LeON, RGB status LED of the digital meter

LeON is connected to a 5 volt/1A USB power supply and then via the REDIRECT page, either linked with http to a LoWi with SAME FIXED IP address, or linked to MQTT and linked to the WiFi network.
In this way, LeON receives the energy tariff status via LoWi and shows this status with its RGB LED: RED: day rate, BLUE: night rate, GREEN injection.

A minimum injection power and also the threshold for peak consumption is adjustable in the LoWi, ReMI or MiLo configuration web page, once past the threshold the LED starts to flicker either green or red/blue. The greater consumption or injection, the faster the LED flashes. The green flickering only stops at 0 Watt injection, the red/blue stops just below the set threshold. This way, you'll always know the exact moment to turn the dishwasher or dryer on or off.

The LeON USB stick turns a number of household appliances into smart home batteries with direct consumption (high-efficiency) and a storage capacity of 2 to xx kWh per day.

LeON works with both the LoWi, ReMI, MiLo (http only)
Via http up to 4 LeONs can be connected to one web server, with MQTT multiple LeONs can be linked to one web server.

Note: Some modems block the http connection and then only MQTT can be connected.

1. Connect:

LeON **MUST be** in the reception range of the WiFi network and that WiFi network **MUST** be connected to the Internet. Check any receipt strength with your smartphone. WiFi only has a range of 5 to 10 meters without obstacles. Preferably no metal objects near the LeON, metal cabinets weaken the WiFi signal.
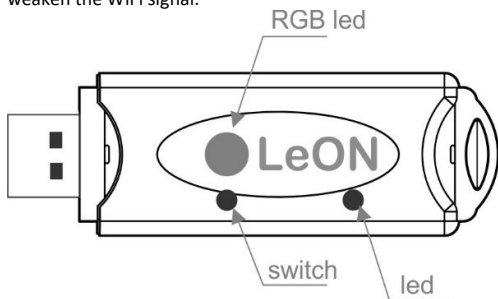
Connect LeON to a 5 volt USB power supply (not included).
The LED will light up constantly at first, and flash continuously after 3 seconds. This means that the LeON is not yet connected to your WiFi network. Pairing with WiFi can ONLY be done manually, not via the server scanner or not via the app.

*IMPORTANT: Make sure that the distance between LeON, router, smartphone or PC is as short as possible, especially during WiFi connection and during firmware upgrade!! Afterwards you can use a WiFi extend*there.

WiFi access point mode:
Now (or within 3 seconds after connecting if the LeON was already paired) press the button for approx. 5 seconds until the LED is lit constantly. The LeON is now an '*access point*', with the name '2-WIRE-LEON'. Choose 'networks' on your laptop, **smartphone or tablet** and if it works properly, the list should now read: '2-WIRE-LEON'. **Select this network**. If you are asked for a key: '**adminLEON**'.

After a maximum of 1-2 minutes, you will automatically be connected to a REDIRECT screen. If this does not work automatically, surf **to *IP address*** 8.8.8.8 yourself

NA. If the redirect page is only partially loaded, press the reload page in your web browser.
NA. If you have already made a previous THEo connection, choose in Windows at WiFi network setting '2-WIRE-THEO' WiFi network "do not remember"
NA. If it doesn't work immediately, turn off your firewall or try to connect manually via smartphone or tablet and check the WiFi signal.
Once on the REDIRECT page, you can enter the network settings.

REDIRECT page:

Click on '*Configure WiFi*' and a list of networks in your area will appear. You can now select your WiFi network from the list (SSID), and also enter the password of this network.
HTTP
Default settings(Fig):

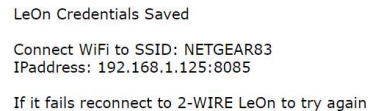IP address: 192.168.0.125 (your LoWi web page)
• Gateway: 192.168.0.1 (required for internet access!)
• Subnet mask: 255.255.255.0
• Port No: 8082 (also needed for port forwarding for remote control)

These default IP addresses need to be changed. It is important that all IP addresses and the port number must be IDENTICAL to those entered in the **LoWi** (or MiLo) module.

For the local connection with LoWi and MiLo you choose HTTP in the drop-down box, if you have an MQTT subscription you can also choose this.

After entering SSID, password and IP address, SUBNETMASK, Gateway and port number (Fig.1), press SAVE and you will receive confirmation of the set LeON IP address.

LeOn Credentials Saved

Connect WiFi to SSID: NETGEAR83
IPaddress: 192.168.1.125:8085

If it fails reconnect to 2-WIRE LeOn to try again

Now that LeON and LoWi (or MiLo) have the same IP address and WiFi settings, they are both connected to each other via http and the RGB LED shows the status of the rate.
MQTT
If you have an MQTT subscription, select MQTT on the REDIRECT page and enter the MQTT account parameters URL, token and possible password.
Note: If you are not familiar with networking, it is better to ask a network specialist!

