emonHP – OpenEnergyMonitor Heatpump Monitoring

*Pre-provisioned fully inclusive bundle for Level 3 Heat Pump Monitoring*

The kit includes everything required for high accuracy (1-2% MID approved) monitoring of air-to-water air source heat pump (ASHP) or water-to-water ground source heat pumps (GSHP).

The monitoring system is web-connected with remote data access available via [emoncms.org](http://emoncms.org).

**Kit of parts**

- emonHP web-connected data-logger
- Heat meter with M-Bus connection
- Electricity Meter(s) with Modbus (RS485)

**System Diagram**
Heat Meter Installation

- **Heat meter body** should be installed on the RETURN pipe **UNLESS STATED OTHERWISE VIA STICKER ON METER**, observe direction of flow arrow.

- **Temperature sensor pocket** should be installed on the opposite pipe to the meter body.

- See below manufacturers guidance on heat meter body installation location, take care to **install the heat meter in position ‘A’ or ‘B’** and avoid sources of turbulence directly before or after the meter e.g. 90 degree bends, tees, valves or filters. We recommend a minimum length of 10xDN (280mm for 28mm pipe) straight section of pipe before and after the meter.

  3.2 **Flow sensor position**
  
  A. Recommended flow sensor position.
  
  B. Recommended flow sensor position.
  
  C. Unacceptable position due to risk of air build-up.
  
  D. Acceptable position in closed systems.
  
  E. A flow sensor ought not to be placed immediately after a valve, with the exception of block valves (ball valve type) which must be fully open when not used for blocking.
  
  F. A flow sensor must never be placed on the inlet side of a pump.
  
  G. A flow sensor ought not to be placed after a double bend in two planes.

- Kamstrup heat meters require minimum 1.5bar, **recommend 2bar** of system pressure.

- IMPORTANT: Take care to **purge all the air out of the system**, air in the system may lead in incorrect readings.

- Note: heat meters are susceptible to dirt, ensure system if properly flushed before connecting heat meter.

- Install heat meter plumbing connections as follows:
Heat Meter Connections

The heat meter should be connected to the emonHP using the M-BUS to USB adaptor.

- **M-BUS is a two wire bus which is polarity irrelevant**
- The heat meter M-BUS connections should be wired to M+ and M-
- Multiple MBUS meters can be connected, the M-BUS connections should be connected together in star or bus topology. Each meter requires an unique M-BUS ID, this will be pre-set if purchased as a bundle.

Electricity Meter Connections

- The 1st electricity meter should be installed on the circuit feeding the outdoor unit
- Optional: the 2nd electricity meter should be installed on the circuit feeding the indoor control unit including pump(s).
• Additional electrical meters MODBUS (RS485) connections should be wired in star or bus topology, if multiple MODBUS meters are used each should have an unique MODBUS ID, this will be be pre-set if purchased as a bundle.

• The power connections should be torqued to **1.5NM** and the MODBUS data connections should be torqued to **0.4NM**

• The USB to RS485 MODBUS adaptor should be plugged into the emonHP using the **supplied USB extension cable**
emonHP Data logger Installation

The emonHP data logger reads and decodes data from both the electricity and heat meters and logs data to emoncms.org. It’s essential that the emonHP has a reliable connection to the internet, we recommend using wired Ethernet. Install emonHP as follows:

1) Connect USB connection(s)
2) Connect Ethernet cable (recommended)
3) Plug in and switch on 5V USB-C power supply

Wi-Fi Operation (not recommended)
If wired Ethernet connection is not available the emonHP can be connected via Wi-Fi

If WiFi credentials were provided when the kit was purchased the Wi-Fi will be pre-provisioned and will automatically connect, if not follow the instructions below:

1. Temporally connect the unit via wired Ethernet, this will require temporally moving the emonHP to be located by the router
2. Power up the unit using the USB-C power adaptor
3. Using a phone or laptop connected to the same network browse to http://emonhp.local
4. You should see a login screen, login with username: ‘emonhp’ and password: ‘emonhp’
5. 1. Select Wi-Fi on the left hand menu
6. 2. Select the Wi-Fi network you wish to connect to (tick the box)
7. 3. enter credentials
8. 4. Click ‘Save and Connect’
9. After a short while refresh the page and it should display “Status: Connected”
10. You can now disconnect the unit and move it back to the installation location

Alternatively, create a WiFi hotspot with name ‘emonhp’ and password ‘emonhp1234’ using a mobile device, the emonHP will automatically connect to this, then give us a call on 01286 800870, we can connect remotely and setup the WiFi for you.
Cloud Portal: emoncms.org

The emonHP datalogger is pre-provisioned to log data to the emoncms.org provided when kit was purchased.

To view the Heat Pump Monitor App Dashboard scan the QR code on the emonHP

Or login to the account on emoncms.org and select Apps > Heat Pump.

All the data can be viewed on the Feeds page.

Support

If any issues are encountered please contact us:

Tell: 01286 800870  
Email: support@openenergymonitor.zendesk.com  
Forum: community.openenergymonitor.org

Technical, Troubleshooting & Integration

If required the following credentials can be used to gain local access to emonHP for troubleshooting or integration

Local web-interface:

- http://emonhp.local
- username: emonhp
- password: emonhp