AGEON
Electronic Controls

H201 Color
Digital temperature controller
Installation guide

Technical characteristics

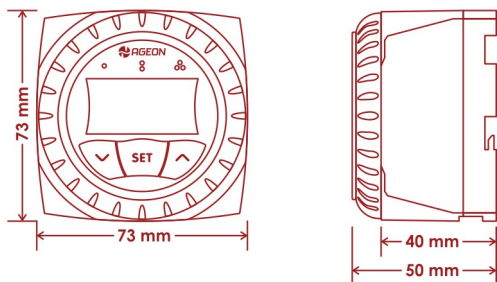|	
Supply voltage	110 or 220 Vac
Maximum power	2 VA
Relay output	1/2 HP (10 A / 250 Vac)
Setting range	0 to 200 °C
Measure range	0 to 250 °C
Operating conditions	0 to 40 °C and 10 to 90 % UR (no condensation)
Dimensions (HxLxW)	73 x 73 x 50 mm
NTC sensor (Stainless steel)	Ø5 mm / L=30 mm cable length 2,5 m

Description

Model H201 is a digital temperature controller (ON/OFF) with decimal display. Through temperature monitoring, it controls the relay according to the programmed *setpoint* value.
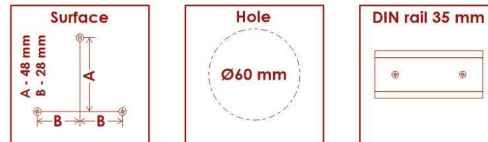
Warning

Never expose the product to temperatures outside the range of 0 to +40°C or the temperature sensor outside the range of –50 to +200°C, this could cause irreversible damage to the product.
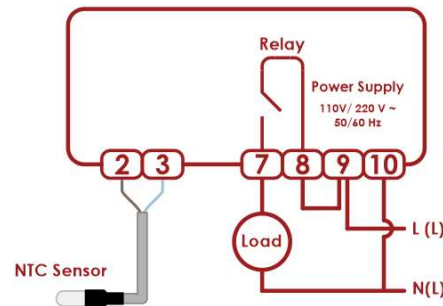
Dimensions

73 mm

73 mm

40 mm

50 mm

Fixing

Surface
A - 48 mm
B - 28 mm

Hole
Ø60 mm

DIN rail 35 mm

Connection diagram

Relay
Power Supply
110V/ 220 V ~
50/60 Hz

2 3   7 8 9 10

L (L)

Load

N(L)

NTC Sensor

Error indication

The error indication "E1" appears on the product display always there is a problem with the temperature sensor. If this happens, check if:

- ✔ The sensor is properly connected to the device;
- ✔ The sensor is within temperature range (-50 to +250°C);
- ✔ The sensor or its cable are damaged.

Relay indicator LED

During controller operation, the relay indicator can be in one of the following states:

- ✔ **Off:** deactivated relay;
- ✔ **On:** activated relay;
- ✔ **Flashing:** the relay is waiting for a time delay to end.

Parameters table

Parameter		Range	Default value
Cd	Access code *(Cd=28)*	0 to 999	0
Controller			
r0	Differential *(Hysteresis)*	0.1 to +20.0 °C	2.0
r1	Smallest allowed *setpoint*	0 °C to SP*	0
r2	Highest allowed *setpoint*	SP* to 200 °C	200
r3	Action *(rE = Cooling or Aq = Heating)*	rE or Aq	Aq
r4	Sensor calibration	-15.0 to +15.0 °C	0.0
Timings			
C0	Device energization delay	0 to 20 minutes	0
C1	Delay after relay activation	0 to 20 minutes	0
C2	Delay after relay deactivation	0 to 20 minutes	0
Alarm			
L0	Alarm differential	0.1 to +20.0 °C	2.0
L1	Alarm lower limit	0 °C to L2	0.0
L2	Alarm upper limit	L1 to 200 °C	0.0
L3	Display color mode *(0 = Alarm trips in, 1 = Alarm trips out, 2 = Green (relay off) or Red (relay on), 3 = Green, 4 = Red or 5 = Orange)*	0 to 5	2

* Adjusted setpoint.

Setpoint setting

With the device indicating the temperature on the display, keep the **set** key pressed and use the keys ⌃ or ⌄ to increase or decrease the *setpoint*. After adjustment, release all keys and the controller will return showing the measured temperature.

Setting parameters

To adjust the control parameters, follow these steps:

- ✔ Simultaneously press the keys ⌃ and ⌄ for about 4 seconds, until the controller displays the parameter **Cd**, then release all keys;

- ✔ Keep the key **set** pressed and use the keys ⌃ or ⌄ to adjust the value of **Cd** to 28, after, then release all keys;

- ✔ The display will show the **Cd** parameter again; then use the key ⌃ or ⌄ to select the parameter to be set;

- ✔ Finding the desired parameter, keep the key pressed and use the key ⌃ or ⌄ to adjust the desired value;

After adjusting all parameters, keep the ⌃ and ⌄ keys pressed for 4 seconds to exit the parameters table and start the controller operation. If no key is pressed for 30 seconds, the controller will automatically exit the parameters table.

Noise supressor

When using the controller to drive inductive loads such as solenoid coils, contactors, motors, relays, among others, it is recommended to install a suppressor circuit in parallel with the coil terminals (A1 and A2). This minimize the electrical noise generated, when inductive loads (coils) are deactivated, which can interfere with the controller operation and cause operation malfunctions.

Resistor
470 Ω / 2 W

Polyester capacitor
100 nF / 400 V

A1

A2

Solenoid coil
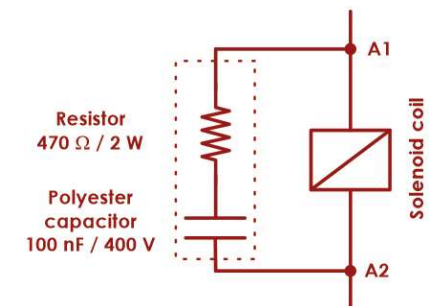
Parameters descriptions

Cd - Access code: to change parameter values, it is necessary to set the value of **Cd = 28**. If this is not done, parameter values can only be viewed, but not changed. This parameter prevents unauthorized people from changing the programmed values.

r0 - Differential: this parameter defines the temperature difference between switching on and off the relay. For example, if the device is in cooling mode (r3 = rE) and the *setpoint* is 5 °C and r0 = 2 °C, the relay is activated until the temperature reaches 5 °C. When then it turns off and only turns on again when the temperature reaches 7°C (5°C + 2°C).

r1 - Smallest allowed *setpoint*: defines the lowest temperature value the user can adjust for the *setpoint*. It prevents a value that is too low from being set by mistake.

r2 - Highest allowed *setpoint*: defines the highest temperature value the user can adjust for the *setpoint*. Prevents setting too high a value by mistake.

r3 - Action: if the device is used in a refrigeration/ cooling process, the parameter "r3 = rE" must be set. If the device is used in heating, set "r3 = Aq".

r4 - Sensor calibration: the value set in this parameter is added to the temperature measured by the sensor. With this parameter, it is possible to correct eventual temperature deviations.

C0 - Device energization delay: defines a time, after powering up the device, in which the relay remains off. During this period, the device only functions as a temperature indicator. When there are several appliances connected to the same electrical network, the C0 prevents all of them from being connected at the same time at start-up, overloading the network. In this case, different C0 values are programmed for each device.

C1 - Delay after relay activation: after activating the relay, it remains switched on, regardless of the temperature, for at least the time defined in C1. This parameter avoids voltage spikes in the network.

C2 - Delay after relay deactivation: after the relay is turned off, it will remain off, regardless of the temperature, for the time defined in C2. In the case of using refrigeration compressors, this parameter allows time for the temperature and gas pressure to reduce before starting again. This reduces the starting current and prolongs the equipment´s life.

L0 - Alarm differential: this parameter defines the alarm turn off differential.

L1 – Alarm lower limit: sets the lower alarm limit.

L2 – Alarm upper limit: sets the upper alarm limit.

L3 - Display color mode: defines the operating mode of the display:

0 = Alarm trips in: when the measured temperature is within the range defined by parameters L1 and L2, the display turns red; outside this range will be green.

1 = Alarm trips out: when the measured temperature is out of the range defined by parameters L1 and L2, the display will be red; within this range will be green.

2 = According to the relay operation: when the relay is turned on, the display will be red; when the relay is turned off, it will turn green.

3 = Green: in this mode, the display will always be green.

4 = Red: in this mode, the display will always be red

5 = Orange: in this mode, the display will always be orange.

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Notes