



finder[®]

SWITCH TO THE FUTURE

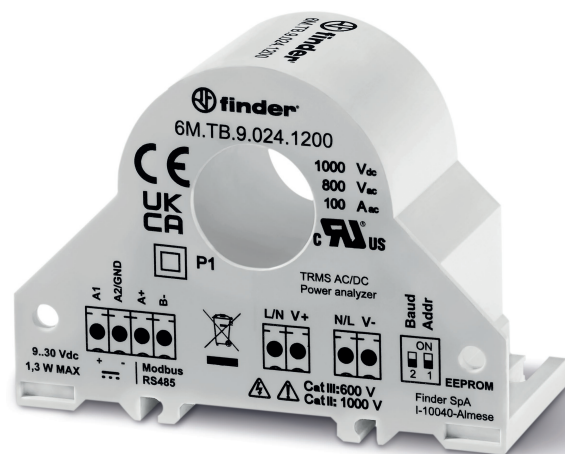
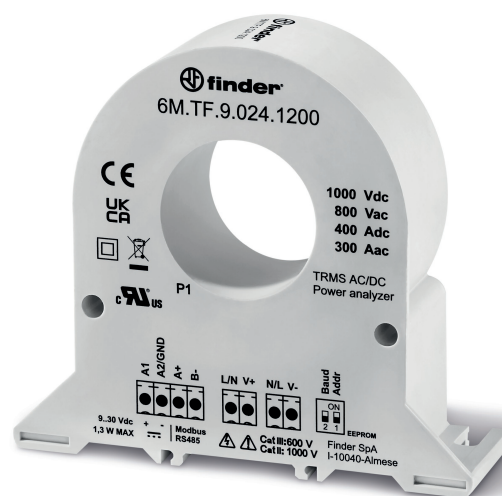
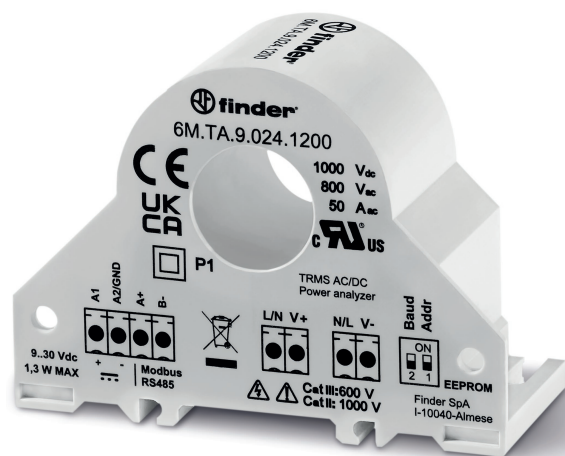
6M.Tx - User Guide

