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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: <https://www.ipetronik.com/>

1.2.1 Legend of used icons

**Tip**

This icon indicates a useful tip that facilitates the application of the software.

**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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Technical support and product information

www.ipetronik.com

e-mail: support@ipetronik.com

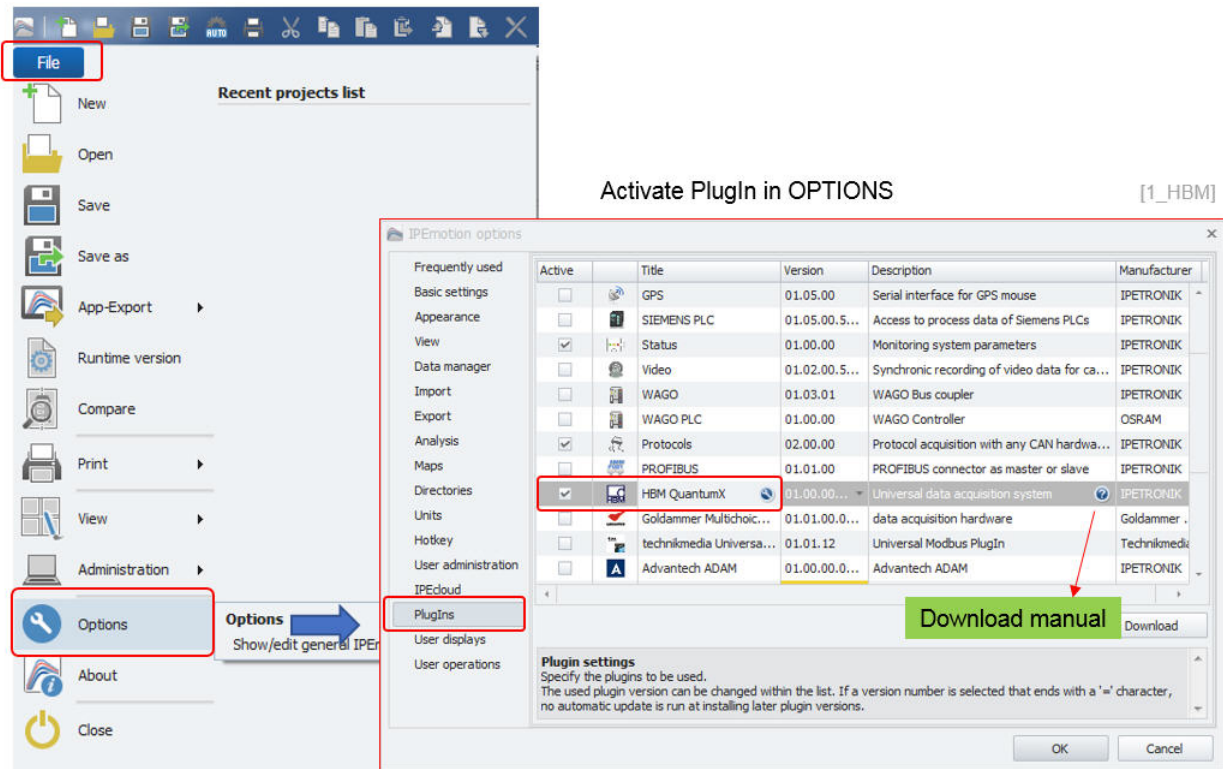
2 PlugIn overview

2.1 PlugIn description

With the HBM QuantumX PlugIn you can build your data acquisition application for MX840 device.

2.2 PlugIn installation

In order to use the PlugIn together with IPEmotion you need to install it. The PlugIn is available for download from the IPETRONIK website: <https://www.ipetronik.com/> When you have installed the PlugIn, you need to launch the IPEmotion software. Then you need to access the application menu and open the OPTIONS. In the OPTIONS you can activate the PlugIn as indicated below.



