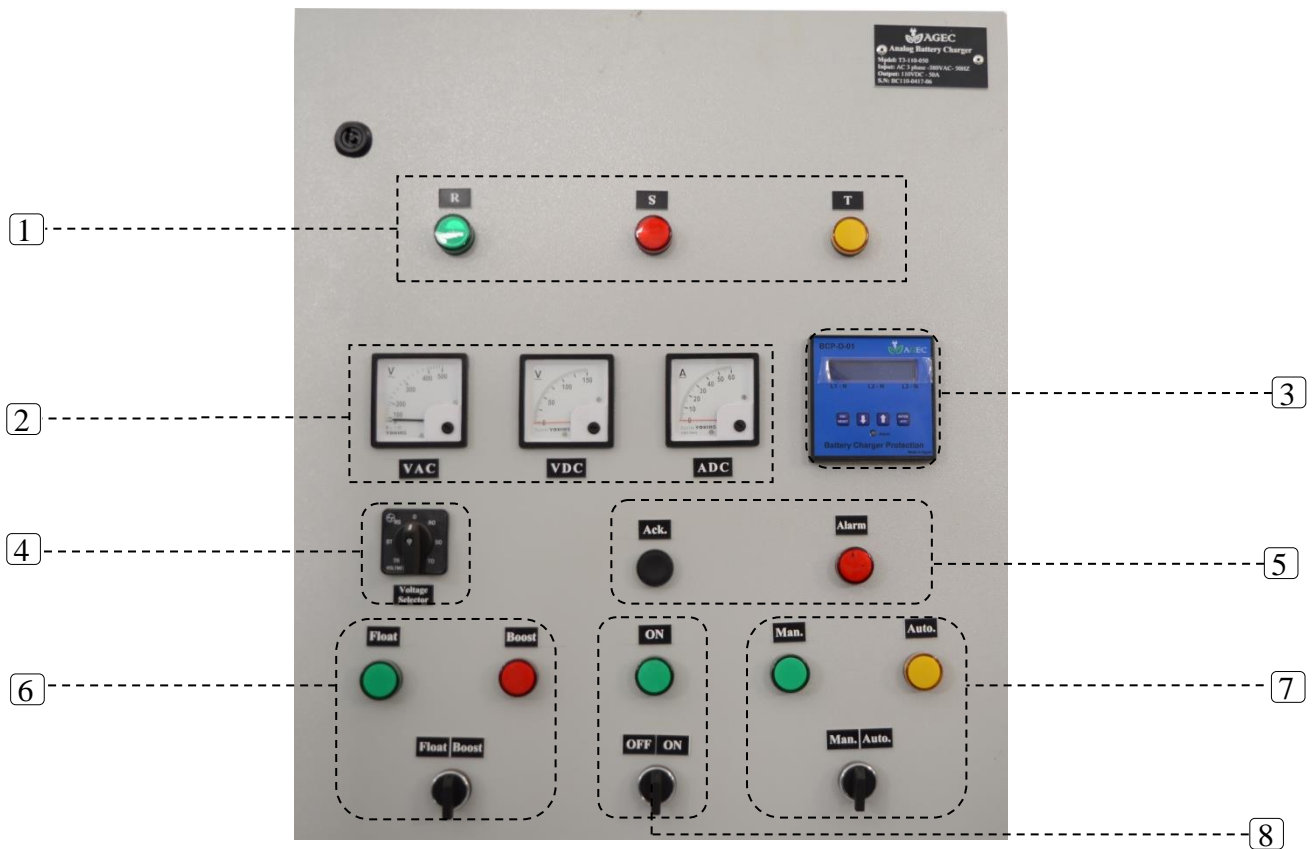
11- All setting stored in EEPROM.

12- Numerical LCD (16 * 2).