Single phase modbus power monitors



6M.Tx USER'S GUIDE

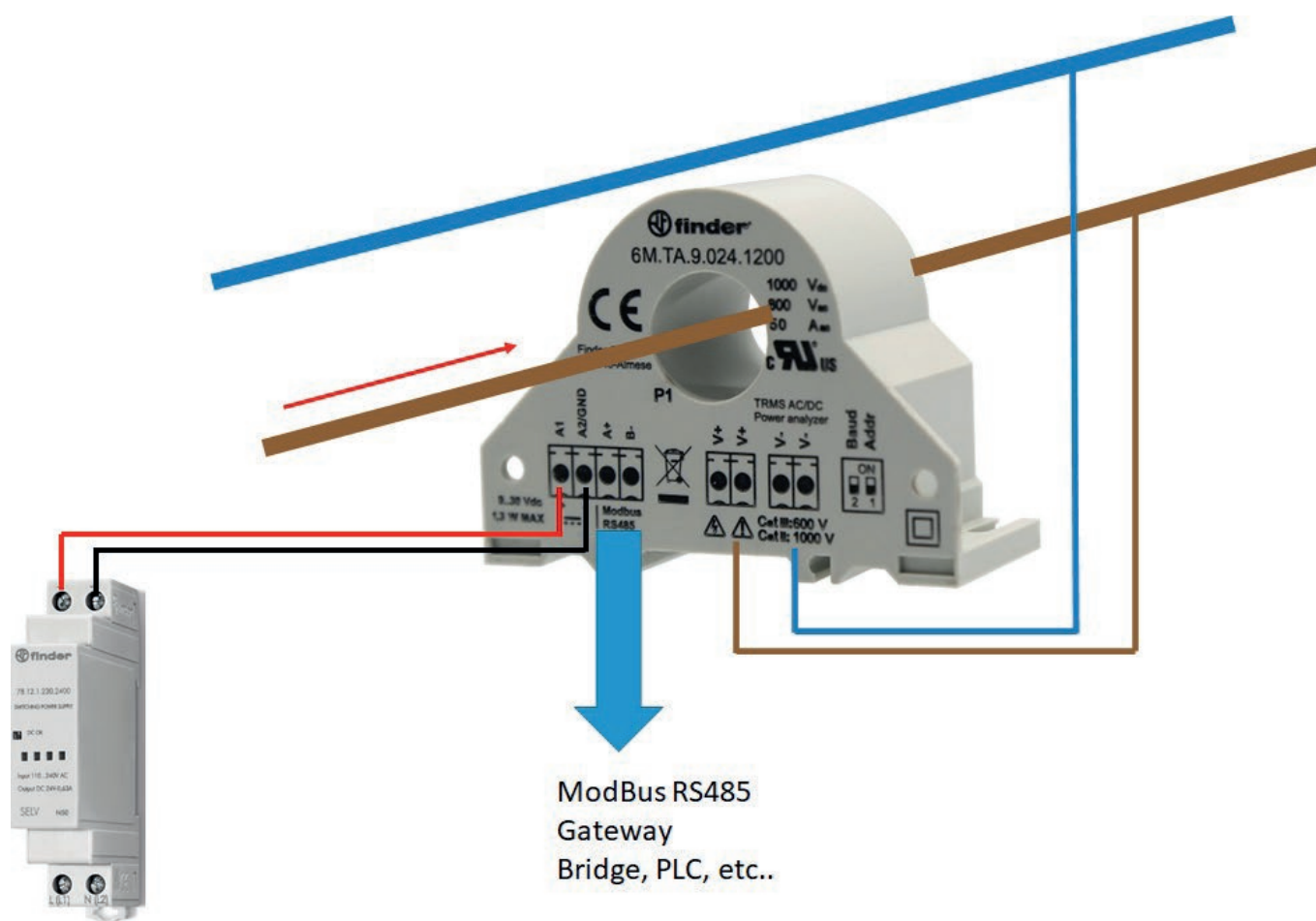
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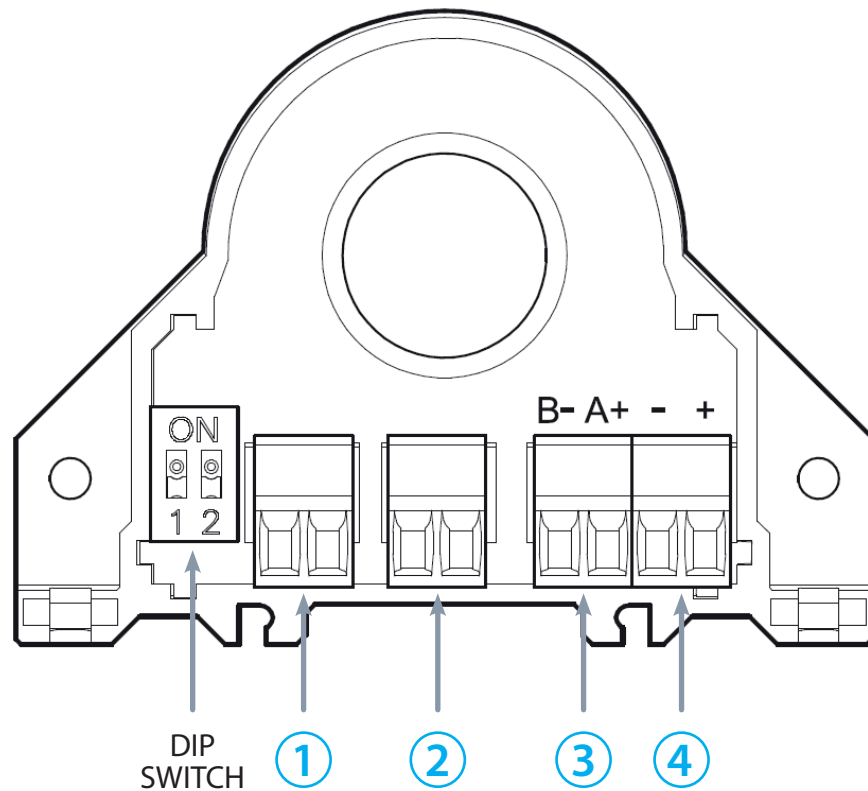


6M.Tx family consists of 3 single phase power monitor devices that can be used in AC and DC systems. Frequency range for AC systems from 1 to 400 Hz, with nominal current from 50 up to 300 A (Up to 400 A in DC systems).

6M.Tx devices are able to make measurements of V_{pk} , I_{pk} , THD(U), etc... which relate to the quality of the network supply.

Measurement data is sent using Modbus RS485 protocol.



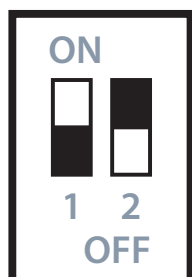


- 1** - Voltage input terminals for connection to L (or N) of an AC system, or the secondary of a VT (Voltage transformer) if used. Or, for connection to the negative polarity of a DC system.
- 2** - Voltage input terminals for connection to N, (or L) of an AC system, or the secondary of a VT (Voltage transformer) if used. Or, for connection to the positive polarity of a DC system.
- 3** - Terminals for Modbus cable connection. Take care to observe the correct polarity (A+, B-). The cable shield can be connected to the “-” or GND terminal of the power supply.
- 4** - Terminals for connecting the 6M to either a 12 or 24 V DC power source.

To power the device correctly, we recommend using Finder power supplies: Type 78.12.1.230.2400 to power the product at 24 V DC or, Type 78.12.1.230.1200 to power the product at 12 V DC.

