Bipolar air ionizer "Yantar 5E"

Specifications and operating instructions

Specifications

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"Specifications and operating instructions" is the main document, which should be used with *ionizer **"Yantar 5E"*** .

*Bipolar ionizer **"Yantar 5E"*** is used to generate the required number of positive and negative ions simultaneously, to maintain air ion composition of indoor air in industrial facilities, public places, and living quarters.

Bipolar ionizer ***"Yantar 5E"*** has undergone sanitary certification. The certificate was issued by the Tatarstan Republic (Russian Federation) Centre of Hygienic Certification and Licensing.

Additional information about *Bipolar ionizer* ***"Yantar 5E"*** is available at www.ionization.ru. Customers may also call: +7(843) 2009988 (in Kazan').

1. Functions

The latest model of *bipolar ionizer Yantar 5E* is meant to create pre-set concentration of both positively and negatively charged light air ions within the area of human breathing (in accordance with sanitary code).

Bipolar ionizer Yantar 5E can be used: in private apartments and public buildings, including clinics; at manufacturing of microelectronic devices (e.g. in "clean rooms"), in computer rooms, in computer centers in the rooms with artificial climate – to maintain healthy atmosphere.

Operating conditions:
- operating temperature $22 \pm 5\ ^0C$;
- relative humidity (RH) 30 ÷ 80%;
- atmospheric pressure 760 ± 40 mm of mercury.

2. Reference specifications

1	**Type of ionizer**	**needle-shaped (quite corona discharge)**
2	Range of ions concentration (N+, N-) within 2 m	from 1.000 to 150.000 air ions/cm^3

3	Unipolarity factor	1±0,3
4	Applicable room size	1-8 workplaces, up to 120 cubic metres
5	Time of continuous running	Not limited
6	Ozone concentration generated by unit	No more than 0.03 mg/m³ (average daily MAC* for atm. air)
7	NO2 concentration generated by unit	No more than 0.04 mg/m³ (average daily MAC* for atm. air)
8	Electrostatic field strength	No more than 0.2 kV/m
9	Noise level of operation	No more than 40 dBA
8	Safety distance to operating ionizer	0.6 m
9	Fan size	120 mm x 120 mm
10	Power consumption	No more than 8 W
11	Overall dimensions, no more than	225 mm x 175 mm x 105 mm
12	Power requirements	~ 120/220 VAC, 50/60 Hz
13	Gross weight, no more than	1.5 kg

***maximum allowable concentration (MAC)**

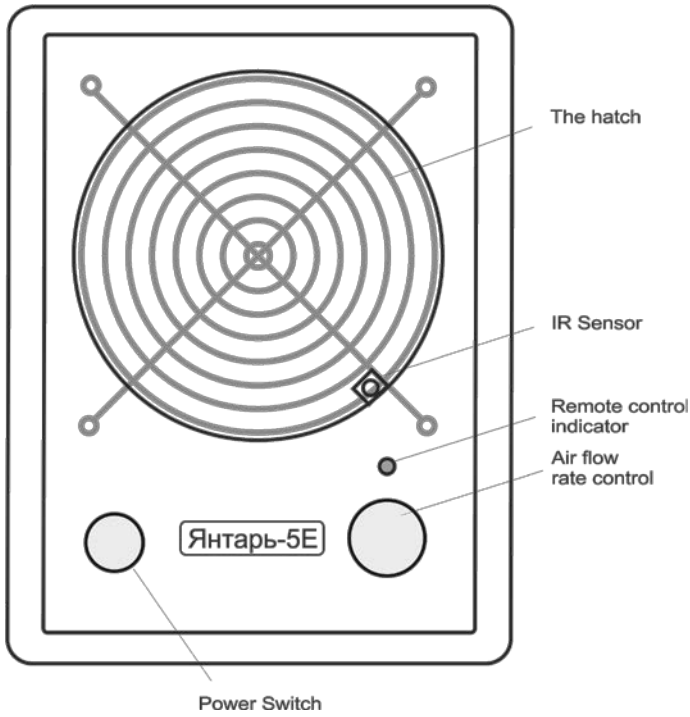
To gauge ion concentration, air ion counter must be used. It should be able to gauge both polarities.

