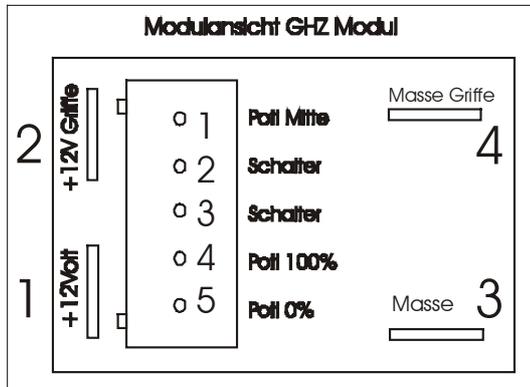


Installation guide for the universal heater regulator module (GHZ-Module)



For the use with heating mats, heating grasps and other 12V heaters in vehicles of all kinds. For heating jackets, heating gloves etc. for the regulation of the heating temperature.

Connection of the module:

Flat Pin 1: Plus 12V, best at clamp 15 (ignition)
Flat Pin 2: Plus 12V (Plus Output for both grasps)
Flat Pin 3: Mass Input (at battery or framework)
Flat Pin 4: Pulsed mass (Minus Output for both grasps).

Attach the 12V Supply (Preferable switched off by the ignition lock), so that no one can play around, if the vehicle is parked. Put the ground connection to the frameworks or battery minus pole. Do not connect to the frontlight cable stap, because it is possible that they are not high enough fused and in addition „a flashing effect“ while the heating module pulses the grips, can occur.

The best solution is to take the voltage supply for the module directly from the battery and over a relay which is switched by the ignition. That would be the most elegant solution. This is, however, not necessary. At many motorcycles also the connection to the plus wire for the horn is ok. This line stands, -if the ignition is turned on-, continuously at 12Volt.

- To find the plus wire of the horn, connect a test lamp to one pin of the horn and hold and the other test lamp cable to screw at the frame. If the lamp does not light up, then try at the second horn contact.
- Please also consider the square diameter of the copper cable. Who wants to regulate not only grasps, but also another seat heating with a XL or XXL Module, the wire square diameter should be greater than 1,5mm.
- The Pins 2 and 3 from the 5-Pin combined connector (counted from the top) do switch on and off the Module. They can be replaced by your own switch (For example at BMW motorcycles by the original grasp heating switch). Simply take off the two cables at the potentiometer's rear and then solder them to your switch. If you have an own switch you can leave the temperature regulator in your „comfort“- position. P.S: The switch needs to switch only about 20mA, since it switches only the timer IC. A small switch is so also sufficient.
- Who wants to add a control - LED: You have two possibilities: If the LED should flash, when the module heats, the LED needs to be connected parallel to the grips at Flat Pin 4 and 2. (over 560 ohms resistance for 12V). Who wants to have a continuously switched on LED while heating, connect it to Flat Pin 3 (minus) and to Pin3 of the 5-Pin Connector (plus).

Note: The modules have a polarity protection diode, which protects the timer IC against wrong polarity. Nevertheless: Do not shortcut or screw up positions of the flat pin 1/2 with 3 or 4. The FET output stage could be destroyed!!! Do not test the

module with a battery charger. These battery chargers have a Voltage up to 20 V, which is destroying the module. In addition most battery chargers are not sieved and have therefore a big ripple voltage. The module functions from 6V to 15Volt operating voltage without getting damaged. Please protect the 5-pin cable from the module to the potentiometer with a cover from chafing, if it is near any mobile parts of the bike.

- Reference to the XL and XXL module: The cooling sink fins of these modules do not cut any smaller. Particularly the XXL module needs all fins to keep the FET Transistor cool at higher currents. If someone cuts two fins away of the three cooling fins, the module cannot switch the maximum current any longer, without beeing overheated! Drillings for mounting the module may take place only at the aluminum body (to be made outside of the part poured with resin). For the supply of the XXL of module take at least a 1.5mm² copper cable!

Non-liability:

For damages, which may result from the use or installation of my heating modules or the fuel-o-meter module (Spritmesser) as well, I am not responsible! Also everyone must realize that an installation of the Spritmesser or heating module is probably non conformal with local laws for your vehicles (like German TÜV) . With an order and/or the installation you recognize and agree with this non-liability.

Assembly:

Hint: The Installing of the heating grasps is more easily, if these are put before the assembly into hot water. In the meantime you can isolate the left steering bar end with Tesa film or thin insulating tape, in order to avoid a possibly later ocured short-circuit between grasp and frame-minus. (Already shown up sometimes with the Daitona grasps of Louis).

General information for the use of the GHZ Module with heating grasps, mats etc.

This regulation module for grasp heaters or heating mats was constructed in such a way that it fits for all present available heaters, like: Heating grasps or mats. No more hot or cold fingers! Adjustable Heat is now taking place!

