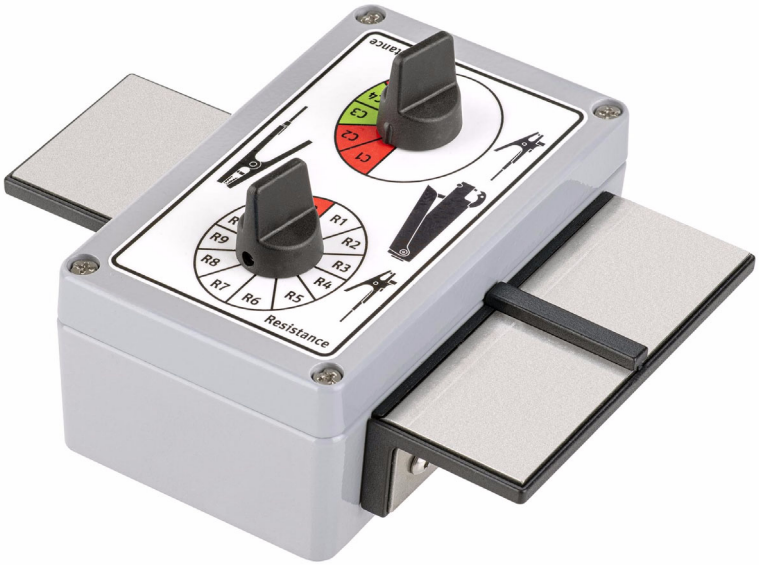
Operating Instructions



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ACTIVE

TERRATEST

Function testing device TERRA-TU

for testing the correct function of Eltex ground monitoring systems

BA-en-4019-2503

eltex
electrostatic innovations

List of contents

1 Overview 5

2 Safety 6
2.1 Identification of risks and hazards 6
2.2 Technical advance 6
2.3 Proper use 7

3 Test execution and operation 8
3.1 Test excecution 8
3.2 Clamp connection options 9
3.3 Testing options for various ground monitoring systems with different types of terminals to be connected 11
3.3.1 Standard applications 11
3.3.2 BIG-BAG applications 14

4 Technical specifications 16
4.1 Technical specifications TERRA-TU 16
4.2 Switching thresholds 16
4.2.1 Standard applications 16
4.2.2 BIG-BAG applications 16

5 Dimensions 17

6 Spare parts and accessories 18

Declaration of Conformity 19

Dear Customer,

The **TERRA**TES TERRA-TU function testing device is used to check the resistive and, depending on the design of the grounding device, also the capacitive switching thresholds of Eltex ground monitoring systems.

The Terra-Control TUE 30 (with Terrabox and Terracompact), **TERRA**LIGHT and TERRACAP ground monitoring systems prevent electrostatic charges during filling, emptying or decanting by means of controlled grounding in hazardous areas. Ignition hazards due to uncontrolled discharges are thus eliminated at source.

