

Manual



Shoe-Shoe Tester SST 210

Easy check from conductive shoes. The resistor is measured above both shoes.
Two LED displays the result's.

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General information on electrostatics

Shoe test for testing conductive footwears in the chemistry -, pharmaceuticals- and electronics industry.

Everywhere where conductive shoes, (for example EX - Areas) are required, the resistance should be tested for correct function at regular times.

The SST 200 is a reliable and advantageous solution for doing this.

The appliances are mobile and everywhere employable by battery power.

The customer can do the setting of the limits and the calibration, very simply and economically.

Description

The shoe Tester looks like a personal scale. It is completely closed and can be cleaned very easily.

On the bottom side, a nonslip mat is affixed.

On a plastic plate 440mm x 370mm there are 2 shoe electrodes for the left and right shoe.

These consist of stainless - steel.

The display consists of 2 LED's, a green LED for o.k., and a red LED for error < (too low) = LED blinking and > (too high) = LED permanent light.

The appliance switches on and off automatically.

The appliance is powered by 4 x Alkaline Batteries Type Mignon (AA), optional NiHM.

If the type of Battery is changed, the appliance must be recalibrated.

Included in the unit there is Relay Interface (**Power max. 10W**). It is used as a Door Opener or „Alarm“ Output. The function is selected by Set_Up Relay Mode.

It can be changed easy by the customer.

By inductive Load you must use a recovery diode !

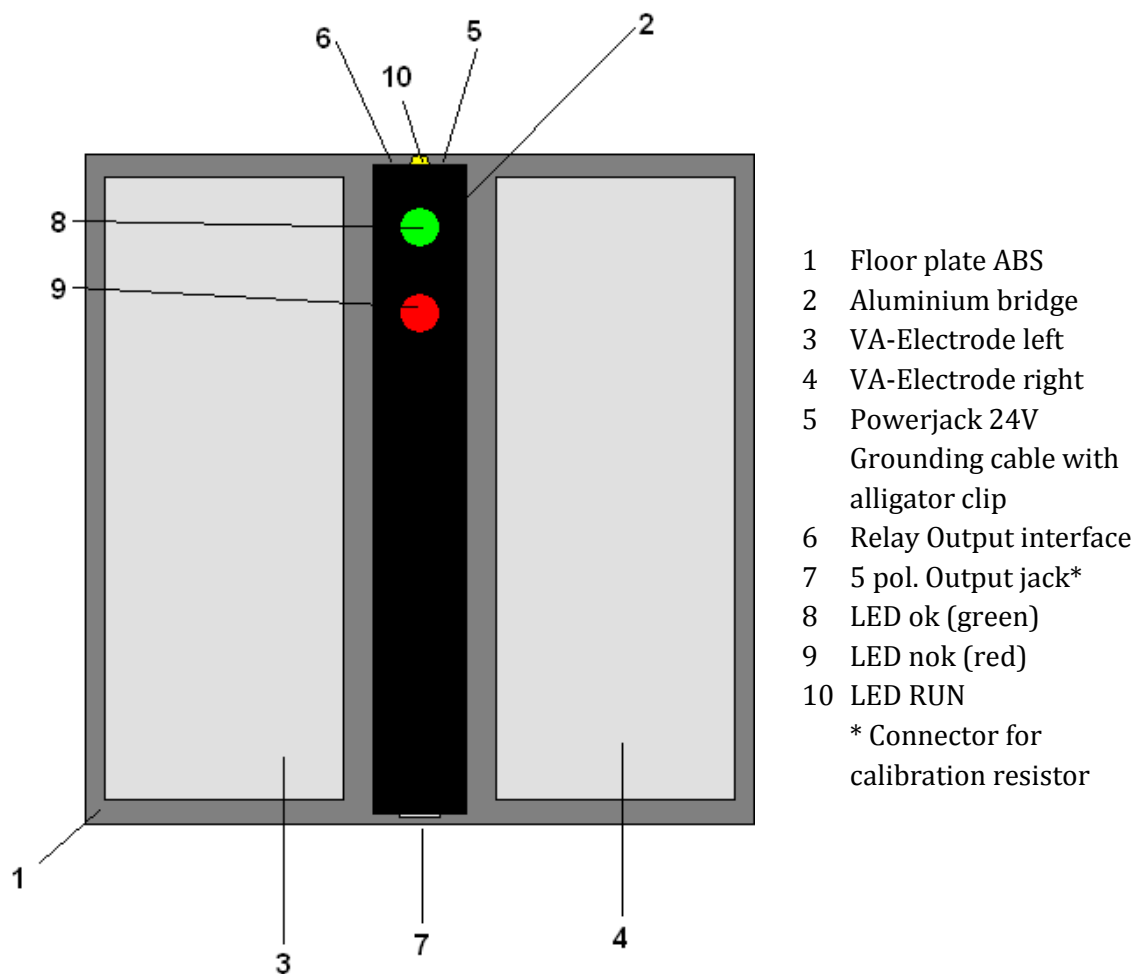
Specifications

Dimensions (L x B X H):	440mm x 370mm x 35mm
Weight:	app. 2 kg
Power:	Power plug DC 24V (200mA)
Display:	1 LED (5mm) green, 1 LEDs (5mm) red
Relay Data:	Max Switching performance 10W (60V / 0,5A)
principle of measurement:	Current / Voltage Converter
Measure Voltage:	20V \pm 5%
Limits:	The limits are adjustable by resistors.