Both are 12 W power supplies; the choice should be made according to the power supply voltage required for the other components installed.

If it is necessary to use power supplies with higher power, refer to our catalogue or the website page: <https://cdn.findernet.com/app/uploads/S78IT.pdf>



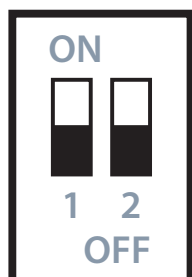
Default

Address: 1

Baud: 9600

Default setting (1 ON and 2 OFF).

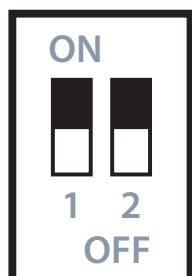
Use this setting to connect the PC to the 6M.Tx using Address 1 and baud rate of 9600 b/s.



Address: 1

Baud: 38400

Use setting 1 ON and 2 ON, to connect the 6M.Tx to a Modbus Master using Address 1 and transmission speed of 38400 b/s.



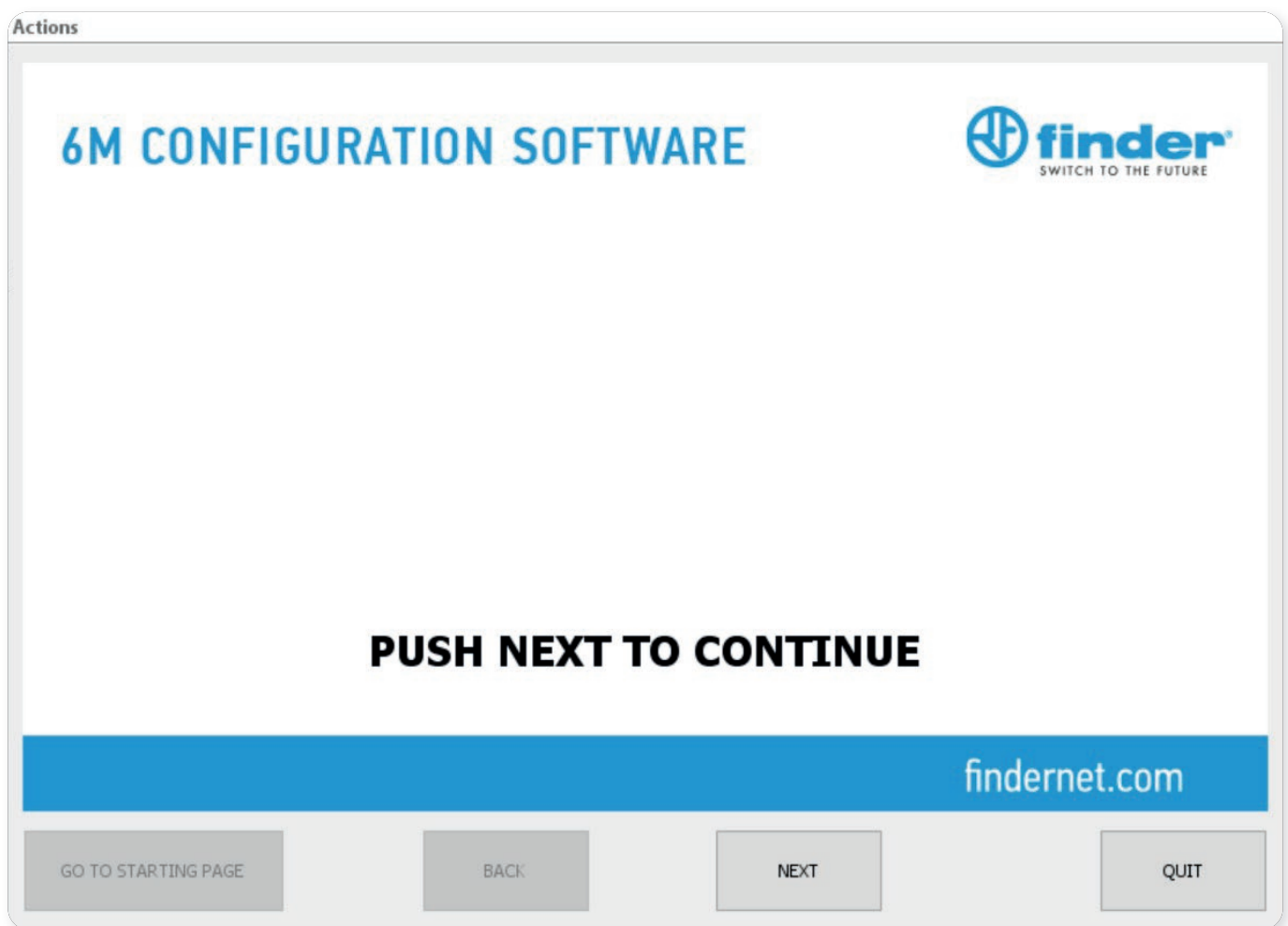
Use setting 1 OFF and 2 OFF, to use the 6M.Tx with the parameters set via software. To use the set parameters, remove power from the 6M.Tx, move DIP 1 downwards, and power up the 6M.Tx again.

