PGT®120

Personnel Grounding Tester

Wrist Strap and Footwear Tester

Users's Manual

1 Table of contents

1 TABLE OF CONTENTS 2

2 INTRODUCTION 3

2.1 Device return and environmentally compatible disposal 3

3 INSTALLATION 4

4 OPERATION 5

4.1 Wrist strap test 5

4.2 Coil cord test 5

4.3 Footwear test (single shoe) 6

4.4 Wrist strap and footwear test 6

4.5 Footwear in series 7

5 CONFIGURATION 8

6 CONNECTORS 9

7 WALL MOUNTING INSTRUCTIONS 10

8 SPECIFICATIONS 11

9 PICTURES 12

2 Introduction

The Personnel Grounding Tester PGT®120 is an electronic test instrument for checking personnel grounding systems such as wrist straps, coil cords and footwear. The PGT®120 is suitable for compliance verification of the above products, according to the IEC 61340-5-1 Edition 1.0 (2007-08) or ANSI/ESD S 20.20 – 2007 (2007-03).

- 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
- It is possible to enable or disable separately the measuring circuits.
- The order of tests is random.
- Footwear measurement can be configured to measure in series with hands free for passenger gates.
- Visual and audible test results and a dry relay contact for door opener
- Use the optionally available "Calibration Unit " Part No. **7100.PGT120.CU** to check the unit Hi and Lo limit values

2.1 Device return and environmentally compatible disposal

The **instrument** is a category 9 product (monitoring and control instrument) in accordance with ElektroG (German Electrical and Electronic Device Law). This device is not subject to the RoHS directive.
We identify our electrical and electronic devices (as of August 2005) in accordance with WEEE 2012/19/EU and ElektroG with the symbol shown to the right per DIN EN 50419.

These devices may not be disposed of with the trash.
Please contact our service department regarding the return of old devices.

If you use **batteries** or **rechargeable batteries** in your instrument or accessories which no longer function properly, they must be duly disposed of in compliance with the national regulations.
Batteries or rechargeable batteries may contain harmful substances or heavy metal such as lead (Pb), cadmium (Cd) or mercury (Hg).
The symbol shown to the right indicates that batteries or rechargeable batteries may not be disposed of with the trash, but must be delivered to collection points specially provided for this purpose.

3 Installation

The Unit is for desktop or wall mounting. The optionally available wall mounting frame (Part No. 7100.PGT120.WK) can be used to fix the unit to a wall.

The power is either supplied by a 9V battery or by a power supply. Insert the batteries by opening the battery compartment flap on the bottom side of the unit. Take care of the proper polarity. Close the battery compartment flap again.

> **It is strongly recommended to remove old or empty batteries to avoid battery leakage.**

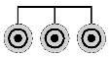
For heavy use or footwear in series mode, we recommend using the external power supply. Use only an original power supply connected to the "AC12V" socket on the rear. On plugging in external power, the internal battery is disconnected.
The battery should be removed to avoid wear out.
Do not connect any conducting articles with PGT®120 exept original accessories (power supply, battery and foot wear electrode) and the door opener.

Connect the foot electrode with the coloured marked plugs to the back of the unit for footwear test.

4 Operation

This tester has no power switch. Pressing an electrode or activating "footwear in series" activates the electrical circuit.
The measuring voltage is preset to 100V. Use the DIP switches 6+7 to adjust the voltage to either 30V or 50V.

4.1 Wrist strap test



▶ Settings: **Only wrist strap** or **OR** is activated (DIP switch 1+2)

Put on the wrist strap and connect it via a coil cord to the snap or to the socket on the left side of the unit.

Press the left electrode and keep it pressed. A peep signal indicates the start of measurement. After a short measuring time the result is displayed.

OK	Green LED flashes	The measured value is o.k.
Hi-Fail	Red LED flashes, audible signal	Above the resistance upper limit
Lo-Fail	Red LED flashes, audible signal	Below the resistance lower limit *(not applicable if lower limit is disabled)*

Release the electrode.

4.2 Coil cord test

▶ Settings: **Only wrist strap** or **OR** is activated (DIP switch 1+2)

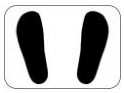
To check only the coil cord, connect the coil cord to the 3mm snap located inside the wrist strap symbol and to the 10mm snap or socket on the left side of the unit.

