

ReMI, the smart energy switch



The ReMI web server receives consumption data, either via the 6P/6C RJ12 'cross' cable connected to the P1 port of the digital meter, or via the Modbus connection connected to 2-wire energy meters, or via consumption pulses from the 2 input contacts. ReMI is then linked to the local WiFi network and so you get an overview of total consumption up to 2 years ago on the local ReMI website via the web browser on smartphone, tablet or PC. ReMI is compatible with Belgian and Dutch* digital meters.

Note: Always use the 12VDC power supply. The L&G E350 differs from the P1 standard and is NOT compatible. Via P1, ReMI reads:

- Consumption import high tariff, and Consumption import low
- Consumption export high tariff, and Consumption export low
- 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 capacity (Flanders only)

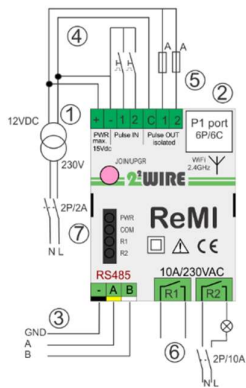
External meters can also be connected via Modbus, via pulse or via MQTT (MQTT Token required!): WiFi-Plugs WP.16A, THEo and LeON sticks, 2-Wire web servers (LoWi3, ReMI, MEMO3),...

Up to a maximum of 16 measuring channels are provided in the ReMI. 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)

In addition to inputs, ReMI has 2 bi-stable 10A relay outputs and 2 low-power solid-state outputs. To switch with the solid-state large loads, they can be connected via the ReMI power supply to the optional PEM01/012 power relays. With the logic in the web server, these 4 outputs and WiFi-MQTT Plug's can be based on injection, peak, rate, time (4week-clocks),... controlled. You can compare ReMI with the former boiler timer, but with more possibilities.

1. Connect:

ReMI **MUST** be in the reception range of the 2.4GHz stable WiFi network and that WiFi network MUST be connected to the Internet. Check WiFi receiver strength with your smartphone, WiFi reaches max.5 to 10m. No metal objects nearby. In the ReMI setup page you can read RSSI signal strength. The smaller the value the better signal, --55dBm is OK, >80dBm is not OK.



Power supply: [1] First connect the supplied 12 Volt DC (Max. 2A, max. 2.5 meters and 2x0.5mm² with solid core) and then [2] P1 port input with RJ12 cable (max. 3 meters).

Always automatic fuse provided 2P/6A, clearly visible and accessible, which serves as an on/off for ReMI.

Modbus:[3] use shielded EIB bus cable 4x 0.5mm² with solid core (Max. 25 meters) and respect the color code GAB=black, yellow and white. Single line topology can be terminated at Modbus and both bus ends between A and B terminal with end resistor 120 Ohm. ReMI is located at a terminus of the bus. Either set ReMI as Modbus

master with 2-WIRE meters, or Modbus slave in a MEMO3 setup, not both at the same time.

Pulse IN: [4] 2x NO potential-free reed contact, 0-5v/2mA, cable max. 2.5 meters, section 2x0.5mm² with fixed core. Pulse duration min. 50msec, max. 10 pulse/second.

Pulse-OUT: [5] 2x low power solid state contact with optical separation, Logically generates either consumption pulses from P1 meters, or a low-power switching contact (max. 24VDC/max 50mA). Cable max 2.5m, 2x max. 0.5mm² with solid core.

Relay output: [6] 2x bi-stable potential-free 10A/230V 50-60Hz relay contact up to max. 2300 Watt resistive load, or as a release contact to the control of e.g. heat pump, charging station, boiler, storage,... Thread min.

0.25mm²... Max. 2.5mm² (Max. 25 meters), strip max. 4mm . **Always connect external 12VDC power supply** when using relays!

Please note:

• **ReMI= Mono-phase module:** Connect both 230V relays to the same phase! It is best to use power relays (PEM01/012).

• **Bi-stable:** in the event of a power cut, they will retain their position!
LED:[7] PWR : power status, **COM**: Communication, **R1** and **R2**: Relay status.

Antenna: Screw the WiFi antenna onto the SMA connector.

2. Pair with WiFi network

Once ReMI is connected correctly (see power supply ReMI) the green PWR LED will light up constantly, followed by the orange COM LED which flickers on/off every second after about 10 seconds. ReMI is now a "WiFi access point".

