

Nabovarme

DIY Central Heating Infrastructure



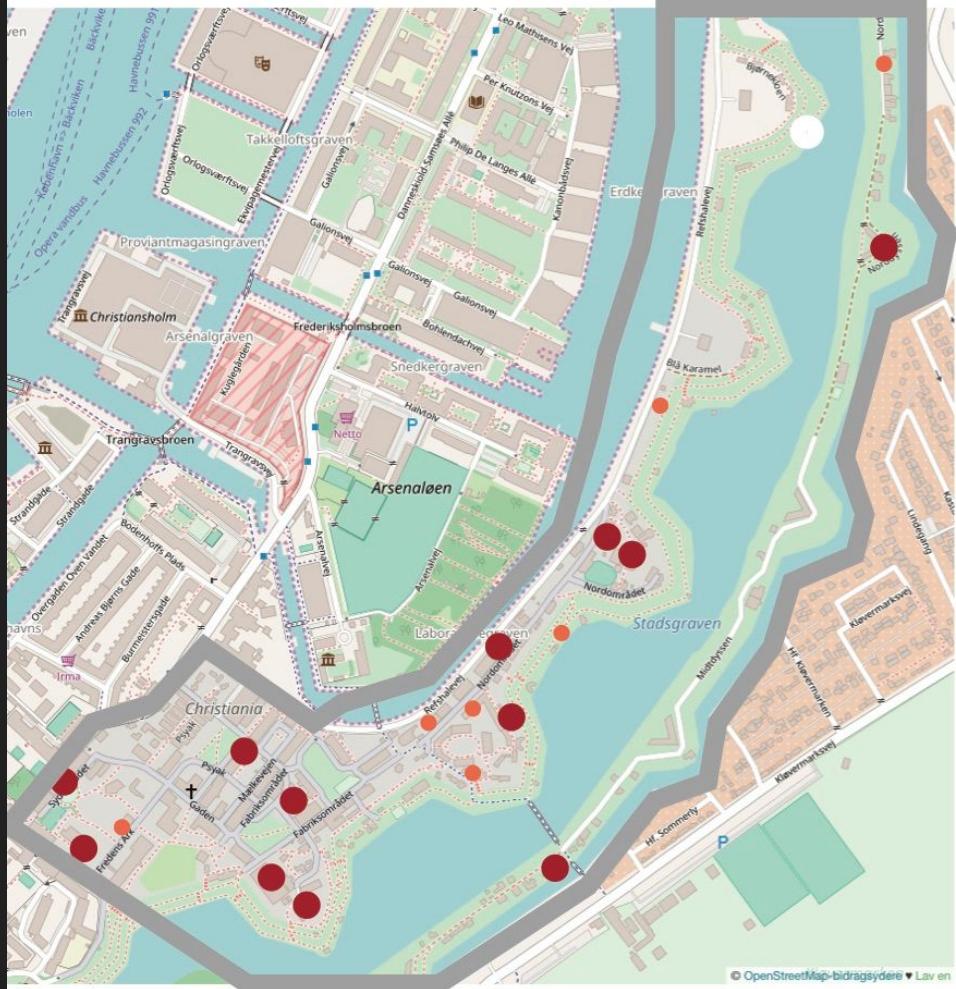
Nabovarme is a word for community heating



Pellet heating systems in Christiania

Large red dots:
major systems

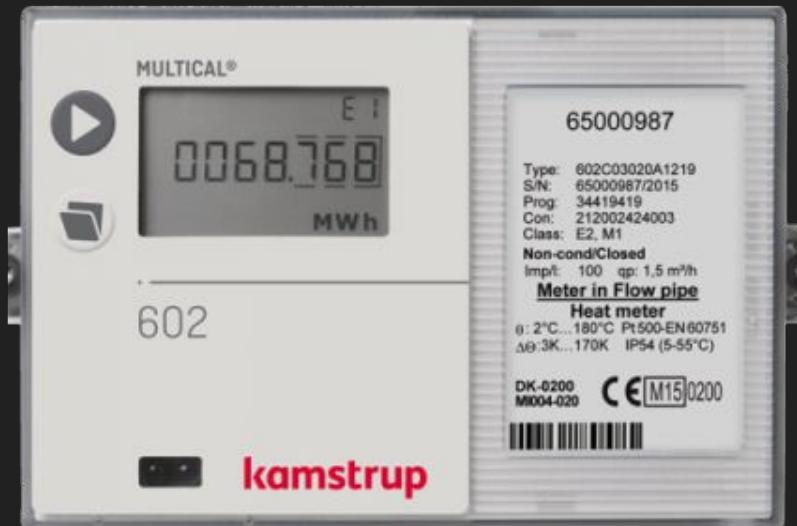
Small orange dots:
some of many independent units



