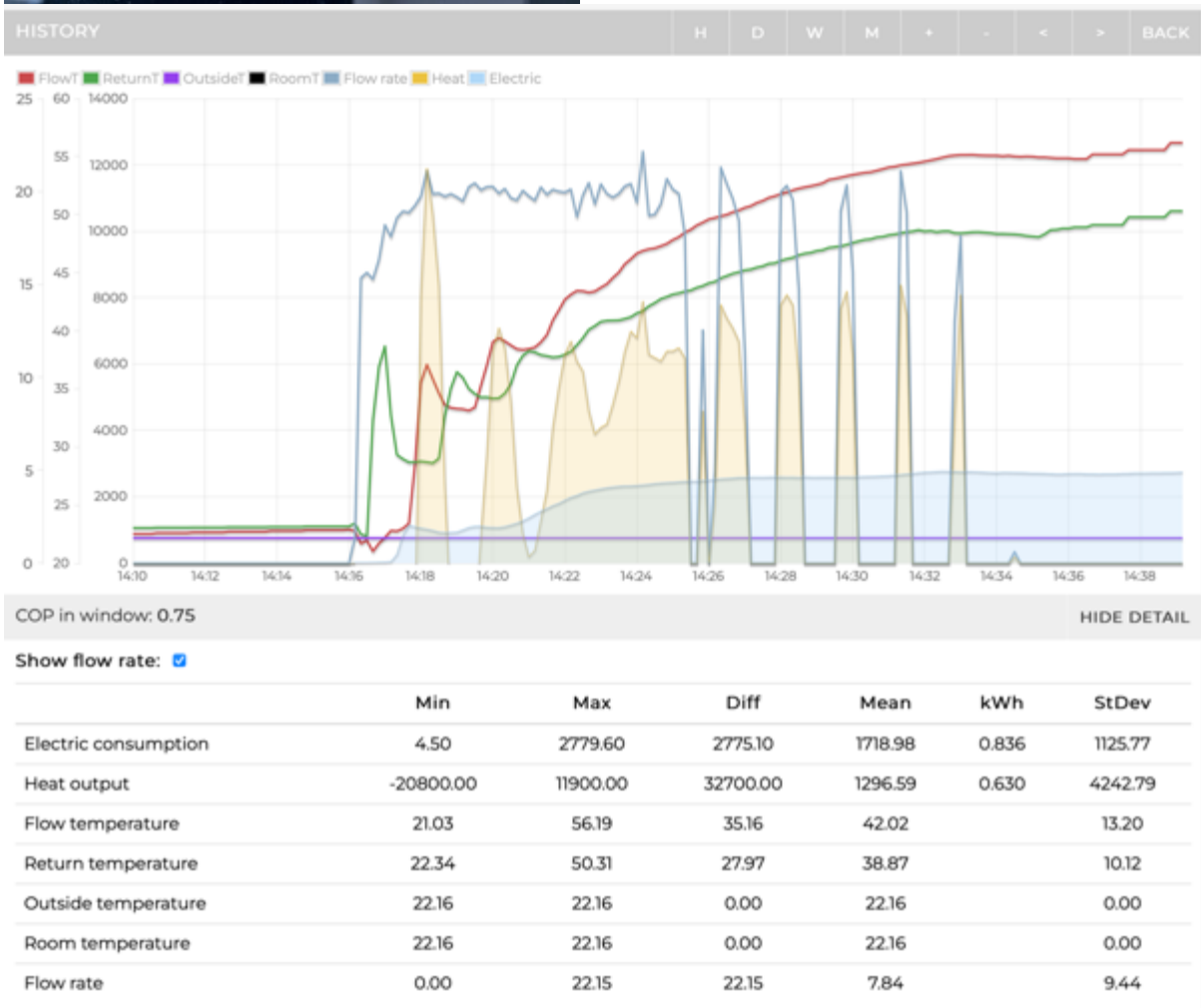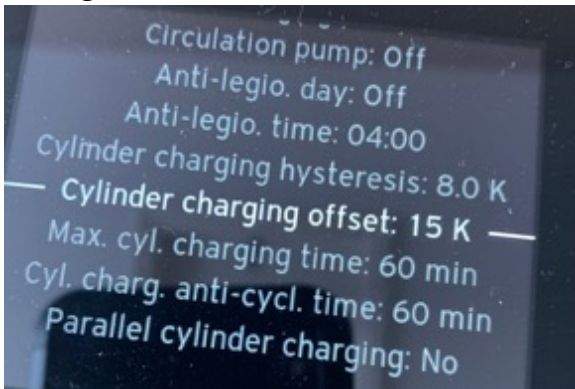**DWM settings and performance**
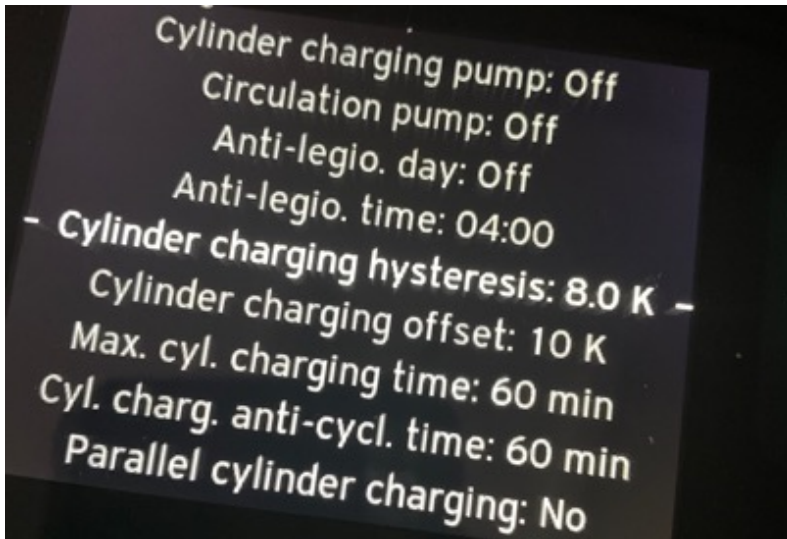Hot water schedule daily 14:10pm – 16:20pm to target temp of 48ºC. Confirmed DHW pump set to AUTO in VWZ AI control pump module.
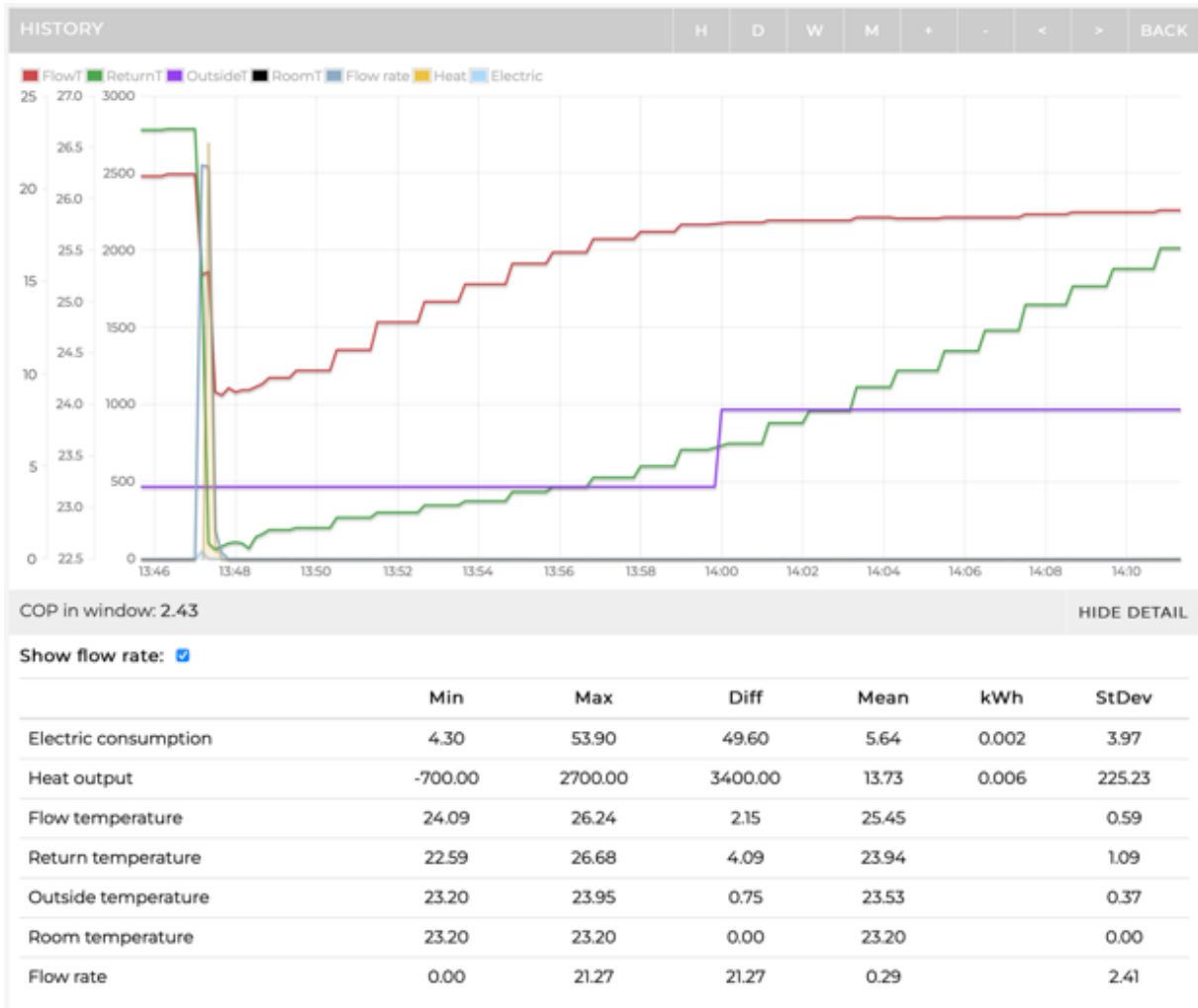**9th August 2023**



