

INSTRUCTION MANUAL

DC TRANSFORMER CHARGER / STARTER ADLER

MODEL: START-40/1, START-50/1



PARAMETERS:

Model	START-40/1	START-50/1
Voltage	230V/50Hz	230V/50Hz
Power (min/max)	0,8/2,5kW	0,8/3,6kW
Charging Voltage	12/24V	12/24V
Max. Charging Current	30A	40A
Fast Charge	yes	yes
Max. Starting Current	160A (1V/e)	180A (1V/e)
Battery Capacity	(min/max) Ah 15h 30÷500	(min/max) Ah 15h 40÷700
Overcharge Protection	16A	16A
Isolation Class	H	H
Protection Class	IP20	IP20
Weight	13kg	14kg
Dimensions	31x29,5x20cm	31x29,5x20cm

WARNINGS:



Electric Shock



Poisonous Fumes



Danger of Explosion



Non-Ionizing Radiation



Face Shield and Eye Protection



Personal Protection Equipment



General hazard



**Separation of electrical and electronic appliances for refuse collection.
The user is not allowed to dispose of these appliances as solid, mixed
urban refuse, and must do it through authorised refuse collection
centres**

PLEASE, CAREFULLY READ THIS MANUAL BEFORE OPERATION

1. FRONT PANEL

1. Main switch
2. Charging current switch
3. Charge/start switch
4. Ammeter
5. Fuse
6. Cable with clamp (-)
7. Charging terminal (+) 24V
8. Charging terminal (+) 12V
9. Power supply



2. GENERAL APPLICATION

This battery charger is dedicated for regular and boost charging and starting engine-driven vehicles (petrol and diesel), equipped with free electrolyte lead acid batteries (WET).

The body has an IP 20 protection class and is protected from indirect contact by grounding (for class I equipment)

WARNING! Before you start the charger, make sure the available power supply voltage corresponds with the battery charger rating plate. Always use plugs with the earth protection.

3. SAFETY RULES

- During the charge the battery produces explosive gases - avoid formation of flames and sparkes. DO NOT SMOKE.
- Position the batteries to be charged in a well-ventilated place.
- Inexperienced and untrained people should be properly instructed before using the appliance.
- People (children included) whose physical, sensoric or mental capacities would prevent them from using the appliance correctly, must be supervised by a person who is responsible for their safety while the appliance is in use.
- Use the battery charger only indoors and make sure that you start it in airy places. DO NOT SET IN THE RAIN OR SNOW.
- Disconnect the mains cable before connecting to or disconnecting the charging cables from the battery.
- Do not connect or disconnect the clamps to or from the battery with the battery charger operating.
- Never use the battery charger inside the car or in the bonnet.
- Substitute the mains cable only with an original one.
- Do not use the battery charger to charge batteries which are not rechargeable.
- To prevent damaging the vehicle electronics, scrupulously respect warnings given by the producer of the vehicle or the batteries used.
- This battery charger has components such as switches and relays which can cause arcs or sparks. Therefore when using it in a garage or in a similar place set the battery charger in a suitable case.
- Repair or maintenance of the inside of the battery charger can be executed only by skilled technicians.
- **WARNING: ALWAYS DISCONNECT THE POWER SUPPLY CABLE FROM THE MAINS BEFORE CARRYING OUT ANY SIMPLE MAINTENANCE OPERATION ON THE BATTERY CHARGER.**

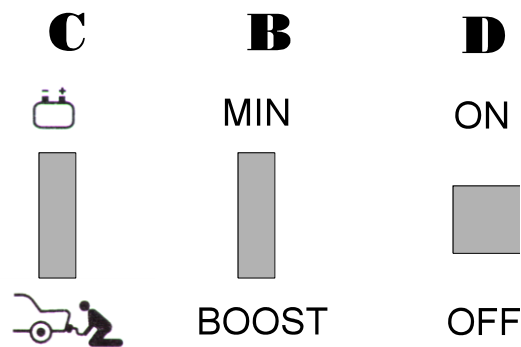
4. GETTING READY

- Before charging, make sure the capacity of the battery (Ah) corresponds to the range given on the rating plate.
- Remove the caps of the battery (if present) to let the fumes out.
- Check that the level of electrolyte covers the plates of the battery. You can add distilled water following marks on the battery. The most accurate to test the state of charge of a battery is to determine the specific gravity of the battery electrolyte. The higher the gravity, the higher the charge. Please see reference value (kg/l at 20°C):
1.28 = battery fully charged
1.21 = half-charged battery
1.14 = discharged battery

WARNING!

USE THE MAXIMUM CAUTION DURING THIS OPERATION, AS ELECTROLYTE IS A HIGHLY CORROSIVE ACID.