3. Delivery set

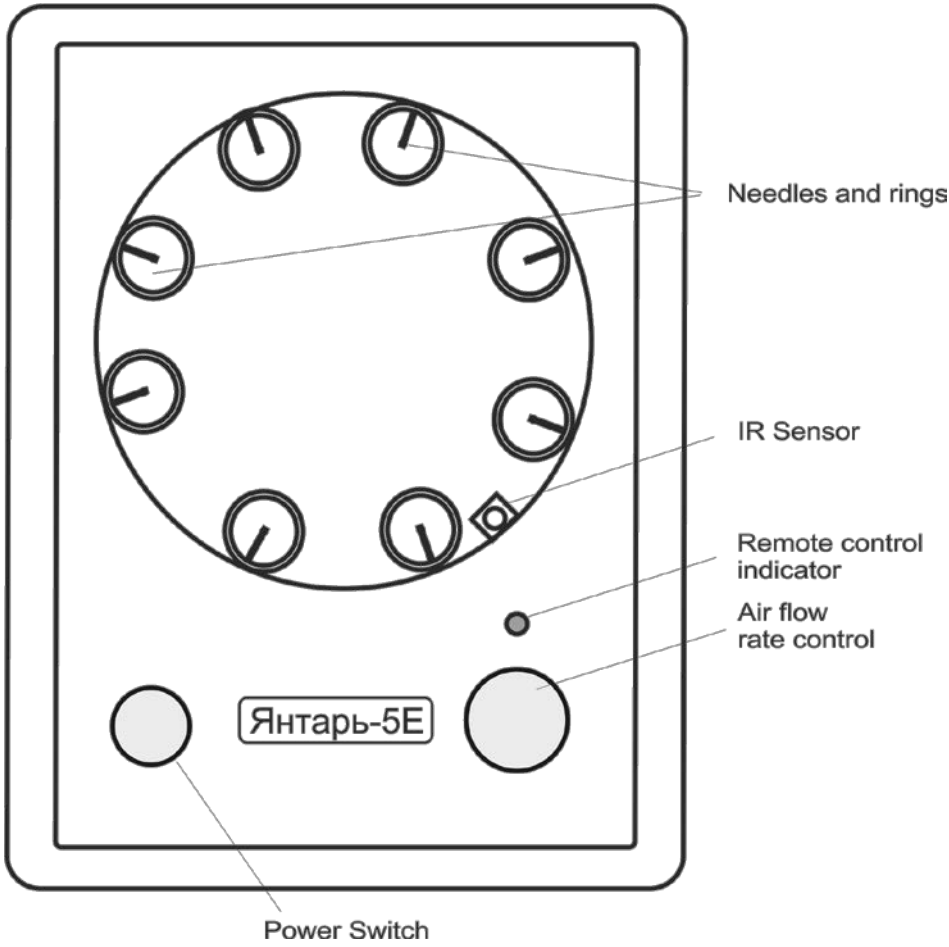
1. Ionizer "Yantar'-5E" 1
2. Power Supply Unit[1] (PSU) –15VDC, 400–800 mA 1
3. Technical specification 1
4. Packaging 1

4. Layout

Bipolar air ionizer "Yantar 5E" is a desktop device. The most of front and rear panels are occupied by concentric grills. The air is sucked through the rear panel by the fan, and is blown away through the front panel.



