

Web Interface for Ethernet to M-Bus SMART converters

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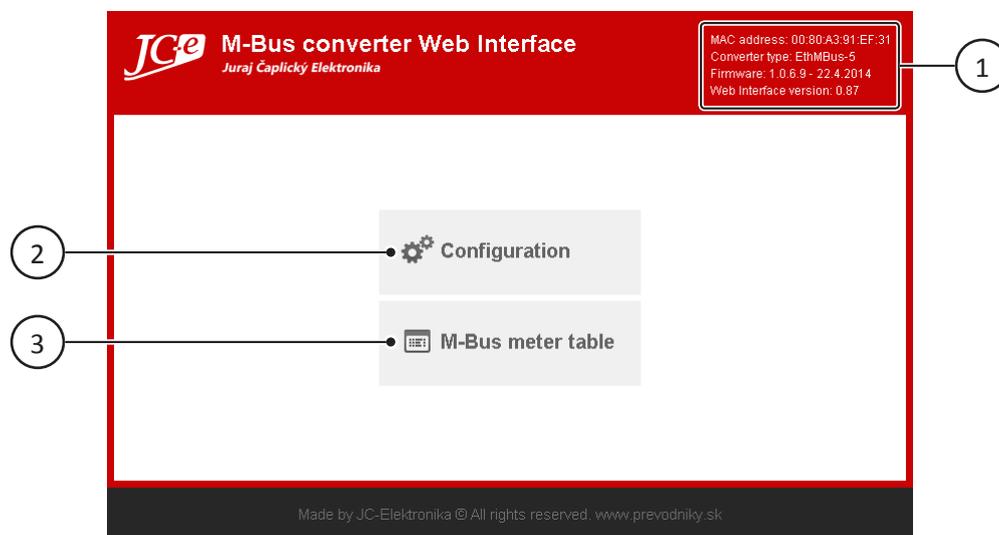
Web Interface

The Web Interface allows setting the converter parameters and provides information about its status. It also provides access to the M-Bus meter data.

To open the Web Interface type the IP address of the converter into the address bar of a web browser. The IP address of the converter depends on the configuration. A static IP address 169.254.100.10 is configured as default. A different factory preset may be provided when ordered.

The Web Interface works on all web browsers such as Mozilla Firefox, Internet Explorer, Opera or Safari. It has been engineered with high level of browser compatibility and thus should work on personal computer as well as smartphone, tablet or netbook varieties of web browsers.

Start page



Start page of the Web Interface.

1 - Header information area

Displays the converter name. This can be set on the *Ethernet configuration* page under Converter name. Hover the mouse cursor over this area to reveal the following additional information:

- MAC address of the converter
- Converter type / model
- Firmware version
- Web Interface version

2 - Configuration button

Opens converter Configuration.

3 - M-Bus meter table button

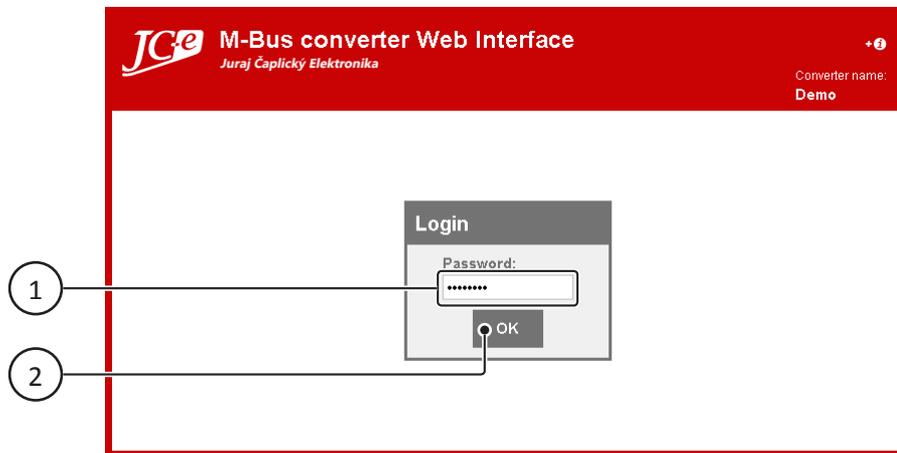
Opens the M-Bus table which lists all set up M-Bus meters.

It is available only when the converter works in the Smart M-Bus application mode and access to this table must be enabled in the configuration under Allow M-Bus table export.

Login

A login page will be shown after pressing the *Configuration* or *M-Bus meter table* button if a password has been set in the configuration. Enter the password into the password field (1) and login by clicking the *OK* button (2) or pressing the *Enter* key in the password field.

The login screen will not appear if no password is configured. The user will be logged in automatically.

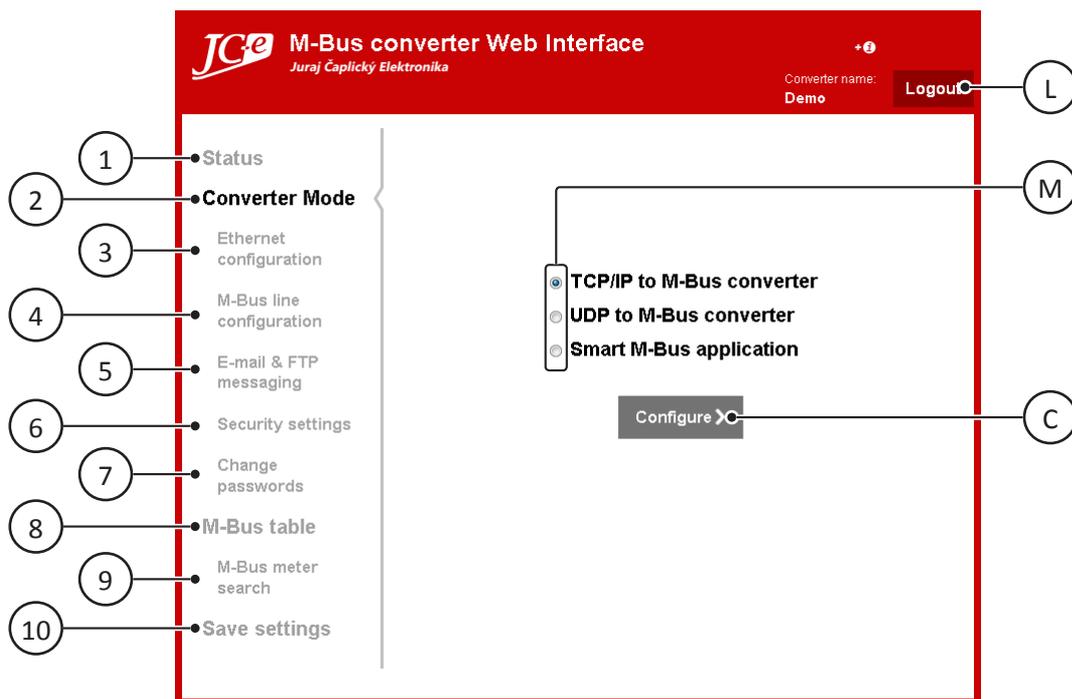


Login page.

Note 1: Up to 5 users can be logged in simultaneously to the Web Interface. Further login requests over the limit will result in an error message.

Note 2: An automatic logout will be performed after 30 minutes of user inactivity.

Configuration



Initial configuration screen.

1 - Status

Summary information about the current converter state.

2 - Converter mode

Converter's mode of operation. There are three modes in which the converter can work. Each has its own settings accessible through the Configure button (C)

3 - Ethernet configuration.

Settings of IP address, net mask, Ethernet related functions, etc.

4 - M-Bus line configuration

Serial settings of the M-Bus line. Settings of speed, parity, etc.

5 - E-mail configuration

E-mail notification settings.

6 - Security settings

Enable / disable converter features concerning the safety of the converter and the data.

7 - Change passwords

Set or clear passwords for Web Interface and Telnet access.

8 - M-Bus table

Table with the M-Bus meter data. Only available in Smart M-Bus application mode.

9 - M-Bus meter search

Search for attached M-Bus meters addresses. Only available in Smart M-Bus application mode.

10 - Save settings

Save changes in the configuration. Converter will restart with new settings.

L - Logout button

Logout from the configuration or M-Bus meter page. Leads back to the [Start page](#) after logout.

M - Current converter mode

Shows current converter mode. Mode can be changed by choosing one of the options.

C - Configure button

Opens mode configuration screen. Settings depend on the selected mode.

Status

Summary information about the current converter state. The following information is listed:

- Converter type. Hardware type of the M-Bus converter.
- Firmware version.
- Converter name. This can be set on the *Ethernet configuration* page under [Converter name](#).
- IP address of the converter. If the converter is set up with a dynamic IP it shows the obtained IP address.
- MAC address of the converter.
- M-Bus line speed.
- M-Bus line configuration. M-Bus data format bit setting, see [M-Bus line settings](#) for details.
- Converter mode: TCP/IP, UDP to M-Bus converter or Smart M-Bus application. In case of TCP/IP to M-Bus converter mode also connection type: active or passive.
- DNS host name if enabled
- Backup destination IP addresses and ports if enabled

The screenshot shows the 'M-Bus converter Web Interface' with the 'Status' page selected. The interface is divided into a left sidebar with navigation options and a main content area displaying converter details.