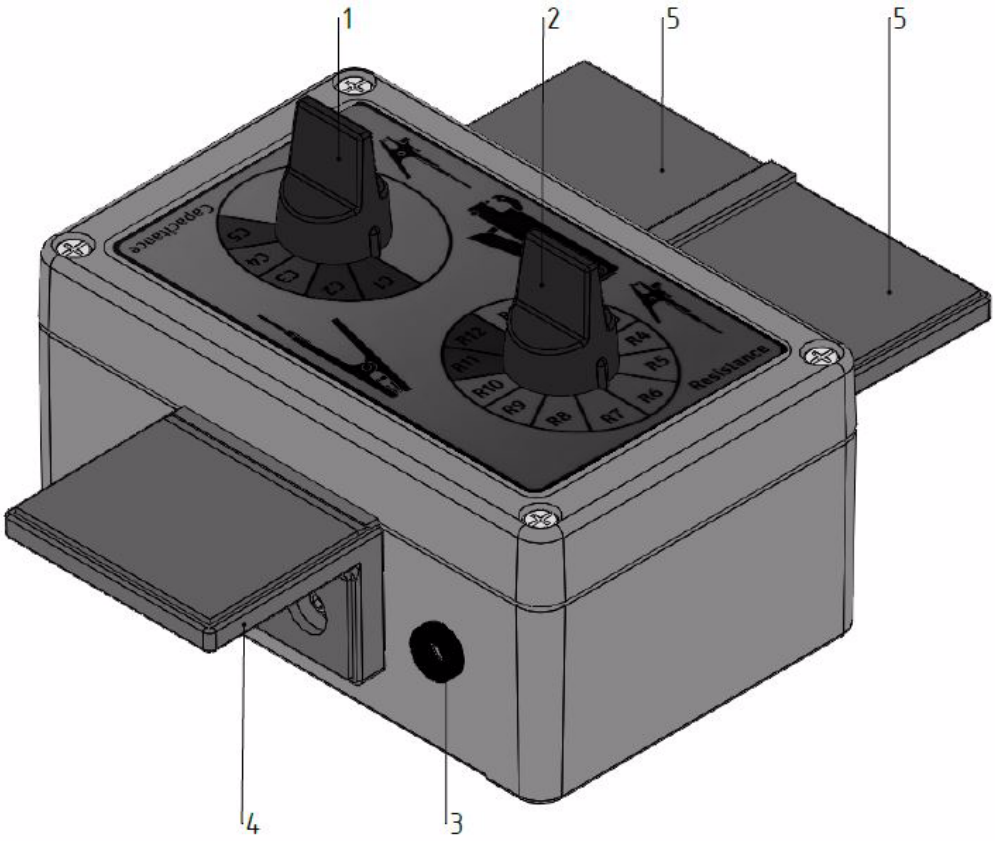
The function of the ground monitoring systems must be checked at regular intervals, including checking the switching thresholds. The inspection intervals can be found in the applicable accident prevention regulations (e.g. DGUV V3 for Germany). Otherwise, the ground monitoring devices are maintenance-free.

With the TERRA-TU, the correct switching threshold of the ground monitoring system can be checked quickly and safely with the connected ground clamps by setting the corresponding rotary switch on the device. If the correct switching threshold is set, the indicator light changes from RED to GREEN.

Please read the operating instructions carefully before starting the device. This will help you prevent personal injuries and damage to property.

Please give us a call if you have any suggestions, proposals or ideas for improvements. We greatly appreciate the feedback from the users of our appliances.

1. Overview



Z-118480y_2

Fig. 1:
Function testing device TERRA-TU

1 Rotary switch for setting the capacity
2 Rotary switch for setting the resistance
3 Socket for test lead (functional earth)
4 Contact surface for ground clamps type 70
5 Contact surface for ground clamps type TERRA-C / 70HK (BIG-BAG)

The test lead (functional earth) and the crocodile clip are not shown.

2. Safety

The units have been designed, built and tested using state-of-the-art engineering, and have left the factory in a technically and operationally safe condition. If used improperly, the units may nevertheless be hazardous to personnel and may cause injury or damage. Read the operating instructions carefully and observe the safety instructions.

For warranty conditions, please refer to the General Terms and Conditions (GTC), see www.eltex.de.

2.1 Identification of risks and hazards

Possible risks and hazards resulting from the use of the units are referred to in these operating instructions by the following symbols:

Warning!
This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.

Caution!
This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.

2.2 Technical advance

The manufacturer reserves the right to make changes to the technical specifications without prior notice in order to adapt the units to state-of-the-art engineering. Eltex will provide the latest information on any changes or modifications in the operating instructions on request.

2.3 Proper use

The TERRA-TU function testing device is used to check the resistive and, depending on the version of the grounding device, also the capacitive switching thresholds of the Eltex Terra-Control (with Terrabox TCB030 and Terracompact TCO030), TERRA-L and TCB040-V2 ground monitoring systems.

It is essential to ensure that only the specified types of clamps are connected to the specially designated connection points.

A misregard may result in a malfunction, incorrect display or even incorrect release of the ground monitoring system.

The manufacturers will not assume any liability and warranty if the units are used improperly or used outside the intended purpose.

Modifications or changes made to the devices are not permitted.

Use only original Eltex spare parts and equipment.

3. Test execution and operation

3.1 Test execution

The following steps must be observed when carrying out the test:

- The test lead (functional earth) must be securely connected to earth / ground using the crocodile clip and to the socket (Fig. 1, Pos. 3) of the TERRA-TU.

