HouseHeat v TRVs (Thermostatic radiator valves)

1 In order for the user to achieve anywhere near the same savings with a TRV compared to Househeat the user has to remember without fail to turn all radiators up when entering a room and down again when leaving this is not always possible as they often are behind radiator covers/cupboards etc Househeat will automatically do this for the user.

2 TRVSs are inaccurate as they measure the temperature at source which is the hottest part of the room as they sit on the radiator. Househeat measures within ½ degree and can be placed where the person is in room e.g. around a babies cot or on bedside or lounge table so overheating does not occur and a precise comfort temperature is achieved.

3 TRVs get left in one place especially over the summer and the pin sticks and they do not work efficiently until you loosen the pin. Househeat has a built in de calcification system which works the pin all year including the summer which eliminates maintenance issues.

4 TRVs let all water in at once -then the wax pin expands to shut off the flow when the temperature is reached but by this time they have overheated and wasted energy. Househeat sends out a signal each minute or so and will modulate the heating by opening the valve in increments and will learn the pattern of the room therefore saving energy.

5 Window sensors can be added to the system which detect if a window has been opened and send a wireless signal to turn down the radiator to a level which the user requires thus not wasting heat to the outside. Motion sensors can be added too which detect presence in a building and heat accordingly.

6 Pegler Yorkshire who manufactures 1/3rd of the UKs TRVs has tested against a TRV in a domestic situation and has found 52% savings in favour of HouseHeat.

Other Benefits

The system is wireless so you don't have to drain down providing there is a TRV body in place. There are no walls to channel out for wires.
Up to 8 radiators can be controlled from 1 thermostat
The system can be used in larger buildings if there is a Local area network in place. Up to 4000 radiators and 1000 thermostats can be run from a central office.
If there is a BMS system in place (building management) Househeat can integrate with it and give the user greater control

The best example is a domestic house in the winter months at a weekend the boiler may be on all the time. However occupancy /usage of a bedroom may be as follows

10pm to 11pm getting ready for bed in bedroom
11pm to 9am sleep time
9am to 10 am shower/changing in bedroom
10am to 10pm not using the bedroom

If in the above case the bedroom was set to 22 degrees then there would be many hours of non usage at this high heat. If we look at the benefit of Househeat it could be as follows:

10pm to 11pm 22 degrees
11pm to 8.30 am 16 degrees 9.5
8.30 to 9.30 22 degrees
9.30 to 10pm 16 degrees 12.5

Therefore there will be a total of 2 hours at 22 degrees rather than 24 hours at 22 degrees. There will be 22 hours where the heating is turned down by 6 degrees and for every 1 degree heating is turned down a 8-10% energy saving is achieved according to the carbon trust.

Examples of places which have our system

Oxford University, Warwick University, Durham, University of East Anglia, Nottingham Uni
Council Offices Hackney and Bristol (perimeter heating TRVS hard to get at)
Care Homes (such as the Priory group)
Boarding Schools
Hotels
One of the largest Energy Companies
Microsoft
Pegler Yorkshire

We have met with David Cameron MP who has written to Ed Miliband he head o the UKS energy and climate change department and as a result of which we are now talking to EAGA to potentially be part of the Warmfront scheme for the UK.

Results

Pegler Yorkshire

Couple both in full time employment

	Single Zone		Dual Zones		Advanced Control with Setback	Advanced Control
	MRV's	TRV's	MRV's	TRV's		
Annual Consumption kWh	13201	11843	11186	10441	5939	5517
Annual Cost	£594	£533	£503	£470	£267	£248

Family two adults & two pre-school children

	Single Zone		Dual Zones		Advanced Control with Setback	Advanced Control
	MRV's	TRV's	MRV's	TRV's		
Annual Consumption kWh	16779	14705	14463	12575	8023	7592
Annual Cost	£755	£662	£650	£566	£361	£342

Assumptions

House Type	Fully Insulated
Price Per kWh	£0.045
Boiler Efficiency	90%
Heating on Period in Weeks	34