Navigation Menu (Left Sidebar):

- Status
- Converter Mode
- Ethernet configuration
- M-Bus line configuration
- E-mail & FTP messaging
- Security settings
- Change passwords
- M-Bus table
- M-Bus meter search
- Save settings

Main Content Area:

Converter information

Converter type:	EthMbus-5
Firmware version:	1.0.6.9

Network settings

Converter name:	Demo
IP Address:	192.168.159.63
MAC address:	00:80:A3:91:EF:31

M-Bus settings

M-Bus line speed:	2400
M-Bus line configuration:	7C

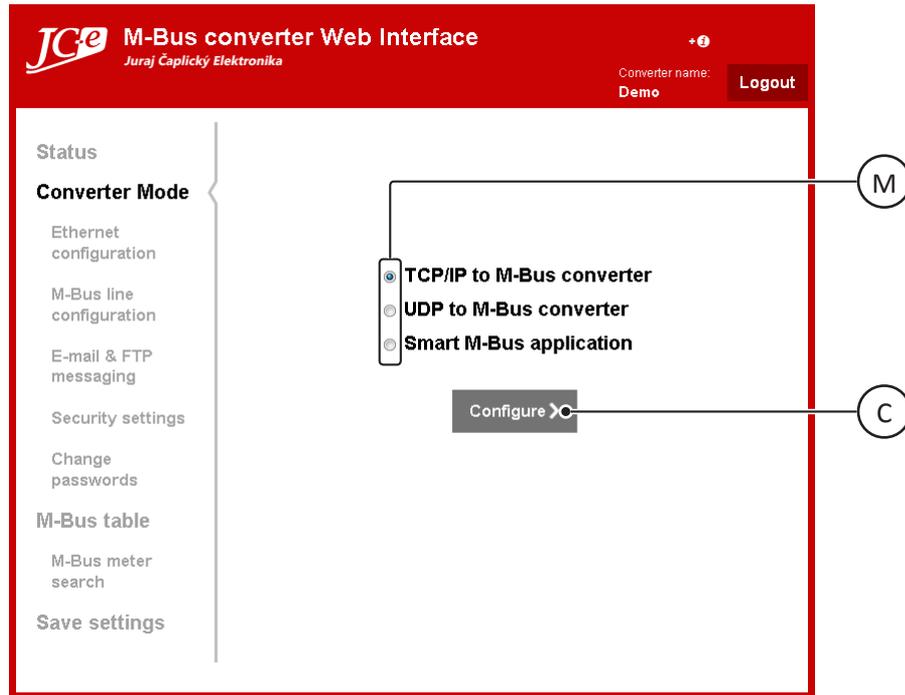
Converter information

Converter mode:	TCP/IP to M-Bus converter - Active connection
DNS, Host name	www.prevodniky.sk
Backup destination IP	192.168.159.75
Destination Port	10001

At the top right of the interface, the 'Converter name' is 'Demo' and there is a 'Logout' button.

Converter mode

Converter's mode of operation.



Modes overview

TCP/IP to M-Bus converter

In this mode the converter works as a simple Ethernet to serial converter. It uses TCP packets to transport serial data through Ethernet. The converter can be set to work as a server or a host (client).

Note: TCP connection is more reliable than an UDP connection.

UDP to M-Bus converter

In this mode the converter works as a simple Ethernet to serial converter. It uses UDP packets to transport serial data through Ethernet.

Smart M-Bus application

In this mode the converter works as an M-Bus server. It is collecting data from connected M-Bus meters to its internal memory. The M-Bus values are then accessible through several options:

- M-Bus protocol over TCP/IP or UDP connection
- Web page with the M-Bus data in a table
- XML export
- CSV export

Configuring a mode

The current mode of the converter is indicated by the selected optionbox (M).

To change the mode, choose one of the options and press the *Configure* button (C).

To configure the current mode just press the *Configure* button (C).

The mode or the new configuration is set by pressing the *Apply settings* button on the following *Mode configuration* page.

TCP/IP to M-Bus converter

Converter works as a simple Ethernet TCP/IP to serial M-Bus converter.

It can operate in two modes:

- TCP/IP active connection mode
- TCP/IP passive connection mode

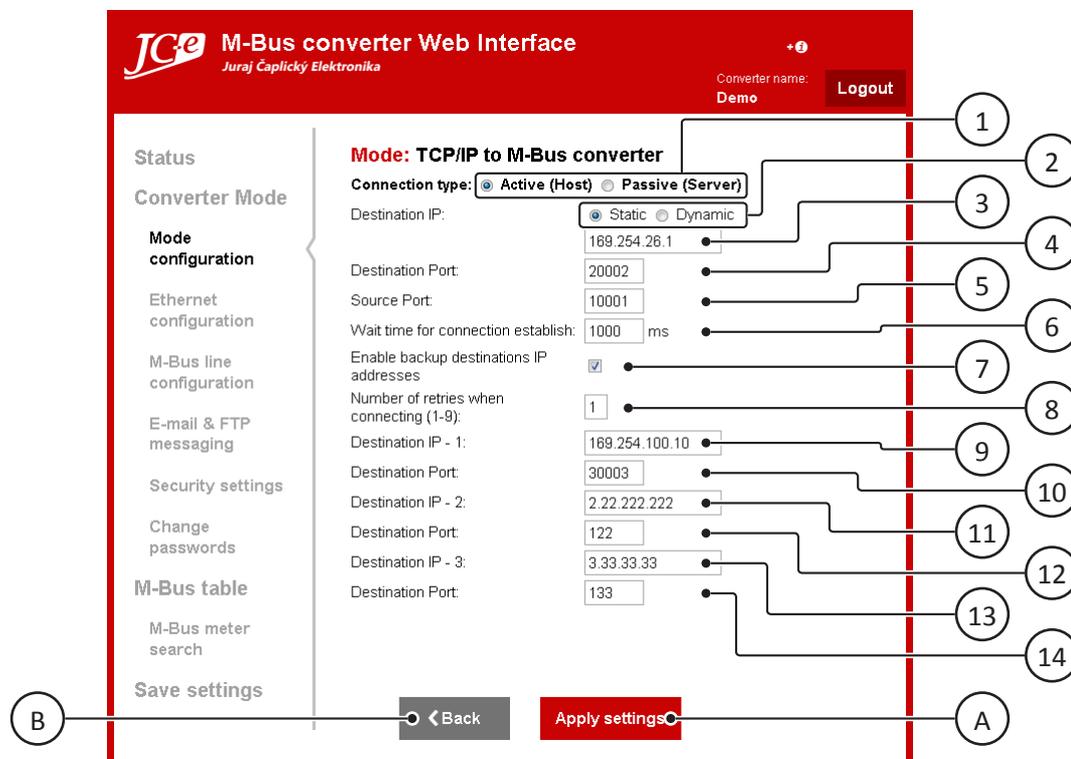
TCP/IP active connection mode

Converter works as a host. It is connecting to the server IP address + port.

The destination address can be defined as a static IP number or it can be a web address. DNS is used to resolve the destination IP from the web address.

The destination IP address can use three additional destination IP address and port backups.

These will be used in succession if a connection cannot be established.



Mode configuration page for TCP/IP to M-Bus converter.

1 - Connection type: [x*] Active (Host) [x*] Passive (Server)

Select the *Active (Host)* connection mode option.

2 - Destination IP: [x*] Static [x*] Dynamic

Static - destination IP address with a static IP number.

Dynamic - destination IP address via a host name.

3 - Destination IP: x*

For Static IP address only. Enter four numbers in a 0 - 255 range separated by dots without a dot at the end.

4 - Destination Port: x*

Enter the number of the destination port. Port of the server.

5 - Source Port: x^*

Enter the number of the source port. Port of the converter.

6 - Wait time for connection establish: x^* ms

Enter a number in a 0 - 65535 range.

The maximum amount of time to wait for establishing a connection. Connection status is checked approximately every 100 ms. If no connection is established within the wait time, the next connection attempt is made. The amount of attempts is set under *Number of retries when connecting*.

7 - Enable backup destinations IP addresses [x^*]

Check the checkbox if you want to enable backup destination addresses.

If not enabled only one destination address will be used.

8 - Number of retries when connecting (1-9): x^*

Enter number of retries to connect to the destination server if the connection fails.

If 0 is entered, only the initial connection attempt will be made without a retry. The maximum amount of retries is 9.

9, 11, 13 - Destination IP - $s^* : x^*$

Backup destination address. The converter will use these backup addresses if the connection to the default IP address wasn't successful. The use of the backup addresses must be enabled under *Enable backup destinations IP addresses [x^*]*.

Enter four numbers in a 0 - 255 range separated by dots without a dot at the end.

If you don't want to use a backup address enter "0.0.0.0" (without quotes). These addresses will be skipped. Connection attempts will be made in sequential order from address 1 to 3.

Note: s^* - sequence number of the backup IP address. There are three backup IP addresses available.

10, 12, 14 - Destination Port:

Enter the number of the destination port for the backup destination IP address.

B - Back button

Returns back to the *Converter mode* page.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the *Save settings* page after all desired changes have been applied.

Dynamic destination IP

In case *Destination IP: Dynamic* has been selected the *Destination IP* input field (3) will be replaced by two input fields: *Host name* (15) and *Backup destination IP* (16). The rest of the settings will remain identical to static destination IP mode.

15 - Host name (max. 29 char) *x**

Enter a web address (URL) for the destination server (e.g. www.yourwebsite.com). Maximum length of the Host name is 29 characters.

16 - Backup destination IP: *x**

Enter four numbers in a 0 - 255 range separated by dots without a dot at the end. This address is used when the DNS resolution of the host name fails.

Note: *x** - current value or state loaded from the converter.

TCP/IP passive connection mode

Converter works as a server. It awaits connection on its source port.

