

Converter MBUS to Ethernet for 60 devices

r1

User manual

Mar 03 2022



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1. Device parameters

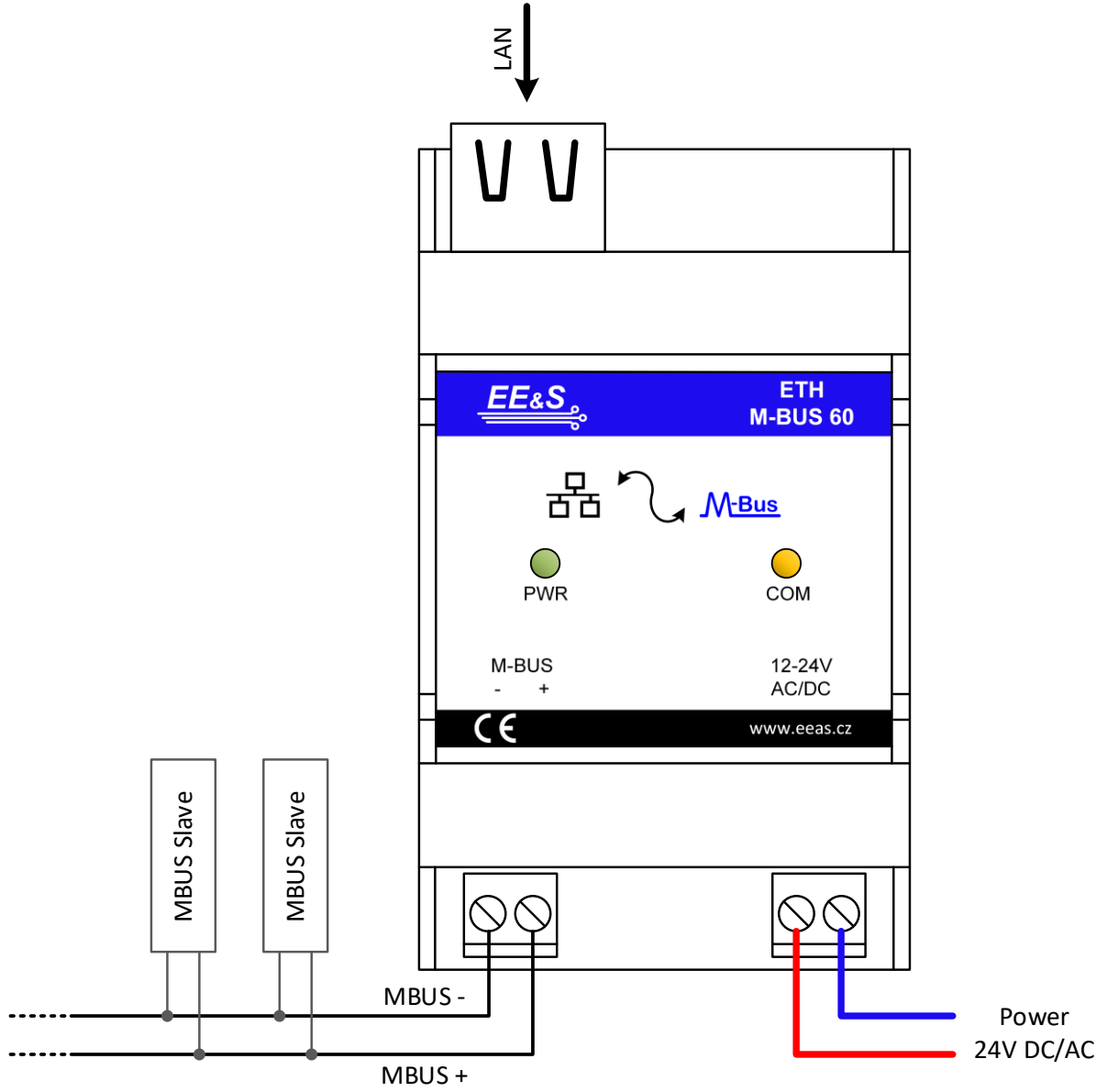
Power supply	12 – 24 V AC/DC*
Power consumption with no slave connected	1,8 W
Power consumption with 60 slaves connected	5,5 W
Maximum number of MBUS slaves	60
Maximum MBUS cable length (300 baud)	1000 m
Dimension	93 x 54 x 61 mm

* preferably DC for better efficiency performance

2. Factory settings

IP adress	192.168.0.100
Subnet mask	255.255.255.0
Gateway	192.168.0.1
TCP Port	5000
MBUS Baudrate	9600
MBUS Parity	Even
Webserver Username	Leave empty
Webserver Passaword	Leave empty

3. Front view and connection schematic



The device is equipped with two LEDs. The green LED labeled as “PWR” indicates the presence of the power supply with a steady light. The yellow LED labeled as “COM” flashes when a packet is sent to or received from the MBUS line.

