



Superlight e-bikes

REPAIR GUIDELINES

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Superlight e-bikes

This repair guideline is designed **to support you step-by-step in identifying and resolving common issues** that may occur with BZEN bike models equipped with a rear hub motor. The table of contents provides a non-exhaustive list of potential problems.

Before contacting BZEN After-Sales Support, please check whether the issue you're facing is covered in this guide. If you do need to reach out, always include the bike's frame or BIN number and/or the client's name for identification, along with a summary of the troubleshooting steps already taken. For any support, please contact us via: <https://www.bzenbikes.com/sp-portal/#contact>.

Good luck with the repair — and stay zen!

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INTERMITTENT OR LOW MOTOR SUPPORT

Symptom(s)

Motor assistance cuts off unexpectedly during a ride. It may:

- Happen more often **when going uphill** or under load
- Occur **sporadically**, regardless of battery level or support setting
- **turning the bike off and on** in some cases restores the support temporarily
- Feeling of a **weaker support (level)** (e.g. step 5 feels like step 2)
- Occasionally trigger **error code 08** or other error codes on the display
- In rare cases: motor noise, vibrations, or stuttering

INFOBOX: BZEN Assistance Characteristics






The electric **assistance** on BZEN e-bikes is **limited to 25 km/h** in accordance with European regulations ('EN 15194:2017: Cycles - Electrically powered assisted cycles - EPAC Bicycles').

Above 25 km/h, propulsion is possible **only by muscle power**. The **pedaling effort increases** noticeably once the **maximum speed for assistance is reached**, especially when using higher levels of assistance. This is not additional friction, but simply the effect of the motor disengaging.

When your speed decreases **below 25 km/h after exceeding it**, the bike computer requires a few pedal rotations before the assistance re-activates. This short delay is normal and results from our technological choice of a **completely freewheeling** motor without friction when assistance is off. The bike computer needs time to assess the parameters before activating the engine.

You can shorten this delay by turning the pedals slightly backwards or briefly stop to pedal. This action is immediately recognized by the bike computer, which then re-activates the assistance without waiting for additional rotations.


Probable Causes

-  **Controller malfunction** or outdated firmware
-  **Faulty bottom bracket cassette** (torque/rotation sensor integrated)
- **Rear wheel misalignment** or sensor issues (e.g. missing magnet)
-  **Loose or damaged motor cable connection**
-  **Software issue** (rare, but possible)
-  **Internal motor defect** (e.g. hall sensor, freewheel, bearings)

Step-by-Step Troubleshooting


1) Basic Checks

- a) Check if client well understood the BZEN assistance characteristics as mentioned in the user manual (see also infobox above).
- b) Check display for **error codes**
 - i) If error code shown, please check → [BAFANG ERROR CODE FAQ](#) ← for further trouble shooting
- c) Inspect all motor connectors for corrosion, loose pins, damage
- d) Inspect all controller connectors for corrosion, loose pins, damage

 If the issue not resolved or source of problem not here → got to step 2


2) Rear Wheel Alignment

- a) Ensure **rear wheel is correctly mounted**
- b) Check for any unusual **noise or offset** — could point to mechanical problem
 - i) If this is the case - go directly to FAQ File “REAR WHEEL NOISE”

 If the issue not resolved or source of problem not here → got to step 3


3) Check/Replace Bottom Bracket Cassette (Sensor)

- a) Make sure Bottom Bracket has no play and is tightened according supplier specification (see video [Changing the bottom bracket – YouTube](#): min. 3:00 – 3:25).
- b) Replace **bottom bracket cassette** (especially if issue appears under load or uphill): [Changing the bottom bracket – YouTube](#)

 If the issue not resolved or source of problem not here → got to step 4

4) Replace Controller

- a) If issue persists: **replace controller**: [Changing the Controller - YouTube](#)

 If the issue not resolved or source of problem not here → got to step 5

5) Replace Rear Wheel/Motor

This especially is the case, if you hear rough sounds, skipping or gear-like grinding:

- ◆ Possible freewheel or bearing failure (see also [REAR WHEEL NOISE](#) & [REAR WHEEL/MOTOR SUPPORT NOT WORKING](#))

If all above fail

- a) Contact BZEN Bikes support → <https://www.bzenbikes.com/sp-portal/#contact> ← for shipment of bike to **factory for full diagnostics**, especially if:
 - ◆ Multiple replacements or repair attempts failed
 - b) Please let us know which **repair steps you've already tried**
-

Tip for Diagnosis

If the motor cuts off **only when riding uphill** or under higher effort, the root cause is likely a **sensor or controller** failure — these parts regulate torque input and power delivery under load.

