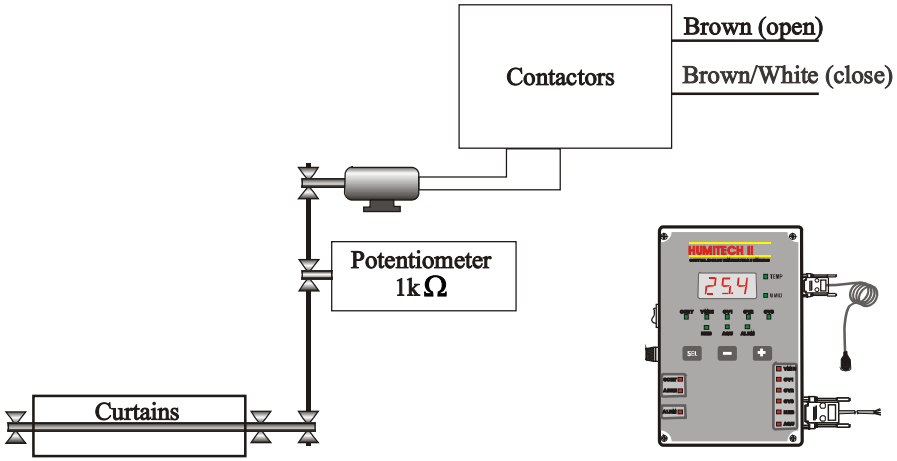
To facilitate the knowledge we show you a standard installation diagram:



The potentiometer must be multi turns of 1kΩ (a thousand ohms)

Brown wire – Output to open curtains

Brown wire – Output to close curtains

The potentiometer is connected of mechanics form to the axle of the engine thus the movement of the curtains produces a turn in the axle of the potentiometer, and consequently an alteration of the same.

6.2.4 Calibration procedure:

a) Close the curtains and adjust potentiometer on minimum (0 Volts)

b) Open manually the curtains (external key)

c) Select the temperature indication (TEMP on) and keep pressured at the same time the keys ⊖ and ⊕ for 15 seconds until POt appears. The calibration is finished when the keys will be untied. This operation will be understood by the controller as being the position of maximum opening of the curtains.

1 DESCRIPTION

Humitech II is an ambient controller. Through an accuracy control of temperature, humidity and curtains position, join technology and operation easiness. Application: evaporative cooling systems for thermal comfort in gymnasia, exposition pavilions, supermarkets, farming installations and aviaries.

2 TECHNICAL SPECIFICATIONS

- ***Power supply with built-in transformer:*** 220 VAC ± 20% (50/60 Hz)
- ***Control temperature:*** 0.0 to 50.0 °C (resolution of 0.1 °C)
- ***Control humidity:*** 10.0 to 90.0 %RH (resolution of 0.1 %RH)
- ***Commands:*** nine relay outputs
- ***Load current:*** 500 mA per output (contactors command)
- ***Dimensions:*** 148 mm x 97 mm x 55 mm
- ***Operation temperature:*** 0 to 60°C
- ***Operation humidity:*** 10 to 90% RH (without condensation)

2.1 Electrical connections identification

Black: Power supply
Black/White: Power supply (relay common)
White: Gv1output (first fans group)
Orange: Gv2 output (second fans group)
Blue: Gv3 output (third fans group)
Purple: NEB output (nebulizator)
Green: ALRM output (emergency alarm) - NC contact
Green/White: ALRM output (emergency alarm) - NC contact
Yellow: AQU output (heating system)
Brown: Output to control curtains position (open)
Brown/White: Output to control curtains position (close)
Gray: Ground
Blue/White: VMIN output (Minimum ventilation)
Red: Potentiometer (+)
Red/White: Potentiometer (-)

OBS.:

1. The loads must be drove through contactors.
2. To increase the immunity against electromagnetic interferences, we recommend to use suppressor filters in parallel with the contactor bobbin.

3 STAGE COMMANDS

CORT: It commands the drive of curtains to open and close

VMIN: It commands the minimum ventilation of exhaust fan in cyclical times

Gv1: It commands the first fans group for cooling

Gv2: It commands the second fans group for cooling

Gv3: It commands the third fans group for cooling

NEB: It commands nebulizador for cooling and allows the cut of the same for high humidity

AQU: It commands the heating systems

ALRM: It commands the drive of alarm for temperature out of programmed limits as well as due electric energy or inoperative sensors.

4 ACCESS FUNCTIONS TO OPERATOR

4.1 Ambient Temperature:

- To visualize ambient temperature, press SEL until TEMP appears.
- If the sensor will be off or indicating out of control range Er 1 will appear and the alarm will on.

4.2 Ambient Humidity:

- To visualize ambient humidity press SEL until UMID on.
- If the sensor will be in short circuit or indicating below of 10% RH, 00.0 appear. At this situation the alarm will be on. To incapacitate the alarm for humidity it is enough to enter in the humidity adjustment and press − until appear nOt . (See item 4.6)
- If the sensor will be indicating above 90% RH 99.9 appears.
- While humidity is visualized press + to return temperature indication.

