



Installation manual BEAT[®] 50 / BEAT[®] 100

INSTALLATION MANUAL FOR THE BEAT[®] 50. THIS MANUAL CAN ALSO BE USED FOR THE BEAT[®] 100 . (SEE ALSO OUR SEPARATE PRODUCTSHEET FOR BOTH PRODUCTS)

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Intended Use

The BEAT[®] 50 can be used with any lead acid / gel lead acid / AGM battery but may be operated **on 12 V systems only**. Those systems can be comprised of a single 12 V battery, but may also be comprised of a set of 6 V batteries set in series to produce 12 V.



Other types of batteries or battery systems, in particular with batteries that run with a higher voltage, may have unpredictable consequences and are therefore not permissible and may damage the product.

Use the BEAT on a new battery or install the BEAT on a battery that has been used for a short or even prolonged period. The BEAT can even revive batteries that are considered dead.

Check the contents of the package

The full contents of the packaging is:

- BEAT[®] 50
- Installation manual
- Two folding ferrite clamps for cable (diameters of 4,5 - 6 mm)
- One ferrite clamp unlocking key

Batteries or battery system on a higher Voltage

Batteries or battery system operating on a higher voltage than 12 V can be treated with multiple BEAT's. Please see our publication on 'How to connect a BEAT on multiple batteries' for use of the BEAT products with batteries on a higher voltage.



STEP-BY-STEP SHORT INSTALLATION INSTRUCTION

*Read these instructions well. The manufacturer is not responsible for any damage, which results from neglect, misuse or non compliance with this guidance document. **If you don't understand the risks of what you are doing we strongly advise to have the installation done by someone who does!***

1. Use the BEAT on the next new battery or install the BEAT on a battery that has been used for a short or prolonged period.
2. Charge the battery that you want to install the BEAT on. When the battery is charged disconnect or switch off the battery charger.
3. Disconnect any existing wiring on the negative electrode of the battery if this wiring is connected to vehicle mass. The negative electrode is usually connected with black wires. (The positive electrode usually with red wiring).
4. Connect the RED (positive) lead of the BEAT[®] 50 to the positive battery terminal. **Observe polarity!** The BEAT is safeguarded against electrical shortcuts, but reversing the polarity will destroy the BEAT[®]. Repair of the BEAT[®] is not possible!
5. Reconnect the wiring on the negative electrode of the battery.
6. Connect the BLACK (negative) lead of the BEAT[®] 50 to the negative battery terminal.
7. Check if the blue LED light flashes. If it doesn't start blinking immediately, wait for at least 20 seconds for the LED light to come on.
8. Leave the BEAT[®] 50 permanently installed on the battery. Check from time to time if the LED is flashing or burning constantly, indicating that the BEAT is



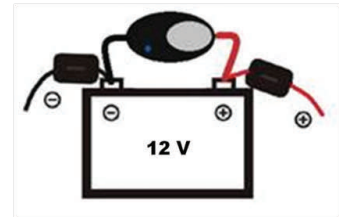
working properly. A flashing or burning LED light indicates that the BEATS is keeping your battery in good condition.

Read our publication on 'Battery care with use of the BEAT' if you want to put battery in hibernation.

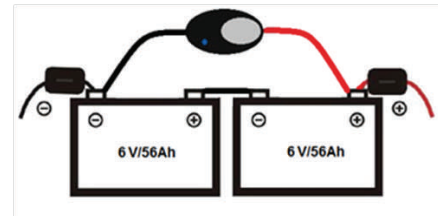
STEP-BY-STEP EXTENDED INSTALLATION INSTRUCTION

*Read these instructions well. The manufacturer is not responsible for any damage, which results from neglect, misuse or non compliance with this guidance document. **If you don't understand the risks of what you are doing, have the installation done by someone who does!***

1. The BEAT® 50 can be used with any lead acid / gel lead acid / AGM battery but may be operated **on 12 V systems only** (see figures on the right).
Use the BEAT on a new battery or install the BEAT on a battery that has been used for a short or even prolonged period. (The BEAT can even revive batteries that are considered dead).



2. Battery systems to be used with the BEAT® can be comprised of a single 12 V battery, but may also be comprised of a set of 6 V batteries set in series to produce 12 V.
3. Charge the battery that you want to equip with the BEAT.
4. Disconnect the battery charger. *(Battery chargers produce electrical currents and even small currents can cause harm or disease to the user or may even damage the battery or the BEAT®).*