2.. Firmware Upgrade:

A firmware upgrade can only be done via the push button on the module and only on a connected LeON with WiFi and internet access.
If you connect a paired LeON, you will see a quick flicker of the LED 2x during startup. The first indicates connection to the internet, the second indicates synchronization with an NTP clock and only then does the heart rate LED follow. Only press the push button for approx. 5 seconds until the LED lights up continuously and then release. LeON will now upgrade itself and reboot.

3. Configuration via tablet or PC:

In the LoWi3 setup page:

Link via http:

Qonnex

With the linked LOWI, with the same IP address as entered in the WiFi configuration of the THEO, no further setting needs to be done except for the thresholds for import and injection.

INTEGRATION VIA MQTT:

Here, LeON and LoWI or ReMI must have the same MQTT account settings in order to be able to link and an MQTT channel must also be created. Furthermore, there is no need for a setting unless the import and injection thresholds are introduced.

THRESHOLDS EXPORT MAX AND IMPORT MIN

LoWi3 and ReMI

Via the configuration webpage you can enter the minimum injection power at 'EXPORT MIN' from when the LED flickers green. Only with 0 Watt injection does the green LED switch back to red or blue.

At 'IMPORT MAX' you can enter the threshold for maximum consumption. Above the threshold, the LED will flash red or blue, below the threshold the flickering will stop. This way, you'll know exactly when you have a peak consumption.

Milo

Via the MiLo setup page it is similar, at SN 0xp00001 the import max threshold, at SN 0xp00002 enter the import MIN threshold.

4. General remark:

- Up to 4 LeON modules can be connected per LoWi, ReMI or MiLo (http only) web server.
- You can also read the current rate via the LoWi button on the LoWi webpage. However, LeOn is much more visible so that every housemate knows when the nightly rate starts or when energy becomes free and green. This way, you can use your household appliances as a home battery.
- Update of the LED status is every minute
- If LeON is already paired on WiFi and you still want to change the WiFi settings, press the switch within 3 seconds of startup to enter REDIRECT mode and perform the 'manual pairing' procedure again.
- MQTT: LeON is also equipped to connect via MQTT. The configuration of this is also done via the REDIRECT page
- We notice that some wifi routers (white Telenet modem) disrupt the http communication between LoWi and LeON, causing LeON to crash, the solution is to connect to another WiFi router or make a connection via MQTT.

5. Technical data:

General:

- WiFi network 802.11 b/g/n/e/i (2.4 GHz), which needs access to the Internet.
- Tx power: 802.11 b: +20 dBm 802.11 g: +17 dBm 802.11 n: +14 dBm
- Rx Sensitivity: 802.11 b: -91 dbm (11 Mbps) 802.11 g: -75 dbm (54 Mbps) 802.11 n: -72 dbm (MCS7)
- Security: WPA/WPA2, Encryption: WEP/TKIP/AES
- Network Protocol: IPv4, TCP/UDP/HTTP/FTP
- Built-in antenna.

Operating conditions:

- Operating temperature range: 10 °C to 50 °C

Storage temperature range: -10 °C to 60 °C
Maximum humidity: 90 %, no moisture condensation
Max. mounting height : 2000m

Physical Properties:

Housing: plastic, self-extinguishing according to . UL94-V0
Degree of protection: IP20, EN 60529
Indoor installation
Dimensions (H x W x L): approx. 70mm x30mm x 7mm
Weight: about 33 grams

Connections:

Power supply: via USB (not included). Average consumption: 5V/100mA, peak up to 160mA

Labels:

RoHS: Non-toxic, cf. WEEE/RoHS Directives
CE: In accordance with EMC and low voltage directive: HBES – EN 50090-2-2 and EN60950 – 1: 2006.

6. Installation instructions

The installation is preferably carried out by someone with at least a basic knowledge of PC/networking.

7. Support

Would you like to have the product repaired in case of a possible defect? Please contact your supplier or order "inspection module" online.

8. Warranty provisions

The warranty period is two years from the date of delivery. The delivery date is the invoice date of purchase of the product by the consumer. If no invoice is available, the production date applies. The consumer is obliged to inform Qonnex bvba in writing of the lack of conformity, and this at the latest within two months after discovery. In the event of a lack of conformity, the consumer is only entitled to a free repair or replacement of the product, which is determined by Qonnex.
Qonnex is not responsible for a defect or damage resulting from incorrect installation, improper or negligent use, incorrect operation, transformation of the product, maintenance in violation of the maintenance instructions or an external cause such as moisture damage or damage due to overvoltage. The mandatory provisions in national legislation on the sale of consumer goods and the protection of consumers in countries where Qonnex sells directly or through distributors, agents or permanent representatives take precedence over the above provisions.

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