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## USB-WERK AC

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Made in Germany

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„Bike-mobile“ Stromversorgung  
elektronischer Geräte per  
Nabendynamo

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“Bike-mobile” hub dynamo powered  
supply unit for electronic  
devices

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Le chargeur à vélo pour  
« appareils électroniques »,  
par dynamo dans le moyeu

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„Bike-mobiele“ stroomvoorziening  
van elektronische apparaten per  
naafdynamo

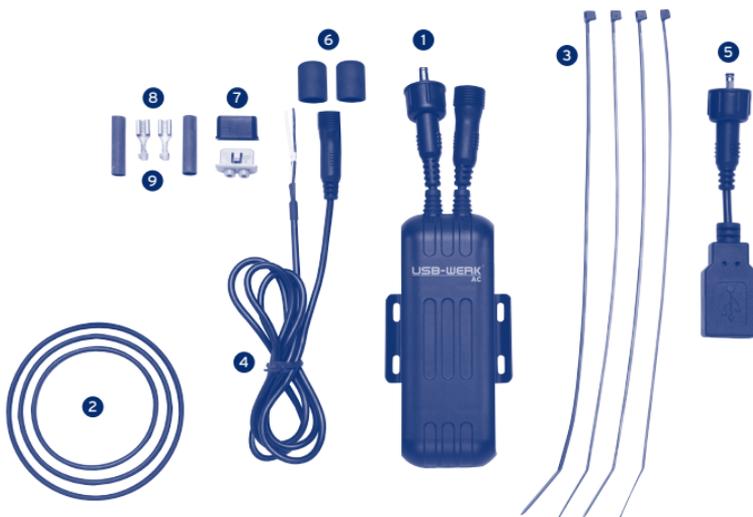
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Please study carefully before using!

# USB-WERK AC

**"Bike mobile" power supply for mobile devices via hub dynamo.**

USB-WERK: Suitable for powering mobile electronic USB devices - e.g. phone, MP3 player, GPS. Transforms hub dynamo energy.



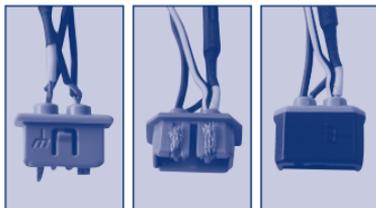
### Scope of delivery:

- 1 USB-WERK
- 2 3 rubber bands
- 3 4 cable straps
- 4 1 dynamo connection cable (80 cm)
- 5 1 cable, circular plug to USB socket
- 6 2 caps for plug connections
- 7 1 plug (casing and inner part) for Shimano hub dynamo
- 8 2 flat connectors with additional branch for SON hub dynamo
- 9 2 heat shrink tubes for SON flat connectors

## Mounting on a bike

The USB-WERK can be fastened to a large variety of frame tubes in any suitable place by using rubber bands (2) or cable straps (3). The USB-WERK is splash and rain water proof!

Without mounting: The USB-WERK can be carried in any bag that allows a cable connected to the hub dynamo to exit. In this case, the fixing bracket can be removed from the USB-WERK.



III. 1

III. 2

III. 3

## Connection to a dynamo/power source

The USB-WERK works with all hub and tire driven dynamos without electronic voltage limitation. Connect USB-WERK to the dynamo with the bared ends of the connection cable (4) (see the following connection options). Connect the other end to the input (IN) of USB-WERK (remove cap (6) from plug connection first). By tightening the screw caps, those connections can be made splash and rain water proof!

### Connection options

**Shimano hub dynamo:** Twist together one bared cable end each of the connection cable (4) and the headlight cable. Insert twisted "cable pairs" into each of the apertures of the Shimano plug's (7) inner part (III. 1). Please mind the polarity of the headlight, the USB-WERK has no set polarity. Insert cable ends as far as possible into the casing, bend them and place them in the lateral grooves (III. 2). Cut overlapping cable strands. Click on the Shimano plug casing (III. 3). Insert the finished plug into the Shimano hub dynamo.