Press the left electrode and keep it pressed. A peep signal indicates the start of the measurement. After a short measuring time the result is displayed.

OK	Green LED flashes	The measured value is o.k.
Hi-Fail	Red LED flashes, audible signal	Above the resistance upper limit
Lo-Fail	Red LED flashes, audible signal	Below the resistance lower limit *(not applicable if lower limit is disabled)*

Release the electrode.

4.3 Footwear test (single shoe)



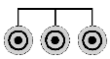
▶ Settings: **Only footwear** or **OR** is activated (DIP switch 1+2)

Stand on the foot electrode, then press the right electrode and keep it pressed. A peep signal indicates the start of measurement. After a short measuring time the result is displayed.

OK	Green LED flashes	The measured values of **both** shoes are o.k.
Hi-Fail right	Red LED flashes, audible signal	Right shoe above the resistance upper limit
Hi-Fail left	Red LED flashes, audible signal	Left shoe above the resistance upper limit
Lo-Fail right	Red LED flashes, audible signal	Right shoe below the resistance lower limit *(not applicable if lower limit is disabled)*
Lo-Fail left	Red LED flashes, audible signal	Left shoe below the resistance lower limit *(not applicable if lower limit is disabled)*

Release the electrode.

4.4 Wrist strap and footwear test



▶ Settings: **AND** function is activated (DIP switch1+2)

Put on the wrist strap and connect it via a coil cord to the snap or socket on the left side of the unit.
Stand on the foot electrode, then press one electrode and keep it pressed. A peep signal indicates the start of measurement. After a short measuring time the result is displayed.

OK	Green LED flashes	All measured values are o.k.
Hi-Fail	Red LED flashes, audible signal	Above the resistance upper limit
Lo-Fail	Red LED flashes, audible signal	Below the resistance lower limit *(not applicable if lower limit is disabled)*

Release the electrode.

The OK signal only appears when all measured values are within the limits.

4.5 Footwear in series

▶ Settings: Footwear in series activated (DIP switch 8)

To show that "Footwear in series" is activated the red LED's for Hi-Fail of Footwear flash for a short time every 2s, while disspative shoes are not detected.

The footwear test can be accomplished hands free, without touching a electrode. This is useful in combination with passenger handling gates. The resistance is measured between the two shoes. This mode cannot directly indicate the faulty shoe. Press the Shoe electrode on the instrument to identify it.

Stand with both feet onto the foot electrode. If the shoes are dissipative the measurement starts automatically. After a short measuring time the result is displayed and the connected gate will open.

OK	Green LED flashes	The measurement of the footwear in series is o.k.
Hi-Fail	Red LED flashes, audible signal	Above the resistance upper limit for series connection
Lo-Fail	Rote LED flashes, audible signal	Below the resistance lower limit *(not applicable if lower limit is disabled)*

You can step of the foot electrode.

Even if footwear in series is active, you can perform a test according chapter 4.1 to chapter 4.4 by pressing a electrode, for example to identify a bad shoe.

5 Configuration

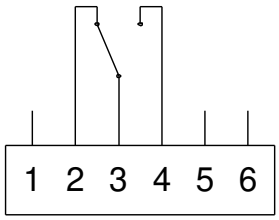
The unit can be configured with the DIP switches on the rear according to the table below.
Standard settings are marked bold.

Switch 1	**Switch 2**	**Test mode**
OFF	**OFF**	**"OR" (wrist strap or footwear test)**
ON	OFF	Only footwear test
OFF	ON	Only wrist strap test
ON	ON	"AND" (wrist strap and footwear test)
Switch 3	**Switch 4**	**Footwear upper limit**
OFF	OFF	20 MΩ for single shoe / 40 MΩ for series
OFF	ON	35 MΩ for single shoe / 70 MΩ for series
ON	**OFF**	**70 MΩ for single shoe / 140 MΩ for series**
ON	ON	100 MΩ for single shoe / 200 MΩ for series
Switch 5		**Lower limit**
OFF		Lower limit disabled
ON		**Lower limit enabled**
Switch 6	**Switch 7**	**Test voltage**
OFF	OFF	30 V
OFF	ON	50 V
ON	**--**	**100 V**
Switch 8		**Footwear test mode**
OFF		**test according to switch 1 + 2**
ON		footwear in series active
Switch 9		**Piep for footwear in series**
OFF		**At start of test**
ON		At end of test if shoes OK
Switch 10		**Door opener time**
OFF		**3s**
ON		1s
Switch 11		**Not used**
OFF		-
ON		**-**
Switch 12		**beeper**
OFF		inactive
ON		**active**

