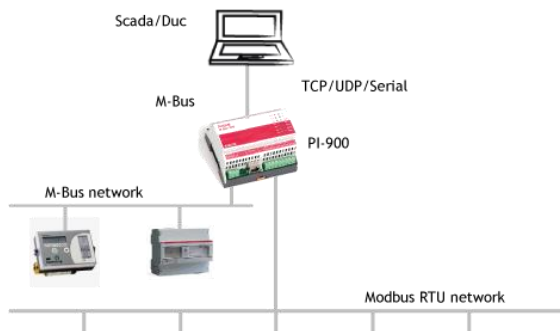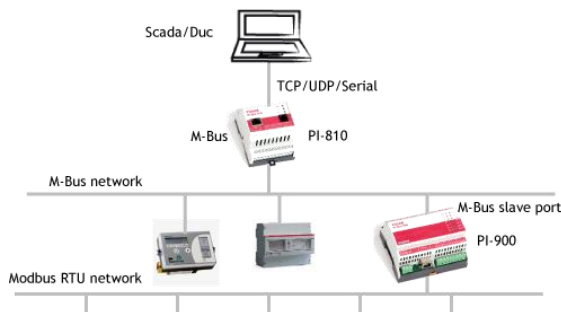# PiiGAB M-Bus 900S – Modbus to M-Bus

Read Modbus meters and M-Bus meters simultaneously

Extend the M-Bus network with Modbus

Features

- *Connect up to 32 Modbus units.*
- *Each Modbus unit acts like a virtual M-Bus meter.*
- *The possibility to write to the Modbus units via M-Bus.*
- *Use the manufacturer number on your Modbus unit as the secondary address in M-Bus.*
- *Supports both primary and secondary addressing via M-Bus.*
- *Verify contact with the Modbus slave via the M-Bus command SND_NKE.*
- *Save and import virtual meters as templates.*
- *Mix M-Bus and Modbus meters.*
- *Simplicity to change the order of the M-Bus objects.*
- *Works together with most M-Bus clients.*
- *Exporting the configuration to a text file for an easier configuration of the M-Bus client.*
- *Supports posting of Modbus and M-Bus data via QuickPost.*

The application Modbus2MBus for the PiiGAB M-Bus 900S gateway is developed to be able to communicate via M-Bus with for example meters, heat pumps, cooling units, PLC, distributed I/O units etc. that are using the Modbus protocol. The gateway works as a translator between the two protocols. This allows M-Bus based systems to communicate directly with Modbus units.

Description of PiiGAB M-Bus 900, Modbus2MBus

In order to connect the Modbus units to M-Bus you have to start the process from the Modbus units. The first step is to put in the address of your Modbus unit and then the M-Bus address, primary or secondary it should be connected to. The next step is to put in what Modbus register you want to read and that is when the first M-Bus object is created automatically. The system adds on at the pace you are configuring the Modbus registers that you wish to read out. It is also possible to complement your Modbus register with more advanced M-Bus properties, such as what text and kind of value it should have (VIB), as well as which tariff the value should belong to etc.

Communication structure

When the M-Bus client sends commands such as SND_NKE to an M-Bus meter, the meter responds with E5 when contact has been established. To keep the same structure with virtual M-Bus meters the SND_NKE question is forwarded to the Modbus slave. When this unit answers in a correct manner the PiiGAB M-Bus 900S forwards the answer as E5 to the M-Bus client. This means that you can always be sure that you have contact with the Modbus unit when receiving an E5 answer.
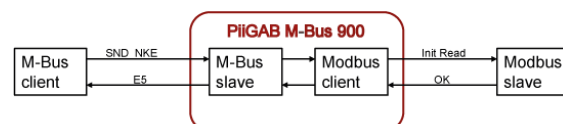
Communication settings