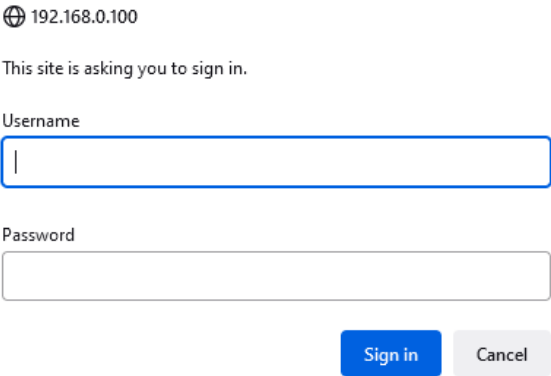
4. Description

The converter translates packets between MBUS physical layer and the TCP/IP socket. The payload from TCP/IP socket is sent transparently to the MBUS and responses from the MBUS slaves are sent to the socket in return.

The device is powered by a power supply in the range of 12 to 24VDC/VAC and can communicate with up to 60 MBUS slave devices. However, the DC power supply is recommended due to better efficiency parameters. The maximum length of the cable segment connected to the slave can be up to 1000 meters with a communication speed of 300 bps. For easier management of TCP/IP packets in the master system, a utility “COM Port Redirector (RFC2217)” is available. This utility allows redirection of TCP/IP packets to Virtual COM Port, alternatively to OPC server.

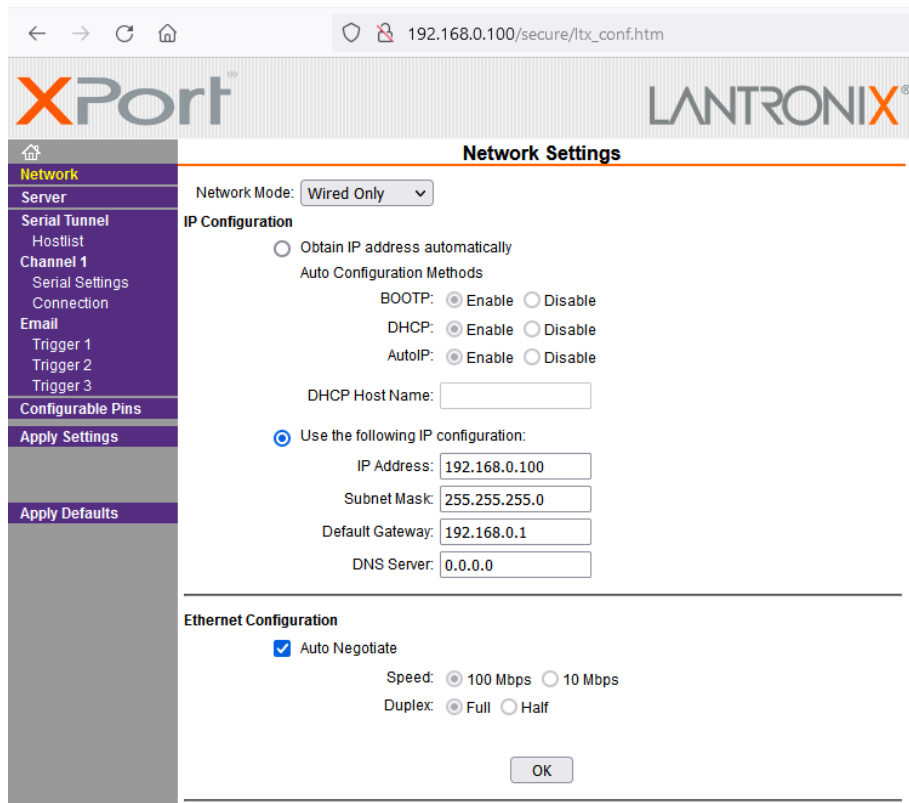
5. Device setup using webserver

The device is equipped with a webserver working on a standard HTTP port. Connect the device power supply and a LAN cable to your network and execute “http://192.168.0.100” in your web browser to access the webserver. If the device IP address has been changed, used the current IP address instead. The web server may ask for login credentials. The device factory settings are to leave the fields empty and click on the Sign In button (see picture below).