Circulation pump: Off
Anti-legio. day: Off
Anti-legio. time: 04:00
Cylinder charging hysteresis: 8.0 K
— Cylinder charging offset: 15 K —
Max. cyl. charging time: 60 min
Cyl. charg. anti-cycl. time: 60 min
Parallel cylinder charging: No



HISTORY    H    D    W    M    +    -    <    >    BACK

FlowT  ReturnT  OutsideT  RoomT  Flow rate  Heat  Electric

COP in window: 0.75    HIDE DETAIL

Show flow rate: ☑

|  | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 4.50 | 2779.60 | 2775.10 | 1718.98 | 0.836 | 1125.77 |
| Heat output | -20800.00 | 11900.00 | 32700.00 | 1296.59 | 0.630 | 4242.79 |
| Flow temperature | 21.03 | 56.19 | 35.16 | 42.02 | | 13.20 |
| Return temperature | 22.34 | 50.31 | 27.97 | 38.87 | | 10.12 |
| Outside temperature | 22.16 | 22.16 | 0.00 | 22.16 | | 0.00 |
| Room temperature | 22.16 | 22.16 | 0.00 | 22.16 | | 0.00 |
| Flow rate | 0.00 | 22.15 | 22.15 | 7.84 | | 9.44 |

1.21kWh used to heat hot water from 41ºC to 49ºC

**10<sup>th</sup> August 2023**



Cylinder charging pump: Off
Circulation pump: Off
Anti-legio. day: Off
Anti-legio. time: 04:00
- Cylinder charging hysteresis: 8.0 K -
Cylinder charging offset: 10 K
Max. cyl. charging time: 60 min
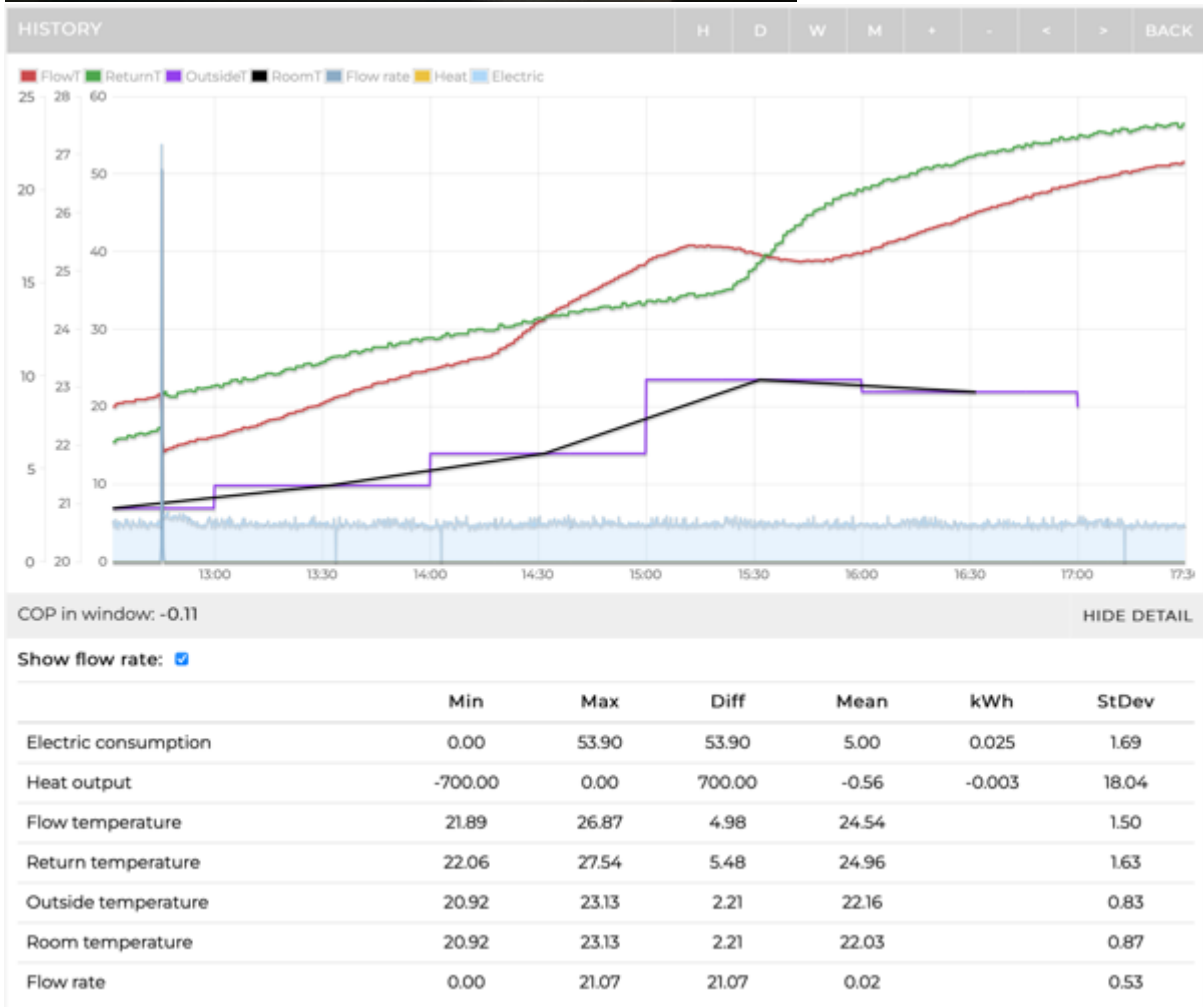Cyl. charg. anti-cycl. time: 60 min
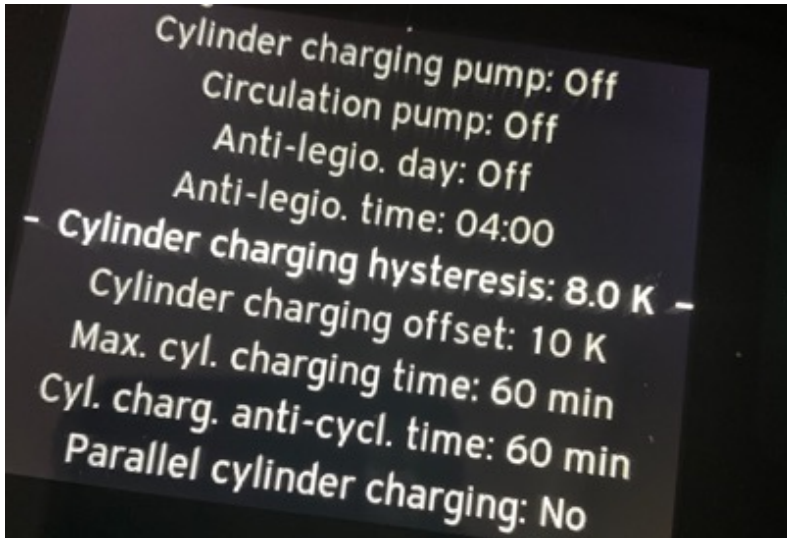Parallel cylinder charging: No