5. Disconnect any exiting wiring attached to the electrodes of the battery. If the battery is installed in a vehicle, *first* disconnect the black (mass) wiring. *(This will prevent a short circuit damage to the battery in case the tools that you are using make a connection to the mass when disconnecting the lugs on the positive electrode).*
6. The BEAT® 50 is installed directly on the battery. The lugs must be screwed onto the equipment inlets with the battery pole clamps. *For safe assembly please ensure the fixings are of sufficient length. Please make sure that there is a tight connection between BEAT® 50 and the battery clamps. The equipment cannot work properly otherwise.*
7. The existing wires on the BEAT may not be shortened nor extended! *(Any change to the provided connecting cables will lead to an incorrect function of BEAT® 50 and will invalidate any warranties.)*
8. The bending radius of the connecting cables of BEAT® 50 should be kept to a minimum of 50 mm. *Cuts, cable damage or breaks in the leads should be avoided as these may cause a short circuit. The BEAT® should be fixed on to the battery (or a part of the installation frame that contains the battery) by means of cable ties.*
9. Connect the red (positive) lead of the BEAT® 50 to the positive battery terminal. **Observe polarity!** The BEAT is safeguarded against electrical shortcuts, but reversing the polarity will destroy the BEAT®. *Repair of the BEAT® is not possible.*



10. Reconnect the wiring on the black (negative) electrode of the battery. Connect the black negative lead of the BEAT® 50 to the negative battery terminal.
11. Check if the blue LED light flashes. Correct installation is confirmed by flashing of the blue LED some 8-20 seconds after installation. (But only if the battery is charged).
12. If the LED doesn't start blinking after 20 seconds, please check the voltage of the battery. *(The BEAT depends on the battery for powering the LED. A minimum charge current of 0,42 A and a minimum voltage of 5 V of the battery is needed for a sufficient treatment of the batteries with BEAT® 50).*
13. If the LED will not come on, replace the BEAT® with another one. *If the LED light on the replacement BEAT blinks, the first BEAT is probably malfunctioning. Replace that BEAT.*
14. If the LED won't blink at all, the most likely situation is that the battery is not working properly, is deep discharged or even is dead. Replace or charge the battery for at least eight hours.
The other option is to keep the BEAT connected to the battery while charging for a period of two or three weeks. The BEAT is capable of reviving even total write-off batteries, but that takes that much time. If the battery shows no sign of improvement after charging three or four weeks with the BEAT installed, the battery cannot be revived using the BEAT. Replace the battery. Buy a replacement battery produced by a WaveTech partner. These partners

can be found on our website and can be recognized by our 'eco-lead' logo.

15. If the LED won't blink at all the BEAT® has to be replaced. Repair of the BEAT® is not possible. *The BEAT is made of recyclable material. Dispose of the BEAT wisely and in accordance to local or national regulations.*
16. Leave the BEAT® 50 permanently installed on the battery. *Check from time to time if the LED is flashing or burning constantly, indicating that the BEAT is working properly. A flashing or burning LED light indicates that the BEATS is keeping your battery in good condition.*
17. The BEAT is designed for a lifetime of at least 10 years. Use the BEAT on the new battery when replacing the old battery or install the BEAT on a battery that has been used for a short or prolonged period.

INSTALLATION INSTRUCTIONS for FERRITE CLAMP

Electromagnetic interference FROM the BEAT

Despite having passed all international tests, electromagnetic interference cannot be excluded in all installations and in every situation. Interference may arise with other electrical devices. In order to minimize the chance of possible interference with electronics of the vehicle/ the equipment, the assembly of 2 ferrites on the inlets of each battery, described below, is strongly advised.

The black, clamp shelled, ferrites that are enclosed in the packaging are designed to isolate the electrical pulses that the BEAT generates from the connecting electrical or electronic equipment. In some cases the assembly of even more than two ferrite clamps may be necessary for each battery in a system, e.g. when several outgoing leads are connected to the battery poles.

In *particularly sensitive environments* additional measures may be necessary. WaveTech A/S expressly advise against the use or application of the BEAT in the proximity of life-saving devices (cardiac pacemaker, oxygen devices, etc). Please contact your WaveTech dealer for information on electromagnetic compatibility for your specific user area.

Electronic interference TO the BEAT

Conversely, the functionality of the BEAT® 50 could be more or less inhibited by electronic interference from equipment attached to the battery that the BEAT is installed on. To prevent any electronic interference please attach the ferrites to the electrical wires connected to (the poles of) the battery.

STEP-BY-STEP INSTALLATION INSTRUCTION for the FERRITES

The installation of the ferrites is very easy, but working on electrical equipment always implies a certain risk for dangerous or unexpected situations. It is therefore recommended to leave the installation to someone who understands the risks involved.

1. Fold the ferrites clamps around the terminals leads that go to the vehicle/equipment as near as possible to the battery poles. Squeeze the two halves of the ferrites clamp firmly together. The clips on the folding mechanism should be snap shut and be secured.
In some situations a tie wrap strap can provide an additional support for firm closure.
2. **Do not install the ferrite clamps on the red and black connecting wires of the BEAT® 50 since these clamps will significantly reduce the effectiveness of the BEAT® 50.**
3. If the cable diameter is smaller than 3.5 mm, if possible, put a loop in order to prevent the ferrite clamp from slipping. This additionally increases the efficiency of the application (see illustration).
4. If the cable diameter is larger than 6 mm, please contact our service department at sales@wavetech.de. We will supply you with replacement ferrite clamps as quickly as possible.
5. Use the ferrite clamp unlocking key provided as necessary, should you need to open and adjust or correct the ferrite clamp position. Keep the key for possible use in the future.