IMPORTANT:

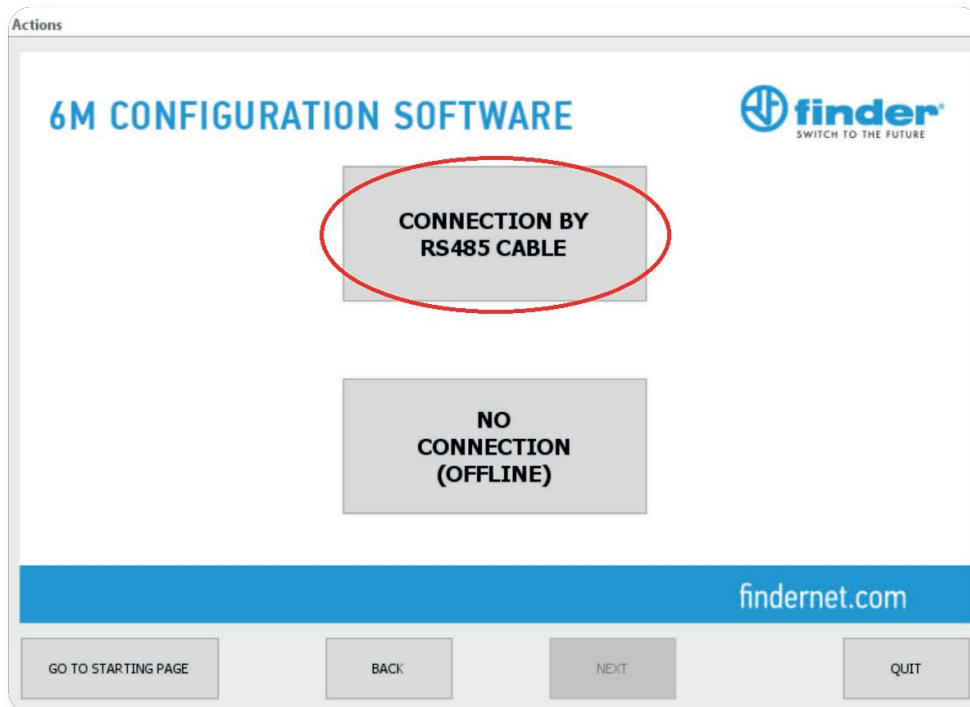
The configuration software is written in JAVA.

IF NECESSARY, INSTALL THE VERSION OF JAVA 8 0 2510 8 enclosed in the software folder.

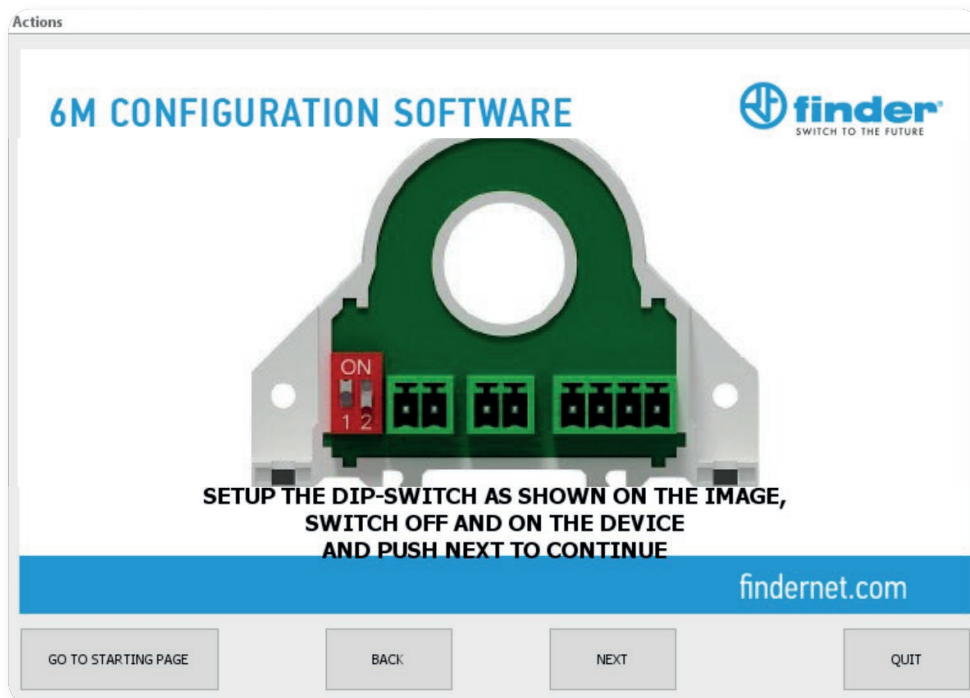
To activate the configuration software run the file 007_ver131



By clicking on "ACTIONS" at the top left, you can change the language.



To proceed you need to connect the 6M.Tx to a USB/Modbus converter.