Tip for ordering spare parts

If **non warranty**, order here  [B2B Spare parts shop - BZEN Bikes](#)

If **warranty**, please contact BZEN Bikes support  <https://www.bzenbikes.com/sp-portal/#contact>

BATTERY/BIKE NOT CHARGING

Symptom(s)

You may encounter one or more of the following issues:

- The **battery does not charge** at all
- The **charger light stays red** and never turns green
- The **charger light stays green**, even when battery is empty
- The **bike does not turn on**, appears completely dead
- A **new charger does not solve** the issue

INFOBOX: Charger light

The charger always starts with a red light when a charging cycle begins. It turns green once the battery is fully charged. Even if the display shows the battery as fully charged, the charger light will still always start as red and then switch to green when charging is complete. In cases where the battery is indicated as already full, the light will start red but turn green shortly after.

Probable Causes

These issues are typically linked to one of the following:


- A **faulty charger**
- A **blown battery fuse**
- A **charging socket problem**
- A **BMS communication issue** inside the **battery**

Step-by-Step Troubleshooting

1) Check the display connectors / other display

Only in case, the bike cannot be turned on anymore

- a) Inspect all display connectors for corrosion, loose pins, damage
- b) Check with another display if needed

 If the issue not resolved or source of problem not here → got to step 2

2) Check the Charger

- a) Test charging with a **different charger** (depending on the bike model, this may be a 2-pin or 3-pin version).
 - i) If you **don't have the correct charger**, please order here [Spare Parts – BZEN](#)
- b) If the issue resolves with another charger: **replace the charger**.

→ If the issue not resolved or source of problem not here → got to step 3

3) Check / Replace the Battery Fuse

- a) Inspect the battery fuses – **if it's blown, replace it**: See also min: 2:10 (15A fuse) and min: 2:40 (5A fuse) in "[Changing the Battery- YouTube](#)"

Specifications for fuses (please check width of fuse in bike upfront)

- Mini Fuse: **Blue**: 15A; 32V; width 11MM | **Yellow**: 5A; 32V; width 11MM
- Standard Fuse: **Blue**: 15A; 32V; width 19MM | **Yellow**: 5A; 32V; width 19MM

→ If the issue not resolved or source of problem not here → got to step 4

4. Inspect the Charging Socket

- Check the **charging socket** on the bike:
 - If the socket looks unclean or not correctly connected – **clean and/or reconnect the charging socket correctly to the e-system** (check also for damaged cables).
 - If pins are bent or oxidized – replace the charging socket

→ If the issue not resolved or source of problem not here → got to step 5

5. Replace the Charging Socket

- Replace the **charging socket** on the bike based on following instructions: [Changing the Charging socket - YouTube](#)

→ If the issue not resolved or source of problem not here → got to step 6

6. Replace the Battery

- Replace the **battery** on the bike based on following instructions: See [Changing the Battery- YouTube](#)

→ If the issue not resolved or source of problem not here → got to step 7

7. If all above fail

- Contact BZEN Bikes support via <https://www.bzenbikes.com/sp-portal/#contact> for shipment of bike to **factory for full diagnostics**
- Please let us know which **repair steps you've already tried**

Tip for ordering spare parts

If **non warranty**, order here [➔ B2B Spare parts shop - BZEN Bikes](#)




If **warranty**, please contact BZEN Bikes support [➔ https://www.bzenbikes.com/sp-portal/#contact](https://www.bzenbikes.com/sp-portal/#contact)

REAR WHEEL NOISE

Symptom(s)

- Motor makes scraping, tapping, cracking, or loud humming sounds
 - Rear wheel skips or makes a clicking noise
 - Motor vibrates or runs roughly
 - The wheel turns, but support cuts or skips
-


Probable Causes

-  Defective motor internals (freewheel, bearings, or gears)
 -  Rear wheel misalignment
 -  Incorrect belt tension (if Belt Drive bike)
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Step-by-Step Troubleshooting

1) Basic Checks


- a) Ensure **rear wheel is correctly mounted** and aligned in the dropout
- b) If belt drive model: check for **correct belt tension**: [GATES-Module-Technical-Resources.pdf](#) or check GATES website: [Belt Drive Systems For Bicycles](#).

 If the issue not resolved or source of problem not here → got to step 2

2) Replace Rear Wheel/Motor

- a) If the motor continues to make a **tapping, scraping, skipping, or rumbling noise**:
 - i) This may indicate internal mechanical damage (bearings, freewheel, or gears)
- b) If the **wheel spins but motor gives no support**:
 - i) The internal freewheel may be defective

In **both cases** → **replace the complete motor/rear wheel**

 If the issue not resolved or source of problem not here → got to step 3

3) If all above fail

- a) Contact BZEN Bikes support via <https://www.bzenbikes.com/sp-portal/#contact> for shipment of bike to **factory for full diagnostics**, especially if:
 - ◆ Multiple replacements or repair attempts failed
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 **Tip for Diagnosis**

- Continuous or rhythmic noise usually indicates gear or bearing wear.
 - Skipping under load points to freewheel failure.
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 **Tip for ordering spare parts**

If **non warranty**, order here  [B2B Spare parts shop - BZEN Bikes](#)





If **warranty**, please contact BZEN Bikes support  <https://www.bzenbikes.com/sp-portal/#contact>