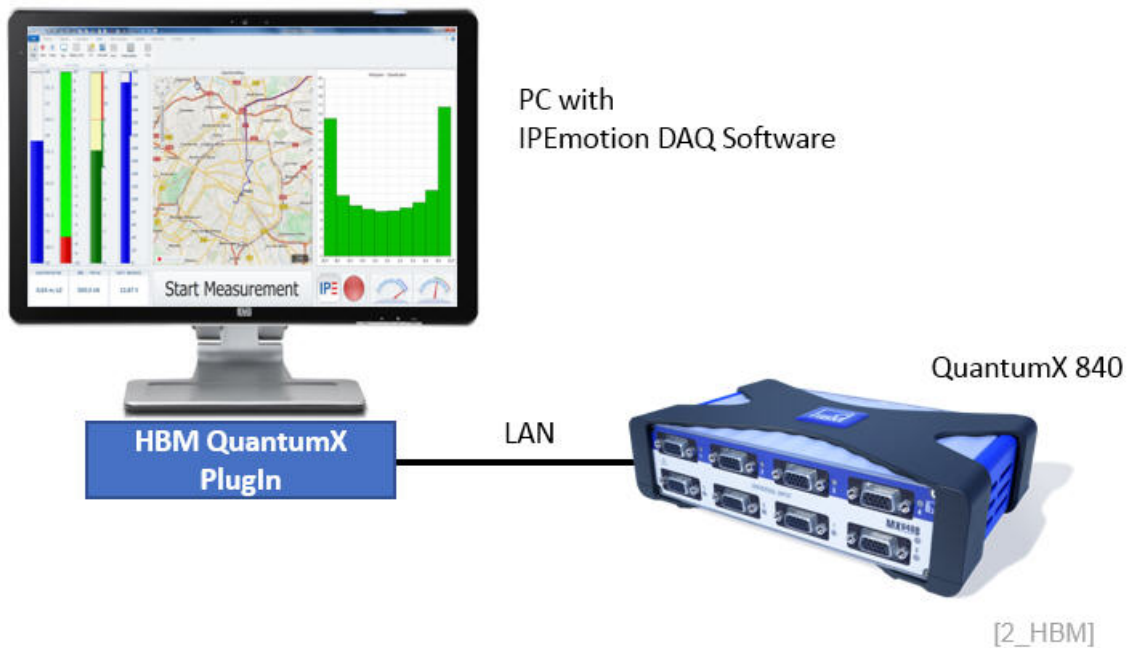
The PlugIn is supporting the following Windows operating systems:

- ▶ 32 bit

3 PlugIn configuration

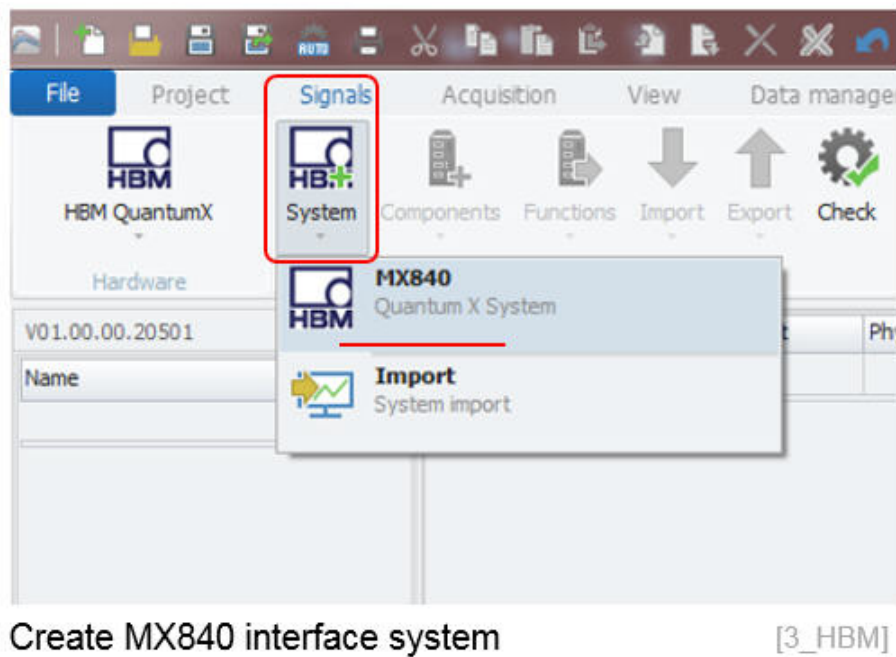
3.1 Functional architecture

To get started, you need to create an Ethernet connection between the HBM MX840 device and the PC.



3.2 Creating interface systems

The PlugIn is not supporting an automatic hardware detecting functions. Therefore you need to create the interface system manually.



3.2.1 Interface configuration

When the interface is created you need to enter the device serial number. After successful initialization of the device UUID, IP-address and port is displayed in the PlugIn.

