Telnet menu for Ethernet to M-Bus SMART converters

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Contents

Telnet configuration menu

Connect to the Telnet configuration with a command such as: telnet *<ip> <port>*

Where:

- *<ip>* is the IP address of the converter. The value depends on configuration. A static IP address 169.254.100.10 is configured as default. A different factory preset may be provided when ordered.
- *<port>* is the port number, value depends on configuration. The default value is 9999.

Example using Microsoft Telnet Client on Windows:

Run command line: *cmd*

Enter Telnet connection: *telnet 169.254.26.100 9999*

Basic information about the converter:

```
>>EthMBus-5, M-Bus to Ethernet converter
>>Manufacturer: JC-e, www.jc-e.eu
>>Name: test 55
MAC address 0080A391EF31
Software version V1.1.6.9 (140227) CPK6903_XPT05

Press Enter for Setup Mode
```

1st line - type of converter.

2nd line - manufacturer name and web page.

3rd line - user name of the converter.

4th line - HW MAC address of the converter.

5th line - software + CPK + HW version

Press the *Enter* key to continue to setup menu. Pressing any other key will terminate the connection.

In case a configuration with a password is used, enter the password and then press the *Enter* key to continue to the setup menu.

The basic listing on the start of the Telnet menu depends on the mode of the converter.

Smart M-Bus application

```
>> Basic parameters
 Hardware: Ethernet TPI
 IP addr 169.254.26.100, no gateway set,netmask 255.255.0.0
 M-Bus line : 2400 bps, I/F 7C
 Smart M-Bus application
 CPU performance  : Standard
```

TCP/IP to M-Bus converter - Passive connection

```
>> Basic parameters
 Hardware: Ethernet TPI
 IP addr 169.254.26.100, no gateway set,netmask 255.255.0.0
 M-Bus line : 2400 bps, I/F 7C
 TCP/IP to M-Bus converter -  Passive connection
  Source Port     : 12345
 CPU performance  : Standard
```

TCP/IP to M-Bus converter - Active connection

```
>> Basic parameters
 Hardware: Ethernet TPI
 IP addr 169.254.26.100, no gateway set,netmask 255.255.0.0
 M-Bus line : 2400 bps, I/F 7C
 TCP/IP to M-Bus converter - Active connection
  Destination IP : 169.254.26.2
  Destination Port : 10001
  Backup destination IP enabled
  Source Port      : 12345
 CPU performance  : Standard
```

TCP/IP to M-Bus converter - Active connection + DNS

```
>> Basic parameters
 Hardware: Ethernet TPI
 IP addr 169.254.26.100, no gateway set,netmask 255.255.0.0
 M-Bus line : 2400 bps, I/F 7C
 TCP/IP to M-Bus converter - Active connection
  DNS, Host name : www.lantronix.com
  Backup destination IP : 169.254.26.2
  Destination Port : 10001
  Backup destination IP enabled
  Source Port      : 12345
 CPU performance  : Standard
```

UDP to M-Bus converter

```
>> Basic parameters
 Hardware: Ethernet TPI
 IP addr 169.254.26.100, no gateway set,netmask 255.255.0.0
 M-Bus line : 2400 bps, I/F 7C
 UDP to M-Bus converter
  Source Port      : 12345
  Destination Port : 10001
  Destination IP   : 169.254.26.1
 CPU performance  : Standard
```

Setup menu

```
Setup of the converter:
  0 Ethernet configuration
  1 Converter mode
  2 M-Bus line configuration

  4 E-mail/FTP configuration
  5 Log history
  6 Security
  7 Factory defaults
  8 Exit without save
  9 Save and exit              Your choice ?
```

Press a number key corresponding to the desired submenu to enter it.

0 Ethernet configuration.

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

1 Converter mode

Converter's mode of operation. There are three modes in which the converter can work. Each has its own parameter settings.

2 M-Bus line configuration

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

4 E-mail/FTP configuration

E-mail notifications and FTP M-Bus export settings.

5 Log history

Settings and view of history logs.

History and current converter activity and communication can be logged and viewed in this submenu.

6 Security

Security settings. Enable / disable converter features.

7 Factory defaults

Set all settings to factory defaults.

8 Exit without save.

Exit telnet settings without saving settings. Changes to the configuration will be discarded.

9 Save and exit

Save settings and exit the Telnet setup. Converter will restart with new settings on exit.

