IPETRONIK

INCA
V7.3.2 Build 122

ETAS

DRIVING | **EMBEDDED EXCELLENCE**

Lizenz lesen

IPE MOTION
Software

IPEaddon_INCA_V07_05_00

2. Dezember 2020

Table of Contents

1 Important and general information

1.1 Important information

Please follow these instructions before and during the use and application on any IPETRONIK product!

1.1.1 Safety and Warning instructions

Please follow the instructions **and** information as contained in the user manual!

1. The user can **influence an electronic system by applying the IPETRONIK product**. This might cause risk of personal injury or property damages.

2. The **use and application of the IPETRONIK product is permitted only to qualified professional staff**, as well as, only in appropriate manner and in the designated use.

3. **Before using an IPETRONIK measurement system** in the vehicle it **has to be verified** that **no function of the vehicle, which is relevant for secure operation, might be influenced**:
   - by the installation of the IPETRONIK measurement system in the vehicle,
   - by an potential malfunction of the IPETRONIK system during the test drive.

   In order to avoid possible danger or personal injury and property damages, appropriate actions are to be taken; such actions have to bring the entire system into a secured condition (e.g. by using a system for emergency stop, an emergency operation, monitoring of critical values).

   Please check the following points to avoid errors:

   - Adaption of sensors to components of the electrical system / electronics, brake system, engine and transmission control, chassis, body.

   - Tap of one or several bus systems (CAN, LIN, ETHERNET) including the required electrical connection(s) for data acquisition.

   - Communication with the vehicle's control units (ECUs), especially with such of the brake system and/or of the engine and transmission control (power train control system).

   - Installation of components for remote data transmission (mobiles, GSM/GPRS modems, WiFi and Bluetooth components).

   ⚠️ The products can be operated in extended temperature ranges greater $70\,°C$ and therefore the operator has to take safety measures to avoid any skin burnings on hot surfaces while touching the products.

4. **Before** directly or indirectly using **the data acquired by an IPETRONIK measurement system to calibrate control units, please review the data regarding to plausibility**.

5. With regard to the application of IPETRONIK products in vehicles during use on public roads the manufacturer and/or registered user of the vehicle **has to ensure that all changes/modifications have no influence concerning the license of the vehicle or its license of operation.**

6. **User does agree to the instructions and regulations as mentioned above.** In case the user does not agree with the instructions and regulations as mentioned above, he has to notify this expressly and immediately in writing to IPETRONIK before confirming the sales contract.

1.2   Terms and conditions

See IPETRONIK website for details: www.ipetronik.com

1.2.1   Legend of used icons

💡	*Tip*	*This icon indicates a useful tip that facilitates the application of the software.*
ℹ️	*Information*	*This icon indicates additional information for a better understanding.*
⚠️	*Attention!*	*This icon indicates important information to avoid potential error messages.*

1.2.2   Support

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Limited commercial partnership with its head office in Baden-Baden, registry court HRA No. 201313
IPETRONIK Verwaltungs-GmbH Baden-Baden is an individually liable society, registry court Mannheim HRB No. 202089
CEOs: A. Wocke, C. Buchholz

Technical support and product information e-mail: support@ipetronik.com

2   IPEaddon INCA overview

2.1   Description

The IPEaddon INCA is a software driver to support IPETRONIK M-CAN and X-Modules in the INCA measurement and calibration software. With the IPEaddon INCA you can configure the measurement modules over a CAN and an the Ethernet interface. The functional scope of the IPEaddon INCA is like the IPETRONIK PlugIn-X for IPEmotion measurement software. Both drivers (PlugIn and Addon) are based on the same source code platform. This applied to other addons e.g. Vector too, which is covered in a separate manual.

Supported INCA main versions:

- ► INCA 7.1 not supported any more with version V07.05.00
- ► INCA 7.2
- ► INCA 7.3

The versions between IPEaddon INCA and IPETRONIK PlugIn-X are listed below:

- ► IPETRONIK PlugIn-X V02.07.xx   IPEaddon INCA V07.02.xx
- ► IPETRONIK PlugIn-X V02.08.xx   IPEaddon INCA V07.03.xx
- ► IPETRONIK PlugIn-X V02.10.xx   IPEaddon INCA V07.04.xx
- ► IPETRONIK PlugIn-X V02.12.xx   IPEaddon INCA V07.05.xx

2.2   IPEaddon installation

In order to use the IPEaddon INCA you need an INCA software installation on your computer in the first place. Visit the ETAS website if you need support for INCA software installation and software licensing.
`https://www.etas.com/en`
The IPEaddon INCA can be found on the IPETRONIK website. Here you can download the software from the following link:`https://www.ipetronik.com/ipeaddons-498.html`

Install IPEaddon INCA   [E_1]
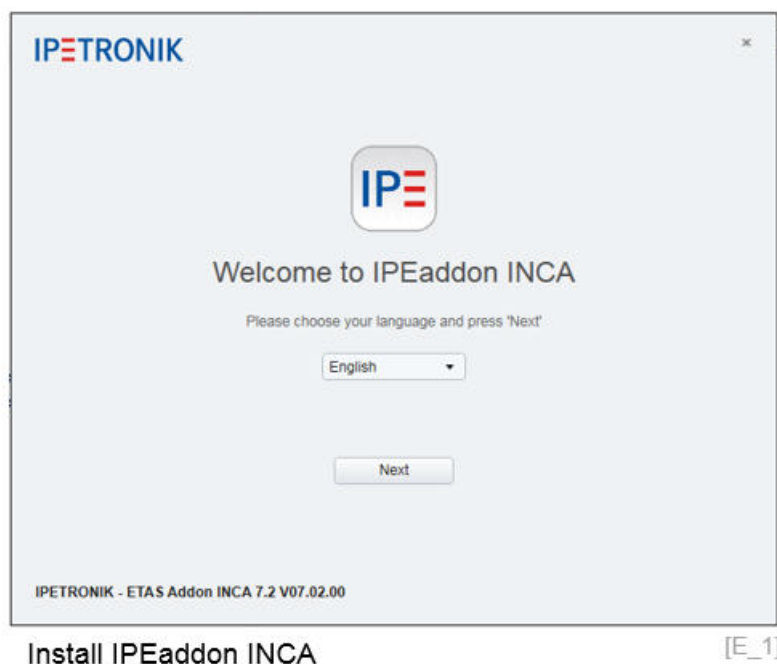
The Addon is supporting the following operating systems:

- ► 32 bit
- ► 64 bit

After successful installation of the IPEaddon INCA you start the INCA software application.

Start INCA software   [E_2]

When the default work space is opened you can check the successful installation of the IPEaddon INCA. There you access the service menu to check the loaded packages. When you install a newer IPEaddon INCA the previous version is removed.


Loaded packages overview   [E_3]
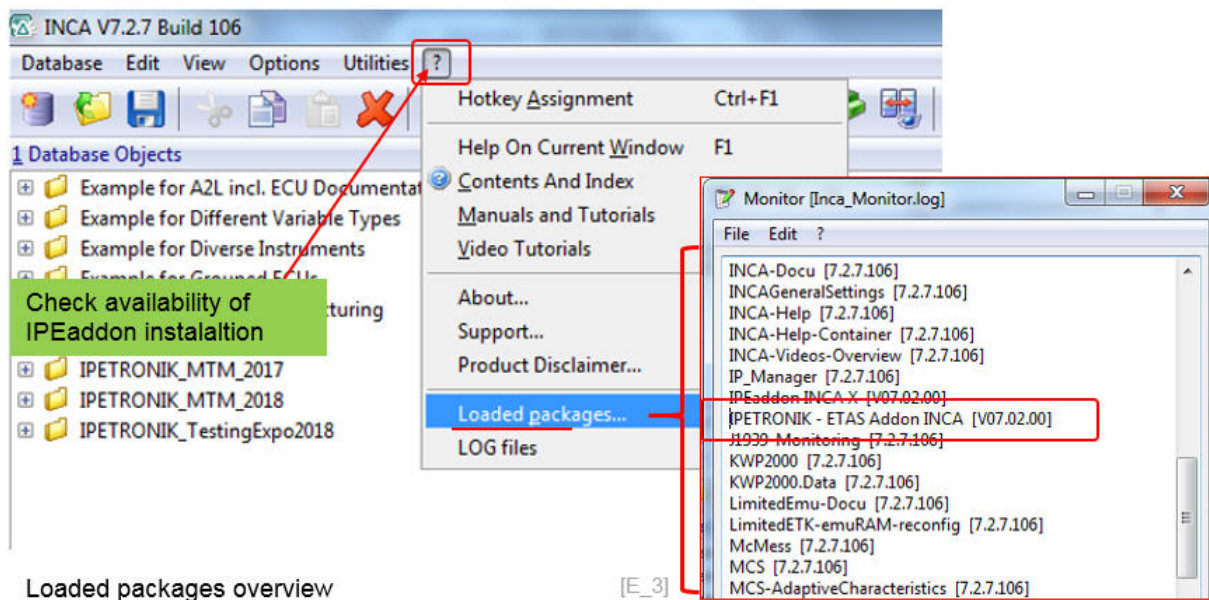
3   Functional architecture
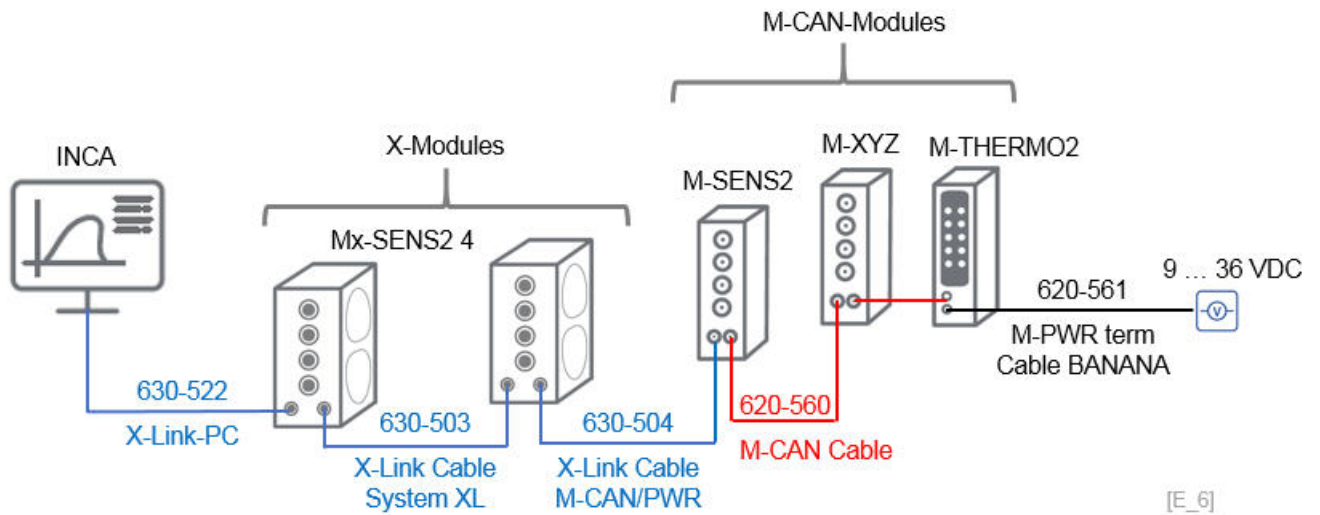
3.1   CAN interface