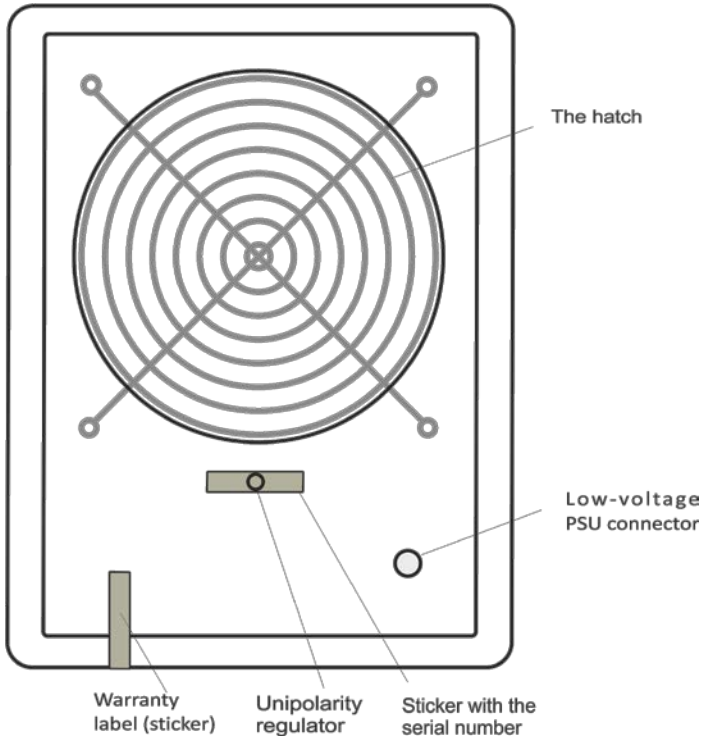
The frame and the grill on the front panel are detachable to allow easy dusting of needles and cleaning scurf.
It's recommended to clean the needles in 2 steps.
First – with wool and alcohol, then with an erasing rubber (e.g. at the tip of the pencil) – approximately once a month; frequency of this operation may vary depending on the cleanness of the room. Also it's important to periodically clean the frame with vacuum cleaner, to avoid performance degradation.



The operating voltage at needles can reach 4000 volts, so ensure the ionizer is switched off from the power mains before detaching the frame.

On the front panel there is a power switch and a knob for flow and ion concentration control. At the minimum, the knob sets noiseless mode with lowered

aeroion concentration.



On the rear side, there is a control, which make it possible to set the required unipolarity factor. Adjustments to unipolarity factor cannot be made without the air ion counter, which gauges both polarities simultaneously.

There are not any other ways of accurate tuning of these parameters.

At the initial customization, all these values are set to an average level, at which the unipolarity factor is nearly unity (1), and ion concentration at the distance of 3 metres is not exceeding 50,000 ions per sq. centimeter. But as ions absorbability in various places varies significantly, it is recommended to customize the parameters values right in the place where the ionizer is

going to be used. That's the reason why ion-counter is required.

In spite of the fact that the ionizer is powered by a 12V DC PSU, the voltage inside the ionizer runs up to 6.000 V, **therefore disassembling the unit is prohibited. The ionizer is serviceable only by qualified personnel**.

5. The serial number and labeling.

There are labels "Yantar 5E" and "Bipolar Ionizer" on the front panel. On the rear panel there is a strap with the serial number.

6. General guidelines

6.1. The key requirement which ensures trouble-free operation of air ionizer, is strict adherence to instructions.
6.2. Only properly functioning units are allowed to use.
6.3. If there is a significant temperature difference between the warehouse (outdoor temperature) and the place, where the appliance is going to be used (indoor temperature) – it's necessary to keep the appliance at indoor temperature for 3 hours minimum.
6.4. Check integrity of the package, according to the § 3 of this "*Technical specifications and operating instruction"* document.
6.5. Inspect the delivery set for completeness and integrity, to verify the absence of external defects and damage. Verify panels and controls for integrity.
6.5. Make wet room cleaning and provide aeration of the room on a daily basis.

ATTENTION! It's forbidden to close air holes on the rear panel of ionizer.

7. Safety precautions

Dangerous operational factors (for the functioning unit) are:

- The unit gets powered from the AC (alternating current) line, of 220 volts;
- There's a high voltage (4 kV) in ion production chamber of the unit.

In this connection it's necessary to adhere to the following provisions while operating the unit:

- Do not remove the front panel while ionizer is operating – doing so is allowed only if power supply is switched off, and it's absolutely necessary to pull PSU plug out of the wall outlet;
- Do not use appliance in shower, bathroom, etc. locations of high humidity.

IT'S FORBIDDEN to disassemble the appliance with the power ON.
Maintenance of the appliance should be carried out only in authorized service centre.