Configuration of the communication settings is done via the web interface. This is also where you set the option to use your PiiGAB M-Bus 900S to extend your M-Bus network with Modbus or if you wish to read M-Bus and Modbus simultaneously.
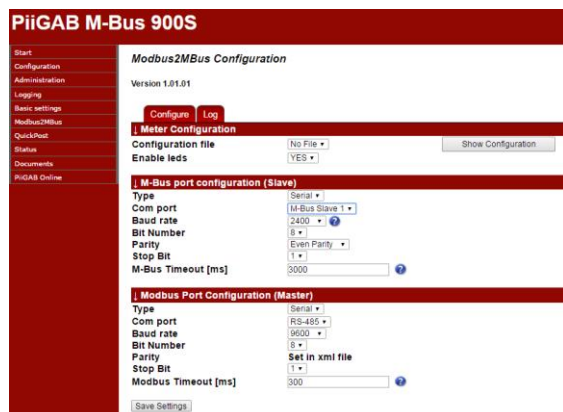
Configuration

The configuration of the virtual M-Bus meters is made via the graphical interface PiiGAB Modbus2MBus Config. This is where you will assign which primary or secondary address you want your M-Bus meter to have and to which Modbus address it shall be connected to.

The M-Bus object for the virtual M-Bus meter is connected to your specified Modbus registers. You also have to put in which data type the Modbus registers are made for. This data type will be mirrored to the data type in respective M-Bus objects.
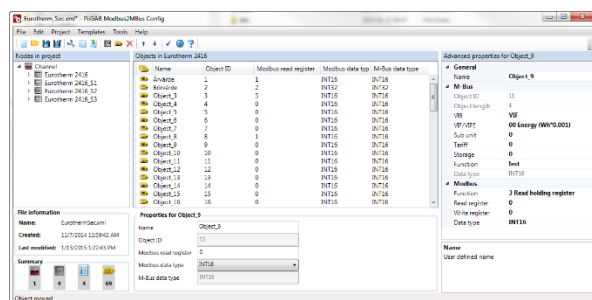

Templates

It is possible to save your configured Modbus meters as templates to later reuse them in other projects. The templates contain all necessary connections and properties belonging both to the Modbus slave and the virtual M-Bus meter

File format

The configuration file created via the configuration tool and uploaded to the PiiGAB M-Bus 900S is in xml format.

Verifying the configuring

To secure that your configuration doesn't contain any errors before you upload it to the PiiGAB M-Bus 900S you have the possibility to verify that you have no errors or warnings. Typical errors might be if the length of the telegram exceeds the M-Bus standard or that the Modbus registers overlap each other.
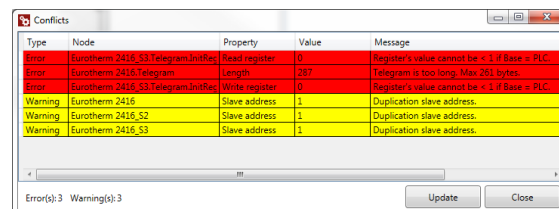
Technical specifications

M-Bus

- **Addressing:** Primary and – secondary addressing
- **Data types:** Int16, Int32, Float. Mirrored automatically from Modbus data type.
- **Header attributes:** Identification number, Version and Medium/Device type can be configured for each individual meter. The manufacturer is hard coded to PII.
- **Object attributes:** Vib, SubUnit, Tariff, Storage and Function can be configured individually for each object.

Modbus

- **Communication method:** Modbus RTU
- **Communication settings:** The parity can be set individually for each Modbus slave.
- **Maximal amount of slaves:** 32
- **Function codes:** 3 Read Holding Register
  4 Read Input Register
  16 Write multiple register
- **Data types:** Int16, UInt16, Int32, UInt32, Float
- **Parameters:** FloatMode, Int reverse
- **Address base:** Choice between Protocol and PLC (J-Bus/Modbus)

Order information:

Order number	Description
PI-900S/Mod2MBus	Modbus to M-Bus Maximum 32 Modbus units
PI-900S_0-Mo2MBus	Upgrading Modbus to M-Bus

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