

PT100M Installation Guide

Version 1.0

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(This guide was extracted and modified from the Installation Guide for the PID Retrofitting Kit for Rancilio Silvia. Full instruction will be provided to the kit buyer)

Procedure

Installation in boiler compartment

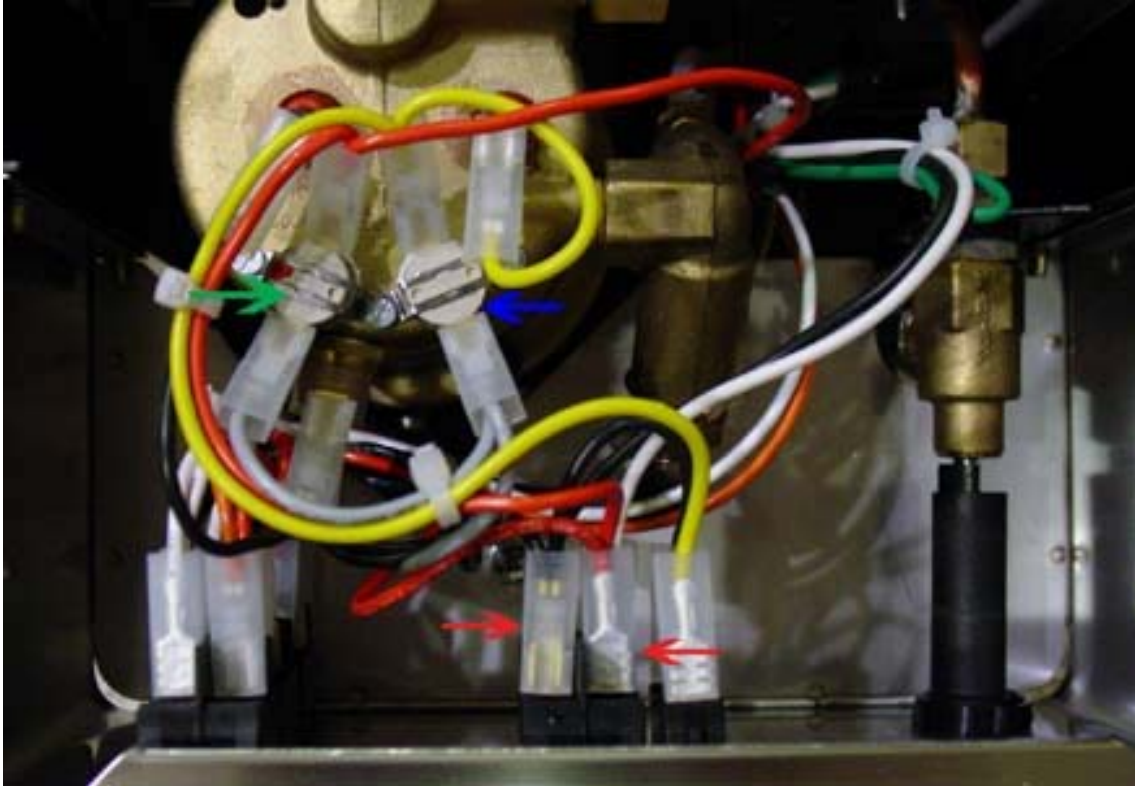


Fig 1, top view of original wiring. Red arrows indicate where the controller power cable will be tapped. Green arrow points to brew water control thermostat. Blue arrow points to steam temperature control thermostat.

- 1) There are two thermostats on top of the boiler. The one on the left with a red dot on top is the brew water temperature control thermostat. The one on the right is for controlling the steaming temperature. You need to remove the cable connectors on both side of brew water temperature thermostat (connectors with red and gray cable). They need to be connected to the output cable of SSR (after the RTD sensor installation). You also need to remove this thermostat and move the steaming thermostat to its position. This is because you need to mount the RTD sensor to the thermowell underneath the steam temperature control thermostat. This thermowell is closer to the cold water inlet, and results in better control. You need to use a small to medium sized flat head screw driver to remove the screw. Be very careful to not let it drop into the gap below. A magnetized

screw driver will help. Fig 2 shows the steam thermostat has been relocated and thermowell for RTD sensor is exposed (marked with red arrow).