Eddi turned on at noon. Heated hot water went to 50ºC. Therefore very mild spike from heat pump at 13:48pm (note this is outside the heating program schedule), insignificant in terms of electric usage, 13 watts for the day.



COP in window: 2.43

Show flow rate: ☑

|  | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 4.30 | 53.90 | 49.60 | 5.64 | 0.002 | 3.97 |
| Heat output | -700.00 | 2700.00 | 3400.00 | 13.73 | 0.006 | 225.23 |
| Flow temperature | 24.09 | 26.24 | 2.15 | 25.45 |  | 0.59 |
| Return temperature | 22.59 | 26.68 | 4.09 | 23.94 |  | 1.09 |
| Outside temperature | 23.20 | 23.95 | 0.75 | 23.53 |  | 0.37 |
| Room temperature | 23.20 | 23.20 | 0.00 | 23.20 |  | 0.00 |
| Flow rate | 0.00 | 21.27 | 21.27 | 0.29 |  | 2.41 |

**11th August 2023**

DHW temp reading 44ºC (eddi) 40.5ºC (Vaillant) at 12:30pm. Eddi turned off.

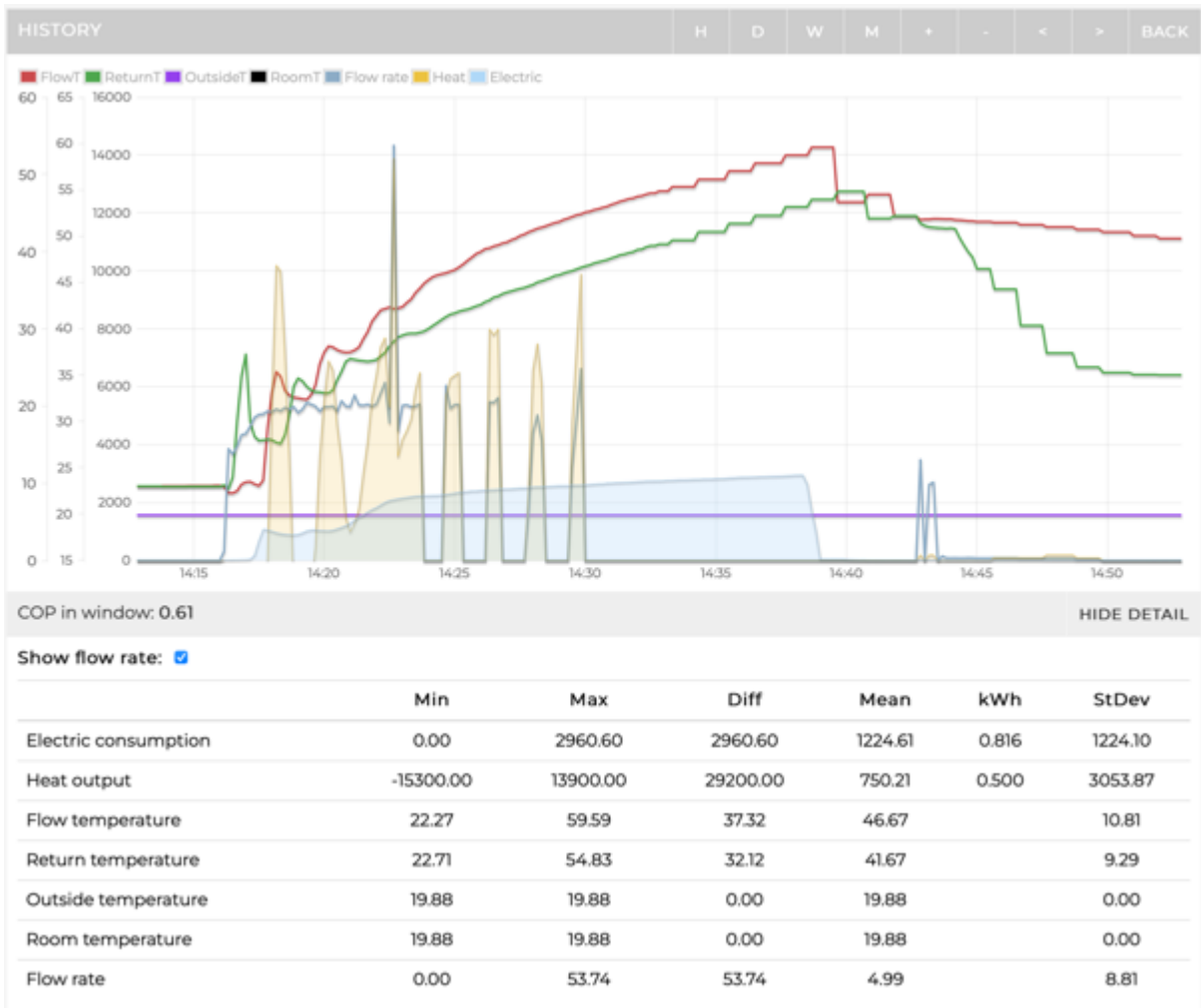No DHW run. Expect at temp was 40.5ºC and offset was 10