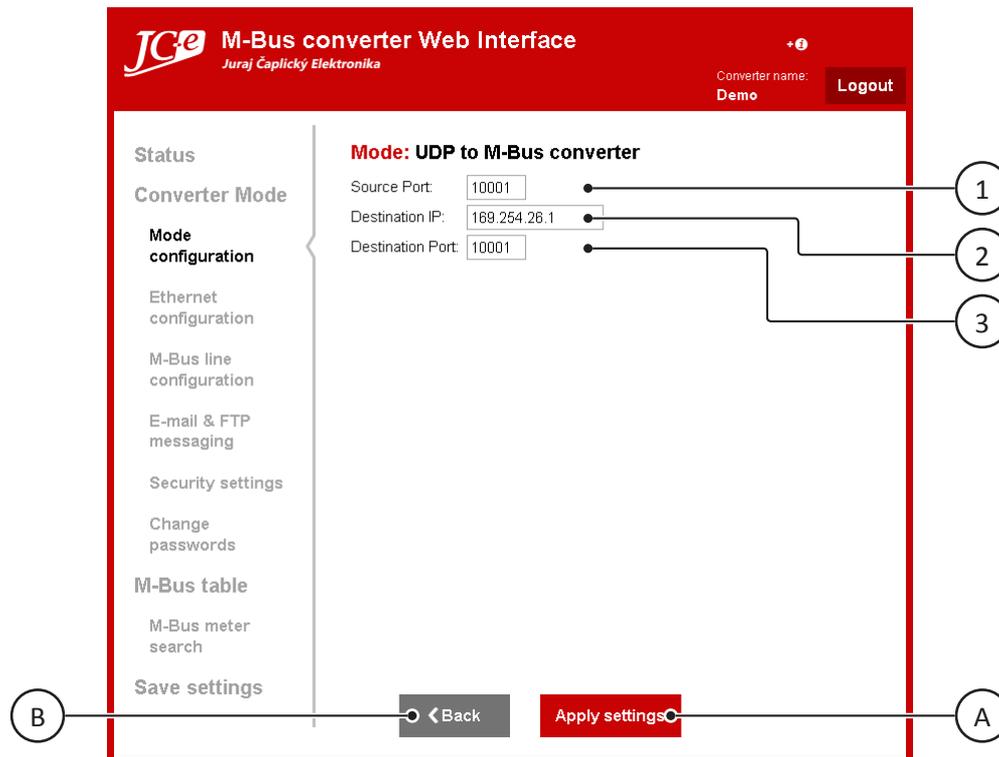
17 - Source Port: *x**

Enter the number of the source port. Source port of the converter on which to await a connection.

Note: *x** - current value or state loaded from the converter.

UDP to M-Bus converter

Converter works as a simple Ethernet UDP to serial M-Bus converter.



Mode configuration page for UDP to M-Bus converter.

1 - Source Port: x^*

Enter the number of the source port. Port of the converter.

2 - Destination IP: x^*

Destination IP address. Enter four numbers in a 0 - 255 range separated by dots without a dot at the end.

3 - Destination Port: x^*

Enter the number of the destination port.

Entering 0 will allow multiple IP addresses to send UDP requests to the converter. The *Destination IP* setting will be ignored. Requests from all IP addresses and port numbers will be accepted.

B - Back button

Returns back to the *Converter mode* page.

A - Apply settings button

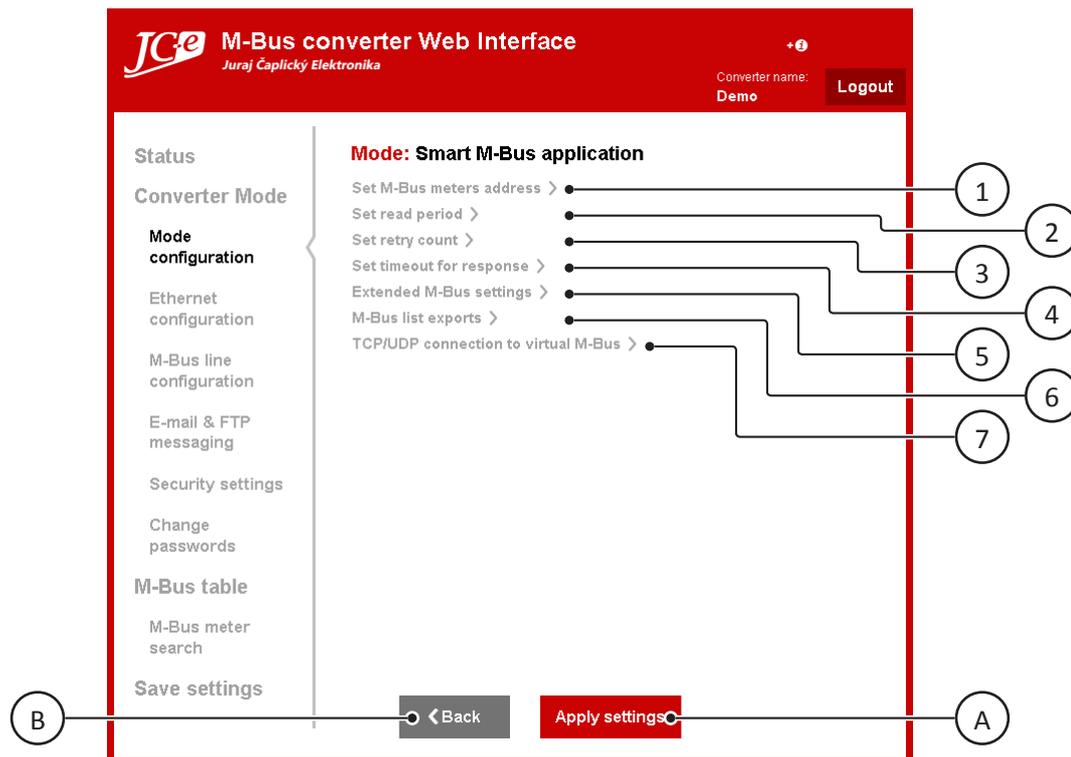
Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the *Save settings* page after all desired changes have been applied.

Note: x^* - current value or state loaded from the converter.

Smart M-Bus application

Converter works as an M-Bus data server. The converter reads and stores the data from the connected M-Bus meters. This data can be:

- Viewed in a table on a web page, directly in the Web Interface or on a standalone HTML page.
- Downloaded as a CSV or XML export, URL links to the exports are also directly accessible which makes them suitable for further software processing.
- Received as an M-Bus respond. Converter acts like virtual M-Bus meters.



Mode configuration page for Smart M-Bus application.

1 - Set M-Bus meters address

Submenu for setting the M-Bus slave addresses.

2 - Set read period

Submenu for setting readout periods of the M-Bus slave meters.

3 - Set retry count

Submenu for setting the retry count for repeating the M-Bus reads if they fail.

4 - Set timeout for response

Submenu for setting the maximum wait time for receiving an M-Bus response.

5 - Extended M-Bus settings

Submenu for setting extended M-Bus parameters for each M-Bus meter.

6 - M-Bus list exports

Submenu for enabling / disabling meter data exports.

7 - TCP/UDP connection to virtual M-Bus

The converter can also work as a set of virtual M-Bus meters connected to the TCP or UDP port.

Enabling this functionality is done in this submenu. It also leads to the configuration of the TCP/UDP connection to the virtual M-Bus.

B - Back button

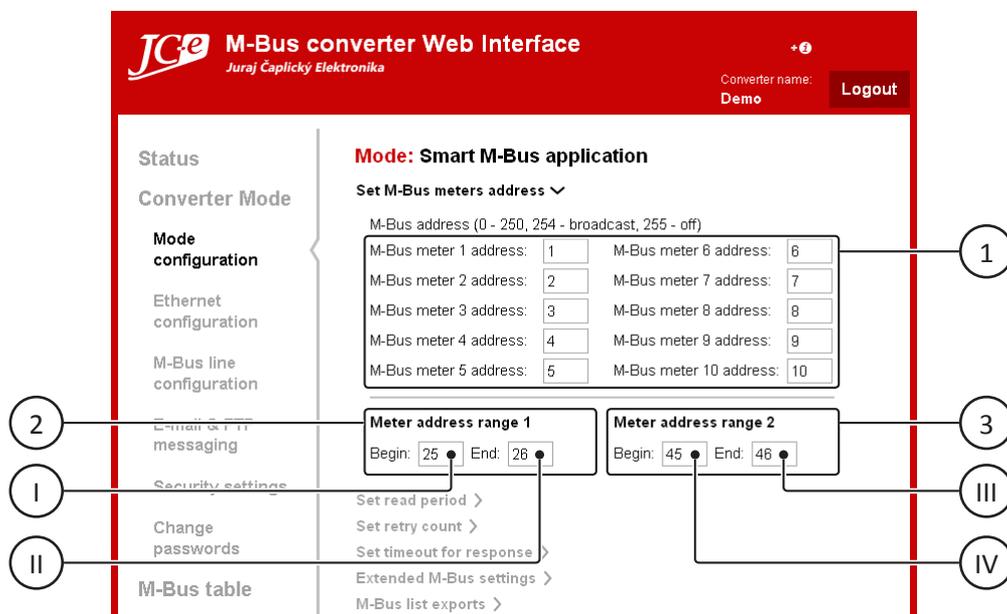
Returns back to the *Converter mode* page.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the *Save settings* page after all desired changes have been applied.

Set M-Bus meters address

Set primary M-Bus addresses of all meters.



1 - Set M-Bus meter m^* address: x^*

Set primary address for M-Bus slave meter number m^* .

Valid range of the addresses is from 0 to 250.

Meter with an address value of 255 is switched off. The converter will not use a meter with this address.

Address 254 is broadcast. Meters on all addresses respond to this request. This settings is useful only if one meter is connected to the converter.

2, 3 - Meter address range r^*

This feature is available only with converters which support 10 or more meters.

