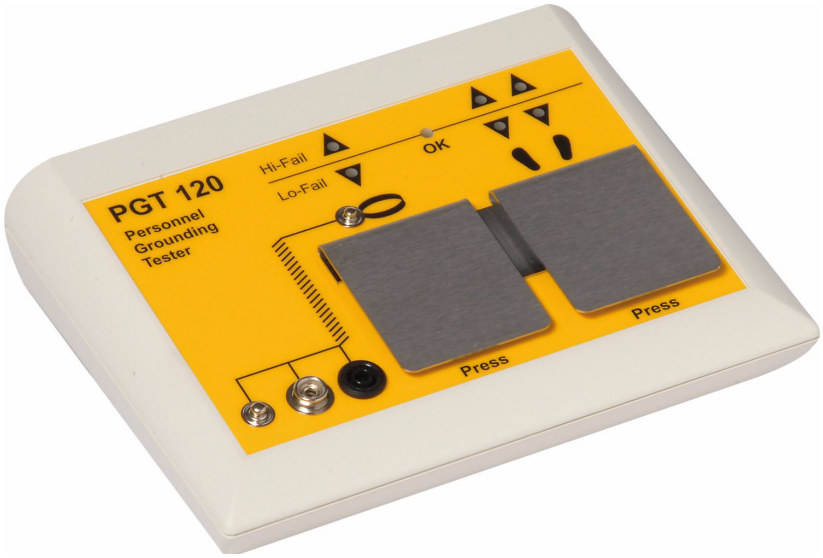
Operating Instructions



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Personnel Grounding Tester PGT120

BA-en-1022-2504

electrostatic
innovations

List of Contents

Dear Customer,

The PGTI20 is an electronic test apparatus for checking personnel grounding systems such as electrostatic wrist straps and conductive footwear.

The unit operates with 3 independent measuring circuits for the left shoe, the right shoe and the wrist strap. This makes it possible to measure all the values at the same time.

The positive testing of one or both grounding systems can be selected via the DIP switch.

When used in combination with a turnstile or a similar singularization system without activating the measuring plate, the footwear test can be made by way of a series circuit from the left shoe to the right shoe via the body (hands-free mode).

The test result is signalled optically, audibly (in the event of errors) and via a floating relay contact.

The tests can be made in any order.

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

Simply 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. Outline of appliance PGT120