8. Installation Instructions

8.1. Ionizer "Yantar-5E" should be operated in a heated location in normal service conditions:
Ionizer "Yantar 5E" should be operated in a heated apartment in normal service conditions:
- operational temperature range **22+/- 5**
- relative humidity range (RH) **30-80%**
- atmospheric pressure range **760+/- 40** mm of mercury.

8.2. Rooms should be kept clean, no dust accumulation is allowed.

8.3. Make sure the air flow into back inlet is good enough, make sure it is not blocked with any object.
8.4. The unit should be installed on the horizontal surface so that the air from the unit is directed towards the person (area that requires ionization). The optimal distance to the person is 2.5 m to 4.5 m.

9. Setting up

9.1. Put the unit near the breathing area in accordance with the recommendations of the § 8.4.
9.2. Connect the cable of power supply to the ionizer.
9.3. Plug PSU into ~220V wall outlet (120V – in North America).
9.4. Turn on the red switch. The red button should become illuminated, the fan should start rotating, and ionization begins.
9.4.1. The knob on the right is used to regulate the airflow. The stronger the airflow, the higher ion concentration – the serviceable size of room increases. However, at a maximum airflow the ion concentration will not exceed 150,000-200,000 ions/cm^3 , of both polarities.
9.5. If ion counter is at hand, it's necessary to adjust ion concentration:
9.5.1. Let the ionizer work for 20 minutes;
9.5.2. Put the air ion counter to the area of breathing (within the area that requires ionization – 2.5 to 4.5 meters from the ionizer) and gauge ion concentration according to the operating instruction of air ion counter. If there is inconsistency between the gauged results and sanitary code, it's necessary to adjust the parameters in the following way:
9.5.3. If ions concentration is different from the preset, it's necessary to rotate regulator Ku on the rear panel (ions unipolarity factor) to a small angle, and keep an eye

on how the readings at the ion counter digital display will be changing over several minutes.

9.5.4. If the ratio of ions is different from the recommended, it's necessary to rotate the regulator U (ions unipolarity) to a small angle, and keep an eye on how the readings at the ion counter digital display will be changing over several minutes.

9.5.5. Repeat the operations, mentioned in 9.5.3,9.5.4, as necessary.

9.5.6. On matching the gauging results and sanitary code recommendations, set up process for ionizer is complete.

9.5.7. Having finished the gauging, switch ion counter OFF.

9.6. Having finished, disconnect ionizer's PSU from the AC mains.

10 . Maintenance check and service.

It's recommended to check the state of in and out air openings by external examination. Accumulation of dust and nap on the grid of ionizer and in its chambers isn't allowed. In case the appliance has become dirty, it's necessary to clean it by the vacuum cleaner. Before such cleaning and before removing the front panel you should switch the appliance off from the AC mains, as the voltage on electrodes reaches 6,000 V!

For your convenience, front panel is detachable to make cleaning easier. Once or twice a month, especially in dusty conditions, it's recommended to remove the grilled frame, clean up the edges of the needles with an alcoholic solution, then with an eraser, as shown in the picture. Be careful with the needles – they must not touch metal rings. The needles must be centered in the rings. In case of severe contamination of ionizer's insides, the performance of ionizer significantly degrades.

11. Troubleshooting

Troubleshooting of failures, related to the opening of the appliance, is performed by user or by the authorized service centre.

The failures which are listed in the table below can be attributed to reasons which are possible to detect without opening the appliance. If elimination of this reasons doesn't lead to the resolution of the failure, then the appliance should be returned for repair, as directed.

Attention! While trying to eliminate failures, it is necessary to disconnect the appliance from the AC mains!

Faults	Possible reason of faults	Methods of resolution
1. When you switch the appliance ON, none of the indicators come on	There is no or poor contact in the cable connector	Verify the reliability of the contact
	The switch is in position "OFF"	Turn it "ON".
2. The fan rotates, but the indicator is not illuminated.	The lamp on the switch is fused.	The unit should be sent for replacement to the service-center.

[1] **External Power Supply Unit (PSU), IN: 220V, 50Hz, OUT: 15V DC (stabilized), 400 mA, Polarity: external contact is negative. Optionally, impulse PSU can be supplied. IN voltage: AC 110–250V.**