

## 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 via the web browser on smartphone, tablet or PC. ReMI is compatible with all Belgian\* and Dutch digital meters. For the Dutch DSMR 2.x and 4.x meters, an

optional 15V power supply is required.

Via P1 ReMI reads :

- Consumption import high rate
- Consumption import low rate
- Consumption export high rate
- Consumption export low rate
- Rate (high or low rate)
- Consumption of gas (if measuring device is present)
- Consumption of water (if measuring device is present)
- Consumption import high + low rate
- Consumption export high + low rate
- Consumption import – export (positive or negative)

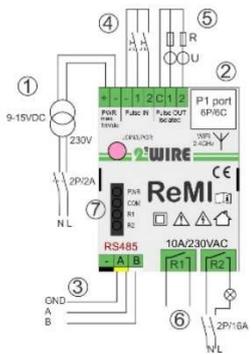
But external meters can also be connected via Modbus, or via pulse, or via MQTT (MQTT subscription required!): WiFi-Plugs WP.10A, THEO and LeON sticks, 2-Wire web servers (LoWi3, ReMI, MEMo3) ,...

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 hour consumption, with a resolution of 5 minutes. The daily consumptions have a storage of 12 months. The monthly consumptions have a storage of 2 years. (\*Activate Belgian meter **first**, see comments)

In addition to inputs, ReMI also has 2 bi-stable 10A relay outputs, 2 low-power solid-state outputs and 4 week clocks. With the logic in the web server, these 4 outputs and WiFi-MQTT Plugs can be based on injection, peak, rate, time,... are controlled. You can compare ReMI with the former boiler timer but with more possibilities.

### 1. Connect:

ReMI **MUST be** in the receiving range of the **2.4GHz stable** WiFi network and that WiFi network **MUST be** connected to the internet. Check WiFi receive strength with your smartphone. No metal objects nearby and possibly order WiFi antenna on foot.



**Power supply:** [1] Always first connect the optional 9–15 ±10% Volt DC power supply and only then [2] P1 port input with galvanic isolation with RJ12 cable (max 3 meters). **Only** with a Belgian or a DSMR 5.x digital meter one does NOT need to connect an external 15 VDC power supply\*

\*Provided that the digital meter provides sufficient power: the COM LED must first be constantly lit to flicker on/off after approx. 10sec. If there is not enough power from the digital meter, the ReMI will restart itself after about 3 minutes of charging, or disconnect itself and only connect when all LEDs are off.

**Modbus:**[3] shielded EIB bus cable 4x 0.5mm<sup>2</sup> use and respect the color code GAB=black, yellow and white. ReMI or set

as Modbus master with 2-WIRE meters, or Modbus slave in a MEMo3 setup, not both simultaneously.

**Pulse IN:**[4] 2x NO potential-free contact, 0-5v/2mA, cable max. 2 meters, section 2x0.5mm<sup>2</sup>.Pulse duration min. 100msec, max. 10 pulses/hour.

**Pulse-OUT:** [5] 2x low power solid state contact with optical isolation, max. 24 VDC/5mA, cable max. 2m, section 2x0.5mm<sup>2</sup>. Generates via logic either consumption pulses of P1 meter, or a low-power switching contact.

**Relay output:** [6] 2x bi-stable potential-free 10A/230V relay contact up to max. 2300 Watt ohmic load, or use as release contact to the control of eg heat pump, charging station, boiler, accumulation,... Connection wire min. 0.25mm<sup>2</sup> ... Max. 2.5mm<sup>2</sup>.

#### Please note:

- **Mono-phase module:** connect both contacts to the same phase!
- **Bi-stable:** in case of voltage interruption, they retain their position!
- LED:**[7]**PWR:** power status, **COM:** Communication, **R1** and **R2:** status relays.

**Antenna:** On the SMA connector the WiFi antenna screws, when mounted in metal cabinet order the optional antenna with magnetic base.

### 2. Connect to WiFi network

Once ReMI is connected correctly (see connect ReMI) the green PWR LED will be constantly lit followed by the orange COM LED which after about 10 sec. flickers on/off every second. ReMI is now a "WiFi access point".

*NOTE:Change existing WiFi link: Orestartand then press the JOIN/UPGR button after 2-3 seconds (approx. 5 sec) until the COM LED remains solidly lit. ReMI now remains approx. 1 minute "access point".*

*N.B.: Manual upgrade: With a paired ReMI with heart rate LED Long press (approx. 5 sec. until the LED is continuously lit), results in a firmware upgrade.*

*NOTE:WiFi range: IMPORTANT: Make sure that during WiFi connection and also during firmware upgrade the distance between ReMI, router, smartphone or PC is as short as possible!!!*

#### REMI ACCESSPOINT:



Choose 'networks' on your laptop, smartphone or tablet and if it works well, the list should now say: '2-WIRE-REMI'. **Select this network.** If asked for a key (password): '**adminREMI**'.

