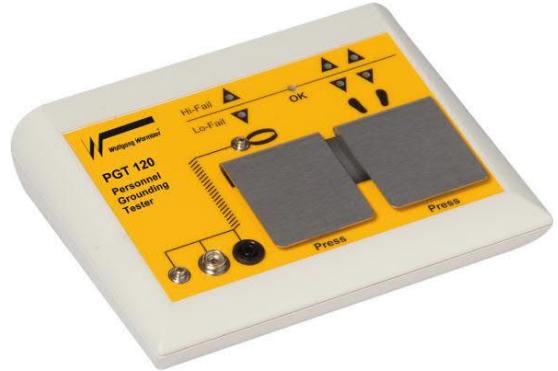


**Warmbier Model PGT120, Part No. 7100.PGT120**

The personnel Grounding Tester PGT 120 is a wrist strap and footwear tester for access control of ESD protected Areas (EPA). Used for compliance with the ANSI ESD S20.20 para 6.1.3.2 'Compliance Verification Plan'.

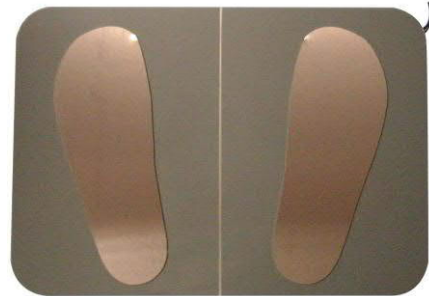
**Features:**

- Simultaneous testing of wrist strap, right and left shoe
- Separate measurement of right and left foot
- LEDs display different test results
- Test result is indicated with audible and visual LED indications
- Can be used on bench tops or as a wall mounted unit (Wall mounting requires an additional wall mounting plate)
- Battery powered with low-battery indication
- Optional AC Adaptor is available.
- Lower limit disabling is possible.



**Specifications:**

- Floor Plates: Aluminum
- Unit dimensions: 150 x 200 x 65mm
- Foot Plate size: 350 x 500 x 8 mm
- Battery: 9 volt
- LEDs: (6) Low, High and Pass
- Alarm: Internal buzzer
- External Power: AC/DC (optional)



Footwear electrode for separate shoe testing (350 x 500 x 8 mm)

**Limit values and measure mode:**

	Measuring range / Test voltage	Standard
Wrist strap / coil cord	750 k - 35 M	IEC 61340-5-1
Footwear worn on metal plate (values for each shoe)	(100 k *) - 35 M or (100 k *) - 70 M <i>* lower limit can be disabled</i>	IEC 61340-5-1
Footwear in series	140 M or 70 M (both shoes in series)	---
Test voltage (without load)	100V/DC <i>changeable to 50V or 30V</i>	IEC 61340-5-1

**Scope of Supply (Model PGT120-WK Test Kit, P/N 7100.PGT120-P)**

- Main PGT120 Combo Tester
- Footwear electrode
- Wall Mounting Plate
- 9 Volt Battery
- User Manual & cal. certificate

**Scope of Supply (Model PGT120 Tester, P/N 7100.PGT120)**

- Main PGT120 Combo Tester
- Footwear electrode
- 9 Volt Battery
- User Manual & cal. certificate

**Accessories (Optional)**

- P/N: 7100.PGT120.WK, Wall mounting plate
- P/N: 7100.PGT120.SM, Mat for footwear electrode with yellow edges

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# User's Manual

## PGT 120

From Serial No. 00260 up



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## Introduction

The Personnel Grounding Tester PGT120 is an electronic test instrument for checking personnel grounding systems such as wrist straps, coil cords and footwear. The PGT120 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

## Installation

The Unit is for desktop or wall mounting. The optionally available wall mounting frame (Part No. 7100.PGT100.101) 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 PGT120 except 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.

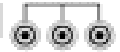
## Operation

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 4+5 to adjust the voltage to either 30V or 50V.

**Refer to the DIP switch configuration table on page 8!**

### 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.

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

Release the electrode.

### 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.

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

Release the electrode.

### 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.

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

Release the electrode.

### 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.

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

Release the electrode.

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

### Footwear in series



- Settings: Footwear in series activated (DIP switch 6)

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 with a beep signal. After a short measuring time the result is displayed and the connected gate will open.

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

You can step of the foot electrode.

Even if footwear in series is active, you can perform a test according chapter 0 to chapter 0 by pressing a electrode, for example to identify a bad shoe.



## 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
<b>OFF</b>	<b>OFF</b>	<b>"OR" (wrist strap or footwear test)</b>
ON	OFF	Only footwear test
OFF	ON	Only wrist strap test
ON	ON	"AND" (wrist strap and footwear test)
Switch 3		Footwear upper limit
OFF		35 M $\Omega$ for single shoe / 70 M $\Omega$ for series
<b>ON</b>		<b>70 M<math>\Omega</math> for single shoe / 140 M<math>\Omega</math> for series</b>
Switch 4	Switch 5	Test voltage
OFF	OFF	30 V
OFF	ON	50 V
<b>ON</b>	<b>ON</b>	<b>100 V</b>
Switch 6		Footwear test mode
<b>OFF</b>		<b>test according to switch 1 + 2</b>
ON		footwear in series active
Switch 7		Lower limit
OFF		Lower limit disabled
<b>ON</b>		<b>Lower limit enabled</b>
Switch 8		Door opener
OFF		inactive
<b>ON</b>		<b>active</b>

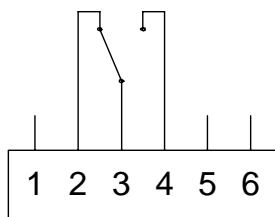
## Connectors

The connectors for the power supply, the foot electrode and 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.

