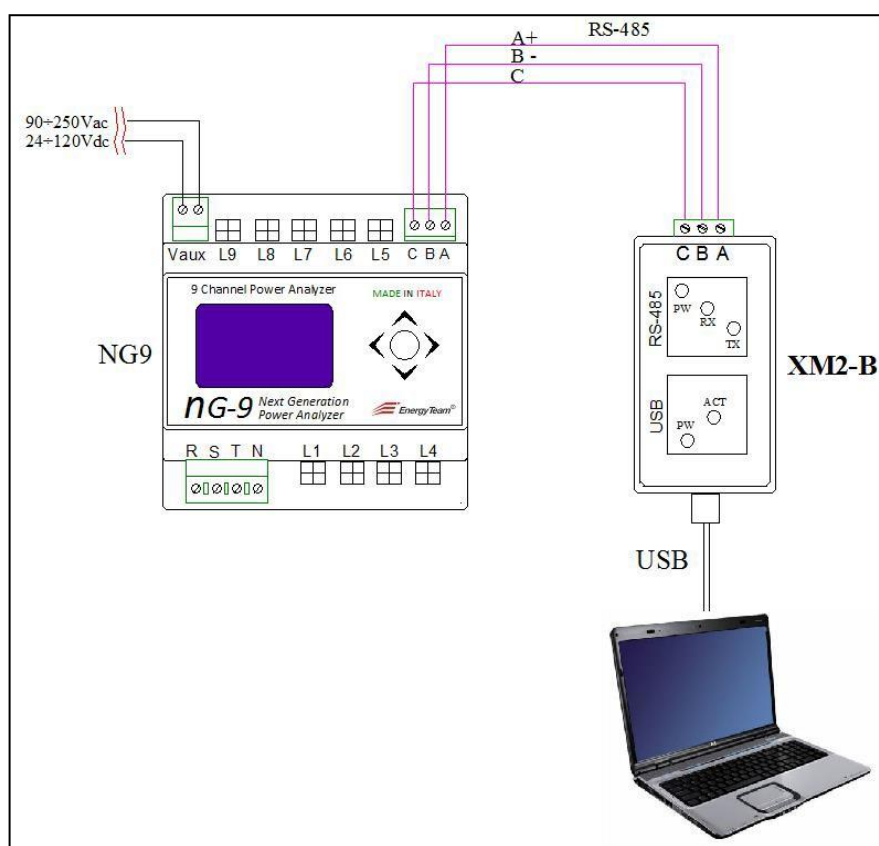


NG-9 configuration from PC
by NG-9-Configurator Software

INTRODUCTION

The NG9 configuration can be carried out both locally by the keyboard and remotely with the aid of a PC, through "NG9-Configurator" software. The instrument, which communicates by means of RS-485, can interface to PC through the following modalities: RS-485/USB (XM2-B) Converter; Ethernet/RS-485 Converter (es: MOXA-Nport 5232); Modbus-RTU/Modbus-TCP Converter; GSM Modem (if connected via ETMG). This manual explains the first modality. This manual describes the following steps: from driver installation for XM2-B to software starting and to serial port configuration (with different communication parameters), important for making possible the communication. Then, here is explained the use of the screens and the modality to read the measurements. For a wide knowledge about the functionality of the NG9, including the connection modes to the plants and programming via keyboard, see the specific user manual (always referred to NG9).

ELECTRICAL INSTALLATION



On the picture: NG9 connection to PC, through XM2-B

DRIVER AND SOFTWARE INSTALLATION

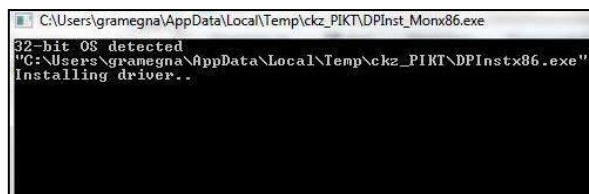
XM2-B DRIVER INSTALLATION

For recent Windows operative systems, driver search and installation is automatic after inserting the converter into PC USB port, through the cable included. Here, however, we describe the manual procedure.