You can use the IPEaddon INCA in combination with any supported CAN hardware to connect to M-CAN modules. Here is the requirement that the M-CAN modules are configured with the default CAN- bus baud rate of 500 kBaud. When the M-modules modules are running a different baud rate you need to use the IPETRONIK PlugIn X in order to adjust the baud rate tp 500 kBaud.
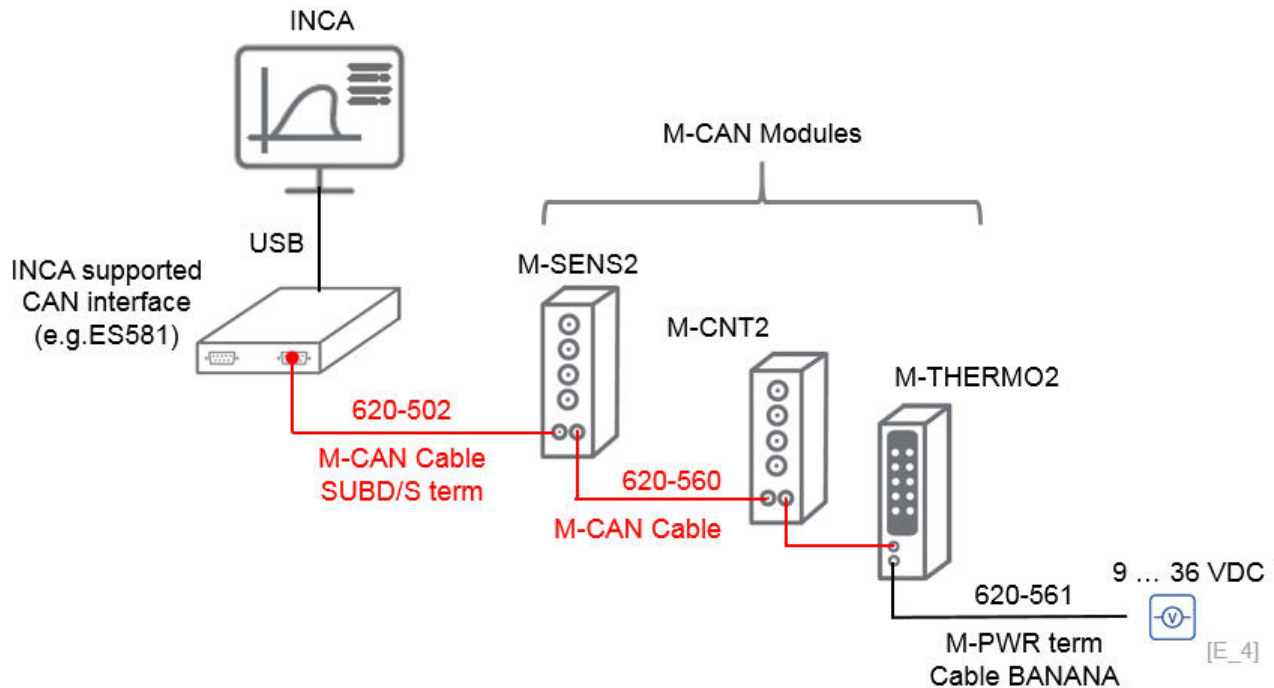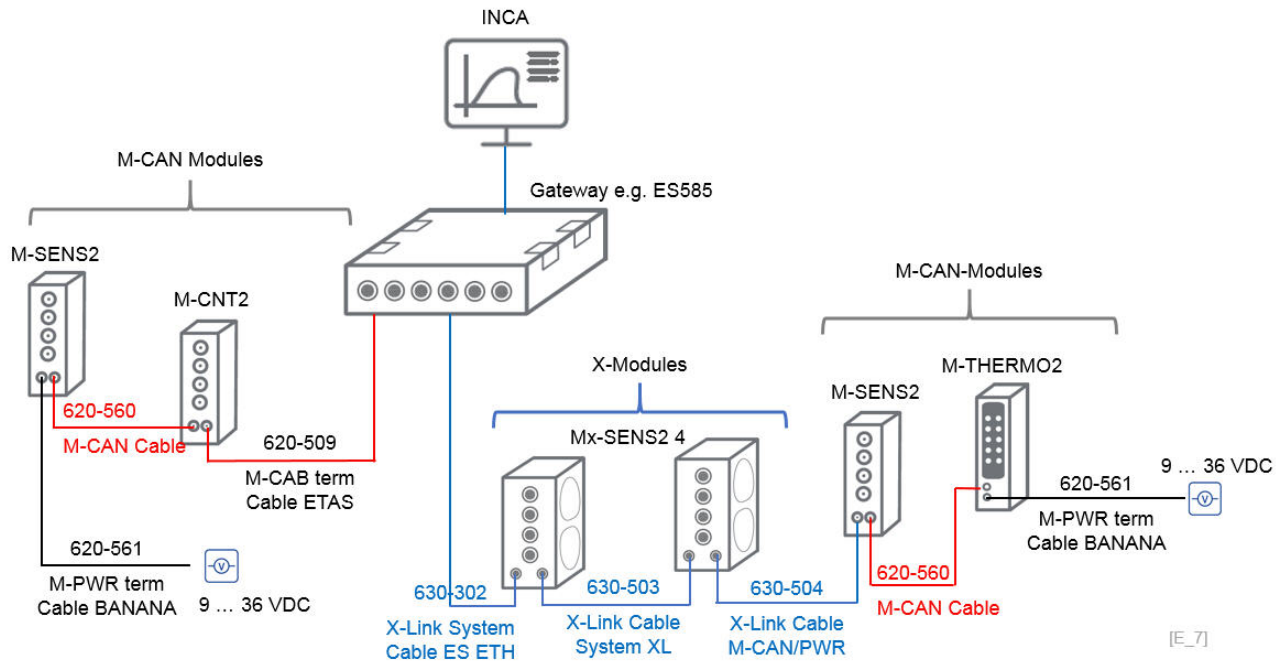
3.2 Ethernet interface for (X-Modules)
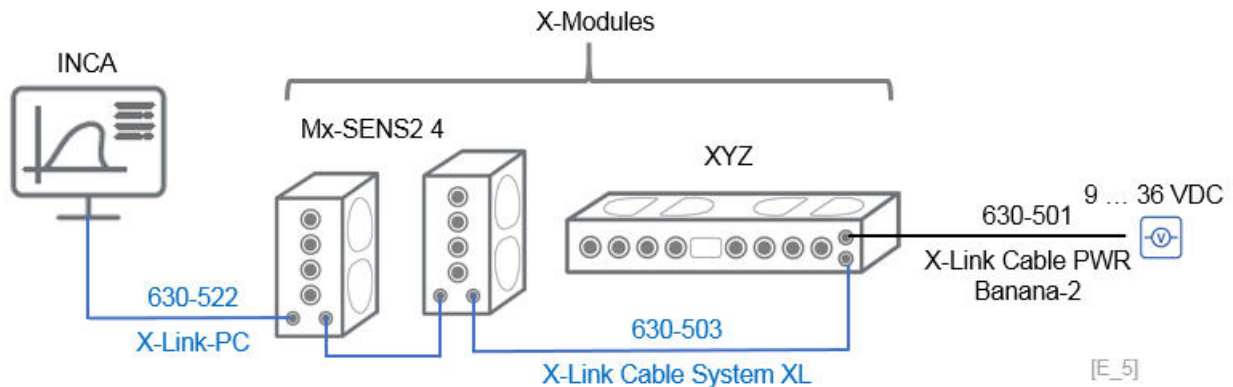
3.3 Ethernet interface (X-Modules and CAN-Modules)

3.4   ETAS gateways combined for CAN and/or ETH

INCA

M-CAN Modules

M-SENS2

M-CNT2

Gateway e.g. ES585

620-560
M-CAN Cable

620-509

M-CAB term
Cable ETAS

620-561
M-PWR term
Cable BANANA   9 … 36 VDC

X-Modules

Mx-SENS2 4

M-CAN-Modules

M-SENS2   M-THERMO2

620-561   9 … 36 VDC
M-PWR term
Cable BANANA

630-302   630-503   630-504   620-560
M-CAN Cable

X-Link System   X-Link Cable   X-Link Cable
Cable ES ETH   System XL   M-CAN/PWR

[E_7]

# 4   Offline interface configuration for Ethernet and CAN

4.1   Ethernet interface - offline configuration

The IPEddon INCA is supporting two configuration interfaces. One is based on Ethernet and the other one is based on CAN. In the following the ETH interface configuration will be explained. The ETH interface mandatory required, when you one or several of the following X-Modules are used in the configuration:

- ► Mx-SENS2 4
- ► Mx-SENS2 8
- ► Mx-STG2 6
- ► Sx-STG

However, you can add also CAN modules to the end of the X-Module daisy chain to. At any cased it is mandatory to have at least one X-Module as an interface module to the PC or your gateway when you us the ETH interface. The X-Module can also be included as an indirectlay used module without being part of the measurement configuration at all to server symbolically as some kind of "ETH interface card" only, to get the CAN module data stream integrated to the INCA software. When an X-mdoule is missing in the hardware setup of the software ETH interface of the IPEaddon INCA, the measurement will not be functional. If you have CAN modules only you may should see the following section 4.2. The hardware setups discussed above should be see as a reference too 3.2

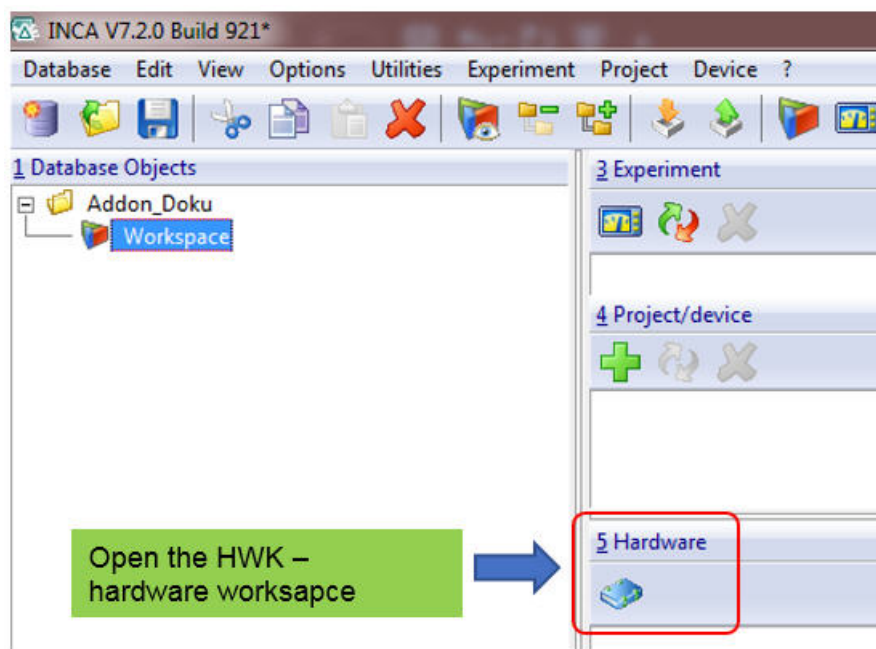You can start by creating your new data base if you have not already created a data base file.

