LoWi3, WiFi display of the digital meter

The LoWi3 web server is connected directly to the P1 port of the digital meter with the supplied RJ12 'cross' cable and then linked to the local WiFi network. For example, you can get an overview of the total consumption of the home via the web browser on smartphone, tablet or PC, up to 2 years ago. LoWi3 is compatible with all Belgian* and Dutch digital meters from protocol version DSMR 5.x. For the Dutch DSMR 4.x meters, the optional P1 adapter cable with extra USB connection for the power supply is required. LoWi3 is already pre-configured, the available measurement data are:

- Consumption import high tariff
- Consumption import low rate
- Consumption export high rate
- Consumption export low rate
- Rate (high or low rate)
- Gas consumption (if measuring device available)
- Consumption of water (if measuring device available)
- Consumption import high + low tariff
- Consumption export high + low tariff
- Consumption, import – export (positive or negative)
- Quarter-hour power (Flanders)

In addition to P1 meters, you can also connect external meters with manual input of the meter readings, 2-WIRE MQTT web servers, plugs or THEo's.
It is always possible to change the order of the meters, whether or not to show meters. Up to 16 measurement channels are provided in the LoWi3. Each measurement channel has a storage of the last 10 days for hourly consumption, with a resolution of 5 minutes. The day-consumes have a surcharge of 12 months. The monthly consumption have a surcharge of 2 years. (*Belgian meter **activate first**, see comments)

1. Connect:

LoWi **MUST be in the reception range of** the 2.4gHz 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 LoWi, metal cabinets weaken WiFi.
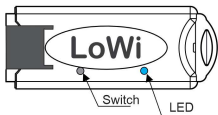
2. Pair with WiFi network

Connect LoWi to the P1 port of your digital meter via the included RJ12 cable. The LED will first light up constantly, and after 3 seconds it will flash continuously (about 2x per second). This means that the LoWi is NOT yet connected to your WiFi network.
From here you can connect to WiFi **in 3 different ways** and in this short guide we only explain the REDIRECT method:

REDIRECT method: long press the switch, approx. 5 seconds until the LED is constantly lit to enter the 'WiFi access point' mode and thus reach the REDIRECT page **(see also**: https://www.2-wire.net/lowi-tutorial/)
Comments:

- *Changing an existing WiFi connection: If LoWi is already paired (slow heart rate LED every 5 seconds) and you want to change this WiFi connection, you can do this by restarting and then immediately within 3 seconds after the first LED flash long press (about 5 seconds) until the LED is solid, and then change the network settings via the above method.*
- *Upgrade: If a LoWI has already been paired with a heart rate LED Long press (approx. 5 sec. until the LED lights up continuously) results in a firmware upgrade.*
- *WiFi range: Make sure that the distance between LoWi, router, smartphone or PC is as short as possible during WiFi connection and also during firmware upgrade!! In the LoWi setup page you can read RSSI signal strength. The smaller the value the better signal, --55dBM is OK, >-80dBM is not OK. During the initial configuration, you can use the optional **P1 adapter cable**, in*
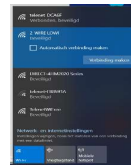
order to bring LoWi, PC, WiFi router together and thus be able to perform this setup comfortably.

Once LoWi is in *'access point' mode:* Then choose 'networks' on your laptop, **smartphone or tablet** and if it works properly, the list should now read: '2-WIRE-LOWI'. **Select this network**. If you are asked for a key (password): '**adminLOWI**'.
Automatically your web browser will open and after a maximum of 1-2 minutes you will be redirected to a REDIRECT screen where you can enter the IP settings.
TIPS: If this doesn't work automatically, surf to 8.8.8.8 yourself. Or try pairing via smartphone or tablet. If you have already made a previous LoWi connection, choose "do not remember" WiFi network setting '2-WIRE-LOWI' in Windows. Be sure to check wifi reception and rewatch the video tutorial if necessary. If you are really not familiar with IP addresses or if you do not know how to determine a fixed IP address, ask someone with knowledge of PC or networks.

REDIRECT page:
LoWi needs to get a free and fix IP address from within your own network and you can enter this IP address together with your network settings via the REDIRECT webpage.

Click on **'Configure WiFi'** and a list of networks in your area will appear. You can now select your WiFi network (SSID) from the list, and also enter the password of your network.
Possibly page "reload" if it only appears partially.
Default settings(**Fig.1**):

IP address:
192.168.0.125 (LoWi webpage)
- Gateway: 192.168.0.1 (required for internet access!)
- Subnet mask: 255.255.255.0
- Port No: 8082 (choose any number e.g. between 8000 and 9000), needed for port forwarding for remote control)
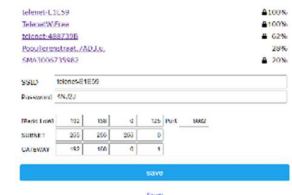
These default IP addresses now need to be adjusted according to the settings of your **own** WiFi network, it is important that all IP addresses are **in the same range**.
Optionally, you can copy your IP address, subnetmask and gateway from the proposal from the IP server scanner tool. (Fig.2). Or you can also set LoWi to DHCP to get a free and fixed IP address to read it via the server scanner or via the redirect page. For more information, see the detailed online manual or the tutorial.