**SON hub dynamo:** Crimp one connection cable (4) each - shortened if necessary - together with one headlight cable into a flat connector (8). For insulation, shrink one of the included tubes (9) around the connectors, e.g. with a lighter flame. Disconnect the headlight flat connector from the dynamo. Hook the USB-WERK flat connector up to the SON hub dynamo, and connect the headlight cables once more using the additional branches of the connectors. Please mind the polarity of the headlight, the USB-WERK has no set polarity.

**Other dynamos, also side runners:** Connect the cable of the USB-WERK together with the headlight cable (4) (parallel connection).

### Caution:

The USB-WERK can only be used with dynamos (AC power sources). Connection to DC power sources (batteries) is not possible.

## Connecting/powering/charging electronic devices

Connect the cable (5) (circular plug to USB socket) to the OUT connection of the USB-WERK. Charging cables of all USB mobile devices can then be connected to the USB socket.

**CAUTION:** The USB connection to the devices is neither splash nor rain water proof.

The USB-WERK emits up to 1 A current at a voltage of 5 V.

Most USB devices feature an automatic charging deactivation that prevents overcharging. If such a deactivation is not present and if the device shows the charge status, the battery must be disconnected from the USB-WERK immediately as soon as it is fully charged. If such a deactivation is not present and if the device does not show the charge status, a warning battery is a sign of the onset of overcharging.

### Integrated cache battery

The USB-WERK contains a cache battery that keeps the energy supply constant during slow cycling or stopping.

If the connected USB device requires more energy than the dynamo is able to provide, the integrated cache battery contributes the energy difference. (When cycling slowly, the cache battery discharges, whereas it charges when cycling faster.) When the cache battery is depleted, the energy supply of the USB-WERK is interrupted so the battery can recharge. As soon as a certain charge has been reached, energy is once more provided via the USB socket.

### Tip:

Cycle for approx. 10 minutes at 15 km/h with the light switched off and with no USB device connected to ensure a basic charge of the cache battery.

**CAUTION:** If the cache battery was depleted and the USB-WERK not used for several months afterwards, it is possible that at first no energy can be supplied. If during the period of non use the USB cable remained connected to the USB-WERK, discharging can occur more quickly. It takes several minutes of cycling for the cache battery to possess sufficient energy once more. After that, normal operation commences.

This can be prevented by charging the cache battery prior to periods of non use. To do so, it is sufficient to cycle for 10 minutes with the light switched off and no USB device connected to the USB-WERK.

## Simultaneous use of dynamo lighting system and USB-WERK

A simultaneous use is possible. Please note that a functioning parallel operation can only be guaranteed when using a diode rear light and IQ headlight by Busch & Müller. The output of the lighting system drops up to 50% depending on the connected device. For other lighting systems, no statements can be made. Simultaneous operation of lighting system and USB-WERK diminishes the output accordingly. Please note: Depending on national law, you may not be permitted to use the USB-WERK and the lighting system at the same time after dark.

The output voltage of the USB-WERK is insufficient for charging the Busch & Müller cache battery 461A; it is suitable only for use with the E-WERK (type 361). The USB-WERK already includes a built in cache battery which keeps the energy supply constant during slow cycling or stopping.

## Technical details

Ref. no.: 361BW

- In:** 0 to 70 V AC voltage, 0 to 10 kHz. Limitation at 100 V peak voltage. 0 to 50 V DC voltage. No polarity has to be considered.
- Out:** 5 V regulated voltage, short circuit proof
- Output:** max. 5 W (fully charged cache battery), 2.5 W permanently

**Idle output:** 0,05 W at 30 km/h

**Charge time** of connected USB devices (non binding): at approx. 15-20 km/h comparable to charging with standard mains connected chargers.

Only if dynamos without integrated electronic overvoltage protection are used (without the adjacent symbol), the USB-WERK can give of the highest possible amount of energy.



Technical modifications reserved.

**CAUTION: Busch & Müller vouches solely for a faultless functioning of the USB-WERK. Exempt from liability is any damage to connected devices of all kinds. It cannot be guaranteed that the USB-WERK is able to power all connectable devices. Please contact the device's manufacturer. Further information can be found on our website [www.bumm.de](http://www.bumm.de)**

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