

Operating Instructions



RX11_1



STATICTUBE

Tube Ionization RX11 series



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Dear Customer

The tube ionization STATICTUBE RX11 series has been designed mainly for use with pneumatic conveyor systems. It fully and effectively eliminates static charges generated during the transport of conveyor material, especially in vacuum systems for paper and plastic edge trimmings.

The tube ionization RX11 features the following characteristics:

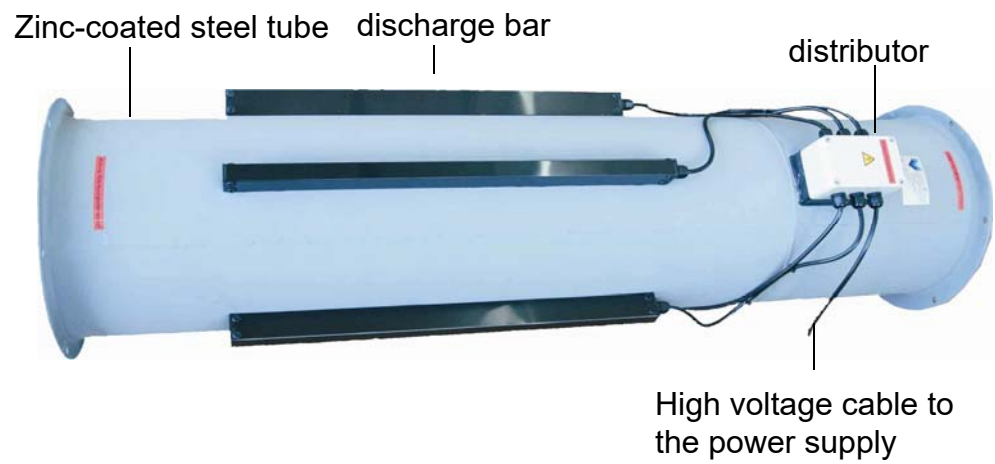
- Dust separation in the cyclone
- Optimum bucket wheel discharging
- No material adhesion
- Clean sight glasses
- No blockages

The best possible discharging effect is achieved with Eltex high voltage power supplies.

Before operating the unit, please read the operating instructions carefully. The units include other components which have their separate operating instructions and which must also be read and observed before operating the unit to avoid personal injury or damage to property.

Please give us a call if you have any suggestions, proposals or ideas for improvements. We greatly appreciate the feedback from the users of our appliances.

1. Outline of appliance



*Fig. 1:
Overview
Tube Ionization
RX11*

Z-RX11_1

2. Safety

The RX11 Power Supplies have been designed, built and tested using state-of-the-art engineering, and have left the factory in a technically and operationally safe condition. If used improperly, the units may nevertheless be hazardous to personnel and may cause injury or damage. Read the operating instructions carefully and observe the safety instructions.

For warranty conditions, please refer to the General Terms and Conditions (GTC), see www.eltex.de.

2.1 Proper use

The tube ionization RX11 must be used only for eliminating static charges in pneumatic systems. The tube ionization unit will remove static charges developing during the transport of conveyor material. Other uses are not permitted.

The tube ionization RX11 must be used only with the dedicated Eltex power supplies. These power supplies allow the best possible match for the required operating data when different active bar lengths are in use. The safe operation of the bars is guaranteed only with the Eltex power supplies.

The tube ionization must not be used in explosion hazard zones!



Do not expose the unit to direct sunlight.

If the unit is to be permanently exposed to solvent vapors, please consult Eltex first.

No other devices or parts must be connected or attached to the tube ionization unit.

The manufacturers will not assume any liability and warranty if the units are used improperly or used outside the intended purpose.

Modifications or changes made to the devices are not permitted.

Use only original Eltex spare parts and equipment.

2.2 Identification of risks and hazards

Possible risks and hazards resulting from the use of the power supplies are referred to in these operating instructions by the following symbols:



Warning!

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.



Caution!

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.

2.3 Work and operational safety



Warning!

Carefully observe the following notes and the complete [chapter 2 "Safety", page 6](#)!

