ULTRASONIC HUMIDIFIER

UHF

USER, INSTALLATION
AND MAINTENANCE GUIDE

Rel. 22.1.EN

Index

Please before using your equipment read this guide carefully, by noting all the precautions and safety instructions reported in it. Keep your equipment in good operative conditions.

Familiarize with the working and security instructions related to the operation of your apparatus before trying to make it function. Keep this guide and any other booklet provided with your apparatus to be able to refer to them later.

1 Package Content

Package contains:

- ◊ Ultrasonic Humidifier
- ◊ This User guide
- ◊ A single-phase 230 Vac transformer

2 Security measures

2.1 General Measures

People who are not familiar with this type of equipment or who have not read this manual carefully should not be allowed to use the humidifier

Your humidifier has been designed to be used with AC voltage 230V 50/60Hz. Do not attempt to use the humidifier with a different kind of power supply. Check that the mains voltage corresponds to that of the humidifier.

Your humidifier should always be turned off before any maintenance.

All maintenance and repair work must be performed by the manufacturer, its service agent or qualified service personnel.

Do not cover any opening of the humidifier (Fan) and do not put any object into openings.

2.2 Ground Connection

First operation of any installation is the proper grounding of the equipment, according to the regulations in force in the state and when the equipment is installed.

2.3 Thermo-hygrometric conditions of the installation

Make sure that the environmental conditions of the place where the humidifier is installed are compatible with the requirements of the product as specified in this manual. Each product Elsteam cannot be installed exposed to the weather or freezing temperatures, unless different terms are explicitly expressed in related document.

2.4 Power Supply

The equipment must be connected to the main power supply strictly following the regulations and specifications recorded on the identification label of the equipment.

In particular, it is mandatory that the power lines have the correct section and equipped with power isolator in accordance with safety rules.

2.5 Connection to hydraulic networks

Elsteam equipment may need to be connected to the water mains. In this case it is necessary to strictly comply with the regulations and make sure that any breakage or leakage of water resulting from the installation or from the unit itself cannot cause harm to the environment or to third parties. Do not install the appliance on walkways or on dangerous objects or susceptible to damage and always provide proper drainage systems able to evacuate any water leakage. In case you have to install the equipment in these areas, please contact the vendor for the related protection tank.

2.6 Waste Disposal

Directive 2002/96/EC of the European Parliament and the relevant national rules impose an obligation not to dispose of WEEE as unsorted municipal civil, but to set up a special collection for obsolete parts of the humidifier.

It is still given the option to the buyer to return the humidifier into disuse at Elsteam Srl in case of purchase of an equivalent humidifier. Elsteam will dispose of them in their own or through its agents.

The disposal of electrical or electronic components in an abusive manner and not in accordance with applicable regulations is forbidden by the law. In the event of illegal disposal of electrical and electronic waste, the penalties are specified by local waste disposal legislation.

2.7 Warranty

ELSTEAM Srl recognizes on its products the legal guarantees in force at the time of sale of the product. Incorrect use and lack of maintenance entail the automatic forfeiture of any form of guarantee.

3 Manufacturer

Manufacturer

ELSTEAM Srl
Via ENRICO FERMI 496, 21042 CARONNO PERTUSELLA (VA) - ITALY

Contact
Tel.: (0039) 029659890
Fax: (0039) 0296457007
Email: info@elsteam.it
Web: www.elsteam.com

4 Working principle

The ultrasonic humidifier allows adiabatic humidification to be performed by very fine water nebulizing through high frequency sound waves.
The system includes a tank, the ultrasonic atomizer, electronic control board, water loading system, a fan, a draining system and a power transformer.
The operating status is indicated by two LEDs: the green one indicates steam production (intensity proportional to request), the red one indicates that the system is in empty state (drain opened).
If both are switched OFF there is no supply or the electronic board is damaged.
The humidifier is equipped with an overflow system that protects when there are problems with the water loading system.
The water loading system is based on a float that allows us to have an ever-constant level of water inside the tank. This solution allows us to always work at the best production point of the atomiser module.
The control card allows ON / OFF or modulating humidifier operation.
The system can be controlled via an external 0-10V regulator or a humidistat (ON/OFF).
To meet current hygiene standards, the tank remains empty in the absence of production requirements.

5 Characteristics

Models		UHF
FOG PRODUCTION		
Capacity	[Kg/h]	1,0
Max pressure	[mm H2O/bar]	0,0023-23
External Connection	[mm]	50
FOG OUTPUT		
Number of distributors	[n]	1
Air Flow	[m3/h]	9
ELECTRICAL DATA		
Power	[kW]	0,076
Supply	[Vac, Hz]	230, 50
Phases	[n]	1
Max Current	[A]	0,5
HYDRAULIC DATA		
Input Water Quality		Complies with the microbiological requirements defined for drinking water by the regulations in force in the area of use; the use of totally or partially demineralized water is recommended to reduce the frequency of maintenance
Input Water Conductibility	µS*cm	0...1250
Input Water Hardness	°Fr	0...50 (max allowed 50)
Input Water Pressure	[MPa/bar]	0...1/0...10
Input Water Connection		JG8
Drain Water Connection	[mm]	16
GENERAL DATA		
Dimensions	(WxHxD [mm])	85x173x126
Weight	[kg]	1,7
IP Protection		30
REGULATION		
Control		External signal (0-10V, ON-OFF)

6 Installation

The humidifier must be installed in a room ventilated and protected, on a vertical surface, plane and rigid. Use the two eyelets of the case and check that the tank is in horizontal position.

