Solution: Connect the connectors properly, the swapping does not damage the equipment.
- When the adapter has been connected, yellow and, in some cases, green LEDs are lighted on EnergyBank, the back-up equipment is supplied.
Cause: An unsuitable type of adapter, insufficiently low output voltage or current. This situation may happen whenever EnergyBank is used with a unit other than a GSM gateway and available adapter.
Solution: Use a suitable adapter, the adapter output voltage must be in the whole range of load within the limits included in the *"Technical Parameters"* section, the adapter current must be 200mA higher at least than the maximum power consumption.
- EnergyBank has a substantially lower capacity during back-up despite of having been fully charged.
Cause 1: The usable capacity of accumulators decreases at higher discharge currents.
Cause 2: A deteriorated capacity of accumulators due to ageing.
Solution: Replace the accumulators.
- EnergyBank turns off when the backed-up equipment is turned on in the back-up mode.
Cause: The inrush current following the equipment turn-on made the accumulator voltage drop and EnergyBank turns off.
Solution: Keep the equipment connected to EnergyBank continuously, never switch the backed-up equipment in the back-up mode.

## 7. Technical Parameters

| | |
|---|---|
| Input voltage: | 11.5 to 14.5V |
| Pass-through loss at mains supply: | max. 0.5V |
| Maximum output current: | adapter output current minus 200mA, max. 1A |
| Accumulators used: | NiMh, size AA, 1800mAh, 10 pcs. |
| Self-consumption - off status: | 30uA |
| Self-consumption - back-up status: | 15mA |
| Self-consumption - charging: | max. 200mA |
| Charging current: | 60 to 200mA (according to the battery charging level) |
| Accumulator voltage for low power: | 11.3V |
| Accumulator voltage for turn-off: | 10V |
| Dimensions: | 170x130x45mm |
| Operational temperature: | 0 to 45°C |

EasyGate operation time in EnergyBank back-up mode (applies to new accumulators):

| | |
|---|---|
| - Standby mode (70mA) | approx. 20 hours |
| - GSM in connection (200-300mA) | approx. 6 hours |

Warranty for this device is 24 month, not valid for accumulators

## EC Declaration of Conformity

Directive: **Electromagnetic compatibility (EMC): 89/336/EEC**

Manufacturer:
**2N TELEKOMUNIKACE a.s.**
Modřanská 621
143 00 Prague 4
Czech Republic

Declares that the product:

***ATEUS*® - EnergyBank**

Type numbers: *ATEUS*® – EnergyBank, 501399E

Description: Backup power supply

Designed for: Backup power supply for 12V powered devices

Conforms to the following Standards:
EMC: EN 55 024:1998, A1:2001, A2:2003
EN 55 022:1998, A1:2000, A2:2003, A1/Cor.:2003, Cor.:2003