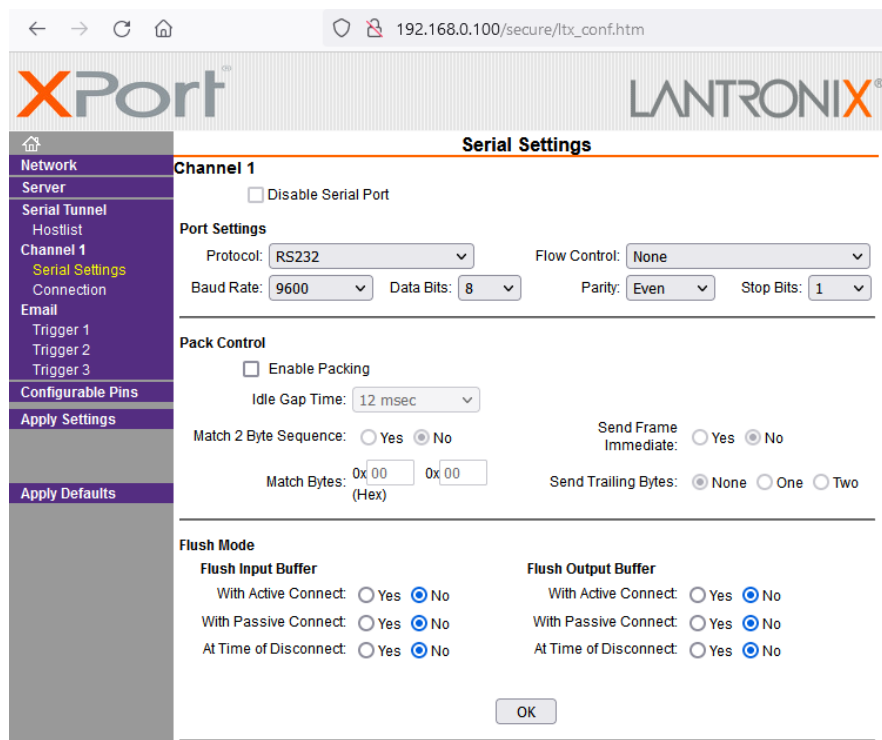


The screenshot shows a web browser address bar with the URL "192.168.0.100". Below the address bar, the text "This site is asking you to sign in." is displayed. There are two input fields: "Username" and "Password". The "Username" field is currently empty and has a blue border. The "Password" field is also empty. At the bottom right, there are two buttons: "Sign in" (blue) and "Cancel" (grey).