Ethernet configuration

Static IP address

```
Ethernet configuration
  IP address - Static (Y) or Dynamic (N)  (Y) ? Y
  IP address : (169) .(254) .(100) .(011)
  Set gateway IP address (N) ?
  Gateway IP address : (000) .(000) .(000) .(000)
  Netmask: number of bits for host part (0=default) (16)
  TCP keep alive 1-65s: (20) ?
  ARP cache timeout 1-600s: (180) ?
  DNS server IP address : (192) .(168) .(159) .(001)
  Converter name (max. 24 char) (TEST xyz) :
```

Dynamic IP address

```
Ethernet configuration
  IP address - Static (Y) or Dynamic (N)  (Y) ? N
  IP address - Dynamic
  Auto IP enable (Y / N) (Y) ?
  DHCP enable (Y / N) (Y) ?
  BOOT enable (Y / N) (Y) ?
  Change DHCP device name (not set) ? (N) ?
  Enter new DHCP device name :
  Enable DHCP FQDN option :  (N) ?
  TCP keepalive 1-65s: (20) ?
  ARP cache timeout 1-600s: (180) ?
  DNS server IP address : (192) .(168) .(159) .(001)
  Converter name (max. 24 char) (TEST xyz) :
```

IP address - Static (Y) or Dynamic (N) ($x*$) ?

Press "*y*" to set static IP address of the converter. Or press "*n*" if you want to enable dynamic IP assignation. The rest of the menu depends on your selections.

IP address :

Enter a four byte long static IP address. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value. The IP address must be set to a unique value in the network.

Set gateway IP address ($x*$) ?

Press "*y*" if you want to change gateway address.

Gateway IP address :

Enter a four byte long static IP address. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value. 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.

Netmask: number of bits for host part (0=default) ($x*$)

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

Auto IP enable (Y / N) ($x*$) ?

Press "*y*" to enable generation of an IP in the 169.254.x.x address range with a Class B subnet.

DHCP enable (Y / N) (*x*) ?

Press "*y*" to enable the Dynamic Host Configuration Protocol (DHCP) to assign a leased IP address to the converter automatically.

BOOT enable (Y / N) (*x*) ?

Press "*y*" to enable the Bootstrap Protocol (BOOTP) server to assign the IP address from a pool of addresses automatically.

Change DHCP device name (not set) ? (N) ?

Press "*y*" if you want set up a DHCP device name. DHCP name is the name associated with converter's current IP address if the IP address was obtained dynamically.

Enter new DHCP device name :

Enter a new DHCP name. Maximum length is 16 characters.

Enable DHCP FQDN option : (*x*) ?

Press "*y*" to enable the FQDN option.

The Fully Qualified Domain Name (FQDN) option is sent by the client to indicate its desire to update DNS with its A record or to have the DHCP server perform the update. To update the IP-address-to-FQDN mapping, a DHCP server needs to know the FQDN of the client to which the server leases the address.

Further information can be found in the RFC4702 - The Dynamic Host Configuration Protocol (DHCP) Client, Fully Qualified Domain Name (FQDN) Option standard.

TCP keepalive 1-65s: (*x*) ?

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.

ARP cache timeout 1-600s: (*x*) ?

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.

DNS server IP address :

Enter a four byte long IP address of the DNS server. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value.

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.

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.

Note: *x* - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

Converter mode

Converter can operate in one of the three modes. Choose and set one.

Current mode >>> *mode**

```
Current mode >>> TCP/IP to M-Bus converter


  0 TCP/IP to M-Bus converter
  1 UDP to M-Bus converter
  2 Smart M-Bus application
  3 Back                    Your choice ?
```

Displays the current mode of the converter.

The converter can work in these three modes:

- TCP/IP to M-Bus converter
- UDP to M-Bus converter
- Smart M-Bus application

To set a new mode or change its settings press a number key corresponding to the desired mode.

0 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 trough 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.

1 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 trough Ethernet.

2 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 trough 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

Note: mode* - current converter mode.

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.

```
TCP/IP to M-Bus converter
 TCP Active (Host)(Y) or Passive (Server)(N) connection  :  (Y) ?
 >> TCP Active connection <<
 Destination IP : Static(N) Host name(Y)  :  (N) ?
 (255) .(255) .(000) .(000)
 Destination Port : (00654)
 Source Port : (01754)
 Wait time for connection establish [ms]:  (1000) ?
 Enable backup destinations IP addresses ?  (Y) ?
 Number of retries when connecting (0-9):  (3) ?
 Destination IP - 1: (169) .(254) .(100) .(001)
 Destination Port : (10001)
 Destination IP - 2: (002) .(022) .(222) .(222)
 Destination Port : (00122)
 Destination IP - 3: (003) .(033) .(033) .(033)
 Destination Port : (00133)
```

Menu appearance when DNS is chosen
```
    Destination IP : Static(N) Host name(Y)  :  (N) ? Y
    Host name (max. 29 char) www.yourwebsite.com :
    Backup destination IP : (255) .(255) .(000) .(000)
    Destination Port : (00654)
    Source port...
```

TCP Active (Host)(Y) or Passive (Server)(N) connection : (Y) ?

