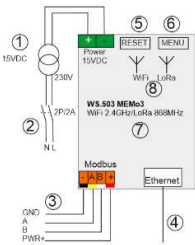


WS.503b (MEMo3) web server



The "MEMo3" webserver is a Modbus master module. All I/O modules are either connected to the RS485 bus or wirelessly connected via LoRa or FSK at 868MHz. From the Memo web server, these I/O modules are then powered, configured, read, logged and logically switched. Configuration and reading is done via the web browser on your tablet or PC without the need for software. The web server also includes http client functionality so that data can be uploaded to a central server for central management or backup. With MQTT token, web servers can be linked to each other or one can get remote access via the APP HTML.

1. Connect:



Power supply MEMo:

(1)Top left of the module, 15 Volts DC via the included MeanWell HDR-15-30 power supply. **PAY ATTENTION TO POLARITY !!**Use wire with section 0.5mm² and with solid core to fit in the terminals (2)**Fuse this power supply SEPARATELY 2P/6A**

RS485 Modbus:

(3) **Data cable:** use type EIB bus cable (max. 80m) with section 0.5mm² and with fixed core to fit into the bus clamps, or use special

Modbus cable for longer distances. **Topology Modbus:** only in line so no branches, both bus ends close between **A and B** terminal with supplied end resistor 120 Ohm. Memo3 is located at a terminus of the bus.

(3)**Connection:** depending on the type of module, only make the necessary connections: Ground(-)black, A yellow, B white, + red (+ is power supply to module RG.016 and REL.44).

Network:

MEMo3 has both (8)WiFi 2.4 GHz and (4)LAN linking. By default, WiFi is disabled and LAN is set to DHCP. **When** you connect to a router, Memo gets an IP address and this is displayed on the (7) display.

Note: MEMo3 (and PC) **MUST** always be connected to the internet (load graphs into PC, upgrade, equalize clock,...)

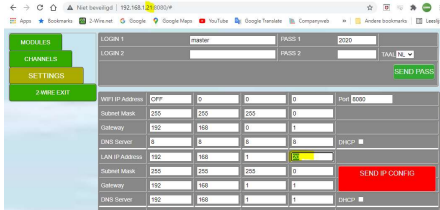
With a working MEMo3: Short press on the (5) reset button will reboot the MEMo3, long press on the **menu button (6) until the running bar is finished you will enter the (7) display menu:** Here you can upgrade or clear the MEMo3 completely. Short press (6) to cycle through menu and long press (6) to activate the selected function.

2. Configuration via tablet or PC:

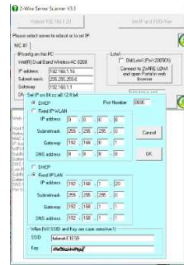
When the power supply is switched on, the display (7) lights up and after **about 30 seconds* the LAN IP address and port number can be read.** After typing in the IP address+":"+ port number (e.g. 192.168.0.20:8080) in the web browser on PC or Tablet (e.g. Google Chrome, Edge, Safari,...) you will be taken to the web page of the MEMo3 web server. *If WiFi is turned on, the display will show 'WiFi connect' and it will take a little longer, about 120 seconds before the LAN address appears. For more information, see 'Activating WiFi via the REDIRECT method'.

At CONFIGURATION/SETUP you can change this **LAN IP address** by typing it in the IP address fields or by checking DHCP to give a new IP address by the router. After modification, press "SEND IP CONFIG" and then press a 2nd time, after which the web server will reboot and after which you can load the web page with the new IP settings.

Note: If you unplug the RJ45 during rebooting, the MEMo3 will remain in DHCP mode, which is useful if you go to a new installation to automatically connect to the network.



To read or change this LAN IP address and network settings or to make the WiFi connection with your network, you can also use the 2-Wire IP server scanner: <https://www.2-wire.net/product/ip-server-scanner/>. From this **Windows tool** you can find all web servers within your network. Place the cursor on the **MEMo3** LAN IP address and click on 'Set IP and



SSID/Key" to change LAN IP settings, or configure the WiFi connection from there.

To activate WiFi via the 2-Wire IP server scanner:

Activate WLAN by entering SSID and KEY and then tick DHCP and press OK. Automatically, the MEMo3 now gets a free and **FIX** IP address set which then appears on the MEMo3 display after the auto reboot.