The mains transformer can be installed remotely.

6.1 Hydraulic connections

Hydraulic connection to the units must be realized with flexible pipes which do not cause an action on the tank to avoid damaging the unit.

The water inlet connection is located on the top cover of the humidifier (water supply with JG 8mm fitting, supplied). Please connect to the BLUE tube.

The minimum pressure at the inlet of the humidifier must not be less than 0.5 bar at maximum capacity.

The water drain must be provided with a siphon to prevent the mist dispersion through the drain.

Since humidifiers are devices that contain water and could in the future lead to some loss that is not immediately detectable by the user, it is necessary to make sure during the assembly that such losses cannot cause damage.

6.2 Electrical Connections

All work concerning electrical installations WILL HAVE to be carried out exclusively by qualified personnel (ex electricians or technicians out from a suitable formation). The customer IS responsible for the adequacy of the personnel used.

Please check that power supply is disconnected before any maintenance and installation operation

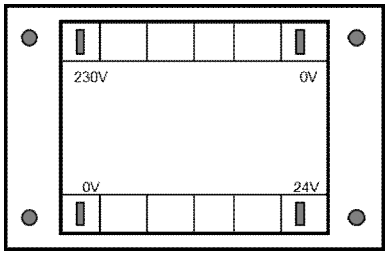
The person in charge of installation will have to ensure the following points:

- ◊ Size of electrical cables must be appropriate for the maximum current being provided.
- ◊ The power supply cable will have to be protected using an appropriate cable gland.
- ◊ Each connection of terminal will have to be firmly protected by a fixing of cable.

Before the beginning of installation (and all operations of maintenance and maintenance without panel) the power supply must be disconnected on all the lines and insured against an involuntary connection! Before making electric connections check that the tension corresponds to those of the humidifier.

The humidifier is supplied with the power cables already connected to the transformer (brown and grey cables from the transformer to terminals 1 and 2 of the terminal box). Terminal blocks for electrical and control connections are located inside the humidifier.

In case the mains transformer is not delivered already connected to the humidifier, please use table below to connect. Uses pins 1 and 2 of the connector.



Main transformer connections		
0V	BROWN wire	Humidifier
24 Vac	GREY wire	Humidifier
0V	FASTON	Line 230V
230 Vac	FASTON	Line 230V

Connect power line to the transformer.

6.3 Steam Output Connection

The humidifier steam connection is located on the top cover and has an outside diameter of 50mm. You can use a PVC standard pipe (diameter DN50) or INOX pipe, according to the application requirements for the steam output.

When using the humidifier in fan-coil type applications or inserting the output ramp, pay attention to the existing back-ups. In the case of a fan coil, a diffusing ramp with equidistant holes must be provided and installed with holes in the direction of airflow so that the venturi effect helps the steam output from the humidifier.

In the case of duct installation, it is advisable to use the top cover input and a bypass (through the duct) to pick-up air from the existing flow. This will avoid back-ups effects that can block steam output.

7 Control System

The control and alarm signal terminals are located on the electronic board (to access the terminal block, remove the bottom of the humidifier panel).
The cable openings are located on the underside. It is recommended to use cables with a section of 1 mm2 max.

The control board provides the option of using either an external controller with 0-10V or ON/OFF signal.

The humidifier comes with cables provided to the user.

Activation contact: jumper on connector

Proportional control: use white (+) and blue (-) cables

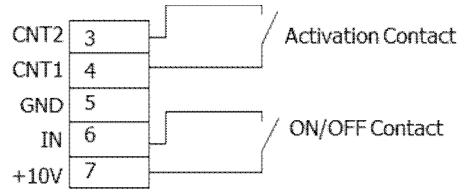
On-off control: use white and purple cables (no potential)

If you need to connect the activation signal (submit production to an external event, potential-free contact) the following electrical connections must be made.

Connect the activation contact between terminals 3 and 4 as shown in the schematic. **The contact must be a potential-free contact**

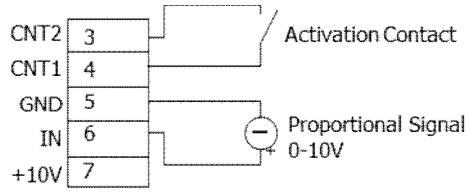
According to the chosen solution, the following electrical connections must be carried out.

External ON/OFF controller or Humidistat



Connect the outputs of the external regulator ON/OFF or humidistat between terminals IN and + 10V as shown in the diagram.

External PROPORTIONAL controller (0 ...10V)



Connect the proportional external regulator outputs between GND and IN terminals as shown in the diagram.