Enter "*y*" to set active connection mode.

Destination IP : Static(N) Host name(Y) : (*x**) ?

Enter "*y*" to set destination IP address via host name.

Enter "*n*" to set destination IP address via IP number.

Destination IP :

Enter a four byte long destination IP address. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value.

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. Press only *Enter* if you don't want change the current value.

Backup destination IP :

Enter a four byte long backup destination IP address. This address is used when the DNS resolution of the host name fails.

Destination Port : (*x)**

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

Source Port : (*x)**

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

Wait time for connection establish [ms]: (*x) ?**

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*.

Enable backup destinations IP addresses ? (*x) ?**

Enter "*y*" if you want to enable backup destination addresses.

Enter "*n*" if you want only one destination address. Entering "*n*" ends the settings of this mode in this step.

Number of retries when connecting (0-9): (*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.

Destination IP - *s: (*x**) . (*x**) . (*x**) . (*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*.

Enter a four byte long destination IP address. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value.

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.

Destination Port : (*x)**

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

*Note: x** - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

TCP/IP passive connection mode

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

```
TCP/IP to M-Bus converter
    TCP Active (Host)(Y) or Passive (Server)(N) connection  :  (Y) ? N
>> TCP Passive connection <<
    Source Port     : (01345)
```

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. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

UDP to M-Bus converter

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

```
UDP to M-Bus converter
  Source Port      : (10001)
  Destination IP   : (169) .(254) .(100) .(001)
  Destination Port : (10001)
```

Source Port : (*x**)

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

Destination IP :

Enter a four byte long destination IP address. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value.

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.

Note: *x** - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

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 Setup (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.

```
Smart M-Bus application
 0 Set M-Bus meters address
 1 Set M-Bus meters address range
 2 Set read period
 3 Set retry count
 4 Set timeout for response
 5 Extended M-Bus settings
 6 Allow M-Bus exports
 7 Allow TCP/UDP connection to virtual M-Bus - disabled
 9 Back                      Your choice ?
```

Press a number key corresponding to the desired submenu to enter it.

0 Set M-Bus meters address

Submenu for setting the M-Bus slave addresses.

1 Set M-Bus meters address range

Submenu for setting the M-Bus slave addresses in incremental ranges. This feature is available only with converters which support 10 or more meters.

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 Allow M-Bus exports

Submenu for enabling / disabling meter data exports.

7 Allow TCP/UDP connection to virtual M-Bus - *val**

The converter can also work as a set of virtual M-Bus meters connected to the TCP or UDP port.
You can enable or disable this mode by pressing the key "*7*".

8 Set up TCP/UDP connection

Submenu for setting TCP/UDP connection parameters. TCP/UDP connection must be enabled in menu 7.

Note: *val** - current value (enabled / disabled).

Set M-Bus meters address

Set primary M-Bus addresses of the meters. This setting tells the converter which addresses should be used for communication with the meters.

```
Set M-Bus meters
 M-Bus address (0-250, 254-broadcast, 255-off)
 M-Bus meter 1 :
   Address :  (13) ?
 M-Bus meter 2 :
   Address :  (63) ?
 M-Bus meter 3 :
   Address :  (113) ?
 M-Bus meter 4 :
   Address :  (163) ?
 M-Bus meter 5 :
   Address :  (0) ?
```

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.

Note: *m** - current meter.