Cylinder charging pump: Off
Circulation pump: Off
Anti-legio. day: Off
Anti-legio. time: 04:00
- Cylinder charging hysteresis: 8.0 K -
Cylinder charging offset: 10 K
Max. cyl. charging time: 60 min
Cyl. charg. anti-cycl. time: 60 min
Parallel cylinder charging: No



HISTORY

■ FlowT ■ ReturnT ■ OutsideT ■ RoomT ■ Flow rate ■ Heat ■ Electric

COP in window: -0.11

HIDE DETAIL

Show flow rate: ☑

|  | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 0.00 | 53.90 | 53.90 | 5.00 | 0.025 | 1.69 |
| Heat output | -700.00 | 0.00 | 700.00 | -0.56 | -0.003 | 18.04 |
| Flow temperature | 21.89 | 26.87 | 4.98 | 24.54 |  | 1.50 |
| Return temperature | 22.06 | 27.54 | 5.48 | 24.96 |  | 1.63 |
| Outside temperature | 20.92 | 23.13 | 2.21 | 22.16 |  | 0.83 |
| Room temperature | 20.92 | 23.13 | 2.21 | 22.03 |  | 0.87 |
| Flow rate | 0.00 | 21.07 | 21.07 | 0.02 |  | 0.53 |

## 12th August 2023

Expect the DHW schedule to run on schedule. Eddi turned off.
Hot water temp at 11:00am = eddi 46ºC sensoAPP 38ºC.
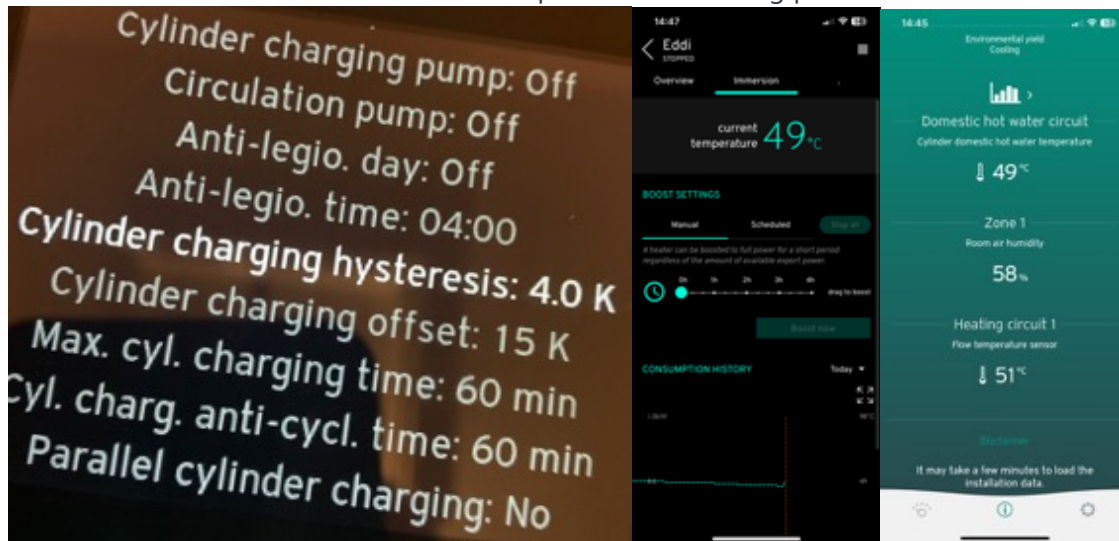Screenshots below are temps at end of heating period.
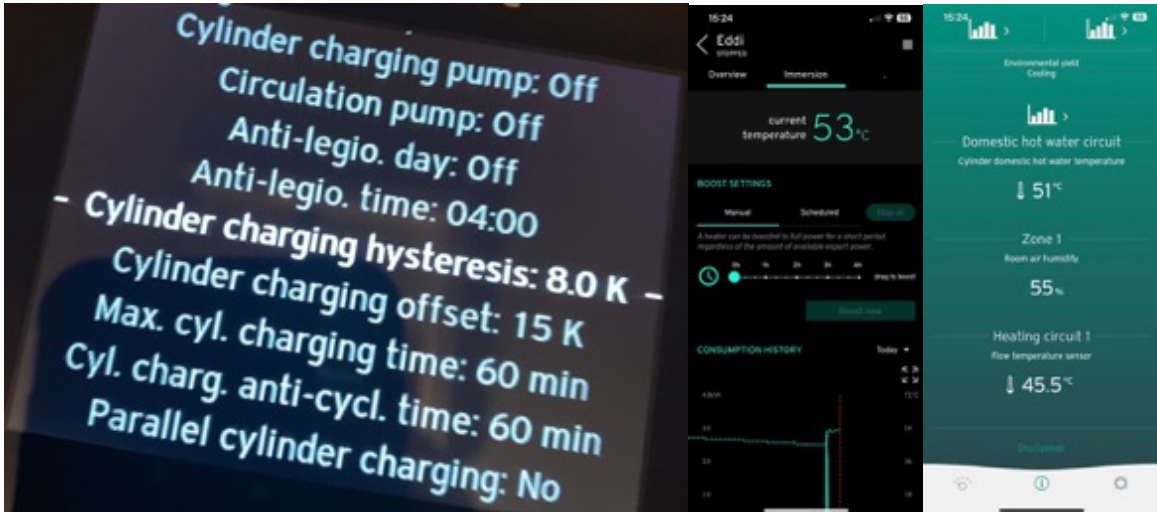


