KM217 WiFi Getting Started

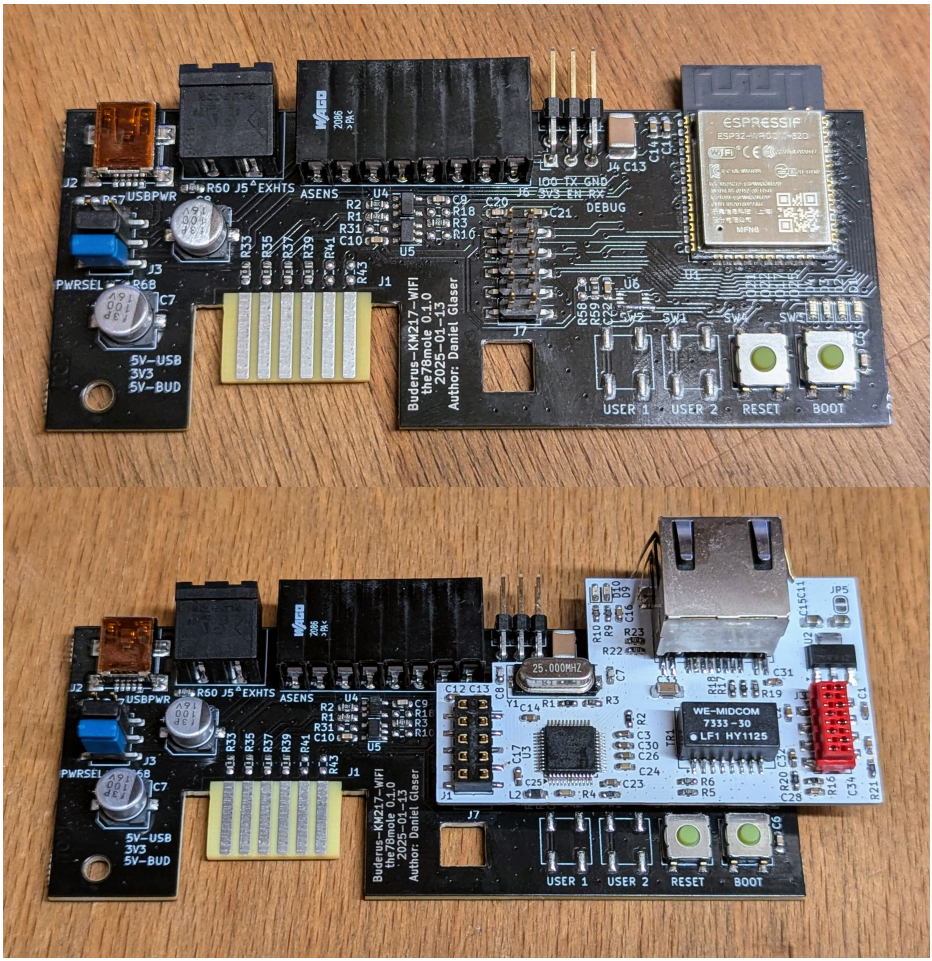
This is a quick manual, how to install the KM271-WiFi module.

Prerequisites

First, check if everything is as ordered (from left to right):

- **J5** is the exhaust temperature sensor connector (mating part was in the package, colors may vary: black or green)
- **J6** is the sensor header connector
- **J4** is the debug header for programming over serial wire

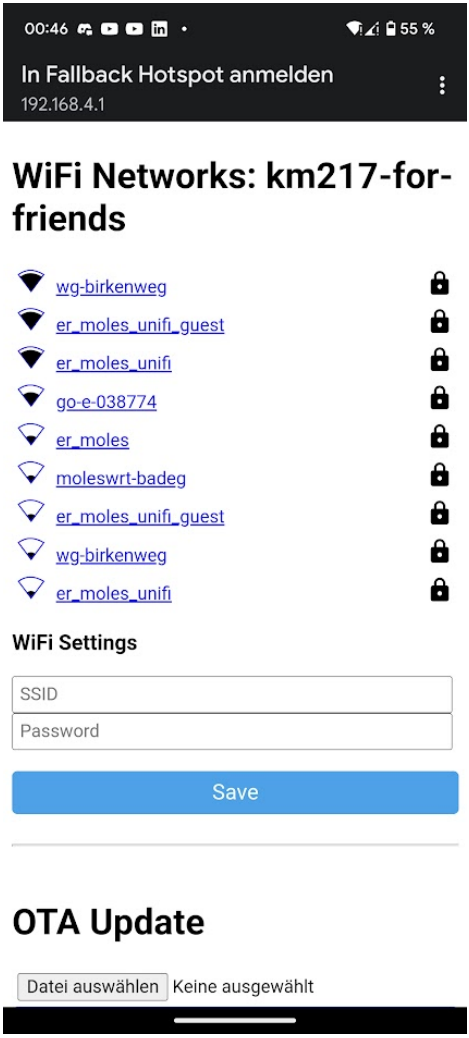
Depending on your order and options, you will find some connectors not populated. The Ethernet extension in the second image is a separate module, also available in my Tindie store.



