# DIGI-KMH Installation Instructions

### Brake Lever Code (Revision D1) - Article No.: DKMH-BHC

Please read these instructions carefully before beginning installation. If you have questions or uncertainties, contact support. Installation errors can cause damage to the scooter and DZB. If you lack technical expertise, have the device installed by a professional!

## Quick Overview

- Red LED: flashes in rhythm with the RPM
- Yellow LED: status change per wheel revolution
- Green LED: DZB status, confirmation for saving, code display
- Set button: storage of RPM/speed in the respective mode
- Mode button: throttle mode setting when button and ignition are simultaneous; pre-stage setting during operation
- Trim potentiometer: input resistance for the pickup signal. Center position usually OK
- Jumper block: setting for positive (standard) or negative ignition (Fig. p.2)

To test whether the pickup cable is correctly connected and the DZB cleanly recognizes the ignition signals, activate the ignition and start the engine. At idle, the red LED should flicker in rhythm with the RPM, which transitions to permanent lighting as RPM increases.

## Step 1: Identification of Required Cables

To install the DZB, you must first find various cables on your scooter. The cable color list on page 2 will help you. If your scooter is not listed, contact us or check your model's wiring diagram.

**Switched 12V positive:** This is found at the ignition switch and often at the fuel gauge or oil level sensor (ATTENTION: NEVER use a cable at the CDI, even if the specified cable color appears there!). These 12V may only be present when the ignition is switched on without the engine running! When the ignition is off, no voltage may be present. It is advisable to check this with a multimeter!

**Pickup cable:** The pickup cable runs between the pickup sensor at the bottom of the alternator and leads to the CDI. The DZB connection should be made as close as possible to the CDI connector! If the corresponding cable color cannot be found on your scooter, contact us! Simply trying cables can damage the DZB and scooter!!

**Ground connection:** You can either use a ground cable from the scooter, or connect the DZB ground cable directly with a crimp terminal to a bare spot on the frame. However, direct connection to the battery's negative terminal is preferable.

**Brake lever:** You can also find the brake light wire color in the table. Check the wire with a measuring device.

## Step 2: Installation

Find a central and preferably hidden location for the DZB. The DZB should be mounted in a dry and protected location if possible. The housing is not waterproof!

Now connect the DZB to the scooter's cables. Follow the connection diagram on page 2.

Cut pieces of the required length from the supplied cable section (e.g., 4x 50cm). Strip these 3-4mm on one side, twist the strands and secure the end in the corresponding screw terminal of the DZB. Avoid contact between the connection points.

Connect the free cable end to the corresponding scooter cable using the supplied quick connectors.

The wheel sensor and flat wheel magnet for speed detection must be mounted on the front or rear wheel. The self-adhesive magnet can be attached, for example, to the rim edge or on the inner area of the brake disc. The surface should be flat and grease-free. To ensure permanent magnet adhesion, the adhesive surface should be replaced with 2K adhesive or similar. Make sure the magnet runs freely!

The sensor must be positioned so that the magnet passes the flat labeled side perpendicular to the sensor's longitudinal axis (see Fig. page 2). The distance between magnet and sensor should be 5-15mm. Connect the sensor's double cable to the screw terminal inside the DZB. Polarity doesn't matter here.

## Step 3: Testing the DZB

After connecting all cables, first check whether the DZB is correctly connected.

Activate the ignition but leave the engine off initially. All LEDs should briefly light up and then the following LEDs light up briefly according to operating mode: Red in RPM mode, Yellow in KMH mode, or Red+Yellow in combination mode.

If the brake is held simultaneously, Green then displays the current deactivation code.

The green LED should then flash briefly every 5 seconds as long as no RPM or wheel sensor signal is detected.

Now you can test whether the DZB can be deactivated with the brake lever code.

**The standard CODE is: LONG – SHORT – SHORT – LONG – SHORT – LONG**

SHORT means the brake is pulled for less than 1 second and LONG means longer than 1 second. With a pause or brake application longer than 5 seconds, the code query aborts and starts over. If the code was entered correctly, the green LED flashes briefly and should then remain permanently lit. The DZB is thus deactivated. If you briefly turn the ignition off and on again, the DZB should restart. The throttling is then active again. If this doesn't work, check the brake light cable and the switched positive.

If this doesn't work, check the connection to the pickup line and whether it's correct. With the small rotary potentiometer on the circuit board, you can adjust the input resistance of the pickup signal to the DZB. This should actually work with any machine in the preset center position. If there are problems, you can slightly reduce this resistance to the left to see if the signal is then better recognized.

## Step 4: Setting the Operating Mode

The DZB is in RPM mode by default. You can choose between RPM, KMH, and combination modes.

In RPM mode, the wheel sensor is not required. The RPM limiter works only with engine RPM.

In KMH mode, throttling is controlled by the actual speed driven. The wheel sensor must be installed for this. In combination mode, the previously stored RPM from RPM mode is used together with the KMH limit.

To change the operating mode, hold the Mode button pressed and activate the ignition. As long as you hold the button pressed, the DZB changes mode every 2 seconds. The LED flashing indicates which mode the DZB is in. Red = RPM, yellow = KMH, red+yellow = combination mode.