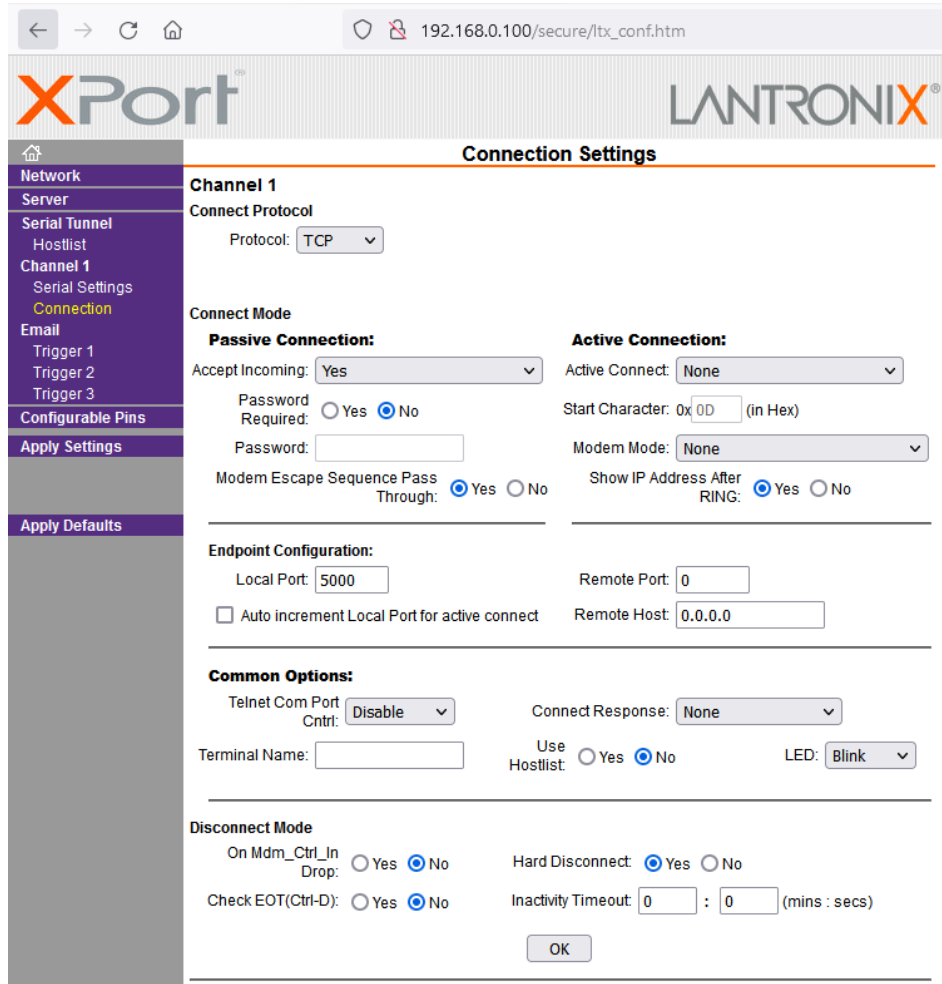
A main window of the web server will be shown after successful login. Basic device settings are displayed in a table. Click on the Network button on the left side of the window to access the network settings. A screenshot of the network is shown in the picture below. Edit the necessary fields, click on the OK button and click on the Apply Settings button on the left side panel to apply network settings.



Click on the Serial Settings button to show MBUS communication parameters. A screenshot of the Serial Settings window is shown in the picture below. Edit the necessary fields, click on the OK button and click on the Apply Settings button on the left side panel to apply MBUS serial settings.



The Connection page allows the user to edit the parameters of the TCP/IP socket. The screenshot of the connection page is shown in the picture below. Edit the necessary fields, click on the OK button and click on the Apply Settings button on the left side panel to apply TCP/IP socket settings.



6. Device setup using Telnet

An alternative way to the web server is to use a Telnet server to set up the network and serial parameters. Connect the device power supply and a LAN cable to your network. Run the command line and type “telnet 192.168.0.100 9999” on the Windows operation system, see the picture below. If the device IP address has been changed, use the current address instead. Type command “telnet 192.168.0.100:9999” on Unix operating system.



```
Príkazový riadok
C:\Users>telnet 192.168.0.100 9999
```

Press Enter and the server will ask you if you want to proceed to the Setup Mode. Press Enter again within 5 second, the Setup mode screen will be displayed. See the listing below.

```
MAC address 0080A3F70A57
Software version V6.10.0.3 (171229) XPTXEXE

Press Enter for Setup Mode

...

Change Setup:
 0 Server
 1 Channel 1
 3 E-mail
 5 Expert
 6 Security
 7 Defaults
 8 Exit without save
 9 Save and exit                Your choice ?
```

Press “0” to activate the Network settings page. The server will step by step ask for the IP address, Gateway, DHCP server, and parameters. The current values of each parameter are shown in round brackets. An example of the command flow is shown in the listing below.

```
IP Address : (192) 192.(168) 168.(000) 000.(100) 100
Set Gateway IP Address (Y) ? Y
Gateway IP addr (192) 192.(168) 168.(000) 000.(001) 001
Netmask: Number of Bits for Host Part (0=default) (8) 8
Set DNS Server IP addr (N) ? N
Change Telnet/Web Manager password (N) ? N
```

Press “1” to activate MBUS serial settings page. The server will step by step ask for the baudrate, serial communication parameters, and others. The current values of each parameter are shown in round brackets. An example of the command flow is shown in the listing below.


```

Baudrate (9600) ? 9600
I/F Mode (7C) ? 7C
Flow (00) ? 00
Port No (5000) ? 5000
ConnectMode (C0) ? C0
Send '+++' in Modem Mode (Y) ? Y
Show IP addr after 'RING' (Y) ? Y
Auto increment source port (N) ? N
Remote IP Address : (000) 000.(000) 000.(000) 000.(000)
000
Remote Port (0) ? 0
DisConnMode (00) ? 00
FlushMode (00) ? 00
DisConnTime (00:00) ?00:00
SendChar 1 (00) ? 00
SendChar 2 (00) ? 00

```

Some of the parameters are set in a form of a hexadecimal number. They are I/F mode, Flow, ConnectMode, DisConnMode, and FlushMode. The next tables document the meaning of the particular binary words.