History of heaters



Kamstrup Multical 602 - first to be reverse engineered



Communities with Communities inside



Christiania - an old army base

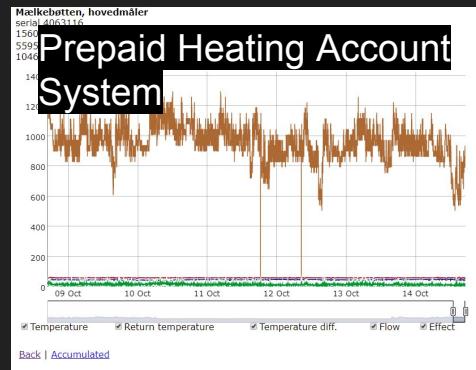
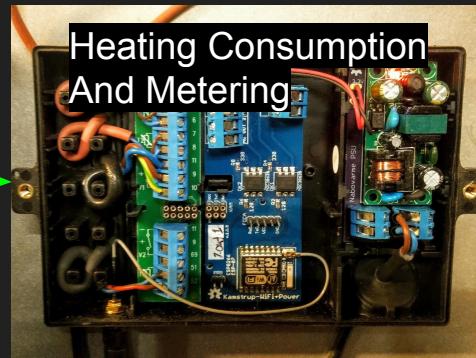


Christiania today

- 46 year old squatted area
- 900 inhabitants
- 265 houses
- 24 hectares land
- 1 km from Danish parliament

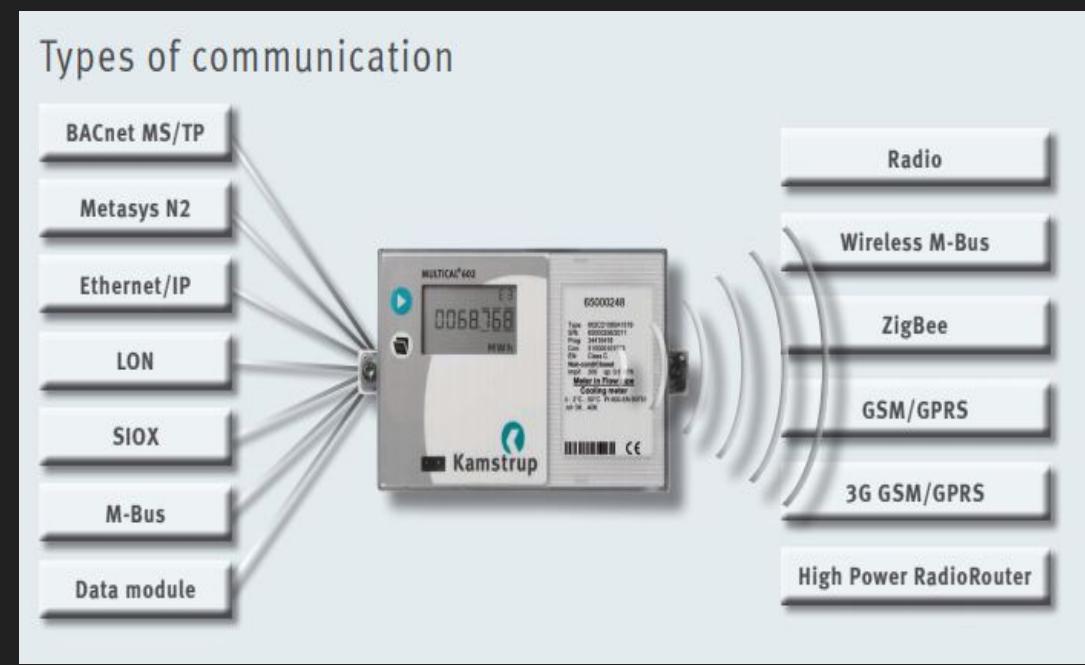


What is Nabovarme?