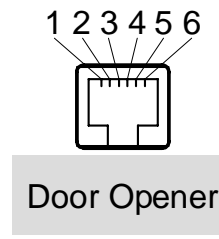
The door opener relay is triggered and stays on for 3 seconds when the test result indicates OK.

This function must be enabled with DIP switch 8.

**Normally Open**      Pin 3,4  
**Normally Closed**   Pin 2,3



Contact function



Connector view

## Wall mounting instructions

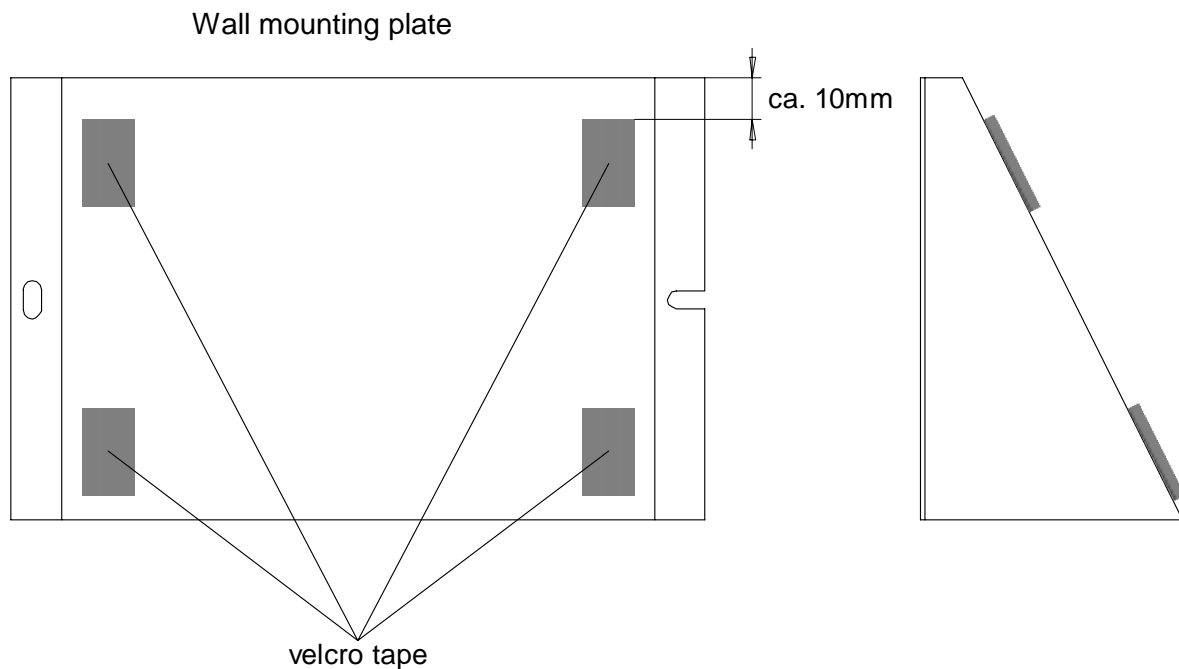
(Part No. 7100.PGT100.101)

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 PGT120 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 PGT120 against them.
5. After 24 Hour curing time the PGT120 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.



## Specifications

<u>Operating voltage:</u>	9V E 6F22 battery external power supply 230V / 50Hz
<u>Operating conditions:</u>	15 ... 40°C up to 75% relative humidity, non condensing
<u>Storage conditions:</u>	-10 ... 60°C up to 85% relative humidity, non condensing
<u>Connectors:</u>	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)
<u>Measuring ranges:</u> (selectable)	Wrist strap 750k $\Omega$ ... 35M $\Omega$ (0 $\Omega$ ... 35M $\Omega$ )
	Footwear - each shoe 100k $\Omega$ ... 70M $\Omega$ (0 $\Omega$ ... 70M $\Omega$ ) 100k $\Omega$ ... 35M $\Omega$ (0 $\Omega$ ... 35M $\Omega$ )
	Footwear in series 200k $\Omega$ ... 140M $\Omega$ (0 $\Omega$ ... 140M $\Omega$ ) (200k $\Omega$ ... 70M $\Omega$ ) (0 $\Omega$ ... 70M $\Omega$ ) (Hands-free-Mode)
	Tolerance $\pm 10\%$
<u>Test voltage:</u>	open circuit voltage 30V $\pm$ 10% 50V $\pm$ 10% 100V $\pm$ 10%
<u>Signals:</u>	Green LED "OK"
	Rote LED's and buzzer "Hi-Fail" or "Lo-Fail"
	Door opener Dry contact "OK"
	Door opener time 3 seconds
<u>Contact ratings:</u>	max. voltage 60V
	max. current 2A
	max. power 50 VA
<u>Operating modes:</u>	Single test "OR" Double test "AND" Only wrist strap test Only footwear test Hands-free-Mode
<u>Weight:</u>	app. 500g
<u>Dimensions:</u>	150 x 200 x 63 mm
<u>Serial number:</u>	On the side of the unit
	Complies with CE

**Pictures**