- Before carrying out repairs, cleaning or maintenance work and before resetting after malfunctions, switch off the unit and disconnect the mains supply voltage (see [chapter 5 "Maintenance", page 12](#), [chapter 6 "Troubleshooting", page 14](#)).
- Before carrying out any work involving the units, the machine which has the units fitted must not be in operation (see [chapter 5 "Maintenance", page 12](#), [chapter 6 "Troubleshooting", page 14](#)).
- Any work involving the units must be carried out by qualified electricians (see [chapter 5 "Maintenance", page 12](#), [chapter 6 "Troubleshooting", page 14](#)).
- Do not expose the unit to direct sunlight (see [chapter 2.1 "Proper use", page 6](#)).
- If the unit is to be permanently exposed to solvent vapors, please consult Eltex first (see [chapter 2.1 "Proper use", page 6](#)).
- Objects are not allowed to knock against the tube. (see [chapter 3 "Assembly and installation", page 10](#)).
- Please note the installation and safety instructions of the power supply.
- The line voltage shown on the type plate of the power supply is required to operate the tube ionization RX11. Only Eltex power supplies with 3.5 up to max. 5 kV AC must be used (see [chapter 3.2 "Connecting the supply voltage", page 10](#), [chapter 4 "Operation", page 11](#)).
- The tube must be grounded! If there is no connection between the individual tubes, or if there is no grounding system, use the enclosed grounding clip or the attached ground strap (see [chapter 3.3 "Grounding", page 11](#)).

- Check the units at regular intervals and before startup for any damage. Any damaged components must be repaired or replaced before continuing to operate the unit, or the units must be disabled.
- Make sure that the units are clean at all times. Dirt results in malfunctions and in premature wear of the units.
- Mechanical or electrical modifications of the discharging bars are not permitted.
- When cleaning the bars do not soak the bars and the high voltage cable in solvent and do not damage the emission tips; allow the solvent to evaporate completely before restarting the unit (see [chapter 5 "Maintenance", page 12](#)), [chapter 6 "Troubleshooting", page 14](#)).
- Do not touch the emission tips - risk of injury.
If the high voltage supply is connected, reflex responses to electrical irritation can lead to secondary accidents. The charging bar as such is safe to touch. If contact is made, the energy transferred is so low that there is no risk of injury.
- Potential risk for wearers of cardiac pacemakers:
Moving the chest closer than 3.5 cm to the emission tips of the discharge bars or making surface contact with several emission tips (touching a single tip is not critical) can result in a temporary switchover of the cardiac pacemaker into the fault mode. Permanent proximity or contact can therefore cause severe problems. If it is likely that the chest of such a person comes closer than 3.5 cm to the emission tips of the discharge bar, or if several emission tips are touched at the same time, the appropriate warning notices must be displayed.
- The operation of the ion blower units can generate ozone. The ozone concentration levels developing near the units depend on many different factors such as site of installation, air circulation, etc., and can therefore not be specified in general terms.
If the maximum allowable concentration of ozone must be observed at the site of installation of the bar, the concentration must be measured on site by the operator.
The AGW value (maximum admissible concentration) serves to assess the ozone concentration at the workplace. The user must make sure that the appropriate national AGW value is at no times exceeded, e.g. in Germany the ozone concentration occurring during the operation of the system must not exceed the recommended value based on international limits of 0.06 ml/m³ (0.12 mg/m³).

2.4 Contact protection

The site of installation and/or use of the units is outside the control of Eltex, contact protection against inadvertent contact of the bars and of live components by personnel as specified by the employer's liability insurance association may have to be provided (e.g. DGUV V3 in Germany). Contact protection devices made of conductive material must be grounded.

2.5 Inspection of the protective resistors - contact protection

The function and the appearance of the protective resistors must be inspected at regular intervals. The inspection intervals are specified in the accident prevention regulations, as amended (e.g. in Germany DGUV V3).

The function of the series resistors must be checked using a suitable measuring device. The test voltage must be 1,000V. The measured resistance between the high-voltage connection and the individual emission tip must not fall below 120 MOhm and not exceed 180 MOhm.

2.6 Technical advance

The manufacturer reserves the right to make changes to the technical specifications without prior notice in order to adapt the units to state-of-the-art engineering. Eltex will provide the latest information on any changes or modifications in the operating instructions on request.

3. Assembly and installation

The tube ionization RX11 is supplied fully operational and needs to be connected only to the power supply. Please note the line voltage shown on the type plate of the power supply.



Warning!

For safe operation, please note the following:

- Check that the unit is undamaged.
- Installation work must be carried out by qualified electricians.
- Objects are not allowed to knock against the tube.
- Please note the installation and safety instructions of the power supply.

3.1 Installation

The tube ionization unit RX11 has been designed to allow its installation into an existing vacuum system with flanged tube ends. To install the RX11, a 1 meter segment must be removed from the existing tube system and replaced by the RX11. The adjacent tube ends must then be connected with clamp ring connectors. The extra weight may require one more fixing point for the unit to the wall or ceiling.



3.2 Connecting the supply voltage

The line voltage shown on the type plate of the power supply is required to operate the tube ionization RX11.