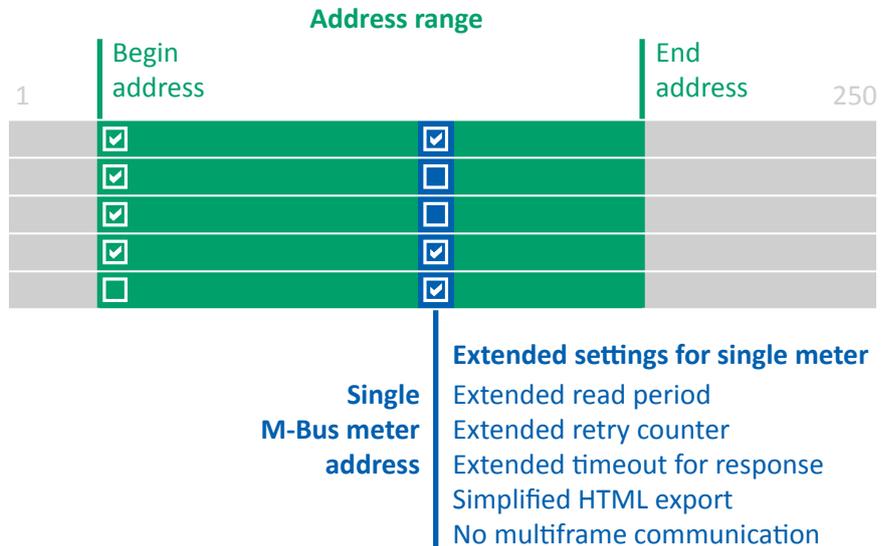
Sets a range of primary M-Bus meter addresses to be used. The address range begins with the *Begin* address number and is incremented by 1 for each meter until the *End* address number. The *Begin* number and the *End* number is included in the range. Two ranges can be set up. Each range has common extended settings applying to all the addresses in the range.

It is possible to create extended settings overrides for single addresses or address exclusions in the address range by defining single M-Bus meter addresses with the *Set M-Bus meter m^* address* items which are set within the address ranges. Extended settings for such single meter addresses can be used to create extended settings overrides or exclusion of the address number from the range see *Disable this address in range*. Multiple overrides can be defined using the single M-Bus meter addresses.

The following picture demonstrates the principle.

Extended settings for Address range

Extended read period
 Extended retry counter
 Extended timeout for response
 Simplified HTML export
 No multiframe communication



I, IV - Begin: x^*

Beginning address of the incremental address range. This address will also be included in the range. Valid address number can range from 0 to 250. Value should not exceed the *End* address. Value of 255 will turn off the given range.

II, III - End: x^*

Last address of the incremental address range. This address will also be included in the range. Valid address number can range from 0 to 250. Value should not be lower than the *Begin* address. Value of 255 will turn off the given range.

Note: m^* - meter number. Converter models supporting only four M-Bus meters will show only four input fields.

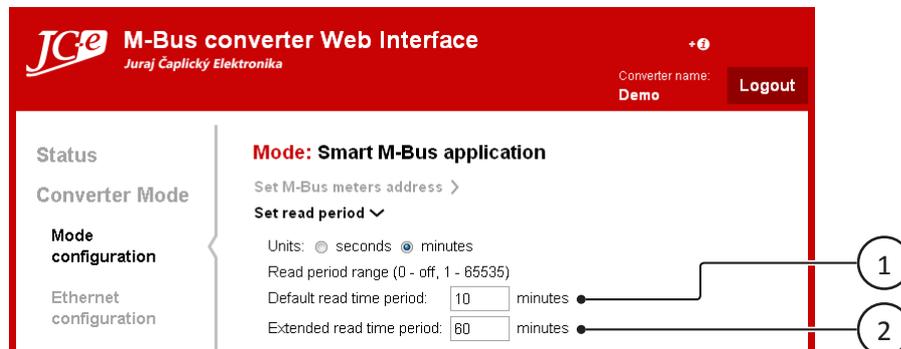
r^* - address range number.

x^* - current value or state loaded from the converter. No meter addresses are configured initially and the fields are empty.

Set read period

Set two read time periods for the read cycle of the M-Bus meters. Setting at which one of these time-outs will the meters be read can be done in the *Extended M-Bus settings* menu.

The time-out range is 1 to 65535 seconds (max. 18 hours).



1 - Default read period: x^* seconds

Enter the default read period. The meters will be read periodically in this time interval. Each read consists of a sequential readout of all meters which use this read period. If the total time of all meter readouts is longer than the read period, the next read will start after all meter readouts are finished. The first read starts immediately after power up or reset of the converter.

2 - Extended read period: x^* seconds

Enter extended read period. The meters will be read periodically in this time interval. Each read consists of a sequential readout of all meters which use this read period. If the total time of all meter readouts is longer than the read period, the next read will start after all meter readouts are finished. The first read starts immediately after power up or reset of the converter.

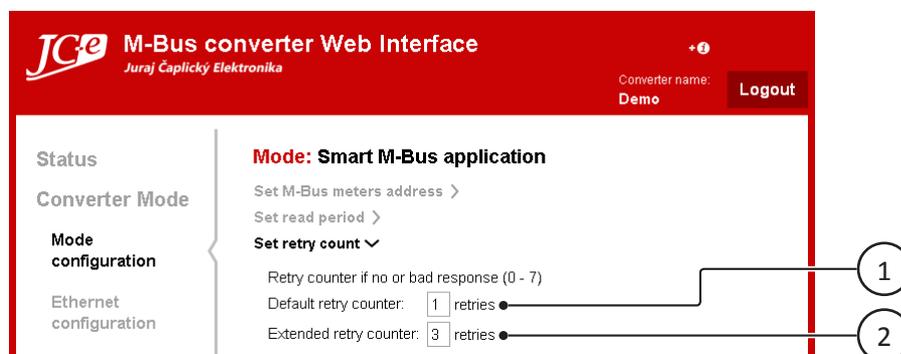
Note 1: x^* - current value or state loaded from the converter.

Note 2: Each meter can use either the default or the extended read period. Which one will be used depends on the *Extended M-Bus settings*.

Set retry count

Set the retry count for repeating the M-Bus read after no response or bad response is received.

Retry range is from 0 to 7. Zero means no repeating after no or bad response.



1 - Default retry count: x^* retries

Enter default retry count.

2 - Extended retry count: x^* retries

Enter extended retry count.

Note 1: x^* - current value or state loaded from the converter.

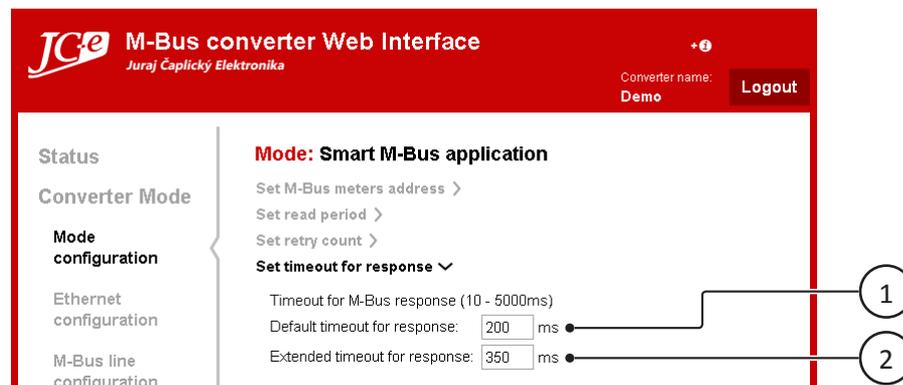
Note 2: Each meter can use either the default or the extended retry count. Which one will be used depends on the Extended M-Bus settings.

Set timeout for response

Maximum wait time for an M-Bus response. The reception of an M-Bus response is terminated if no data is received within this time. The valid range is between 10 - 5000 milliseconds.

M-Bus message reception will not be possible if this value is shorter than the response time. The response time means the time needed by an M-Bus meter to start a response.

After some data is received the timeout for response value is divided by two. This value is then used as the timeout for the end of the M-Bus response. If this divided value is smaller than 200 ms then 200 ms is used instead. Any further delays in the M-Bus response time must be shorter than this value.

**1 - Default timeout for response: x^* ms**

Enter default wait time for an M-Bus response.

2 - Extended timeout for response: x^* ms

Enter extended wait time for an M-Bus response.

Note 1: x^* - current value or state loaded from the converter.

Note 2: Each meter can use either the default or the extended timeout for response. Which one will be used depends on the Extended M-Bus settings.

Extended M-Bus settings

Set extended parameters for individual M-Bus meters.

The screenshot shows the 'M-Bus converter Web Interface' with the following sections:

- Status**
- Converter Mode**
 - Mode configuration
 - Ethernet configuration
 - M-Bus line configuration
 - E-mail & FTP messaging
 - Security settings
 - Change passwords
- M-Bus table**
 - M-Bus meter search
- Save settings**

Mode: Smart M-Bus application

- Set M-Bus meters address >
- Set read period >
- Set retry count >
- Set timeout for response >
- Extended M-Bus settings**
 - M-Bus meter**

	1	2	3	4	5	6	7	8	9	10
Extended read period	<input type="checkbox"/>									
Extended retry counter	<input type="checkbox"/>									
Extended timeout for response	<input type="checkbox"/>									
Simplified HTML export	<input type="checkbox"/>									
No multiframe communication	<input type="checkbox"/>									
Disable this address in range	<input type="checkbox"/>									
 - Meter address ranges**

	range 1	range 2
Extended read period	<input type="checkbox"/>	<input type="checkbox"/>
Extended retry counter	<input type="checkbox"/>	<input type="checkbox"/>
Extended timeout for response	<input type="checkbox"/>	<input type="checkbox"/>
Simplified HTML export	<input type="checkbox"/>	<input type="checkbox"/>
No multiframe communication	<input type="checkbox"/>	<input type="checkbox"/>
- M-Bus list exports >
- TCP/UDP connection to virtual M-Bus >

Buttons: < Back, Apply settings

Diagram labels: 1, I, II, III, IV, V, VI, 2, VII, VIII, IX, X, XI

1 - M-Bus meter m^* :

Extended settings for meter number m^* . Meters are divided into columns. Options that can be set for each meter are in rows.

I - Extended read period: [x^*]

Check the checkbox to use extended read period for meter m^* .
Leave the checkbox unchecked to use the default read period value.

II - Extended retry counter: [x^*]

Check the checkbox to use extended retry count for meter m^* .
Leave the checkbox unchecked to use the default retry count value.

III - Extended timeout for response: [x^*]

Check the checkbox to use the extended response wait time for meter m^* .
Leave the checkbox unchecked to use the default timeout value.

IV - Simplified HTML export: [x^*]

Check the checkbox to enable a simplified data export of the M-Bus values on the HTML page.
Leave the checkbox unchecked for full export of the M-Bus values.