IMPORTANT:

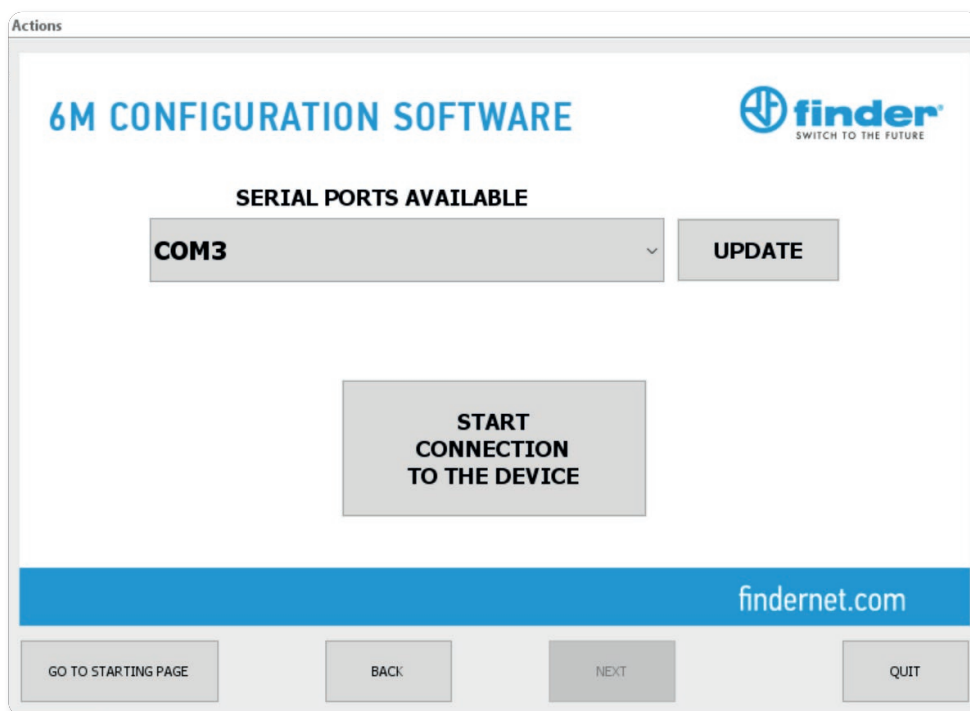
To proceed with the programming of the 6M.Tx it is necessary to position the DIP Switches as the figure above: 1 ON, 2 OFF. Then switch the device off and on again by disconnecting and reconnecting the supply voltage.

Press "NEXT" to continue.

This is the default position of the DIP Switches which allows you to reach 6M.Tx with

Address: 1 - Baud rate: 9600 bit/s

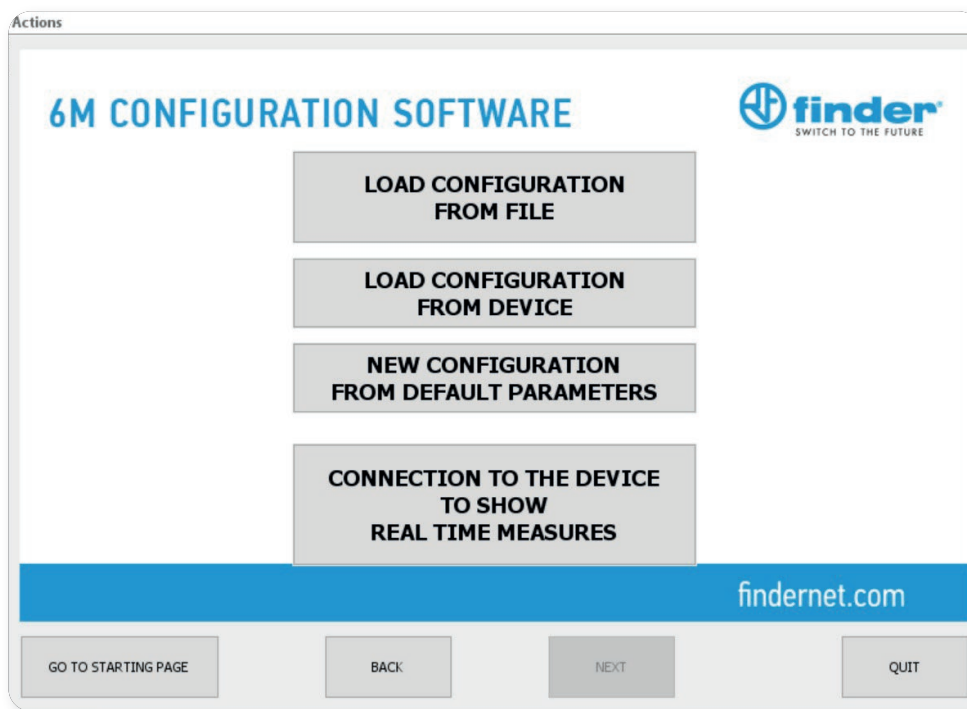
If the DIP Switches are not positioned as shown in the figure, it will not be possible to communicate with the 6M.Tx



In this case the communication port is COM3.

If necessary, select the serial port from the drop-down menu and click on "UPDATE".