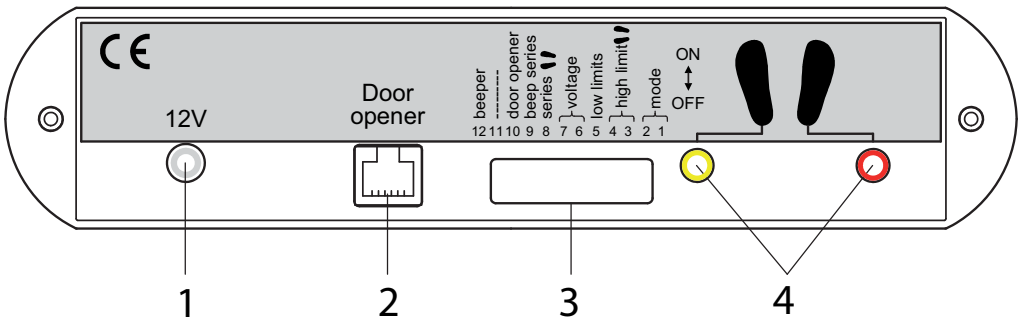

Fig. 1: Connections PGT120

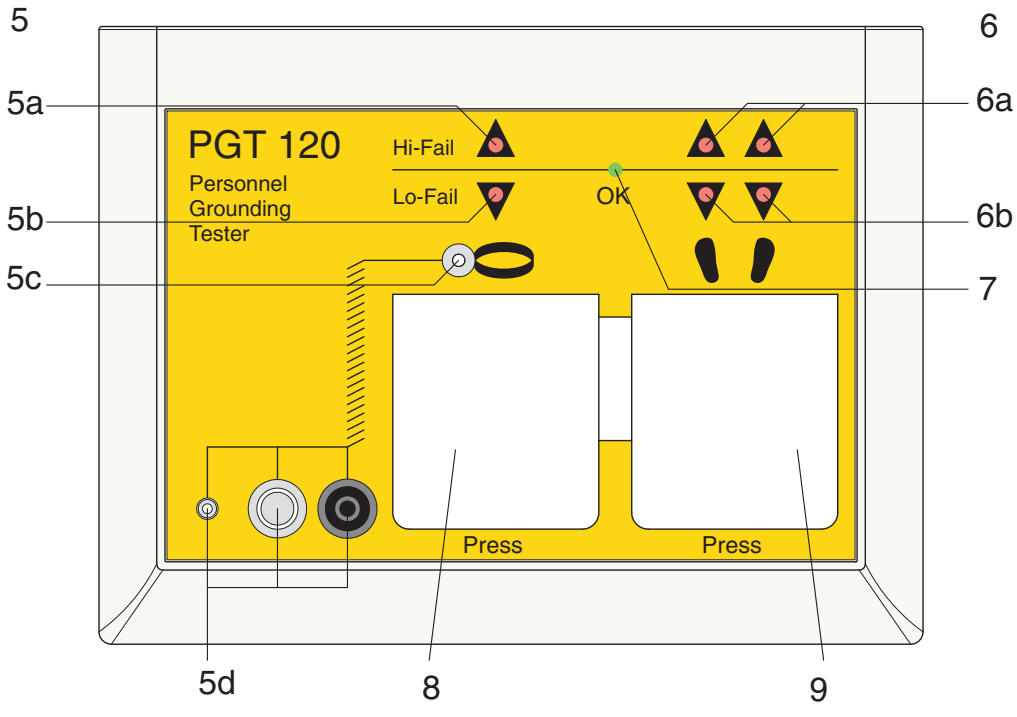

Fig. 2: Outline of appliance PGT120

Key

1 Socket for external power supply

2 Socket for door opener

3 DIP-switches 1 - 12

4 Sockets for footwear electrode

5 Wrist strap test

- 5a LED Hi-Fail: upper limit exceeded
- 5b LED Lo-Fail: below low limit
- 5c Male snap 3 mm
- 5d Connections for wrist strap test
  Male snap 4 mm
  Male snap 10 mm
  socket 4 mm

6 Footwear test

- 6a LED Hi-Fail: upper limit exceeded
- 6b LED Lo-Fail: below low limit

7 LED OK: measured value in the limit

8 Measuring plate for wrist strap test

9 Measuring plate for footwear test

2. Safety

The PGT120 has been designed, built and tested using state-of-the-art engineering and has 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 notices.

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

2.1 Proper use

The PGT120 must only be used to test the leakage resistance.
Permissible are measurements of:

- leakage resistance from hand to soles,
- leakage resistance from hand to leakage bracelet,
- leakage resistance from shoe to shoe.

Other uses are not permitted.

Modifications or changes made to the PGT120 are not permitted.

Use only original Eltex spare parts and accessories.

The manufacturers will not assume any liability and warranty if the unit is used improperly.

2.2 Identification of risks and hazards

Possible risks and hazards resulting from the use of the PGT120 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 injury.

Caution!

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

2.3 Work and operational safety

Warning!
Carefully observe the following notes and the complete chapter 2 "Safety", page 8!
Always observe the rules and regulations applying in your country with reference to electrical appliances.

- Potential risk for wearers of cardiac pacemakers
  In the case of cardiac pacemaker wearers, a malfunction of the pacemaker cannot be ruled out; affix the appropriate warning sign.
- Check the PGT120 in regular intervals for any damage. Any damaged components must be repaired or replaced before continuing to operate the unit.
- Always disconnect the power before opening the unit.
- Please remove the battery when the instrument is not battery operated for a long period of time (see chapter 3.2 "Power supply", page 11).
- The power supply must not be connected to ground (see chapter 3.2 "Power supply", page 11).
- The green LED only flases when the resistance footwear and the resistance wrist strap are between the limits (see chapter 4.5 "Testing wrist straps and footwear at the same time", page 18).
- Do not leave used batteries in the appliance, as chemicals may be released that are harmful to your health or destroy the battery compartment (see chapter 5.1 "Battery change / battery disposal", page 20).

