

Energy Monitoring

How To Measure Your Energy Use At Home

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Quick Overview

- Story
- Meters and bills
- Energy Monitors
- Thermal Imaging



A Story

- In spring 2010 we moved into our house
- We had the same energy company and tariff as the previous owner
- We have NOT replaced the boiler, the windows or done anything radical to the house yet
- We paid the same monthly direct debit as the previous owner
- How different was our annual bill?



LOTS!



In One Year...

- Monthly direct Debit went from £160 to £49
- Rebate of £696
- They overestimated our gas and electricity by about £100 per month



What We Did

- Turn central heating boiler thermostat down
- Shortened central heating run time a little
- Replaced all old light-bulbs with modern ones
- Fitted roller blinds behind some curtains
- Fitted draft excluding tape to some leaky doors and windows





by Jabi (2010)

Easy Energy Monitoring



Bill and Meter

- Check your meter once a month and send reading to power company
- Look at the KWh on your bill is it above or below average
- Easy to do you – you only need pencil and paper!



UK Averages

| Number of Bedrooms | Gas Usage (KWh) | Electricity Usage (KWh) |
|----------------------------|-------------------------|-------------------------|
| 1 | 10 000 | 2 500 |
| 2 | 15 000 | 4 000 |
| 3 | 25 000 | 5 500 |
| 4 | 29 000 | 6 000 |
| 5 or more | 2 500 per extra bedroom | 250 per extra bedroom |
| My reading (3½ bed) | 12 058 | 2 409 |



Smart Energy Monitoring



Energy Monitor

- Current Cost
- OWL

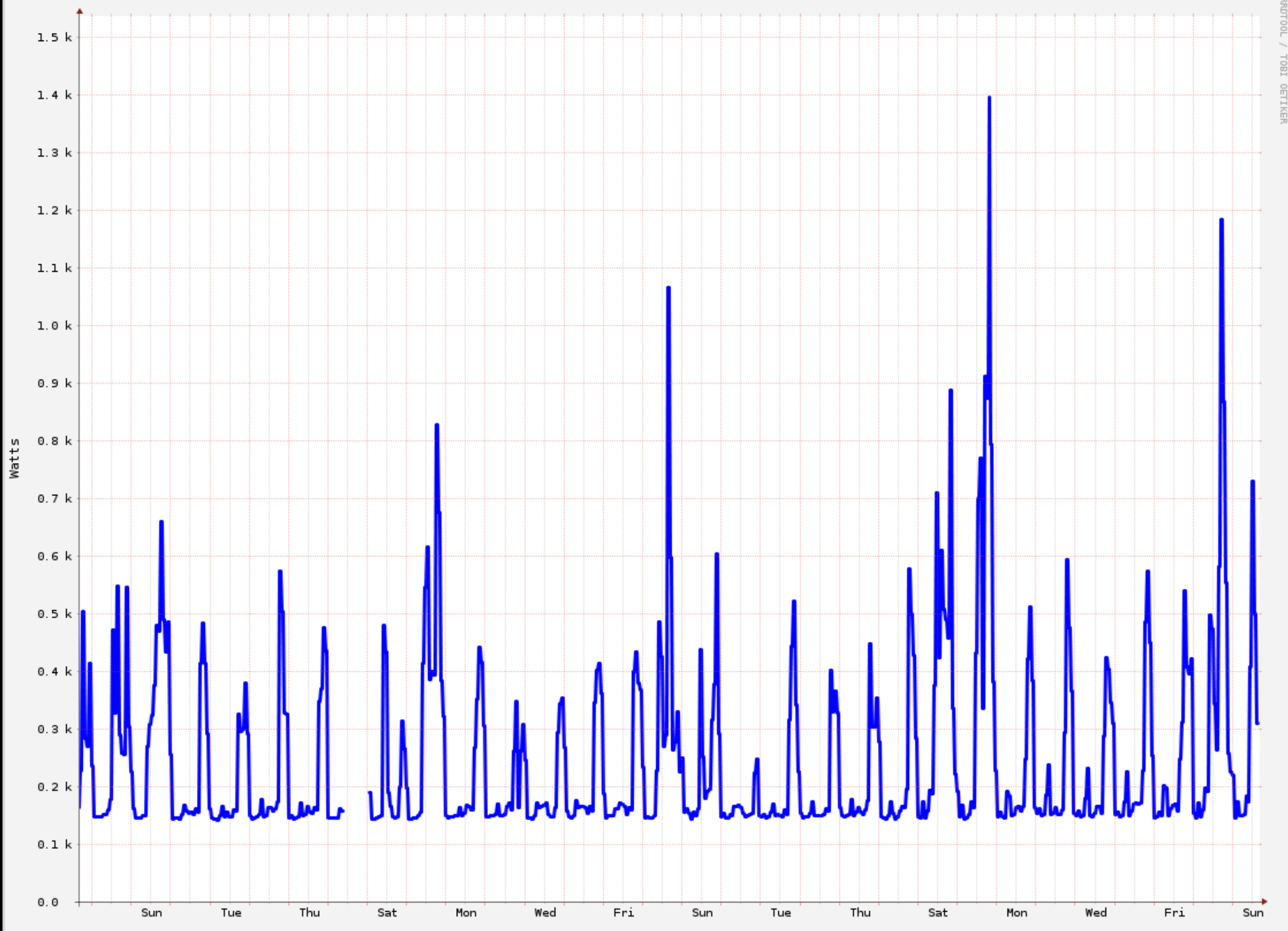
- B&DBC have some to lend
- 1 in the library
- Power companies give them away
- You can buy one for under £50



