



## Quick Guide

# Light Weight Deflectometer

- ZFG 3.0
- ZFG 3.1
- ZFG 3000

According to German Technical Test Specification for Soil and Rock in Road Construction TP BF-StB Part B 8.3  
(for further regulations see on the back)

You can find detailed operating instructions online at [www.zorn-instruments.com](http://www.zorn-instruments.com) or follow this direct download link.



Subject to change without prior notice.  
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Read the operating instructions carefully, especially the safety instructions, before using the Light Weight Deflectometer!

## 1. Safety Instructions

To prevent accidents and damage to the device, secure the device when transporting with the transport safety lock!

Check your Light Weight Deflectometer for damage before each use and only use it if it is not damaged.

Only plug in the measuring cable when the drop weight is on the ground and the electronic measuring device is switched off.

Do not touch under the drop weight when it is latched on top!

Wearing protective work shoes is recommended.

During the measuring process, make sure that the transport safety lock is removed.

To avoid injuries, only grip the drop weight device by the triangular catch handle!

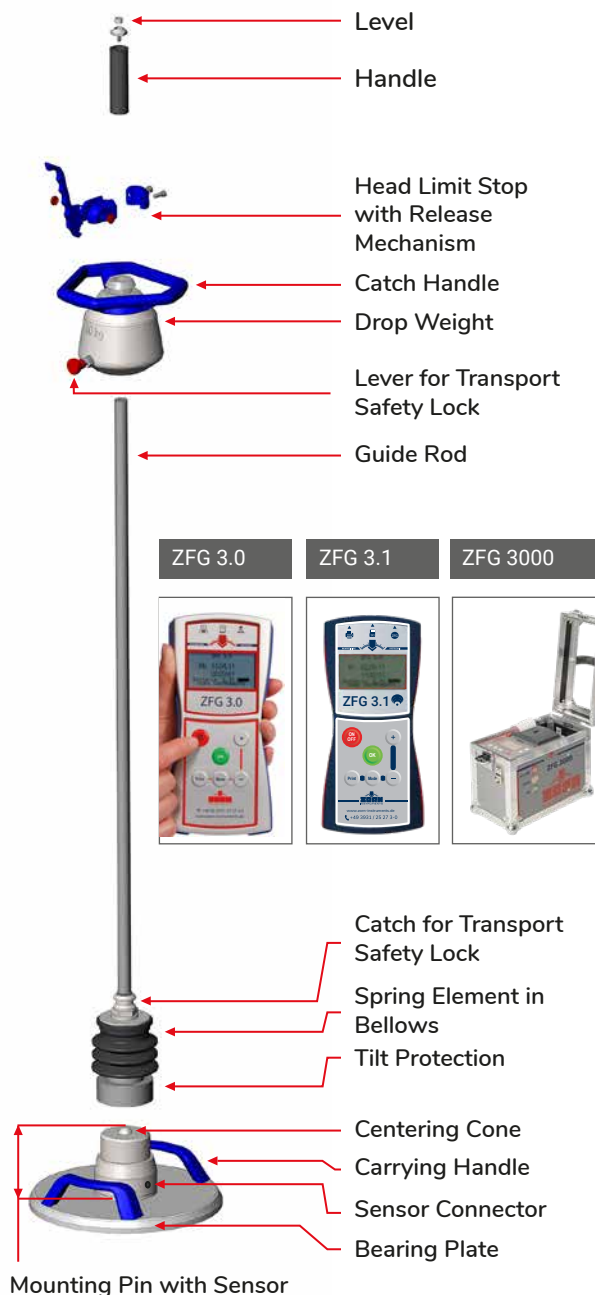
If the Light Weight Deflectometer is not in use, the drop weight must be at the lower end of the guide rod.

Use only recommended batteries or original rechargeable batteries for the electronic measuring device.

Protect the printer at all times from external influences such as moisture and soiling, e.g. sand and dust.

Only use the supplied charger to recharge the ZFG 3000 or the printer for the ZFG 3.0 or ZFG 3.1.

## 2. Light Weight Deflectometer | Details



## 3. Measurement Procedure

### ► Preparation

- Place the load plate fully and horizontally on the flat test surface.
- Place the loading device on the load plate.
- Connect the electronic measuring device to the load plate via the measuring cable.

### ► Performing the Measurement

- Switch on the electronic measuring device with the <On/Off> key.
- For devices with GPS module: After 30 seconds, the GPS receiver is logged in and the coordinates are displayed.
- When an SD card is inserted, your measurement results are saved automatically and only on the SD card. You can also perform your measurements without an SD card. In this case, the measurement results are saved on the internal memory (flash).
- According to the test specification, a total of six measuring impacts must be performed: three impacts for preloading and three impacts for the measurement.
- Unlock the transport safety lock.
- Start the measurement using the <OK> key. The currently set test mode appears (e.g. 300 mm/ 10 kg).
- Lift the drop weight and latch it into the notching device at the upper stop.
- Align the guide rod of the loading device vertically. Use the level as a guide (depending on the model, either at the top of the handle or directly on the notching device).
- When the beep sounds and the display prompts you to do so, unlatch the drop weight and let it hit the spring element. After the first impact, catch the drop weight again at the catch handle and latch it again.
- First perform the three impacts for preload, then perform the three impacts for measurement.
- After the last impact, there is a double beep. Put down the drop weight.
- Lock the transport safety lock.
- The display shows the three measured settlement amplitudes.
- Press the <OK> key to end the measurement.

### ► Display of the measurement results

- You can read the date, time, average settlement, s/v value and the  $E_{vd}$  value.
- You can use the <Mode> key to call up the settlement curves on the display.
- The display also shows the sequential number of the data set.
- Press the <OK> key again to start a new measurement.
- **Note:** You can cancel any measurement with the <On/Off> key. Then the measurement will not be saved.

### ▶ Printing the Measurement Results

- If available, you can print out your measurement results with the appropriate printer.
- You can print the log if you connect the electronic measuring device (ZFG 3.0, 3.1) to the printer and press the <Print> key.
- You can also print out the logs stored on the SD card as often as you like at a later date.

### ▶ Care and Maintenance

- After each measurement process, remove any debris, such as soil, sand, clay or dust from the bearing plate with the mounting pin and the loading device with the drop weight using a dry cloth.
- Remove stubborn dirt with methylated spirits or kerosene. Do not use oils or grease!
- Transport and store the drop weight device protected from shock or impact, dry and with the transport safety lock engaged.
- Remove damp objects (e.g. cleaning rags) from the device and from the transport case.
- Avoid direct sunlight on the device.
- Regularly check the drop height indicated on the calibration record and the calibration plate.
- Have your Light Weight Deflectometer calibrated once a year by a recognized testing laboratory.
- Information on calibration points can be found in the detailed operating instructions and online on our website at [www.zorn-instruments.com](http://www.zorn-instruments.com).

### ▶ Regulations international (examples)

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|--------------|--|
| Austria:     | RVS 08.04.04 (March 2008)                                      |
| Switzerland: | VSS 70 313 (July 2019)   |
| Belgium:     | SB 250 versie 4.1, 4.16.2 (April 2019)                         |
| Spain:       | UNE 103807-2:2008 (July 2008)                                  |
| USA:         | ASTM E2835 - 11(2015)  |
| China:       | TB 10001-2016 (Design Guidelines Railroad Substructure)        |
| Russia:      | N° 52068-12 (State Register of Approved Measuring Instruments) |



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