6 ELECTRIC DRIVE OF CURTAINS

6.1 Functioning description

Humitech II has two outputs to drive curtains. They are responsible for opening or closing of the curtains to control the temperature inside aviaries. It uses an input to potentiometer that is responsible to inform the controller the position where the curtains are located.

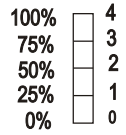
6.2 Configuration

6.2.1 Control temperatures

First configure the temperatures those control of curtains will act, as item 4.3.

6.2.2. Number of steps

The number of steps is the different level number that the curtains could be total opened or total closed. For example, if the number of steps is 4, the curtains could be on the following positions:



To configure follow the instructions of item 5.1.

6.2.3 Potentiometer Calibration (curtains 100% open)

The position calibration is very important for the correct working curtains control system. This procedure is to inform to controller through position sensor (potentiometer) when the curtains are totally opened and when they are totally closed (0 volts).

5.5 AQU differential:

Adjust the differential temperature to turn on the heating. If the differential will be adjusted with a valid value, the operator can access the functions VMIN (item 4.4), AQU (item 4.7) e ALRM (item 4.8).

To return to cooling mode, adjust the differential to minimum value until rEF appears.

5.6 Temperature offset:

Select TEMP. This function allows that small shunting lines in the indication of temperature are compensated. Locking from -5.0°C to +5.0°C is allowed regarding calibration done at factory. To confirm, press SEL .

To leave the technician functions menu:

- Press SEL until select the indication UMID (tEC appears on display) and keep pressed the keys − and + for 1 second, until return humidity indication.

Note: After change a parameter, always confirm the modification pressing the key SEL so the new value is recorded. Contrary case, if no key be pressed, after 30 seconds the alteration will be ignored and controller pass to ambient temperature indication automatically.

Obs. To select any parameter use the key SEL.

Through the keys − (decrease) and + (increase) adjust the desire value. To confirm alteration, press SEL.

4.3 Curtains Adjust (CORT):

Abr Adjust of curtain temperature totally opened

FEC Adjust of curtain temperature totally closed

Between these two temperatures the curtain will have the open through the adjusted number of steps (item 5.1).

4.4 Minimum ventilation adjust (VMIN):

The first value that appears is the minimum temperature to drive the minimum ventilation for gas exhaustion. Below of this value the minimum ventilation will remain off and above of exactly it will be cycling in accordance with the times as follow:

On On time of minimum ventilation

OFF Off time of minimum ventilation

4.5 Fans group adjust:

GV1: Temperature that first fans group is set in motion

Gv2: Temperature that second fans group is set in motion

Gv3: Temperature that third fans group is set in motion

4.6 Nebulization drive adjust (NEB):

t Temperature for nebulization drive.

U Limit humidity to turn off nebulizator. This function is very important to hinder drops precipitation.

To disactivate the break for high humidity, adjust the same below the minimum value keeping pressured the key ⊖ until nOt appears. The nebulization will be controlled through temperature.

4.7 Heating Adjust (AQU):

Temperature where the heating is turned off. Below this value (hysteresis out) the heating will turn on.

This function will be act only when technician functions, item 5.7, the adjust AQU has a valid value hysteresis. Case rEF, this function will be ignored and controller will act for cooling.

Example: Temperature = 30.0°C *Differential = 1.5°C*

The heating system will turn off in 30.0°C and will turn on again in 28.5°C (30.0 - 1.5).

Case heating differential will be adjusted in a valid value, minimum ventilation and alarm will also act, disactivate cooling stages(GV1,GV2,GV3, NEB and CORT).

4.8 Alarm adjusts (ALRM):

In this function the work temperature limits are adjusted. Any value below inferior limit or above the superior limit will drive the alarm.

InF Inferior limit of work temperature

SUP Superior limit of work temperature

The luminous indicator at instrument frontal (ALRM) will keep on in normal work conditions. In case that some irregular situation occurs, this indicator will erase and control output will be closed (green and green/white wires)

The alarm output is NC contact and can be powered supply for a battery.

5 TECHNICIAN ACCESS FUNCTION

- To access technician functions, press SEL to select UMID and keep pressured the keys ⊖ and ⊕ for 5 seconds, until tEC appears.

5.1 Curtain Steps Number:

PAS Adjust steps number that curtain will open among configured temperature values at item 4.3.

5.2 Time unit for minimum ventilation:

Uni Adjust the time unit of cyclical timer

{ 0 seconds
{ 1 minutes

5.3 Differential adjust for fan drive:

GV1: Adjust differential temperature to turn off first fans group.

GV2: Adjust differential temperature to turn off second fans group.

GV3: Adjust differential temperature to turn off third fans group.

5.4 NEB differential:

t Adjust differential temperature to turn off nebulization.

U Adjust differential humidity to turn on again nebulizator, case the same will be turn off for high humidity.

On Nebulization time on.

OFF Nebulization time off.

NOTA: The functions ON and OFF control a cyclical temporization (in seconds) for output nebulizator. This temporization allows pulverized water has time to converting into air relative humidity.