2.4 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 standards. Eltex will provide the latest information on any changes or modifications in the operating instructions on request.

3. Installation and assembly

The PTG120 tester has been designed for table and wall mounting. When used as wall-mounted unit, use our wall bracket which is available as optional accessory. Mount the wall bracket roughly at chest height to the wall and attach the PGT120 with the self-adhesive connectors supplied with the wall bracket.

3.1 Wall mounting plate for the PGT120

Mount the bracket with the plugs and screws supplied at chest height such that the lower edge has the larger distance from the wall. Stick the self-adhesive connectors to the wall bracket as shown in the outline drawing.

1 The surface of the plate and the bottom side of the PGT120 have to be clean, dry and free of grease.
2 Remove protecting foil of the velcro tape pieces and do not touch the sticky side.
3 Apply the velcro tape pieces according to the picture onto the mounting plate.
4 Remove the second protecting foil of the velcro tape pieces and press the PGT120 to those pieces. The back edge of the PGT120 needs to be in line with the upper edge of the mounting plate.
5 After 24 hour curing time the PGT120 can be removed from the wall mounting plate.

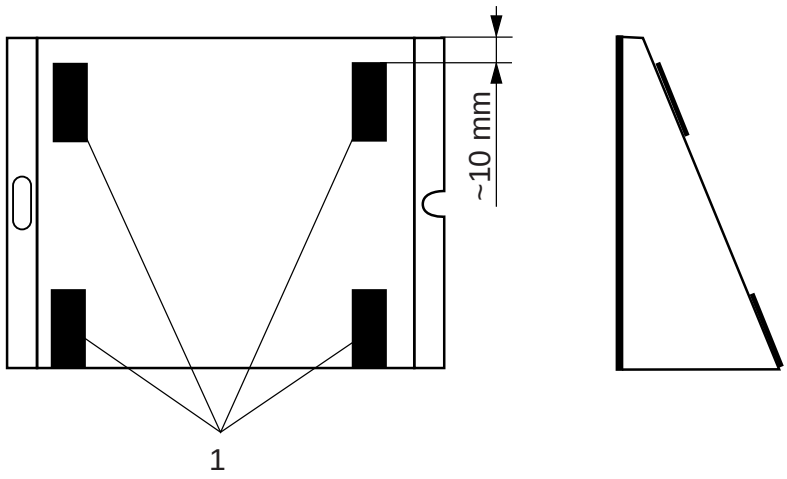

Fig. 3:
Wall mounting plate for PGT120

1 =
velcro tapes

Removing:

Before removing the unit, please remove all plugs on the back of the PGT120. Hold the unit on the left and the right and tip it forwards. To put the unit back onto the mounting plate just press the unit back to the velcro tapes.

3.2 Power supply

The unit can be operated by the external power supply or by a 9 V battery. Battery change see chap. 5 Maintenance.

When testing frequently or when using the unit in the "shoes as series circuit" mode, it is advisable to supply the tester via mains power. Use only the plug-type power supply included. Connect at the rear socket marked "AC 12 V". Any battery connected will be automatically disabled as soon as the jack is plugged in.

Caution!

Please remove the battery when the instrument is not battery operated for a long period of time.

Warning!

The power supply must not be connected to ground.

3.3 Connections

The connections for cable cords are at the front of the unit.

The connections for power supply, footwear electrode and door opener are at the rear of the unit.

The resistance of the test person and of the grounding system is tested when checking the personnel grounding system.
The test person is contacted by operating the measuring plate or by stepping on the footwear electrode.

3.4 Outputs

Additional potential-free contacts allow the documentation of tests and the control of door openers.
Connect via the 6-pin modular socket (Western RJ12) at the rear of the unit.