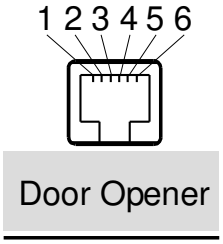
6 Connectors

The connectors for the power supply, the foot electrodeand the door opener are located on the rear side of the unit. Use a "RJ12" western modular plug to connect the dry contact of the door opener.
The door opener relay is triggered and stays on for 3 seconds when the test result indicates OK.

Normally **O**pen Pin 3,4
Normally **C**losed Pin 2,3



Contact function



Connector view

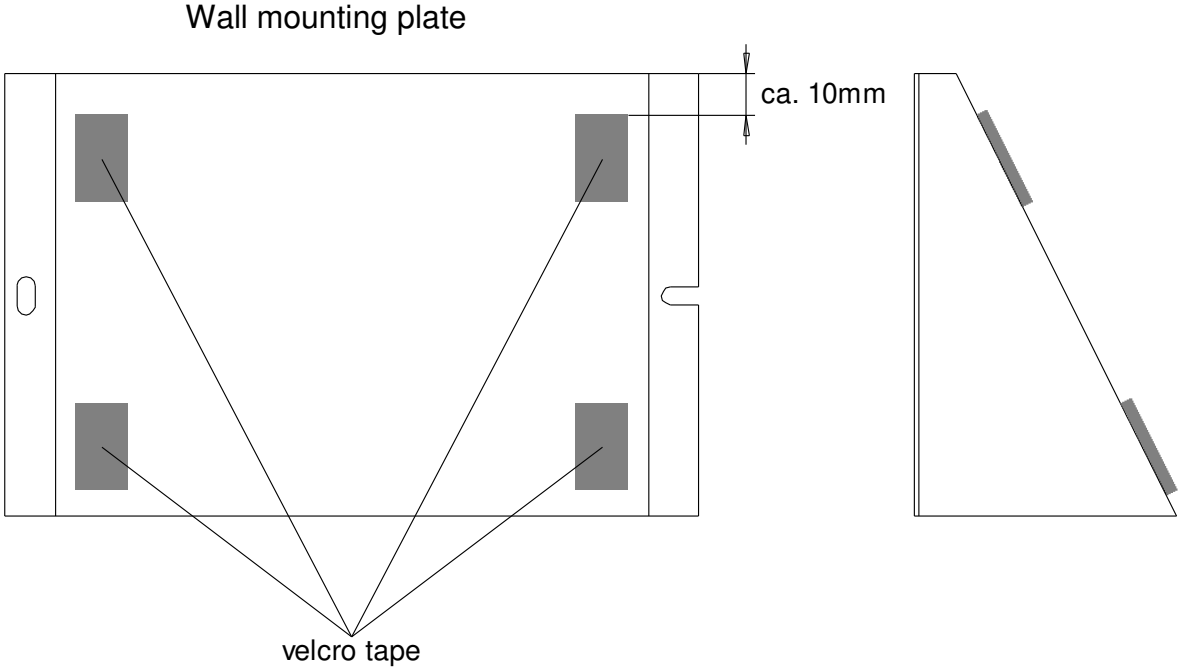
7 Wall mounting instructions

(Part No. 7100. PGT120.WK)

Fix the wall mounting plate with the supplied dowels and screws and stick the self-adhesive Velcro tapes according to the picture.

