DHC-100+ Instructions

Important

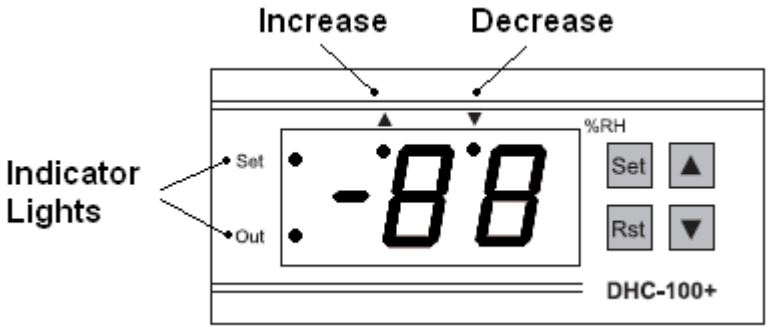
- When wiring the temperature sensor please make sure that the coloured wires are wired up to the correct terminals as follows: **Red (+) to 4, Black (-) to 5 and Yellow (V) to 6**.
- Do not over load the device's output Relay. Its maximum values are: 220v, 10A, 2200 watts.
- **Care must always be taken when working with electricity.**

Specifications

Humidity measuring range: 1% to 99%RH	Product Size: 34.5 X 75 X 85.5mm
Humidity controlling range: 10% to 99%RH	Installing Hole/Panel Cut Out Size: 29 X 70mm
Power supply: 220V AC ± 10%/-15%	Accuracy: ±5%RH (10%RH to 95%RH at 25c)
Relay Output Capacity: 10A, 220V AC MAX	Sensor operation temperature range: -30c to 80c
Operating Environment Temperature: 0c-60c	Sensor Extended Stability:0.5%RH/yr
Operating Relative humidity 20% to 85%	Power consumption: <3W
Resolution: 1%RH	Front Panel Protection: IP54
Sensor Size (Approx): Cable Length 2 metre, Sensor Head 4.6 x 2.7 x 1.3 cm	

Overview

The DHC-100+ works as either a humidifying or dehumidifying controller depending on how it is setup.
The unit will display the current humidity unless the user has entered one of the Parameter Menus to change any of the settings.

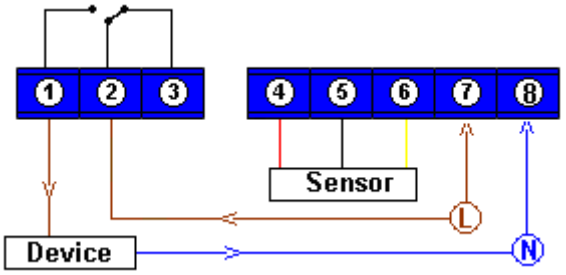


The following describes the diagram of the front panel pictured above.

- Set Indicator: Will light when the user has entered one of the Parameter Menus.
- Out indicator: Flashing = Time Delay is in force. Continuously Light = Output Relay is operating.
- Increase & Decrease Indicator: This indicates which mode the unit is operating in. If the Decrease Indicator is lit then the unit is working as a Dehumidify Unit or if the Increase Indicator is lit it would be operating as a Humidifying unit.

Wiring

Please use the following wiring diagram to wire your devices for items that require 220v to 240v.
IT'S VERY IMPORTANT THAT THE SENSOR IS WIRED PROPERLY USING THE DIAGRAM BELOW OTHERWISE THIS WILL DAMAGE THE SENSOR. Red (+) to 4, Black (-) to 5 and Yellow (V) to 6.
Please note that the Output Relay (1 & 2) only requires to cut the live (hot) wire when turning the connected devices on and off. The Output Relay does not require a Neutral (Cold) wire.
When the Output Relay is not activated the terminals 2 & 3 are connected so that terminal no. 3 is live instead.
If an earth is required this should be wired up separately perhaps via a terminal block.



Operating Instructions

Parameter Overview

The 2 main settings on the unit are the Set Point and the Difference Parameters.

Set Point: indicates what midway humidity level the unit is to achieve.
Difference: The point away from the Set Point that the Output Relay should start or stop operating.

The difference value is the top and bottom range that you wish the unit to try and maintain. Using the following settings of Set Point = 50% and Difference = 5% the following happens.

Humidifying Mode: the relay turns on when at or below 50% (Set Point) and turns off when at or above 55%
Dehumidify Mode: the relay turns on when at or above 50% (Set Point) and turns off when at or below 45%

The main settings can be checked at any time: In normal mode, press the UP key to display Humidity Set Point or press the DOWN key to display the Difference setting.

Parameter Menu and Settings

Code	Description	Range	Default
F1	Set Point	10% to 99%	50%
F2	Difference	1 to 50%	5%
F3	Time delay	0 to 99 min	0 minute
F4	Alarm	0 to 50%	0 %
F5	Operate ON When Error	0 to 99 min	10 minute
F6	Operate OFF When Error	0 to 99 min	50 minute
F7	Calibration	+ or – 15%	0%
F8	Mode Selection	0= Humidify	0
		1= Dehumidify	
B1	Zero Offset	5000 - 9999	Pre-set
B2			
K1	Slope	2000 - 3999	
K2			

Parameter Settings can be changed in one of three different Menus. The **User** and **Admin Menus** are used to adjust the main parameter settings marked with an F.