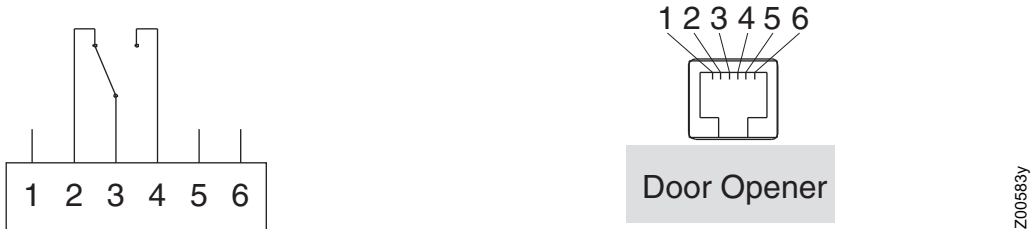

Fig. 4: Door opener 6 pin socket

N/C pin 2 and 3, N/O pin 3 and 4	Switches as soon as the test object (or both test objects) are within the limit values.

The contact is activated via DIP switch 10.

4. Operation

4.1 Start-up

The unit can be operated by the external power supply or by a 9 V battery (see chap. 3.2 Power supply).

The PGT120 has no "ON-OFF" switch. The unit is switched on, when a measuring plate is pressed or the footwear in series is activated.

The default settings of the unit are set on delivery. With the DIP switches 1 to 12 at the rear of the unit the following options can be programmed:

Default settings (marked bold) and options:

Switch 1	Switch 2	Function
OFF	**OFF**	**"OR" (wrist strap or footwear test)**
ON	OFF	only shoes
OFF	ON	only wrist strap
ON	ON	"AND" (wrist strap and shoe test)
Switch 3	**Switch 4**	**Upper limit for single shoe test**
OFF	OFF	20 MOhm single shoe / 40 MOhm for series
OFF	ON	35 MOhm single shoe / 70 MOhm for series
ON	OFF	70 MOhm single shoe / 140 MOhm for series
ON	**ON**	**100 MOhm single shoe / 200 MOhm for series**
Switch 5		**Lower limit**
OFF		no lower limit active
ON		**lower limit activ**
Switch 6	**Switch 7**	**Measuring voltage**
OFF	OFF	30 V
OFF	ON	50 V
ON	**-**	**100V**
Switch 8		**Type of shoe testing**
OFF		**test according to switch 1 and 2**
ON		shoe test in series active
Switch 9		**Beep for series measurement shoes**
OFF		**at the start of the test**
ON		at the end of the test when shoes are OK
Switch 10		**Door opener time**
OFF		**3 s**
ON		**1 s**
Switch 11		**Currently not used**
OFF		
ON		
Switch 12		**Beeper**
OFF		inactive
ON		**active**

4.2 Testing wrist straps separately

DIP switch 1 + 2 at the rear of the unit is set to the "OR" function (default setting) or the function "only wrist strap".

Put on the wrist strap and connect it via the coil cord to the snap or the plug (5d, fig. 2) on the left hand side of the unit.

Press the left measuring plate and keep it pressed. An audible signal indicates that the tester is switched on. After a short measuring time the test result will be indicated by a LED:

Green LED "OK" flashes:	The resistance is in the range of 750 kOhm to 35 MOhm or 0 to 35 MOhm with the lower limit switched off.
Red LED "Hi-Fail" flashes: Audible signal	The resistance exceeds the upper limit of 35 MOhm.
Red LED "Lo-Fail" flashes: Audible signal	The resistance is below the lower limit of 750 kOhm (not applicable if the lower limit is switched off).

The tester will be switched off when the measuring plate is released.

4.3 Testing coil cords separately

A coil cord without a wrist band can be checked as displayed on the front panel. The connection is made via the 3 mm snap (5c, fig. 2) and the snap or the plug (5d, fig. 2) on the left hand side of the unit.

DIP switch 1 + 2 at the rear of the unit is set to the "OR" function (default setting) or the function "only wrist strap".

