

Troubleshooting Guide for Pump-control in Pre-infusion Kit

Version 1.1 (April 2020)

How Does it Work

In our pre-infusion kits (KIT-RSPb and KIT-GGP), the PID controller can activate the pump for pre-infusion and brew a shot automatically. This is achieved by an internal relay which controls the power to the pump. The flow of the power is quite simple. The pin 1 of the controller is connected to the brown wire (neutral wire of the AC power), and the pin 2 is connected to the black wire (hot wire of the AC power). A short piece of black wire connects the pin 2 to pin 4. There is a normally open relay installed internally to pin 4 and 5 of the controller. And there is a piece of green wire for pump-control should be connected to the wire originally attached to the coffee/brew button. See Figure 1 for wiring.

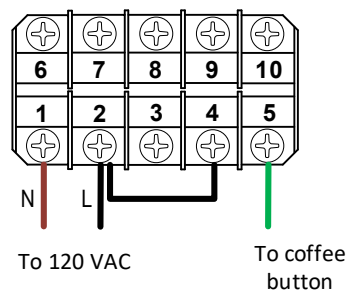


Figure 1. Wiring on a pre-infusion controller.

Because of the relay is a normally open relay, the pin 4 and 5 are actually not connected at normal state. So, there is no power can flow from pin 2 to the pump. When you press the timer/”>” button on the PID, the PID will show a counting down timer, and in the meantime, the “AL” indicator should turn on, the relay contacts will pull in (except during the 1.2 seconds of pause time), and you can hear a click. Then the AC power can flow from pin 2 to pin 4, internally to pin 5 and finally activate the pump. The “AL” indicator is synchronized with the relay action.

Tools Needed

A Phillips screw driver

A multimeter, to measure resistance and/or AC voltage

Troubleshooting Steps

- A. If the second button from the left doesn't have a clock symbol on it, or if the controller doesn't count down time when you press down the timer/”>” button, you may have a controller that doesn't support pre-infusion function. Please check the side label/sticker on the controller to find out its model number, the serial number, and contact us.
- B. On a Rancilio Silvia machine, the coffee/brew switch must be flipped to the ON position.
- C. When you press the timer/”>” button, the timer starts counting down, but the pump won't work.
 - 1) Check the wiring.

- i. The black wire from the kit must connect to pin 2, and the brown wire must connect to pin 1. This is because in our kit, the black wire is for hot wire and the brown is for neutral.
 - ii. Check if there is any wire insulation caught between the screw terminals. Please make sure all wire conductors are firmly clamped under screws.
- 2) Check the relay.
Sometimes the relay can fail. You may hear a click, but the relay doesn't actually pull in.

Warning: Please be careful with the AC voltage on pin 1, 2, 4, and 5.

Method 1: Measure the resistance between pin 4 and pin 5.

- i. Turn off the machine. Remove the green wire on pin 5, and protect the wire tip with a piece of tape.
- ii. Measure the resistance between pin 4 and 5. It should be open, and your multimeter should show "OL" (over-limit).
- iii. Turn on the machine, press the timer/">" button on the PID controller, wait a few second till the controller starts the 25 seconds count-down, then measure the resistance again between pin 4 and 5. The resistance should be zero ohm or close to zero ohm on a good relay. If not, the relay is defective.

Method 2: Measure the AC voltage between pin 1 and pin 5.

- i. Before you press the timer/">" button, the AC voltage between pin 1 and pin 2 should be 120VAC whereas voltage between pin 1 and 5 should be close to 0 or less than 2 VAC.
- ii. After you press the timer/">" button, the AC voltage between pin 1 and pin 5 should be 120VAC.

Please contact us for any question during the troubleshooting process.

(End)

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