   *x** - meter's address. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

Set M-Bus meters address range

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 start address number and is incremented by 1 for each meter until the last address number. The start number and the last 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 in the *Set M-Bus meters address* menu which are 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**

Address range

		M-Bus begin address		M-Bus end address	
	1				250
Extended read period		☑	☑		
Extended retry counter		☑	☐		
Extended timeout for response		☑	☐		
Simplified HTML export		☑	☑		
No multiframe communication		☐	☑		

**Single
M-Bus meter
address**

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

Address range settings

```
 Set M-Bus meters ranges
  M-Bus address (0-250, 255-off)
  Address range: 1
  M-Bus begin address    :  (0)  ?
  M-Bus end address      :  (1)  ?
  Extended read period   :  (N)  ?
  Extended retry counter :  (Y)  ?
  Extended timeut for response :  (N)  ?
  Simplified HTML export :  (N)  ?
  Address range: 2
  M-Bus start address    :  (100) ?
  M-Bus last address     :  (105) ?
  Extended read period   :  (N)  ?
  Extended retry counter :  (N)  ?
  Extended timeut for response :  (Y)  ?
  Simplified HTML export :  (N)  ?
```

Address range: *r**

M-Bus begin address : (x***)**

Starting 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 <u>M-Bus end address</u>.

Value of 255 will turn off the given range.

M-Bus end address : (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 then the <u>M-Bus begin address</u>.

Value of 255 will turn off the given range.

Extended read period : (x***) ?**

Enter "*y*" to use extended read period for all meters in the range. Enter "*n*" to use the default read period value.

Extended retry counter : (x***) ?**

Enter "*y*" to use extended retry count for all meters in the range. Enter "*n*" to use the default retry count value.

Extended timeut for response : (x***) ?**

Enter "*y*" to use the extended response wait time for all meters in the range. Enter "*n*" to use the default timeout.

Simplified HTML export : (*x****) ?**

Enter "*y*" to enable a simplified data export of the M-Bus values on the HTML page. Enter "*n*" for full export of the M-Bus values.

Note: r* - address range number.

　　　　x* - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

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 (approx. 18 hours).

```
Read period (1-65535s)
 Read period (N-seconds, Y-minutes):  (N) ?
 Default read period :  (10) ?
 Extended read period :  (60) ?
```

Read period (N-seconds, Y-minutes) : (*x****) ?**

Choose read period units. If "*n*" entered readout period will be in seconds, else in minutes.

Default read period : (*x****) ?**

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 then 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.

Extended read period : (*x****) ?**

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 then 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: x* - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

Set retry count

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

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

```
Retry counter if no or bad response (0-7)
 Default retry count :  (1) ?
 Extended retry count :  (3) ?
```

Default retry count : (*x****) ?**

Enter default retry count.

Extended retry count : ($x*$) ?

Enter extended retry count.

Note: $x*$ - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

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 time-out 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.

```
Timeout for M-Bus response (10-5000ms)
 Default timeout for response :  (100) ?
 Extended timeout for response :  (200) ?
```

Default timeout for response : ($x*$) ?

Enter default wait time for an M-Bus response.

Extended timeout for response : ($x*$) ?

Enter extended wait time for an M-Bus response.

Note: $x*$ - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

Extended M-Bus settings

Set extended parameters for individual M-Bus meters.

```
Extended M-Bus settings
 M-Bus meter 1 :
  Extended read period        :  (Y) ?
  Extended retry counter      :  (N) ?
  Extended timeout for response :  (N) ?
  Simplified HTML export      :  (N) ?
  No multiframe communication :  (N) ?
  Disable this address in range :  (N) ?

 M-Bus meter 2 :
 .....
```

M-Bus meter $m*$:
 Extended read period : ($x*$) ?

Enter "y" to use extended read period for meter $m*$. Enter "n" to use the default read period value.

 Extended retry counter : ($x*$) ?

Enter "y" to use extended retry count for meter $m*$. Enter "n" to use the default retry count value.

Extended timeout for response : (*x**) ?

Enter "*y*" to use the extended response wait time for meter *m**. Enter "*n*" to use the default timeout value.

Simplified HTML export : (*x**) ?

Enter "*y*" to enable a simplified data export of the M-Bus values on the HTML page. Enter "*n*" for full export of the M-Bus values.

No multiframe communication: (*x**) ?

Enter "*y*" 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.
Enter "*n*" for normal operation.

Disable this address in range: (*x**) ?

This feature is available only with converters which support 10 or more meters.
Enter "*y*" 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.
Enter "*n*" for normal use of the extended settings for the address.

Address range

M-Bus begin address   M-Bus end address

1   250

Single M-Bus meter address   ☑ Dissable this address in range
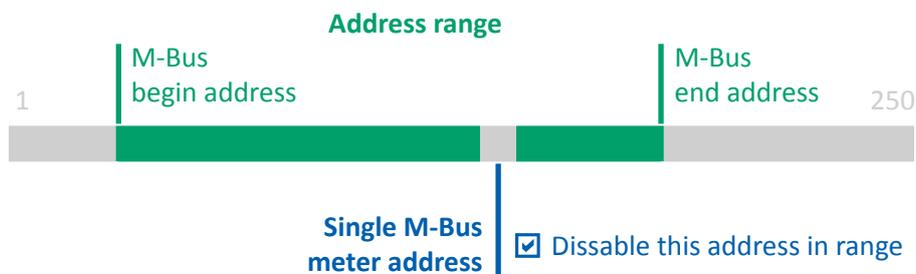
Excluding an address from an Address range.