Kamstrup solutions

- No WIFI option - requires additional infrastructure
- No open software to receive data
- Enterprise

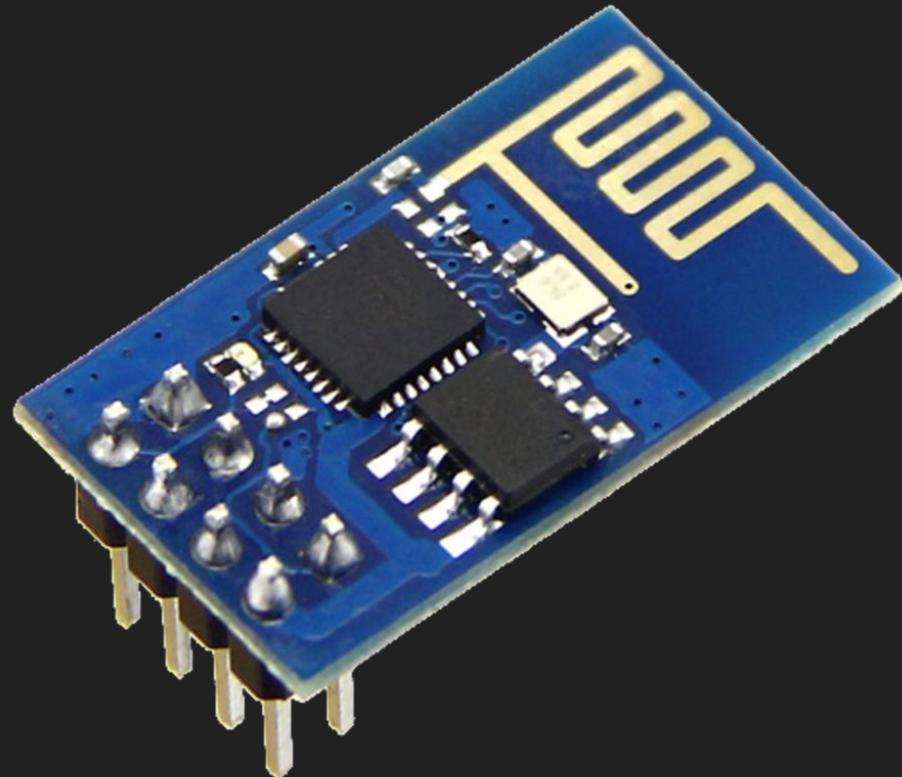


Nabovarme users share their WIFI

- 350+ users
- 150'000€ worth or wood burned yearly
- Huge diversity in income, social class, heritage etc.
- Low level of interest in heating