Create new database   [E_10]
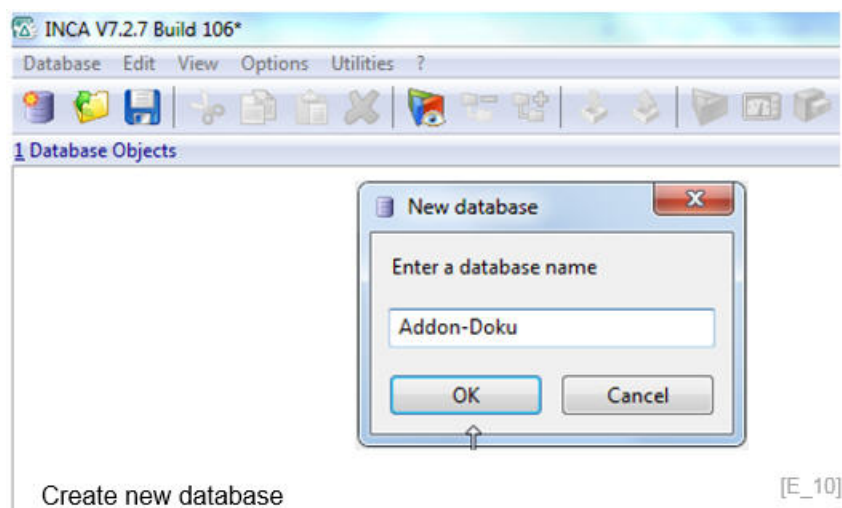
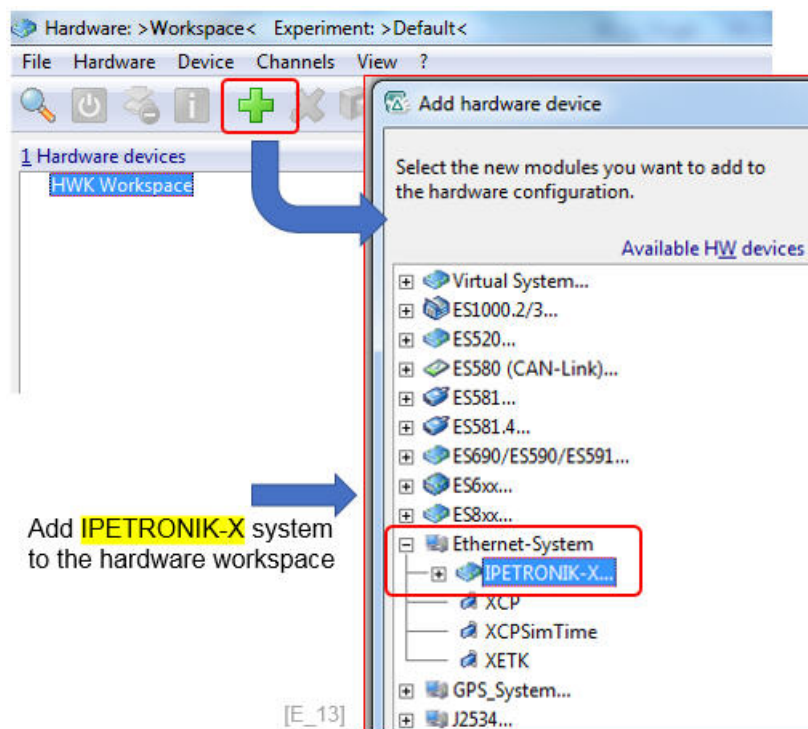Then you add your new worksapce.
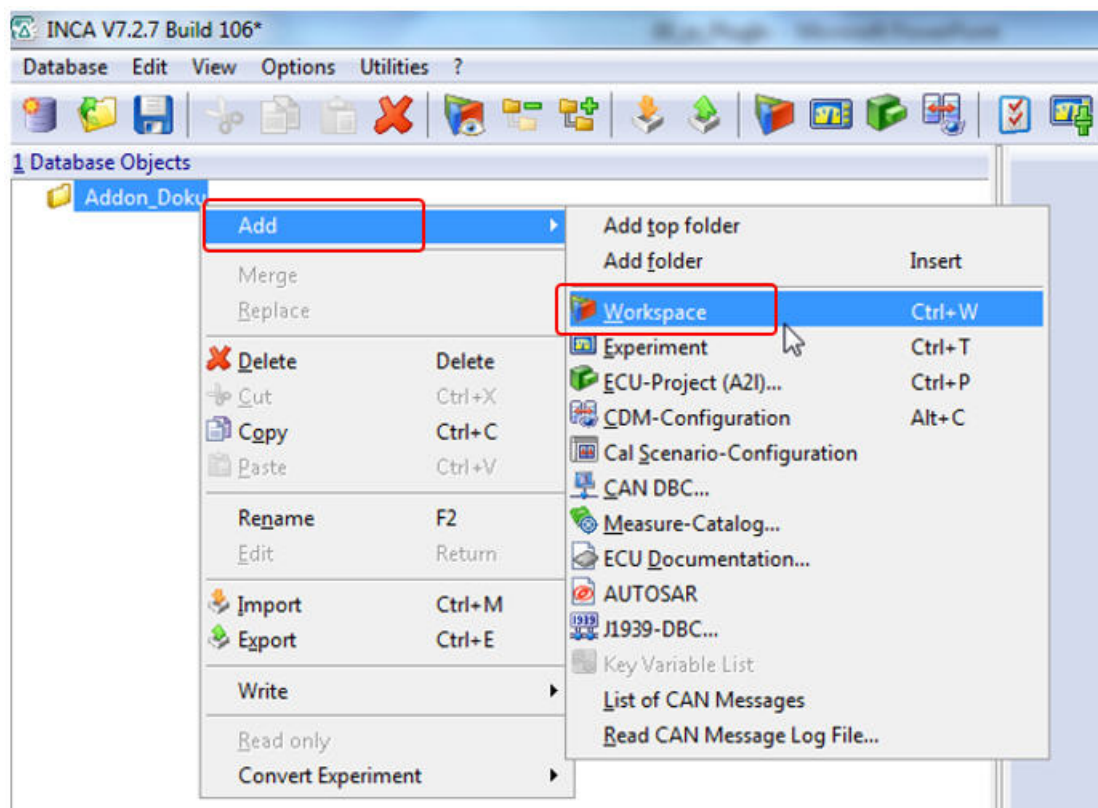
Create new workspace   [E_11]
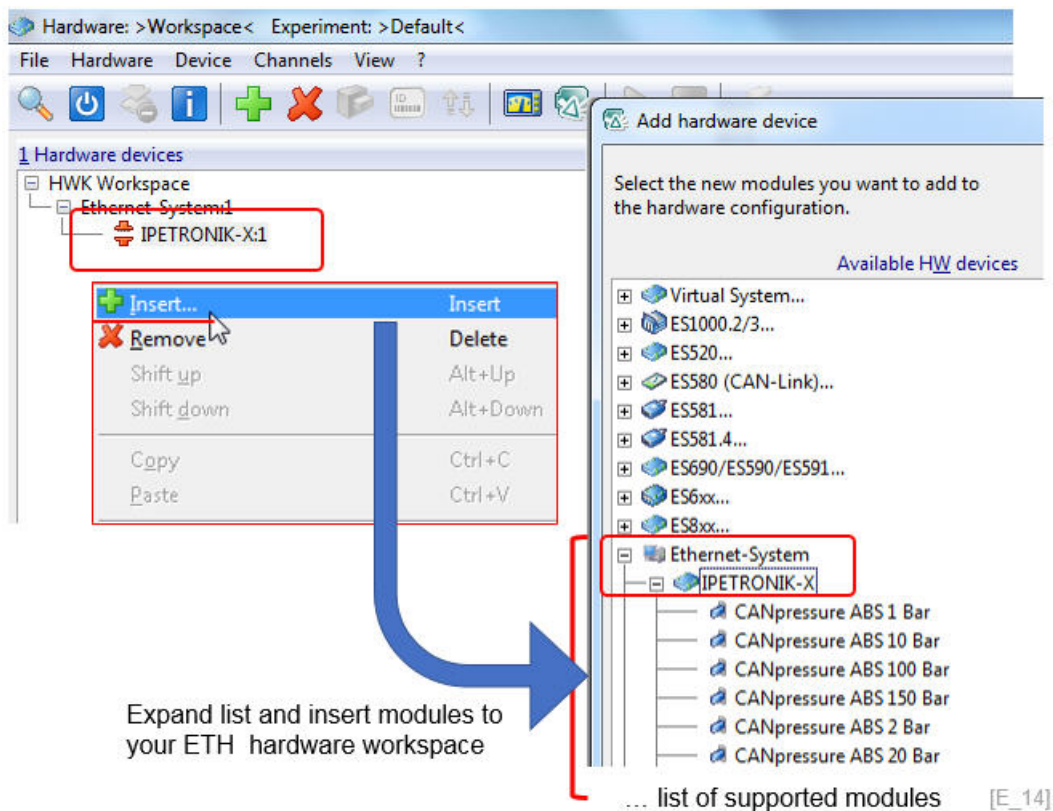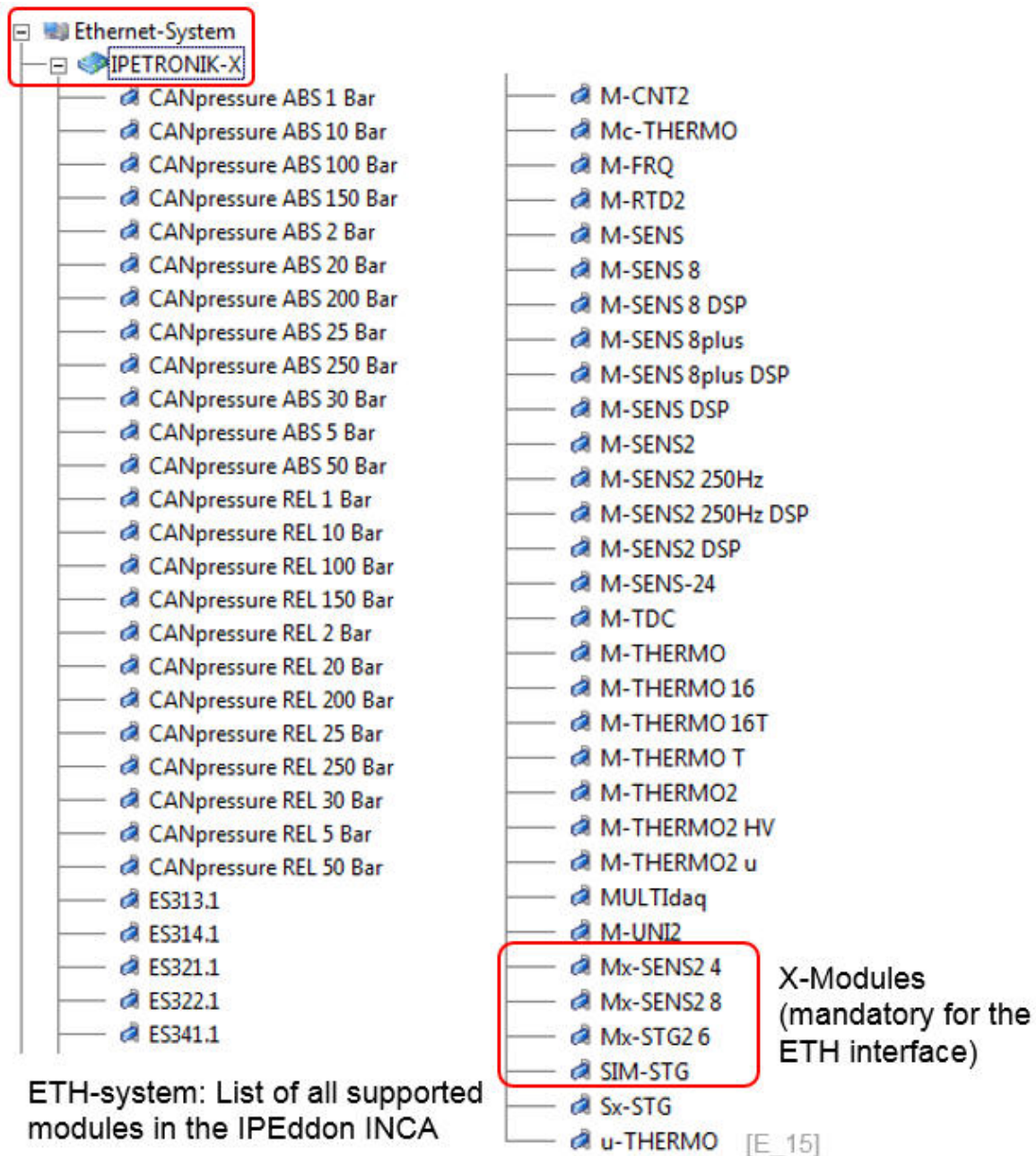
Then you open the hardware configuration interface HWK.