- The process release must be decoupled, as a release can be generated during the test.
- The rotary switch position C1 must be selected for the resistive function test.
- The clamps must be correctly connected to the corresponding contact surfaces of the TERRA-TU, see chapter 3.2 "Clamp connection options", page 9.
  Incorrect clamping can lead to a malfunction, incorrect display or even incorrect release of the ground monitoring system.
- The operating instructions for the various ground monitoring systems and the corresponding clamps must be observed.

3.2 Clamp connection options

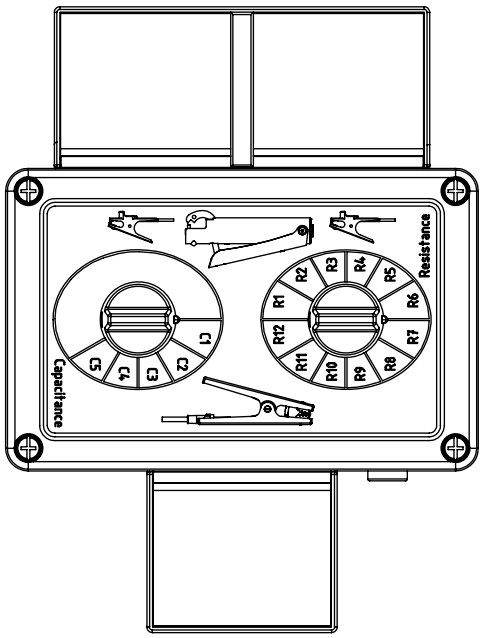


Fig. 2: Clamp connection points

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It is essential to ensure that only the specified types of clamps are connected to the specially designated connection points.

A misregard may result in a malfunction, incorrect display or even incorrect release of the ground monitoring system.

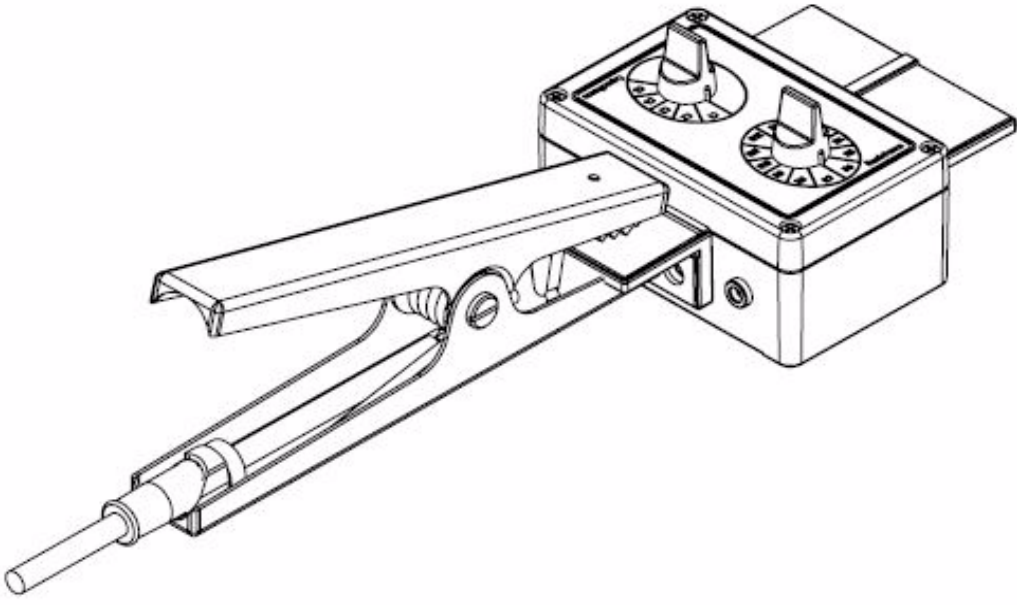

Fig. 3: Clamping point exclusively for clamps of series 70: 70AG, 70AK, 70CG, 70CK, 70BG