V - No multiframe communication: [x^*]

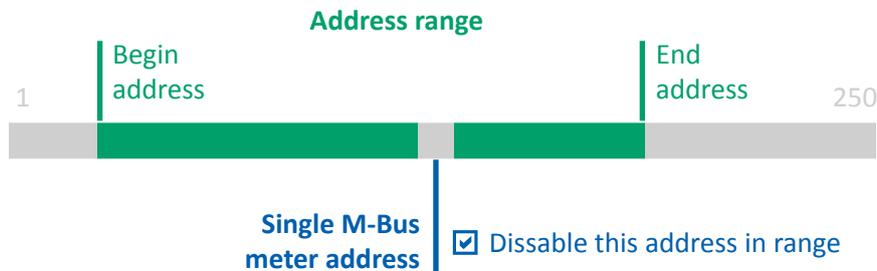
Check the checkbox to disable multiframe communication. This will disable data spanning across multiple frames in the M-Bus protocol. This is a compatibility option that can solve communication problems with meters which break away from the M-Bus protocol standard.
Leave the checkbox unchecked for normal operation.

VI - Disable this address in range: [x*]

This feature is available only with converters which support 10 or more meters.

Check the checkbox to disable the given meter address in all address ranges. The given address number will be completely excluded from all ranges. Multiple exclusions can be defined using other single M-Bus meter addresses.

Leave the checkbox unchecked for normal use of the extended settings for the address.



Excluding an address from an Address range.

2 - Meter address ranges: range r*:

Extended settings for address range r*. Ranges are divided into columns.

Options that can be set for each range are in rows.

VII - Extended read period: [x*]

Check the checkbox to use extended read period for all meters in the given range.

Leave the checkbox unchecked to use the default read period value.

VIII- Extended retry counter: [x*]

Check the checkbox to use extended retry count for all meters in the given range.

Leave the checkbox unchecked to use the default retry count value.

IX - Extended timeout for response: [x*]

Check the checkbox to use the extended response wait time for all meters in the given range.

Leave the checkbox unchecked to use the default timeout value.

X - Simplified HTML export: [x*]

Check the checkbox to enable a simplified data export of the M-Bus values on the HTML page.

Leave the checkbox unchecked for full export of the M-Bus values.

XI - No multiframe communication: [x*]

Check the checkbox to disable multiframe communication. This will disable data spanning across multiple frames in the M-Bus protocol. This is a compatibility option that can solve communication problems with meters which break away from the M-Bus protocol standard.

Leave the checkbox unchecked for normal operation.

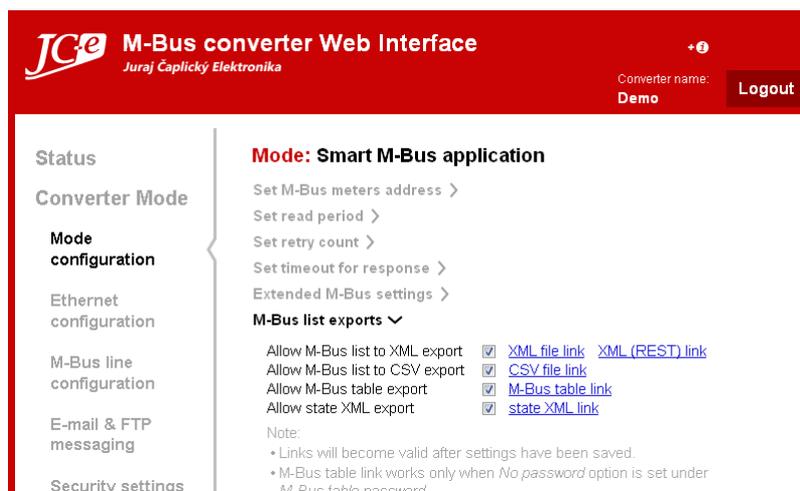
Note: m* - meter number. Amount of available meters depends on converter model.

r* - address range number.

x* - the input shows current value loaded from the converter

M-Bus export settings

Enable or disable M-Bus exports.



1 - Allow M-Bus list to XML export [x*]

Check the checkbox to enable XML export of the M-Bus meter data. This enables both XML and XML (REST) file type exports. Leave the checkbox unchecked to disable this export.

2 - Allow M-Bus list to CSV export [x*]

Check the checkbox to enable CSV export of the M-Bus meter data. Leave the checkbox unchecked to disable this export.

The CSV export format is a plain text file with comma-separated values. It uses a dot (.) as a decimal separator and is in UTF-8 encoding. It is a standard spreadsheet interchange format used in software office suites.

3 - Allow M-Bus table export [x*]

Check the checkbox to enable the M-Bus meter data web page in the Web Interface and the standalone HTML page. Leave the checkbox unchecked to disable it.

4 - Allow state XML export [x*]

Check the checkbox to enable the state XML export. This export contains status information about the meter readout. HTTP GET requests to this file with special URL parameters can also control the readout process. A description of this functionality and the contents of the export file can be found in the *Data exports of the Ethernet to M-Bus converters manual*.

For the security reasons this export should be disabled if it is not used.

Note 1: x* - current value or state loaded from the converter.

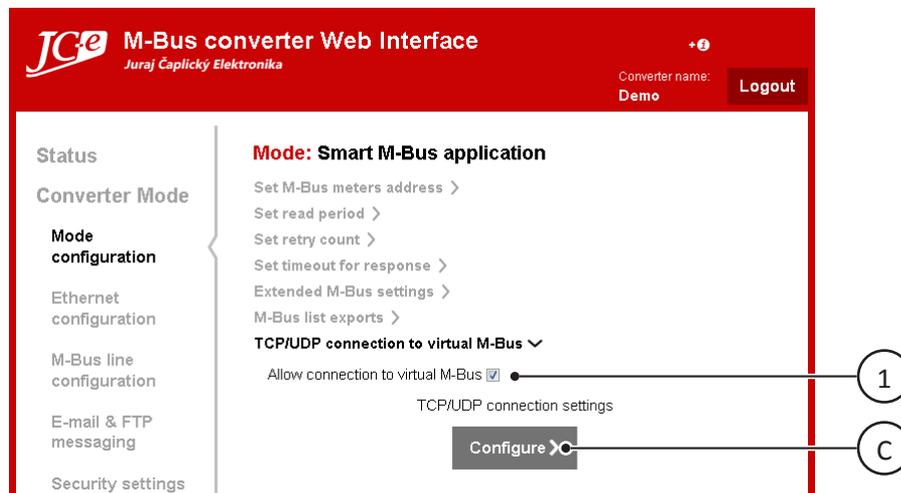
Note 2: When the option is enabled a link to the appropriate file export will be shown. The links will become valid after settings have been saved.

Note 3: M-Bus table link works only when No password option is set under M-Bus table password.

TCP/UDP connection to virtual M-Bus

To enable the virtual M-Bus meters functionality check the *Allow connection to virtual M-Bus* checkbox (1).

To set up the network parameters for the TCP/UDP connection to the virtual M-Bus click the *Configure* button (C). This leads to the *Connection to virtual M-Bus* configuration page. On that page you can choose between a TCP/IP or UDP type of connection for the communication to the virtual M-Bus meters and set up further network parameters.

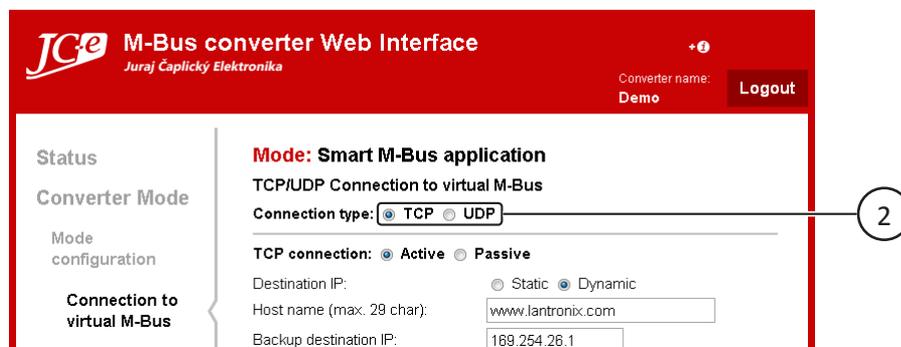


TCP/IP connection to virtual M-Bus

Set up TCP/IP network parameters.

Settings are the same as in the *TCP/IP to M-Bus converter* menu.

The only difference is the additional option (2) to switch between TCP/IP and UDP connection type.

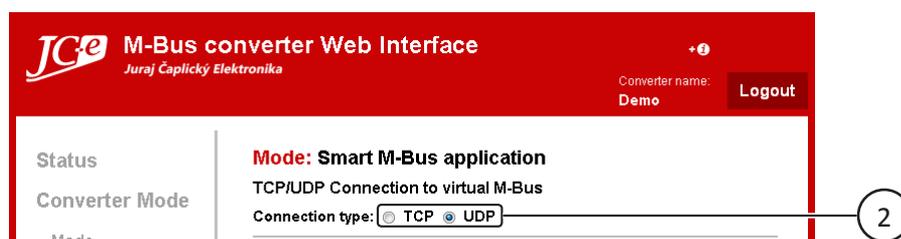


UDP connection to virtual M-Bus

Set up UDP network parameters.

Settings are the same as in the *UDP to M-Bus converter* menu.

The only difference is the additional option (2) to switch between TCP/IP and UDP connection type.