Date and place of issue:
Prague, Czech Republic, 17.3.2005

Manufacturer's stamp

2N TELEKOMUNIKACE a.s.
Modřanská 621
143 01 Praha 4

Ing. Oldřich Stejskal, executive director



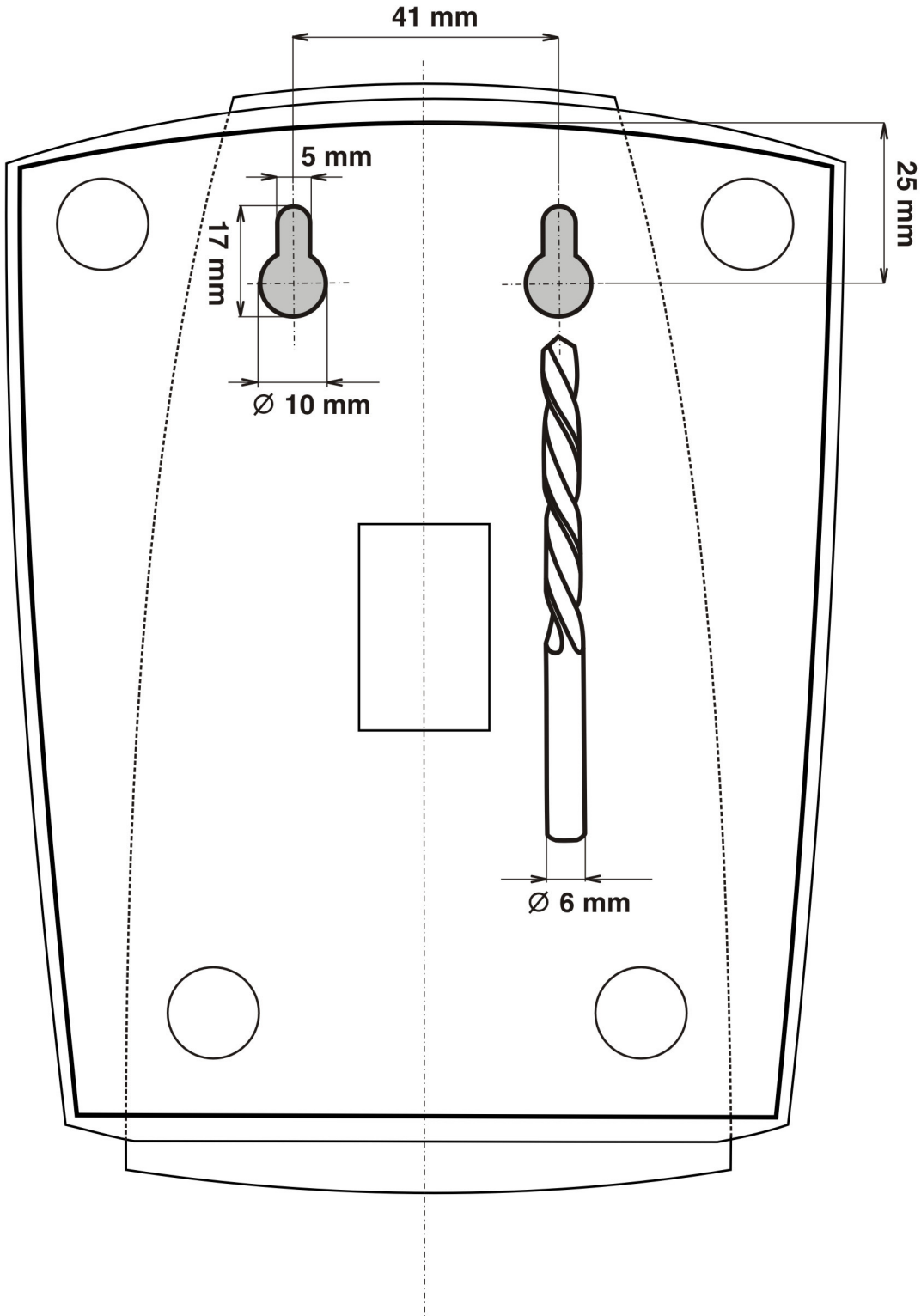

# EnergyBank - Instructions for Use

## 1. Purpose

EnergyBank is designed to back up accidental supply voltage outages for equipment supplied with 12 V dc voltage with the peak current drain of 1A. The backed-up power supply works as a pass-through system, i.e. the backed-up equipment is connected continuously to the output connector and the power supply (typically a mains adapter) to be backed up is connected to the input connector. During a voltage failure on the input connector, EnergyBank transits automatically into the back-up mode.
Primarily, EnergyBank is designed to back up EasyGate and SmartGate GSM gateways made by 2N TELEKOMUNIKACE (hereinafter referred to as GSM gateways). The backed-up power supply is connected between the mains adapter and the GSM gateway, the adapter being included in the GSM gateway delivery.
- When a device other than a 2N gateway is used for back-up, it is necessary to observe the parameters included in the *"Technical Parameters"* section. Especially, be sure to use an appropriate mains adapter. The adapter voltage must be within the input voltage limits mentioned in the Technical Parameters; common transformer adapters usually do not meet these requirements. The use of an unsuitable adapter may lead to a substantial reduction of the battery life or equipment damage. You can purchase a suitable adapter with stabilised output voltage from the 2N company.
- When your EnergyBank outlives its usefulness, dispose of it in accordance with applicable legal regulations.

