

MAVOLOG BP

Uninterruptible Power Supply for MAVOLOG 10

1 Applications

The MAVOLOG BP (BP = battery pack) is an uninterruptible DC back-up power supply which automatically supplies power to interconnected MAVOLOG 10 instruments in combination with the MAVOLOG PS/C in the event of a power failure.

If the batteries are fully charged, the uninterruptible power supply is capable of supplying power for 1.5 to 10 hours depending upon the number of interconnected MAVOLOG 10 instruments.

Note

The MAVOLOG BP supplies power to the interconnected MAVOLOG 10 instruments when mains power to the MAVOLOG PS/C has been interrupted. Operation in the interface mode is not possible in such cases. Mains power must be restored to the MAVOLOG PS/C before, for example, data can be read out from the MAVOLOG 10 instruments, or before their parameters can be configured.

2 Safety Features and Precautions

The MAVOLOG BP has been manufactured and tested in accordance with safety regulations IEC 61010-1 / EN 61010-1 / VDE 0411-1.

If used for its intended purpose, the safety of the user, as well as that of the device, is assured.

Read the operating instructions carefully and completely before using your uninterruptible power supply, and observe all points included therein.

The device may not be used:

- If the housing is open
- If it demonstrates visible damage
- If it no longer functions flawlessly
- After extreme stresses due to transport
- After lengthy periods of storage under unfavorable conditions (e.g. moisture, dust, excessive temperature)

Meanings of symbols on the device:

The symbols on the device have the following meanings:



Warning concerning a point of danger.
(Attention: observe documentation!)



Indicates EC conformity

3 Connecting the MAVOLOG BP

The MAVOLOG BP is used exclusively in combination with the MAVOLOG PS/C power supply. In addition to a charge voltage of approximately 24 V DC, the power supply also generates a charge control signal at the "SYSCLK" terminal, which is required for correct functioning of the MAVOLOG BP. If the "SYSCLK" terminal is not connected, only trickle-charge operation is possible.

Correct poling of the supply voltage must be assured when the MAVOLOG BP is connected to the MAVOLOG PS/C.

- ⇒ Use only insulated cable (e.g. H07V-U), or insulated wires with connector sleeves for connecting the power supply. Wires without connector sleeves may be pulled out of the connector terminals at the MAVOLOG BP and cause short-circuiting.
- ⇒ Connect the "+24 V DC" and "-24 V DC" terminals to the terminals with the same designations at the MAVOLOG PS/C.
- ⇒ The "SYSCLK" terminal at the MAVOLOG BP must be connected to the terminal with the same designation at the MAVOLOG PS/C, in order to assure correct functioning of both units.

No other connections are required.

Note

When installing the MAVOLOG BP, a clearance of 1 to 2 cm must be left between the MAVOLOG PS/C and the MAVOLOG BP, so that heat generated within the devices can be adequately dispersed.

4 Working with the MAVOLOG BP

4.1 Charging and Discharging of the Battery

The MAVOLOG BP is delivered from the factory with a pre-charged battery in the deactivated condition. Activation takes place automatically as soon as a correctly poled supply voltage of 20 V DC to 30 V DC is applied. The LEDs "ACTIVE" and "CHARGE" light up and the internal, rechargeable battery is charged. Charging is always initiated when mains power has been restored after a power failure, and the MAVOLOG PS/C is once again capable of supplying charge current. After rapid charging for a duration of approximately three hours, trickle charging ensues with greatly reduced charge current.

If the MAVOLOG PS/C power supply fails, e.g. due to mains failure, the MAVOLOG BP supplies power to the interconnected MAVOLOG 10 instruments in an uninterrupted fashion from the internal, rechargeable battery. The "DISCH" LED (discharge) lights up in such cases. The "emergency power phase" is ended when mains power is restored, or when the capacity of the rechargeable battery has been depleted. The MAVOLOG BP is shut down automatically in such cases, in order to protect the rechargeable battery from exhaustive discharge.

If mains failure occurs frequently within a short period of time, recharging of the battery is started each time failure occurs. The temperature of the battery is monitored in order to prevent overcharging in such cases. If a limit temperature is exceeded, the "TEMP" LED lights up and rapid charging is interrupted ("CHARGE" LED is extinguished).

Note

Neither the fact that the "TEMP" LED lights up nor conspicuous warming of the device indicates a device malfunction, but is rather the result of a frequently, repeatedly started charging cycle.

4.2 Switching the Device Off

If the MAVOLOG BP is removed from a system, or if the system is shut down, and if backup power from the MAVOLOG BP is thus no longer required, it can be switched off (i.e. deactivated) with the "OFF" key. The MAVOLOG BP is deactivated automatically in order to protect the rechargeable battery if a short-circuit occurs, or if power consumption from the interconnected MAVOLOG 10 instruments is too great.