Ethernet configuration

Static IP address

JCE M-Bus converter Web Interface
Juraj Čaplický Elektronika

Converter name: Demo Logout

Status

Converter Mode

Ethernet configuration

M-Bus line configuration

E-mail & FTP messaging

Security settings

Change passwords

M-Bus table

M-Bus meter search

Save settings

IP address: Static Dynamic

IP address: 0.0.2.0

Gateway IP address: 192.168.152.1

Netmask: number of bits for host part: 16 bits

TCP keep alive (1 - 65s): 20 seconds

ARP cache timeout (1 - 600s): 180 seconds

DNS server IP address: 192.168.152.23

Converter name (max. 24 char): test 55

Note:
Netmask is defined in the amount of bottom bits that are set to 0 in the mask.
Most common examples:
Bits Netmask
8 = 255.255.255.0
16 = 255.255.0.0

Apply settings

1 2 3 4 5 6 7 8 A

Dynamic IP address

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IP address: Static Dynamic

IP address - Dynamic

Auto Configuration Methods

Auto IP enable:

DHCP enable:

BOOT enable:

DHCP device name (max. 16 char): LTX12

TCP keep alive (1 - 65s): 20 seconds

ARP cache timeout (1 - 600s): 180 seconds

DNS server IP address: 192.168.152.23

Converter name (max. 24 char): test 55

Apply settings

1 9 10 11 5 6 7 8 A

1 - IP address: [x*] Static [x*] Dynamic ?

Switch between the static and dynamic IP address assignment by ticking the appropriate optionbox. The options on the page will change according to the selected IP address assignment mode.

2 - IP address:

Static IP address. Enter four numbers in a 0 - 255 range separated by dots without a dot at the end.

The IP address must be set to a unique value in the network.

3 - Gateway IP address:

Enter four numbers in a 0 - 255 range separated by dots without a dot at the end. The gateway address or router allows communication with other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the converter. The gateway address must be within the local network.

4 - Netmask: number of bits for host part (0=default) x^* bits

Enter number of bits for the net mask. Value can be in a 0 - 31 range. A subnet mask defines the number of bits taken from the IP address that are assigned for the host part.

5 - TCP keepalive (1 - 65s): x^* seconds

Enter a number in a 1 - 65 range.

Setting of how many seconds the converter waits during a silent connection before attempting to see if the currently connected network device is still on the network. If the converter gets no response, it drops the connection.

6 - ARP cache timeout (1 - 600s): x^* seconds

Enter a number in a 1 - 600 range.

When the converter communicates with another device on the network it adds an entry into its ARP table. The ARP Cache timeout option allows you to define how many seconds will the converter wait before timing out this table.

7 - DNS server IP address: x^*

Enter four numbers in a 0 - 255 range separated by dots without a dot at the end. The DNS server allows the name of a remote device to be resolved automatically. If the device is DHCP enabled, the DHCP server provides the DNS server IP address. This address will be used first. If the DNS resolve fails, user defined DNS server IP address will be used.

8 - Converter name (max. 24 char): x^*

Enter the converter's name. Maximum length is 24 characters. Only ANSI characters are allowed.

This name identifies the converter. It should contain some customer relevant information.

This name is displayed on the start of telnet menu and on the Web Setup (Web Interface) pages. The XML and CSV exports will contain this name as well.

9 - Auto IP enable: [x^*]

Check the checkbox to enable generation of an IP in the 169.254.x.x address range with a Class B subnet.

10 - DHCP enable: [x^*]

Check the checkbox to enable the Dynamic Host Configuration Protocol (DHCP) to assign a leased IP address to the converter automatically.

11 - BOOT enable [x^*]

Check the checkbox to enable the Bootstrap Protocol (BOOTP) server to assign the IP address from a pool of addresses automatically.

12 - DHCP device name (max. 16 char): x^*

DHCP name is the name associated with converter's current IP address if the IP address was obtained dynamically. Enter a new DHCP name. Maximum length is 16 characters.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the [Save settings](#) page after all desired changes have been applied.

Note: *x** - current value or state loaded from the converter.

M-Bus line settings

Communication settings of the M-Bus line.

The screenshot shows the 'M-Bus converter Web Interface' with the following settings visible:

- Baud rate:** 2400
- Normal M-Bus data format:** Yes No (user defined)
- I/F Mode - user data format:** 7C (hex)
- M-Bus response packeting:**
- Packet size:** 20 Bytes

Below these settings are notes about M-Bus response packeting. At the bottom right, there is a red 'Apply settings' button.

1 - Baud rate: *x**

Enter the baud rate of the M-Bus line.

Allowed speeds: 9600, 4800, 2400, 1200, 600, 300 bps.

2 - Normal M-Bus data format [*x**] Yes [*x**] No (user defined)

Set M-Bus data format. Select the *Yes* option to use the default parameters.

Default M-Bus format is 8E1 - 8 data bits, even parity and one stop bit.

If you need other data format select the *No (user defined)* option and fill in the *I/F Mode - user data format* input field.

3 - I/F Mode - user data format *x** (hex)

Enter a hex number representing special settings of the M-Bus data format.

The table below shows bit meanings of the number.

Default 0x7C	7	6	5	4	3	2	1	0
M-Bus							0	0
7-Bit					1	0		
8-Bit					1	1		
No parity			0	0				
Even parity			1	1				
Odd parity			0	1				
1 Stop bit	0	1						
2 Stop bit	1	1						

This is an expert setting which usually does not need to be set.

The M-Bus data format should use the default setting under normal circumstances.

4 - M-Bus response packeting [x^*]

Normally the M-Bus response is sent after it has been completely received (after two characters timeout). Enabling the packeting will divide the M-Bus response into several packets. A much faster reception of the beginning of the M-Bus response will be achieved.

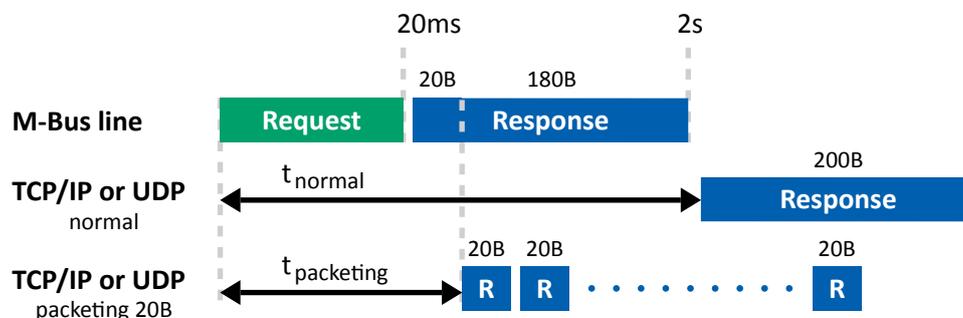
This setting applies only to *TCP/IP* or *UDP to M-Bus converter* modes.

Note: This feature is available in firmware version 1.9.6.9 or later.

5 - Packet size x^* Bytes

Enter a number in a 1 - 255 range.

This is the size of the data packets into which the M-Bus response will be split into. Smaller packet size will create a shorter waiting time for the start of the M-Bus response and also a shorter time between packet delivery.



Principle of packeting operation. Time values are only illustrative.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the [Save settings](#) page after all desired changes have been applied.

Note: x^* - current value or state loaded from the converter.

E-mail & FTP messaging

E-mail configuration

Configuration of the e-mail functionality. E-mail notifications and M-Bus exports sent as e-mail attachments. E-mail server IP, port, name, setup of the recipient's e-mail address, allow or disable e-mail exports and reports.

1 - Messaging type: [x*] E-mail [x*] FTP

Select *E-mail* option for e-mail notifications and M-Bus exports sent by e-mail.

2 - Enable M-Bus exports [x*]

Check the checkbox to enable sending of the e-mails with the M-Bus meters data. The body of the sent e-mail will contain a brief summary of the converter information. The data will be attached as a file to the e-mail. The format of the attachment depends on the *Exported list file type* setting.

3 - Exported list file type: [x*] xml [x*] xml (REST) [x*] csv

Choose what type of M-Bus data export to send.

The *xml* option stands for an M-Bus export in the xml format, *xml (REST)* provides the xml file in a Representational State Transfer format. The *csv* export is a standard comma delimited spreadsheet format. This export setting is independent of the *M-Bus export settings* under the *Smart M-Bus application* menu.

4 - Enable error report about reset/power up [x*]

Check the checkbox to enable sending of an e-mail report about reset or power up status of the converter. The e-mail will be sent to the error e-mail address set under *E-mail address for error exports*.

The e-mail will contain information about the IP address, the name of the converter and the text "Reset or power up".

5 - Enable error report about M-Bus meter communication malfunction [x*]

Check the checkbox to enable sending of an e-mail report about communication status of the M-Bus meters which are in the state "no comm." or "no response". The e-mail will be sent to the error e-mail address set under *E-mail address for error exports*.

The e-mail will contain information about the IP address, the name of the converter and a text listing the

meters with communication issues. For example:

```
"M-Bus meters without communication: 1,2,6*,
*new meter."
```

List example explanation:

M-Bus meters with address 1 and 2 do not communicate. Their state did not change from last e-mail report.

M-Bus meter with address 6 stopped communicating.

6 - Use domain name for e-mail address [*x**]

Check the checkbox to set the destination address in a web address format with a domain name. Leave the checkbox unchecked to use only the IP address. The *E-mail server IP address* becomes a backup IP address if a web address is used. The backup IP is used if the web address can not be found while attempting to send the e-mail.

7 - Domain name of the e-mail server (max. 23 char): *x**

Enter the web address of the e-mail server. Maximum length is 23 characters.

8 - E-mail server IP address: *x**

E-mail server IP address. Enter four numbers in a 0 - 255 range separated by dots without a dot at the end.

9 - E-mail server port (25 default): *x**

Enter the e-mail server port number. Default value is 25.

10 - Interval for sending M-Bus exports: *x** minutes

Enter the time value for sending the M-Bus exports. The exports will be sent periodically in this time interval.

The first e-mail is sent after the converter reads all the meters after power up or reset.

Value range is 1 to 65535 minutes.

11 - 1st e-mail address for M-Bus exports (max. 29 char): *name1@server.com*

An E-mail address to which the M-Bus meter data exports are sent to.

Enter a valid e-mail address. Maximum length of the e-mail address is 29 characters.

