

Specification and maintenance of fog generator HU85og.



Technical specification HU85 see page 25.

Specification and maintenance of fog generator HU245og.



Technical specification for HU245 see page 26.

General information relating to HU85 and HU245.

Principle of ultrasonic humidification. By means of high frequency vibrations (ultrasonic), small water particles of 1 to 3 microns are being thrown above the water surface. An airflow through the humidifier carries the water particles into the space, which has to be humidified. A minimum use of energy, minimal maintenance and minimal noise are among the most important advantages of this method of humidification.

Continuous Variable Humidification (CVH). Contronics foggers have a control knob to adjust the misting capacity between zero and the maximum. If the humidity sensor is plugged into the humidifier, the function of the control knob

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will become an Rh set point adjuster, which can adjust the desired humidity between 35% and 95% Rh. The CVH-system will then control the humidification proportionally about the set point. If more than one unit is linked together, then these units will all be controlled equally. The humidifier will then run continuously, keeping Rh at set point level. Instead of controlling the Fogger with a humidity sensor it is also possible to control the humidifier externally (0-10V) For instance with the Contronics Hygrostat DZR-43.

Capacity. The fog output can be increased with any number of modules linked to the "master". This means that with one master fogger and a number of slaves an unlimited capacity can be achieved. Due to the very high frequency of 1,7 MHz the water particles are very small, so they will evaporate in a very short time and not precipitate in the distribution pipes from the humidifier to the area to be humidified.

Water quality. Although the humidifier can be connected with tap water, Contronics recommends de-mineralised water. The maintenance of the humidifier will be minimal and the term of life of the transducers will be extended substantial. This will also prevent that lime, salts, minerals and bacteria, which are in tap water, find their way in the area that has to be humidified. Contronics can deliver several reverse osmosis filters.

Disinfection and hygiene. Good hygiene & bacterial purity is always necessary and we always recommend the addition of an ozone generator.

Safety Regulations.

The fogger has an open water reservoir. If this reservoir overflows, it may damage the electronics in the humidifier and the manufacturer cannot be held responsible.

The following precautions should always be observed:

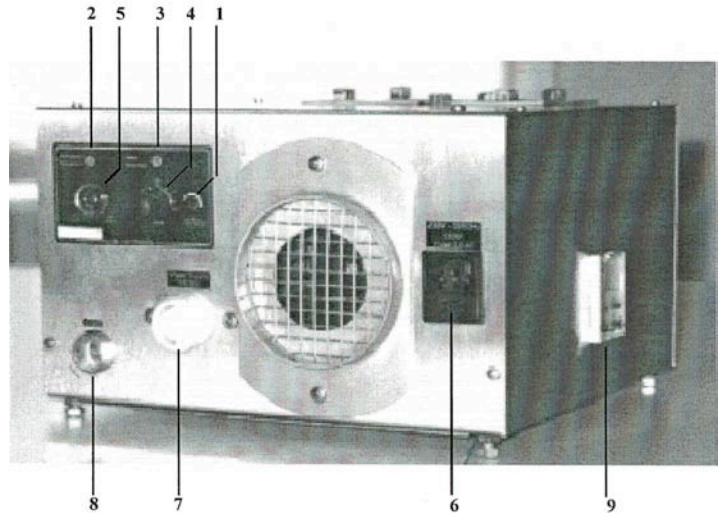
- Always switch the 230V power of the humidifier off before moving and/or doing maintenance activities
- Always keep the humidifier horizontal and immobile during and until 2 minutes after operation.
- Make sure that the water can always run freely through the drain.
- Never put fingers or objects in the rotating air fan.
- When the humidifier is controlled externally by a 0-10V signal never connect the ground (=0) to earth.

Some signs of water may be found in the packing as the fogger will have been tested thoroughly for all functions during quality control and some water can remain in the fogger before the fogger is packed.

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Connections & functions.

1. Turning knob for airspeed control
2. LED indication for flushing and alarm
3. LED indication for humidity control
4. Turning knob for humidity control
5. Connection plug for sensor, DZR-43, external control 1-10V or master/slave connection
6. Mains supply (230V \pm 10% / 50-60Hz. 3,15AT.)
7. Water supply _", min. 1 BAR / max. 6 BAR
8. Water drain _"
9. Timer for ozone generator (option)



Water connections & flushing system

Water supply and filter. The humidifier has a built-in water pressure reduction valve and can handle a water pressure up to 6 Bar. The water level in the humidifier is controlled by a floating switch and an electric water valve. We advise to use de-mineralised (RO) water. The use of normal tap water will cause lime scale build-up on the fog generating transducers, which will result in a shorter working life. At the same time the dissolved minerals in normal tap water will be blown into the storeroom that has to be humidified together with the misting parts. Depending on the water hardness this can cause a dust layer after several days.