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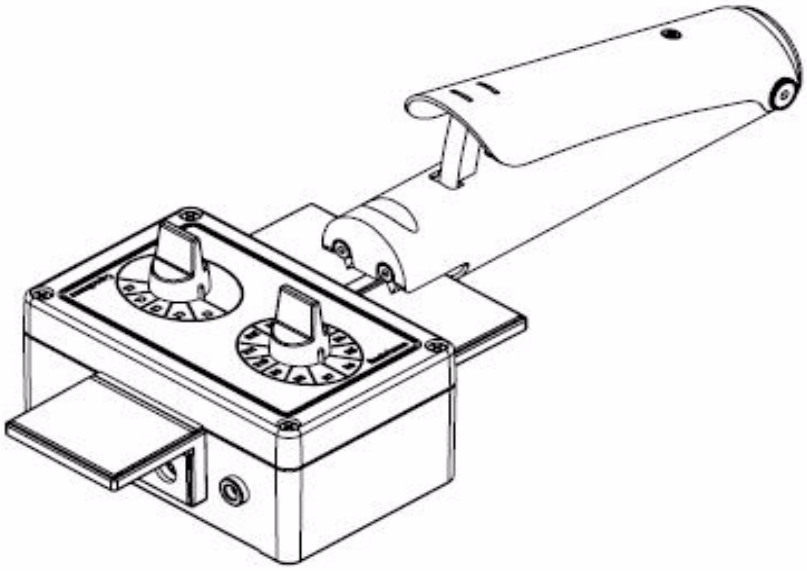

Fig. 4:
Clamping point exclusively for clamps of series TERRA-C: TERRA-C/S and TERRA-C/B

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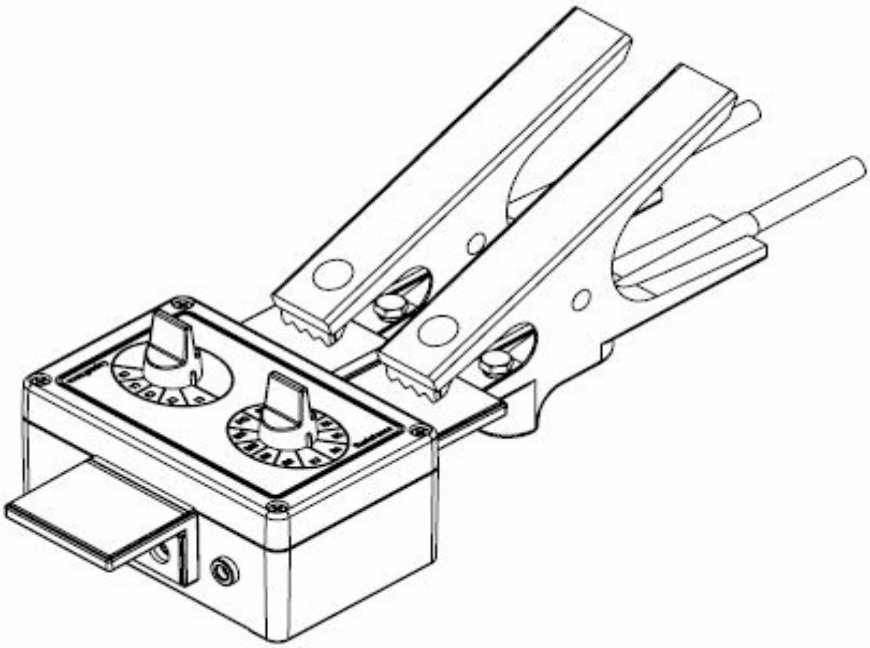