Note: *m** - meter number.

*x** - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

M-Bus export settings

Enable or disable M-Bus exports.

```
M-Bus export settings
 Allow XML export                : (Y) ?
 Allow CSV export                : (Y) ?
 Allow state.xml                 : (Y) ?
 Allow web page with M-Bus meters : (Y) ?
 Protect web page with password  : (Y) ?
 Enter password :
```

Allow XML export : (*x**) ?

Enter "*y*" to enable XML export of the M-Bus meter data. Enter "*n*" to disable this export.
The XML file can be obtained at: *<ip address of the converter>*/mbus.xml
The link for the XML file in the REST technology format is: *<ip address of the converter>*/mbus.xml?f=rest

Allow state.xml : (*x**) ?

Enter "*y*" to enable state.xml. Enter "*n*" to disable this function. This export contains status information about

the meter readout and can also control the readout process. More information 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.

Allow CSV export : (*x**) ?
Enter "*y*" to enable CSV export of the M-Bus meter data. Enter "*n*" to disable this export.
The CSV 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 the standard spreadsheet interchange format used in software office suites.
The CSV file can be obtained at: *<ip address of the converter>*/mbus.csv

Allow web page with M-Bus meters : (*x**) ?
Enter "*y*" to enable the M-Bus meter data web page in the Web Interface and the standalone HTML page. Enter "*n*" to disable it.

Protect web page with password : (*x**) ?
Enter "*y*" to protect the entry of the M-Bus meter data web page and the standalone HTML page with a password. Enter "*n*" to let the pages be freely available.

Enter password :
Enter a new password for the M-Bus web page. The maximum length of the password is 16 characters. Press Enter only for no password.

Note: x* - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

Set up TCP/UDP connection

Choose between a TCP/IP or UDP type of connection for the communication to the virtual M-Bus meters.
Set up the network parameters.

UDP connection

Set up UDP network parameters.
Settings are the same as in the *UDP to M-Bus converter* menu.

TCP/IP connection

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

M-Bus line settings

Communication settings of the M-Bus line.

```
 M-Bus line setting
  Baud rate (2400)
  Normal M-Bus data format 8E1 (Y) or user (N)  (Y) ?
  Settings = 8bits, even parity, 1stop
  M-Bus data packeting 0 B (0-no, 1-255[B]) :

  Normal M-Bus data format 8E1 (Y) or user (N)  (Y) ? N
  I/F Mode - see manual (7C) ?
  M-Bus data packeting 0 B (0-no, 1-255[B]) :
```

Baud rate (*x**)

Enter the baud rate of the M-Bus line.

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

Normal M-Bus data format 8E1 (Y) or user (N) (*x**) ?

Set M-Bus data format. Enter "*y*" to use default parameters.

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

If you need other data format press "*n*".

I/F Mode - see manual (7C) ?

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.

M-Bus data packeting *x** **B (0-no, 1-255[B]) :**

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.

Enter 0 to disable this feature. Enter a number in a 1 - 255 range to enable packeting.

This is the Byte 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.

Note: This feature is available in firmware version 1.9.6.9 or later.
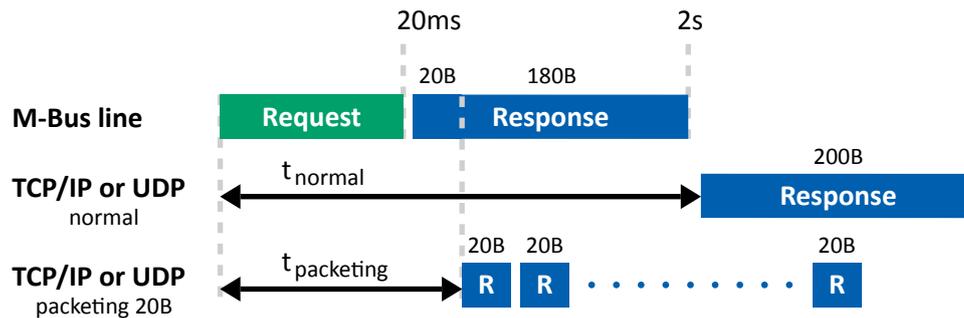
Principle of packeting operation. Time values are only illustrative.

