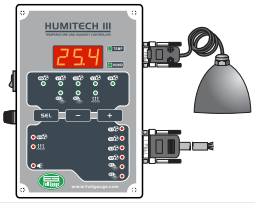
HUMITECH III

DIGITAL HUMIDITY & TEMPERATURE CONTROLLER

Ver.02



HUMIT3V2-02T-11247

1. DESCRIPTION

The **HUMITECH III** is a high performance controller for ambience purposes. It features accurate control for adjusting temperature and humidity, blending the latest technology with an easy operation.

2. APPLICATION

HUMITECH III is intended to operate with evaporative cooling systems for enhancing the thermal comfort in gymnasiums, exhibition pavilions, supermarkets, engine rooms, incubators, poultry and swine farm installations.

3. TECHNICAL SPECIFICATIONS

- **Power Supply:** 115 or 230 Vac ± 10% (50/60Hz)
- **Controlled Temperature:** 0 to 50.0 °C (accuracy: 0.1 °C)
- **Controlled Humidity:** 20 to 85 % RH (accuracy: 0.1% RH)
- **Outputs:** Nine relays driven outputs
- **Maximum Current:** 3A for alarm output
  500mA for the remaining outputs (for contactor activation)
- **Dimensions:** 148 mm x 97 mm x 55 mm (approx. 5,83" x 3,82" x 2,17")
- **Operation Temperature:** 0 to 50°C
- **Operation Humidity:** 10 to 90% RH (without condensation)

4. DESCRIPTION OF EACH STAGE

- MIN - Controls the minimum ventilation (exhaust fan) by using cyclic periods;
- V1 - Controls the 1st fan group for cooling;
- V2 - Controls the 2nd fan group for cooling;
- V3 - Controls the 3rd fan group for cooling;
- V4 - Controls the 4th fan group for cooling;
- N1 - Controls the water sprayer 1st stage for cooling and enables you to turn it OFF when humidity is high (cooling);
- N2 - Controls the water sprayer 2nd stage for cooling and enables you to turn it OFF when humidity is high, optionally, this stage can be configured to operate as humidification, forcing the activation of the output by low humidity;
- Controls the heating system;
- Activates the alarm caused by temperature out of the preset range, by power outage or by sensor failure.

5. FEATURES ACCESSIBLE BY THE OPERATOR

You can use the SEL key to select any parameter.
Press − to decrease and + to increase the values.
Press SEL to confirm the change.

5.1 - Room temperature

-If you want to see the room temperature press SEL until **TEMP** is lit.
-When the sensor is disconnected or the temperature indicated is out of the control range, Er1 is displayed and the alarm is activated.

5.2 - Room humidity

- If you want to see the room humidity, press SEL until **HUMID** is lit.
- When the sensor is short-circuited or the humidity indicated is below 10% RH, 000 is displayed.
- In this situation the alarm is activated. If you want to stop the humidity alarm just enter the humidity settings menu and press − to show nOt.
- If the humidity indicated is above 90% RH, 999 is displayed.
- While the humidity is displayed, just press + to return to the temperature indication.

5.3 - Minimum ventilation settings

The first value displayed is the minimum temperature for activating the minimum ventilation in order to exhaust gases emission. Below this value the minimum, ventilation remains OFF and above this value, it operates in a cyclic period according to the following times:

On Minimum ventilation ON TIME
OFF Minimum ventilation OFF TIME

5.4 - Fan group settings

V1 - The temperature in which the 1st fan group is activated
V2 - Tthe temperature in which the 2nd fan group is activated
V3 - The temperature in which the 3rd fan group is activated
V4 - The temperature in which the 4th fan group is activated

5.5 - Water sprayer 1st stage settings

t Temperature for water sprayer activation
U Humidity threshold for turning the water sprayer OFF. This feature prevents the water from condensing and dropping.

If you want to turn OFF the water sprayer when humidity is high, please set the humidity threshold below the minimum value by keeping the − key pressed until nOt is displayed. This makes the water sprayer activation to be controlled by temperature only.

5.6 - Water sprayer 2nd stage settings

Repeat the procedure described on item 5.5 to the 2nd stage of water sprayer.

Note: To use this stage as humidification (activation by low humidity), regardless of the temperature, set a value of temperature very below of the room temperature (ex.: 0.0 ° C) and humidity to the desired value. When the humidity drops below this value, considering the differential, the output N2 is activated. When the value of humidity adjusted is reached, the output is turned off.
Ex: Humidity = 35% RH Differential = 5% RH
The output is activated when the humidity reaches 30% (35-5) and turn it off on 35%.

5.7 - Heat settings

You configure the temperature in which the heating output is turned OFF. When the room temperature goes below this value minus the hysteresis then the heating output is turned ON.
Example: Temperature = 30.0°C Hysteresis = 1.5°C
The heating system turns OFF at 30.0°C and turns ON at 28.5°C (30.0 1.5).

5.8 - Alarm settings

This function is used to set the temperature working limits. Any value below the lower limit or above the upper limit will activate the alarm ALr.

inF Lower working temperature limit
SUP Upper working temperature limit

The red LED ( ) remains ON during normal operation conditions. If any abnormal condition or power outage occurs, this LED turns OFF and the Emergency Alarm Output relay closes the contacts (green and striped green wires).

6. FEATURES ACCESSIBLE BY THE TECHNICIAN

- If you want to access the Engineer Features, press SEL to select HUMID and keep the − and + keys pressed for 5 seconds to display tEC.