12 - 2nd e-mail address for M-Bus exports (max. 29 char): *name2@server.com*

A secondary e-mail address to which the M-Bus meter data exports are sent to. If set, a copy of the M-Bus exports e-mail will be sent to this address. This address will be shown in the Cc field of the e-mail.

Enter a valid e-mail address. Maximum length of the e-mail address is 29 characters.

Leaving this field empty will disable sending of the copy.

13 - E-mail address for error exports (max. 28 char): *name_err@server.com*

Enter an e-mail address to which the converter error reports are sent to. Maximum length of the e-mail address is 28 characters.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the [Save settings](#) page after all desired changes have been applied.

Note 1: *x** - current value or state loaded from the converter.

Note 2: *name@server.com* - current e-mail address.

FTP configuration

Configuration of the FTP functionality. Allows M-Bus exports to be uploaded to an FTP server. FTP server IP address, port, name, login information, remote directory, export file timestamp.

1 - Messaging type: [x*] E-mail [x*] FTP

Select *FTP* option for M-Bus exports to be uploaded to an FTP server.

2 - Enable M-Bus exports [x*]

Check the checkbox to enable uploading of the M-Bus meters data to an FTP server. The format of the uploaded file depends on the *Exported list file type* setting.

3 - Exported list file type: [x*] xml [x*] xml (REST) [x*] csv

Choose what type of M-Bus data export to send.

The *xml* option stands for an M-Bus export in the xml format, *xml (REST)* provides the xml file in a Representational State Transfer format. The *csv* export is a standard comma delimited spreadsheet format. This export setting is independent of the *M-Bus export settings* under the *Smart M-Bus application* menu.

4 - Use domain name for FTP server address [x*]

Check the checkbox to set the destination address in a web address format with a domain name. Leave the checkbox unchecked to use only the IP address. The *FTP server IP address* becomes a backup IP address if a web address is used. The backup IP is used if the web address can not be found while attempting to connect to the FTP server.

5 - Domain name of the FTP server (max. 23 char): x*

Enter the web address of the FTP server. Maximum length is 23 characters.

6 - FTP server IP address: x*

FTP server IP address. Enter four numbers in a 0 - 255 range separated by dots without a dot at the end.

7 - FTP server port (21 default): x*

Enter the FTP server port number. Default value is 21.

8 - Interval for sending M-Bus exports: x^* minutes

Enter the time value for sending the M-Bus exports. The exports will be uploaded periodically in this time interval. The first upload is performed after the converter reads all the meters after power up or reset. Value range is 1 to 65535 minutes.

9 - User name (max. 29 char): x^*

Enter the user name used for logging to the FTP server. Maximum length of the user name is 29 characters.

10 - Password (max. 29 char): x^*

Enter the password used for logging to the FTP server. Maximum length of the password is 29 characters.

Note: A clear password will be sent if no password is set and the FTP server requests a password after user login.

11 - Remote directory (max. 28 char): x^*

Enter the remote directory for the file to be uploaded to. The file will not be sent if this directory doesn't exist.

Note: Use a forward slash character "/" as a directory separator and on the beginning of the path of the remote directory.

12 - Enable timestamp in FTP filename [x^*]

Check the checkbox to enable adding a timestamp to the export file name. Leave the checkbox unchecked to disable this feature.

If the timestamp is disabled the name of the transferred file will be *name.csv* or *name.xml*. The old file will be overwritten with a new one on the FTP server after each upload.

The *name* is equal to the name of the converter which is set in the *Ethernet configuration* under Converter name. Lowercase letters and numbers are allowed in the file name. The uppercase letters will be changed to lowercase. All other letters will be ignored and removed from the file name.

The *name* will be equal to "mbus" if the name of the converter is blank (not set).

If the timestamp is enabled the name of the transferred file will be in this format: *name[info].csv* or *name[info].xml*.

The *[info]* suffix can contain the following information compositions:

- Converter time suffix

nametrrrrrvvvvsssss.csv This format will be used when none of the M-Bus meters which were read out have a time and date available in their data.

- t** - Indicates that the file name suffix contains time obtained from the converter.
- rrrrr** - Random number. This 5 digit number is generated after power up or reset of the converter. This number ensures that the file name will be unique.
- vvvvsssss** - Count of seconds after power up or reset of the converter. These two numbers are two 16bit long numbers. This part has 10 digits in total.

- Meter time suffix

nameyyymmddhhnn.csv This format will be used when at least one of the M-Bus meters which were read out has time and date in its data. This data is taken from the first meter which has such data available.

- yy** - Last two digits of the year.

- mm - Two digits representing month.
- dd - Two digits representing day.
- hh - Two digits representing hour (in 24 hour format).
- nn - Two digits representing minutes.

Only one of the suffix formats will be used. Switching between these file formats is automatic and depends only on the availability of the time in the M-Bus meter data.

A - Apply settings button

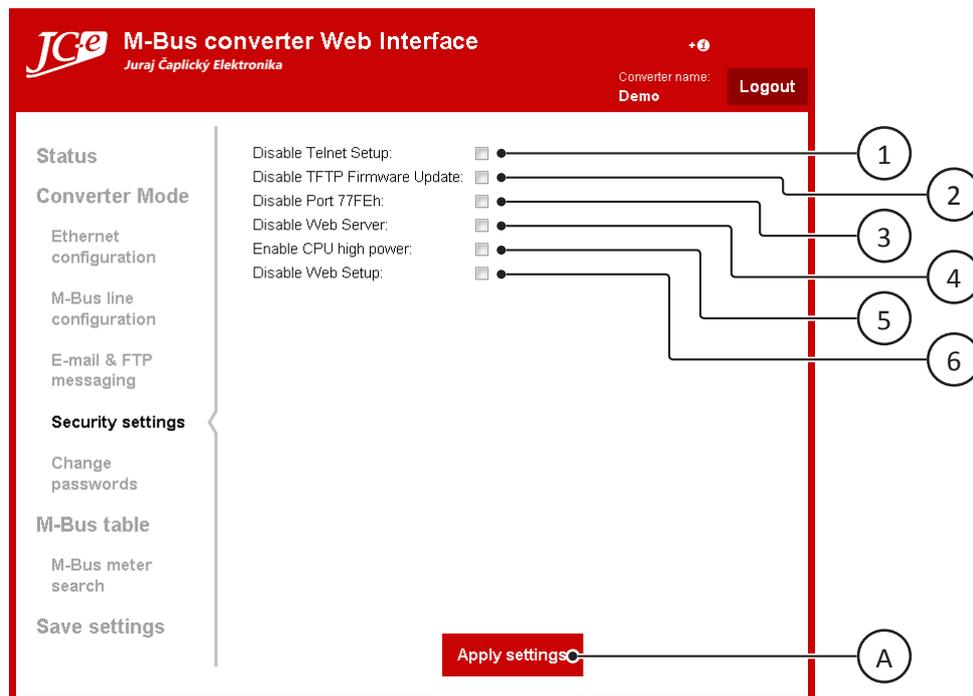
Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the [Save settings](#) page after all desired changes have been applied.

Note 1: x^* - current value or state loaded from the converter.

Note 2: The FTP feature is available in firmware version 2.0.0.0 or later.

Security

Security settings of the converter.



1 - Disable Telnet Setup: [x*]

Check the checkbox to disable the Telnet setup. Default state is unchecked - Telnet setup is enabled. The Telnet setup can be re-enabled only through the Web Interface.

2 - Disable TFTP Firmware Update: [x*]

Check the checkbox to disable the use of TFTP to perform firmware updates through network. Default state is checked - updates via TFTP enabled.

3 - Disable Port 77FEh [x*]

Port 77FE is a setting that allows the Lantronix DeviceInstaller and custom programs to configure the converter remotely through this port. You may want to disable this capability for security reasons. Check the checkbox to disable this feature. Default state is unchecked.

4 - Disable Web Server [x*]

Check the checkbox to disable the web server. No web services will be available. Default state is unchecked.

5 - Enable CPU high power [x*]

Change CPU clocking frequency. Default state is unchecked which means normal CPU performance. If a faster response is required from the converter enable this option.

6 - Disable Web Setup [x*]

Check the checkbox to disable the Web Interface. The Web Interface can be re-enabled only through the Telnet setup.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the [Save settings](#) page after all desired changes have been applied.

Note: x* - current value or state loaded from the converter.

Change passwords

Access protection configuration.

1 - Web Interface and Telnet password

Option for protecting the access to the Web Interface and Telnet setup with a password. Choose one of the three options: *Use current password*, *Change password* or *No password*. Selecting the *Change password* option will reveal two input fields. One to change the password (3) and one to confirm the new password (4).

2 - M-Bus table password

Option for protecting the access to the M-Bus table page with a password. Choose one of the three options: *Use current password*, *Change password* or *No password*. Selecting the *Change password* option will reveal two input fields. One to change the password (5) and one to confirm the new password (6).

3, 5 - Change password:

Enter a new password. Maximum length of the password is 16 characters.

4, 6 - Retype password:

Retype the new password. Both *Change* and *Retype password* fields must contain the same password text for the password to be valid.

A - Apply settings button

Applies the configuration. This operation just stores the new settings in converter's RAM. Some functionality may already use the new settings however the settings need to be saved and the converter restarted for all the settings to become operational. Navigate to the [Save settings](#) page after all desired changes have been applied.

M-Bus table

Lists meter status and additional information as well as the measuring data received from all connected meters. This web page is periodically updated and shows meter information from the most recent readout.

Important: This table is available only when the converter works in the *Smart M-Bus application* mode. Also access to this table must be enabled in the configuration under *Allow M-Bus table export*.

1 - Status	2 - Type	3 - Values													4 - SN
OK	Heat LUG v.2	Quality	Averaging	Energy	Volume	Power	Volume flow	Flow T	Return T	Differ. T	Volume				65188303
OK	Water SMC v.70	Volume	Time point	Volume	Fabric. no										6128808
OK	Water SMC v.70	Volume	Time point	Volume	Fabric. no										6128809

1 - Status

Current communication status with the meter.