Fig. 5:
Clamping point exclusively for two clamps of type 70HK

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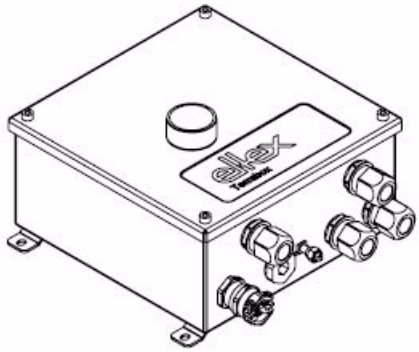
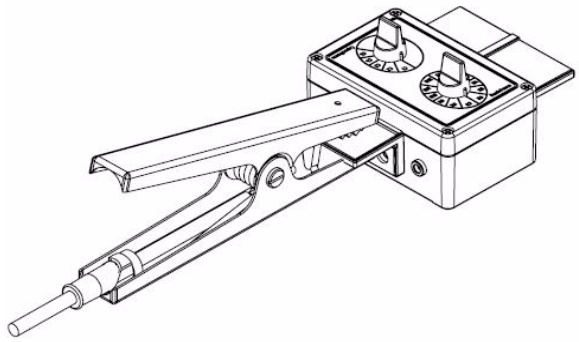
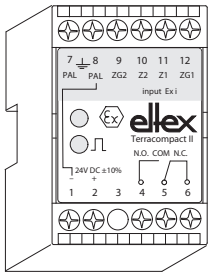
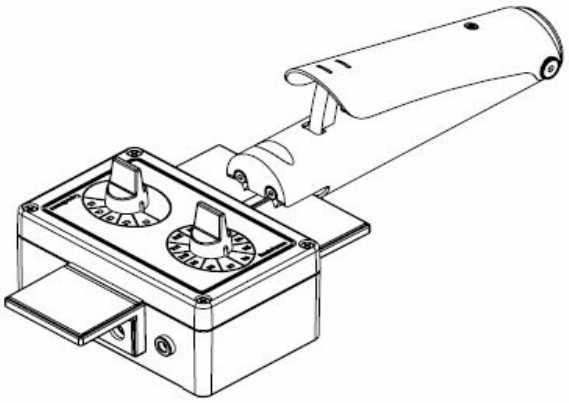
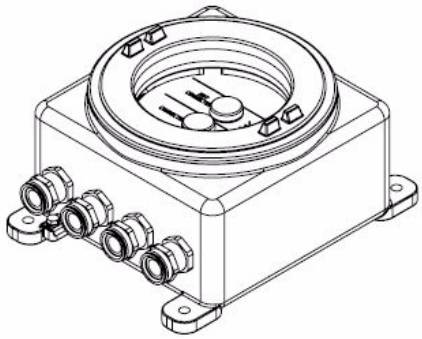
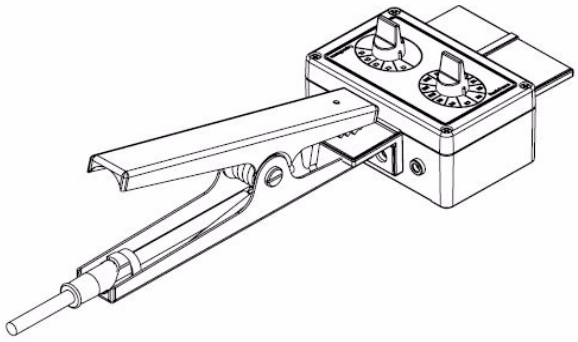
3.3 Testing options for various ground monitoring systems with different types of terminals to be connected

3.3.1 Standard applications

Ground monitoring system	connectable clamp types	(exclusive) clamp connection points
Terra-Control TUE30 with Terrabox TCB030/S  Z-118480y_7	Series 70: 70AG 70AK 70CG 70CK	 Z-118480y_3
or with Terracompact TCO030S  Z01173y	or TERRACLAMP: TERRA-C/S	 Z-118480y_4

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
green						red					

Ground monitoring system	connectable clamp types	(exclusive) clamp connection points
Terracap TCB040-V2  Z-118480y_7	Series 70: 70CG 70CK	 Z-118480y_3