Press the left measuring plate and keep it pressed. An audible signal indicates that the tester is switched on. After a short measuring time the test result will be indicated by a LED:

Green LED "OK" flashes:	The resistance is in the range of 750 kOhm to 35 MOhm or 0 to 35 MOhm with the lower limit switched off.
Red LED "Hi-Fail" flashes: Audible signal	The resistance exceeds the upper limit of 35 MOhm.
Red LED "Lo-Fail" flashes: Audible signal	The resistance is below the lower limit of 750 kOhm (not applicable if the lower limit is switched off).

The tester will be switched off when the measuring plate is released.

4.4 Testing footwear separately

Connect the foot electrode to the sockets of the shoe symbol (4, fig. 1) at the rear of the unit.

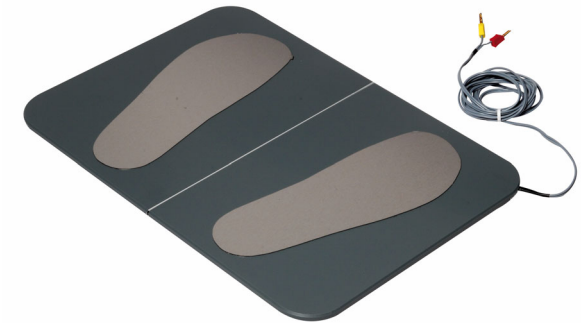

Fig. 5: Footwear electrode

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DIP switch 3 at the rear of the unit is preset to the upper limit of 100 MOhm (optionally, it is possible to switch to lower limit values).

DIP switch 1 + 2 at the rear of the unit are set to the "OR" function (default setting) or to the function "only shoes".

Stand with both shoes on the footwear electrode while pressing the right measuring plate and keep it pressed. An audible signal indicates that the tester is switched on. After a short measuring time the test result will be indicated by a LED:

Green LED "OK" flashes:	The resistance of both shoes is within the range of the configured limit values.
Red LED "Hi-Fail right" flashes: audible signal	The resistance of the right shoe exceeds the configured upper limit value.
Red LED "Hi-Fail left" flashes: audible signal	The resistance of the left shoe exceeds the configured upper limit value.
Red LED "Lo-Fail" right flashes: audible signal	The resistance of the right shoe is below the lower limit of 100 kOhm (not applicable if the lower limit is switched off).
Red LED "Lo-Fail" left flashes: audible signal	The resistance of the left shoe is below the lower limit of 100 kOhm (not applicable if the lower limit is switched off).

The tester will be switched off when the measuring plate is released.

4.5 Testing wrist straps and footwear at the same time

DIP switch 1 + 2 at the rear of the unit is set to the AND function.

Put on the wrist strap and connect it via the coil cord to the snap or the plug (5d, fig. 2) on the left hand side of the unit.

Connect the footwear electrode to the sockets with the shoe symbol (4, fig. 1) at the rear of the unit.

DIP switch 3 at the rear of the unit is preset to the upper limit of 100 MOhm (optionally, it is possible to switch to lower limit values).

Stand with both shoes on the footwear electrode while pressing **one** measuring plate and keep it pressed. An audible signal indicates that the tester is switched on. After a short measuring time the test result will be indicated by a LED:

Green LED "OK" blinking:	The resistance of both shoes is in the range of the configured limit width **and** the resistance wrist strap is in the range of 750 kOhm to 35 MOhm. If the lower limit is switched off, the lower limit starts at 0 Ohm.

Warning!

The green LED only flases when the resistance footwear and the resistance wrist strap are between the limits.

If the wrist strap or the footwear are out of range, the fault will be indicated by audible and visual (red LED) signals.
Evaluation of the signal identical to the separate tests.

The tester will be switched off when the measuring plate is released.

4.6 Footwear test as series circuit (hands-free mode)

Connect the enclosed footwear electrode to the sockets showing the shoe symbol (4, Fig. 1) at the rear of the unit.

DIP switch 8 at the rear of the unit set in the mode "ON footwear test in series enabled". The upper limit cannot be switched over.