For a correct use, read carefully the steps described below:

- 1** – Without connecting XM2-B, start the installation procedure by double click on the file .

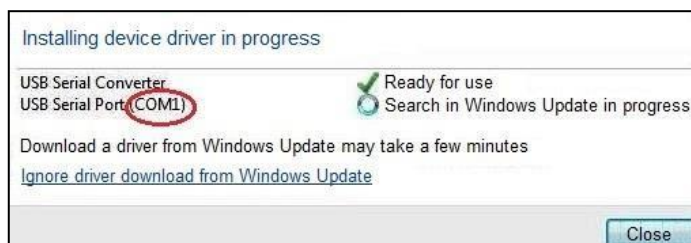
A temporary screen indicate the progressive completion of the search and installation, as shown below:



- 2** – Connect XM2-B to an USB port. According to the operative system (in this example: Windows 7), on the bottom right side of the screen may appear the following message about the installation:



By clicking on this message, a new windows will be displayed; it show the driver installation and the name of the Port to which XM2-B is connected:

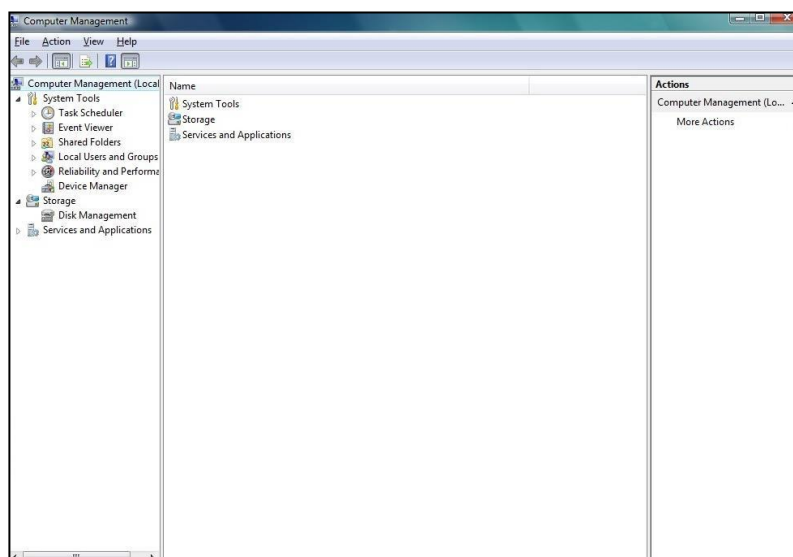


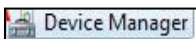
The name of the USB Serial Port shown (in this example: COM1), is to be inserted into the field "Serial port", in the page "Communication" of the software NG9-Configurator,

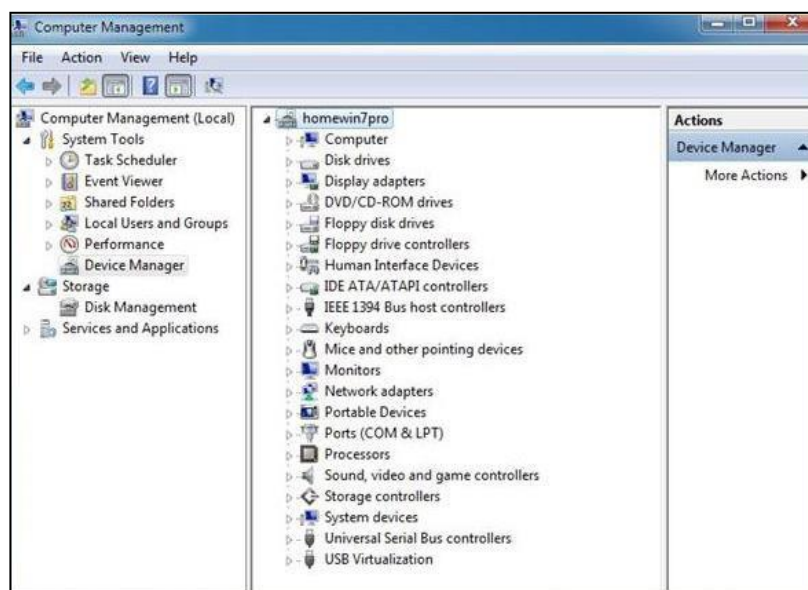
- 3** – To check the successful driver installation and the name of the USB Port connected to XM2-B, with mouse right button click the "Computer" icon on the desktop and select the item "Manage":



