

Energy saving thermostat

There are lots of offerings for 'energy saving thermostat' on the market, but none of them really appeal to me. Often they rely on movement-sensors: noone in the house, heating switches off (or goes low). For starters: this doesn't work when you have dogs or cats in the house. But more fundamentally, these do nothing to heighten awareness of your energy consumption.

So, years ago I installed a clock device which shuts off (or reduces) the heating system every hour or every few hours. To re-start, you push a button after which it goes for another hour or whatever period you choose. The benefits, both for our *awareness* and for our *energy bills* have been considerable.

Using a programmable thermostat

The device should a) be programmable with many different programs and b) have a manual 'start'-button. The trick, then, is quite easy. For daily use, you program a series of on-off sessions. All these sessions are set to 'on' at the same time, say 7 a.m. The first program switches off at 7:05, the second starts at 7 and switches off at, say, 9. The third switches on at 7 and off at 11, and so forth. The combined effect is that the heating only once per day switches on automatically for 5 minutes (or half an hour if you prefer to bet up in an already heated apartment) and during the rest of the day you have to push the manual override button to get the heating going and it will switch off at the set times.

(Actually, most modern thermostats are even more sophisticated in that they let you switch between a higher 'day temperature' and a lower 'night temperature'. But that doesn't prevent this trick to work.)

An old thermostat with some DIY

If you have an older thermostat and are not about to invest in an expensive new one, and if you are unafraid of a little bit of Do-It-Yourself, here is a way to make such a device on the cheap.

You will need:

1. A programmable timer switch, with an overriding on/off button.
These switches are quite often used nowadays and have become very inexpensive; €20,- (or \$20,-) at most. They come in the form of a device you plug into the mains; then you plug the appliance you want to switch in the device.
2. A low-voltage power supply. If you are like me, you'll have some lying in a cupboard as they are often all that is left of devices which were scrapped. Else you'll find boxes full of them on any flea market. The output voltage is not critical; anything from 6V to 18V will do.
3. A low-voltage *relay switch*. This is a very common, very cheap, device but may be the hardest to get for some, I admit. Maybe you know an old-



fashioned electronics store or else you can order it on the internet of course, although paying \$2,- for the relay and \$20,- for postage isn't really that attractive. But maybe you can combine it with the order for the programmable timer clock. (For Europeans: the firm Conrad will fulfill all your needs.)

The specs are not at all critical: anything that switches with the voltage of your power supply and can switch 24V (the usual voltage for thermostats) will do. If you are not handy with a soldering iron, find a realy with wires sticking out, so you can make the connection using a connector or by simply twisting wires together.

4. Some electrical wire; a few connectors and insulating tape.

Now find and trace the wire which connects your thermostat to the boiler and choose a suitable place to interrupt it. This is where you'll place the timer (and thus the 'start button'). Mains power should be (made) available.

Connecting it all up is easy: connect the output of the power adapter to the primary of the relay; then connect the remaining two contacts of the relay so they interrupt the connection of the thermostat to the boiler. Thus the thermostat can only close the circuit when the power supply is on. You can put the relay and the connectors in any small plastic box.

I made it a little more complicated myself for those times others are staying in our home, who I don not want to bother with my *annoying thermostat*. It simply consists of a pair of male-female connectors. The male connector has its wires connected and plugging it in bypasses my clever system and makes the thermostat work the conventional way.

Additional savings!

A programmable timer switch as described here can bring you even more savings during summer (in fact, this alone could be a good reason to buy one regardless). You may know that your central heating system contains a *pump* which continuously pumps the heated water around. This pump, of course, consumes electrical power; yet you are usually not advised to completely switch it off in summer. The reason for this is that, if the pump is not working and the water is not flowing, calcium residues may build up in the pump, which may harm or hamper it once it is started again after a few months.

This can be avoided by having the pump work every day for 15 minutes or so; something you can easily program in your programmable switch. You have to be able to plug the power supply of the boiler-system into that switch, of course. In case that is not easy to do, just buy two of those switches. Having the pump running all summer will easily cost twice the price of a programmable switch.

hans