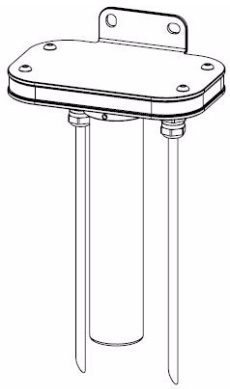
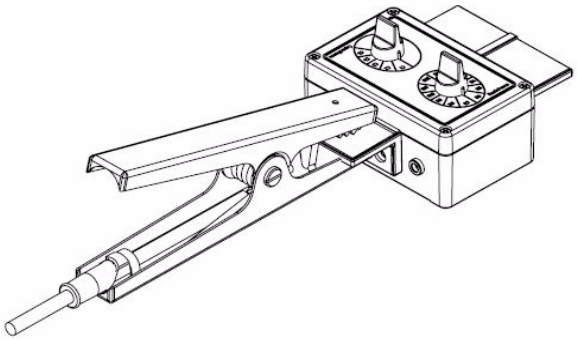
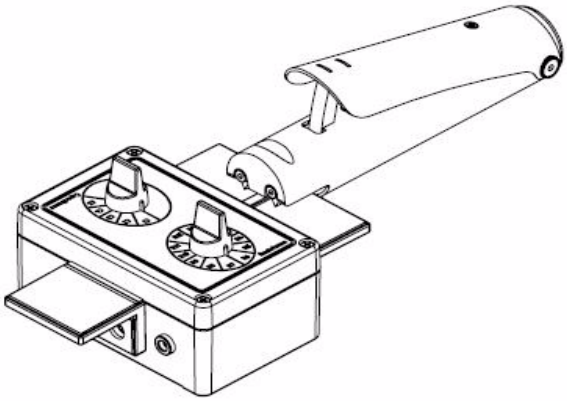
Resistive display

TCB040-V2 setting: "Bypass Mode" (key switch closed)											
R1	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**	**R9**	**R10**	**R11**	**R12**
green		*				**red**					

* Not applicable in conjunction with TCB040-V2

Capacitive display

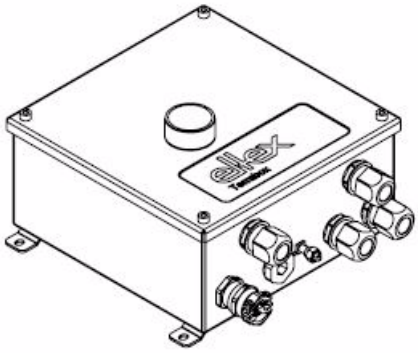
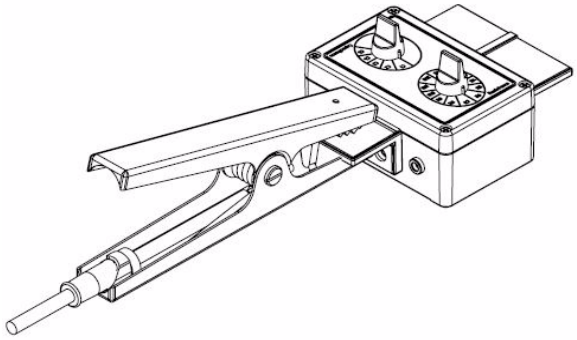
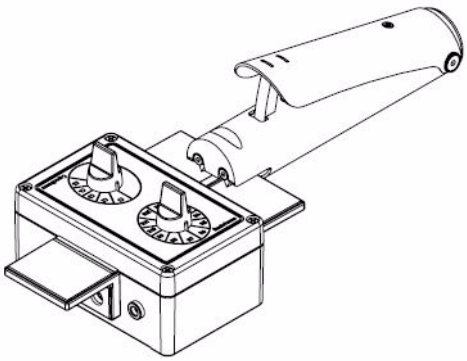
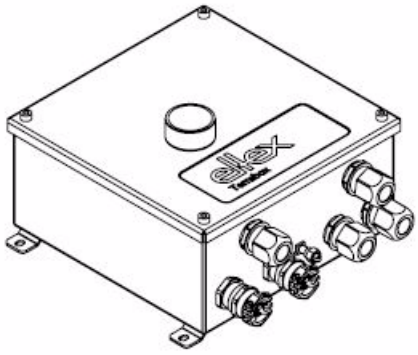
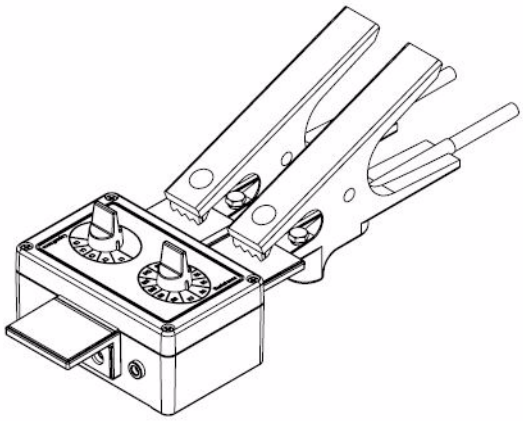
TCB040-V2 setting: "no Bypass Mode" (key switch open) TERRA-TU setting: "R1" or "R2" selected				
C1	**C2**	**C3**	**C4**	**C5**
red			**green**	**red**