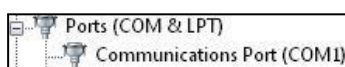
The page about Computer Management is shown:



On the first column at the left, click on  to see the list of hardware devices connected and their eventual problems:



Click on "Ports (COM e LPT)" to see all the serial ports connected to PC (in this example: only one, COM1):



When more serial ports are connected, in order to check correspondence with the relative module, disconnect XM2-B and see which port is removed from the list.

IMPORTANT NOTE: If it's not possible installing the driver, the user must verify if he has the "Admin" rights. In addition, the user must download files before going on the field, unless he is sure about the presence of an Internet connection there.

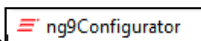
NOTE: According to version of Windows operative system used, the screen shown might vary in the pictures. Those illustrated in this manual are for Windows 7.

SOFTWARE STARTUP

The NG9-Configurator Software can be obtained by downloading from the website: <http://www.energyteam.it/en/download/et-world/download-ng9/>

When the "Zip" file is downloaded, unzip it inside the desired folder.

When finished, to start the program, simply click on the executable



NG9 PROGRAMMING FROM PC

COMMUNICATION

When starting the software, in the first page it's possible to set the communication parameters:

The screenshot shows the 'Communication' tab in the software. The settings are as follows:

Parameter	Value
Type	Modbus RTU
Timeout (ms)	1000
Modbus address	1
Slave PIN	0000
Serial port	COM1
Baud rate	115200
Data bits	8
Parity	Even
Stop bit	1

Type: from drop-down menu, select one of the communication modality, according to connection carried out:

- Modbus RTU: for direct connection between NG9 and PC via RS-485 (default, when XM2-B is used).
- Modbus GSM: for GSM communication between NG9 and PC. This mode requires the use of a GSM modem and an ETMG.
- Modbus RTU over TCP: for a connection through LAN.
- Modbus TCP: for a connection through LAN.

Timeout (ms): maximum time (in milliseconds) within which the PC must be answered by the instrument. (default is 1000 ms i.e. 1 second).

Modbus address: Enter the NG9 modbus address, from 1 to 253 (default is 1).

Slave PIN: Enter the same PIN code set in NG9 through Jog button, in order to enable the writing of the configurations (default is 0000).

Serial port: Enter the PC serial port to which the RS-485/USB Converter (example: XM2-B) is connected.

Baud rate: Set the communication speed in bit per second, from a minimum of 9600 to a maximum of 115200. (default is 115200).

Data bits: Select the packet length (default is 8).

Parity: Select the type of parity for the communication; it's possible to select among: Even; Odd; None; Mark; Space. (default is Even).

Stop bit: Select between 1 or 2 the number of stop bits indicating the end of a packet (default is 1).

TOOLBAR



Open connection: to establish the communication between PC and NG9. In case of no response from the instrument, passed a Timeout period, an error message will be shown.



Close connection: to end the communication between PC and NG9.



Save: to save into an Xml file all the settings. This file can be stored and sent via e-mail for future use (es: technical assistance).



Send configuration: to send to NG9 the configuration set.



Read configuration: to read within the instrument the parameters set and to display them on



Reset registers: to delete the values stored in the registers.



Remote restarting: to restart NG9 from PC.

NOTE: The functions of these keys are also available from the drop-down menu displayed by clicking on "Device", above the main toolbar.

