

## CAUTION!

<b>BATTERY TYPE</b>	Use the charger for the defined battery type only (according to the parameters). If the charging profile does not suit the battery type, the battery will not be charged properly and the life time of the battery may be shortened.
<b>GAS</b>	Lead-acid batteries produce hydrogen-oxygen gases, which can be explosive, and sulfuric acid that can cause severe burns. Make sure the working area is well-ventilated. Cigarettes or any open fires or sparks may cause an explosion. Keep all ignition sources away from the battery.
<b>ACID</b>	Battery acid can damage your eyes and skin. In the event of an accident, flush with water and seek medical help immediately. Use proper personal protective devices when handling a damaged or leaking battery. Treat the material used to clean up the battery acid spill as hazardous waste.
<b>TOXIC SUBSTANCES</b>	Batteries contain hazardous materials. Among others, lead and antimony are toxic substances. Waste lead-acid batteries are hazardous waste and must be treated according to the Battery Disposal Regulations.

Manufacturer

**Piktronik d. o. o.**  
**Cesta k Tamu 17**  
**SI – 2000 Maribor**

Distributor:



## OPERATING INSTRUCTIONS

### Battery charger KOP400

KOP400 battery chargers are modern fully automatic devices suitable not only for charging but also for maintaining and monitoring the batteries. The charger stores data about charging times and Ah charged. This data may be accessed for further analysis. You can connect the charger to the battery at any time. This data may be accessed for further analysis.

The charger may be used as a stationary device or can be installed and operated in vehicles. The charger should be mounted vertically for optimal cooling and in a space with enough air circulation.

Your KOP battery charger was factory programmed for a specific battery type. Make sure the charging profile suits your battery type. To change the charging profile for a specific battery type, parameters may be programmed with a PC software package and a programming interface. The programming parameters allow the charger's profile to suit the battery type. Up to five charging phases can be programmed. Charging voltages, currents, charging times, temperature compensation and other control functions can be programmed. Please contact your dealer for further information. When programming the charging profile always follow the battery manufacturer's instructions regarding voltages, currents and charging times.

**Read the operating instructions carefully before using the KOP Battery charger!**

### TO START THE CHARGING PROCESS

Establish a safe connection between the battery and the charger first. Then plug the mains connector. This sequence must always be followed in this order. When removing the connection, remove the mains plug from the mains first, before disconnecting the battery circuit.

After connecting the battery, the red LED (Error LED) flashes and then remains OFF. When the charging process starts, the yellow LED comes ON (also a click from the relay in the charger can be heard). The charging process depends on the size of the battery.

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## SAFETY INSTRUCTIONS

-  Read the manual thoroughly.
-  The charger must be used with the original cables only. Do not change, shorten, extend or short circuit the cables.
-  Remove the mains plug from the mains first before breaking the battery circuit.
-  Only rechargeable batteries can be used. Do not connect any non-rechargeable batteries (like dry-cell batteries) to the charger.
-  The charger may be used for the correct battery type only.
-  Do not install the charger inside motor-homes, campers or caravans.
-  Check the charger for cable, housing and connector damages before use. Do not operate the charger when damaged. There are no user serviceable parts inside.
-  Do not expose the charger to rain, moisture, direct sunlight or dust.
-  Always disconnect the mains after charging and generally when the device is not in use. During the trickle charge the charger remains attached to the mains.
-  Always disconnect the mains plug (230 V) during a thunderstorm!

LED FEATURES				
POWER	100%	CHARGING	ERROR	Shown feature
on	off	off	off	No battery connected or battery completely empty. To reduce the consumption the charger is on stand-by
on	off	flashing	flashing	Battery voltage under minimal value
on	on	off	off	Charger waits for the programmed automatic re-start – the charger is on stand-by
on	off	on	off	Full current charging
on	off	flashing	off	Reduced current charging – the battery is almost completely charged
on	on	off	off	Preservation charging
on	off	off	flashing	Errors – see the next table

**NOTICE:** The charger has a very small own current consumption and it can also last more than 10 seconds after you have plugged out the mains plug, depending on the features (see above) , before the POWER LED goes off.

ERRORS	
No LED lights ON / flashes after the charger has been connected to the mains	1. Check if the battery is properly connected 2. Check the Mains 3. Contact your after-sales service point
<i>LED flashes periodically : N-times flashes/ 2 s Pause / N-times flashes</i>	N=flashing times (please see the error messages description of the flash pattern below)

Number of LED flashes	Description
1	Charger temperature sensor failed
2	Charging time limit has been exceeded (faulty battery / battery aging)
3	Battery temperature sensor failed or is not connected
4	Charger temperature during the charging process is too high
5	Battery voltage too high at the start of the charging
6	Battery temperature too low
7	Battery temperature too high
8	Charger disconnected from the battery during charging
9	Incorrect parameter checksum
10	Problems with the current measurement offset
11	Incorrect parameter values
12	Current can not be measured
13	Battery charging current measurement is out of range
14	Battery charging current can not be properly controlled or battery voltage does not rise at the beginning of the charging process if the battery is too empty, damaged or overloaded.

## Technical characteristics

Charger type	KOP400-48	KOP400-48E
Battery voltage	48 V nominal / 66V max. (73.75V max. for -48E)	
Nominal output current / power	6,5 A / 370W	
Efficiency	91%	
Mains current	max. 3,3 A	
Input voltage	230V~ ±10%, 50/60 Hz	
Protection grade	IP54	
Weight	2,3 kg (with standard cable lengths)	