ESP8266 - Microcontroller with wifi for 1\$



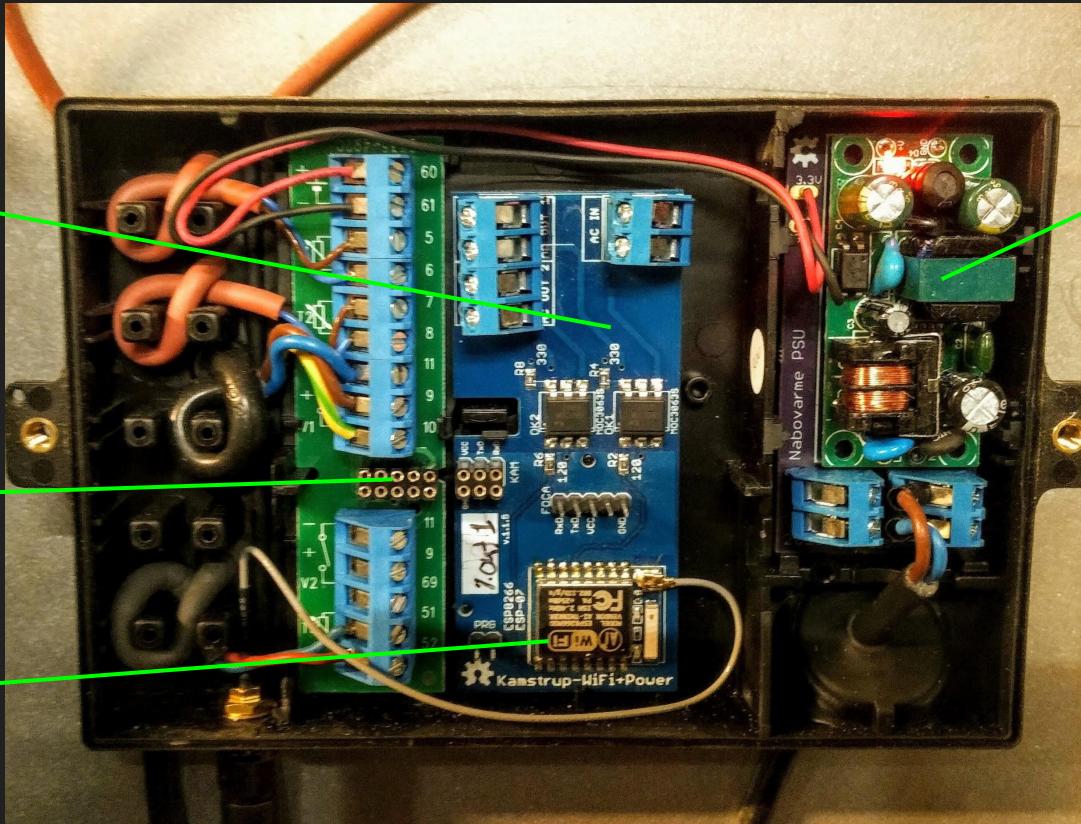
MeterLogger Hardware

MeterLogger PCB

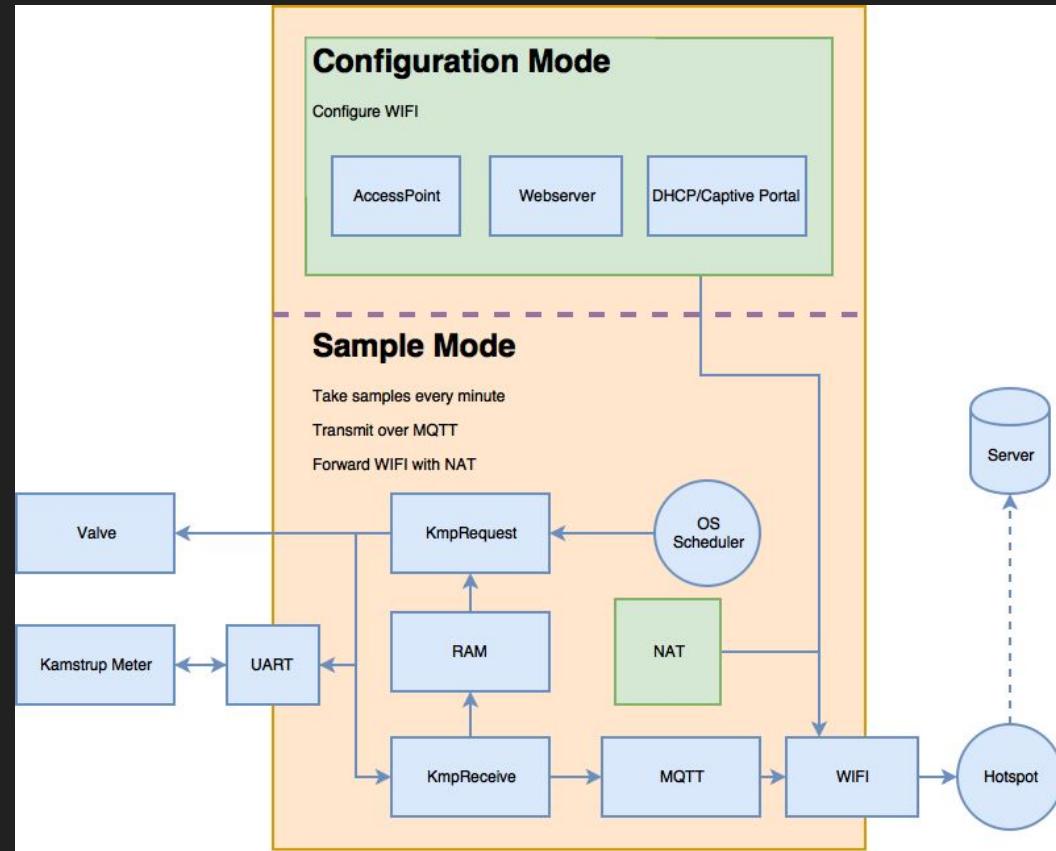
Kamstrup Connector

ESP8266

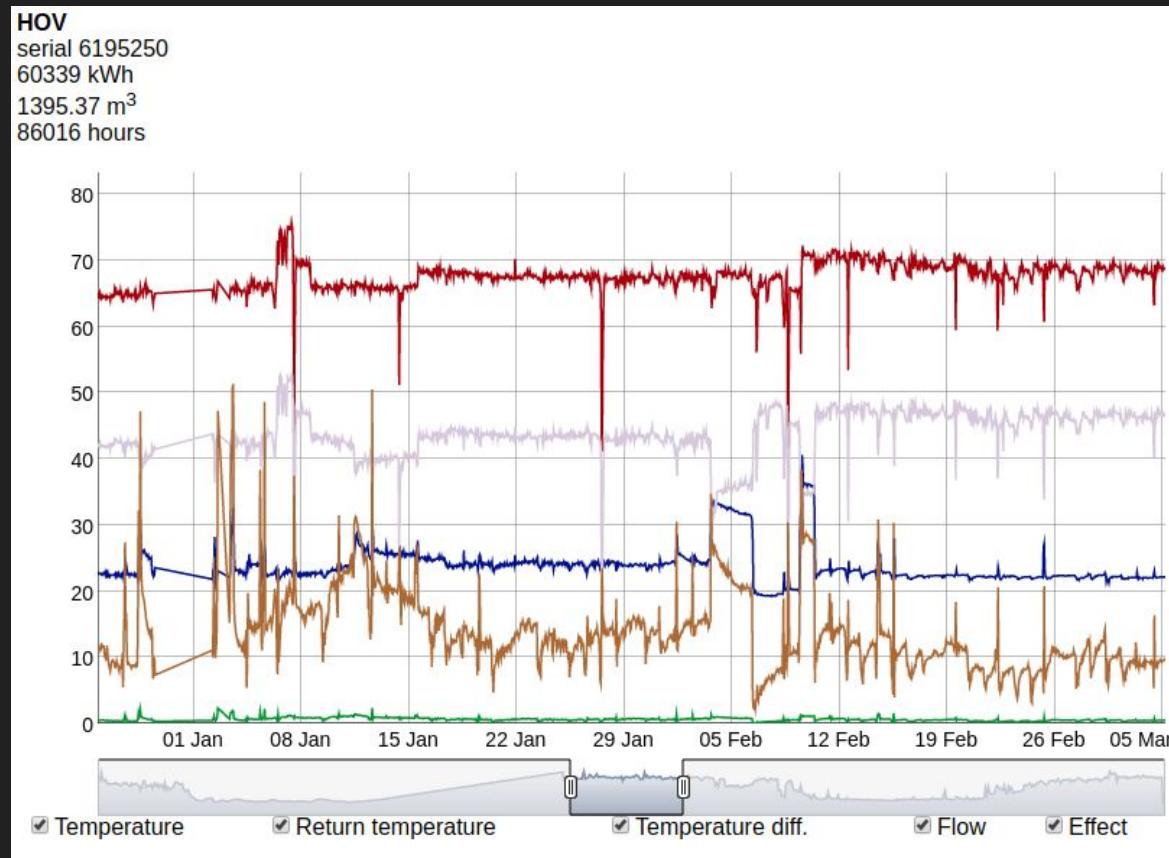
MeterLogger PSU



Meterlogger Firmware



Overview of client



Accounting systems

Aircond_Skurvogn - NDE024A

Tilbage

Navn: Aircond_Skurvogn
Kode: XXXXXXXXXX
Place: aircondition
Omraade: ND
Type: PrivatMåler
Målenummer: 0
Elvand type: Elmåler
Bemærkninger: Måler inde i Skurvognen ved Aircondition