Installation of the module:

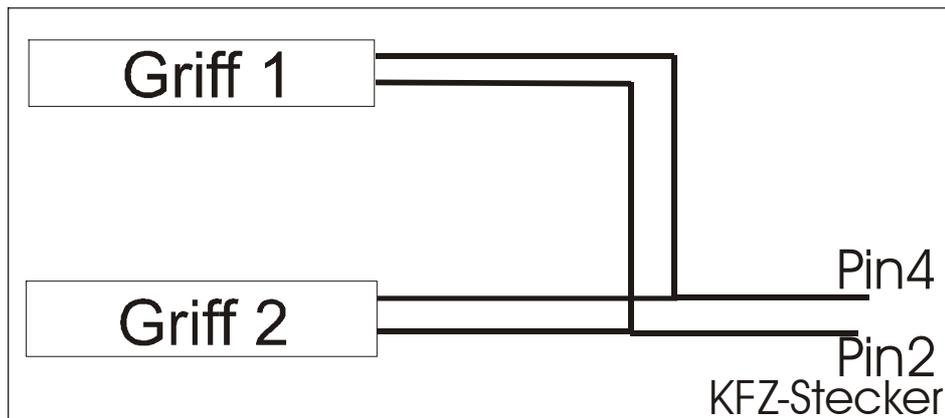
1. The switch, which was supplied with your heating grasps, is not no more needed and can be removed.
2. The installation of the module should be made at a place, which is not exposed directly to the heat of exhausters or cylinder.
3. The housing is protected from splash-water. The lines however should be mounted shwoing upwards, in order not to let dripping water penetrate into the module.
4. The heating grasps or heating mats present at the market have usually an power achievement around 35 - 50 Watts. The 12V operating voltage can taken for example from the cable, which connects the horn. The horn is used only rarely and brings also the necessary current.

5. The installation can take place with the help of the self adhesive square pad in connection with the attached cable strap. The square is stuck onto the module and fastened then with the binder to a frame part. Alternatively also self adhesive Klettstripes can be used. (You can order them here as well)

6. The connection of the Ground is made usually directly at the framework, or by an already existing ground wire of the battery.

Note! Makes shure that the front framework (your instrument carrier) is connected with the remaining framework with a ground wire, otherwise current flows possibly over the steering head bearing and can damage this part.

7. Each heating grasp has two connecting leads. A polarity has not to be considered hereby. The connection of the heating grasps or heating mats takes place parallel at the two Flat plugs (No. 2 and 4) of the regulation. (See picture)



8. The 5pin-control cable to the turnable regulator (potentiometer) can be extended, if an installation is wanted in the rear part of the motorcycle. To do this this, split up the control line and extend it with any 5-line cable. The isolation at the potentiometer should be repaired, since penetrating humidity can change the clock frequency of the heating and also the potentiometer seen in long terms may brake.

9. If an appropriate place was found for the installation of the turnable regulator (potentiometer), make a drilling and fasten it with the enclosed nut. The too long axle should be cut at least 0.8cm away from the housing. The axle can be pinched off with combination pliers or side cutter (Leathermantool). Then the provided button is attached to the axle and fastened with the nut in the button. Finished!

Test of the function mode, error tracing

To test the function of the module, if the grasps do not heat anymore, follow these hints:

1. Take a 12V bulb from 5 - 21 Watts.

2. The module is working correctly, if the potentiometer in left position does not bring the bulb to shine, in right position the bulb constantly shines, and inbetween the bulb flashes the longer, the more you turn the knob to the right side.

3. ***I inserted the module correctly, but the grasps become differently warm!?***

First, perform the function test above. Important! The grasps are separated from the module. Only the test bulb remains attached. If this test is successful, then the LEFT ONE of the heating grasps has direct connection with the metal of the steering bar.

The right grasp sits on the plastic tube of the gas lever. This heating grasp could have maximally an interruption, but this did not occur until now. Check for short cut or

interruption with a multimeter. This problem with the mass short-circuit can happen particularly with the vulcanized grasps of Daytona. Just put off the grip and put insulating tape (Tesa film) between steering bar and the heating grasp. This phenomenon arises however only on the left side, since on the right side the gas turning grip sleeve is, and those is anyway mad of plastic. In principle it takes longer on the left side to heat up, since the grasp sits directly on the steering bar metal and must heat up the metall as well. The rights grasp sits on the plastic gas case and is thus thermal more isolated from the handle bar.

4. I turn at the automatic controller, but the grasps and/or the heating mat are always equivalent warm –no adjustment can be done.

First, perform the function test above described under Step1-2. If no change shows up in the flashing duration of the test bulb, probably humidity penetrated the isolation at the inlet cable into the potentiometer. This can caused by isolation loss through bad transfer (chafe through). In the worst case the power FET transistor in the module is defective. Then unfortunately you can do nothing more. A replacement of the module is needed.

At all Modules I will give 2 Years Warranty for failure of electronical parts (except the potentiometer or mechanical damage of the module).

To get a new module by warranty, the old module has to be sent back to me.

Note: All modules are tested individually and extensively by me for their function, before they are sold. No warranty is given therefore if someone destroys his module by wrong polarity or over current switching. Please accept this. All modules leave my house in 100% functional condition.