REAR WHEEL/MOTOR SUPPORT NOT WORKING

Symptom(s)

- The bike powers on, but the motor does not engage
- Walk assist might not function
- No noise or movement from motor when pedalling
- Error 08 (hall sensor) or error 21 (speed sensor) may be shown

Probable Causes

-  Controller failure (no motor engagement or walk assist)
-  Internal hall sensor defect (error 08)
-  Speed sensor or magnet misalignment/issue (error 21)
-  Cable breakage or poor connection between controller and rear hub motor


Step-by-Step Troubleshooting

1) Basic Checks - Cable Inspection

- a) Inspect motor and motor-controller connection (see picture below) cables for damage, loose pins, or corrosion. Pay special attention to motor-controller connections.



- i) If damage and/or disconnected replace and/or reconnect cables or connector

 If the issue not resolved or source of problem not here → got to step 2

2) Walk Assist Test

a) If walk assist works → issue may be in motor or bottom bracket internals

➡ got to step 3

b) If walk assist does not work → suspect controller or display

➡ got to step 5

3) Replace Rear Wheel/Motor

➡ If the issue not resolved or source of problem not here → got to step 4

4) Replace Bottom Bracket

➡ see video [Changing the bottom bracket – YouTube](#). If the issue not resolved or source of problem not here → got to step 6

5) Replace Display

➡ If the issue not resolved or source of problem not here → got to step 6

6) Replace Controller

➡ see video [Changing the Controller - YouTube](#). If the issue not resolved or source of problem not here → got to step 7

7) If all above fail

Contact BZEN Bikes support via <https://www.bzenbikes.com/sp-portal/#contact> for further feedback and/or potential shipment of bike to **factory for full diagnostics**, especially if:

- ◆ Multiple replacements or repair attempts failed

Tip for Diagnosis

- Continuous or rhythmic noise usually indicates gear or bearing wear.
- Skipping under load points to freewheel failure.

Tip for ordering spare parts

If **non warranty**, order here ➡ [B2B Spare parts shop - BZEN Bikes](#)

If **warranty**, please contact BZEN Bikes support ➡ <https://www.bzenbikes.com/sp-portal/#contact>

ERROR CODE '30'


Symptom(s)


- Display shows error code 30
- In some cases, this is combined with a malfunctioning motor
- In some cases, the bicycle can no longer be started


INFOBOX: What does error 30 mean?

Error 30 indicates a communication error between the main components of the e-bike system: display, controller and motor. The problem often occurs after riding in the rain, modifications or loose connections.

Probable causes

 Loose or corroded plug connections

 Moisture or other defect in the display or wiring harness


 Cable break or damaged EB-BUS connection cable

 Controller error (rare)

Step-by-Step Troubleshooting

1) Check display

- a) If the display is fogged up inside or there are signs of moisture in the display → let it dry and test again.

 If the issue not resolved or source of problem not here → go to step 1b

- b) Test the display of the defective bike on another BZEN.

Display functions ? (no more error code)


→ **Yes:**  go to step 1c

→ **No:** change display

- c) Test another display (e.g. from a working BZEN) on the defective bicycle.

Display functions ? (no more error code)


→ **Yes:** change display

→ **No:** Check the cable harness  Go to step 2

- See also video [Changing the Display \(2021 models\) - YouTube](#)

2) Inspection of the cable harness


- a) Check all cable connections between the motor and controller, battery and controller, and display and controller for damage, loose pins, dirt, moisture or corrosion..
 - i) If cables are damaged or disconnected → replace and/or connect correctly.
 - ii) If oxidation is suspected: carefully apply contact spray to the plug contacts..

 If the issue not resolved or source of problem not here → go to step 3

3) Replace the 'EB-BUS' connection cable

- a) If all connectors are secure and have been checked → Replace the **connection cable between the display and the controller (EB-BUS)**

Info: Depending on the model year, there are different lengths of EB-BUS cable. If in doubt, measure and inform BZEN Support.

 If the issue not resolved or source of problem not here → go to step 4

4) Change controller

- see video [Changing the Controller - YouTube](#).

 If the issue not resolved or source of problem not here → go to step 5

5) If all above fail

Contact BZEN Bikes support via <https://www.bzenbikes.com/sp-portal/#contact> for further feedback and/or potential shipment of bike to **factory for full diagnostics**, especially if:

- ◆ Multiple replacements or repair attempts failed

Tip for Diagnosis

After driving in the rain → moisture or corrosion likely

Fault after modification → check cables and connectors in particular

Persistent fault despite replacement → controller defect possible

Tip for ordering spare parts

If **non warranty**, order here  [B2B Spare parts shop - BZEN Bikes](#)

If **warranty**, please contact BZEN Bikes support  <https://www.bzenbikes.com/sp-portal/#contact>



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YOUR CONTACTS AT BZEN

In case you have further questions, please don't hesitate to contact us. Please use for repair cases our [contact form](#).

For all other matters, please find below your contact person.

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