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

*N.B.: If this does not work automatically, surf to 192.168.4.1 (type in the browser toolbar). If it does not work immediately, try to pair via smartphone or tablet and be sure to check the Wi-Fi signal. Also check if the COM LED is continuously lit and if necessary watch the ReMI video tutorial on the 2-Wire website.*

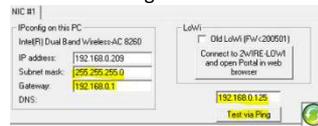
#### REDIRECT PAGE



Once on the redirect page, click on '**Configure WiFi**' and a list of networks in your vicinity 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 web page
- Gateway: 192.168.0.1 (internet !)
- Subnet mask: 255.255.255.0
- Port No: 8082 (dial number between 8000 and 9000):'port forwarding' for remote control)



You now have to adjust these default IP addresses according to the settings of your own WiFi network, possibly you take over your IP address, subnet and

gateway from the IP server scanner. see figure)



**Or** you can temporarily set ReMI to DHCP in order to get a free and fixed IP address. Setting DHCP is done by entering 4x '0.0.0.0' as the IP address and then the router itself gives a fixed IP address (see figure on the right) to read that IP address afterwards via the server scanner.

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



Once all network data has been entered, the laptop must return to the existing 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 sign after the IP address! And that's how you end up on the homepage of your ReMI web server.

*NB.: In the browser, javascript must be enabled under 'SETTINGS'!*

*NA.: Creates a shortcut on your PC, tablet or smartphone to ReMI*

*NB.: If 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 **homepage** (dashboard) gives an overview of 2 selected meters of current electricity and gas consumption together with a moving 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:



- Set login and password, required for external access via port forwarding (see **FAQ** website)
- MQTT broker/http client set, language version and layout (BW). MQTT requires a subscription.
- Green check mark at NTP clock means **internet** link
- Upgrading ReMI via web server, setting energy prices
- Via 'P1 PROTOCOL' you set

the right type of digital meter (BE= Belgium, NL= The Netherlands followed by version P1 protocol)

- 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 above.
- **Adjust configuration:** (see also detailed manual)

- Choose which meters from the P1 port you want to log.
- You can assign a name per meter under 'NAME' or choose a unit.
- You can give a meter an icon by first clicking for the meter and then on the desired icon.
- With MQTT you enter a MAC address in deviceID
- You can empty one log channel by typing the word "delete" in the name of that channel, then save, you no longer have to type in the name again which comes back automatically. **Attention**, only perform this action channel by channel!
- a channel is only awarded if a NAME has also been entered !!! (minimum 6 characters)
- Unused channels should 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 password 'adminREMI'. Then press 'EXIT' to return to the 'DASHBOARD'.

#### Table page

Via the button 'TABLE' you 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 power and data to the P1 port.
- If no digital meter or digital meters with DSMR 4.x: then connect the optional 15VDC power supply.
- The manual and datasheet can be found on the 2-WIRE website at the product page of the ReMI webserver.
- ReMI has max. 16 channels logging and max. 16 lines of logic.
- The optional LeON (USB) and THEo stick are connected via WiFi (http or MQTT) and show with their RGB LED the current energy rate (RED = day rate, BLUE= night rate, GREEN = injection), thresholds adjustable via ReMI setup
- Two or three ReMI's can be connected via the P1 HUB module.
- The ReMI website is 'responsive' which means that a smartphone, tablet, PC,... each get their own layout.
- With the **MQTT (optional subscription)** or the **HTTP client** function you can upload measurement data to a central platform for backup or for comparison with other installations.
- PRINT (under DETAILS), and HTTP both generate the same csv.
- Reboot: Pause power or briefly press the switch.

- Symbols: ⚠ General warning, 📖 consult user manual, 🏠 Use indoors only, ⚡ Risk of electric shock, 📦 Equipment class II, ⚡ complies with the applicable EU directives

### 4. Technical data:

#### General:

- WiFi network 802.11 b/g/n/e/i (2.4 GHz), which needs internet access. 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 time clock daily synchronous with an NTP clock.
- 2 digital inputs potential-free (pulse or timebase)
- 2 optically isolated pulse outputs max. 24VDC/max 5mA
- Connector for external power supply 8-15V/1A
- Modbus master of slave instelbaar
- 2 bi-stable relay-OFF 10A/230V potential-free, max. 2300Watt ohmic load. Transfer voltage to bus 3kV
- 16 log channels, 10 days with 5 min.-, 1 year with day resolution.
- Included: 3 meter RJ12/6p6c cable (power supply from >DSMR 5)

#### Operating conditions:

Operating temperature range: 5 °C to 40 °C, montage indoors  
Maximum humidity: 80 %, no condensation, Max.: 2000m

#### Physical properties:

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

#### Quality marks:

CE : According to 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.

### 9. Installation prescription

The installation must be carried out by an approved installer and in accordance with the applicable regulations.

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 mentions only general provisions and should be read in the context of each specific installation.
- the rules of good workmanship.

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

Do you want to exchange the product in case of a possible defect? Then contact your wholesaler or order a "review 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 about 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 as a result of 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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