1. The surface of the plate and the bottom side of the PGT®120 have to be clean, dry and free of grease.
2. Remove protecting foil of the velcro tapes and do not touch the sticky side.
3. Apply the velcro tapes according to the picture onto the mounting plate.
4. Remove the second protecting foil of the velcro tapes and press the PGT®120 agianst them.
5. After 24 Hour curing time the PGT®120 can be removed from the wall mounting plate

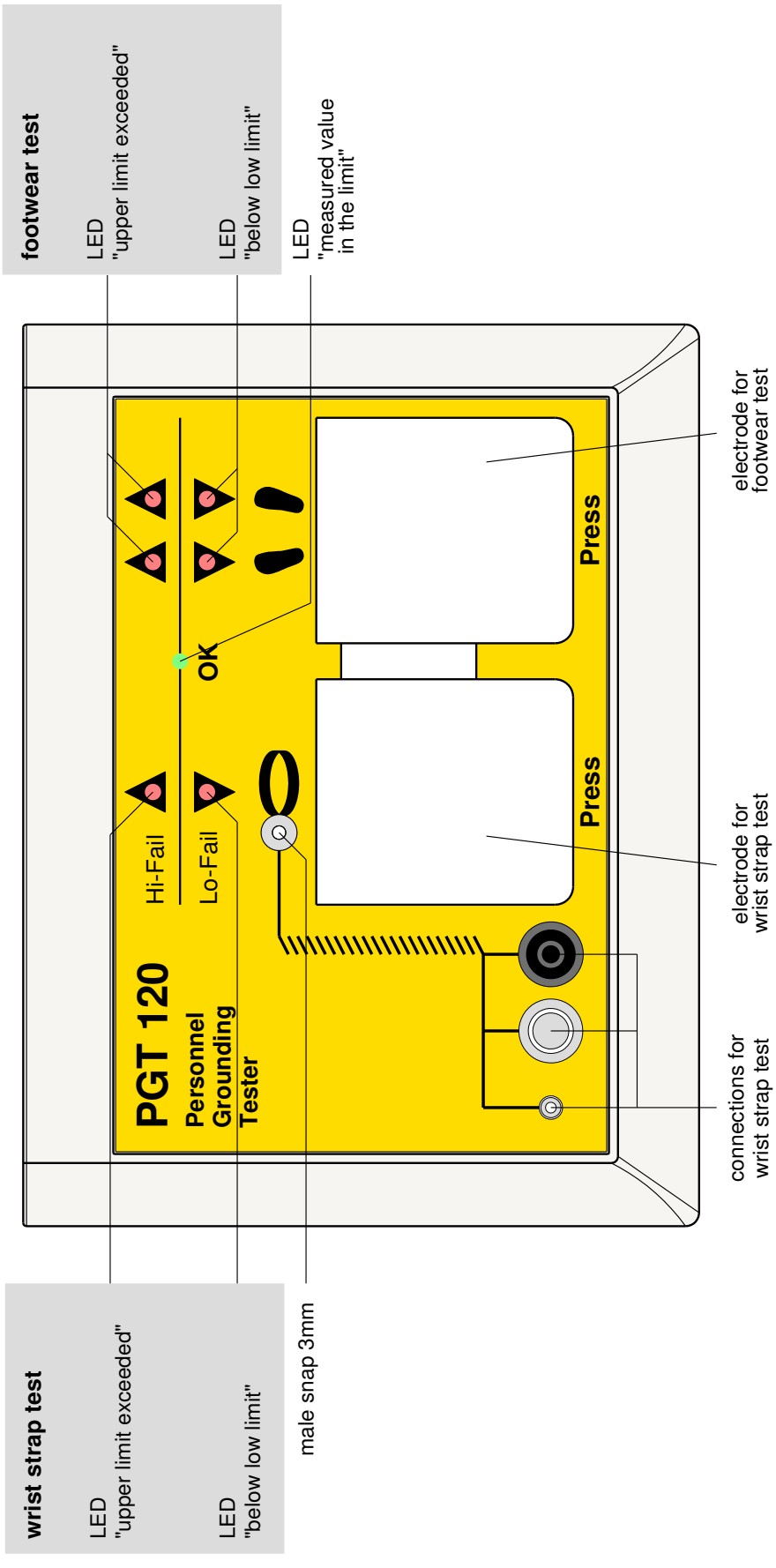
Before removing the unit, please unplug all wires.
Hold the unit on both sides and pull it forwards. To fix it again, press it back onto the velcro tapes.