SETUP

By clicking on the Tab "Setup", the following configuration page is displayed:

Communication	Setup	Energies	Common measures	Group L1-L2-L3	Group L4-L5-L6	Group L7-L8-L9
Name	Plant line	Identifier:				
Time Zone	CET (UTC+1)	FW versions:				
Manage daylight	DST disabled					
Time set	Wall time (local time inc)					
Power factor	PF2 (inductive positive,					
Meter configuration	0 mono-phase, 3 three-					
Voltage constant	100.0					
Modbus address	1					
Modbus speed	115200 bps					
Modbus parity	Even					
Stop bits	1					
Energy scale	1 Wh					
Protection pin	0000					
Power measure	Unidirectional (measure					

IMPORTANT NOTE:

Before changing the configuration of a NG9 module, it is advisable to read it from the instrument, to be sure about the parameters already present.

Name: enter the name given to the instrument (ex: Plant line). This name will be displayed in the file saved.

Time Zone: select the offset of the time zone in which the device is installed. It's calculated by summing to Greenwich time (UTC) the number of local meridian corresponding to the town. Those selectable are the followings:

0: London; Lisbon. +1: Milan; Rome; Paris; Madrid; Berlin; Wien; Prague. +2: Athens; Cairo (default is CET (UTC+1)).

Manage daylight saving time: enable or disable the possibility to manage the DST (default is "DST disabled").

Time set: select the typology about the hour used by the instrument and displayed. Precisely:

- Wall time: for the entire time, including the Daylight Saving Time (DST) (default function).
- Local time: to exclude DST.
- UTC: to use the Greenwich time.

Power factor: select the typology of Power Factor displayed by the instrument. Precisely:

- PF1: the sign depends by the active power: positive if it's absorbed; negative if it's delivered.
- PF2: the sign depends by the reactive power: positive if it's inductive; negative if it's capacitive. (default is PF2).

Meter configuration: select the lines monitored by NG9. The possible configurations are the followings: 0 single-phase, 3 three-phase - 3 single-phase, 2 three-phase - 6 single-phase, 1 three-phase

9 single-phase, 0 three-phase (default is: 0 single-phase, 3 three-phase).

To configure the Inputs, see the section: "SET MEASURES".

To get detailed information about the connections, see the user manual NG9.

Voltage constant: for voltage measurement, if a transformer is inserted, set the Voltage constant. In the absence of a transformer, set 100.0V (default in the NG9).

Modbus address: Insert the NG9 modbus address, from 1 to 253 (default is 1).

Modbus speed: select the communication speed (in bit per second) among the available: 115200; 57600; 38400; 19200; 9600 (default is 115200).

Modbus parity: Select the type of parity for the communication. It's possible to select among: Even; Odd; None. (default is Even).

Stop bits: Select between 1 or 2 the number of stop bits indicating the end of a packet (default is 1).

Energy scale: enter the "step value" or "increase in energy" that the counter display during measurement, below which it maintains the last value displayed and it snaps the next each time the increase exceeds the setting. Select among: 1Wh; 10Wh; 100Wh; 1kWh (default is: 1Wh).


Protection PIN: In order to transfer into NG9 the new parameters set through PC, enter the PIN of the NG9.

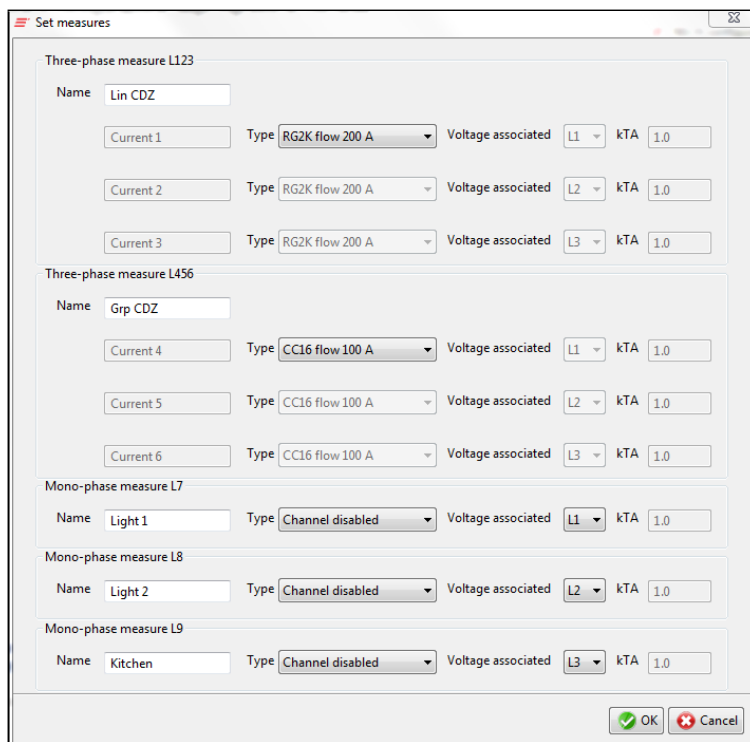
Power measure: depending by the type of plant and thus by the direction of energy, select:

- Unidirectional (measure in 2 quadrant):
to measure only the produced or absorbed power (default).
- Bidirectional (measure in 4 quadrant):
to measure both the absorbed (positive) and the delivered (negative) power.

Identifier and FW versions: these fields are automatically filled when the configuration is read.

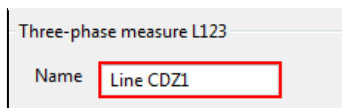
SET MEASURES

In the Setup page, next to the field "Meter configuration", click on the  to get the access to page for enabling and configuring the Current Inputs:



This picture shows the page displayed after selecting the configuration "[2 three-phase systems and 3 mono- phase systems](#)". The measures shown will vary according to configuration selected.

Name: enter the name of the Current channel monitored (ex: Lin CDZ). Each field can contain up to 8 characters; if the name exceeds the maximum of 8 characters it isn't accepted and the appearance of the frame varies in error mode, as shown below:



Type: from drop-down menu, select the sensor connected to respective Current channel. Instead, if the channel isn't connected, select "Channel disabled". *For detailed information about the sensors used, see the NG9 user manual.*

Voltage associated: according to line connection, select the Phase to be connected on a Current channel

(ex: if the sensor on the Input "Mono-phase L1" is connected to the phase S(L2) of the line, select L2).

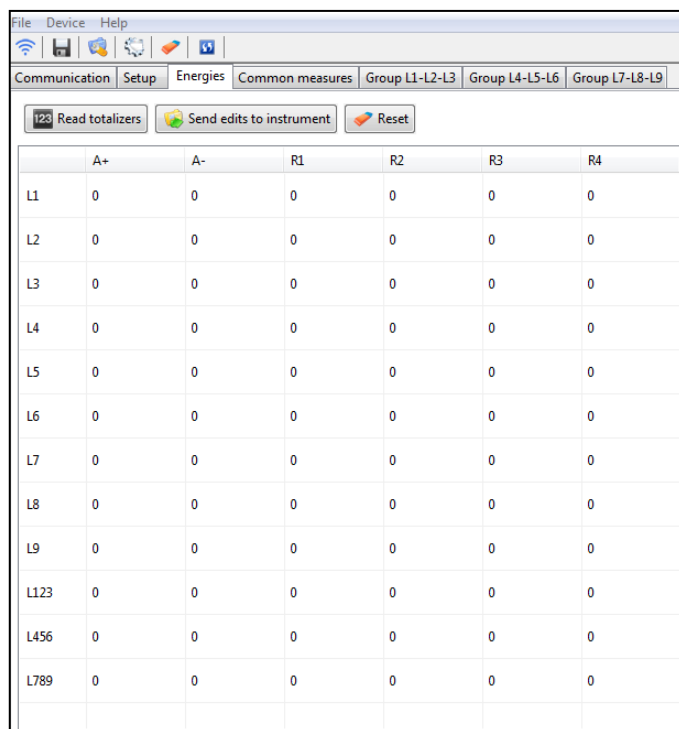
This function is active only for Mono-phase Inputs.

kTA: This function is enabled only for CC06 sensors. If one of them is installed on a secondary of a Current Transformer (TA), insert the amperometric constant of the TA considered.

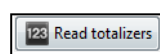
With the same procedure, set also the other Current channels. At the end, click OK to save the setting or Cancel to exit without saving it.

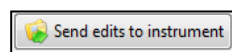
READING ENERGIES

By clicking on the Tab "Energies", the page below is displayed. It shows all the energies monitored in the plant, both for each phase and for each group of phases. These data are displayed only if the connection is activated.



