

# Temperature Control

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Temperature control (Consultant's Corner)

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At one time, heater switching was triggered simply from the output of a thermocouple deep within the barrel or die. At start-up, the temperature at the melt interface soared way over the set point and eventually settled down after twenty minutes of decreasingly wild fluctuations. Then it was suggested that heating would be more constant if the control thermocouples were situated directly under the heater band. This gave a steady temperature, but switched every second or so and the system took a long time to heat up.

Over twenty years, the industry moved into fully anticipatory and proportioning thyristor controllers, costing scads more than the simple on-off types we started with.

Around 1959, a physicist colleague said, "Surely you don't need this complicated gear for extruder heating - why don't you just use deep surface thermocouples in parallel?" He showed us that, when using a simple controller with two TPs in parallel, one directly under the heater band and the other as near to the melt surface as possible, the system heated rapidly up to the set point and stayed there with virtually no override.

The method was extremely useful for upgrading old equipment, and would help a lot in the third world, where there tends to be a shortage of electronics maintenance people.

- Brian Glyde

See also:

- [Feed screw temperature control \(STC\) in the single screw extruder](#)
- [Heating modes for extruder barrels](#)
- [Melt temperature measurement](#)
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