NB Change existing WiFi link: Restart and then press the JOIN/UPGR button after 2-3 seconds (approx. 5 sec) until the COM LED stays on continuously. ReMI now remains approx. 1 minute "access point".

Note: Manual upgrade: When paired with heart rate LED Long press (approx. 5 sec. until LED is solid), results in firmware upgrade

Note: WiFi range: During WiFi connection and also during firmware upgrade the distance between ReMI, router, smartphone or PC as short as possible!!

REMI ACCESS POINT:



Select 'networking' on your laptop, **smartphone or tablet** and if it works properly, the list should now read: '2-WIRE-REMI'. **Select this network.** If you are asked for a key (password): 'adminREMI'.

Automatically your web browser will open and after a maximum of 1-2 minutes you will be redirected to a **REDIRECT** page where you can enter the IP settings.

Note: If this does not work automatically, go to 192.168.4.1 (type in the browser toolbar). If you have already done a previous ReMI connection, choose "do not remember" WiFi network setting '2-WIRE-REMI' WiFi network in Windows. If it doesn't work immediately, try to pair via smartphone or tablet and be sure to check the WiFi signal. Also check if the COM LED is on continuously (access point mode) and if necessary watch the ReMI video tutorial on the 2-Wire website.

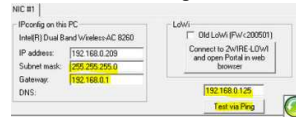
REDIRECT PAGE



Once on the redirect page, click on '**Configure WiFi**' and a list of networks in your perimeter will appear. You can now select your WiFi network from the list (SSID), and also enter the password of your network.

Default values:

- IP address: 192.168.0.125 ReMI webpage
- Gateway: 192.168.0.1 (internet !)
- Subnet mask: 255.255.255.0
- Port No: 8082 (dial number ts 8000 and 9000): 'port forwarding' for remote control)



You **MUST** now change these default IP addresses according to the settings of your own WiFi network, possibly you copy your IP address, subnet and gateway from the **IP server scanner** and enter 8.8.8.8 as DNS IP (see figure)

Or you can temporarily set ReMI to **DHCP** to get a free and fixed IP address.

Setting up DHCP is done by entering 4x '0.0.0.0' as the IP address and then the router itself gives a fix IP address afterwards via the server scanner, or by going back to the redirect page.



After entering SSID, password and IP address, SUBNETMASK, Gateway, DNS 8.8.8.8.8

and port number (random number 8000... 9000), press SAVE and you will get the confirmation of the set ReMI IP address (Fig. confirmation IP) Once all network data has been entered, the laptop has to go back to the standard WiFi network and there you surf to the set FIXED IP address and port number (enter in web browser, e.g. 192.168.0.226:8082) The port number **must** follow with a ':' decimal character after the IP address! This is how you get to ReMI homepage.

Note: In the browser, JAVASCRIPT must be enabled under 'SETTINGS'!

NB: Creates a shortcut on your PC, tablet or phone to ReMI

NB: If you are not familiar with networking, watch the video tutorial on ReMI, or ask for help from a specialist!

2. Operation and configuration via tablet or PC:

Home:

The **home page** (dashboard) gives an overview of consumption of 2 selected meters together with the rolling daily graph of both.



Detail page

The **'DETAILS'** button will take you to the different meters. Click in the scroll menu at the top to go to the desired meter. With the **'PRINT'** button you can export data to Excel.

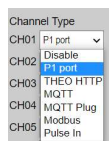
Configuration page

The **'ReMI'** button will take you to the setup page and here you can:

- Login and password, required for remote access via port-forwarding (see **FAQ**)
- Set up MQTT broker/http client, choose language, version and layout (B/W). MQTT requires a Token.
- Green tick next to NTP clock means **internet link**
- Upgrade ReMI, set energy prices
- Via **'P1 PROTOCOL'** you can set the

correct type of digital meter (**BE= Belgium, NL= The Netherlands with P1 version**)

- Clicking on Status shows/copies all data from the digital meter
- With **IMPORT MAX** and **IMPORT MIN** you set the threshold for the linked THEo and/or LeON stick and the ReMI button at the top.
- **Adjust configuration:** (see also detailed manual)



- > Choose which meters from the P1 port you want to log.
- > You can assign a name or choose a unit for each meter under **'NAME'**.
- > You can give a meter an icon by first clicking in front of the meter and then on the desired icon.
- > With MQTT, enter a MAC address at deviceID
- > To clear one log channel by typing the word **"delete"** in the name of that channel, then save.
- Be careful, only perform this action channel by channel!!**
- > A channel will only be assigned if a **NAME** is also entered!! (minimum 6 characters)
- > Unused channels **must be** set to 'Disable' as Channel Type
- > You can change the order by pressing **'SORT'** and dragging the gauges to a new position.