Open the HWK –
hardware worksapce

[E_12]

After that you need to add from the Ethernet hardware systems the IPETRONIK-X component.

Add IPETRONIK-X system to the hardware workspace

[E_13]

When the IPETRONIK-X system is created you can insert below the IPETRONIK-X system node your required X- and M-Modules from the list.

Expand list and insert modules to your ETH hardware workspace

... list of supported modules   [E_14]

The following screenshot shows all supported modules on the ETH interface system which includes the mandatory X-modules.

ETH-system: List of all supported modules in the IPEddon INCA

When the modules are created you have to start the hardware configuration. You can select any module or the ETH interface node itself to launch the IPEddon INCA for module configuration.
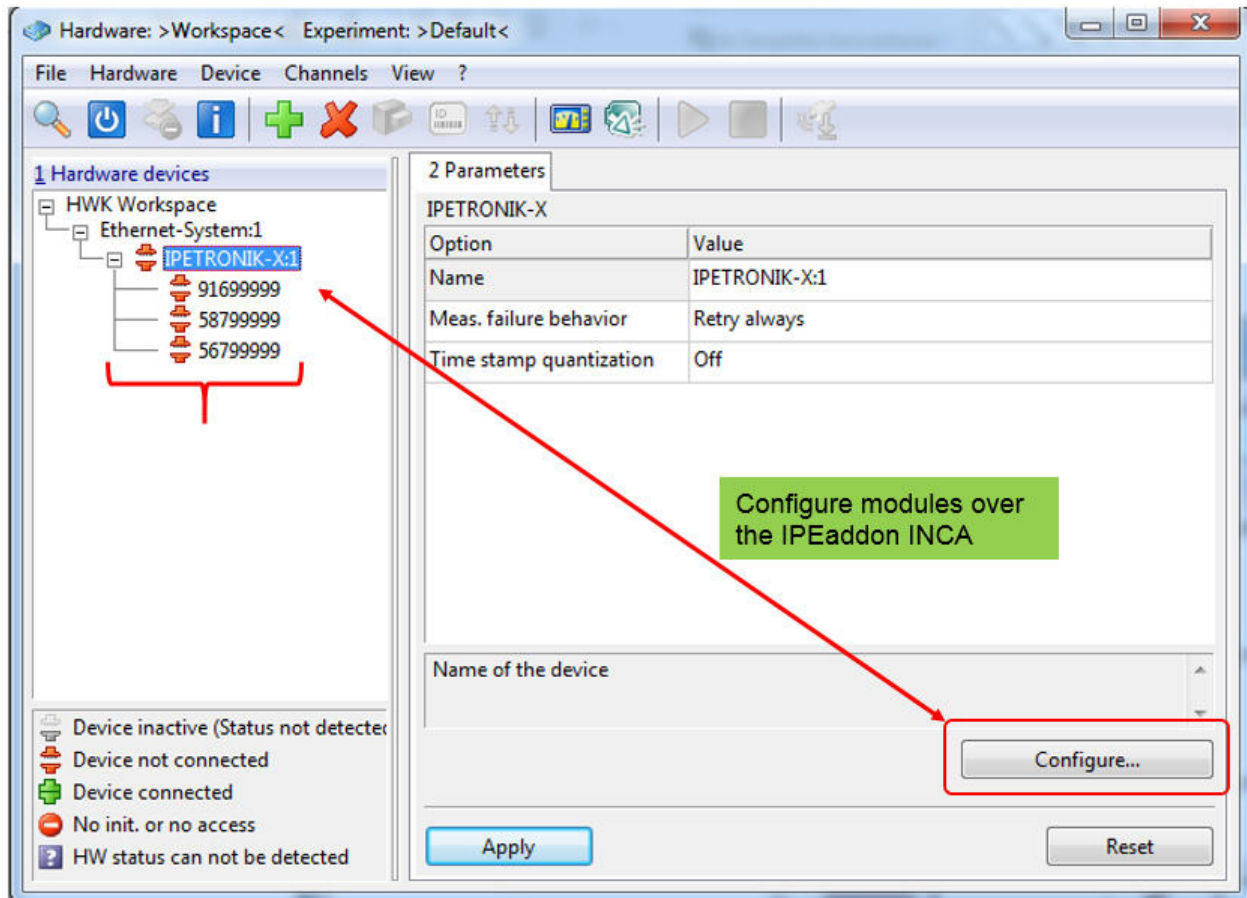
Open IPEaddon INCA   [E_16]

The following screenshot shows the start screen of IPEaddon INCA. The configuration settings in the addon are explained in section XX.
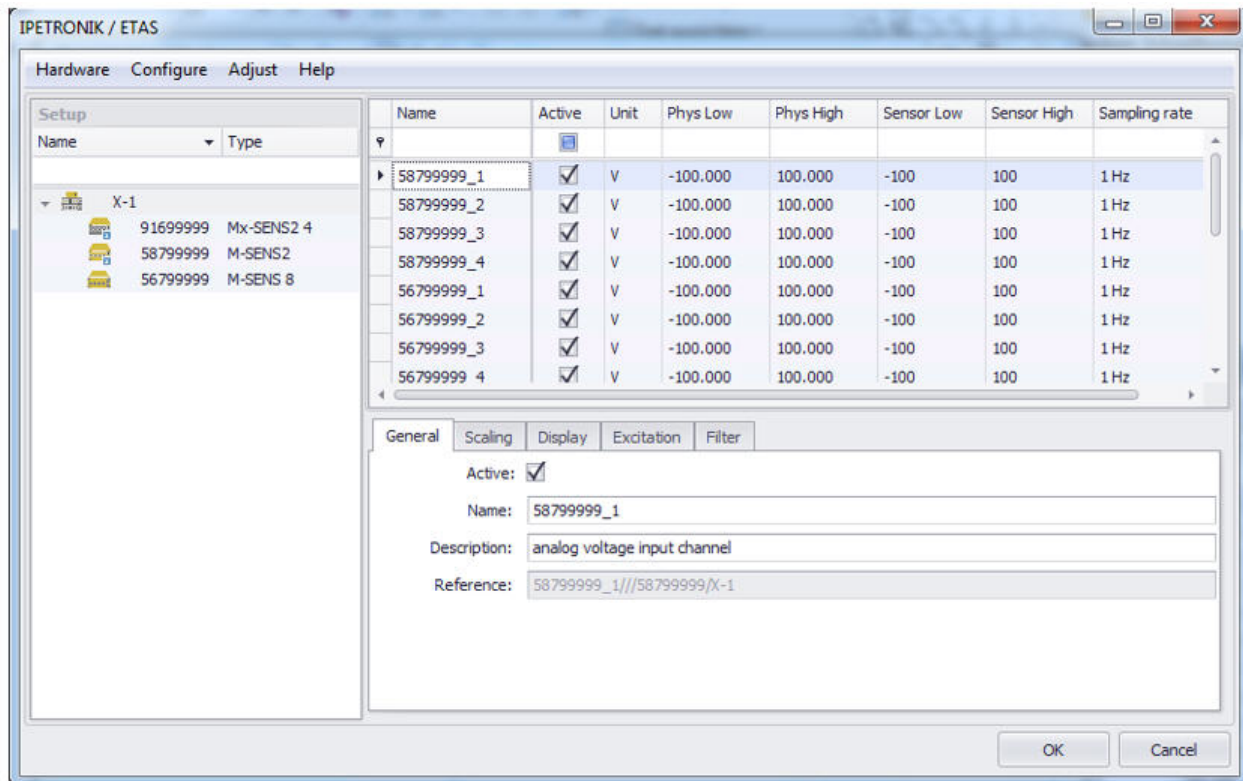

IPEaddon INCA is opened to configure modules and channels

[E_17]