5. PANEL



- B - Switch – charging current/boost
C - Switch - charging (upper pos.) / starting (lower pos.)
D – Main switch (ON/OFF)

6. CHARGING

Connect the red charge clamp to the positive terminal of the battery (+ symbol). If the symbols are indistinguishable, remember that the positive terminal is the one not connected to the vehicle chassis.

- Connect the black charge clamp to the negative terminal of the battery (- symbol). Connect the power supply.

The ammeter will show charging current. You may notice the indicator goes down to reach low values, depending on the type of battery.

Once the WET battery is being charged, you may note the liquid inside starting to “boil”. It is recommended to stop charging to prevent damage of the battery.

6.1 REGULAR CHARGING (three stage)

- Select charging voltage and assemble the cable to 12V or 24V socket.
- Select charging mode switch "C" in „charging” position (upper).
- Select charging mode switch "B" in MIN. pos.
- Adjust main switch "D" in ON pos and start charging.

6.2 BOOST CHARGING

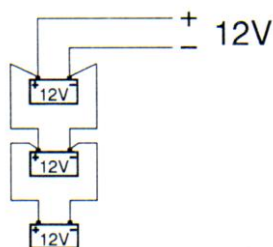
- Select charging voltage and assemble the cable to 12V or 24V socket.
- Select charging mode switch "C" in „BOOST" position (lower).
- Select charging mode switch "B" in BOOST (boost charging in ca. 10-15 min).
- Adjust main switch "D" in ON pos and start charging.

6.3 SIMULTANEOUS CHARGING OF SEVERAL BATTERIES

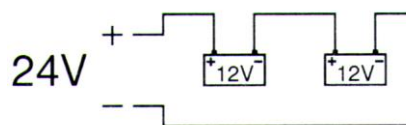
If you have to charge more than one battery at the same time, you can connect them "in series" or "in parallel". For "parallel" connection batteries must have the same nominal voltage (Volt), which corresponds to the battery charger output voltage, and the total of Ah must be within the charge range of the battery charger. For "serial" connection, batteries must have the same capacity (Ah) and the sum of the nominal voltages of all the batteries must correspond to the battery charger output voltage.

WARNING!

In serial connection of two 12V batteries, switch charging voltage to 24V.



Parallel connection



Serial connection

6.4 END OF CHARGE

- Remove the power supply from the battery charger by turning the switch to OFF and/or removing the power supply cable from the mains outlet.
- Disconnect the black charge clamp from the chassis of the vehicle or from the negative terminal of the battery (- symbol).
- Disconnect the red charge clamp from the positive terminal of the battery (+ symbol).
- Store the battery charger in a dry place.

7. STARTING THE ENGINE

WARNING: Before proceeding with starting, follow the vehicle manufacturer's instructions carefully! Make sure the power line is protected by fuses or automatic circuit breakers with sizes as indicated on the rating plate.

You can start your vehicle with this battery charger if your battery does not have enough energy to start the engine by itself. You can use the power supply, selecting the mode switch to "starting" position.

Make sure the battery is connected properly to the respective (+ and -) terminals, and that it is in good condition (not sulphated or dud). Never ever start vehicles with the batteries disconnected from their respective terminals; the presence of the battery is essential for the elimination of possible overvoltage.

With the battery charger at OFF, plug in the power cable.

- Turn the switch ON.
- Turn the switch to START and turn the ignition key to start up the engine.

If the engine does not start within a few seconds, switch back to BOOST mode. After one minute take on starting again.

END OF STARTING

- Disconnect the power to the battery charger by turning the switch to OFF and remove the power cable from the mains.
- Disconnect the black crocodile clip from the negative battery terminal (- symbol) and the red crocodile clip from the positive battery terminal (+ symbol).
- Store the battery charger in a dry place.

8. PROTECTION

The battery charger protects itself from:

- Overcharge (too much current supplied to the battery).
- Short-circuit (loading clips placed in contact with each other).
- Polarity inversion on the battery clamps.

WARNING!

For appliances fitted with fuses, when replaced, always use the same kind of fuse with the same rated size. For the same reason, never ever replace the fuse with a bridge in copper or other material. The power supply cable should always be DISCONNECTED from the mains supply while the fuse is being changed. When replacing the ribbon fuse, if present, carefully fasten the nuts.

9. USEFUL ADVICE

- Control electrolyte level.
- If the terminals are incrustated with oxide, clean them to ensure good contacts with the clamps.
- never ever allow the two clamps to come into contact when the battery charger is connected to the mains. In this case the fuse will blow.
- If the battery, to which this battery charger is to be connected, is permanently installed in the vehicle, disconnect the positive cable that connects the vehicle installation.
- Check the battery voltage and the polarity.
- After operation, disconnect the charger from the power supply, disconnect the clamps from the battery.
- Store the battery charger in a dry and clean place.