Ground monitoring system	connectable clamp types	(exclusive) clamp connection points
TERRALIGHT TERRA-L  Z-116860by_2	Series 70: 70AG 70AK	 Z-118480y_3
	or TERRACLAMP: TERRA-C/S	 Z-118480y_4

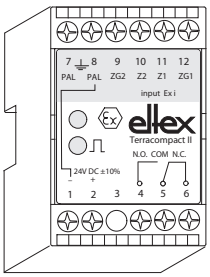
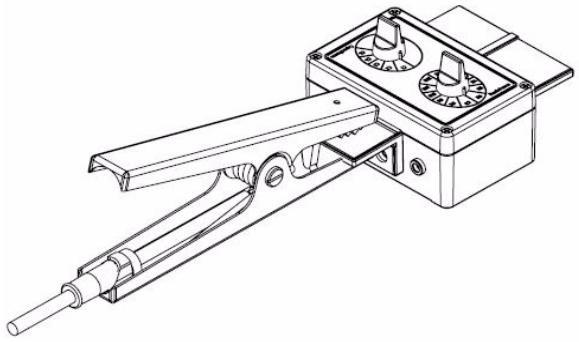
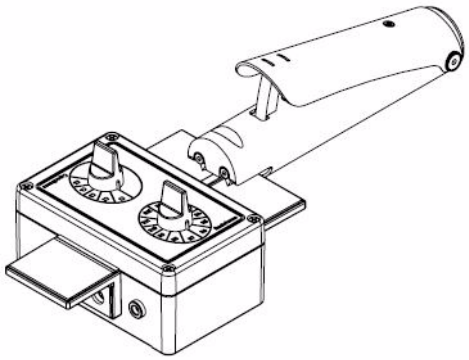
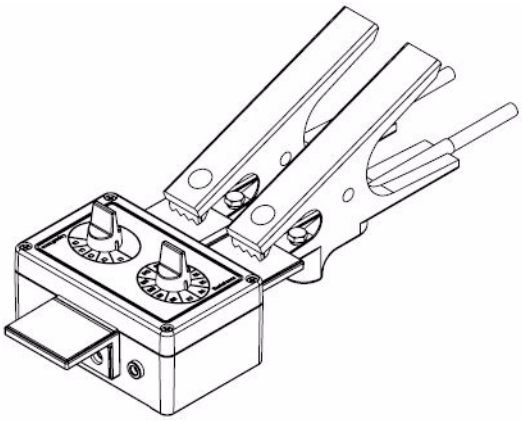
Setting TERRALIGHT "normal"											
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
green						red					

Setting TERRALIGHT "10R setting"											
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
green		red									

3.3.2 BIG-BAG applications

Ground monitoring system	connectable clamp types	(exclusive) clamp connection points
Terra-Control TUE30 with Terrabox TCB030/B  Z-118480y_7	Series 70: 70BG	 Z-118480y_3
	or **TERRA**CLAMP TERRA-C/B	 Z-118480y_4
or with Terrabox TBO030/2  Z-118480y_6	Series 70: 2 clamps 70HK	 Z-118480y_5

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
green										red	

Ground monitoring system	connectable clamp types	(exclusive) clamp connection points
Terra-Control TUE30 with Terracompact TCO030B  Z01173y	Series 70: 70BG	 Z-118480y_3
	or **TERRA**CLAMP TERRA-C/B	 Z-118480y_4
	or Series 70: 2 clamps 70HK	 Z-118480y_5

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
green										red	

ellex electrostatic innovations

4. Technical specifications

4.1 Technical specifications TERRA-TU

Operating ambient temperature	–15...+70 °C (5...+158 °F)
Protection class	IP67 according EN 60529
Dimensions	see Fig. 6
Weight	approx. 0,.5 kg