	A+	A-	R1	R2	R3	R4
L1	0	0	0	0	0	0
L2	0	0	0	0	0	0
L3	0	0	0	0	0	0
L4	0	0	0	0	0	0
L5	0	0	0	0	0	0
L6	0	0	0	0	0	0
L7	0	0	0	0	0	0
L8	0	0	0	0	0	0
L9	0	0	0	0	0	0
L123	0	0	0	0	0	0
L456	0	0	0	0	0	0
L789	0	0	0	0	0	0

: to read the values of energy stored in the totalizers within the instrument and to display them on the table.

: to make some changes on the table by clicking in correspondence of the interested totalizer and inserting the new value that will appear in red. At the end, by clicking this key, the modified values (in red) will be saved into the instrument.

: to delete all the values displayed on the table. Remember to send the changes to the instrument.

A+, A- : They represent respectively the totalizers of Active Energy used and Active Energy delivered.

R1, R2, R3, R4: Each of these 4 Reactive Energy totalizers refers to a quadrant, according to signs of Active and Reactive energy. Precisely:

R1: Both Active and Reactive positive; R2: Active negative and Reactive positive; R3: Both Active and Reactive negative; R4: Active positive and Reactive negative.

COMMON MEASURES

By clicking on the Tab "Common measures", all measures about three-phase voltages and current are displayed.
These data are displayed only if the connection is activated.

Communication Setup Energies Common measures Group L1-L2-L3 Group L4-L5-L6 Group L7-L8-L9					
Last update:					
1352	FW version main processor	0			
1353	FW version voltage processor	0			
7000	Voltage L1-L2	0.0	V		
7002	Voltage L2-L3	0.0	V		
7003	Voltage L3-L1	0.0	V		
7006	Voltage L1-N	0.0	V		
7008	Voltage L2-N	0.0	V		
7010	Voltage L3-N	0.0	V		
7102	Phase voltage equivalent	0.0	V		
7104	Start voltage equivalent	0.0	V		
7136	Frequency L1-N	0.0	Hz		
7138	Internal temperature	0.0	°C		
7140	VDD	0.0	V		
7142	VBAT	0.0	V		
7144	VAN1	0.0	V		
7146	VAN2	0.0	V		

The measures displayed are the following:

Firmware versions; Phase-Phase Voltage; Phase-Neutral Voltage; Equivalent Voltage;

Frequency; Internal Temperature of the instrument and Power supply Voltage.

Other parameters such as: VBAT; VAN1; VAN2 refer only internal laboratory functions, about the calibration and testing,

to help diagnosis for any problem.

The first column shows the number of modbus register, which value is read.

MEASURES ON THE THREE-PHASE GROUPS

The Tabs: " Group L1-L2-L3"; "Group L4-L5-L6" and "Group L7-L8-L9" contain electrical measures of Mono-phase and Three-phase groups.

Communication Setup Energies Common measures Group L1-L2-L3 Group L4-L5-L6 Group L7-L8-L9				
	Last update:			
7012	Instantaneous current L1	0.0	A	
7014	Instantaneous current L2	0.0	A	
7016	Instantaneous current L3	0.0	A	
7200	Max current L1	0.0	A	
7202	Max current L2	0.0	A	
7204	Max current L3	0.0	A	
7030	Apparent power L1	0.0	VA	
7032	Apparent power L2	0.0	VA	
7034	Apparent power L3	0.0	VA	
7048	Active power L1	0.0	W	
7050	Active power L2	0.0	W	
7052	Active power L3	0.0	W	
7066	Reactive power L1	0.0	VAr	
7068	Reactive power L2	0.0	VAr	
7070	Reactive power L3	0.0	VAr	
7084	Power factor L1	0.0		
7086	Power factor L2	0.0		
7088	Power factor L3	0.0		

Also on this page, the first column shows the number of modbus register, which value is read.

The measures displayed are the following:

Current; Maximum Current; Apparent Power; Active and Reactive Power; Power Factor; Reactive Energy absorbed and delivered (both Inductive and Capacitive).

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