## Step 5: Setting Speed/RPM

Setting the maximum speed/RPM is done simply by pressing the small Set button inside the DZB. In KMH and combination modes, the current speed is stored as the upper limit, in RPM mode the current RPM.

To store the maximum speed in KMH mode, simply press the Set button in the DZB while driving or on the main stand when reaching the desired speed. The current speed is stored as the upper limit and the DZB is activated.

To store the RPM in RPM mode, place the scooter on the main stand. Start the engine and rev the engine to the desired RPM using the throttle and hold it for a brief moment. Then simultaneously press the Set button in the DZB. The current RPM is then stored and the DZB is activated. Release the button and test whether throttling engages at the set RPM. When reaching the limit, the red LED flickers and the RPM should not increase further.

To set a higher speed/RPM limit, first deactivate the DZB with the brake lever code and repeat the process.

## Step 6: Setting the Pre-stage

In the basic setting, the DZB throttles directly when reaching maximum RPM/speed. To reduce the harsh onset of throttling, you can set a pre-stage. The DZB then throttles only every 3rd ignition pulse in a certain range before reaching maximum RPM/speed, leading to a smoother transition to full throttling. A total of 8 pre-stages are available, which become larger with increasing number.

To set the pre-stage in KMH or RPM mode, press the Mode button. As long as you hold the button pressed, the DZB increases the pre-stage every few seconds and shows the current number by LED flashing. When the desired stage is reached, release the button. At startup, the DZB again shows the selected pre-stage by flashing the mode LED.

## Step 7: Setting a New Code

To program a new code, activate the ignition but leave the engine off. Pull the brake and keep it pulled. The green LED should light permanently. Then press the Set button in the DZB. The LED should then flash rapidly: the DZB is now in program mode. Now release the brake and enter a new 6-digit code without long delay. Successful entry is confirmed by rapid flashing of the green LED. Subsequently, the new code is displayed again by the LED, as with every restart after the mode.

If you have questions, suggestions, or problems, please contact us! We will do our best to help you!

## Scooter Cable Assignment

| Type | Ignition Switch Cable | Pickup | Brake Light Cable |
|---|---|---|---|
| Aprilia | Green-Red | Red[1] | Green-Yellow |
| Benelli | White-Red | Red-White | Blue/Red |
| Honda, Peugeot, Kymco | Black | Blue-Yellow[2] | Green-Yellow |
| Malaguti | Brown | Red | Red |
| Minarelli replicas, e.g. CPI, Keeway, Generic, Sachs, Motowell, Rex 2T | Red-White | Blue-White[3] | Green-Yellow |
| Gilera, Piaggio 2T | White■ | Red (Pink) | Black-White |
| Pegasus / TGB | Brown | Blue-Yellow | Green-Yellow |
| Yamaha / MBK | Brown■ | Red-White■ | Green-Yellow |
| Minarelli AM6 (e.g. Yamaha TZR) | Brown | Blue-White | Green-Yellow |

Information without guarantee, changes possible in newer model years! Check all cables for correctness before installation!

1. For models with double pickup (many from 1999), the pickup is BROWN! Set jumper to negative ignition!

2. black-green for Speedfight 3

3. also white-red for newer models like CPI GTR

4. Attention, White appears twice! Never use the white cable between CDI and alternator!

5. until model year 2002: DO NOT use the brown cable at the CDI!

6. from model year 2003: Pickup cable white with blue stripe. Set jumper to negative ignition!

## Troubleshooting

### Problem: The DZB does not throttle

- Check the connections of all cables, especially ground and pickup. A frequent source of error is the quick connectors, which don't always establish a clean connection immediately. Firm pressing often helps.
- Check whether you have the correct pickup cable. The pickup cable runs from the pickup sensor on the flywheel of the alternator to the CDI.
- Check whether the DZB receives and processes the pickup signal. At idle, the red LED must flicker with the RPM. With increasing RPM, this transitions to permanent lighting. Adjust the input resistance via the small trim potentiometer if necessary. When reaching the RPM or KMH limit, the red LED must flicker.
- In KMH mode: Check whether wheel sensor and magnet are correctly positioned. With each wheel revolution, the yellow LED state must change exactly once. At higher speeds, the LED must flash evenly. If the LED rhythm is uneven, the sensor may be bouncing. Change the position of magnet and sensor relative to each other.
- If the red LED reacts correctly but no throttling effect is noticeable, the machine may have negative ignition (very rare!!). Set the DZB to negative ignition with the jumpers and try again.
- In some cases, replacing the factory CDI with an inexpensive aftermarket CDI helps.

### Problem: The DZB does not unthrottle

- Check the connections of all cables, especially ground and pickup. A frequent source of error is the quick connectors, which don't always establish a clean connection immediately. Firm pressing often helps.
- Check whether the brake and switched positive cables are correctly selected and connected. When operating the brake, the green LED must react.
- Note that the DZB is not able to override existing factory restrictions to make the scooter faster. These restrictions must be manually removed beforehand.

### Problem: Top speed increases slowly

- RPM mode: If the scooter continues to get faster despite reaching the RPM limit, this is related to the set RPM and variator tuning. Since the DZB in this mode only limits RPM, the variator can still increase speed at constant RPM. To somewhat counteract this effect, choose a slightly lower RPM, or tune the variator somewhat lighter.
- KMH mode: Check whether throttling engages when reaching the KMH limit. The red LED then flickers.