## 2. Delivery Contents

- a backed-up power supply base board, including accumulators;
- screws and dowels for wall mounting;
- an EnergyBank - backed-up equipment interconnecting cable;
- a mounting pattern template and Instructions for Use.




## 3. Installation

- EnergyBank is designed for mounting on a vertical surface using suspension holes (to drill holes in the wall use the mounting template included) or for placing on a flat surface.
- Connect the supply adapter to EnergyBank's input connector (DC IN) and a GSM gateway to the output connector (DC OUT) using the interconnecting cable included.
- For the acceptable range of operational temperatures see the *"Technical Parameters"* section, it is impossible to operate EnergyBank on places exposed to direct solar radiation or heat sources.
- EnergyBank is intended for indoor use. Keep it away from rain, flowing water, condensing moisture, fog, etc.
- EnergyBank may not be exposed to aggressive gas, acid vapours, solvent vapours, etc.
- EnergyBank is not suitable for such high-vibration environments as means of transport, machine rooms, etc.

## 4. Function

- Upon power up, EnergyBank works completely automatically and requires no operating personnel. Three LEDs on the outer cover indicate its statuses as follows:
- green LED - power supply and charging - the equipment is fed from the mains;
- yellow LED - back-up - no mains voltage, the equipment is backed-up;
- red LED - low battery, the equipment will soon turn off.
- When the equipment is connected to the mains, voltage is supplied to the output connector and the accumulators get charged. This status is indicated by a green LED. When the accumulators get discharged completely, they are recharged quickly for 6 hours up to their half-capacity and then the charging process decelerates until standby current only flows into the accumulators. The full capacity is reached in approximately 24 hours of mains operation. The above mentioned data are for information only because of parameter dispersion and accumulator ageing. The new device must by charged before use for backup.
- In the event of mains power outage, EnergyBank transits smoothly into the back-up mode, which is signaled by a yellow LED. The backed-up equipment must be connected at the moment of power outage, otherwise EnergyBank turns off automatically and you have to apply mains voltage to put it in operation again. Hence, you cannot disconnect the backed-up equipment and reconnect it (or connect another equipment unit) in the back-up mode - the back-up mode cannot be recovered after disconnection without reconnection to the mains!
- The accumulator discharging is signalled by a red LED. Another voltage drop below the minimum value on the accumulators results in the equipment turning off to avoid irreversible accumulator damage by over discharge.
- Turn-off status - no LED is on, the electronics shows the minimum consumption. The equipment transits into this mode whenever the accumulators get discharged below the minimum value or whenever both the power supply and backed-up equipment are disconnected. To terminate this status apply mains voltage.

## 5. Maintenance

- If, as result of ageing, the accumulator capacity goes down or internal resistance goes up, the accumulators can be replaced with new ones of the same design. There are 10 standard NiMh accumulators of the AA size in the equipment. These accumulators are placed in a holder and can be replaced without any special tools. If you do not want to contact the servicing centre, you can replace them yourself.
- Be sure to use accumulators of the same design for replacement - NiMh, size AA. The accumulators need not have the same capacity as the original ones (1800 mAh), but we do not recommend you to use accumulators with a lower capacity.
-While replacing the accumulators keep the equipment disconnected from the supply adapter and backed-up equipment. First loosen six screws on the bottom part, then remove the upper cover and disconnect the accumulator block cable. After that, remove the board with electronics from the equipment and release four battery holder screws. Move the whole battery block out of the holder and replace the accumulators. Now take the above mentioned steps in the reverse order to assemble the system (mind the accumulator polarity, remember to connect the accumulator block cable).
- Dispose of the used accumulators as required by standards (hazardous waste).

## 6. Troubleshooting

- When the adapter has been connected, a yellow LED is lighted on EnergyBank, the backed-up equipment has no power.
Cause: Swapped input and output connectors.