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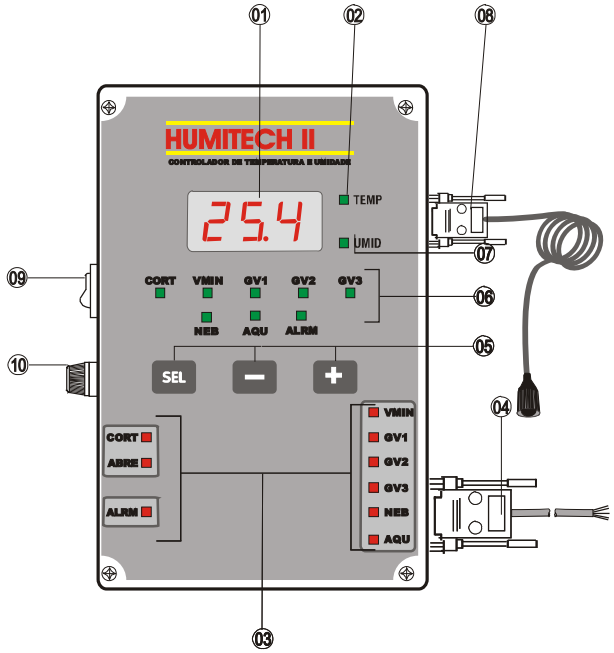


01 - Digital display
02 - Temperature indication LED
03 - Stage operation LEDs
04 - Power supply and controls
05 - Adjust keys
06 - Programming LEDs
07 - Relative humidity indication LED
08 - Temperature and Humidity sensors
09 - On / Off
10 - Fuse (1 A)

Nota: The cable length can be increased with microphone cable 4 x 0,20 mm².

IMPORTANT

As chapters of the norm NBR 5410:

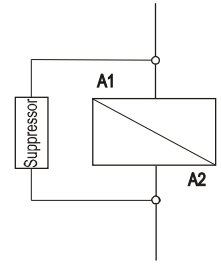
1: Install protectors against over voltage on power supply

2: Sensor cables and computer signals can be together, however not at the same place where power supply and load drive pass for.

3: Install suppressor of transient in parallel to loads, as for to increase the usefull life of the relays.

For more information contact our Application Eng. Department through e-mail ***eng-aplicacao@ fullgauge.com.br*** *or dial (5551) 4753308.*

Wiring diagram of suppressors in contactors

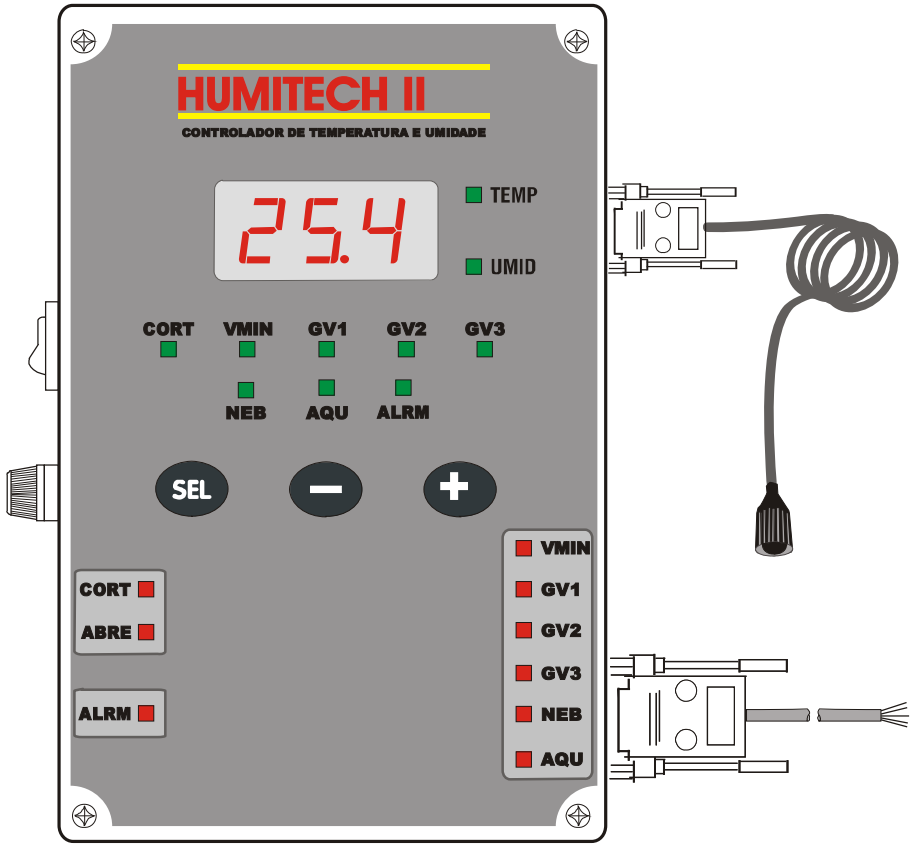


A1 and A2 are the contactor coil

HUMITECH II

Version 001

TEMPERATURE AND HUMIDITY CONTROLLER



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