4.2 Switching thresholds

4.2.1 Standard applications

Resistive values

Tolerances: R1: < 1 Ω
R2 to R8: ± 1 %
R9 to R11: ± 5 %

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
0 Ω	4.7 Ω	10 Ω	6.8 kΩ	10 kΩ	22 kΩ	68 kΩ	2.2 MΩ	12 MΩ	22 MΩ	91 MΩ	∞

Capacitive values

	C1	C2	C3	C4	C5
Value	∞	47 pF	330 pF	6,8 nF	680 nF
Cmin			330 pF	6,5 nF	600 nF
Cmax	< 200 pF	< 250 pF	660 pF	7 nF	750 nF

4.2.2 BIG-BAG-applications

Resistive values

Tolerances: R1: < 1 Ω
R2 to R8: ± 1 %
R9 to R11: ± 5 %

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
0 Ω	4.7 Ω	10 Ω	6.8 kΩ	10 kΩ	22 kΩ	68 kΩ	2.2 MΩ	12 MΩ	22 MΩ	91 MΩ	∞

5. Dimensions

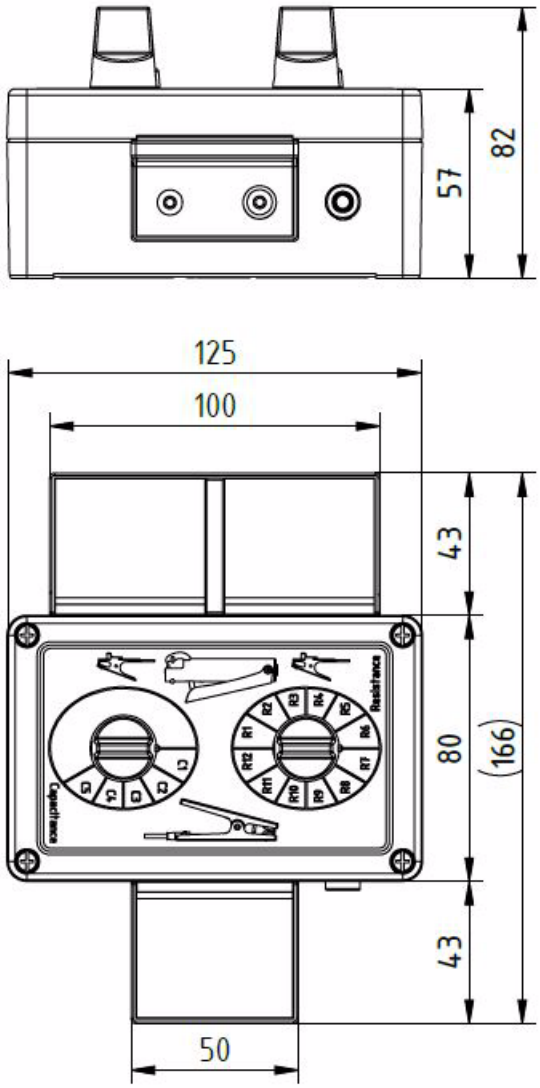


Fig. 6:
TERRA-TU

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6. Spare parts and accessories

Article	Articeel-No.
Measuring lead	118463
Crocodile clip	118462
Operating instructions (specify language)	BA-xx-4019

Please specify the article number when ordering.

EU-Declaration of Conformity

CE-4019-en-2411

CE

Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67 - 69
D-79576 Weil am Rhein

declares in its sole responsibility that the product

Function testing device Type TERRA-TU

complies with the following directives and standards.

Relevant EU-Directive:

2014/35/EU	Low Voltage Directive

Harmonized standard applied:

EN 60204-1:2018	Safety of machinery – Electrical equipment of machines – General requirements

Relevant EU-Directives:

2011/65/EU	RoHS Directive
(EU) 2015/863	RoHS Delegated Directive

in the version effective at the time of delivery.

Eltex-Elektrostatik-Gesellschaft mbH keep the following documents for inspection:

- proper operating instructions
- plans
- other technical documentation

Weil am Rhein, 05.11.2024
Place/Date

Lukas Hahne, Managing Director

Eltex offices and agencies

The addresses of all Eltex agencies can be found on our website at www.eltex.de

Z01007y

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