IMPORTANT

Never turn on the mains when the humidifier is not level or placed up side down because the transducers will burn.

IMPORTANT

When the humidifier is over heated it will flush, switch off and when it is cooled down, switch on automatically. When it is over heated the LED "Flushing/alarm" will blink.

Over heating can be caused by:

- Air supply blockage
- Fog outlet blockage
- Too high air inlet temperature
- Too high water temperature
- Water drain blockage
- Too high ambient temperature

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Applications for Humidifier/Foggers HU-85.

IMPORTANT

1. The water particles in the air supply pipe (channel) of the humidifier can damage the electrical circuit.
2. A restricted pipe construction can obstruct the airflow, damage the fan and cause the humidifier to overheat.

Installation in a ventilated refrigerated storeroom.

Air inlet. Connect an 80 mm or 210mm fog distribution pipe from the room to the air inlet of the humidifier. The air of the room to the inlet should be as dry as possible. If the air is too cold and causes condensation create an extra opening in the inlet pipe to draw warmer air together with the cold air or use ambient air (in all cases when the Rh > 75% and/or D T 15).

Mist outlet. Connect a pipe of 80mm for HU85 and 210mm for HU245 to the air outlet of the humidifier. Install the pipe work in a way that it is slightly sloped back to the fogger, so that any water runs down to the fogger. The outlet of the pipe should point slightly upwards in front of the fan in the direction of the airflow. It is not necessary to glue the pipe work, but be sure that it is connected in a way that condensed water can flow back, without leaking.

* For specific situations consult the Contronics technicians.

Ozone generation (option). Contronics foggers are unique in that they are available with a built-in ozone generator (og) (Norman Pendred & Co Ltd UK Patent). Ozone kills bacteria in the humidifier and the connected fog distribution piping.

Ozone is most effective when the humidifier is switched off during ozonation. To control the on/off switching of the ozone generator and the humidifier, a programmable timer is installed in the side panel of the humidifier. The timer is factory programmed at 2 hours of ozonation from 02.00 hrs till 04.00 hrs. This program may be altered (see programming the timer).

WARNING

Ozone can be dangerous to health when the gas is breathed in large concentrations for a longer period. These concentrations only occur in the humidifier and the connected pipe work. After this the ozone falls apart into ordinary oxygen without residue.

The timer works independent of the main supply. The rechargeable battery to power the timer is built on the ozone PCB, inside the humidifier.

WARNING

When you change the battery, you should treat the old battery as chemical waste, or send it back to the manufacturer.

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Programming the ozone timer.

The timer is Factory set at 2 hours ozonation from 02:00 till 04:00 (AM)

Starting up.

Keep pushed in for 3 sec. The timer starts,
The double dot blinks. In case of a malfunction
because of long storage and low battery, push
in all 4 knobs. A test program will run after
this. The timer is ready to be programmed.

Adjusting the clock.

Push in short / long till the desired switch-on time is in the display.

Confirm

Programming.

Push in shortly. (Only for changing program) P1
7:00
ON
- Programming the switch-on time

Push in short / long till the desired switch-on time
is in the display

Confirm
- Programming the switch-off time

Push in short / long till the desired switch-off time P1
7:00
OFF
is in the display.

Confirm

The first program is now installed in the memory of the timer.

Push the prog button more than once to recall real time.(20 programs through)

Program check.

Push in more than once. The programmed times appear consisting of
program number, switching on- and switching-off time.

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Erase a single program.

Prog Push in more than once until the program you want to erase appears.

%o Push in short. If you push it long a new time will be programmed. Watch out: switching-on and switching-off times have to be erased separately.

Manual ozone.

Hand Push in short. The current state (on / off) will be changed when the next programmed state is reached. The program will be followed.

Permanent ozonation.

Hand Push in short once or twice to obtain the desired situation: permanent on /off

Delete permanent ozone.

Hand Push in for 2 seconds. "P:er" will disappear. Real time appears in the display.

Hand Push in short once or twice to the desired situation: on/off/automatic.

In the above-mentioned procedure, the ozone generator is started (while the humidification is switched off) at switching on. At switching off the opposite occurs.

If desired, it is also possible to run the ozone generator continuously. The timer will then only switch the humidifier.