Then from this network WLAN IP address+":"+ port number (e.g. 192.168.0.21:8080) in the web browser on PC or Tablet and then you will be taken to the web page of the MEMo3 via WiFi.

To activate WiFi via the

REDIRECT method:

By briefly pressing the **RESET button (5) of MEMo3, it will reboot. During this reboot, keep pressing the MENU button (6) until first 'Connect WiFi' and then 'Start WiFi portal' appears, then release.** MEMo3 is now an 'access point', called '2WIRE-MEMO'. Choose 'networking' on your laptop and if it works properly, the list should now read: '2WIRE-MEMO'. **Select this network.** If you are asked for a key: '**adminMEMO**'. Automatically your web browser will open and after a maximum of 1 minute you will be redirected to a REDIRECT screen where you can enter the IP settings.

telnet: E1E59

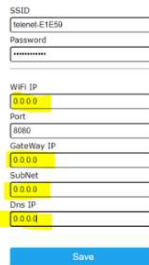
TelnetWiFi: rec

NETGEAR3

Proximas-Home-EEDB

REDIRECT page:

Fill in the SSID and password of your network and if you enter your own IP addresses, they must be adjusted according to the settings of your own WiFi network. It is easier to enter '0.0.0.0' for the 4 IP addresses and a port number e.g. '8085', and in this way the web server itself ensures that a free and fix IP address is set which appears on the display. Now press "SAVE" and then go back to default network. Then the WLAN IP address+":"+ port number (e.g. 192.168.0.21:8080) in the web browser on PC or Tablet and you will be taken to the web page of the MEMo3 via WiFi.



The "CONFIGURATION" button will take you to

the webpage below:

- **Settings:** enter general settings
- **Channels:** set resolution graphs and overview page



2.1. Firmware Upgrade:

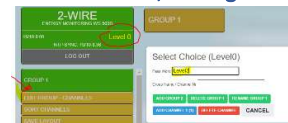
Go to "CONFIGURATION/SETTINGS" section 5, click on the "FIRMWARE VERSIONS" button and if your web server has an internet connection, it will display available version and installed version.

To test the connection, first press "DOWNLOAD" and wait until all the firmware of the different modules have been downloaded and get a green tick before upgrading the MEMo3: To do this, press the "INSTALL" button and the web server will be upgraded.

IMPORTANT: During the upgrade process, DO NOT interrupt the power or the internet connection or risk damaging the MEMo3!! Wait at least a few minutes for the web server to REBOOT itself and return to the login page.

TIP: You can also upgrade via the (7) display, see detailed manual.

2.2. MODULES, adding energy meters



Logged in as 'Level3'=installer or 'VRM'=expert, you can enter Modbus meters, MQTT meters or meters coming from the RF gateway (RG.016) or Relay interface (REL.44)

from the homepage.

Set Level3: Click on 'EDIT GROUP-CHANNELS'. Enter 'Level3' and click 'CANCEL'. At the top left you can now read the current level status.

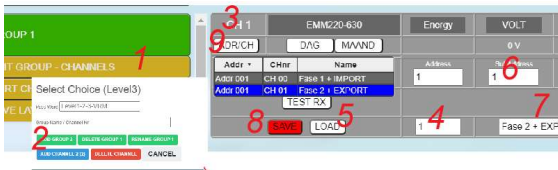
2.3. CHANNELS, Setting Channels:

As an **example1**, connect a 3 phase EMM.630.



(1) Make sure you are in 'Level3'. (2)Click on 'GROUP1'. (3)Click on 'CH0'. (4) Select **module** 'EMM20-630'.(5)Select **mode** 'Energy'. (6)Enter the Modbus address of the EMM.630 vb '1'. (7)Enter Modbus sub-address (0=phase1, 1=phase2, 3=Phase3) '0'. (8) Enter an appropriate name 'Phase1 + IMPORT'. (9) 'GENERATE' and (9)a read the Modbus instruction to the meter. (10) 'TEST RX' and read the meter's response with the translation for 'VOLT','CURRENT','POWER','VA','PF'.(11)Set to 'PAY' and press (9) 'GENERATE' and (9)a read the new 'meter reading' instruction to the meter. (10)'TEST RX' and read the meter's response with the translation for meter reading (12) 'SAVE' this setting. From now on we log phase 1 (voltage, current, power, VA, PF) and the import meter readings of an EMM.630. Press 'DAY' or 'MONTH' to read the graphs.