4.2   CAN interface - offline configuration

When you are using only CAN modules for measurement task you should the sets for the CAN interface confutation below. CAN interface confirmations are related to the hardware setups as discussed in the following section 4.2.
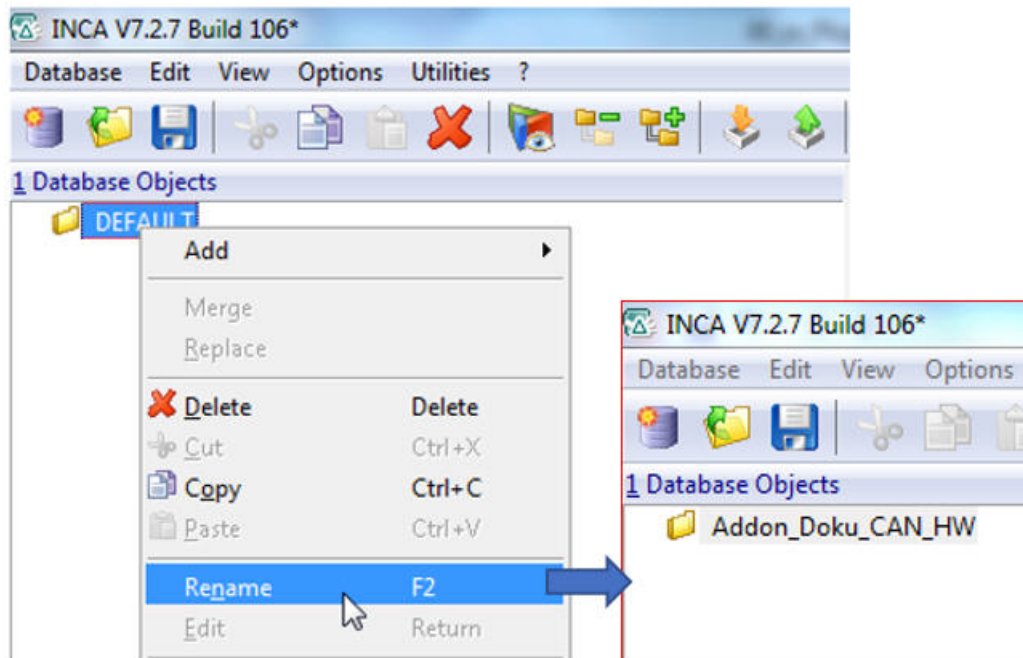
You can start by creating your new data base if you have not already created a data base file.
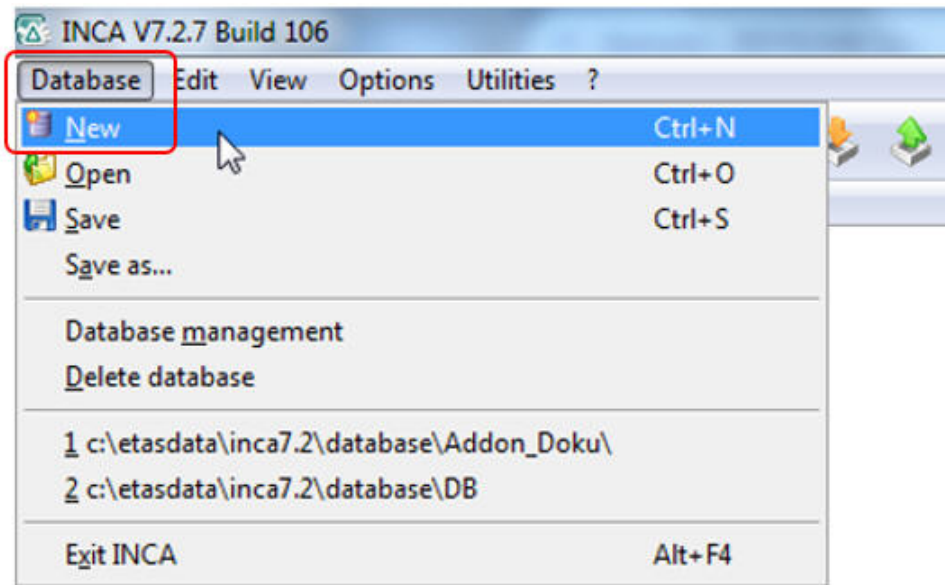
Create new database   [E_20]
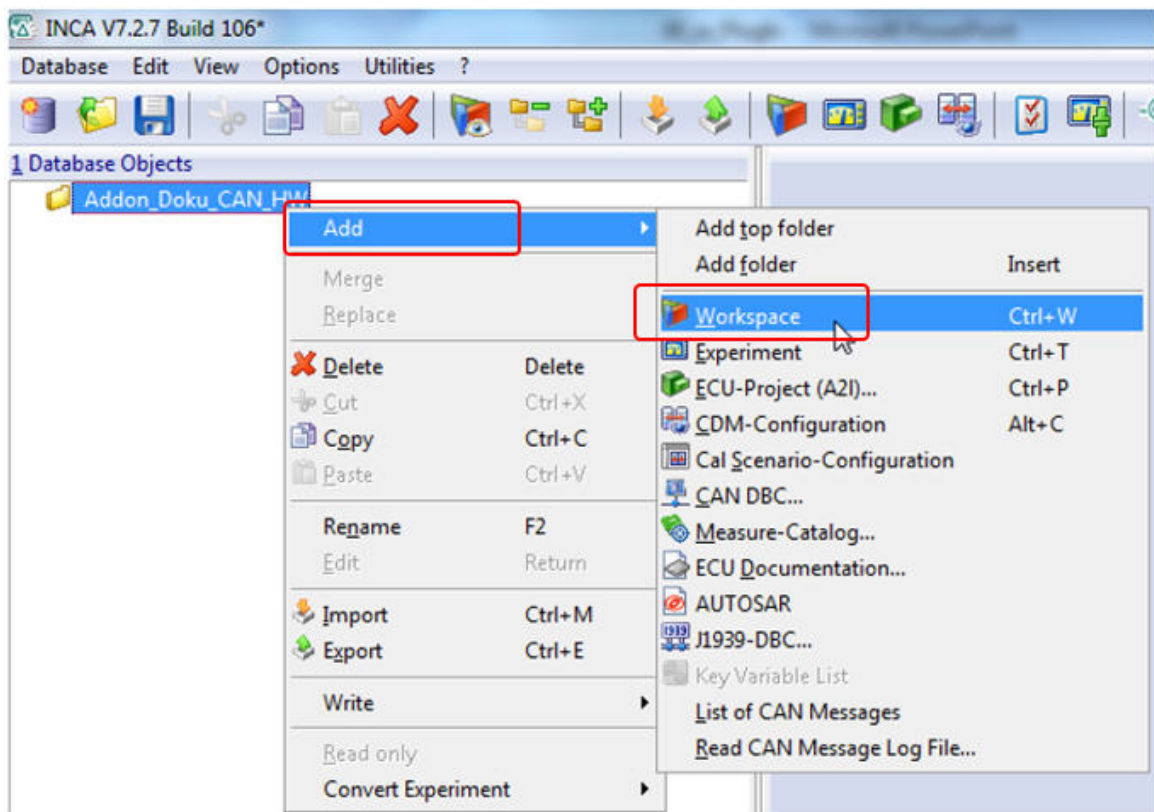
When the new data base is created you define your individual name too.

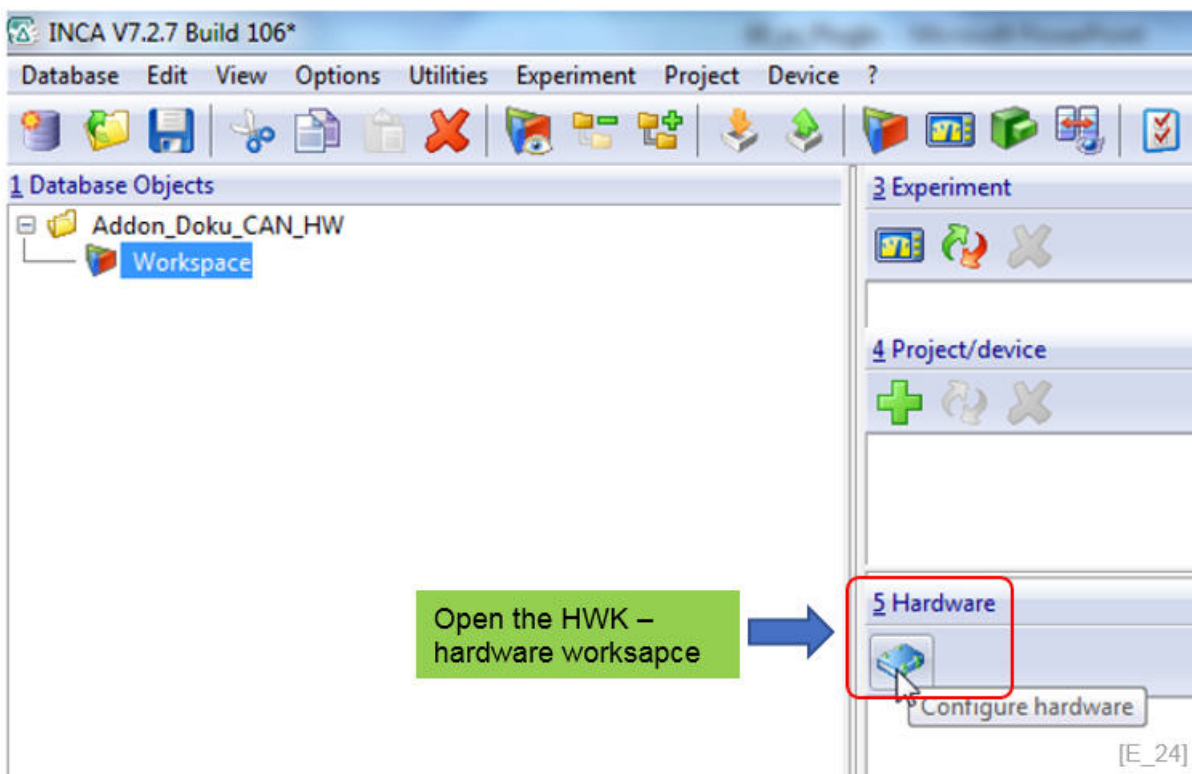Rename "DEFAULT" to a specific name   Database is created   [E_22]

Then you need to create a new work space.
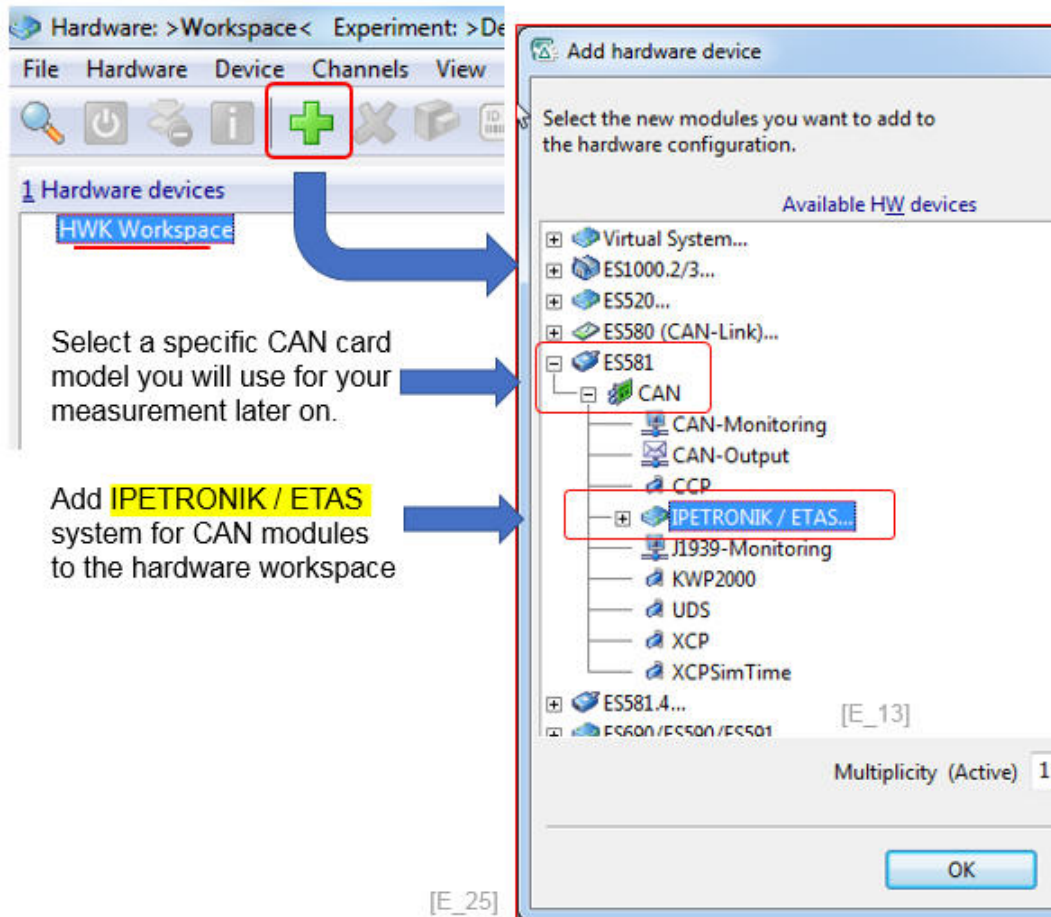