DHW ran on ASHP. Temp reached 51ºC according to sensoAPP and 53ºC according to eddi. Rapid cycling over 15 mins with flow rates dropping in sync with heating cycle. DHW temp reached but with a COP of 0.61, not ideal.
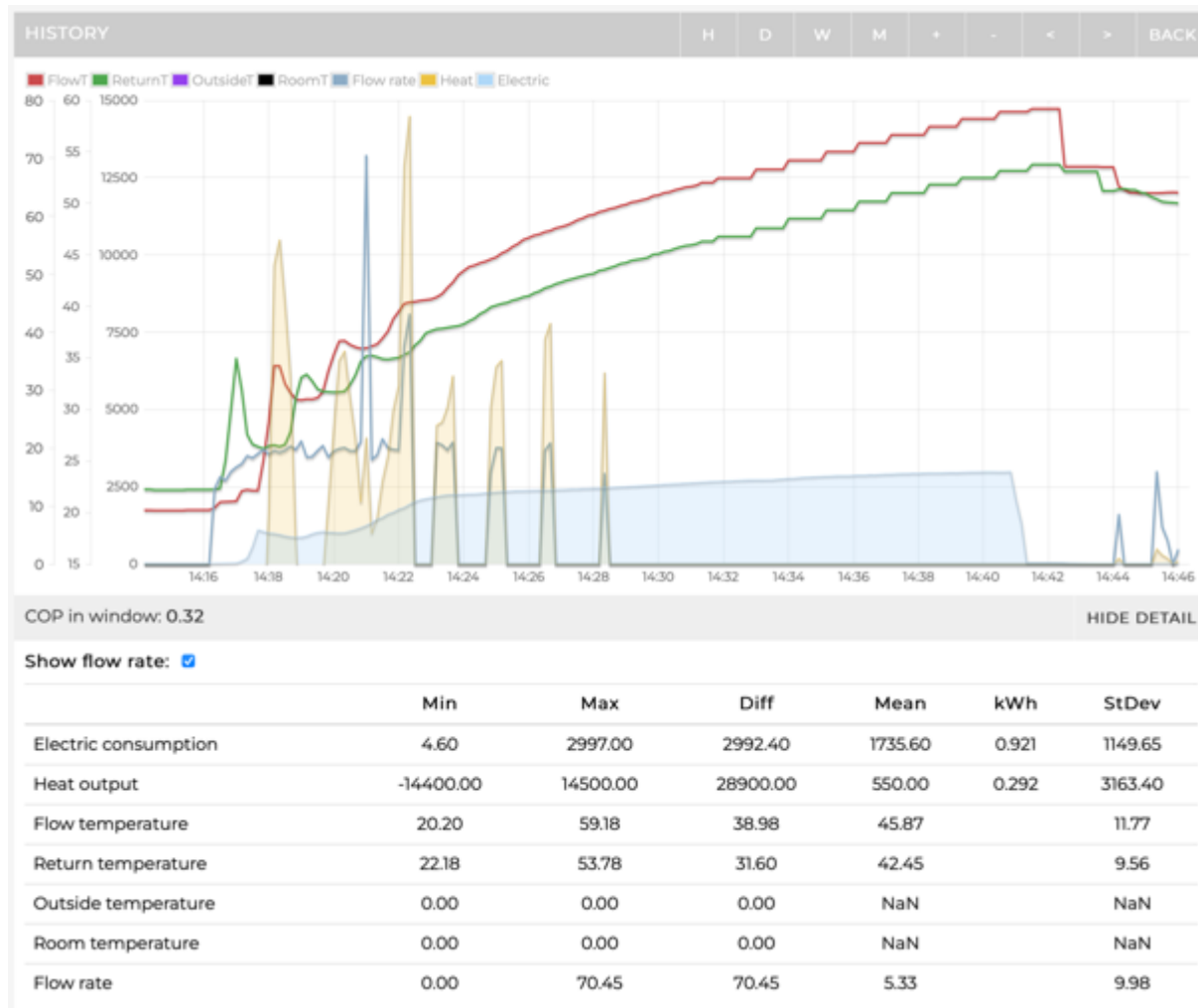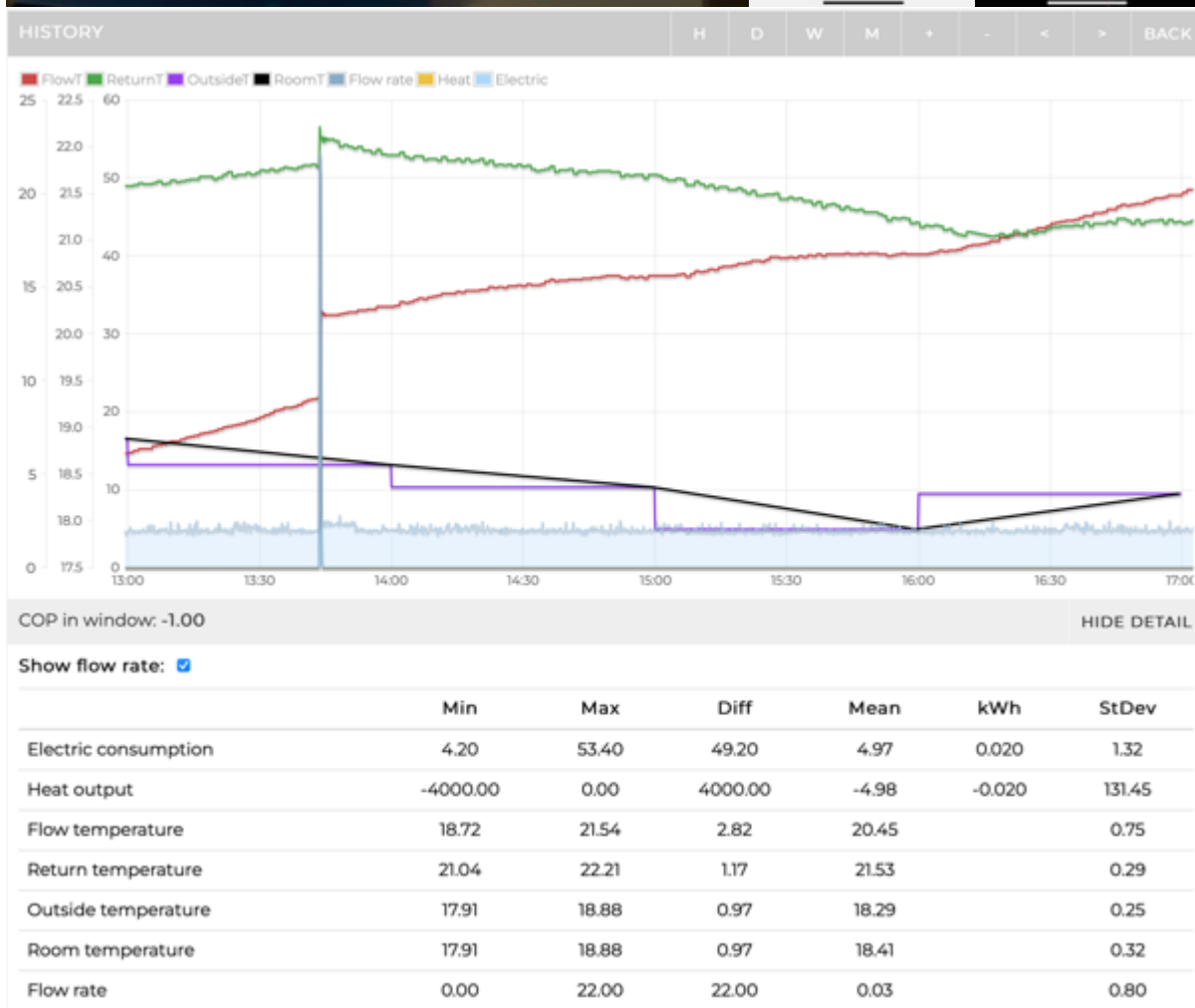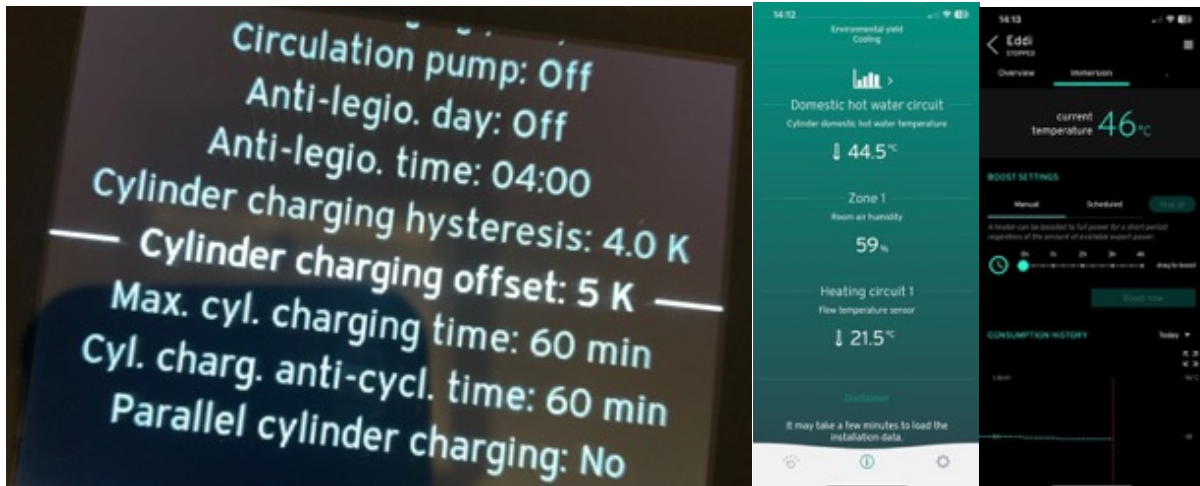