The next time supply power is switched on, the MAVOLOG BP is automatically reactivated.

Note

The "OFF" key can be used to prevent unnecessary discharging of the device's rechargeable battery during periods of non-use. Do not press the "OFF" key if the device has been installed to a system and is being supplied with power from a MAVOLOG PS/C. The "OFF" key is disabled in such cases.

5 Replacing the Rechargeable Battery

Depending upon the operating cycle, the service life of the rechargeable battery amounts to approximately 1000 charging and discharging cycles, or approximately 3 to 5 years in the standby mode.

The rechargeable battery must be replaced if:

- The duration for which the MAVOLOG 10 instruments can be operated is substantially reduced
- The MAVOLOG BP is automatically deactivated when a mains failure occurs
- Charging and discharging of the battery no longer function properly
- The rechargeable battery has been in operation for more than 5 years

A new rechargeable battery is available as a replacement part (see chapter 8).

Use only original rechargeable batteries, because only these allow for appropriate temperature monitoring. Rechargeable batteries without temperature monitoring may be destroyed due to overcharging.

Proceed as follows in order to replace the rechargeable battery:

- ⊘ Disconnect the terminals at the MAVOLOG BP from all other devices, remove it from the top-hat rail and deactivate.
- ⊘ Carefully open the housing by inserting the blade of an appropriate screw driver from the side into the indentation at the transition between the cover and the housing base, and gently lifting the cover. Indentations are located in the middle of both the right and left-hand sides of the housing.
- ⊘ Carefully pull the rechargeable battery plug from the PCB and remove the cover along with the electronics.
- ⊘ In order to remove the hold-down plate from above the battery, slightly press the housing base in an outward direction at its upper edge until the hold-down plate is released and can be removed.
- ⊘ The rechargeable battery can now be removed and recycled.
- ⊘ Follow the above instructions in the reverse in order to install the new rechargeable battery.
- ⊘ Make sure that the hold-down plate snaps into position when it is reinserted.
- ⊘ Insert the rechargeable battery plug back into the PCB and carefully snap the housing cover back onto the housing base.

Your MAVOLOG BP can now be reactivated.

6 Characteristic Values

Electrical Data

Charge Voltage	20 V DC ... 30 V DC
Discharge Voltage	18 V DC ... 21 V DC
Charge Current, "CHARGE"	120 mA
Charge Current, "STANDBY"	20 mA
Overall Consumption, "CHARGE"	150 mA
Overall Consumption, "STANDBY"	50 mA

Rechargeable Battery Characteristic Values

Charge Time, "CHARGE"	approx. 3 hours
Max. Discharge Current	approx. 2 A, depending upon battery condition
Type	15 ea. round cells, 1.2 V, NiCd sinter battery
Nominal Capacity	700 mAh
Service Life	approx. 1000 charging and discharging cycles approx. 3 to 5 years in standby mode

Short-circuit protection by means of automatic shut-down.

Protection against exhaustive discharge by means of automatic shut-down.

Overload protection by means of temperature monitoring.

Ambient Conditions

Storage Temperature	-20° C ... +60° C
Operating Temperature	-10° C ... +50° C
Deployment	indoor use only
Climatic Category	3z/-20/50/60/75% (in compliance with VDI/VDE3540)
Altitude	max. 2000 m above sea level

Electrical Safety

Operating Voltage	safety low-voltage
Contamination Factor	2
Interference Emission	EN 50081-1
Interference Immunity	EN 50082-2

Mechanical Design

Housing	plastic housing for snap mounting to standard top-hat rail per DIN EN 50022/35 x 15, or for wall mounting
Terminals	screw terminals, max. conductor cross-section: 2.5 square mm
Protection	terminals: IP20, housing: IP40
Dimensions	75 mm x 55 mm x 109 mm (HxWxD)
Weight	approx. 480 gr.

7 Housing Maintenance

Use a dry or slightly dampened cloth to clean the housing. Avoid the use of cleansers, abrasives or solvents. No moisture may be allowed to enter the housing!

8 Repair, Replacement Parts and Rental Device Services

When you need service, please contact:

GOSSEN-METRAWATT GMBH
Service Center
Thomas-Mann-Strasse 20
90471 Nuremberg, Germany
Phone +49 911 86 02 - 410 / 256
Fax +49 911 86 02 - 2 53
e-mail fr1.info@gmc-instruments.com

This address is for Germany only.

Abroad, our representatives or establishments are at your disposal.

9 Product Support

When you need service, please contact:

GOSSEN-METRAWATT GMBH
Product Support Hotline
Phone +49 911 86 02 - 112
Fax +49 911 86 02 - 709