Create new workspace   [E_23]

In the next step you have to open the hardware configuration interface HWK.
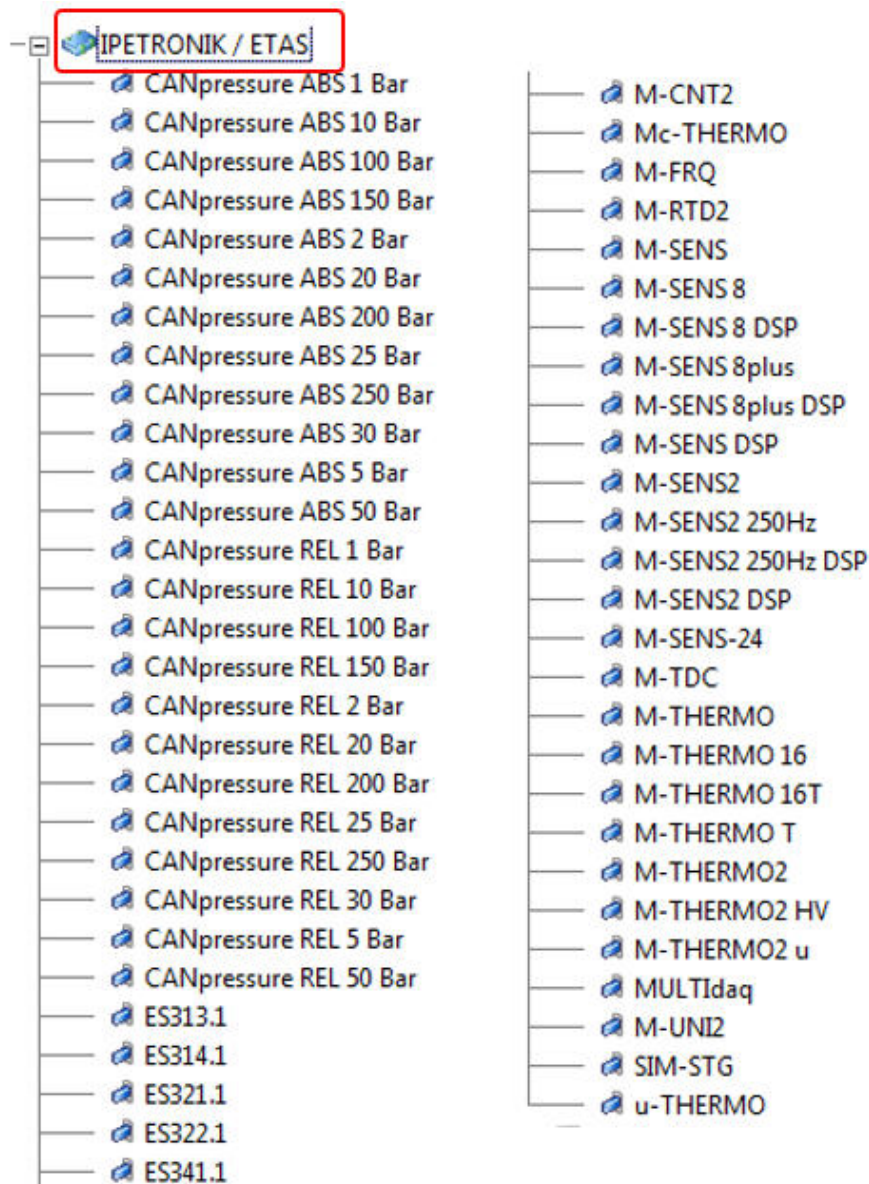

Open the HWK –
hardware worksapce

Then you need to select your specific INCA supported CAN hardware you like to use for your measurement. Below the CAN interface you select the IPETRONIK/ETAS diver which is related to the IPEaddon INCA.

Select a specific CAN card model you will use for your measurement later on.

Add IPETRONIK / ETAS system for CAN modules to the hardware workspace

When the IPETRONIK/ETAS system is created you can insert CAN modules for your measurement setup.

… list of supported modules   [E_26]
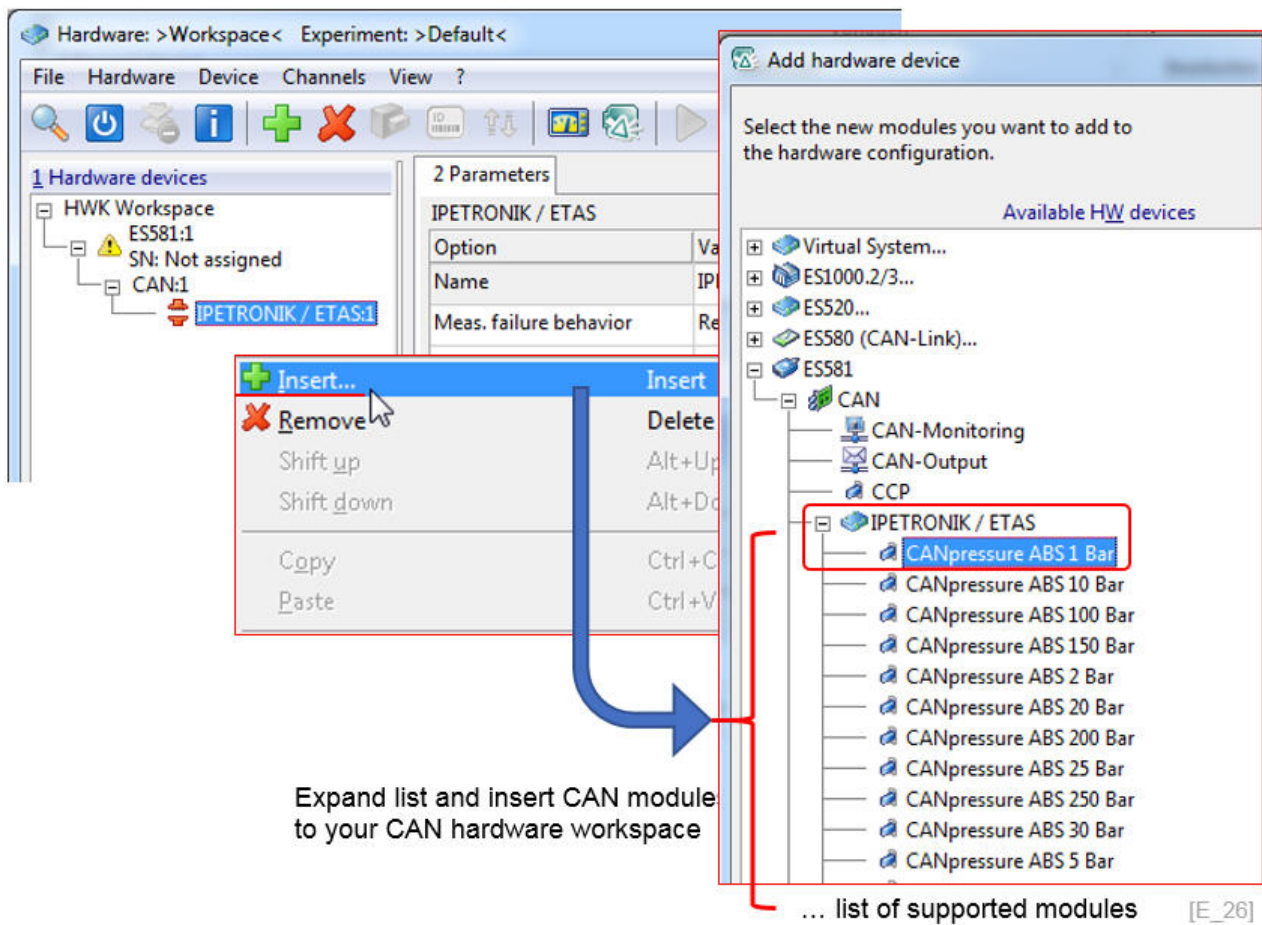
The following screenshot shows all supported CAN modules for the CAN interface systems.

```
─⊟ ◇ IPETRONIK / ETAS
      ─ ∂ CANpressure ABS 1 Bar              ─ ∂ M-CNT2
      ─ ∂ CANpressure ABS 10 Bar             ─ ∂ Mc-THERMO
      ─ ∂ CANpressure ABS 100 Bar            ─ ∂ M-FRQ
      ─ ∂ CANpressure ABS 150 Bar            ─ ∂ M-RTD2
      ─ ∂ CANpressure ABS 2 Bar              ─ ∂ M-SENS
      ─ ∂ CANpressure ABS 20 Bar             ─ ∂ M-SENS 8
      ─ ∂ CANpressure ABS 200 Bar            ─ ∂ M-SENS 8 DSP
      ─ ∂ CANpressure ABS 25 Bar             ─ ∂ M-SENS 8plus
      ─ ∂ CANpressure ABS 250 Bar            ─ ∂ M-SENS 8plus DSP
      ─ ∂ CANpressure ABS 30 Bar             ─ ∂ M-SENS DSP
      ─ ∂ CANpressure ABS 5 Bar              ─ ∂ M-SENS2
      ─ ∂ CANpressure ABS 50 Bar             ─ ∂ M-SENS2 250Hz
      ─ ∂ CANpressure REL 1 Bar              ─ ∂ M-SENS2 250Hz DSP
      ─ ∂ CANpressure REL 10 Bar             ─ ∂ M-SENS2 DSP
      ─ ∂ CANpressure REL 100 Bar            ─ ∂ M-SENS-24
      ─ ∂ CANpressure REL 150 Bar            ─ ∂ M-TDC
      ─ ∂ CANpressure REL 2 Bar              ─ ∂ M-THERMO
      ─ ∂ CANpressure REL 20 Bar             ─ ∂ M-THERMO 16
      ─ ∂ CANpressure REL 200 Bar            ─ ∂ M-THERMO 16T
      ─ ∂ CANpressure REL 25 Bar             ─ ∂ M-THERMO T
      ─ ∂ CANpressure REL 250 Bar            ─ ∂ M-THERMO2
      ─ ∂ CANpressure REL 30 Bar             ─ ∂ M-THERMO2 HV
      ─ ∂ CANpressure REL 5 Bar              ─ ∂ M-THERMO2 u
      ─ ∂ CANpressure REL 50 Bar             ─ ∂ MULTIdaq
      ─ ∂ ES313.1                            ─ ∂ M-UNI2
      ─ ∂ ES314.1                            ─ ∂ SIM-STG
      ─ ∂ ES321.1                            └─ ∂ u-THERMO
      ─ ∂ ES322.1
      └─ ∂ ES341.1
```
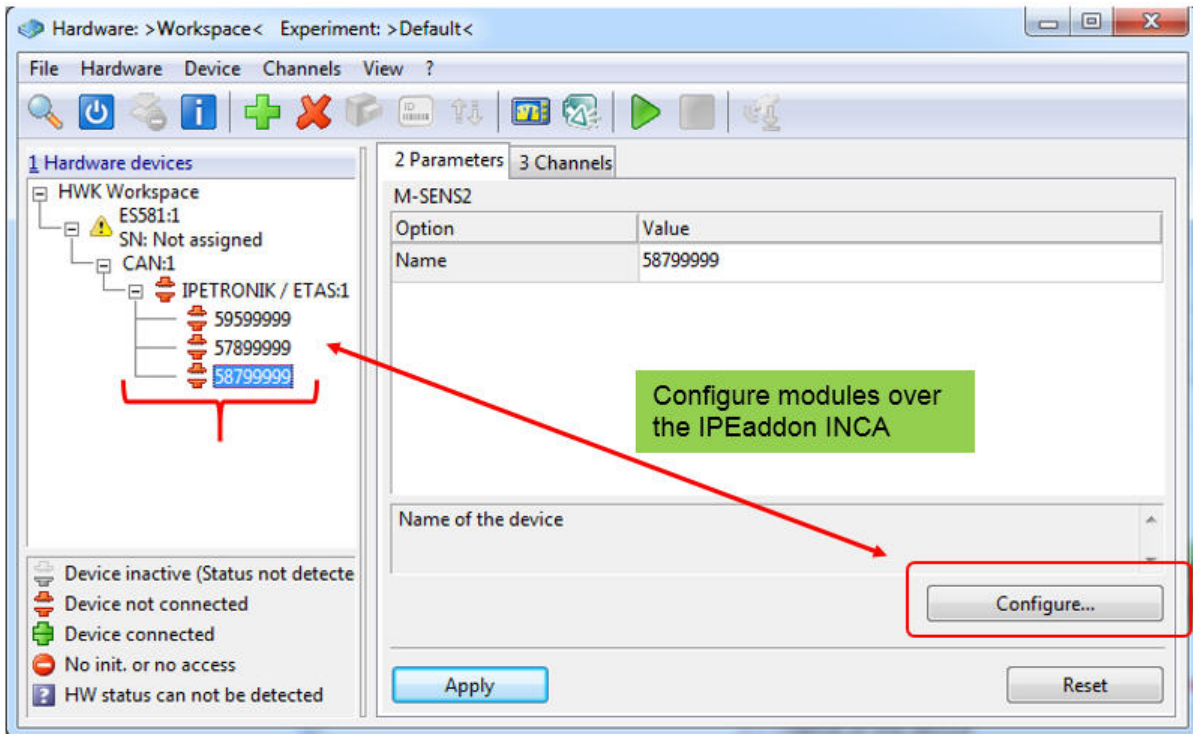
CAN interface system: List of all supported CAN
modules in the IPEddon INCA   [E_27]