Nr	Dato	Aflæsning	Målenummer	Bemærkninger
0011	12-12-2004	1136,00	0	
0012	01-06-2005	1286,00	0	
0013	03-12-2005	1474,00	0	
0014	31-05-2006	1567,00	0	
0015	03-12-2006	1715,00	0	
0016	04-06-2007	1874,00	0	
0017	31-05-2009	2543,00	0	
0018	03-03-2010	3665,30	0	
0019	01-01-2011	5868,20	0	
0020	01-02-2011	6367,00	0	
0021	02-01-2012	7816,90	0	
0022	13-01-2015	13608,00	0	
0023	08-01-2016	15376,70	0	
0024	22-02-2017	17335,40	0	
0025	26-12-2017	18019,30	0	

Slet/Godkend

Dato Aflæst tal Bemærkninger, max 30 tegn

28-12-2017

Bogfør

Hjælp Pris DIV en to Log ud

mb Seg

- Zeren_HM - MBV057A
Målenummer: 3406922 Type: PrivatMåler Vandmåler Place: Zeren Omraade: MB Kode: MBV057A Bemærkninger: sidder i opgang på 1.sal ve -
- Anders - MBE026A
Målenummer: 31788 Type: PrivatMåler Elmåler Place: Udklapperen Omraade: MB Kode: MBE026A Bemærkninger: Sidder i beboelse
- Anders - MBV026A
Målenummer: 411035264 Type: PrivatMåler Vandmåler Place: Udklapperen Omraade: MB Kode: MBV026A Bemærkninger: I køken, oppe under loft p -
- Anders - MBV026B
Målenummer: 3406942 Type: PrivatMåler Vandmåler Place: Udklapperen Omraade: MB Kode: MBV026B Bemærkninger: På toilet
- Anders - MBV026C
Målenummer: 3406442 Type: PrivatMåler Vandmåler Place: Udklapperen Omraade: MB Kode: MBV026C Bemærkninger: Udendørs hane, ved indgang -
- Anders - MBV026D
Målenummer: 03406443 Type: PrivatMåler Vandmåler Place: Udklapperen Omraade: MB Kode: MBV026D Bemærkninger: Under kækkenvask
- Anemone - MBE077A
Målenummer: 133600369_932 Type: PrivatMåler Elmåler Place: Bagsyveren Omraade: MB Kode: MBE077A Bemærkninger: opsat eddie
- Anemone - MBV077A
Målenummer: 33058245 Type: PrivatMåler Vandmåler Place: Bagsyveren Omraade: MB Kode: MBV077A Bemærkninger: I entréen
- Anett&Jesper - MBV048A
Målenummer: 3406404 Type: PrivatMåler Vandmåler Place: Parthenon Omraade: MB Kode: MBV048A Bemærkninger: 2.sal i entré ved elmåler, -

- Bjørnekloen-CAE000G
- Bjørnekloen-CAV000H
- BlåKaramel-CAE000E
- BlåKaramelSyd-CAV000G
- FredensArk-CAE000B
- FredensArk-CAV000D
- LoppenBrand-CAV000J
- Mælkevejen-CAV000F
- Norddyssen-CAE000D
- Norddyssen-CAV000I
- Adam-NDV001B
- Aftensol-NDV020A**
- AircondSkurvgn-NDV024A
- AircondiNord-NDV023A
- AircondiSyd-NDV023B
- Boi&Karina-NDV021A
- Bombely-NDV013A
- CamillaOkNord-NDV027A
- DorteOkkulte-NDV008A
- Ralf-NDV030A
 - Okkulte_syd_fyr-NDV030B
 - Dorte-NDV008B
 - Dorte_ny-NDV008C
 - Solvej-NDV007B
- HeleneOkkulte-NDV006A
- Himmelhuset-NDV012A
- Himmelhuset-NDV012B
- JelindeOlkeldtIM-NDV029A

We need your help!

- Stoffer IS our busfactor. If you run him down hundreds of people may loose their heating!!
- We want big data but no surveillance!
- We need a scalable billing system for various types of utility meters
- We want to be able to get bank accounting information without ending up with another subscription model.

COME WORK WITH US ON THIS

**You can APPLY at Christiania Researcher in Residence and work with us in
Opensource**

Thanks and come visit us! - Questions?

- nabovarme.github.io
- cirr.net/apply.html

