M-Bus converter function

The converters are used for gathering data from heat, water, gas, electric and other types of utility meters with the industrial M-Bus interface. The communication with the meters utilizes the M-Bus protocol. All modern SCADA systems support this protocol and the converter is suitable for use in these systems.

But today there is lot of new smart applications being deployed where there is a need to process data from various types of systems. The converter has a *Smart M-Bus application mode* for a very easy and fast integration of M-Bus meter data into these types of systems. In this mode, the converter communicates independently with the M-Bus meters and offers the collected data in various forms suitable for further automated processing.

Smart M-Bus application

Converter mode suitable for smart meter data collection. The converter collects the data from connected M-Bus meters to its internal memory.

Values from M-Bus meters are accessible trough several options all of which are available simultaneously:

1. **M-Bus protocol over TCP/IP or UDP connection.**
   Standard communication for SCADA systems.

2. **Web page with M-Bus data in a table.**
   Simple view of values from meters in a web browser.

3. **XML, XML (REST) or CSV export.**
   Allows a simple import of processed M-Bus data into various applications (Java JAX-RS, Excel, etc.)

4. **Periodic e-mailing with meter values attached in a file.**
   An option to automatically process data with a server side application on an SMTP server.
   Sending data for archiving and post processing.

The converter can also provide e-mail error reports concerning the converter's operation.
It can also provide logging of the M-Bus, TCP/IP, UDP communication, user and other activities of the converter.
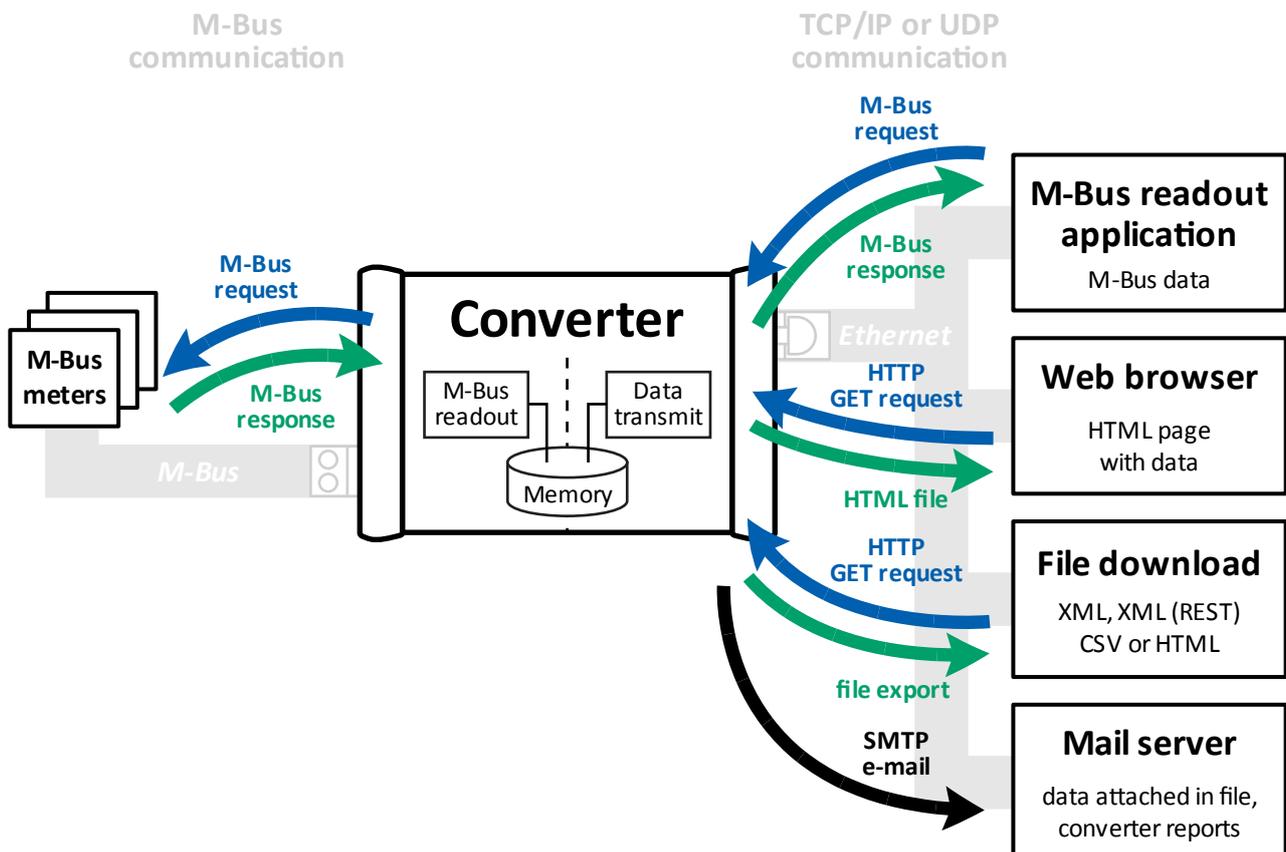
M-Bus protocol over TCP/IP or UDP connection