Note: *x** - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

E-mail/FTP notifications and exports

E-mail configuration

Configuration of the e-mail functionality.

```
E-mail/FTP menu
  0 Send export: E-mail
  1 E-mail/FTP server
  2 E-mail address
  3 E-mail settings
  4 Back                     Your choice ?
```

Press a number key corresponding to the desired submenu to enter it.

0 Send export: E-mail

Current mode of messaging, exports sent by E-mail. Pressing "*0*" toggles the setting to FTP mode.

Note: Some settings of the E-mail configuration will be deleted when switching the modes.

1 E-mail server

Configuration of the e-mail server IP address, port, name.

2 E-mail address

Setup of the recipient's e-mail address.

3 E-mail settings

Setup of the e-mail functionality. Allow or disable exports, reports.

E-mail/FTP server

Configuration of the e-mail or FTP server IP, port, name.

```
E-mail/FTP server
  Server IP   : (169) .(168) .(159) .(020)
  Server Port : (00025)
  Use server domain name  (Y) ?
  Domain name (max. 23 char) (www.server.com)?
```

Server IP   :

Enter a four byte long e-mail or FTP server IP address. Enter numbers in a 0 - 255 range or just press *Enter* if you don't want to change the current value.

Server Port :

Enter the e-mail server port number. Default value is 25 for E-mail server 21 for FTP server.

Use server domain name (Y) ?

Enter "*y*" to set the destination IP address as a host name. Enter "*n*" to use only server IP.
Server IP becomes a backup IP address if a domain name is used.

Domain name (max. 23 char) *x* :

Enter the web address of the e-mail server. The maximum length of the host name is 23 characters. Press *Enter* if you don't want change the current value.

Note: *x* - current value.

E-mail address

Setup of the recipient's e-mail address.

```
E-mail address
  Change e-mail address 1 (name1@server.com)?
  Change e-mail address 2 (name2@server.com)?
  Clear e-mail address 2?  (N) ?
  Change e-mail address err (name_err@server.com)?
```

Change e-mail address 1 (*name1@server.com*)?

An E-mail address to which the M-Bus meter data exports are sent to. This functionality needs to be enabled in the *E-mail settings* menu.

Enter a valid e-mail address. The maximum length of the e-mail address is 29 characters. Press *Enter* if you don't want change the current value.

Change e-mail address 2 (*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. The maximum length of the e-mail address is 29 characters. Press *Enter* if you don't want change the current value.

Clear e-mail address 2? (N) ?

Enter "*y*" to clear the e-mail address 2. This menu is displayed only if the second e-mail address is set.

Change e-mail address err (*name_err@server.com*)?

Enter an e-mail address to which the converter error reports are sent to. The maximum length of the e-mail address is 28 characters. Press *Enter* if you don't want change the current value.

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

E-mail settings

Setup of the e-mail functionality. Allow or disable exports, reports.

```
E-mail settings
  Send M-Bus exports (Y) ?
  Send M-Bus 0-xml, 1-csv, 2-xml(REST) (0):
  Set timeout for sending 1-65000[min] (10) ?
  Send error reports about:
   Reset  (Y) ?
   M-Bus meter communication  (N) ?
```

Send M-Bus exports (Y) ?

Enter "*y*" to enable sending of the e-mails with the M-Bus meters data. Settings of the recipient's e-mail addresses can be found in the *E-mail address* menu. 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 setting in the *Send M-Bus 0-xml, 1-csv, 2-xml(REST)* submenu.

Send M-Bus 0-xml, 1-csv, 2-xml(REST) (*x**):

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

Enter "*0*" for an XML M-Bus export. Enter "*1*" for a CSV M-Bus export. Enter "*2*" for an XML M-Bus export compatible with REST technology. This export setting is independent from the *M-Bus export settings* under the

Smart M-Bus application menu.

Set timeout for sending 1-65000[min] (*x**) ?

Enter the sending time-out value for 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.

Send error reports about:

Reset (*x**) ?

Enter "*y*" 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 in *Change e-mail address err* submenu of the *E-mail address* menu.

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

M-Bus meter communication (*x**) ?

Enter "*y*" 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 in *Change e-mail address err* submenu of the *E-mail address* menu.

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.

Note: *x** - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.