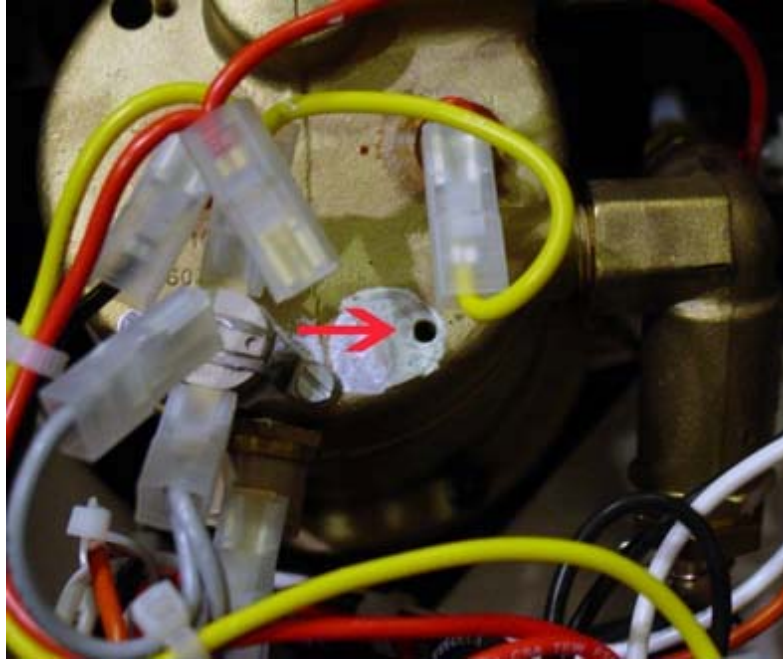


Fig 2, Thermowell for RTD mounting

- 2) Install the RTD sensor. **Caution:** the connection between the RTD and cable is very fragile because of the small size and there is no strain relieve. To prevent the sensor from breaking, install the sensor without unwrapping the cable (install it as the way it was received). This will reduce the twist pulling force when screwing on the sensor. The sensor can be tightened with a small wrench or pliers. It does not need to be very tight. If you want make sure the sensor didn't get damaged during installation, you can measure the resistance of the sensor after installation. It should be in the 100 to 140 ohm range.
- 3) Install the cable from SSR output to the gray and red connector. Fig 3 shows what it should look like at this step.

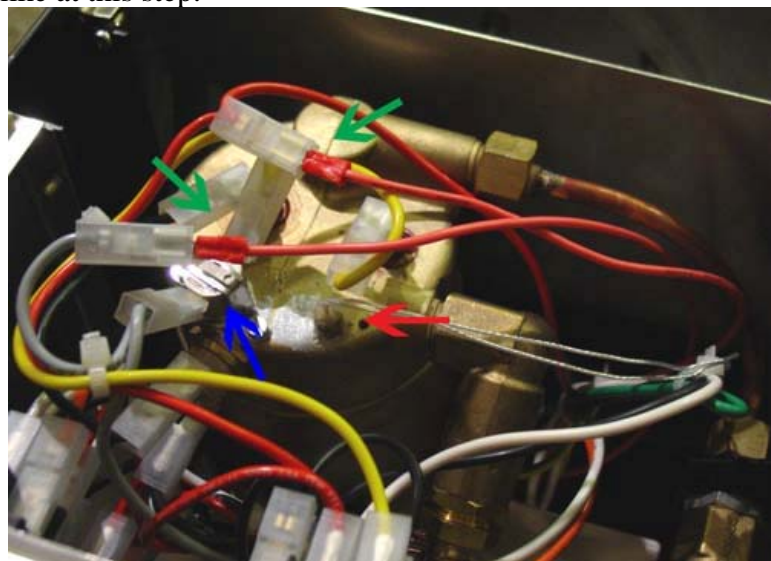


Fig 3. Wiring for SSR output and RTD sensor. Red arrow points to RTD sensor. Green arrows point to the SSR output connections. Blue arrow points to the steam thermostat.

Brew Water Temperature Setting

Table 1.

Part Number	Description	SV value in °C	SV value in °F
PT100M	Rancilio Silvia	107	225

Table 1 lists default settings for the SV of the controller. Based on the discussions from forums, the generally accepted setting for Silvia PID has been around 228-229 °F for sensors mounted on the top of boiler. The values in table 1 have been adjusted for the RTD sensor. We found the temperature in the thermowell is about 2 °C (3.5 °F) lower than that on the top of the boiler after the machine is equilibrated for 45 minutes or longer. Since SV can be easily changed, it will up to the user to decide what the best temperature is for the espresso.

Recommend PID Parameters with PT100M sensor.

For the current model of SYL-1512, you can try the following setting.

SouF=1.0, P=3.0, I=100, D=40

SouF=1.0, P=3.3, I=183, D=45

SouF=1.0, P=4.0, I=200, D=50

Please note that these numbers only apply to RTD sensor. They are independent with the temperature display unit. Either F or C will work.