Limits:	lower limit range	0...2MOhm
	upper limit range	5...100MOhm

Other limits possible, ask about it.

Legende



Function

First connect the grounding cable to earth.

As soon as the power plug is connected to a power jack the unit will start.

The recognition takes place over a resistance alteration between the measuring electrodes. With very high impedance shoes $> 2 \times 10^{11}$ Ohms (200GOhm) it can occur that the appliance doesn't switch on.

The resistance is measured from the left to the right shoe and is tested whether the resistance value is within the chosen limits.

The appliance tests between the chosen limits. With the first measurement, the low limit is tested. It is recognized by if the shoes have too low impedances. Then the upper limit is tested. Here a ">" (to high) result can be detected, if both shoes lie over 10 % above the chosen upper limit.

Both shoe resistances are in series connection this must be considered when choosing the calibrated limits.

If the impedance value is within the limits, the green LED lights up.

If the impedance is beyond of the limits, the red LED lights up if the measured value is $>$ (too high), or flashes if the measured value is $<$ (too low).

If the person leaves the electrodes, the appliance displays the measuring result for further 2 seconds, then it switches off. Wait until all LED's are off before starting a new measurement.

IMPORTANT

Shoes with such high impedance that the appliance doesn't switch on aren't allowed to enter ESD - secured areas.

For checking the function of the appliance, bridge by hand the two electrodes until the measuring starts.

Grounding

For a flowless function the unit must be grounded!



The grounding cable must be connected to a grounding point.

e.c. grounding contact on a power jack.

Analysis option

lower limit	Calibration Value (LL)	→	LED >< flashes
	Calibration Value (LL) + 10%	→	LED o.k.
upper limit	Calibration Value (UL) – 10%	→	LED o.k.
	Calibration Value (UL) + 10%	→	LED >< lights

Limits

Lower and upper calibrated resistors adjust the lower and upper limits.

Factory setting:	Shoe Test	lower limit	200kΩ (2x100kΩ)
		upper limit	70 MΩ (2x35MΩ)

Other limits are possible without further costs. The customer can change the limits very easily

Set Limits



Press and hold the hidden switch (H) by connecting the power unit.

If you want to change the limit connect the calibration plug before.

There are 3 set possibilities for the limits

The calibration resistors for the lower or upper limit are encoded that the unit knows witch of them is connected !

1. No calibration plug connected (Switch on value))

- Press and hold the hidden switch (H) by connecting the power unit.
 - ⇒ switch (H) free => green LED flashes
- Electrode must be free, then press switch (H) again shortly (into 5 seconds)
- Now the free resistor value will be measured and saved in the EEPROM.
- Green LED (ok) shine. Disconnect the power unit.

After 5 sec → LED NOK red shine => no possible value => clean the unit and start it again.

2. Reference resistor plug lower limit connected

- connecting the power unit => yellow LED (RUN) shines
- press switch (H) shortly
- LED NOK red flashes
- Electrode must be free, then press switch (H) again shortly (into 5 seconds)
- The lower limit value will be measured and saved in the EEPROM.
- Wait until the green LED (ok) shine
- Disconnect the resistor plug and the power unit.

3. Reference resistor plug upper limit connected

- connecting the power unit => yellow LED (RUN) shines
- press switch (H) shortly
- LED OK (green) shines and LED NOK (red) flashes
- Electrode must be free, then press switch (H) again shortly (into 5 seconds)
- The upper limit value will be measured and saved in the EEPROM.
- Wait until the green LED (ok) shine
- Disconnect the resistor plug and the power unit.

If the LED NOK (red) shines, maybe you need to much time, or the limit is out of the permitted range.

In this case no new limit is saved => control the resistor value and if o.k. tries it again.

Set Relay Mode

Door-Opener Mode: *Relay switch on if the result is o.k.*

ALARM Mode: *Relay switch on if the result is out of limits.*

Thereby you can connect e. g. an external alarm buzzer.

Relay Mode select

Press and hold the hidden switch (H) by connecting the power unit. Hold the switch until the LED OK and NOK shines => Switch (H) free

By pressing switch (H) shortly you can switch between „Alarm“ Mode LED NOK (red) und „Door opener “ Mode LED OK (green).

Press and hold switch (H) by the selected mode until both LED's are off.

=> Switch (H) free =>

the LED NOK (red) shines by selected (Alarm) mode or the LED OK (green) by selected (Door opener) mode.

Disconnect the power unit.

Warning Notices

- The tester must not be opened. By opening the guarantee expires.
- The tester must not be used in explosive areas. No admission for explosive areas!
- The use of the device in power plants or comparable areas is prohibited!

Calibration

By using calibrated resistors when doing a new calibration, the result is saved in the EEPROM, this is a calibration.

With these calibrated resistors you can calibrate all your units at the user's site...

recommended test cycle time: annually

This offers great advantages:

Change of standard !

By using the new resistor values, you can change the limits at the user's site !

Calibration !

By using calibrated resistors, you have only to recalibrate this. Then calibrate your instruments by yourself.

No shutdown period and very inexpensive !!