When the modules are created you have to start the hardware configuration. You can select any module or the CAN interface node itself to launch the IPEddon INCA for module configuration.

Open IPEaddon INCA   [E_28]

The following screenshot shows the start screen of IPEaddon INCA. The configuration settings in the addon are explained in section XX.
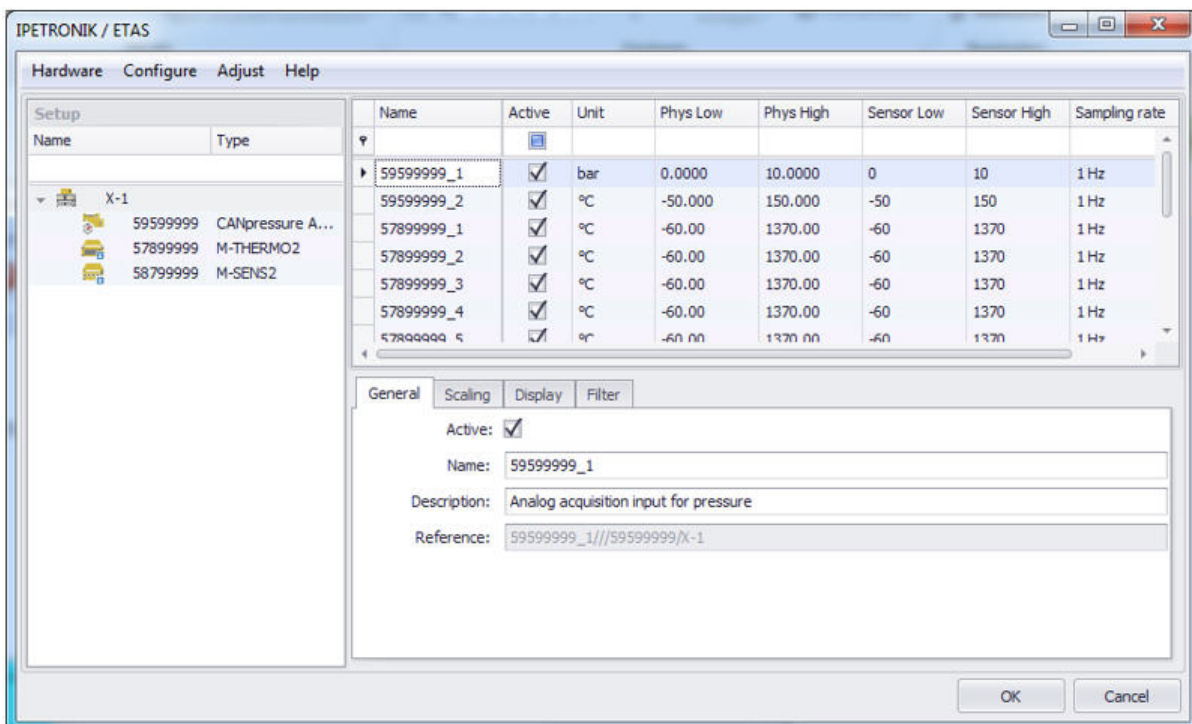

IPEaddon INCA is opened to configure modules and channels   [E_29]

5   Automatic hardware detection

5.1   Detecting modules on the Ethernet interface

Alternatively, to the offline configuration discussed above you can use the hardware detection function to create your measurement system from the physical connected devices to your measurement PC. In order to search for hardware, you need to create a IPETRONIK Ethernet system in the hardware work space (HWK). The steps to reach this stage are explained in offline configuration section 4.1.
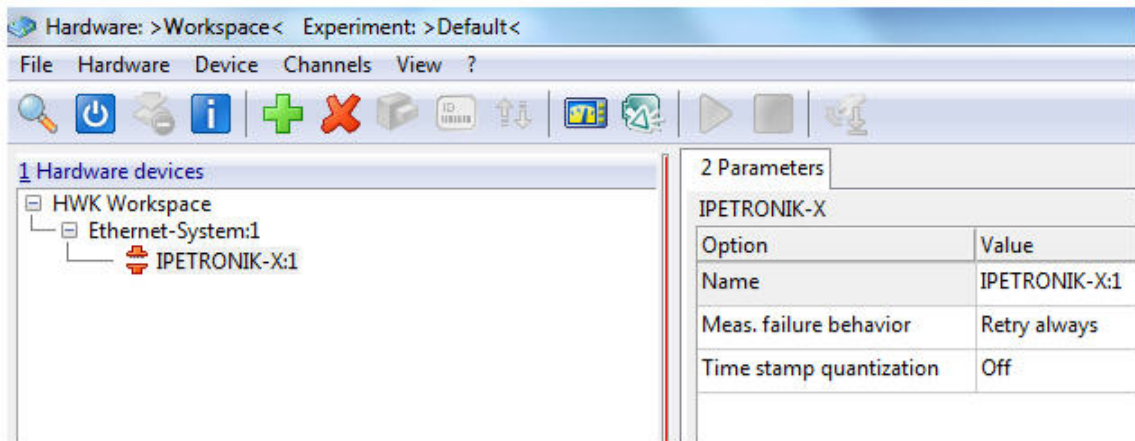
Create workspace with Ethernet interface   [E_30]

Then you select in the ribbon the Hardware tab sheet. Within is tab sheet you can run a 3rd party search function.
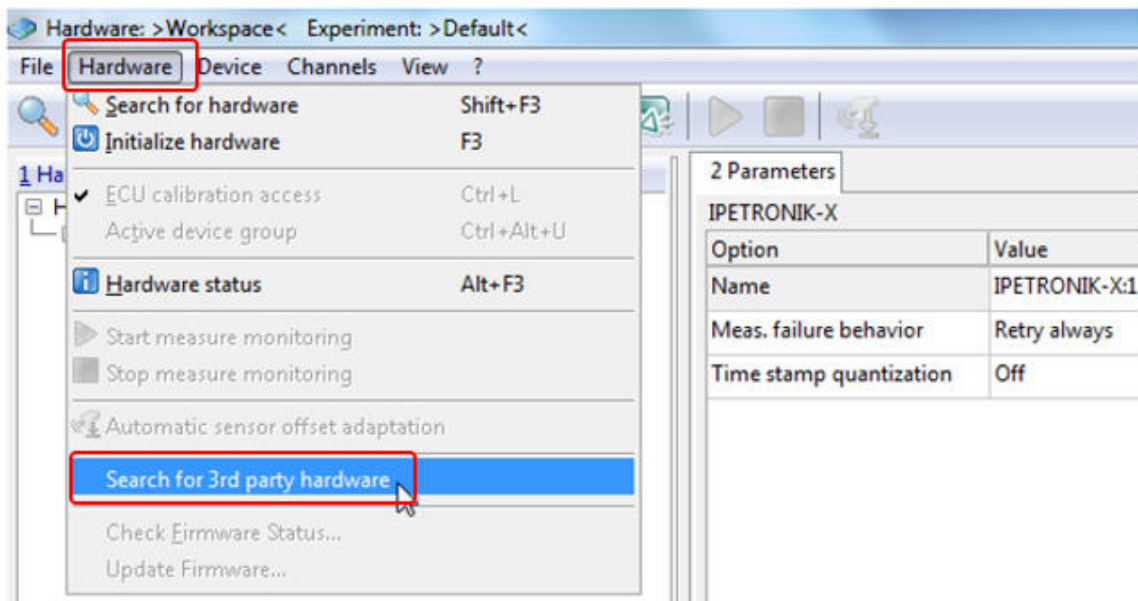
Search for 3rd party hardware   [E_31]

In the screenshot below a list of all detected modules is returned after executing the search operation.
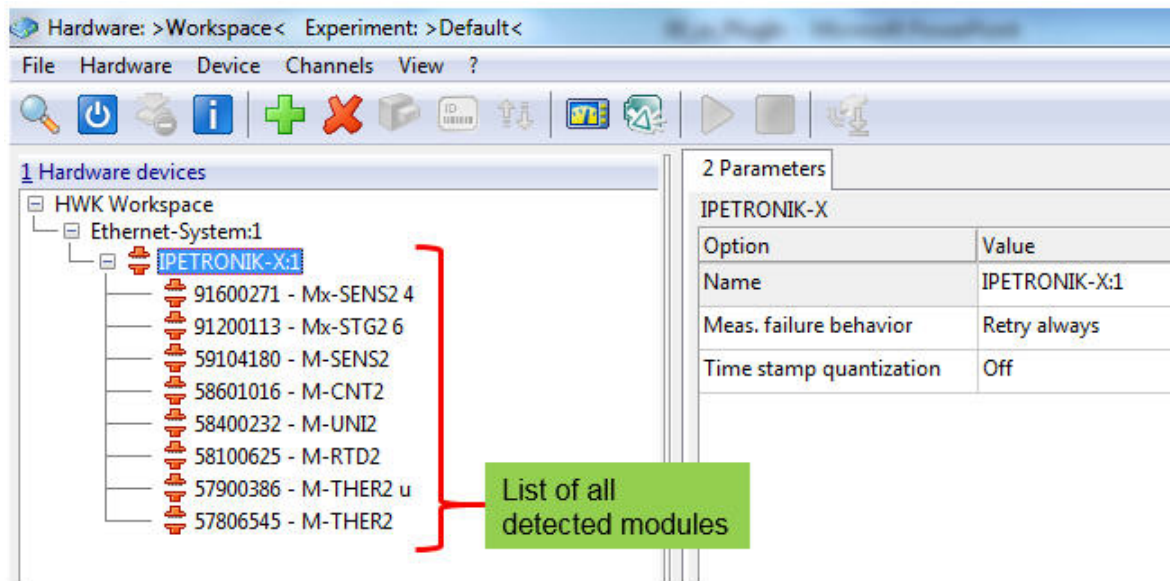
[E_32]