The screenshot displays the software interface for configuring an HBM QuantumX system. The top menu bar includes File, Project, Signals, Acquisition, View, Data manager, Analysis, Reporting, Scripting, and Info. The main toolbar contains icons for Hardware (HBM QuantumX), Configuration (System, Components, Functions, Import, Export, Check, Adjust), Access (Detect, Initialize, Display), and View (Details).

The central panel shows a table of analog inputs:

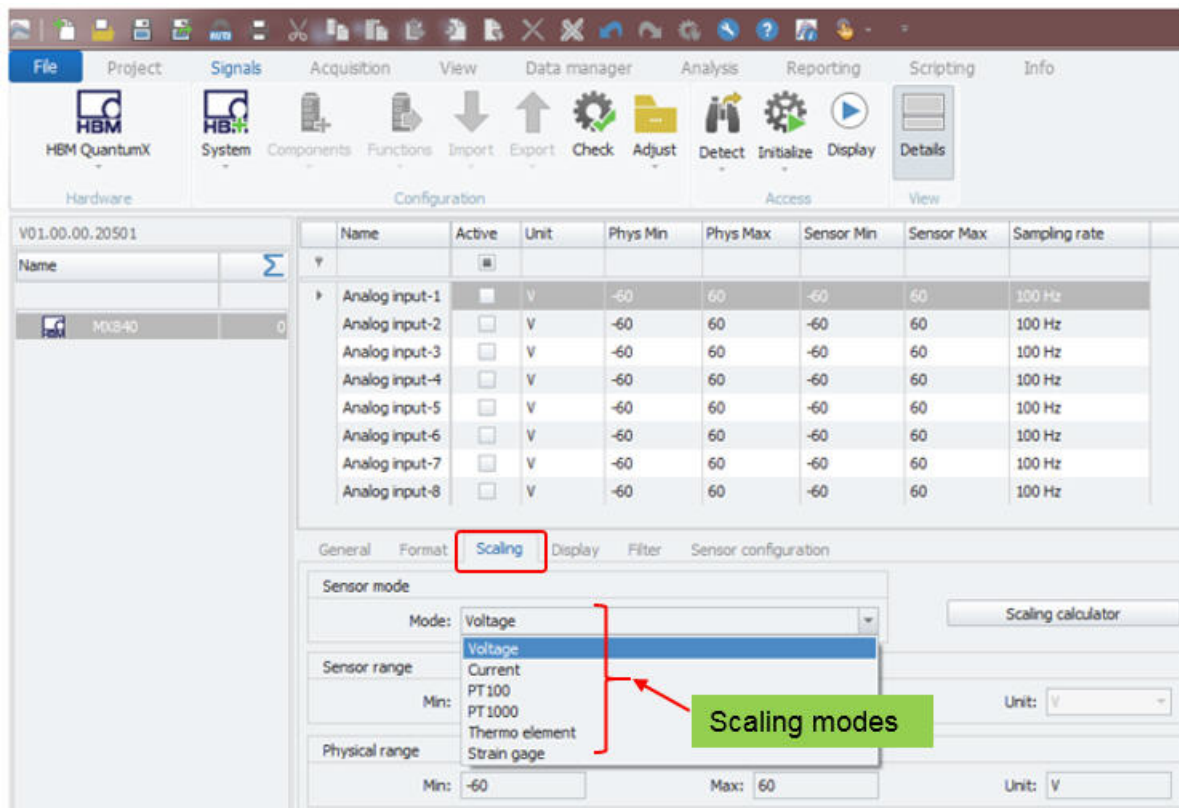
Name	Active	Unit	Phys Min	Phys Max	Sensor Min	Sensor Max	Sampling rate
▶ Analog input-1	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-2	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-3	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-4	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-5	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-6	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-7	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz
Analog input-8	<input type="checkbox"/>	V	-60	60	-60	60	100 Hz

Below the table, the 'General' tab is selected, and the 'Device - Connection' sub-tab is active. The 'Serial no:' field is highlighted with a red box, and a green callout box labeled 'Define SN number' points to it. Other fields include 'UUID: 0', 'IP address: unknown', and 'Port: 0'.

[4_HBM]

3.2.2 Channel configuration

The analog input of the MX840 provide several measurement modes. When you select a channel channel, you can change in the scaling tab sheet the measurement modes.



[5_HBM]

The following scaling modes are supported:

- ▶ Voltage
- ▶ Current
- ▶ PT100
- ▶ PT1000
- ▶ Thermocouple
- ▶ Strain gauge

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