FTP configuration

Configuration of the FTP functionality.

```
E-mail/FTP menu
 0 Send export: FTP
 1 E-mail/FTP server
 2 FTP login
 3 FTP settings
 4 Back                    Your choice ?
```

Press a number key corresponding to the desired submenu to enter it.

0 Send export: FTP

Current mode of messaging, exports sent to FTP. Pressing "*0*" toggles the setting to E-mail mode.

Note: Some settings of the FTP configuration will be deleted when switching the modes.

1 E-mail/FTP server

Configuration of the FTP server IP address, port, name.

Same as the *E-mail/FTP server* settings in the *E-mail configuration*.

2 FTP login

Configuration of the login information for the remote FTP server.

3 FTP settings

Setup of the FTP functionality. Enable or disable exports, timeout, remote directory, file name etc.

FTP login

Configuration of the login information for the remote FTP server.

```
FTP login
  User name (not set)?
  Password (not set)?
```

User name (not set)?

Set the user name used for logging to the FTP server.

The maximum length of the user name is 29 characters. Press *Enter* if you don't want change the current value or if you want to clear it.

Password (not set)?

Set the password used for logging to the FTP server.

The maximum length of the password is 29 characters. Press *Enter* if you don't want change the current value or if you want to clear it.

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

FTP settings

Setup of the FTP functionality. Enable or disable exports, timeout, remote directory, file name etc.

```
FTP settings
  Send M-Bus exports (Y) ?
  Send M-Bus 0-xml, 1-csv, 2-xml(REST)(1):
  Set timeout for sending 1-65000[min] (1) ?
  FTP directory (/xml)?
  Timestamp in file name  (Y) ?
```

Send M-Bus exports (Y) ?

Enter "*y*" to enable sending of the M-Bus meters data export to FTP server.

Send M-Bus 0-xml, 1-csv, 2-xml(REST)(1):

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

Enter "*0*" for an XML M-Bus export. Enter "*1*" for a CSV M-Bus export. Enter "*2*" for an XML M-Bus export compatible with REST technology. This export setting is independent from the M-Bus export settings under the Smart M-Bus application menu.

Set timeout for sending 1-65000[min] (1) ?

Enter the sending time-out value for 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.

FTP directory (/xml)?

Set 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.

Timestamp in file name (Y) ?

Enter "*y*" to enable adding a timestamp to the export file name. Enter "*n*" 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 <u>*Converter*</u> <u>*name*</u>. 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

  *name*trrrrrvvvvvsssss*.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.
vvvvvsssss	- 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

  *name*yymmddhhnn.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.

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

Log history

```
LOG menu
 0 Show logged records
 1 Show new log records
 2 Set log filter - store
 3 Set log filter - show
 4 Show M-Bus meter status
 5 Back                    Your choice ?
```

Press a number key corresponding to the desired submenu to enter it.

0 Show logged records

Show logged records. When entered, listing of stored records starts. Listing starts from the last recorded log to the newest. The listing can be interrupted by pressing any key.

This listing is useful for searching in the log history.

Example of a log listing

```
  >>0d 0h:00:08.034 >> COM->TCP data length = 80 [B]
  >>0d 0h:00:07.189 >> TCP->COM data length = 5 [B]
  >>0d 0h:00:05.153 >> TCP connection ok
  >>0d 0h:00:04.178 >> TCP active connection -> IP(0): 169.254.26.1 P: 10001
  >>0d 0h:00:04.178 >> DNS resolve failed
  >>0d 0h:00:04.178 >> IP connection lost
  >>0d 0h:00:03.248 >> TCP connection ok
  >>0d 0h:00:03.015 >> TCP active connection -> IP(0): 169.254.26.1 P: 10001
  >>0d 0h:00:03.015 >> DNS resolve failed
  >>0d 0h:00:03.015 >> ***** START OF LOG *****
  END of log record
```

1 Show new log records

Starts listing new log records. If there are no new log records a dot (.) will be listed every 200ms.

The listing can be interrupted by pressing any key.

This listing is useful for watching the current activity of the converter.

```
  >>0d 0h:08:26.109 >> DNS resolve failed
  >>0d 0h:08:26.109 >> TCP active connection -> IP(0): 169.254.26.1 P: 10001
.
  >>0d 0h:08:26.134 >> TCP connection ok
  >>0d 0h:08:26.140 >> TCP->COM data length = 5 [B]
.
  >>0d 0h:08:27.235 >> COM->TCP data length = 80 [B]
........
  >>0d 0h:08:28.176 >> TCP->COM data length = 5 [B]
..
  >>0d 0h:08:29.022 >> COM->TCP data length = 80 [B]
......
```

2 Set log filter - store

Set logging filter for the storage of new records. Only record types which are ON will be stored. Since the storage space is limited, it is useful to set up filter to have a longer history of certain types of records.