COP in window: 0.61

Show flow rate: ☑

| | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 0.00 | 2960.60 | 2960.60 | 1224.61 | 0.816 | 1224.10 |
| Heat output | -15300.00 | 13900.00 | 29200.00 | 750.21 | 0.500 | 3053.87 |
| Flow temperature | 22.27 | 59.59 | 37.32 | 46.67 | | 10.81 |
| Return temperature | 22.71 | 54.83 | 32.12 | 41.67 | | 9.29 |
| Outside temperature | 19.88 | 19.88 | 0.00 | 19.88 | | 0.00 |
| Room temperature | 19.88 | 19.88 | 0.00 | 19.88 | | 0.00 |
| Flow rate | 0.00 | 53.74 | 53.74 | 4.99 | | 8.81 |

## 13th August 2023

Eddi turned off. Screenshots below are temps at end of heating period.



DHW ran on ASHP. Temp reached 49°C according to sensoAPP and 49°C according to eddi. Rapid cycling over 15 mins with flow rates dropping in sync with heating cycle. DHW temp reached but with a COP of 0.32



COP in window: 0.32

Show flow rate: ☑

|  | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 4.60 | 2997.00 | 2992.40 | 1735.60 | 0.921 | 1149.65 |
| Heat output | -14400.00 | 14500.00 | 28900.00 | 550.00 | 0.292 | 3163.40 |
| Flow temperature | 20.20 | 59.18 | 38.98 | 45.87 |  | 11.77 |
| Return temperature | 22.18 | 53.78 | 31.60 | 42.45 |  | 9.56 |
| Outside temperature | 0.00 | 0.00 | 0.00 | NaN |  | NaN |
| Room temperature | 0.00 | 0.00 | 0.00 | NaN |  | NaN |
| Flow rate | 0.00 | 70.45 | 70.45 | 5.33 |  | 9.98 |

**14th August 2023**

Cylinder charging offset at 5K. Changed Cylinder hysteresis to 4K. Change Turned off. Eddi turned off.

At 14:12pm Vaillant app showed 44.5°C, eddi 46°C so hot water did not run due to hysteresis set to 4K. Spike is Circulation pump schedule. Changed this to coincide with DHW charging times, circulation pump now set for 15:00pm – 15:10pm daily schedule from 15th August onwards.





| | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 4.20 | 53.40 | 49.20 | 4.97 | 0.020 | 1.32 |
| Heat output | -4000.00 | 0.00 | 4000.00 | -4.98 | -0.020 | 131.45 |
| Flow temperature | 18.72 | 21.54 | 2.82 | 20.45 | | 0.75 |
| Return temperature | 21.04 | 22.21 | 1.17 | 21.53 | | 0.29 |
| Outside temperature | 17.91 | 18.88 | 0.97 | 18.29 | | 0.25 |
| Room temperature | 17.91 | 18.88 | 0.97 | 18.41 | | 0.32 |
| Flow rate | 0.00 | 22.00 | 22.00 | 0.03 | | 0.80 |

Bath taken early evening, post bath water temp dropped to 26°C. in sensoAPP whilst eddi still shows 41°C which is very odd behaviour. Screenshots below:

Environmental yield
Cooling



Domestic hot water circuit
Cylinder domestic hot water temperature

🌡 26℃

Zone 1
Room air humidity

57%

Heating circuit 1
Flow temperature sensor

🌡 19.5℃

Disclaimer

It may take a few minutes to load the installation data.

---

‹ **Eddi**
WAITING FOR SURPLUS

‖ 0kW

Overview        **Immersion**        .

current
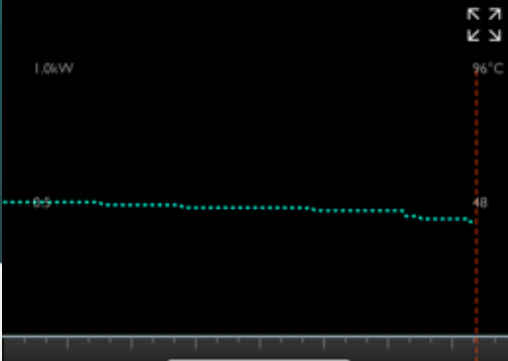temperature **41**℃

**BOOST SETTINGS**

Manual        Scheduled        Stop all

*A heater can be boosted to full power for a short period regardless of the amount of available export power.*

🕐   0h   1h   2h   3h   4h        drag to boost

Boost now

**CONSUMPTION HISTORY**        Today ▾

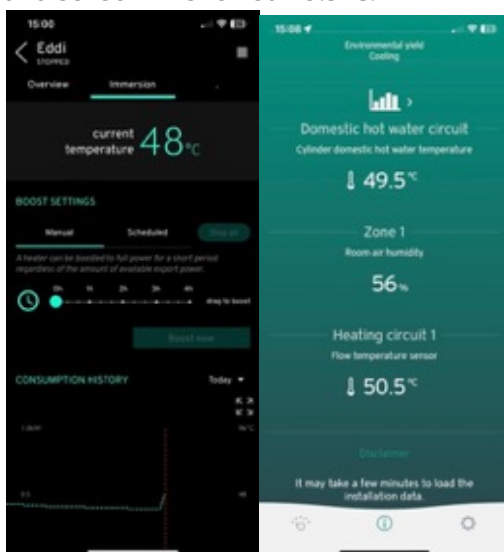1.0kW                                    96℃