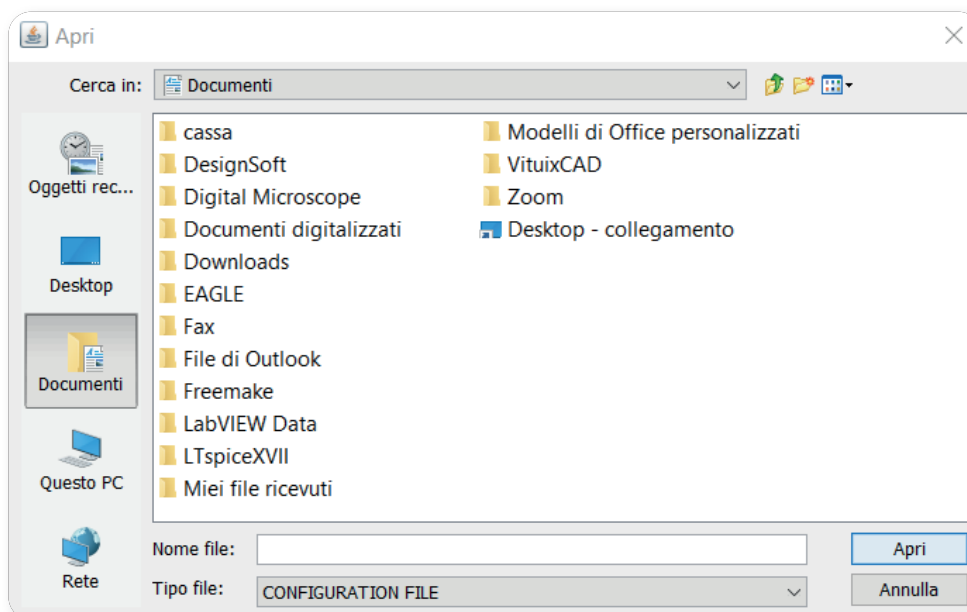
Then start connecting to the device.



LOAD CONFIGURATION FROM FILE

4.1

Allows you to load a configuration previously created and stored on the PC.



**LOAD CONFIGURATION
FROM DEVICE**

4.2

Allows you to read the programming previously memorized on the 6M.Tx: for example, this product was installed in a system which already had 4 other devices installed, so has the address "4" (and has a baud rate of 115200).

The screenshot shows the '6M CONFIGURATION SOFTWARE' window. It features a Finder logo and the tagline 'SWITCH TO THE FUTURE'. The interface is divided into two main sections for configuration. The left section includes: MEASURING MODE (RMS), ENERGY SAVING ON FLASH (ON), CALCULATE FREQUENCY BY CURRENT CHANNEL (OFF), INPUT VOLTAGE RATIO (1), INPUT CURRENT RATIO (1), and FILTER (3). The right section includes: MODBUS (BAUDRATE: 9600, PARITY: NONE, RESPONSE DELAY: 1, ADDRESS: 4). At the bottom, there are fields for MIN CURRENT THRESHOLD [mA] (1.500) and MIN POWER THRESHOLD [W] (10), a 'FACTORY DEFAULT' button, and a 'findernet.com' banner. Navigation buttons at the bottom are 'GO TO STARTING PAGE', 'BACK', 'NEXT', and 'QUIT'.

Click "NEXT"

The screenshot shows the '6M CONFIGURATION SOFTWARE' window after clicking 'NEXT'. It features the same Finder logo and tagline. The main area contains three large buttons: 'SAVE CONFIGURATION TO A FILE', 'SEND AND TEST THE CONFIGURATION OF THE DEVICE', and 'GO BACK TO STARTING CONFIGURATION PAGE'. At the bottom, there is a 'findernet.com' banner and the same navigation buttons: 'GO TO STARTING PAGE', 'BACK', 'NEXT', and 'QUIT'.

**SAVE CONFIGURATION
TO A FILE**

This allows you to save the changes made previously or to store a “New configuration from factory parameters” on the hard disk of your PC.

**SEND AND TEST THE
CONFIGURATION
OF THE DEVICE**

Allows you to send the program to the 6M.Tx and to check its functioning.

**NEW CONFIGURATION
FROM DEFAULT PARAMETERS**

4.3

Allows you to program the 6M.Tx starting from the factory parameters.

The screenshot shows the '6M CONFIGURATION SOFTWARE' window. At the top left is the 'Actions' tab. The main area contains several settings:

- MEASURING MODE:** RMS (dropdown)
- ENERGY SAVING ON FLASH:** ON (dropdown)
- CALCULATE FREQUENCY BY CURRENT CHANNEL:** OFF (dropdown)
- INPUT VOLTAGE RATIO:** 1 (spinbox)
- INPUT CURRENT RATIO:** 1 (spinbox)
- FILTER:** 2 (dropdown)
- MODBUS:**
 - BAUDRATE:** 9600 (dropdown)
 - PARITY:** NONE (dropdown)
 - RESPONSE DELAY:** 1 (spinbox)
 - ADDRESS:** 1 (spinbox)
- MIN CURRENT THRESHOLD [mA]:** 0 (spinbox)
- MIN POWER THRESHOLD [W]:** 0 (spinbox)

At the bottom right, there is a 'FACTORY DEFAULT' button. The footer of the window includes the 'findernet.com' logo and four buttons: 'GO TO STARTING PAGE', 'BACK', 'NEXT', and 'QUIT'.