The converter acts like virtual M-Bus meters. The communication works in form of normal M-Bus requests with primary addresses and responses. A readout application is required to read the values from the converter.
The values are sent from memory and the communication is instantaneous. The readout of multiple meters is significantly faster. The readout application doesn't waste time with waiting for responses.

Applications:

- M-Bus data acquisition over Ethernet network

Web page with M-Bus data in a table

Features:

Meter data can be viewed directly without the need for any other software. The converter can generate a HTML page with the M-Bus meter readout values in a table. The page is constantly refreshed to show the current data. This page is available in two ways:

- Web page in the Web Interface.
- Standalone HTML page without the Web Interface.

This page also shows the communication status, type and serial number of the attached meters.
Access to this page can be safeguarded by a password.
This entire feature can be turned on or off in the configuration.

Applications:

- Direct view of the current meter status and values readout in the Web Interface

- The standalone HTML page can be integrated into a website or into HMI (Human Machine Interface) of the SCADA system.
  Simultaneous page request are supported and the page can be served to multiple end points.

- The HTML page can be parsed and used as an input for further software processing

Example of the M-Bus table in the Web Interface.

XML, XML (REST) or CSV export

Features:

All gathered meter values can be exported as a standard CSV comma delimited spreadsheet file, XML or XML REST compatible file. REST stands for Representational State Transfer. An XML file in this format provides an easy and direct option to import data into any modern REST technology based architecture.

The exports also contain identification information about the converter, the communication status of the meters, their type and serial number.

This entire feature can be turned on or off in the configuration.

- CSV exports are suitable for manual or automated processing in office suite spreadsheet applications.
- The XML format is more suited for processing in programs created in modern programing languages. Libraries and functions for XML parsing are readily available in such environments and further manipulation with the data is then much easier. The XML REST format is compatible with the JAX-RS: Java API for RESTful Web Services.

Periodic e-mailing with attached meter data

Features:

The converter can send periodically in set time intervals e-mail messages containing identification information about the converter and a selected type of export with current meter data. The e-mail messages can be sent to two e-mail addresses. The e-mail server must be of SMTP type.

Applications:

- Simple archiving of meter data for post processing or data verification if needed.
- Possibility to create a server side application with an SMTP server for automated data processing - cloud solution.

Simple TCP/IP or UDP to M-Bus converter

In this mode the converter works as a simple Ethernet to serial converter. It is a transparent gateway. The transfer of M-Bus messages occurs without a change to their content. Messages are transmitted using the TCP or UDP protocol. Computer applications that do not have a TCP/IP interface can use a virtual serial COM port application for communication.

TCP/IP to M-Bus converter mode
TCP packets are used to transport the serial data trough Ethernet.

This mode offers two types of connection:

- TCP/IP active connection mode
  Converter works as a host. It is connecting to the a remote server.
  Addition features:
  - Connect to web address (DNS functionality)
  - Backup IP address for connection
- TCP/IP passive connection mode
  Converter works as a server. It awaits connection on its source port.

