User Manual

IONIZER TESTER
CPM35

Part.-No.: 7100.CPM35

■ Scope of Supply

- Ionizer Tester CPM35
- Grounding cable
- 1 pcs Lithium-battery
- Storage bag
- User manual available for download (www.warmbier.com)
- Calibration certificate „German / English“

■ Description - CPM35

The CPM35 is a handheld measuring device for a fully automatic checking of ionizers at ESD workstation or in machines. The CPM35 can be used for the verification measurements of the decay time from ±250 V to ±100 V of installed ionizers and the offset voltages after the discharge time measurement.

The CPM35 can also be used to verify personal charges (Body Voltage Test).

■ Technical Data

Test range	± 250V, 0-60s
Resolution	1V, 0,1s
Display	Values shown in two lines, with background illumination
Power supply	Lithium battery 9V 1,2Ah
Housing	ABS
Safety class	IP30
Operating conditions	10°C to 40°C / up to 60% r.h.
Dimensions	140×90×28 mm
Weight including batteries	230 g
Operating modes	Decay mode Offset/BVT mode
Serial number	Label on back side of housing
Design	For indoor operation / CE-compliant

■ Calibration

We recommend a calibration cycle of 2 years.

■ Warranty

We grant a guarantee of **12 months** if handled correctly in accordance with the user manual.
This does not apply to the 9V block battery.

The warranty expires in the event of mechanical damage to the ionizer tester and/or unauthorized opening of the device!

■ Installation

Insert the 9V lithium battery as supplied. Please be aware to contact the battery with the correct polarity.
The device is ready to use.

■ Power Supply

The CPM35 is delivered with a 9V lithium battery type XCell CR9V/P. The operation time is about 8 hours.
The battery can stay in the unit even when the CPM35 is not used for a longer time, due to very low self-decay of the lithium battery.
A standard 9V alkali battery can also be used, but the operation time will then be much lower.

Recommendation for alkali battery type:
Duracell Ultra Power or Ansmann X-Power will have about 3,5 hours of operation time.

■ Connection

Ground
The device must be grounded. Ground the CPM35 on the 4 mm banana plug socket on the side of the unit (the connection must be low ohmic without any safety resistor).

■ Safety Instructions

Please read the following notes.

- The CPM35 must be grounded. Ground the CPM35 on the 4 mm banana plug socket on the side of the unit directly with “protective earth”. Earth bonding points (EBP) with a safety resistor shall not be used to ground the CPM35.
- The sensing plate of the unit shall not be in contact with any powered item or electrostatically charged objects.
- Do not open the unit and do not try to repair the unit by yourself.
- Use the unit within the specified operating conditions.

■ Verification of Ionisation Units

Ground the CPM35 on the 4 mm banana plug socket on the side of the unit.
Hold the CPM35 at a distance of about 20 -30 cm into the air flow of the ionizer.
Select mode **Decay** and start the measurement. Hold the distance to the ionizer constant during the measurement.

■ Verification of Body Voltages (Walking Test)

Ground the CPM35 on the 4 mm banana plug socket on the side of the unit.
Hold the CPM35 and contact with one finger the test plate.
(**Note:** the housing of the CPM35 is insulating)
Select mode **Offset/BVT** and start the measurement. You can perform now a walking test and the unit will show the latest value measured and the maximum positive and/or negative peak values.

■ Operation

Button On/Off:
Press one time briefly to switch the unit on, press long to switch the unit off (until you hear the audible signal).
The device will automatically switch off when it is not used for at least 2 minutes.

Button Mode/OK:
Changes the mode. When the unit is in STOP you can switch to the next mode when you press the MODE/OK button.

Mode	Funktion
Offset/BVT	Measurement of the offset voltage of ionizer or the body voltage of a person. Display line 1: Current measured value Display line 2: Negative und positive Peak-Hold
Decay	Automatic CPM test procedure for the verification of ionizers.

Button Start/Stop:
Start / Stop of testing.
In the Offset/BVT mode the testing is started when the button was pressed and will be stopped when the button is pressed again. In „Stop“ the last Peak-Hold values will be displayed. Without stopping by pressing the button the measurement will be stopped after 1 minute. In Decay Mode the automatic measurement will be started or stopped before the maximum time limit is reached.

Mode: Offset/BVT
In this mode the current measurement is displayed in the upper line of the display.
The maximum values for each polarity are indicated in the bottom line. The maximum values will stay frozen after STOP and will be refreshed after START.
Because of this functionality you can also perform measurements at remote areas.

Mode: Decay
In this mode the automatic test will be started in the following steps:

1. Ground Test
The unit checks if the sensor plate is o.k. and that there are no “ripple” voltages present. Any residual charge on the “test plate” will be discharged before the measurement.

➔ In case this test fails, please check if any contamination is present and check if there is a proper grounding.

2. Positive Test
The sensor plate will be charged to +250V and then the decay time is measured to +100V.
In case there is no ionisation, then the charge on the “test plate” will stay and will lead to an error.
If ionisation is present, then the test plate will be discharged. The decay time will be indicated after the testing. The decay time must be within a valid time range (≤ 60 seconds) to pass the test.

3. Negative Test

The sensor plate will be charged to -250V and then the decay time is measured to -100V.
In case there is no ionisation, then the charge on the “test plate” will stay and will lead to an error.
If ionisation is present, then the test plate will be discharged. The decay time will be indicated after the testing. The decay time must be within a valid time range (≤ 60 seconds) to pass the test.

4. Offset Test

When the positive and negative decay time testing was passed, then it will be tested if the “offset voltage” will be U < ±35 V.
The sensor plate will be grounded and then it is checked if the plate stays below U < ±35 V for a time range of 10 seconds.
If this is the case, the completed testing will be indicated as “passed”.

5. Result

After the testing the result of the three measurements will be shown in the display.

Messages

Message	Root cause / Troubleshooting
STOP	Measurement was stopped
ground fail	Grounding test failed ➔ Check test plate if there are any parts touching or if there is a contamination ➔ Check the grounding path!
decay lo fail	Decay time was too fast (< 200ms) -> Test will be interrupted ➔ User Error, e.g. test plate was touched by operator
decay hi fail	Decay time too long (> 60s) ➔ Check the grounding path!
short circuit	Short circuit at test plate (test plate could not be charged)
offset failed	Offset voltage too high (>35V). There is no proper ion balance. ➔ Check the ionizer (maybe emitter tips must be cleaned)
pos OK	Positive test was successful
neg OK	Negative test was successful
test passed	Test passed
test failed	Test failed
low battery	Battery should be changed soon, but you can still perform measurements
battery empty	Battery empty and unit will switch off ➔ Change the battery
power failure	Other problem with power supply
power off	Unit will switch off

■ Device return and environmentally compatible disposal

This instrument complies with IEC 63000:2016 (Restriction of the use of certain hazardous substances [RoHS]).

This device complies with the requirements according to category 9 of the ElectroG (monitoring and control instruments).
We identify our electrical and electronic devices 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.