6.1 - Time unit for minimum ventilation

Un i Set the time unit for the cyclic timer { 0 seconds / 1 minutes

6.2 - Hysteresis settings for fan activation

V1 - Set the temperature hysteresis for turning the 1st fan group OFF.
V2 - Set the temperature hysteresis for turning the 2nd fan group OFF
V3 - Set the temperature hysteresis for turning the 3rd fan group OFF.
V4 - Set the temperature hysteresis for turning the 4th fan group OFF.

6.3 - Water sprayer 1st stage hysteresis settings

t Set the temperature hysteresis to turn the water sprayer OFF
U Set the humidity hysteresis to restart the water sprayer if it was turned OFF due to high humidity
On Water sprayer ON time (seconds)
OFF Water sprayer OFF time (seconds)

NOTE: The ON/OFF time settings above are used to control a cyclic timer for sprayer output. This time period allows the sprayed water to transform into relative air humidity.

6.4 - Water sprayer 2nd stage hysteresis settings
Repeat the procedure described on item 6.3 for the 2nd stage of water sprayer.

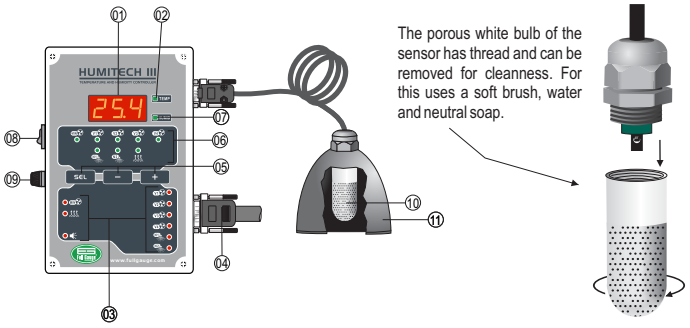
6.5 - Heating hysteresis
Adjust the temperature hysteresis needed to turn the heating ON.

6.6 - Temperature offset
Select TEMP. This function allows compensating a small deviation in the temperature indication. Such deviation can appear after sensor replacement or cable length altering. An offset adjustment ranges from -5.0°C to +5.0°C around the factory preset temperature. Press SEL to confirm.

6.7 - Exiting the engineer function menu
Press SEL to select **HUMID** (LEC appears in the display) and keep − and + keys pressed for 1 second until the humidity value is displayed again.

Note: After changing any parameter, always confirm the change by pressing the SEL key to input the new value. If no key is pressed the change is ignored after 30 seconds and the controller changes to room temperature indication automatically.

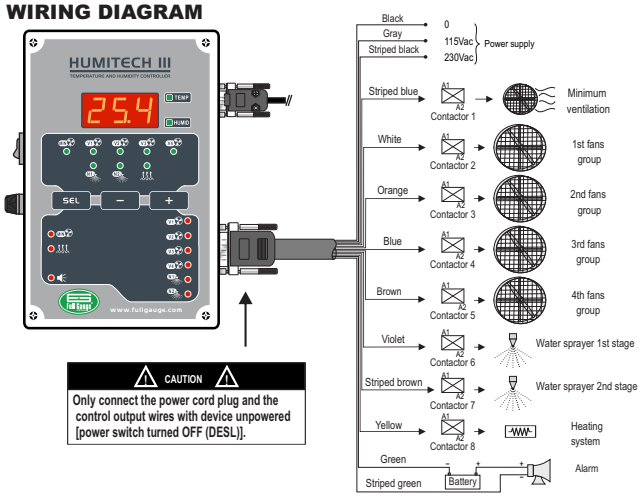
7. PARTS IDENTIFICATION



The porous white bulb of the sensor has thread and can be removed for cleanness. For this uses a soft brush, water and neutral soap.

01 - LED display (screen)
02 - Temperature indication LED
03 - Stage operation LED's
04 - Power supply and control outputs
05 - Setting keys
06 - Configuration process LED's
07 - Relative humidity indication LED
08 - ON/OFF switch
09 - Fuse (1A)
10 - Humidity and temperature sensors (mod.SB55)
11 - Plastic hood for outer sensors

8. WIRING DIAGRAM



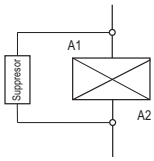
8.1 - Electric connection identification

Black and gray: For 115Vac power supply (50/60Hz)
Black and striped black: For 230Vac power supply (50/60Hz)
Striped blue: Output for minimum ventilation
White: Output for the 1st fan group
Orange: Output for the 2nd fan group
Blue: Output for the 3rd fan group
Brown: Output for the 4th fan group
Violet: Output for water sprayer 1st stage
Striped brown: Output for water sprayer 2nd stage
Yellow: Output for heating system
Green: Output for emergency alarm NC dry contact
Striped green: Output for emergency alarm NC dry contact

NOTES: 1. The black wire is also the output common wire (exception: alarm output)
2. The loads must be activated through contactor.
3. To enhance the immunity against electromagnetic interference, we recommend the use of arresters and filters connected in parallel with the contactors winding.

IMPORTANT
According to the chapters from the IEC60364 standard:
1: Install protectors against over voltage on power supply
2: Sensor cables and computer signals can be together, however not at the same place where power supply and load wires pass for
3: Install suppresor of transient in parallel to loads to increase the usefull life of the relays
For more information contact our application eng. department through e-mail ***support@ fullgauge.com*** *or dial +55 51 3475.3308.*

Wiring diagram of suppresors in contactors



A1 e A2 are the contactor coils.

Note: The length of the sensor cable may be increased by the user up to 200 meters, using a 5 x 22 AWG cable.