UDP to M-Bus converter
UDP packets are used to transport the serial data trough Ethernet.
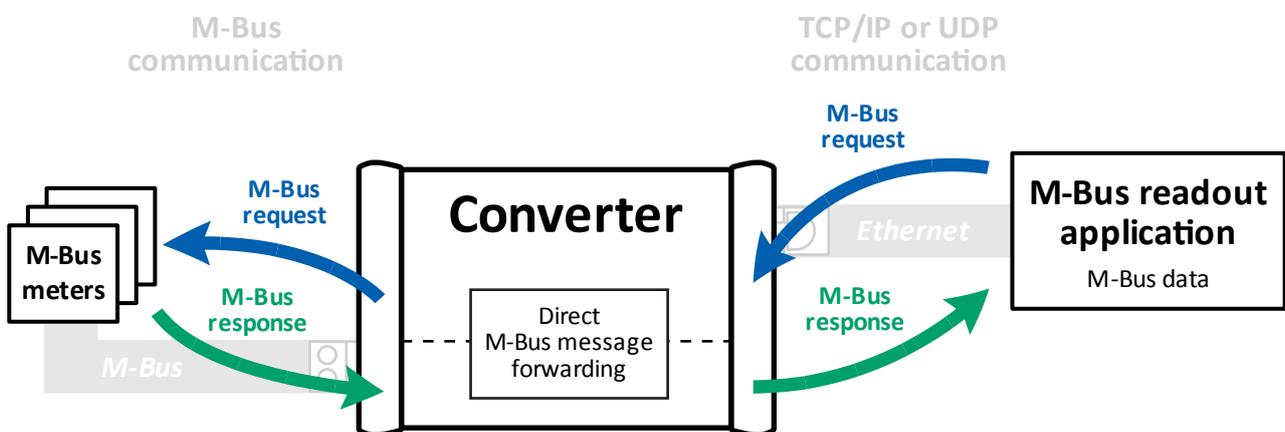
Converter configuration

The converter can be configured by two methods

- Telnet
- Web Interface

Access to both, the Telnet and Web Interface can be safeguarded by a password. Each type of configuration can also be turned off completely.
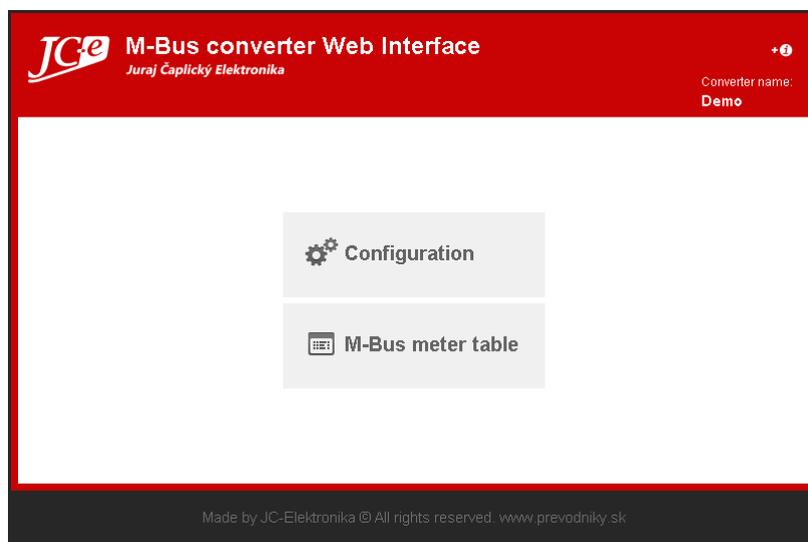
Telnet Setup

The full details on available settings are described in the *Telnet menu for Ethernet to M-Bus converters* manual.

Web Interface

The Web Interface has been engineered with a high level of browser compatibility and thus should work on all varieties of web browsers.

The *Web Interface for Ethernet to M-Bus converters* manual describes the Web Interface settings in detail.

Start page of the Web Interface.