Energy Monitors

- Gives you instantaneous electricity use
- Helps calculate base load
- Helps find *odd* devices





Thermal Imaging



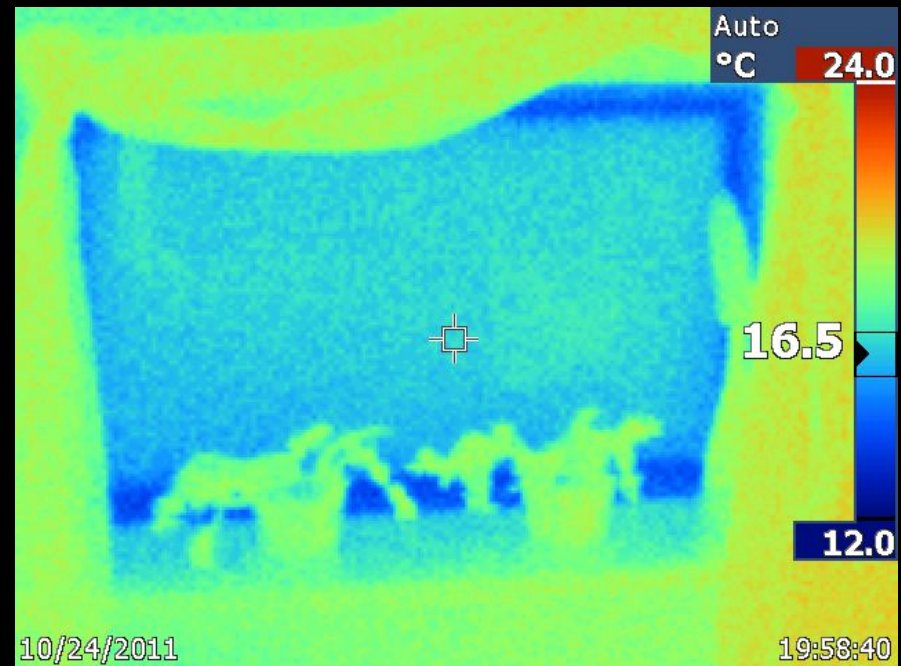
Theory

- Everything radiates infra-red or thermal energy
- The temperature of an object gives you radiation of a specific frequency
- A thermal imaging camera converts these frequencies back into temperatures
- The temperatures are displayed as different false colours on the display

