

# INSTRUCTIONS FOR USE OF BATTERY CHARGERS

**8A / 6-12-24 V.**

**12A / 6-12-18-24 V.**

**20 A. / 6-12-18-24 V.**

## FEATURES - 8A unit

Charging voltage: 6-12-24 V

Thermostatic protection against polarity inversions and overloads.

Single phase power supply: comply with the values mentioned on the unit.

Max. input power: 320 W

## HOW TO USE IT - 8A unit

1) Connect red (+) crocodile clip to the positive terminal post of the battery and black (-) crocodile clip to the negative terminal post.

2) Place switch (10) according to battery voltage and adjust the charging current to the minimum.

3) Before connecting the mains supply cable to mains (earthed), check whether the battery charger voltage corresponds to mains voltage.

Then connect to mains and switch «ON».

4) Adjust the charging current through switch knob (11); do not exceed the full scale value of the instrument.

## CHECKING - 8A unit

If the unit fails to operate, check supply mains and battery, ensure that crocodile clips are making good contact with battery posts and check the fuse (12).

If thermostat (9) cuts off, remove possible overloads, wrong connections, polarity inversions.

## TECHNICAL REMARKS

To check the state of charge in the batteries, it is necessary to use a hydrometer of good quality. The following values refer to 25°C.

Fully charged battery 1,28 Kg/l = 32 Bé - 1/2 charged battery 1,2 Kg/l = 24,5 Bé - flat battery 1,12 Kg/l = 16 Bé.

Sulphatation seriously damages batteries which are left flat.

The self discharge of standard batteries is about 1/100 per day of its capacity. As a matter of fact a fully charged battery halves its charge after 60 days of inactivity.

## BATTERIES ON CHARGE

To avoid accumulations of dangerous gas, charge the batteries in a ventilated area.

Batteries must be charged without cell caps.

The electrolyte level must be a few millimeters above the lead plates in the cells.

When two or more batteries have to be charged at the same time (provided that their tension and capacity allow it), preferably connect them in series (Fig. 1).

For finding out the required value of the charging current, proceed as follows:

normal charging current = Ah capacity divided by 10

max. charging current = Ah capacity divided by 5,5.

Example = 80 Ah battery / 20 hours rating

80 : 10 = 8A = normal charging current

80 : 5,5 = 15A = max. charging current.

During the charging time, the battery electrolyte must not exceed 40°C.

The battery is fully charged when:

A) tension reaches 2,7-2,8 V per cell

B) electrolyte density remains constant for two hours at the above mentioned values (technical remarks).

## FEATURES - 12A unit and 20A unit

Charging voltage: 6-12-18-24 V

Magnetothermic protection against polarity inversions and overloads.

Single phase power supply: comply with the values mentioned on the unit.

Max. input power: 12A unit = 470 W. - 20A unit = 760 W.

## HOW TO USE IT - 12A unit and 20A unit

1) Connect red (+) crocodile clip to the positive terminal post of the battery and black (-) crocodile clip to the negative terminal post.

2) Turn the switch knob (11) to the battery voltage and the switch knob (10) to minimum.

3) Before connecting the mains supply cable to mains (earthed), check whether the battery charger voltage corresponds to mains voltage.

Then connect to mains and switch «ON».

4) Adjust the charging current through switch knob (10); do not exceed the full scale value of the instrument.

## CHECKING - 12A unit and 20A unit

If the unit fails to operate, check supply mains and battery, ensure that crocodile clips are making good contact with battery posts and check the fuse (13) and ensure that automatic circuit breaker (9) is on.

If the automatic circuit breaker cuts off, remove possible overloads, wrong connections, polarity inversions.

## SERIES CONNECTIONS TO BE PREFERRED



Fig. 1

## CONNECTIONS TO BE USED ONLY, IF NECESSARY

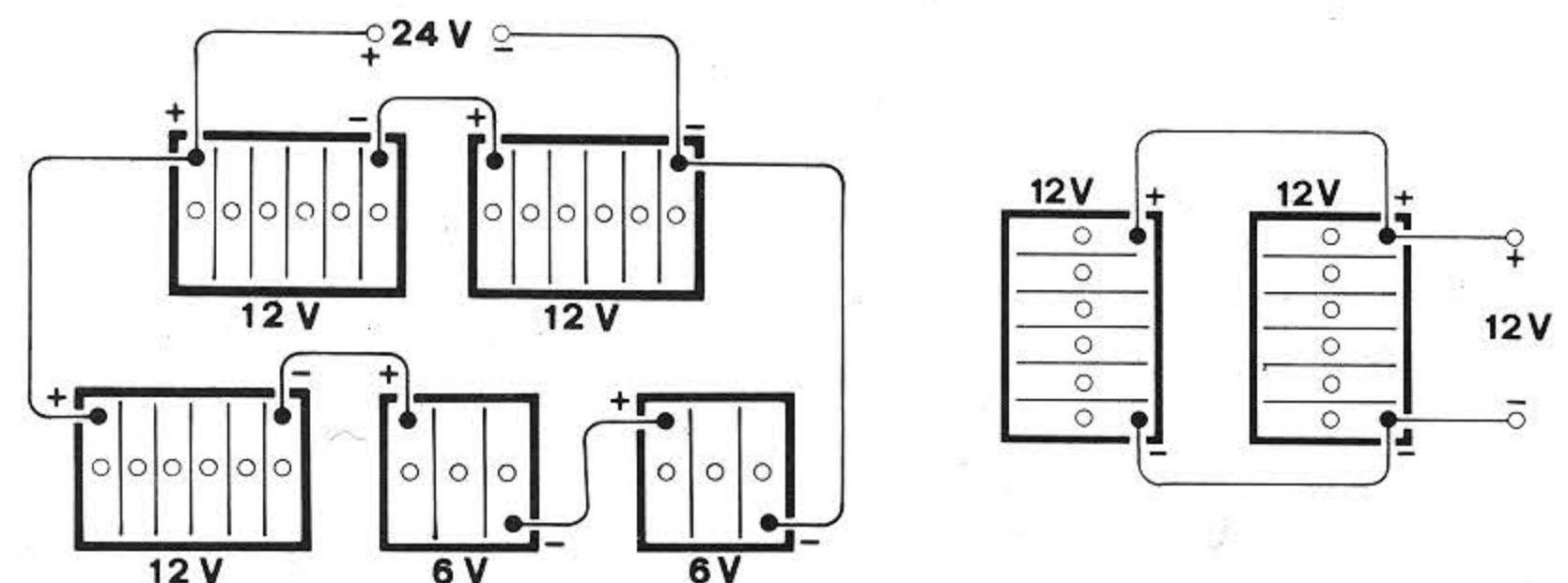


Fig. 2