Now **check if the PWRSEL header is populated** as shown in the image. The middle and the lower jumper shall be set. This is the right variant for **supply from Buderus** control unit. If you want to **supply via USB**, you need to move the lower Jumper (blue

in the image) to the top position. Take the text below the capacitor as a reference. The black jumper shall only be removed for flashing through serial.
For the Ethernet extension, check if the Jumpers J5 is closed, J4 is open and J1 to J3 are placed on pads 2-3.
Installation
Now would be the right time, to add the ethernet extension to the KM271-WiFi if you want to use ethernet.

1. Switch off the Buderus control unit
2. Remove the two screws of the Buderus case and lift it up
3. Try to bend the wires going over the slot of the KM271 a bit up, just enough to slide the KM271 in from the side
4. Align the module in the slots for the KM271 and slide it downwards
5. Push the module gently into its socket, there will be a latch snapping into the rectangular hole of the KM271-module (in the image right beside the blade connector). If you want to remove the module again, you should unlock the latch with the help of a screwdriver
6. Connect additional sensors to the board: Exhaust sensor, oil counter, one-wire,…
7. Close the case of the Buderus control unit again
8. Power it on again
   In the display of the Buderus control unit, you should see a new information ABGAS or EXHAUST. If not, try finding it with the scroll wheel. If you added an exhaust sensor, you can read its current temperature. If you don’t have an exhaust temperature sensor, you will read ---. That is totally fine.
   Now take your smartphone or a PC and search for WiFi Fallback Hotspot (ESPhome) or ESP-Buderus-KM271 (dewenni’s). On Android, after 10–20 seconds, it asks you, if you are sure you want to stay connected (because of missing internet access). Choose yes. Now head over to your browser and go to http://192.168.4.1. Be patient, it sometimes takes some minutes to be able to connect to the wifi or access the page (seems to be a bug in ESPhome). Up to here, it is the same procedure with dewenni’s firmware (the latter just works a bit smoother and more instant). Process with the chapter for your firmware.
   ESPhome setup
   You will see the page of the fallback hotspot:



Choose the appropriate WiFi and enter its passphrase. If you selected the wrong WiFi, it is hard to gain access to the board again… You need to switch off the wrong WiFi or move the module out of the reach. For that purpose, you can take the module out of the Buderus and supply it via USB (you need to move the PWRSEL jumper). Then you can start the procedure again.
On the fallback hotspot page, you can also flash a new firmware version, but you can **not** use a different firmware (e.g. switch to dewenni's).
After this procedure, the board should show up in your ESPhome add-on of your smart home. You can now change the yaml config for this device or keep it as is. If there is an update of the firmware available (because ESPhome addon received an update) it should be safe to execute.
You can also find the device and its sensors, numbers,…¬ in Home Assistant ¬ Settings ¬ Devices and Integrations ¬ ESPhome.

Further information: https://github.com/the78mole/ESPhome-KM271-WiFi

Dewenni's MQTT setup

When first accessing dewenni's WebUI, you should first setup the GPIOs, especially if you want to use Ethernet with the ETH-Ext module to connect your KM271-WiFi to your home network. These GPIOs are:

Signal	GPIO	Pin (J7)
VCC		J7.2
GND		J7.10
CLK	18	J7.9
MOSI	23	J7.7
MISO	19	J7.5
CS	15	J7.3
INT	14	J7.8
RST	13	J7.6

Beside the ethernet config, all settings can be done after applying the settings with reboot.

Then you also need to set at least the GPIOs for the interface to the Buderus control unit. For the KM271-WiFi, there is a dedicated option. Please select it. If you want to connect different hardware, please refer to the detailed description: https://bit.ly/4jA7aHu

For further assistance, join my Matrix channel: https://matrix.to/#/#molesblog:matrix.org

Have some fun with your oil burner, until it gets retired by a heat pump :-)