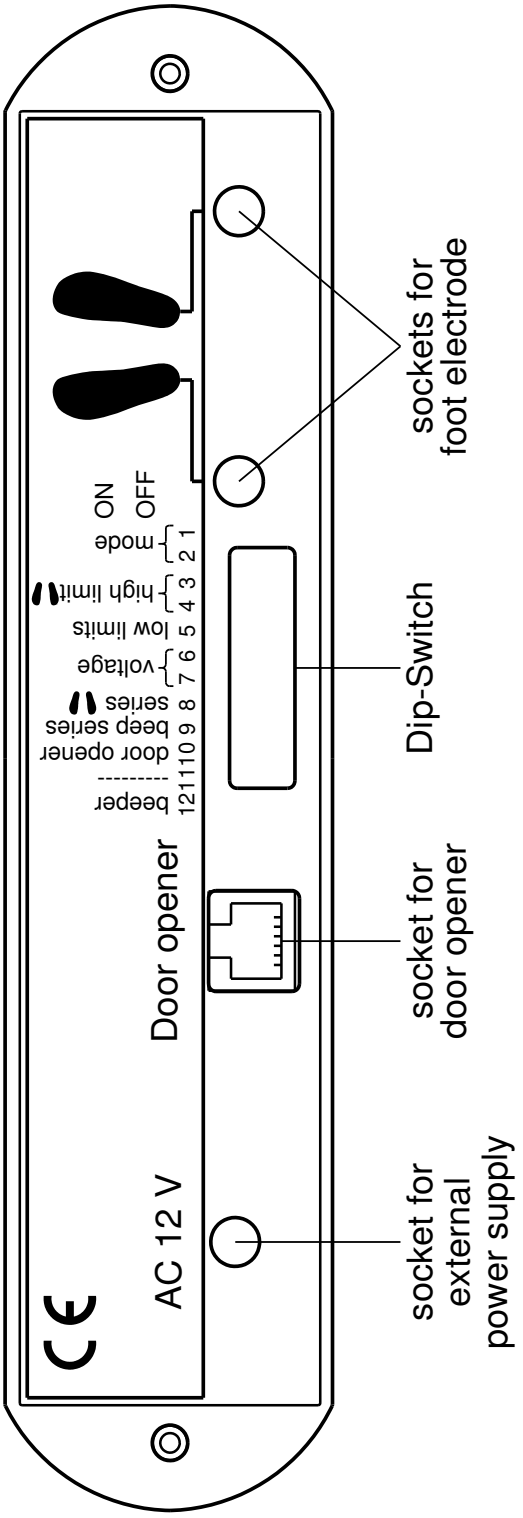


8 Specifications

Operating voltage:	9V E 6F22 battery external power supply 230V / 50Hz	
Operating conditions:	15 ... 40°C	up to 75% relative humidity, non condensing
Storage conditions:	-10 ... 60°C	up to 85% relative humidity, non condensing
Connectors:	Wrist strap	10mm snap, 4mm snap, 4mm socket
	Foot electrode	2 sockets 4mm
	Door opener	Western socket 6 pin RJ-12
	external 12VAC power supply (Use only for the original power supply supplied with the instrument)	
Measuring ranges:	Wrist strap	750kΩ ... 35MΩ
	Footwear - each shoe	100kΩ ... 100MΩ
	Footwear in series	200kΩ ... 200MΩ (Hands-free-Mode)
	Tolerance	± 10%
Test voltage:	open circuit voltage	30V ± 10% 50V ± 10% 100V ± 10%
Signals:	Green LED	“OK”
	Rote LED’s and buzzer	“Hi-Fail“ or ”Lo-Fail”
	Door opener	Dry contact “OK“
Contact ratings:	max. voltage	60V
	max. current	2A
	max. power	50 VA
Operating modes:	Single test ”OR“ Double test "AND" Only wrist strap test Only footwear test Hands-free-Mode	
Weight:	app. 500g	
Dimensions:	150 x 200 x 63 mm	
Serial number:	On the side of the unit	
	Complies with CE	

9 Pictures


footwear test
LED "upper limit exceeded"
LED "below low limit"
LED "measured value in the limit"
PGT 120
Personnel Grounding Tester
Hi-Fail
Lo-Fail
OK
Press
Press
electrode for footwear test
electrode for wrist strap test
connections for wrist strap test
wrist strap test
LED "upper limit exceeded"
LED "below low limit"
male snap 3mm


sockets for foot electrode
Dip-Switch
socket for door opener
socket for external power supply
ON
OFF
mode 1 2
high limit 3 4
low limits 5 6
voltage 7 6
series 8
deep series
door opener 9
beeper 10 11 12
Door opener
AC 12 V
CE

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