13- Parameter adjust via keypad

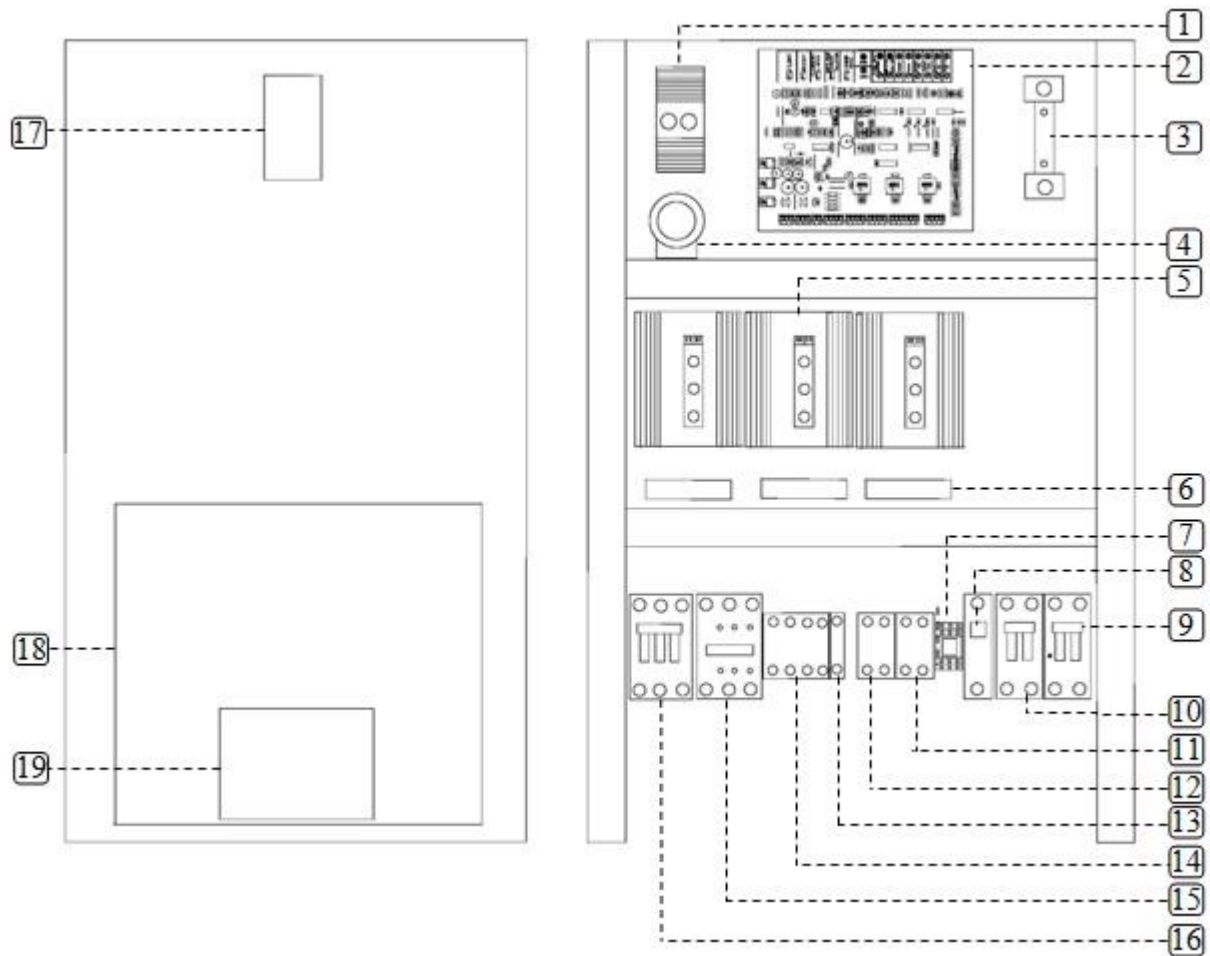
3. Panel identification:

3.1 Front



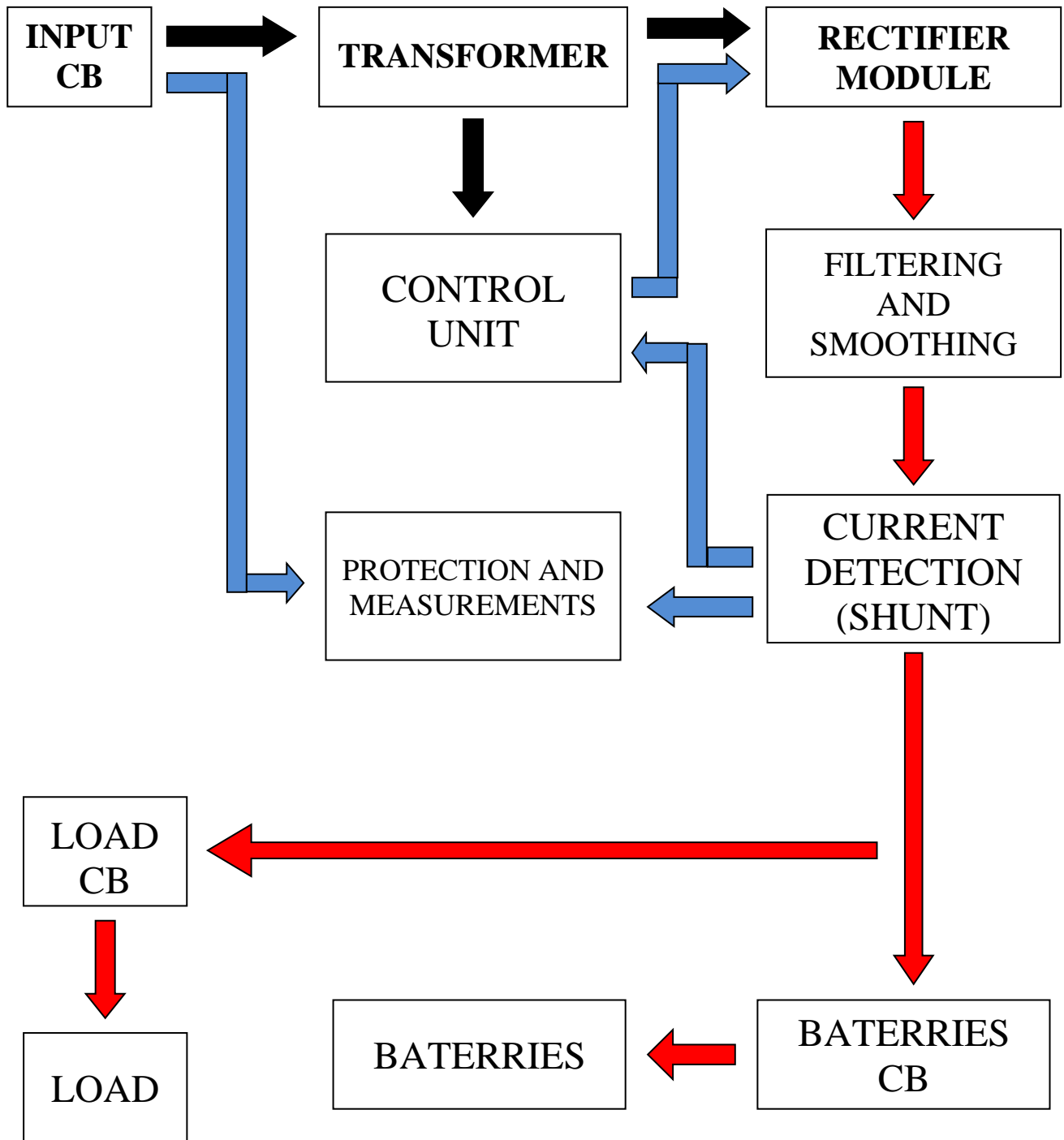
- 1 AC input 3 phase lamps.
- 2 Indicators (input voltage AC – output voltage DC – output current DC)
- 3 Protection unit.
- 4 Input voltage AC selector.
- 5 Ack push button to mute the siren – Alarm lamp to indicate any fault.
- 6 Float – Boost operation mode selector with indication lamps.
- 7 Manual – Auto operation mode selector with indication lamps.
- 8 ON/OFF selector with indication lamp.