2 - Type

Type of utility meter and brief manufacturer information.

3 - Values

Values read from the meter. Detailed information will be listed also if it is provided by the meter. See the section for further details.

4 - SN

Serial number of the meter. This is a fixed number set by the manufacturer of the meter which cannot be changed.

C - Config

This button switches the Web Interface back into the configuration mode.

Note: Do not use the back button on your web browser to go back to the Web Interface configuration mode.

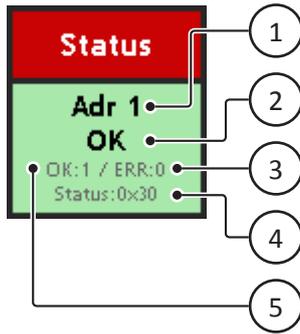
L - Logout

Logout from the configuration or M-Bus meter page. Leads back to the *Start page* after logout.

R - Read now

Performs an immediate meter readout and refreshes the M-Bus table with new data.

Status



1 - Primary address of the meter

2 - Status of the meter

See *Meter statuses* below.

3 - Amount of incorrect responses*

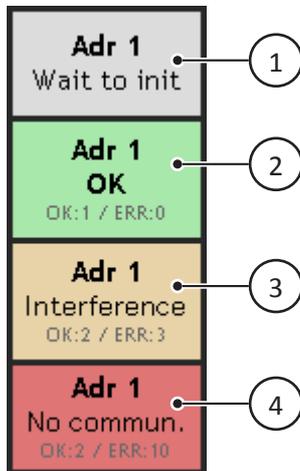
4 - Status word error indicator

Displayed only if the meter indicates an error in the status word. Such as low battery, sensor not connected etc. Value and meaning of the error code depends on meter manufacturer.

5 - Amount of correct responses*

Note: * - The maximum value is 255. Both values will be divided by 2 on the next increase of a value equal to 255.

Meter statuses



1 - Wait to init

No communication with the meter occurred yet. Status after reset of the converter.

2 - OK

Meter is communicating correctly.

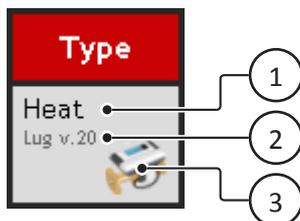
3 - Interference

Last one or two readouts were incorrect. For example there was no response after the OK status.

4 - No communication

The meter does not communicate. All data read from the meter before are deleted.

Type



1 - Type of meter

For example: Electricity, Water, Gas, Heat, Pressure, Steam, Oil etc.

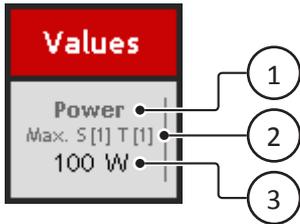
2 - Manufacturer info

Manufacturer abbreviation and meter version information (when provided).

3 - Meter icon

Icon according to the type of meter.

Values



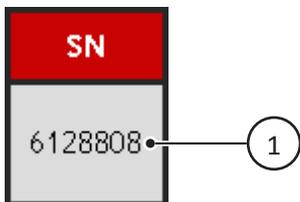
1 - Type of measured value

2 - Additional information

- <none> - Current value
- Min. - Historic minimum of the measured value.
- Max. - Historic maximum of the measured value.
- Err. - Value was measured during a communication error.
- S[n] - Storage. Value (3) is from meter history.
n - order in history (1st is latest)
- T[n] - Tariff, metering rate.
n - tariff number

3 - Value in measured units

SN



1 - Serial number of the meter.

M-Bus meter search

Search for the primary addresses of the connected meters.

Important: This feature is available only when the converter works in the *Smart M-Bus application* mode.

1 - Beginning address (0 -250):

Enter a number in a 0 to 250 range. The search will start incrementally from this address number ending at the address 250. Addresses above 250 cannot be used for searching.

2 - Search speed (Baud rate):

Chose one of the available baud speeds. Normally the default *use current* setting should suffice. It is the speed set in the *M-Bus line settings*.

3 - Start button

Starts the search. The current progress will be shown in the *Results area* (5).

Note: Multiple users may start the search simultaneously on one converter. In such a case the *Results area* (5) will show the current search in progress for all logged in users.

4 - Stop button

Stops the search.

5 - Results area

Lists the search progress and results.

Set meter address

Allows to set an M-Bus address of a meter. This feature works by sending a standard M-Bus telegram for setting the primary meter address according to EN1434-3. Refer to your meter specification or manual whether your meter supports this feature. The search function above can be used to verify whether the address has been changed.

Important: This feature is available only when the converter works in the *Smart M-Bus application* mode.

6 - Current meter address

Enter the current meter address. Numbers that can be entered are:

- 0 is the factory default address. New meters usually come configured with this primary address. This address must be changed and should not be used for normal operation.
- 254 is broadcast. This will broadcast the new address to all available addresses. This is an easy way to set the primary address since the current meter address does not need to be known. Only one meter should be connected.
- Standard address range is 1 - 250.

7 - New address

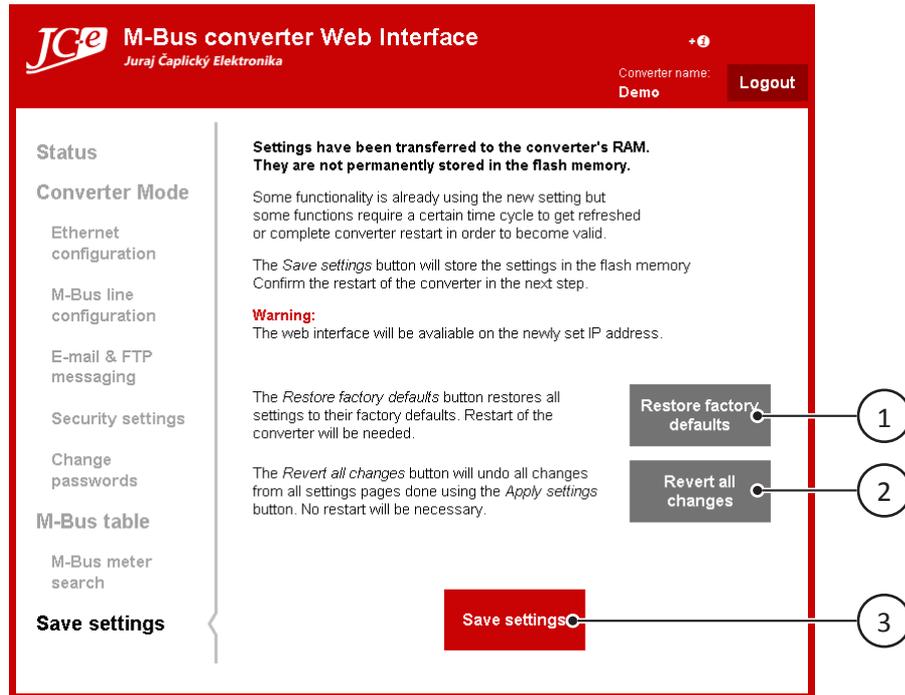
Enter the new primary address for the meter. Address range is 1 - 250.

8 - Set button

Sets the new M-Bus address of the meter.

Save settings

Save the current configuration.



1 - Restore factory defaults button

This button restores all settings to their factory defaults. Restart of the converter will be needed.

2 - Revert all changes button

This button will undo all changes from all settings pages done using the *Apply settings* button. No restart will be necessary.

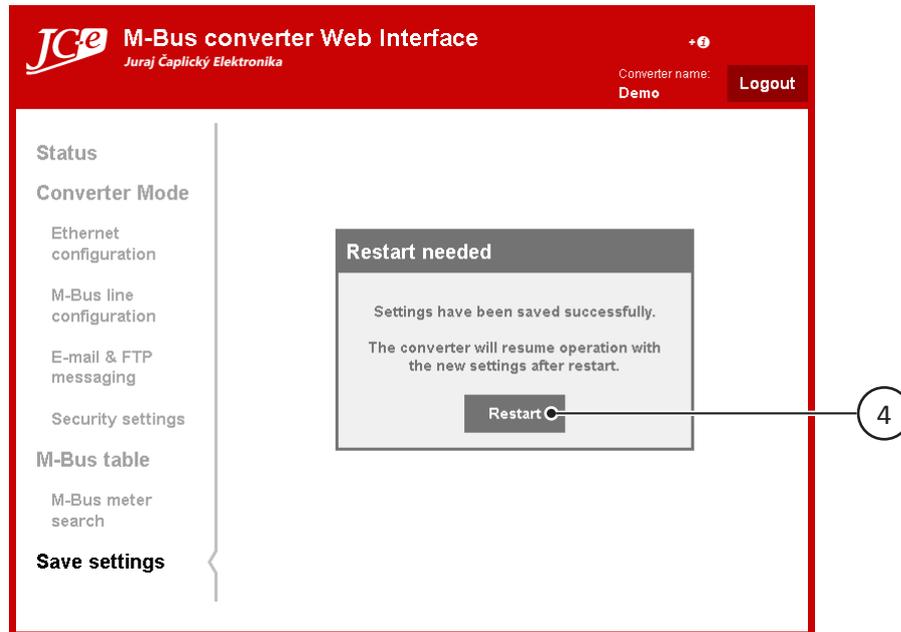
3 - Save settings button

The *Apply settings* button on each configuration page transfers the new settings to the converter's RAM. They are not permanently stored in the flash memory. Some functionality will be already using the new setting but some functions require a certain time cycle to get refreshed or a complete converter restart in order to become valid.

The *Save settings* button will store the settings in the flash memory. The *Restart page* will appear when the settings have been saved successfully. The converter will then need to be restarted using the *Restart* button so it can start working with the new settings.

Restart page

Prompts for restart of the converter when new settings have been saved or when default factory settings have been restored.



4 - Restart button

Pressing this button will restart the converter. The Web Interface will auto refresh the entire web page after a 5 second time-out.

Note: If the converter's IP address setting has been changed you will need to open the Web Interface at the new address.