48

**15th August 2023**

At 13.52pm eddi temp was 37ºC, sensoAPP was 27.5ºC. DHW schedule to run between 14:10-pm – 16:20pm.
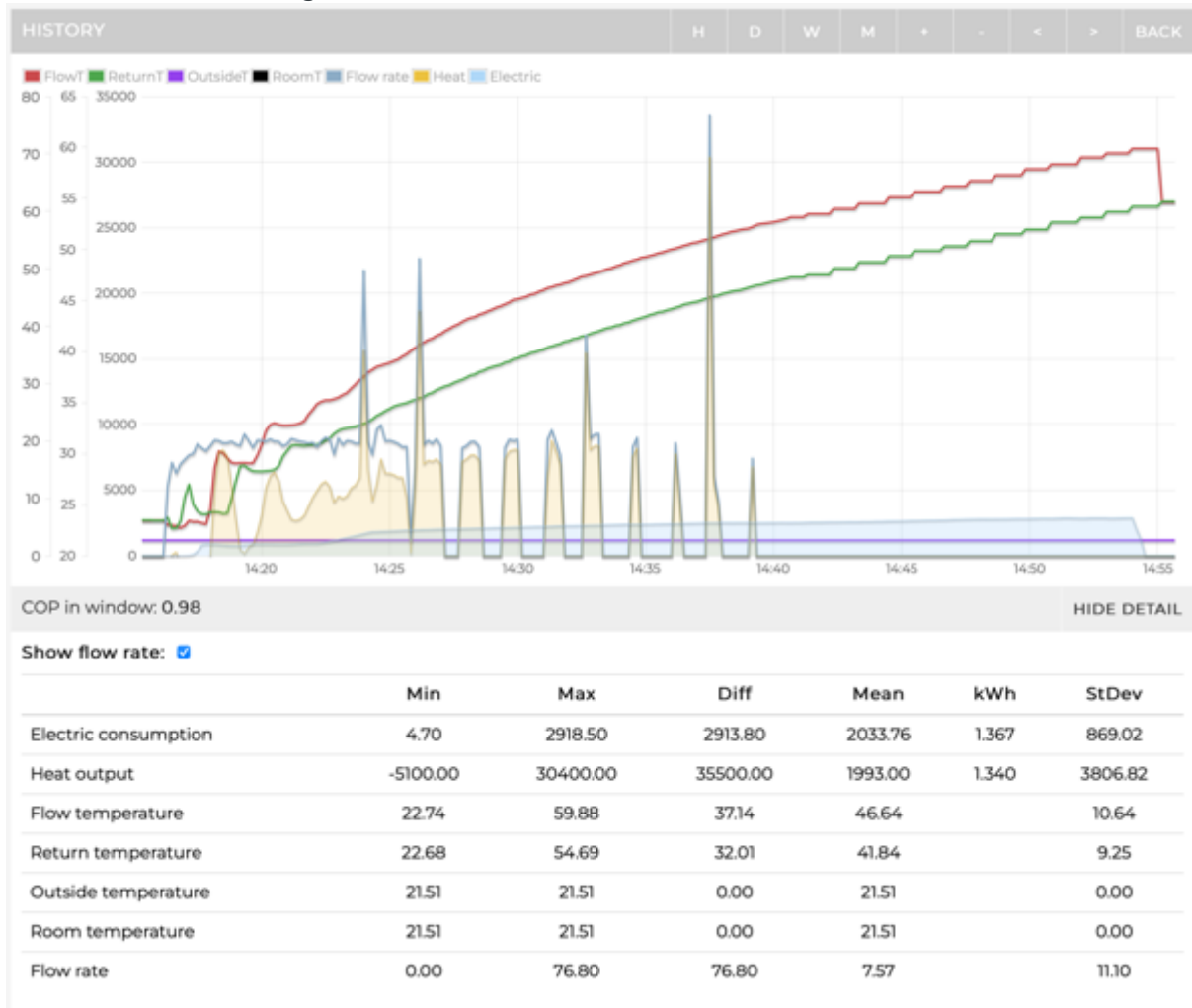
14:25pm system running for 15mins, eddi temp says 40ºC, sensoAPP was 38.5ºC. Slow build up for first 10 mins and then drops into rapid cycling after that. FlowT and ReturnT temps are still climbing. At 14:38pm FlowT reached 51ºC, ReturnT hit 45.8ºC. COP in window from 14:16 – 14:40 is 1.7. 30 min COP is 2.58 with flow of 54ºC.

Flow stopped at 14:39pm. FlowT and ReturnT still gradually climbing and electricity pull a fairly constant 2.8kW from end of heating period at 14:39pm. At 14:52pm FlowT 59ºC ReturnT 53.1ªC.

At 14:55pm electric pull stops. FlowT maxed out at 59.9ºC ReturnT was 57.7ºC. Eddi showed 48ºC and sensoAPP showed 49.5ºC.

Full DHW run on 18<sup>th</sup> August.

COP in window: 0.98

HIDE DETAIL

Show flow rate: ☑

| | Min | Max | Diff | Mean | kWh | StDev |
|---|---|---|---|---|---|---|
| Electric consumption | 4.70 | 2918.50 | 2913.80 | 2033.76 | 1.367 | 869.02 |
| Heat output | -5100.00 | 30400.00 | 35500.00 | 1993.00 | 1.340 | 3806.82 |
| Flow temperature | 22.74 | 59.88 | 37.14 | 46.64 | | 10.64 |
| Return temperature | 22.68 | 54.69 | 32.01 | 41.84 | | 9.25 |
| Outside temperature | 21.51 | 21.51 | 0.00 | 21.51 | | 0.00 |
| Room temperature | 21.51 | 21.51 | 0.00 | 21.51 | | 0.00 |
| Flow rate | 0.00 | 76.80 | 76.80 | 7.57 | | 11.10 |

### 16<sup>th</sup> August 2023

Changes made to configuration to DHW settings. Before and after screenshots below.
Before:                                        After:
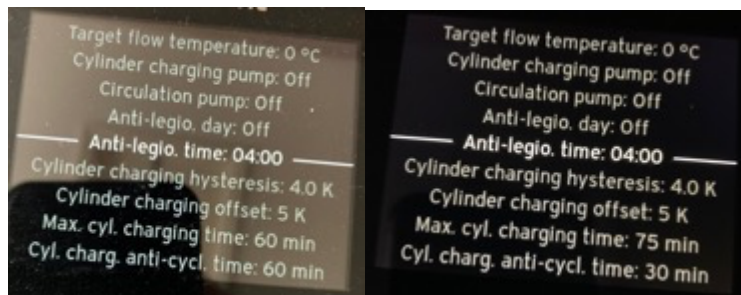


Just before DHW schedule runs at 14:10pm temps were: eddi 46ºC sensoAPP 45C.

14:10pm DHW schedule should start but doesn't. FlowT and ReturnT are returning back to their levels (25.6 & 26.0) before the dip at 13:56pm where a very short energy spike happened, 54w of power and 100w of heat. This caused FlowT and ReturnT to fall 21.3º and 22.6ºC respectively. Over the next ? minutes they climbed back up to ???

No DHW as temp in tank is reading 45ºC and charging offset is 5K making is 50ºC.