The supply voltage is provided by the customer. Connect the tube ionization RX11 via the power supply. Only Eltex power supplies with 3.5 up to max. 5 kV AC must be used.



3.3 Grounding

The tube must be grounded! If there is no connection between the individual tubes, or if there is no grounding system, use the enclosed grounding clip or the attached ground strap.



Fig. 2:
Grounding clip

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4. Operation

The tube ionization RX11 must be operated only with the line voltage shown on the type plate.

4.1 Startup

If all connections and installations have been made correctly, the system is operational and the supply voltage may be activated. The tube ionization RX11 is now ready to be used.

5. Maintenance



Warning!

Electric shock hazard!

- Disconnect the supply voltage before carrying out any maintenance or repair work.
- The machine in which the ion blower units are installed must not be in operation.
- Maintenance work must be carried out by trained or qualified personnel.

5.1 Changing bars

- Dismantling electrical connections of the bar to be changed in the distributor; disconnect the cable gland.
- Open the cable gland at the cover cap.
- Disconnecting the screws to remove the cover cap (Fig. 4).
- Push the bar out of the cover cap.
- Insert the new bar in reverse order.

*Fig. 3:
High voltage distributor with screw-type contacts*



F01023

*Fig. 4:
Cover cap of the
cable gland*



F01022y

5.2 Cleaning the bars

To ensure the trouble-free function of the discharging bars, clean the bars at least once a week with compressed air free of oil and water (6×10^5 Pa and standard compressed air pistol) and a brush with soft plastic bristles. Clean grease, ink, glue, paper dust, etc. off the discharging bar using a suitable solvent (benzine). Do not soak the bars and the high voltage cable in solvent!



Caution!

Do not damage the emission tips when cleaning. Brush only in longitudinal direction.



Warning!

Risk of deflagration!

Allow the solvent to evaporate completely before restarting the unit.

5.3 Inspection of the protective resistors - contact protection

The function and the appearance of the protective resistors must be inspected at regular intervals. The inspection intervals are specified in the accident prevention regulations, as amended (e.g. in Germany DGUV V3).

The function of the series resistors must be checked using a suitable measuring device. The test voltage must be 1,000V. The measured resistance between the high-voltage connection and the individual emission tip must not fall below 120 MOhm and not exceed 180 MOhm.

6. Troubleshooting



Warning!

Electric shock hazard!

- Do not carry out any maintenance or repair work without first switching off the power supply and disconnecting the supply voltage.
- The machine which has the units fitted must not be in operation.
- Repairs and maintenance work must be carried out by qualified personnel only.

Malfunction	Cause	Measure
Effectiveness of the application declining.	<ul style="list-style-type: none">• Dirty bars.• The power supply is inactive or defective.	<ul style="list-style-type: none">• Check the bar for any dirt deposits; clean the bars, if necessary (see the Maintenance chapter).• Switch on the power supply or contact Eltex Service.

7. Disposal

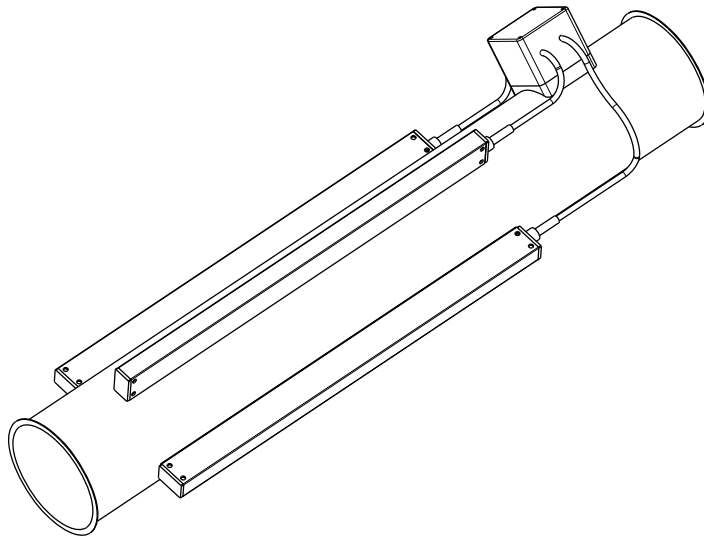
The unit must be disposed in compliance with local regulations.

