

REL.44, Modbus I/O module



The REL.44 module has 2 bi-stable, potential-free 10A relay contacts and 2 low-power solid-state outputs for switching coupled loads.

In addition, there is also a P1 connection for reading the digital meter* and 2 pulse inputs for counting and/or measuring the time of consumers via pulses.

This module can be wired to a MEMo3 via Modbus and configured and controlled from there. Multiple

REL.44 can be connected to the MEMo3 web server.

The REL.44 is a 'Modbus slave' i/o module and can therefore also be used to connect to any Modbus master, as a Modbus relay, but also as a P1 to Modbus and or pulse to Modbus interface. The list of Modbus registers can be found on the 2-wire website.

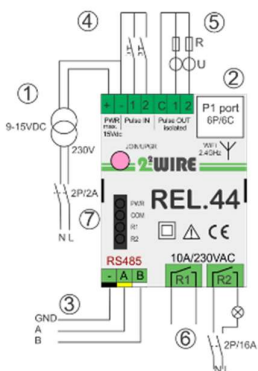
The push button on the front serves to (temporarily) pair the REL.44 with WiFi to download the latest firmware.

REL.44 is compatible with all Belgian and Dutch digital meters.

Via P1, REL.44 reads:

- 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)

1. Connect:



Power supply: [1] First connect the 12 Volt DC (Max. 2A, max. 2.5 meters and 2x0.5mm² with solid core), or power supply from MEMo3 (single + terminal) and then [2] P1 port input with RJ12 cable (max. 3 meters).

Always automatic fuse provided 2P/6A for the power supply.

Modbus:[3] use shielded EIB bus cable 4x 0.5mm² with fixed core (max. 50 meters) and respect the color code GAB=black, yellow and white. Single line topology can be terminated with Modbus and both bus ends between A and B terminal with end resistor 120 Ohm.

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. 100msec, max. 10 pulse/second.

Pulse-OUT: [5] 2x low power solid state contact with optical separation, max. 24 VDC/40mA, cable max. 2.5m, section 2x0.5mm² with solid core. Generates a low-power switching contact via the PEM-01/012 power relay at 12VDC

Relay output: [6] 2x bi-stable potential-free 10A/230V relay contact up to max. 2300 Watt resistive load, or use as a release contact to the control of e.g. heat pump, charging station, boiler, accumulation,... Connection wire min. 0.25mm² ... Max. 2.5mm². (Max. 25 meters), stripping max. 4mm . Always connect external power supply when using relays!

Please note:

•**Mono-phase** module: connect both contacts to the same phase if not use PEM01/012 module!

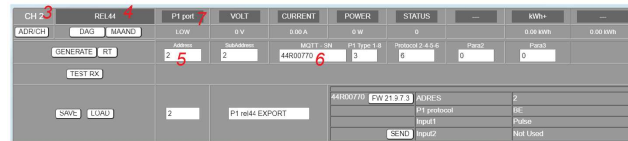
•**Bi-stable:** in the event of a power cut, they will retain their position!
LED:[7] **PWR** :p ower status, **COM:** Communication, **R1** and **R2:** Relay status.

Antenna: Screw the WiFi antenna onto the SMA connector, order the optional antenna with magnetic base when mounted in metal cabinet.

2. Configuration in MEMo3b via tablet or PC:

See also MEMo3b manual 1.3.: Login as installer under Level3: password 'Level3' and then 'CANCEL'

1. Create a channel with 'ADD CHANNEL x(Y)'



2. When the channel appears, click on the CHx button so that the channel configuration opens, see figure
3. Choose 'REL 44' as module type
4. Enter Modbus address and that **MUST be the same** for all channels of this REL.44 module
5. Enter the serial number e.g. '44R00770'
6. As a fashion you choose either:
 - a. 'P1 port' and add P1 Type and Protocol (Belgium=6)
 - b. 'Bi-stable', choose Relay 1-4, at para3 power in Watt
 - c. 'Counter', choose IN1 or 2, give pulse weight for para 3 pulse
 - d. 'Time', choose IN1 or 2, indicate consumption after 1 hour for para3
7. Press 'SEND'
8. Press 'SAVE'

Below is an example with 3 channels of the same REL.44 module.