**18<sup>th</sup> August 2023**



Target flow temperature: 0 ºC
Cylinder charging pump: Off
Circulation pump: Off
Anti-legio. day: Off
Anti-legio. time: 04:00
Cylinder charging hysteresis: 4.0 K
Cylinder charging offset: 5 K
Max. cyl. charging time: 75 min
Cyl. charg. anti-cycl. time: 30 min

Eddi was left on and boosted DHW on surplus solar bringing temp to 51ºC. Heat pump hot water schedule did not run. At 14:47pm temps were: eddi 41ºC, sensoAPP 31.5ºC after synchronising which is odd as it's way out.
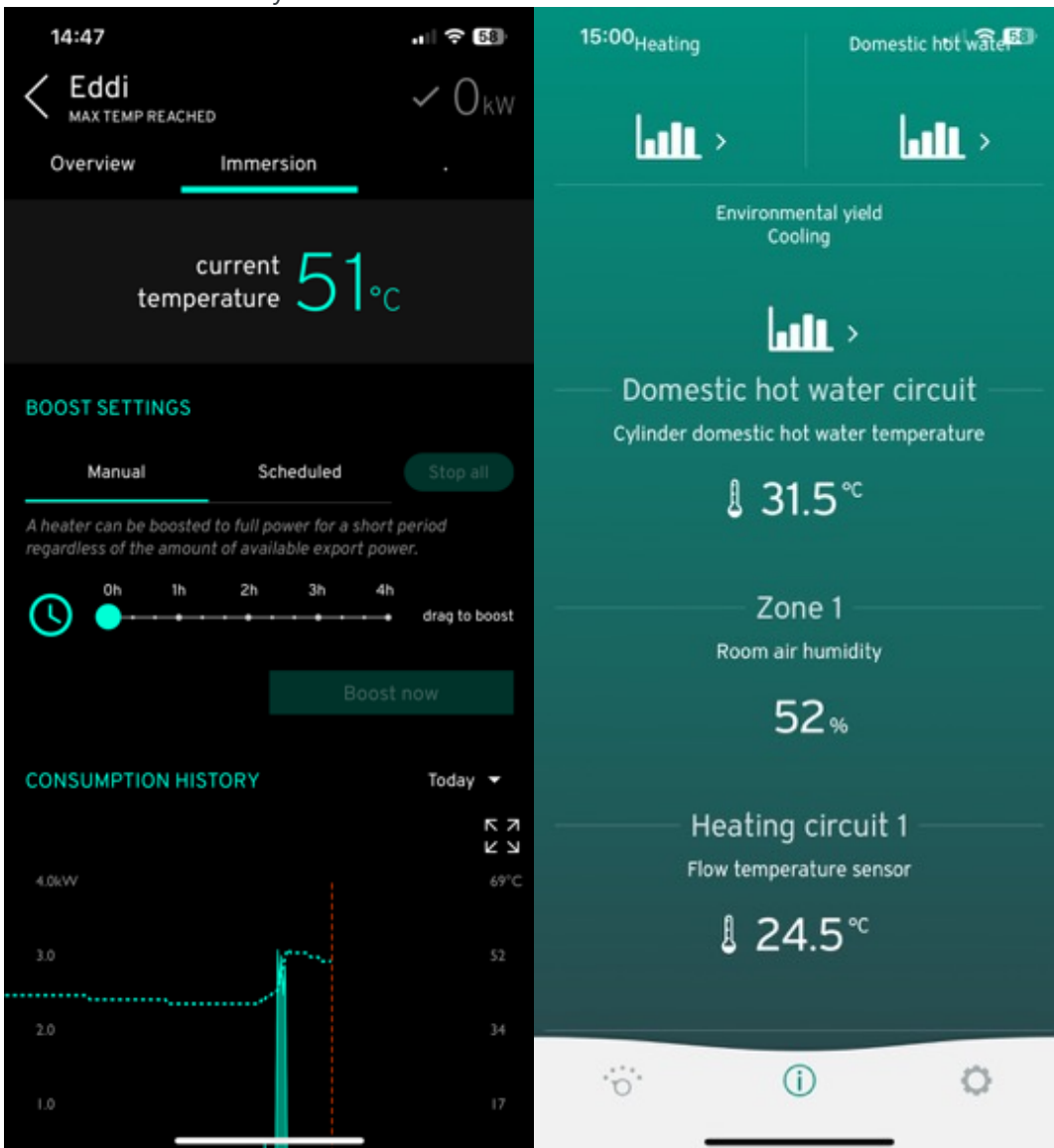
The configurable variables are:
- pump speed (50-100%)
- DHW mode   (eco, balanced, normal)
- DHW target temperature
- DHW offest (flow temp = target+ offset)
- Max reheat time.

**Hot Water Modes**

- Normal: Max. compressor speed 120 rps possible.
- Eco: The max. compressor output is reduced to 50 rps (S+M)/40 rps (L). The speed limit is lifted at air inlet temperatures below -7 °C.
- Balance: If return temperature in the cylinder charging circuit, is equal to or below 45 °C, the full max. compressor output (Eco) is enabled, while at temperatures above that, the reduced max. compressor output is enabled.

In summary

- Normal: no limit on compressor
- Eco: limits max compressor to 50%
- Balanced: limits max compressor to 50% for finish-heating

**Cylinder charging hysteresis**
Defines when charging starts. Cylinder temperature - hysteresis value = cylinder charging on
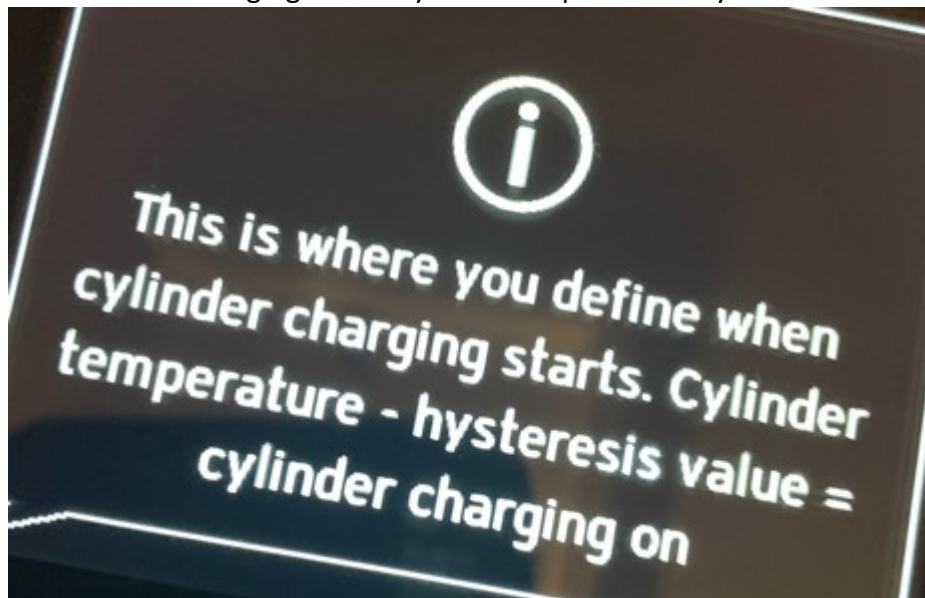


**Cylinder charging offset**
Defines the offset at which the desired temperature is added. Desired temperature + offset = flow temperature for the DHW.

ⓘ

This is where you define the offset at which the desired temperature is added. Desired temperature + offset = flow temperature for the domestic hot water cylinder.