As **example 2**: logging phase 2 of a 3-phase meter



(1)'EDIT GROUP-CHANNELS' to create a second channel on the help screen via (2)the blue 'ADD CHANNEL' button. After "ADD CHANNEL" is the new channel number and in brackets possibly an unused channel number. It is preferable to choose this unused channel number by entering it in 'Group Name / Channel Nr' and only then pressing "'ADD CHANNEL" (3)Click on 'CH1'. (4)Enter channel '0' and click (5)'LOAD' to load a copy of 'CH0'. (6) Enter sub-address '1' (=Phase2) and change the name (7) to 'Phase2 + EXPORT'. (8)'SAVE this configuration. (9) gives a sorting table of Modbus addresses. Press again (9) to hide.

Result: You have now connected your first Modbus meter. Every minute voltage, current, ... of phase 1 and phase 2 logged together with the import (= consumption) and the export (= injection) meter reading with which consumption graphs are then calculated. From this 'Level3' you can create up to 64 energy channels (CH0.. CH63), and these can be set as Modbus meters or as measurements from the REL.44, RG.016,... More information can be found in the detailed manual.

Sort:

As long as the 'SORT CHANNELS' button on the left is turned on (red) you can grab a channel and drag it to another place or in a different group. Once done, confirm by clicking 'SAVE LAYOUT'.



Creating Groups

Click on 'EDIT GROUP-CHANNELS' and then 'ADD GROUP' to create a new group.

Delete a group: select the group in the left page and then click on 'EDIT GROUP-CHANNELS' and use the 'DELETE GROUP x' button to delete the group.

Rename a group: select the group in the left sheet and then click on 'EDIT GROUP-CHANNELS'. Enter a new name under 'Group name' and confirm it with the green button 'RENAME GROUP x'.

3. General remarks:

- There are **NO** services associated with the purchase of a MEMO3 module. (NO: installation, configuration, backup, energy advice,...)
- Look online for the latest version of this leaflet, the detailed manual MEMo3b manual or the MEMo3b video tutorial.
- It is important to work with the latest firmware in the web server and the 2-Wire modules so upgrade! (see tutorial).
- MEMo3 is a 3rd generation data logger. The SD card of MEMo3 is NOT compatible with the SD card of MEMo1 and MEMo2
- Remote access can be done via port-forward (see FAQ), or the HTML-APP .
- A stable internet connection is **required for proper operation** .
- The MEMo configuration, and 2 year logs are stored on the internal SD card. **If something goes wrong with this SD card, all data will be**

lost. The solution is a backup subscription with a cloud application provider.

- After **each submission, take a printout (at SETTINGS)** of the configuration of the modules and save it on PC.
- MEMo3 'MENU' key (6) (top right):keep pressing until the menu appears on the display: FW CSS-JS / FW Memo / ERASE ALL/ EXIT

Each time you press the button (6) briefly, the menu 1 position continues. If you have the desired menu (CSS-JS or FW MEMO): press (6) until this menu becomes active. After loading the firmware, the WS.503 will automatically reboot. (internet required!).

4. Technical data

General:

Power supply MeanWell: 230 Vac/50 Hz – protect with fuse 2P/6A
Web server power supply: 15 VDC/2 A, power consumption: 2 VA.
Internal SD card 4 GB

Operating conditions:

Operating temp. 10 °C to 50 °C; Storage temp.: -10 °C to 60 °C
Maximum humidity: 90%, no condensation. Highest point: 2000m

Physical Properties:

Housing: plastic, self-extinguishing according to . UL94-V0 Degree of protection: IP20, EN 60529 Mounting on DIN rail, width 2 modules
Dimensions (H x W x L): 62mm x 90mm x 36mm, Weight: approx. 65 grams

Connections:

Power Supply: 15VDC/1A Stabilized
Bus: RS485 Modbus RTU(GAB+) at 9600.8N1 max 32 modules
RF LORA-FSK transceiver 868 MHz, 100mW
Ethernet connection with integrated transformers 10/100Mbit/sec
WiFi 2.4GHz 802.11 b/g/n , Tx power 19.5 dBm, Rx sensitivity -97dBm.

Labels:

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

5. 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.

6. Support

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

7. 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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