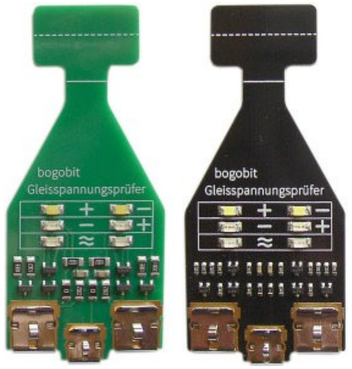
Manual

bogobit

Track voltage tester H0 center stud track



1 Introduction

Please read the instructions completely before using the product. Observe all operating and safety instructions!

All brand, product and company names used herein may be trademarks of their respective owners.

2 Intended use

The bogobit track voltage tester is to be used in model railway applications. The device has LEDs to indicate whether a voltage is supplied to the track of gauge H0 model railways, and what polarity this voltage has.

This product is no toy. It is not suitable for children up to 14 years of age.

Any use other than that described before is not permitted.

The must not be changed or modified.

3 Safety instructions

In case of damage incurred by disregarding these operating instructions, the warranty claim is void. Liability for any consequential damage is excluded!

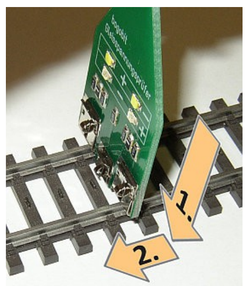
For safety and compliance reasons (CE), it is not permitted to change or modify the product.

- Do not operate the device unattended.
- Operate the device only in dry indoor rooms (below 80 % humidity, non condensing) and at normal room temperature (0 °C to 40 °C).
- Do not expose the device to high temperatures, strong vibrations, high humidity or chemically aggressive environment.
- Upon sudden change of climatic conditions (e. g. transfer from a cold place to a warm room) water may condense on the device, which may damage the device. Allow approx. 2 hours to acclimate before powering on the device.
- Operate the device only with low voltage as specified in the technical data section. Only use power supplies, such as transformers or digital control stations, that are certified for use in model railway applications. Connection to higher voltages is not permitted because this creates danger to life through an electric shock and a risk of fire!

4 Function of the bogobit track voltage tester

The bogobit track voltage tester allows you to easily check whether any voltage is supplied to the model railway track. The track voltage tester is a perfect tool to check bogobit brake modules, track isolations, and contact track sections. It is a convenient tool when building model railway layouts and for debugging disruptions in operation. If a track voltage is present, the LEDs on the tester turn on, depending on the type of voltage.

5 Putting the tester on the track



Place the track voltage tester onto the rails of the track, between two sleepers. The move towards a sleeper, until the tester's contact plate touches the center stud. Illuminated LEDs indicate if voltage is on the track.

The tester may also be used with Trix-Express-track or with historic Märklin-track with a center rail. In this case, the track voltage tester can only make contact with one track rail, and the center rail. By tilting to the left or right rail, each rail's voltage can be checked sequentially.

6 LED indication

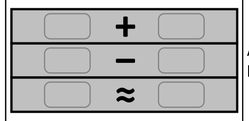
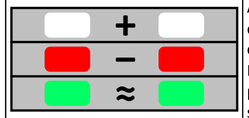
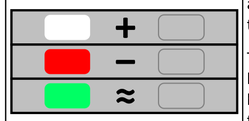
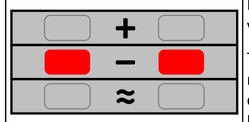
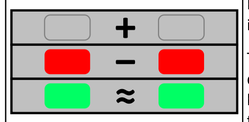
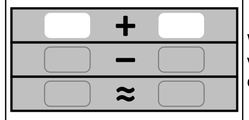
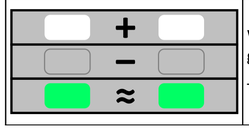
White and red LEDs indicate positiv or negative voltage, respectively. Green LEDs indicate the presence of an alternating voltage component:

- white LED: positive DC voltage (center stud has positive, rails have negative polarity). The center stud polarity is also marked with a '+' label in the middle of the circuit board.
- red LED: negative DC voltage (center stud has negative, rails have positive polarity). The center stud polarity is also marked with a '–' label in the middle of the circuit board.
- green LED: an alternating voltage component is present. If a mains powered transformer is used, and AC voltage, or a rectified DC voltage (with 50 Hz AC mains frequency) is on the track, the green LEDs light dimly. If track voltage is from a digital command station (frequency components in the kHz range) the green LEDs light brightly.

The LEDs indicate the voltage independently per rail: the left LEDs indicate the voltage between center studs and left rail, the right LEDs indicate the voltage between center studs and right rail.