The search and detection operation is also retrieving the configuration of the module including all channel settings e.g. channel name, description, units, sample rate, scaling, sensor excitation, hardware and software filters, etc..
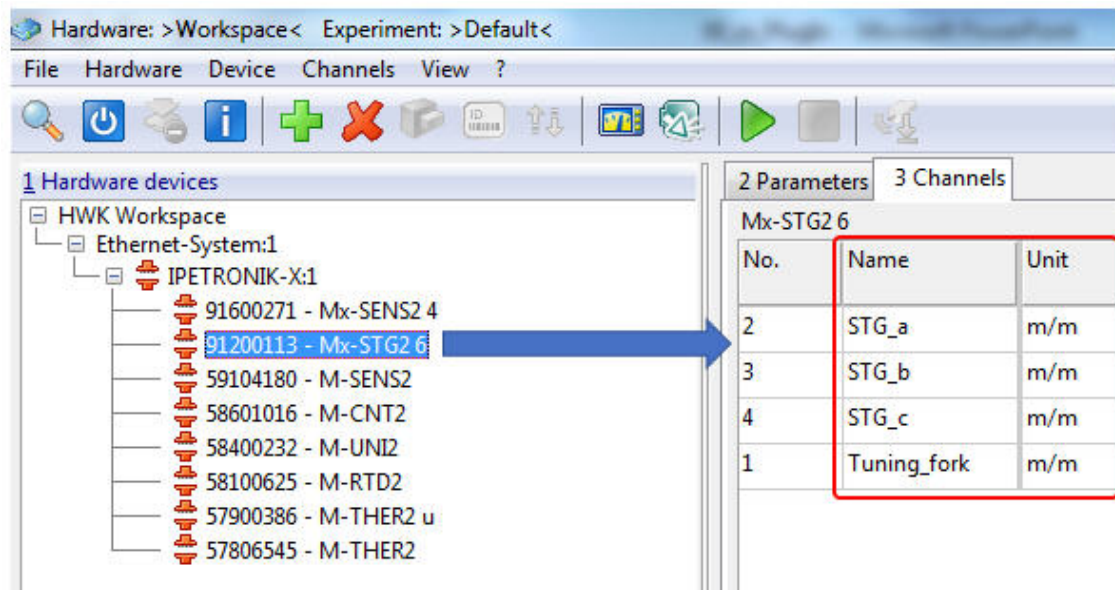
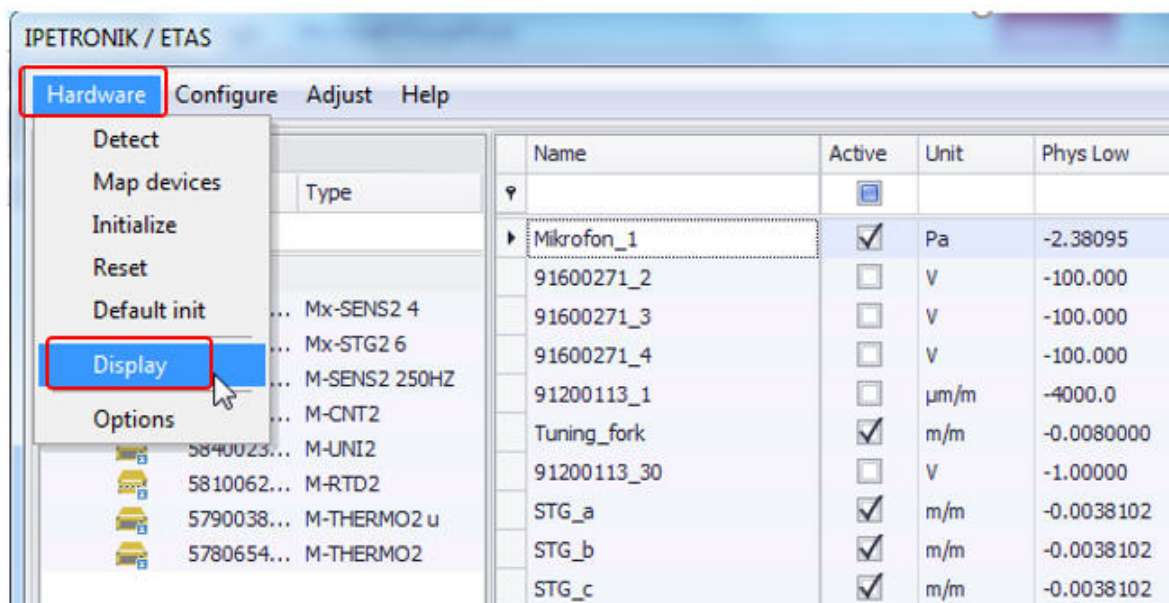Module detection including the channel configuration

[E_33]

If you like to configure the modules you need to access the IPEaddon INCA via the configuration button.
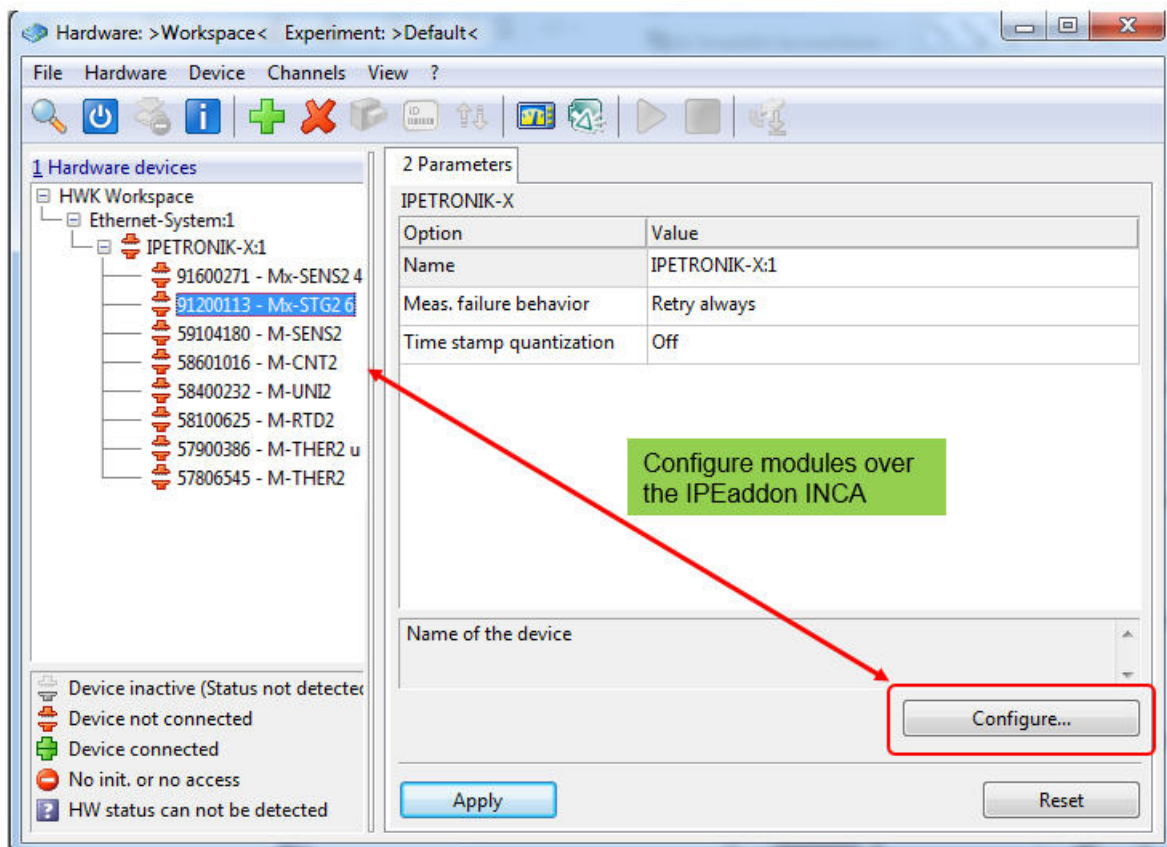
Access IPEaddon INCA to configure the modules   [E_34]

When you have started the IPEaddon INCA you can use in the hardware tab sheet the display function to show online measurements.
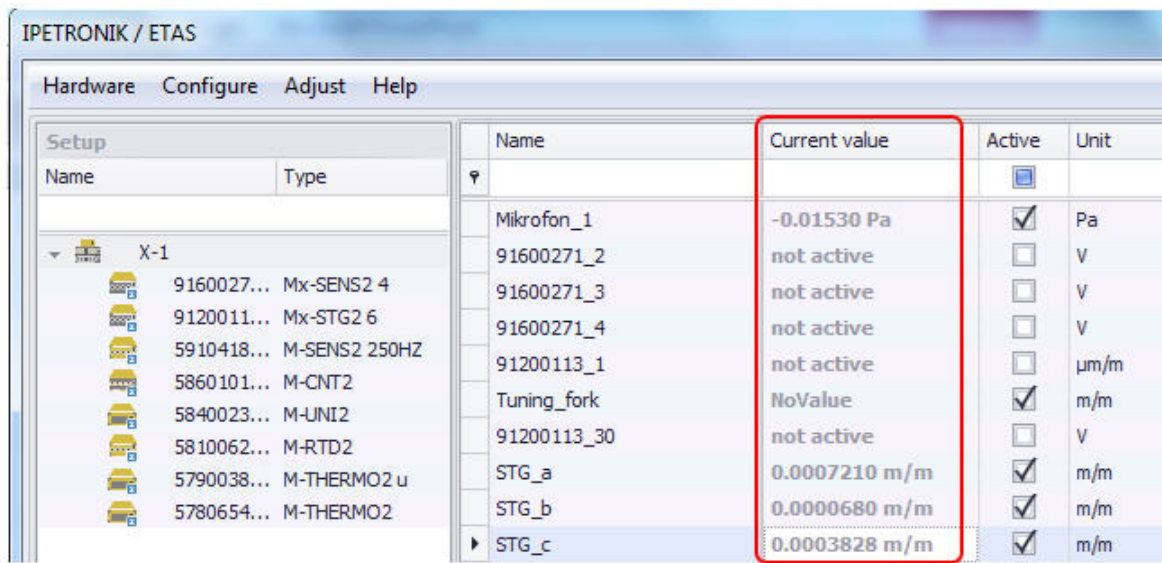
Display measurement readings   [E_35]

The following screenshot shows online readings from the modules in the addon.

Online measurement readings   [E_36]