Pressing the number keys "*0*" to "*6*" directly toggles the setting between ON and OFF.

```
Filter of logging
  0 M-Bus communication logs - ON
  1 TCP communications logs - ON
  2 UDP communications logs - ON
  3 System communications logs - ON
  4 System logs - ON
  5 Error logs - ON
  6 Logging logs - ON
  9 Back               Your choice ?
```

3 Set log filter - show

Set logging filter for listing of records. Only record types which are ON will be listed.

It is useful to set up a filter to list only some types of records.

Pressing the number keys "*0*" to "*6*" directly toggles the setting between ON and OFF.

```
Filter for showing logs
  0 M-Bus communication logs - ON
  1 TCP communications logs - ON
  2 UDP communications logs - ON
  3 System communications logs - OFF
  4 System logs - ON
  5 Error logs - ON
  6 Logging logs - OFF
  9 Back               Your choice ?
```

4 Show M-Bus meter status

Lists current communication status of all M-Bus meters.

This menu is visible only if the converter is in the "Smart M-Bus application" mode.

```
 M-Bus meter status
  0. Address 13, Setting 8
     Commun. status - not started, Ok/Err 0/0
  1. Address 63, Setting 0
     Commun. status - not started, Ok/Err 0/0
  2. Address 113, Setting 0
     Commun. status - not started, Ok/Err 0/0
  3. Address 163, Setting 0
     Commun. status - not started, Ok/Err 0/0
  4. Disabled
  Repeat status list? (N) ?
```

num*. **Address** *adr**, **Setting** *set**
         Commun. status - *stat**, **Ok/Err** *a**/*b**

Listing of an M-Bus meter status:
- *num** - number of the meter (0., 1., 2., etc.)
- *adr** - M-Bus address
- *stat** - communication status:
  - not started   - communication with this meter did not start yet.
  - Ok   - communication is ok.
  - last read - error   - last read of this meter wasn't successful.
  - last two reads - error - last two reads weren't successful.
  - no response   - meter doesn't respond to M-Bus requests.
- *a** - count of successful M-Bus responses.
- *b** - count of no or bad M-Bus responses.

Note: The maximum value of *a** and *b** is 255. On the next increase of a value equal to 255, both values will be divided by 2.

Repeat status list? (N) ?

The statuses of the meters are continuously changing however the displayed status list is static. To refresh the list and repeat the status readout press "*y*". Press "*n*" to escape from this menu.

Security

Security settings of the converter.

```
 Security settings
  Disable Telnet Setup (N) ?
  Disable TFTP Firmware Update (N) ?
  Disable Port 77FEh (N) ?
  Disable Web Server (N) ?
  Enable CPU high power (N) ?
  Disable Web Setup (N) ?
  Change config password (N) ? Y
  Enter new password:
```

Disable Telnet Setup (*x**) ?

Enter "*y*" to disable the Telnet setup. Default value is "N" - Telnet setup is enabled.

The Telnet setup can be re-enabled only trough the Web Setup (Web Interface).

Disable TFTP Firmware Update (*x**) ?

Enter "*y*" to disable the use of TFTP to perform firmware updates through network.

Default value is "Y".

Disable Port 77FEh (*x**) ?

Port 77FE is a setting that allows the Lantronix DeviceInstaller, Web-Manager, and custom programs to configure the converter remotely. You may want to disable this capability for security reasons.

Enter "*y*" to disable this feature. Default value is "N".

Disable Web Server (*x**) ?

Enter "*y*" to disable the web server. No web services will be available.

Default value is "N".

Enable CPU high power (*x**) ?

Change CPU clocking frequency. Default value is "N" which means normal CPU performance. If a faster response is required from the converter set high power to "Y".

Disable Web Setup (*x**) ?

Enter "*y*" to disable the Web Setup (Web Interface) pages. The Web Setup can be re-enabled only trough the Telnet setup.

Change config password (*x**) ?

Password configuration for Telnet and Web Setup. Press "*y*" to enter a new password.

Enter new password:

Enter a new password for Telnet and Web Setup (Web Interface). The maximum length of the password is 16 characters. Press *Enter* only for no password.

Note: *x** - current value. Pressing the *Enter* key without any other input will retain the current setting i.e. the value will remain the same.