

# DCC-15 TECHNICAL DATASHEET

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The DCC is a digital climate controller which can control a ventilation or a heating system.

The main parameters are:

1. **Selected Temperature**
2. **Minimum speed-power**
3. **Maximum speed-power**
4. **Thermal contact**
5. **Timing Program**

Pressing the keys up (^) or down (v) you can see the values associated with the different parameters. The Led associated to each parameter will show you which value is being displayed.

**When none of the Leds are on the value displayed is the actual temperature read by the probe.**

These parameters are modified by pressing the key M (Change). Once pressed the value displayed will blink. Use the keys up (^) and down (v) to increase or decrease the value. Press the key M again to fix the new value.

**1. Selected Temperature:** Is the one selected for the warehouse or room

**2. Minimum speed-power:** minimum-working speed that the fan works meanwhile the existing temperature is below the “Selected Temperature” for the warehouse or room. always Shown in % percentages.

**3. Maximum speed-power:** Maximum speed at which the fan will perform. Is also expressed in percentages. *The 99% correspond to the 100%.*

**4. Thermal contact:** Temperature expressed in Celsius degree at which the relay will change its state. There is a configuration option which determines if the relay is configured for ventilation or for heating (explained later). When configured for ventilation then relay will connect when the temperature read by the probe was equal or higher than the settled in this option. Below this temperature the relay will be off. Otherwise if the relay is set for heating it will be connected when the temperature was below the fixed one. There is a delay of 20 seconds before the contact changes its state. This is to avoid being continuously switching.

**5. Timing Program:** The timing consists of a succession of intervals in which the fan is working (connect) and later stops (disconnect). When working, the fan will work at the power settled in the “Minimum speed-power” option. When stop the speed-power output will be 0. In the front of the controller there is a look-up table indicating the different programs or timing intervals. These programs are executed only when the temperature registered by the temperature probe is **below** the “Selected Temperature”. Above this temperature the fan will not stop. For example, if you set in this option a 1, the fan will be

working during 4 minutes and afterwards it will stop during 1 minute, repeating this cycle again while the temperature read by the probe was below the “Selected Temperature”.

### Configuration options

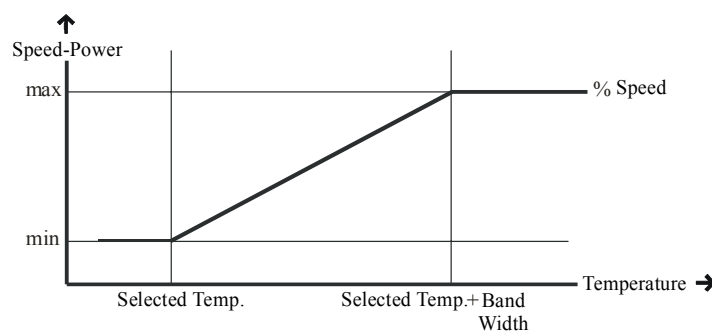
The configuration options are use to change or adjust the behavior of the controller. To access the configuration mode you have to press simultaneously during a second the up (^) and down (v) keys. Once into this mode the Led associated with the selected option will blink. To exit this mode press again simultaneously during a second the up (^) and down (v) keys.

The configuration options are the following...

1. **Ventilation (0) / Heating (1)**
2. **Thermal contact for Ventilation (0) / Heating (1)**
3. **Band Width**
4. **Speed-Power at 1 %**
5. **Fans (0) / Resistive heater (1)**

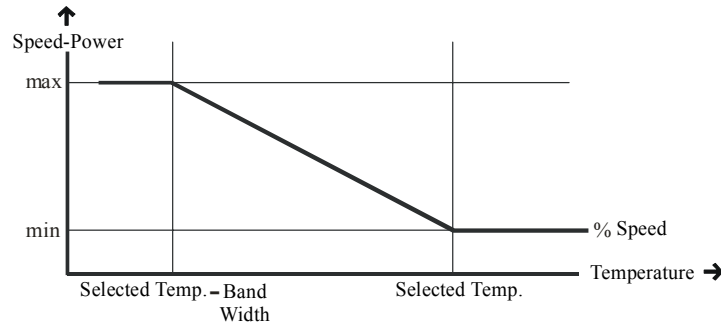
**1. Ventilation (0) or Heating (1):** A 1 in this option means than the controller is configured for ventilation and a 0 for heating.

