

User Manual

WORKSTATION IONIZER MONITOR WIM47

Part-No.: 7100.WIM47



■ Scope of Supply

- Workstation Ionizer Monitor WIM47
- Grounding cable
- Power Supply (EU / USA)
- User manual available for download (www.warmbier.com)

■ Description – WIM47

The WIM47 is a handheld monitoring device for the fully automatic checking of ionizers at the ESD workstation or in machines.

It measures the positive and negative discharges as well as the offset voltages.

An alarm is signalized acoustically and optically. In case of an error a switching output can switch off the ionizer or report the alarm to a higher-level controller, e. g. by using the switch box.

■ Technical Data

Test range	± 250V, 0-60s
Display	Values shown in two lines, with background illumination
Power supply	AC 100–240V 50-60Hz / DC 9V, 160mA / 1,5W
Housing	Aluminium
Safety class	IP20
Operating conditions	10°C to 40°C / up to 60% r.F.
Dimensions	70×70×85 mm
Weight	300 g
Operating modes	Monitor Measure
Serial number	Label on back side of housing
Design	For indoor operation / CE-compliant

■ Warranty

We grant a guarantee of **12 months** if handled correctly in accordance with the user manual.

The warranty expires in the event of mechanical damage to the workstation ionizer monitor opening of the device!

■ Installation

Place the WIM47 on the work area in order that the air flow of the ionizer will neutralise the test plate.

The WIM47 must be grounded via the 4 mm banana plug socket on the back side of the unit.

Then connect the supplied power supply to the unit. If you are using a switch box, then please connect the switch box with the cable to the switching output of the unit or use the switching output with a higher-level controller.

The device is ready for use.

■ Power Supply

The WIM47 needs to be powered by the supplied power supply.

■ Connection

GND

The unit must be grounded via the 4 mm banana plug socket on the back side of the unit directly with “protective earth”.

RELAY

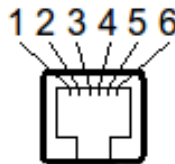
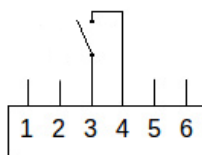
Switching output (Solid State Relay) - Western-Modular RJ11 socket.

In mode **ALARM** the contact will close to signalize the error.

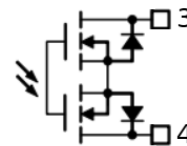
Contact Pin 3 and 4.

In the mode **IONIZER** the contact will be open to signalize an “error” and to switch off the ionizer via the switching box.

Contactless, electronic solid-state relay with a contact load capacity of **24V/DC (16V/AC)** for **ohmic load** up to **2A**.



Schematic drawing of the relay



This output is designed to switch ohmic loads directly.

To switch inductive loads, it is required to protect the relay from over-voltage surge with recovery diode or RC-combination/ snubber.



PIN 1 and PIN 6 is reserved for the usage of the optional switching box and **must not be used** for other purposes. For connection use a plug type RJ11 which has only four pins (pin 2-5).

■ Safety Instructions

Please read the following notes.

- The WIM47 must be grounded. Ground the WIM47 on the 4 mm banana plug socket on the back side of the unit directly with “protective earth”. Earth bonding points (EBP) with a safety resistor shall not be used to ground the WIM 47.
- The sensor 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.
- Only use the supplied power supply.

■ Measurement

The monitoring measurements will start shortly after the power supply is plugged in and will be repeated in cycles. There is no additional activity from the user needed.

When the ionized air flow from the ionizer is present the display will be illuminated in GREEN. When an inadequate ionization performance is detected, the display will be illuminated in YELLOW. When the *ErrDelay* time is reached, the display will be illuminated in RED and the audible alarm will be on for 1 minute (when activated). Pressing one time the OK button will set the alarm on "mute". Pressing the OK button again will start the measurement again.

■ Operation

Button Mode:

Press long to enter the configuration mode. The following settings are available. Press one time briefly the MODE button and you can scroll to the next setting option. Press the OK button to confirm the setting. After the last setting option, the unit will switch back to the selected options.

Mode	Function
<i>Mode</i>	Mode Monitor ▶ Monitoring with alarm Measure ▶ Permanent display of the electrostatic decay
<i>Err Delay</i>	Delay before Error alarm occurs 1 min 5 min
<i>Polarity</i>	Selection of function and polarity of switching output Alarm ▶ Switching output to report the alarm to higher-level controller Ionizer ▶ Switching ionizer on/off via switch box
<i>Perform</i> (Performance)	Performance tolerant aggressive
<i>Sound</i>	Audible alarm Off On

Button OK:

Mode	Function
<i>Configuration</i>	Selection of setting
<i>Operation</i>	To acknowledge alarm or error / immediate start of measurement

Mode: MONITOR

In this mode the automatic checking 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 sensor plate will be discharged before the measurement.

- In case this test fails, please check if any contamination is present on the sensor surface 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 sensor plate will stay and will lead to an error.

If ionisation is present, then the sensor 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 sensor plate will stay and will lead to an error.

If ionisation is present, then the sensor 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 $U < \pm 35$ V.

The sensor plate will be grounded and then it is checked if the plate stays below $U < \pm 35$ V for a time range of 10 seconds.

If this is the case, the completed testing will be indicated as “passed”.

Mode: MEASURE

In this mode the measurement values will be displayed permanently.

Messages

Message	Root cause / Troubleshooting
CONFIG	Configuration menu
WAIT	Short waiting time before next measurement
Ionizer ON	Switching output will be switched to start the ionizer
GND fail	Grounding test failed → Check sensor plate if there are any parts touching or if there is a contamination → Check the grounding path!
dec LOfail	Decay time was too fast (< 200ms) -> Test will be interrupted → User Error, e.g. sensor plate was touched by operator
dec HIfail	Decay time too long (Performance „tolerant“ > 60 seconds / „aggressive“ > 30 seconds) → Check the grounding path! → No Ionisation present
short circ	Short circuit at test plate (sensor plate could not be charged)
off failed	Offset voltage too high (>35V). There is no proper ion balance. → Check the ionizer (maybe emitter tips must be cleaned)
posOK **s	Positive test was successful, decay time displayed in seconds
negOK **s	Negative test was successful, decay time displayed in seconds
offOK **V	Offset test was successful, offset voltage displayed in volt
passed	Test sequence „passed“ -> GREEN
test fail	Test sequence „failed“ -> YELLOW
ION FAIL	Ionization „failed“ -> RED + Alarm
power fail	Problem with power supply

■ 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.



Pb Cd Hg