3.2 Inside



- ① Reverse polarity diode protection.
- ② Control unit
- ③ Shunt resistor (60A – 75 mV)
- ④ Siren 12 VDC for audio alarm.
- ⑤ Rectifier module (3 thyristores – 3 diodes)
- ⑥ Cooling fans
- ⑦ Relay to control float-boost lamps
- ⑧ Fuse for reverse polarity.
- ⑨ Load circuit breaker
- ⑩ Batteries circuit breaker
- ⑪ Load output terminal connection.
- ⑫ Batteries output terminal connection.
- ⑬ Earth terminal connection
- ⑭ AC input terminal connection.
- ⑮ Transformer input contactor
- ⑯ Input circuit breaker
- ⑰ Smoothing capacitor.
- ⑱ Main transformer.
- ⑲ Chock coil

3.3 Block diagram



- AC
- DC
- Control

4. Operation procedures:

4.1 Start up:

- 1- First, check apparent that all components, wires and indicators in the panel are good and undamaged.
- 2- Connect 3 phase AC input (R-S-T-N), note that the charger not affected with the phase sequence and don't connect the earth with neutral.
- 3- Connect the batteries and load in the terminal connection.
- 4- Turn on the AC input circuit breaker, then select ON Position.
- 5- Make sure that the protection unit LED, Alarm lamp and the siren are turned off.
- 6- Make sure that the lamps of ON, Float, Boost, Auto and Man are working by selecting each of those selections and watch the lamps.
- 7- Set the following:
 - Float/Boost selector on position Float.
 - Auto/Man selector on position Auto.
- 8- We can notice that:
 - The "ON" lamp is turned on into green.
 - The "Float" lamp is turned on into green.
 - The "Auto" lamp is turned on into yellow.
 - The reading of the DC voltage indicator will be 125 V, this value can be adjusted and the DC current is 0 A.
 - The AC voltage indicator will point to "phase to phase" reading.
- 9- Turn on the DC output circuit breakers (Battery – Load).
- 10- When we set the Float/Boost selector on position Boost we notice that the boost red lamp is turned on and the boost voltage will be 135 V displayed on the indicator, the boost voltage can be adjusted by the user.
- 11- In case of auto operation mode, the selection between boost and float operation modes is done by the control unit, depending on the current and time.
- 12- In case of manual operation mode, the selection between boost and float operation modes is done by the user.
- 13- The fans of the rectifier module are turned on by the control unit if the DC current is over than 25A
- 14- The temperature sensors inside the main transformer turn on the fans in the panel on when the temperature is over than 40°C.

4.2 Settings:

- 1- After the tests, set the ON/OFF selector on the position OFF, connect the batteries and the load correctly.
- 2- Turn the batteries circuit breaker on (Q2) to turn on the protection unit and set this parameters “AC over- AC under- DC over- DC under- Earth leakage positive & negative”.
- 3- Turn the input circuit breaker on(Q1), check the operation of the protection unit and the input lamps (R-S-T).
- 4- Set the following:
 - ON/OFF selector on position ON.
 - Float/Boost selector on position Float.
 - Auto/Man selector on position Auto.
- 5- Turn the load circuit breaker on (Q3).

4.3 Faults:

In case of any faults occur the siren will emit a warning sound and the alarm lamp will turn on, to mute the siren press the ACK push button, the protection unit LCD will show the fault, to know the fault reasons refer to protection unit manual.

5. Technical specifications:

5.1 Electrical specifications:

Input:

Voltage: 380 VAC

Frequency: 50 Hz

Output:

Float voltage range: 100% to 120%

Boost voltage range: 110% to 130%

e.g. Charger 110 VDC (float 110 to 132 and boost 120 to 145).

Output current: 50 A “maximum”

5.2 Mechanical specifications:

Dimensions: 100x60x60 cm “height x width x depth”.

5.3 Mechanical protection:

Temperature: 0°C - 50°C

The charger components placed in a steel cell with suitable size also cured with electrostatic paint against corrosion and atmospheric circumstance.

The charger enclosure is provided with suitable cooling fans.

5.4 Electrical protection:

- Over current and short circuit.
- Reversing the polarity of the Batteries.
- Failure of any phase (over and under can be adjusted).
- Over and under DC voltage which can be adjusted.
- Positive and negative earth leakage which can be adjusted.

6. Ordering information:

