

PARAMETER SETTINGS TECHNICAL MENU - BIANCA PL162T



HOW TO ACCESS THE TECHNICAL MENU

- Power off the machine.
- Keep pressed the “+” and “-” button of the LCC display, and in the same time power on the machine, when the display will show **KPc:0,8** release the buttons.
- Press the “-” button to scroll the parameters and the “+” button to enter to program the chosen parameter.
- Once selected the parameter, the value will blink on the display and you can increase or decrease it by pressing “+” or “-” button.
- After three seconds, the display will stop blinking and the new set value will be stored.
- Power off and power on the machine.

LIST OF PARAMETERS

Coffee PID parameters

KPc:

- Allowed values 0÷99.9

- Factory setting: 0,8

When this value increases, the coffee boiler heating element heats more frequently in the ascent phase, therefore it generates more inertia which means more degrees than the value set by the user.

If you decrease this value, the heating element heats less frequently in the ascent phase, therefore it generates less inertia which means less degrees than the value set by the user.

KIc:

- Allowed values 0÷99.9

- Factory setting: 0,04

Maintenance value, it increases the cycles of activation of the coffee heating element when it's in stand-by mode.

KDc:

- Allowed values 0÷99.9
- Factory setting: 12

Increasing this value, LCC display activates the coffee heating element more frequently when the boiler is in the descent phase, if the value is increased, more impulses are given, therefore it decreases a little bit less.

Bc:

- Allowed values 1÷40
- Factory setting: 15

It is the proportional range, within which the temperature is regulated by the PID, outside it, the coffee boiler heating element is regulated by ON/OFF.

Ec:

- Allowed values 1÷50
- Factory setting: 10

Offset coffee temp.: with a value of 0, the heating element is turned off at the set-point coffee temperature programmed (e.g.95°C); with a value of 10, the heating element is turned off 10°C more than the value of the programmed set-point.

Steam PID parameters:

KPs:

- Allowed values 0÷99.9
- Factory setting: 20

When this value increases, the steam boiler heating element heats more frequently in the ascent phase, therefore it generates more inertia which means more degrees than the value set by the user.

If you decrease this value, the heating element heats less frequently in the ascent phase, therefore it generates less inertia which means less degrees than the value set by the user.

KIs:

- Allowed values 0÷99.9
- Factory setting: 0

Maintenance value, it increases the cycles of activation of the steam boiler heating element when it's in stand-by mode.

KDs:

- Allowed values 0÷99.9
- Factory setting: 20

Increasing this value, LCC display activates the steam boiler heating element more frequently when the boiler is in the descent phase, if the value is increased, more impulses are given, therefore it decreases a little bit less.

Bs:

- Allowed values 1÷40
- Factory setting: 0

It is the proportional range, within which the temperature is regulated by the PID, outside it, the steam boiler heating element is regulated by ON/OFF.

Es:

- Allowed values 1÷50
- Factory setting: 0

Offset steam temp.: with a value of 0, the heating element is turned off at the set-point steam temperature programmed (e.g.125°C); with a value of 10, the heating element is turned off 10°C more than the value of the programmed set-point.

TR: (real temperature)

- Factory setting: 0

TR:0 = the display will always show the programmed temperature set-point

TR: 1 = the display will show the real temperature

PLEASE NOTE:

- with TR:0 selected:

when the display shows the set-point temperature, by keeping the “+” button pressed for a few seconds, the display shows the real temperature of the coffee boiler.

Keep pressed again the “+” button for a few seconds to read the real temperature of the steam boiler.

- with TR:0 or TR:1 selected:

If, after turning on the machine, the temperature is below 70°C, will start before, the heating (without pid control) of the coffee boiler until reaching the set-point of 130°C.

After that, will start the heating (without pid control) of the steam boiler until the programmed set point. (For the entire duration of the heating cycle, the display will shows the real temperature only if the **TR:1** has been selected.)

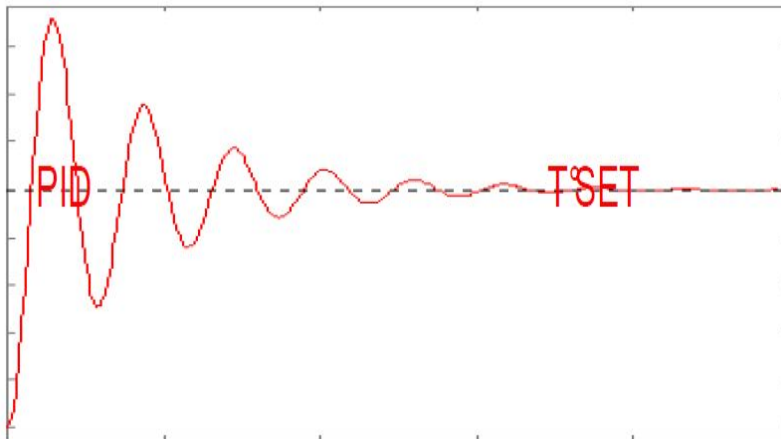
This heating cycle, allows to reduce the time to reach the set-point temperature, and ensures the first coffee extraction at a proper brew temperature.

FUNCTIONS OF THE PID VALUES

The default regulation of the temperature is realized according to an algorithm called PID.

The constants that determine the thermoregulation are called

- Proportional constant K_p
- Integrative constant K_i
- Derivative constant K_d
- The proportional range is the range, within which the temperature is set by the PID, outside it the heating element is regulated by ON/OFF.



The three constants and the proportional range have to be adapted to the espresso machine, depending from the heating element power, the boiler dimensions, the fluidic and its dispersion. This regulation usually requires a bit of time in order to get the best possible result.

We call “set point value” or $T^{\circ}\text{SET}$ the boiler temperature it has to have during normal functioning.

If, during the heating or maintenance phase, the temperature excessively swings around the $T^{\circ}\text{SET}$, with values that do not weaken in time, the proportional constant K_p needs to be diminished.

- If, in the maintenance phase, the temperature excessively swings around the $T^{\circ}\text{SET}$, with a very long swing period and with values that do not weaken in time, the integrative constant K_i needs to be diminished.
- If, in the heating or maintenance phase, the temperature has an excessive swing and it's often more than the $T^{\circ}\text{SET}$ but then weakens in time, the derivative constant K_d needs to be diminished.
- If, in the heating phase, the temperature tends to be below the $T^{\circ}\text{SET}$ and gets more and more far away from it, the derivative constant K_d needs to be increased.

- If, in the heating phase, the temperature tends to be below the T°SET, in a constant way, the proportional constant Kp needs to be increased and also the integrative constant Ki needs to be slightly increased.
- If, in maintenance phase, the temperature tends to be below or above the T°SET value in a constant way, the integrative constant Ki needs to be increased and also the proportional constant Kp needs to be slightly increased.

RESET PROCEDURE TO GO BACK THE FACTORY SETTINGS

- Power off the machine.
- Keep pressed the “+” button of the LCC display, and in the same time power on the machine, when the display will show “**Preset done**” release the button.
- Power OFF and power ON the machine

 *After a Reset procedure, when the machine is switching on, you have to repeat the filling operations of the coffee and steam boiler.*