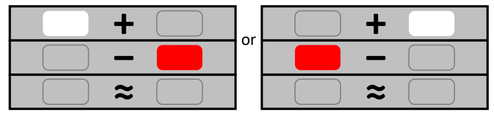
7 Interpretation of LED patterns

Hereafter the most common indicator patterns are explained

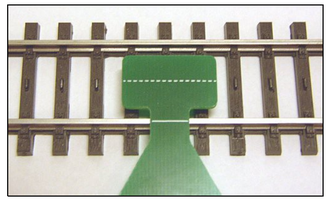
Display	Meaning
	All LEDs off: No voltage present. Or the track voltage tester is not applied properly and has no contact to a center stud.
	All LEDs on: Voltage is present on center studs and both rails. The type of voltage is analog **AC or digital voltage** (from a digital command station). In case of analog AC the brightness varies with transformer voltage. In case of digital voltage, a periodic or irregular flickering may occur, depending on the digital command station and presence of different digital signal formats.
	LEDs on one side only: Voltage is applied at center studs and one rail only, on that side where the LEDs are on. On the other side, where LEDs are off, the track is not connected to a voltage, or the track voltage tester is not applied properly and has no contact with the rail. This state is **typical for contact tracks.** Depending on the internal circuitly of the track occupancy detector device, the isolated track may not have all LEDs completely off, but light dimly. If the track occupancy detector uses the „diode trick“ circuit, one LED of the contact track lights at foll brightness – which LED that is depends on the polarity of the diode trick diode.
	Red LEDs only: A constant negative DC voltage is present (center stud voltage is negative with respect to the rail). This state is **typical for a brake module in the Braking state**, if the brake module operates on the „brake with DC“ principle. This allows an easy check, whether the isolated track section connected to the brake module is correctly installed and supplied.
	Red and green LEDs: A pulsating (i. e. non-constant) negative DC voltage is present. This state is typical for DC analog operated layouts. If a digital brake module is checked for the brake section, this indicates a malfunction of the brake module. If the brake module is checked in the transition section, this pattern is normal.
	White LEDs only: A constant positive DC voltage is present (center stud voltage is positive with respect to rail). This state does not occur with a digital brake module (brake module usually use negative voltage).
	White and green LEDs: A pulsating (i. e. non-constant) positive DC voltage is present. This state is typical for DC analog operated layouts.

Special cases, if the center stud track voltage tester ...

- is used on two-rail track, or
- if there is no contact to the center studs, but LEDs do turn on.

Display	Meaning
	A DC voltage is present between the rails. The „red“ rail is positive, the „white“ rail is negative. If it is a pulsating voltage, the green LEDs will turn on as well.

8 Usage as uncoupler



The track voltage tester may be used as an uncoupling tool. Markings indicate how far the head must be moved under the couplers: The solid line on the track tester shall be aligned with the rail, then the dashed line is in the middle between H0 rails.

9 Maintenance and care

The product does not require maintenance. If cleaning is necessary, the product should only be cleaned with a dry cloth or a brush to remove dust etc. Do not use aggressive cleaning agents or chemical solutions.

10 Technical data

Dimensions: 68 × 30 × 5 mm

The track voltage tester may be used with digitally controlled model railways. Operational voltages are permitted as output by the digital command station on its track output terminals, with the command station being powered from a transformer with max. 18 V AC voltage, or powered from a DC power supply with max. 25 V DC voltage.

The track voltage tester may be used with conventional, analog controlled model railways. Operational voltages are permitted as supplied to the track output by the control transformer or by an electronic control box, with a permanent voltage of max. 18 V AC, or max. 25 V DC. A short time higher voltage, no longer than two seconds, is tolerated with max. 26 V AC, or max. 37 V DC voltage.

11 Further notes

11.1 CE Marking

The following declaration only applies to products that are manufactured by Bogobit.

The product bogobit track voltage tester complies with the following directives:

- EU Directive 2014/30/EU on electromagnetic compatibility
- EU Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment

To demonstrate compliance with EU Directive 2014/30/EU, the harmonised standards EN 55014-1:2006 + A1:2009 + A2:2011, EN 55014-2:1997 + A1:2001 + A2:2008, and the other standards EN 55014-1:2017, EN 55014-2:2015 are applied.

The manufacturer keeps the EU declaration of conformity and corresponding technical documentation and provides this to a competent national authority upon a reasoned request.

11.2 Disposal

The manufacturer complies with the EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), implemented in Germany through the Elektro- und Elektronikgerätegesetz (ElektroG).

Electrical and electronic devices must not be disposed of with domestic waste. Please dispose of the device at the end of its service life in accordance with legal regulations.

11.3 Address of Manufacturer

bogobit – Siegfried Grob
Burgstr. 8
89192 Rammingen

E-Mail: anfrage@bogobit.de