8. Technical Data RX11



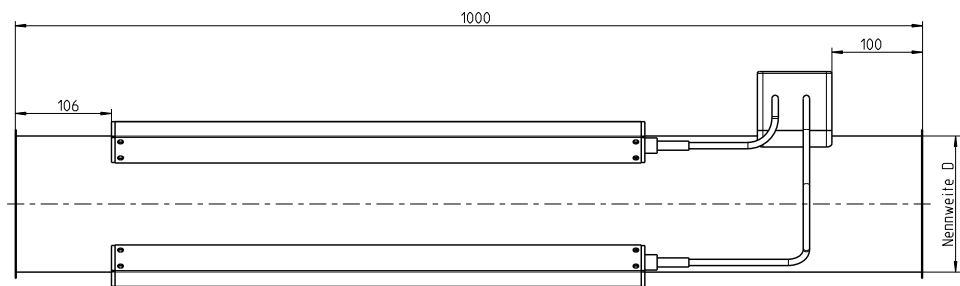
Tube ionization RX11	
Supply voltage	see operating instructions of the power supply
Ambient operating temperature	+10...+50 °C (+50...+122 °F)
Tube material	Steel tube, zinc-plated
Discharging bar R50	see separate operating instructions

9. Dimensions



RX11_2

Fig. 5:
Dimensions
Tube ionization
RX11



RX11_3

tube length: 1000 mm
active bar length: 465 mm
outside flange diameter: NW + 14 mm (*12 mm)

nominal width [mm]	60*	80*	100	120	150	200	250	300	350	400	450	500
inside tube diameter [mm] wall thickness 1mm *wall thickness 1.5mm	57**	78	100	120	150	200	250	300	350	400	450	500
number of bars [pcs.]	2	2	3	3	4	4	5	5	6	6	6	7
weight [kg] without supply lead	2.75	3.40	4.55	4.90	6.15	7.45	9.25	10.45	12.25	13.75	14.90	16.30

Special dimensions available on request.

10. Spare parts and accessories

Artikel	Artikel-Nr.
Discharging bar R50 (please specify cable length)	R50/ A0465A____
High voltage cable 2.5 m	KE/LR025
High voltage cable 5 m	KE/LR050
High voltage cable 7.5 m	KE/LR075
High voltage cable 10 m	KE/LR100
High voltage cable 12.5 m	KE/LR125
High voltage cable 15 m	KE/LR150
High voltage cable 17.5 m	KE/LR175
High voltage cable 20 m	KE/LR200
Operating Instructions (specify language)	BA-xx-2060

Please specify the article number when ordering.

EU-Declaration of Conformity

CE-2060-en-2102

Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67 - 69
D-79576 Weil am Rhein



declares in its sole responsibility that the product

STATICTUBE RX11

complies with the following directives and standards.

Relevant EU-Directive:

2014/35/EU

Low Voltage Directive

Harmonized standard applied:

EN 60204-1:2018

Safety of machinery – Electrical equipment of machines –
General requirements

Relevant EU-Directive:

2014/30/EU

EMC Directive

Harmonized standards applied:

EN IEC 61000-6-2:2019

Electromagnetic compatibility (EMC)
Generic standards – Immunity for industrial environments

EN 55011:2016 + A1:2017

Industrial scientific and medical equipment –
Radio-frequency disturbance characteristics – limits and methods
of measurement

Relevant EU-Directive:

2011/65/EU

RoHS Directive

in the version effective at the time of delivery.

Eltex-Elektrostatik-Gesellschaft mbH keep the following documents for inspection:

- proper operating instructions
- plans
- other technical documentation

Weil am Rhein, 09.02.2021
Place/Date

A handwritten signature in blue ink, reading "Lukas Hahne". Below the signature is a horizontal line, and below that, the text "Lukas Hahne, Managing Director".
Lukas Hahne, Managing Director

UKCA Declaration of Conformity

CA-2060-en-2208

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declares in its sole responsibility that the product

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complies with the following directives and standards.

Applicable Regulation:

S.I. 2016 No. 1101

Electrical Equipment (Safety) Regulations

Used Designated Standard:

BS EN 60204-1:2018

Applicable Regulation:

S.I. 2016 No. 1091

Electromagnetic Compatibility Regulations

Used Designated Standard:

BS EN IEC 61000-6-2:2019

BS EN 55011+A2:2016

Applicable Regulation:

S.I. 2012 No. 3032

RoHS Regulations

in the version effective at the time of delivery.

Eltex-Elektrostatik-Gesellschaft mbH keep the following documents for inspection:

- proper operating instructions
- plans
- other technical documentation

Weil am Rhein, 30.08.2022
Place/Date

A handwritten signature in blue ink, appearing to read "Lukas Hahne".

Lukas Hahne, Managing Director

Eltex offices and agencies

The addresses of all
Eltex agencies can be
found on our website at
www.eltex.de



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Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67-69
79576 Weil am Rhein | Germany
Phone +49 (0) 7621 7905-422
eMail info@eltex.de
Internet www.eltex.de