- **User Menu**: Press and hold the SET key for about 3 seconds until the display changes. This allows changes to the Parameters F1 & F2 only. Helpful if you are only making minor adjustments.

- **Admin Menu**: Press and hold SET and UP keys together for about 3 seconds until the display changes. This allows changes to the Parameters F1 to F8.

The **Sensor Menu** is only used to coordinate the sensor attributes with the DHC-100+ unit. These settings are marked as B1, B2, K1 & K2. Each DHC-100+ unit is pre set with the sensor that has been attached to it as each sensors attributes are individual to that sensor. This makes for a more accurate reading and allows users to replace the sensor with another compatible type in the future but still allow the DHC-100+ to remain accurate.

- **Sensor Menu:** Press and hold the set key for 10 seconds This changes the Parameters B1 to K2

How to amend a Parameter Setting

When you enter one of the Menus as described above you will be presented with the first setting to be updated. By pressing the UP and DOWN keys you can scroll through each one of the Parameter Setting Codes.

Once you have selected the parameter you wish to change press the SET key and the display will now show the setting for that parameter. Press the UP and DOWN keys to select the new setting then press RST key to accept the new setting.

Once you have updated the new settings you need to save them by pressing and holding the RST key for about 3 seconds until the display changes to display the current humidity reading. Please note that if you do not press any key for 30 seconds or more then any updates to any of the parameters will not be saved.

Functions Explained (F1 to F8)

F1: Set Point: Indicates what midway humidity level the unit is to achieve.

F2: Difference: The point away from the Set Point that the Output Relay should start or stop operating

F3: Time Delay: The delay in minutes when the Output Relay will switch on after being requested to come on. For example if it was set to “3” Minutes then as soon as the Output Relay is requested to be switched on it will wait “3” minutes before coming on. The working indictor will flash on and off to indicate that the relay is due to come on but is waiting. The light will become solid when the time delay is finished and the relay switches on. This is a safety feature to protect the device that is connected to the unit from continual switching and causing damage. If it’s set to “0” then there will be no time delay.

F4: Alarm: This feature has been designed to sound an audible alarm and flash the display screen when the area you are controlling is out with the desired humidity level. For example if it is set to 10% then the alarm will activate when the area you are controlling goes above or below the Set Point by 10%. To silence the alarm sound, press any key. If set to “0” the Alarm function will be cancelled.

F5 & F6: Operate When Error
This function has been designed as a fail safe mechanism to allow the unit to operate even during a situation where a sensor error has occurred. It is extremely unlikely that a sensor error would suddenly occur while using the unit in a normal way, however, external problems such as the sensor wire being cut or damaged accidentally would cause the unit to error. **F5** & **F6** will allow the user to program a situation where by the relay will come on for the number of minutes set in **F5** then turn off for the number of minutes set in **F6** and repeating this until the error is resolved. For example setting **F5** to 1 and **F6** to 5 means that during a sensor error the relay will switch on for 1 minute (**F5**) then will turn off 5 minutes (**F6**).

F7: Calibration: This setting will change the value that the sensor is reading by the number of %HR that has been selected on this setting. The value can be set from -15% to +15% of the actual reading.

F8: Mode Selection: This setting instructs the unit to operate either as a Humidifying or Dehumidifying controller

Sensor Attributes Explained (B1 to K2)

Each DHC-100+ unit is pre set with the sensor that has been attached to it as each sensors attributes are individual to that sensor. This makes for a more accurate reading and allows users to replace the sensor with another compatible type in the future but still allows the DHC-100+ to remain accurate. It's not advisable to change these to anything other than what the sensors attributes are. Each sensor has been tested and a sticker with its own individual attributes has been attached to the back of each sensor.

Each attribute has been divided into 2 parts.

- The first 2 digits on the Zero offset attribute = B1
- The second 2 digits on the Zero offset attribute = B2
- The first 2 digits on the Slope attribute = K1
- The second 2 digits on the Slope attribute = K2

Addition Functions

Keyboard lock
This function will lock the keypad to stop or prevent any updating of the parameters. This can also assist you when the unit will be in an area that is unsupervised /open to the public. In normal mode, press both the UP and DOWN keys for about 3 seconds until the display shows "C1", the keypad is now locked. To unlock it again press and hold the UP and DOWN keys again until "C0" is displayed.

Error Messages

The following error message will show to indicate that there is a fault.

EE: Sensor cannot be detected.
Current Reading Flashing: The sensor is above or below the Set Point (**F1**) by the % set in the Alarm (**F4**).
Er: Data Saving Error.
HH: Humidity is our of range for displaying

Additional Information

Please avoid using the sensor in dusty environments. Do not submerge the sensor in water or liquid. Using this is area with strong electromagnetic fields can distort the true readings.