The footwear test can be made without activating the measuring plate, e.g. in combination with a turnstile or a similar singularization system. Resistance is measured between left and right shoe.

Stand on the footwear electrode with both shoes. If the shoes are conductive, an audible signal will indicate that the tester is switched on. The test result will be displayed on one of the LEDs after a brief measurement period.

No individual error measurements will be displayed in this operating mode. The defective shoe can be identified by pressing the measuring plate again. The upper limit value for each individual shoe is set according to the configured limit values.

Green LED "**OK**" flashes:	The sum of resistance of both shoes is within the range of the configured limit values. If the lower limit is switched off, the lower limit starts at 0 Ohm.
Red LED "**Hi-Fail**" flashes: audible signal	The resistance of the series circuit exceeds the upper limit 140 MOhm.
Red LED "**Lo-Fail**" flashes: audible signal	The resistance of the series circuit falls below the lower limit 200 kOhm (not applicable if the lower limit is switched off).

The tester will be switched off when stepping off the footwear electrode.

5. Maintenance

The PGT120 is maintenance-free.
To avoid any impairment of the proper function, keep it clean and dirt-free.
Use the calibration unit PGT120.103 (optional) to test the limit values of the PGT120.

5.1 Battery change / battery disposal

To install the battery, open the battery compartment on the underside of the unit. Connect the connection clip to the battery, observing the correct polarity. Close the battery compartment again until the cover clicks into place.

Caution!
Do not leave used batteries in the appliance, as chemicals may be released that are harmful to your health or destroy the battery compartment.

Exhausted batteries may be returned to us or must be disposed of properly (hazardous waste).

6. Technical specifications PGT120

Operating voltage	9 V E 6F22 battery external power supply 230 V / 50 Hz
Test voltage (open circuit) switchable	30 V ±10 % 50 V ±10 % 100 V ±10 %
Operating conditions	15 °C ... 40 °C, up to 75 % relative humidity, non condensing
Storage conditions	-10 °C ... 60 °C, up to 85 % relative humidity, non condensing
Operating mode switchable	separate test OR test in parallel AND only wrist strap only shoes hands-free-mode
Connections Wrist strap footwear electrode Door opener / counter External power supply	 10 mm snap, 4 mm snap, 4 mm socket 2 sockets 4 mm western socket 6-pin RJ-12 socket for the external 12 VAC supply
Measuring ranges (switchable) Wrist strap Single shoes Shoes, in series circuit Tolerance	 750 kOhm ... 35 MOhm (0 Ohm ... 35 MOhm) 100 kOhm ... 100 MOhm (0 Ohm ... 100 MOhm) 200 kOhm ... 200 MOhm (0 Ohm ... 100 MOhm (Hands-free-Modus) ±10 %
Signals Green LED Red LED's and buzzer Door opener Door opener time	 "OK" "Hi-Fail" oder "Lo-Fail" potential-free change-over contact "OK" 3 seconds
Contact ratings Max. voltage Max. current Max. power	 60 V 2 A 50 VA
Weight	approx. 2.7 kg
Dimensions	150 x 200 x 63 mm
Serial number	on the unit side

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7. Accessories

Article	Article No.
Wall mounting plate	PGT100.101
Calibration unit	PGT120.103
Operating Instructions (specify language)	BA-xx-1022

8. Decommissioning

The following steps must be taken to dispose of the PGT120 Personal Grounding Tester:

Before disposing of the device, the battery integrated in the PGT120 Personal Grounding Tester must be removed and disposed of separately. To do this, open the battery compartment on the underside of the device and remove the battery connection clip.

After removing the battery, the PGT120 Personal Grounding Tester can be disposed of according to the methods of general waste disposal (electrical waste).

Exhausted batteries may be returned to us or must be disposed of properly.

Eltex offices and agencies

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

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Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67-69
79576 Weil am Rhein | Germany
Phone +49 (0) 7621 7905-422
eMail info@eltex.de
Internet www.eltex.de

eltex
electrostatic innovations