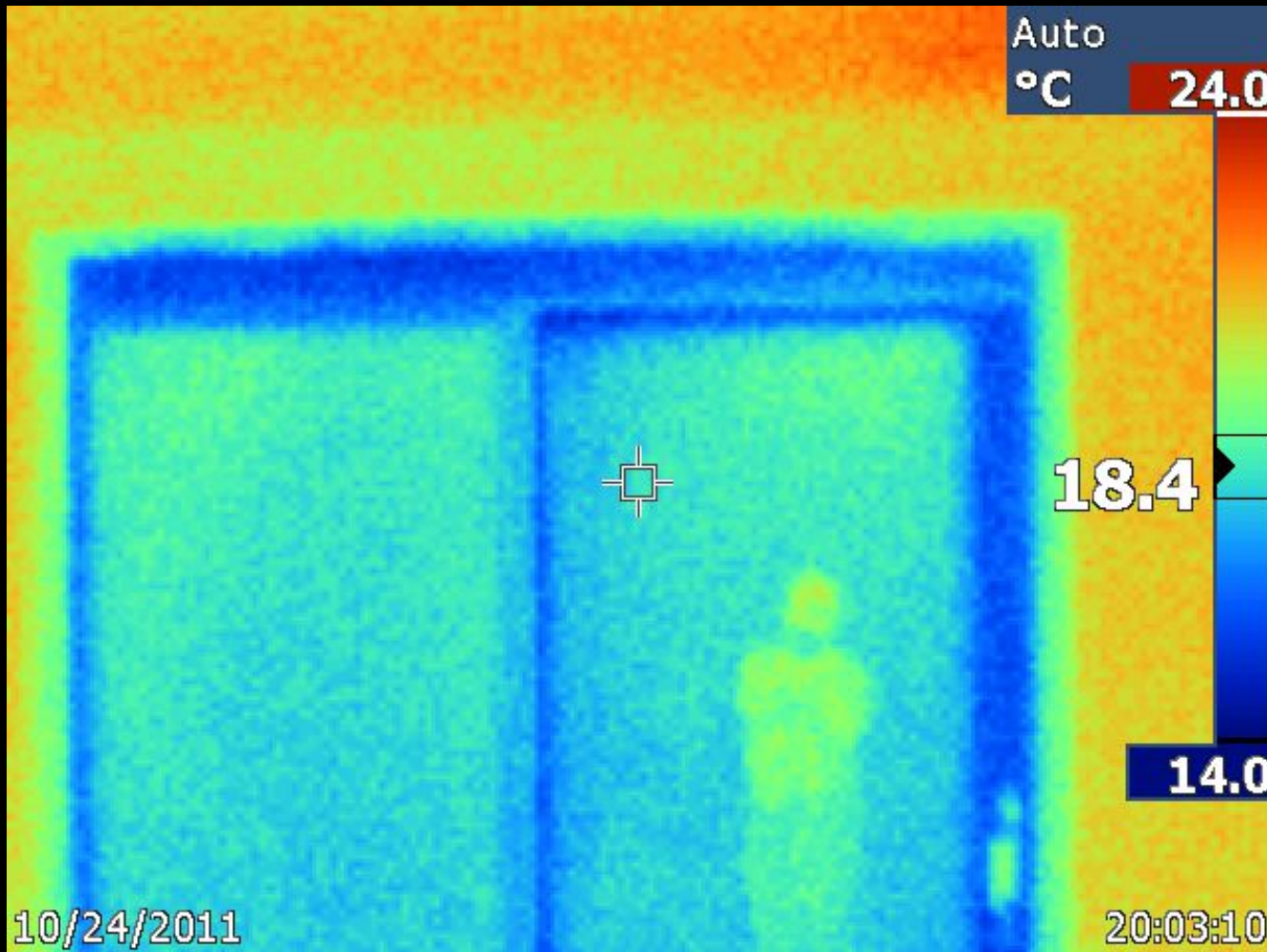


Inside of a House

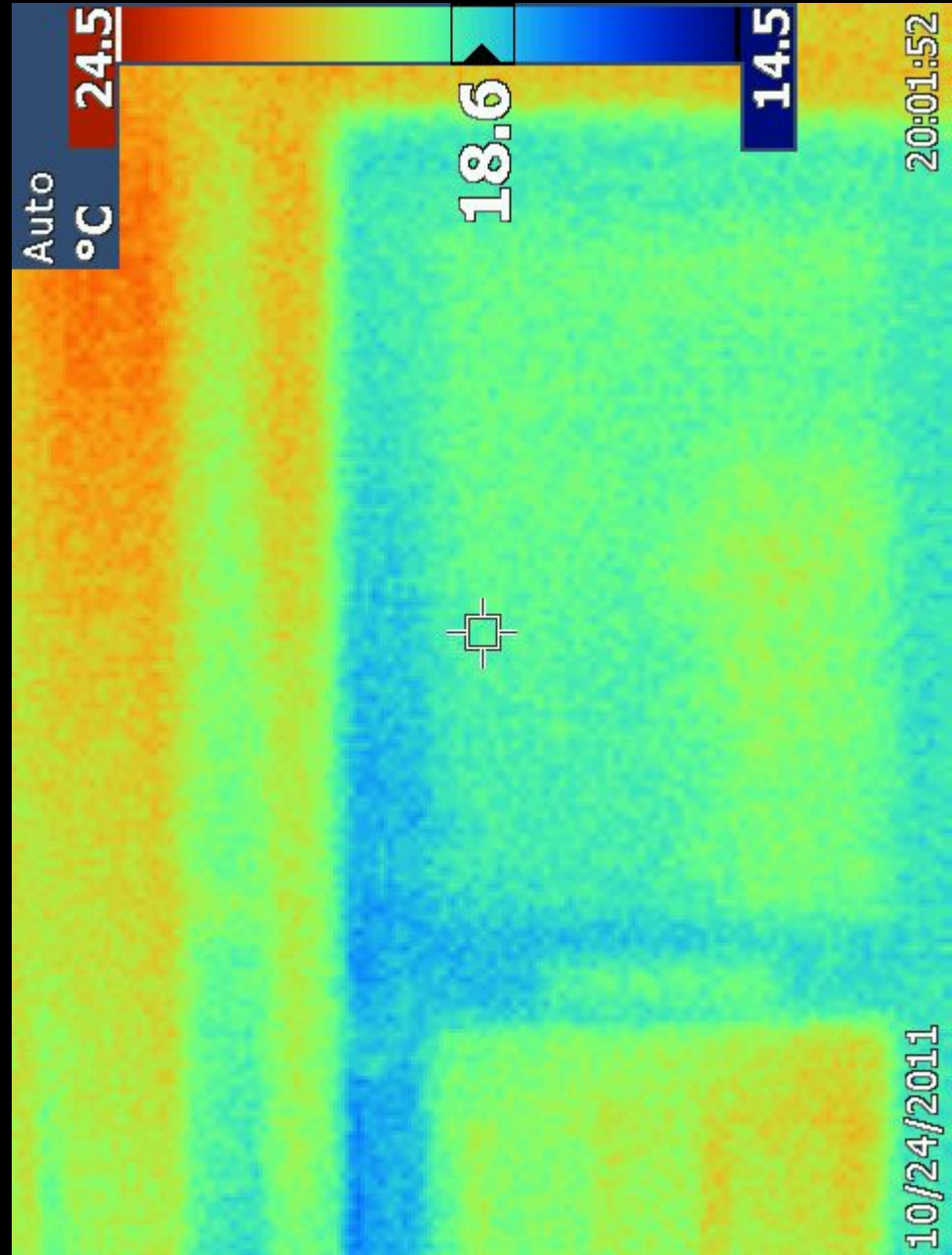
- Walls and windows should show up **warm**
- Cold spots means you have leaking heat