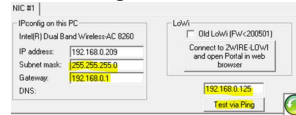**Fig.2**   **Fig.3**

After entering SSID, password and IP address, SUBNETMASK, Gateway and port number (Fig.1), press SAVE and you will receive confirmation of the set LoWi IP address. (Fig. 3)

Now the laptop has to go back to the existing WiFi network. To do this, go to WiFi networks and select your default WiFi network.
Once on your standard WiFi network, surf to the set FIXED IP address and port number (enter in the address bar of your browser, e.g. 192.168.0.226:8082). **The port number must follow the IP address with a ':' decimal character!** And that's how you end up on the home page of your LoWi web server.

Note: Check in your browser if 'SETTINGS - JAVASCRIPT' is enabled!
Note: it is best to create a shortcut on the PC, tablet or smartphone and thus immediately connect to consumption.
Note: If you are not familiar with networking, it is better to ask for help from a PC or network 'specialist'.

Qonnex

2. Operation and configuration via tablet or PC:

The *home page* (dashboard) provides an overview of current electricity and gas consumption along with a rolling daily graph of both.
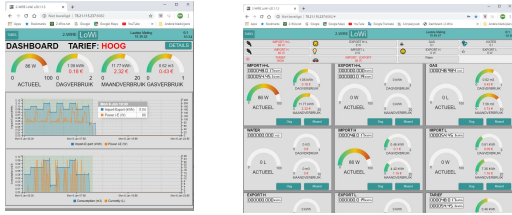
Detail page

The **'DETAILS' button** will take you to the various metered, calculated, and manually entered meters. The scroll menu at the top will take you directly to the right meter. The **PRINT** button to export to Excel.

Configuration page

The **'LOWI' button** in the dashboard will take you to the setup page and here:

- Set login and password, required for external access via port-forwarding (see **FAQ** on our website)
- Set up MQTT broker/http client, set language version and clock. For MQTT functionality, you need to purchase an additional MQTT Token on our website or from an MQTT broker provider.
- Upgrade LoWi via web server, set energy prices
- Customize Configuration:
- ➢ Via **'PROTOCOL'** you can set your type of meter in Belgium/the Netherlands/...

➢ Each of the 10 meters from the P1 port can be shown or not.
➢ Show an icon for each meter: first for the meter and then click on the desired icon.
➢ Choose your own name and unit for each meter under 'NAME' and 'UNIT'.
➢ For MQTT meters, enter a MAC address at deviceID
➢ Clearing one log channel can be done by typing the word "**delete**" in the name of that channel, then saving, the name will come back automatically. **Just perform this action channel by channel**!

- You can change the order by pressing 'SORT' and dragging the gauges to a new position.
- Use the "**PRINT"** button to create a backup PDF of the configuration

After each change, press 'SAVE' and enter the password **'adminLOWI'**. Then press 'EXIT' to return to the 'DASHBOARD'.

Table page

Via the **'TABLE'** button, you will get a 2-year overview of all measured consumption and energy costs calculated on the entered unit prices.

3. General remark:

- Pre-activate the Belgian digital meters on the Fluvius website to open the power supply and data to the P1 port.
- Dutch digital meters with DSMR 4.x: use the optional P1 power adapter for LoWi here. This cable is also useful for making the configuration more comfortable.
- RJ11 cable **max.3m.**, otherwise order P1extender(<50m).
- Auto soft reboot in case of poor WiFi or no internet.
- The complete current manual can be found on the 2-WIRE website at the product page of the LoWi web server.
- A LoWi web server can handle max. Log 16 energy channels: 7 measured P1 port values, 3 calculated meters, counters for manual input of meter readings, MQTT meters.
- Option: LeON or THEo USB stick. This connects via WiFi (MQTT) to LoWi and shows the current energy rate (RED = day rate, BLUE = night rate, GREEN = injection into the grid), thresholds to be set via LoWi.
- If you want to measure directly linked partial consumptions in addition to total consumption, choose ReMI or MEMo3.

- The LoWi website is 'responsive', which means that smartphone, tablet and PC each have their own layout.
- With the **MQTT (optional Token)** or the **HTTP client** function, you can upload measurement data to a central platform for backup or for comparison with others, see manual.
- PRINT (DETAILS), and HTTP both generate approx. the same csv.
- LoWi Reboot: Disconnect or short press the switch.

4. Technical data:

General:

- WiFi network 802.11 b/g/n/e/i (2.4 GHz), which needs access to the Internet. Built-in antenna.
- 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 timer which is synchronized daily with a highly accurate NTP clock.
- Included: RJ12-6p6 cable (powered by the digital meter)

Operating conditions:

Operating temperature range: 10 °C to 50 °C, indoor mounting
Maximum humidity: 90 %, no condensation, Max.: 2000m

Physical Properties:

Housing: plastic, self-extinguishing according to . UL94-V0
Degree of protection: IP20, EN 60529
Dimensions : approx 70mm x30mm x 7mm, 33 grams

Connections:

- Built-in P1 port (galvanically isolated) for the Belgian and Dutch digital meter from DSMR5.0
- Power supply: via P1 Avg. consumption: 5V/ 100mA, peak up to 160mA

Labels:

RoHS: Non-toxic, cf. WEEE/RoHS Directives
CE: In accordance with EMC and low voltage directive: EN 61326-1:2013 and EN 61010-1:2010 + A1:2019.

9. Installation instructions

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

10. Support

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

11. 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.

Qonnex bv B-9310 Aalst Belgium info@2-wire.be   www.2-wire.net

Qonnex