Starting from the standard (factory) parameters, it is possible to program the 6M as follows:

Measuring mode: TRMS AC or DC depending on the type of system in which the 6M.Tx is installed.

Energy data saved to FLASH memory: saving active energy values (imported or exported) to the internal memory is enabled.

Frequency Calculation by current channel: voltage is typically used to calculate the frequency, but if this is not possible we can enable frequency calculation using the current.

Input voltage ratio: We can insert the VT transformation ratio, if a Voltage Transformer is installed at the voltage input terminals of the device.

Input current ratio: the 6M.Tx can also be used as a simple CT to measure the current in a system (in which case, connection to the voltage input terminals is not required).

Filter: selecting 1 you have a faster response speed, selecting 5 you have a slower response but more accurate reading. The default value is set to 2. For a more advanced setting it is possible to choose "Custom" in which we can apply filters in DC as well as in AC

Min current threshold (mA): current value below which 0 mA is read

Min power threshold (mW): power value below which 0 W is read

CONNECTION TO THE DEVICE TO SHOW REAL TIME MEASURES

4.4

This allows you to view all the electrical quantities measurable by the 6M.Tx in real time.

A USB/Modbus RS485 interface must be used as a communication bridge between the 6M.Tx and the PC.

Actions

6M CONFIGURATION SOFTWARE



	MIN	MEAS.	MAX	PEAK
Voltage [V]	0	228	231	329
Current [mA]	0	0	2801	12487
Active Power [W]	0	0	58	
Reactive Pow. [VAR]	0	0	540	
Apparent Pow. [VA]	0	0	641	
COS(φ)	0,000	0,000	1,000	
Energy [kWh]		1,15	SET	0
Pos. Energy [kWh]		2,10	SET	0
Neg. Energy [kWh]		-0,96	SET	0
Frequency [Hz]	0,0	50,0	50,2	
THD	0,000	0,000	4,165	

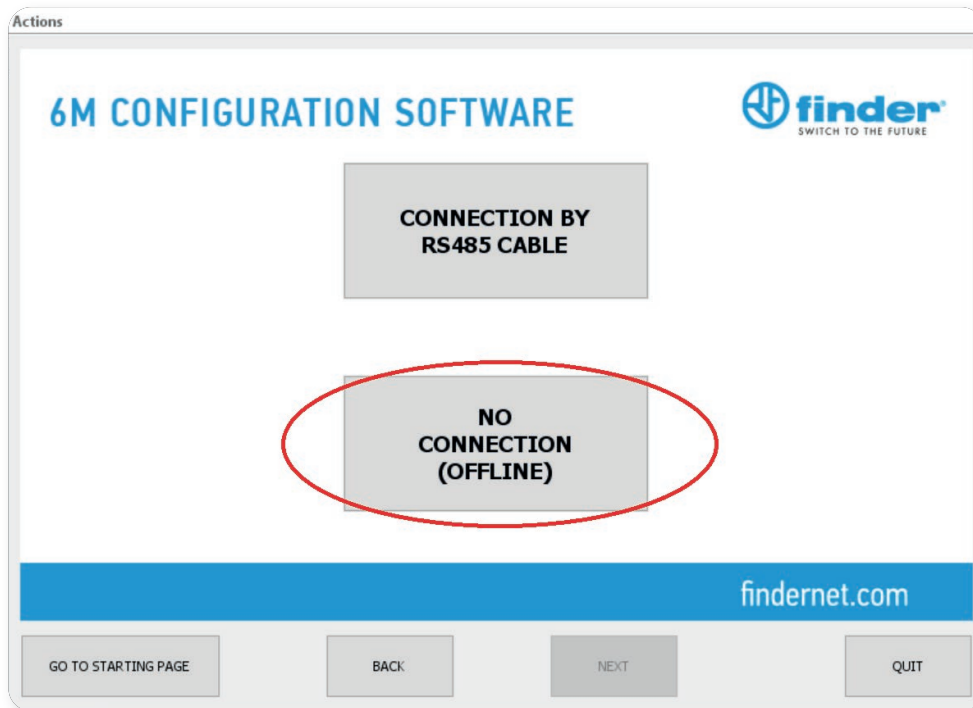
- ☐ FLASH SETTINGS
- ☐ FLASH CALIBRATION
- ☐ V OVER RANGE
- ☐ V UNDER RANGE
- ☐ I OVER RANGE
- ☐ I UNDER RANGE
- ☐ ERROR START ENERGY
- ☐ AC DETECTING

9600 Baud NO PARITY 8bit 1 Stopbit File Tar: 2205191425

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GO TO STARTING PAGE BACK NEXT QUIT