When the controller is set for working as ventilation, and the temperature read by the probe is below the “selected temperature” the speed-power in the motor output will be the entered one in the “minimum speed-power” parameter. As the temperature read increases above the “Selected Temperature” the speed-power output will increase. When the temperature read was equal or higher than “Selected Temperature + Band width” the output power will the settled in the “maximum speed-power” option. The following picture shows this situation.



**Figure 1. Ventilation**

When the controller is set for working as Heating, and the temperature read by the probe is above the “Selected temperature” the speed-power in the motor output will be the entered one in the “minimum speed-power” parameter. As the temperature read decreases below the Selected Temp. the speed-power output will increase. When the temperature read was equal or higher than “Selected Temperature - Band width” the output power will be settled in the “maximum speed-power” option. The following picture shows this situation.



**Figure 2. Heating**

**2. Thermal contact for ventilation (0) or Heating (1):** When this option has a 0, the thermal contact is set for ventilation and a 1 for heating. When configured for ventilation then relay will connect when the temperature read by the probe was equal or higher than the set in the “thermal contact” option. Below this temperature the relay will be off. Otherwise if the relay is set for heating it will be connected only when the temperature was below the settled one.

**3. Band Width:** Is the number degrees in which the power-speed output goes from the minimum speed-power up to the maximum speed-power. The figures 1 and 2 show the effect of the Band Width in the controller when configured as ventilation or heating.

**4. Speed-power at 1 %:** In this option you set the speed-power output when the controller was at 1%. For example if we connected a fan to the output, in this option you set the speed at which the fan will turn on when the fan is rotating at 1%. The fans will rotate from the 1% up to the 100%. In this option the installer ensures that when the farmer sets the minimum speed-power at 1%, the fan will not rotate so slow that the wind could stop the spin of the fan, or that due a low voltage in the power lines the fan receives less power than the necessary to rotate.

**5. Fans (0) / Resistive heaters (1):** In this option the installer can set what kind of load is being controlled by the controller. When a fan is attached to the controller set a 0. When a resistive heating or heating lamps is being control set a 1.

### Adjust probe mode

In this mode you can correct any deviation of the temperature read by the probe from the real temperature. To enter into the adjust probe mode you have to press simultaneously during a second the up (^) and modify ( M ) keys. Once inside this mode all the Leds will be on and the value of the temperature read by the temperature probe will

be displayed blinking. Adjust the temperature with the up and down keys up to the displayed temperature was the right one. To exit to the normal just press the **M** key.

The default values of the different parameters are the following:

1. Selected Temperature :	<b>25 (°C)</b>
2. Minimum Speed-Power:	<b>1 (%)</b>
3. Maximum Speed-Power:	<b>99 (%)</b>
4. Thermal Contact:	<b>28 (°C)</b>
5. Timing program:	<b>0 (No timing)</b>
6. Ventilation (0) / Heating (1)	<b>0 (Ventilation)</b>
7. Thermal Contact for Ventilation (0) / for Heating (1)	<b>0 (Ventilation)</b>
8. Band Width	<b>3 (°C)</b>
9. Speed at 1 %	<b>5 (%)</b>
10. Fans (0) / Resistive Heaters (1)	<b>0 (Control of fans)</b>

All the degrees are Celsius.

### **Technical data**

**Input:** 230 Vac / 50Hz

**Output:** 0- 230 Vac / 50 Hz

**Max. I.:** 15 A

**Temperature Read:** 0 to 98°C

**Relay:** 230 Vac / 50 Hz / 5 A

### **Operation notes:**

1. If the temperature displayed is 0 and the actual temperature is not 0°C, the probe is broken (open).
2. If the temperature displayed is 99 the probe is broken (Short circuit).
3. Below 180 Vac the controller will not work properly.
4. If the fuse fuses frequently check the current (Amperes) actually being consumed, because you are exceeding the capacity of the controller or you have a short circuit in the motor or load being controlled.
5. if a varistor breaks probably you have connected the controller to 380 Vac or that due to electrical causes the voltage went above 275Vac. After checking with a tester that the controller is connected correctly, you can keep the controller working cutting (eliminating) the broken varistor. Remember that although the controller will work again you have lost the over voltage protection. You must replace the broken varistor with a new one. If you do not so you can damage the controller definitively.