3. Link to WiFi for upgrade

REL.44 is controlled via Modbus from the Memo3 module. The connection to WiFi is only necessary if you want to upgrade.

Once REL.44 is correctly connected (see power supply REL.44) the green PWR LED will light up constantly, followed by the orange COM LED which flickers on/off every second after about 10 seconds. To activate REL.44, press the JOIN/UPG button for about 5 seconds until the orange LED is lit constantly. REL.44 will now be "WiFi access point".

Note: WiFi range: Make sure that the distance between REL.44, router, smartphone or PC is as short as possible during WiFi pairing and also during firmware upgrade!!

Note: To change the existing WiFi connection: Restart and then press the JOIN/UPGR button after 2-3 seconds (approx. 5 sec) until the COM LED remains solid. REL.44 will now be "access point".

REL.44 ACCES POINT:



Select 'networking' on your laptop, **smartphone or tablet** and if it works properly, the list should now read: '2-WIRE-REL44'. **Select this network.** If you are asked for a key: '**adminREL44**'.

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 REL.44 connection, choose WiFi network setting '2-WIRE-REL44' WiFi network "do not remember" 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 solid.

REDIRECT PAGE



2WIRE-RELO4

WiFiManager



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. Afterwards, press **SAVE** and you will receive the confirmation. It can now take up to 30..60 seconds before you see an orange LED that

gives a heartbeat every 5 seconds. But you may need to reboot and REL.44 is now connected to your WiFi network.

4. UPGRADE REL.44:

Once the REL.44 is connected to a Wi-Fi network, the module can be upgraded, which can:

- **Or manually** by pressing the JOIN/UPGR button for approx. 5 seconds until the LED lights up continuously. For 1-2 minutes, the download and upgrade will start automatically, and this process should not be interrupted until the heartbeat LED returns.
- **Either from the MEMo3 webserver** by creating a REL.44 channel (see point 2), saving (Communication OK notification) and then pressing the button on which the FW version is displayed, after which a treadmill starts during the entire upgrade which must not be interrupted.

5. General remark:

- Pre-activate the Belgian digital meters [on the Fluvius website](#) to open power and data to the P1 port.
- Always connect the optional 12VDC power supply or the (+) terminal of the MEMo3.
- Symbols: ⚠ General Warning ⓘ Read Manual 🏠 Indoor Use, ⚡ Risk of Electric Shock ⚙️ Complies with EU Directives, Y WiFi Antenna, ♻ Waste

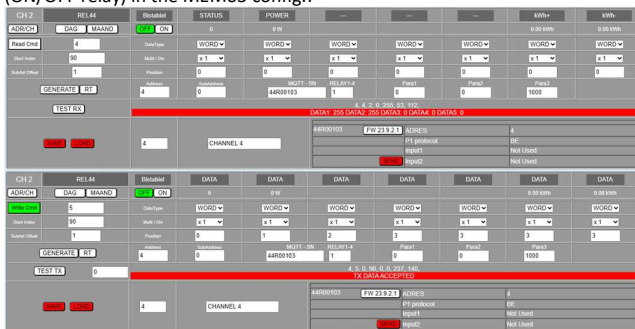
6.Modbus registers:

REL.44 can be used as a Modbus slave i/o module:

- Relay module with 2x 10A/230V and 2x Solid-state relays
- P1 port to Modbus interface
- Pulse input to Modbus interface

The list of Modbus register is online at the product page.

Below is an example with these registers from a READ and a WRITE screen (ON/OFF relay) in the MEMO3 config.:



6. 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 5mA
 Connector for external power supply 8-15V/1A
 Modbus master or slave adjustable
 2 bi-stable relays-OFF 10A/230V potential-free, max.2300Watt resistive load. Breakdown voltage to bus 3kV
 16 log channels, 10 days with 5 min.-, 1 year with day resolution.

Included: 3 meters **RJ12/6p6c** cable (power supply from >DSMR 5)

Operating conditions:

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

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.

7. 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.

8. Support

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

9. 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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