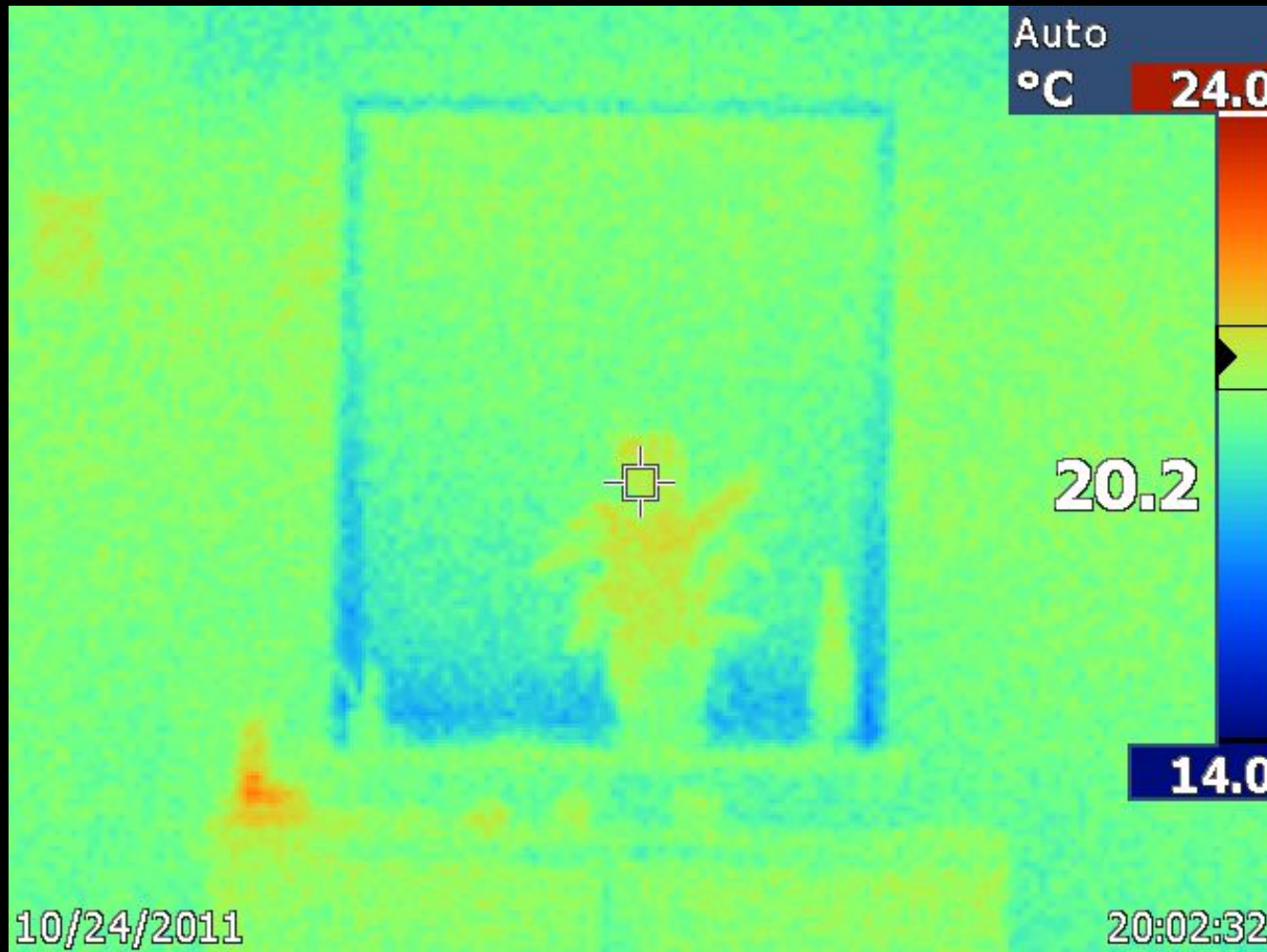
Just a Window



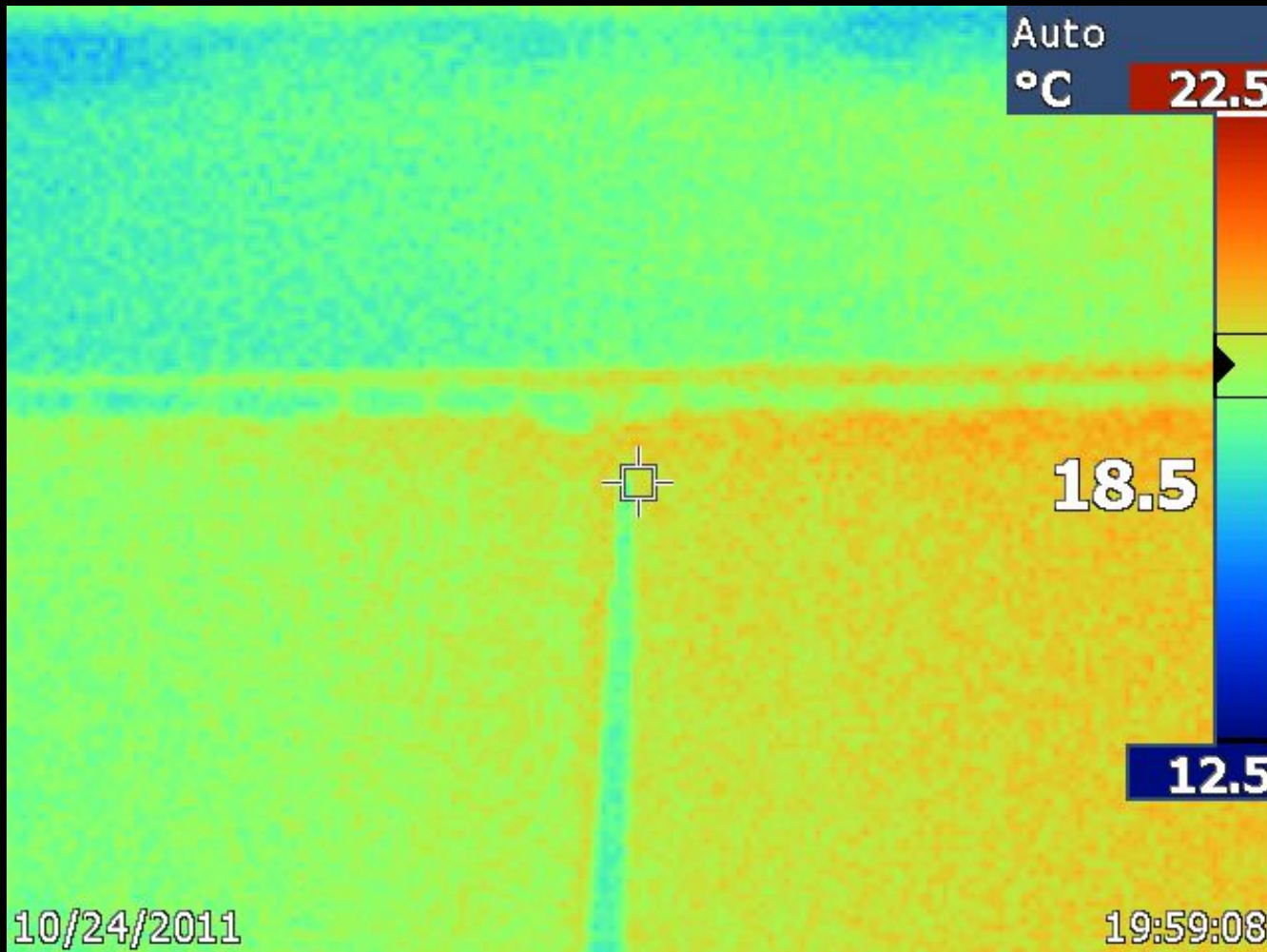
Front Door



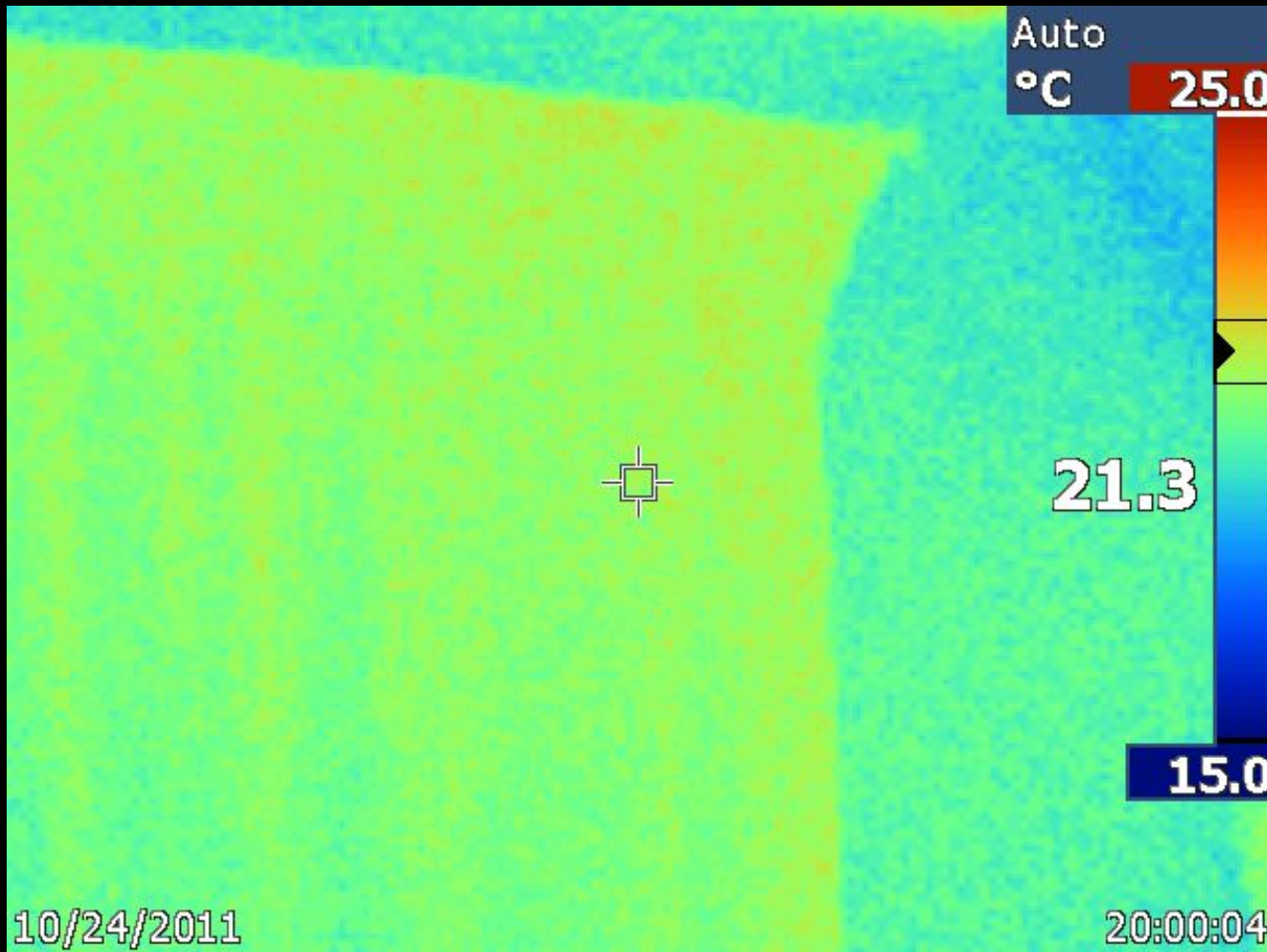
Just a Blind