In this case the following remarks are important:

- Ozone is less active, because most of the ozone is dissolved in the water particles.
- The ceramic plate that produces the actual ozone gas has to be replaced after 6 months of continuous use.
- When humidification fails, the ozone concentration in the display can reach to high a level.

What is ozone? Ozone is an unstable gas made by passing Oxygen through a high voltage electrical discharge. The normal Oxygen (O₂) becomes Ozone (O₃), which immediately starts to revert back to Oxygen.

How is it made? In practice dry air, composed of one-fifth Oxygen, is passed through a discharge of electricity converting three molecules of O₂ into two molecules of O₃. It cannot be stored and has to be generated at the point of use.

How do you recognise it? It is an unstable colourless gas trying to revert to Oxygen, but as Ozone it has a very distinctive smell, recognisable from experience of sparking electrical appliances, photocopier or even the smell during thunderstorms. It is a clean, rather metallic

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smell, sometimes associated with swimming pools. It can be detected by smell in Concentrations as low as 0.03 parts per million.

What are its advantages of ozone? It is a powerful sterilising agent through the process of oxidation. It kills bacteria and fungi and also eliminates odours created by decaying bacteria. There is no residual chemical. As a gas, it reaches parts that other sterilising agents cannot reach and it is soluble in water. In low concentrations it has no effect on exposed food. Where applicable, it suppresses ethylene ñ the fruit and produce ripening gas.

What are its disadvantages of ozone? In general, none unless it is breathed in relatively high concentrations when it can cause symptoms such as dry mouth and coughing and later nausea. Health and Safety regulations allow 15 minutes exposure per day to a concentration of 0.3 PPM, but since it is detectable by smell at 0.03 PPM, problems are unlikely to occur.

General interest. The ozone mentioned in air quality reports, is the result of sunlight acting on exhaust fumes creating Ozone at street level in urban areas. If conditions allow this to build up faster than it degrades, people can experience discomfort.

The Ozone Layer in the atmosphere is unrelated and unaffected by the low concentrations being produced in food related generators.

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Technical specifications HU-85.

Transducer frequency	1.7 Mhz
Capacity at 25° water reservoir temperature	0-6 kg/hr (adjustable)
Lifetime transducers according to water hardness	10.000 hours (13 months continuously)
Measurement per water particle	1-3 micron
Diameter air outlet	2 x 80 mm
Diameter air inlet	80 mm
Airflow	Adjustable 0-60 m ³ /0Pa)
Maximum pipe length per outlet	6 meters
Mains water pressure	1-6 Bar
Water connection	3/4" external
Maximum water hardness	8° German hardness (demineralised is strongly recommended)
Flushing frequency	Once per hour adjustable
Water drainage	1/2" external
Contents water tank	500 cm ³
Mains supply	230V ± 10% 50/60Hz
Maximum load	450W
Ambient temperature	0 to 35 °C
Water temperature	5 to 15 °C
Air temperature	-5 to 35 °C
Ambient temperature/air temperature	Max. + 15K (max 75% Rh)
Measurements (L x W x H)	450x265x290
Weight	18 kg

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Technical specifications HU-245.

Transducer frequency	1.7 Mhz
Capacity at 25° water reservoir temperature	0-18 kg/hr
Lifetime transducers according to water hardness	10.000 hours (13 months continuously)
Measurement per water particle	1-3 micron
Diameter air outlet	2 x 110 mm
Diameter air inlet	80 mm
Airflow	Adjustable 0-60 m ³ /0Pa)
Maximum pipe length per outlet	6 meters
Main water pressure	1-6 Bar
Water connection	3/4" external
Maximum water hardness	8° German hardness (demineralised is strongly recommended)
Flushing frequency	Once per hour adjustable
Water drainage	3/4" external
Contents water tank	4000 cm ³
Mains supply	230V ± 10% 50/60Hz
Maximum load	1,3 KW
Ambient temperature	0 to 35 °C
Water temperature	5 to 15 °C
Air temperature	-5 to 35 °C
Ambient temperature/air temperature	Max. + 15K (max 75% Rh
Measurements (L x W x H)	660x425x290
Weight	43 kg

HU-85 and HU-245og. (with built in ozone generator).

Capacity Ozone	- 0-20 mg of ozone gas per hour (adjustable)
Switch Ozone	-Timer with daytime/nighttime setting + permanent ozonation

The filter of the cooling fan can be cleaned with water and soap. Make sure that it is dry before putting it on again.

Remove the filter cap in the water inlet of the humidifier. Clean and replace.

Flush the internal drain with water or use a round brush.