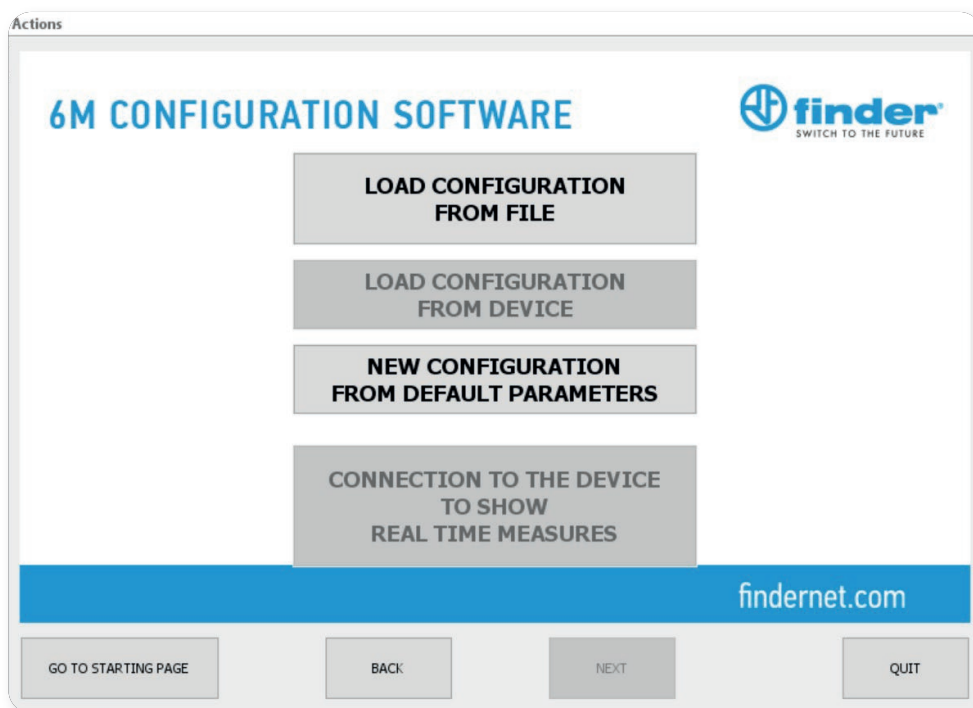




1

This allows you to develop a 6M program without it being physically connected to the PC.

The program will then be saved in a directory on the PC and subsequently sent to the device when "LOAD CONFIGURATION FROM FILE" is selected.

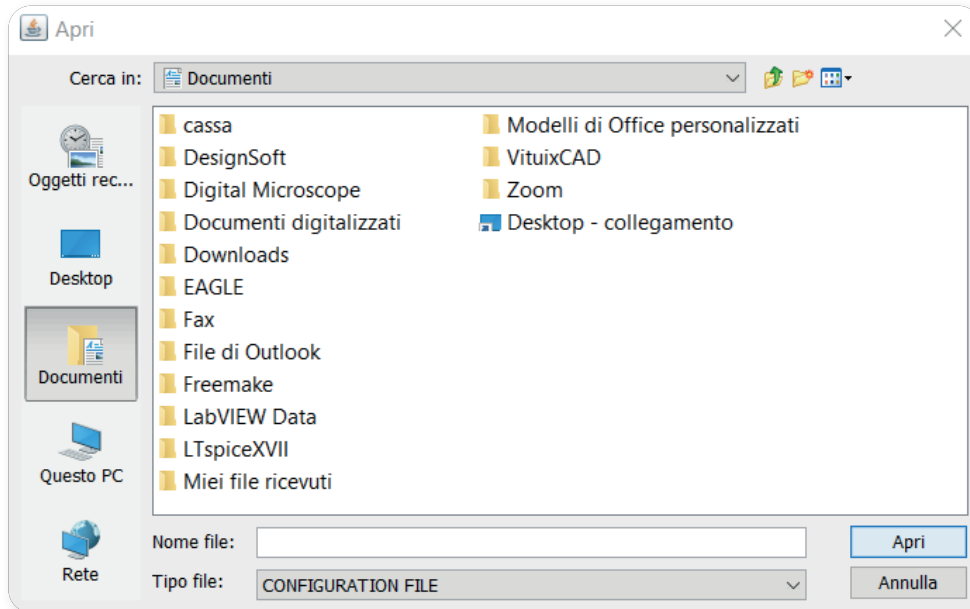


2

**LOAD CONFIGURATION
FROM FILE**

2.1

Allows you to load and edit a previously created program.

**NEW CONFIGURATION
FROM DEFAULT PARAMETERS**

2.2

It allows to create the program starting from the factory data. The program can be only saved on the PC and sent to the 6M only after connection with the USB/Modbus interface.

Actions

6M CONFIGURATION SOFTWARE



MEASURING MODE	RMS	MODBUS
ENERGY SAVING ON FLASH	ON	BAUDRATE 9600
CALCULATE FREQUENCY BY CURRENT CHANNEL	OFF	PARITY NONE
INPUT VOLTAGE RATIO	1	RESPONSE DELAY 1
INPUT CURRENT RATIO	1	ADDRESS 1
FILTER	2	

FACTORY DEFAULT

MIN CURRENT THRESHOLD [mA] 0

MIN POWER THRESHOLD [W] 0

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GO TO STARTING PAGE

BACK

NEXT

QUIT

After the new configuration, by pressing next, you are asked to "save the configuration to file". Proceed by storing it in a dedicated directory.