Gap in Curtains

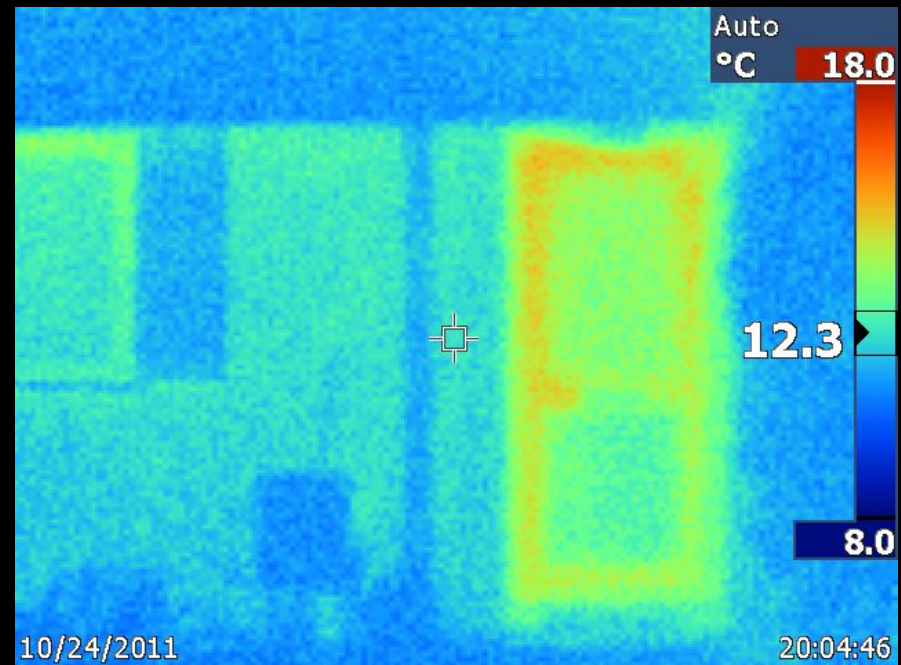


Curtains and Blind

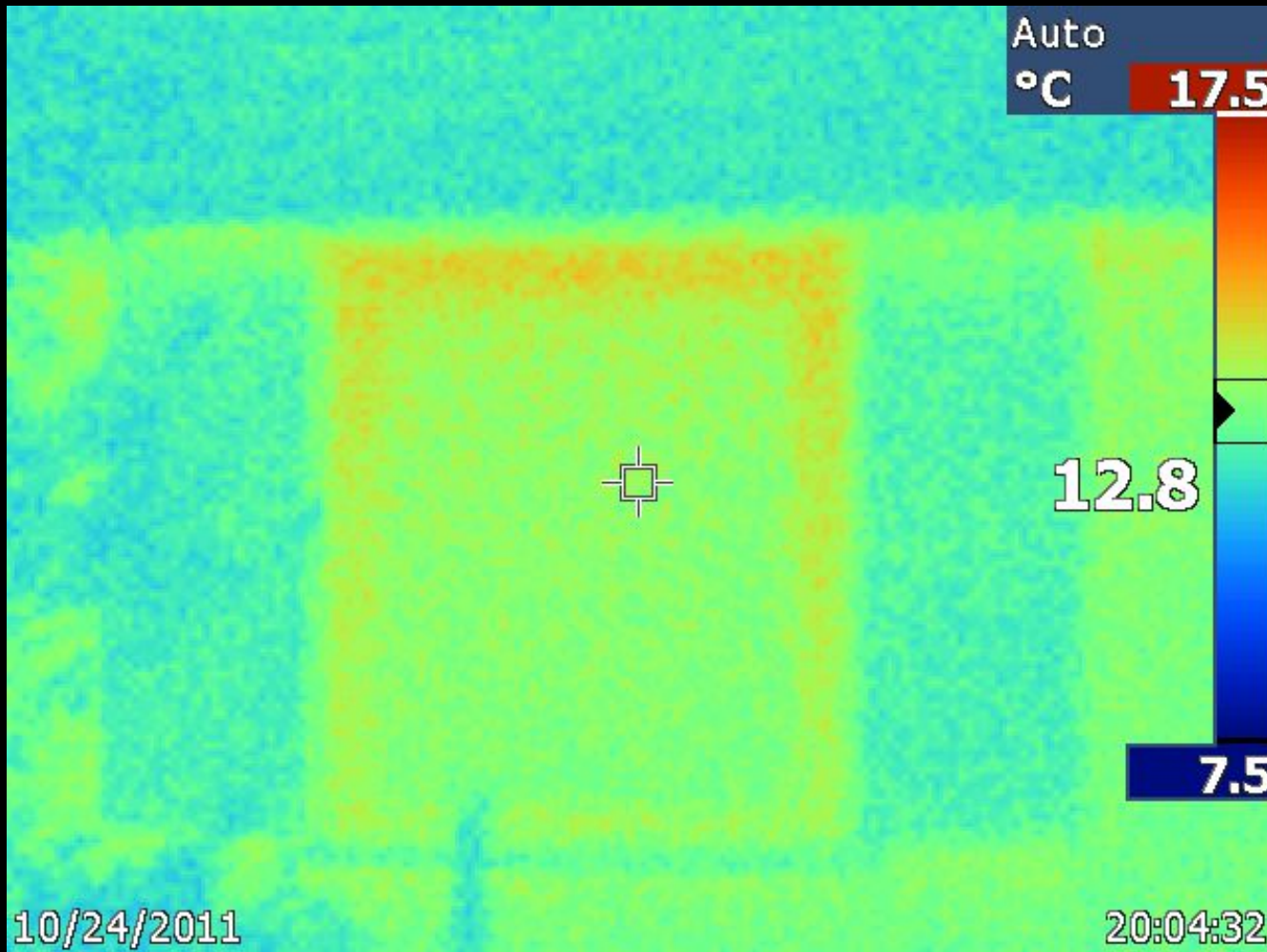


Outside of a House

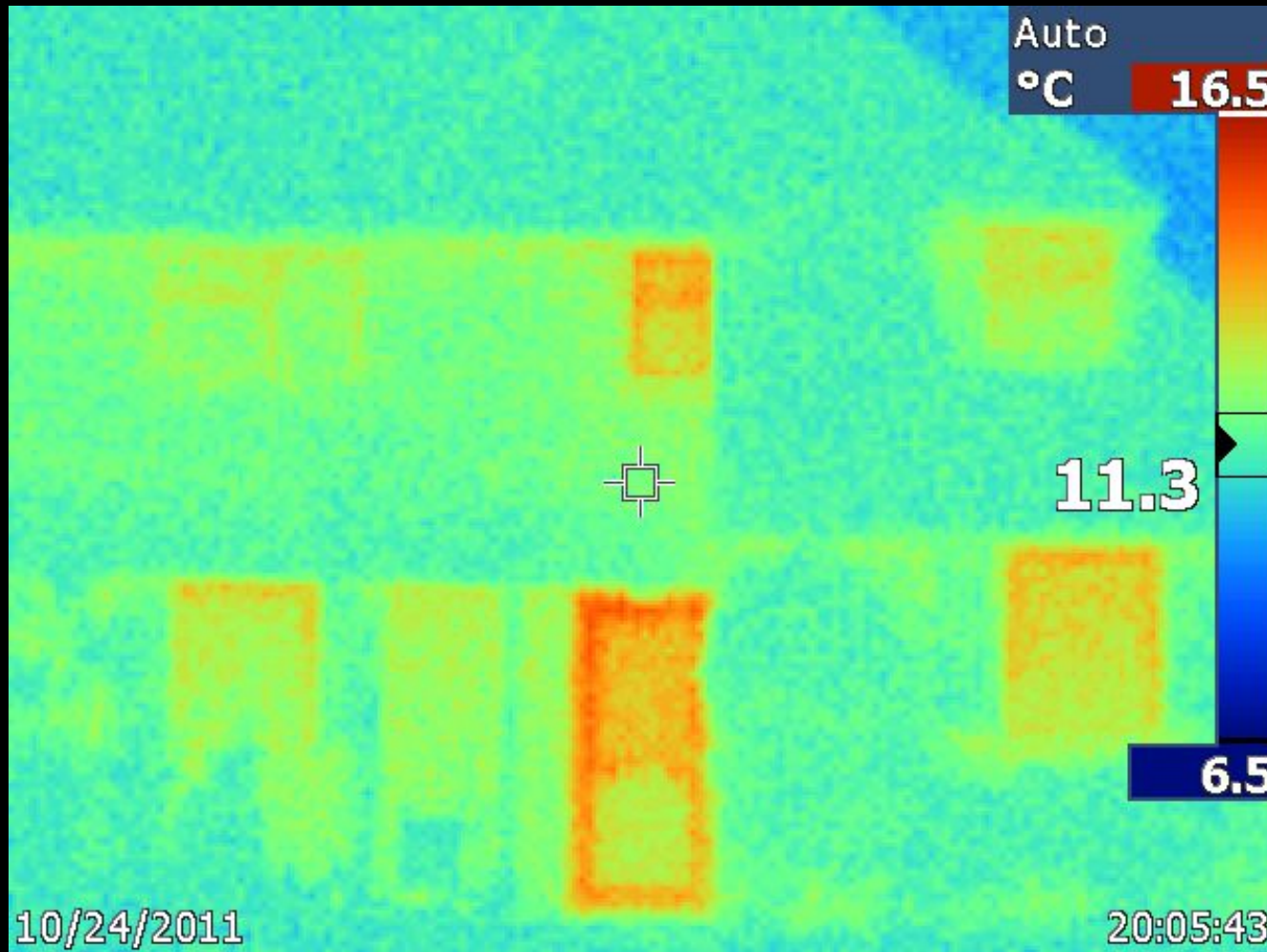
- The house should show up like its surrounding: **cold**
- Hot spots mean you have leaking heat



Window and Blind



Front of House



What use is it?

- Should tell you nothing new,
but often reveals things you didn't know
- Useful to find where you need to target first
- Can help identify gunked up radiators



Camera

- Fluke Ti10
- BDBC own it
- We can survey your house if you want
- Sign up tonight
 - we have the camera for the next fortnight



Thank You

**Any
Questions?**