After each change, press **'SAVE'** and enter the password **'adminREMI'**. 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:

- There are **NO** services associated with the purchase of a ReMI module. (NO: install, configuration, backup, energy advice,...)
- Pre-activate the Belgian digital meters [on the Fluvius website](#) to open power and data to the P1 port.
- Always connect the 12VDC power supply.
- RJ11 cable max. 3m, otherwise order P1extender (<50m).
- Auto reboot in case of bad WiFi, no internet or bad power.
- The current manual and datasheet can be found on the 2-WIRE website at the product page of the ReMI web server.
- ReMI has max. 16 channels logging and max. 16 lines of logic.
- The optional LeON (USB) and THEo stick are connected via WiFi (MQTT) and display the current E-rate with their RGB LED
- Two or three ReMIs can be connected via the P1 HUB module.
- The ReMI website is 'responsive' which means that a smartphone, tablet, PC,... each have their own layout.
- With the **MQTT (optional Token needed)** or the **HTTP client** function, you can upload measurement data to a central platform for backup or for comparison with other installations.
- **PRINT** (at **DETAILS**), and **HTTP** both generate the same csv.

- **PRINT** at setup generates a pdf of the configuration
- **Rebooting:** Interrupt power supply or short press the switch.
- Symbols: ⚠️ General Warning ⓘ, Read Manual 📖, Indoor Use, ⚡ Risk of Electric Shock Ⓢ Complies with EU Directives, 📶 WiFi Antenna, ♻️ Waste

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 pwr:802.11b:+20dBm, 802.11g:+17dBm, 802.11n:+14 dBm
- Rx Sensitivity:802.11b: -91 dbm (11 Mbps) 802.11g: -75 dbm (54 Mbps), 802.11n: -72 dbm (MCS7)
- Security: WPA/WPA2, Encryption: WEP/TKIP/AES
- Network Protocol: IPv4, TCP/UDP/HTTP/FTP
- Built-in timer daily synchronous with an NTP clock.
- 2 digital inputs potential-free (pulse or timebase)
- 2 optically isolated pulse outputs max. 24VDC/max 50mA
- Connector for external power supply 8-15V/ max 2A
- Modbus master or slave adjustable
- 2 bi-stable relays-OFF 10A/230V potential-free, max.2300Watt resistive load. Breakdown voltage to bus 3kV
- 16 channels, 10 days with 5 min.-, 1 year with day resolution.
- Included: 3 meters **RJ12/6p6c** cable + 12VDC power supply

Operating conditions:

Operating temperature range: 5 °C to 40 °C, indoor mounting
Maximum humidity: 80 %, no condensation, Max.: 2000m,
Mounting: click on DIN-Rail

Physical Properties:

Housing: plastic, self-extinguishing UL94-V0, Degree of protection: IP20, EN 60529, Dimensions: 2 DIN rail modules approx. 75 grams

Labels:

CE : In accordance with EMC and low voltage directive: RE EMC: ETSI EN 301 489-17 V3.2.4; EMC : EN 61326-1:2013, Safety: EN 61010-1:2010 + A1:2019; RoHS. OVC (over voltage) Cat I ; Pollution Cat 2

9. Installation instructions

Installation must be carried out by a certified installer and in accordance with the regulations in force. The module must be built into a fireproof fuse box. During installation, the following must be taken into account (non-exhaustive list):

- the applicable laws, standards and regulations.
- the state of the art at the time of installation.
- This manual, which only mentions general provisions and should be read in the context of each specific installation.
- the rules of good workmanship.
- the specified specs in this manual, otherwise there is a risk of damage to the module.

This manual must be attached to the electrical installation file. On the 2-Wire website you can always find the most recent manual of the product.

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.

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