6.1. I/F (Interface) Mode

Default value: 7C hex

I/F mode option	7	6	5	4	3	2	1	0
RS-232C							0	0
7 Data Bits					1	0		
8 Data Bits					1	1		
No parity			0	0				
Odd parity			0	1				
Even parity			1	1				
1 stop bit	0	1						
2 stop bits	1	1						

Examples:

- RS-232C, 8-bit, No Parity, 1 stop bit: 4C hex
- RS-232C, 7-bit, Even Parity, 1 stop bit: 78 hex
- RS-232C, 8-bit, Even Parity, 1 stop bit: 7C hex

6.2. Flow Control

Default value: 00 hex

Flow Control option	Hex
No flow control	00
XON/XOFF flow control	01
RTS/CTS handshake	02
XON/XOFF pass character to host	05

6.3. Connect mode

Default value: C0 hex

I/F mode option	7	6	5	4	3	2	1	0
a) Incoming connection								
Never accept incoming	0	0	0					
Accept with active Modem Control In	0	1	0					
Always Accept	1	1	0					
b) Response								
Nothing (quiet)				0				
Character response (C=connect, D=disconnect, N=unreachable)				1				
c) Active Startup								
No active startup					0	0	0	0
With any character					0	0	0	1
With active Modem Control In					0	0	1	0
With a specific start character					0	0	1	1
Manual connection					0	1	0	0
Autostart					0	1	0	1
Hostlist	0	0	1	0				
d) Datagram Type								
Directed UDP					1	1	0	0
e) Modem Mode								
No Echo			0	0		1	1	
Data Echo & Modem Response (Numeric)			0	1		1	1	1
Data Echo & Modem Response (Verbose)			0	1		1	1	0
Modem Response Only (Numeric)			0	0	1	1	1	1
Modem Response Only (Verbose)			0	0	1	1	1	0

6.4. Disconnect mode

Default value: 00 hex

Disconnect Mode Option	7	6	5	4	3	2	1	0
Disconnect when Modem Control In is not asserted ⁽⁶⁾	1							
Ignore Modem Control In	0							
Telnet Com Port Cntrl and terminal type setup ⁽¹⁾		1						
Channel (port) password ⁽²⁾				1				
Hard disconnect ⁽³⁾					0			
Disable hard disconnect					1			
State LED off with connection ⁽⁴⁾								1
Disconnect with EOT (^D) ⁽⁵⁾			1					

⁽¹⁾ The Telnet Com Port Control feature is used in conjunction with Com Port Redirector. The unit sends the Terminal Type upon an outgoing connection.

⁽²⁾ A password is required for a connection to the serial port from the network.

⁽³⁾ The TCP connection closes even if the remote site does not acknowledge the disconnection.

⁽⁴⁾ When there is a network connection to or from the serial port, the state LED turns off instead of blinking.

⁽⁵⁾ When Ctrl+D or Hex 04 is detected, the connection is dropped. Both Telnet Com Port Cntrl and Disconnect with EOT must be enabled for Disconnect with EOT to function properly. Ctrl+D is only detected going from the serial port to the network.

⁽⁶⁾ When Modem Control In transitions from a high state to a low state, the network connection to or from the serial port drops.

6.5. Flush Mode

Default value: 00 hex

Flush Mode Option	7	6	5	4	3	2	1	0
Input Buffer (Serial to Network)								
Clear with a connection initiated from the device to the network				1				
Clear with a connection initiated from the network to the device			1					
Clear when the network connection to or from the device is disconnected		1						
Output Buffer (Network to Serial)								
Clear with a connection initiated from the device to the network								1
Clear with a connection initiated from the network to the device							1	
Clear when the network connection to or from the device is disconnected						1		
Alternate Packing Algorithm (Pack Control)								
Enable	1							

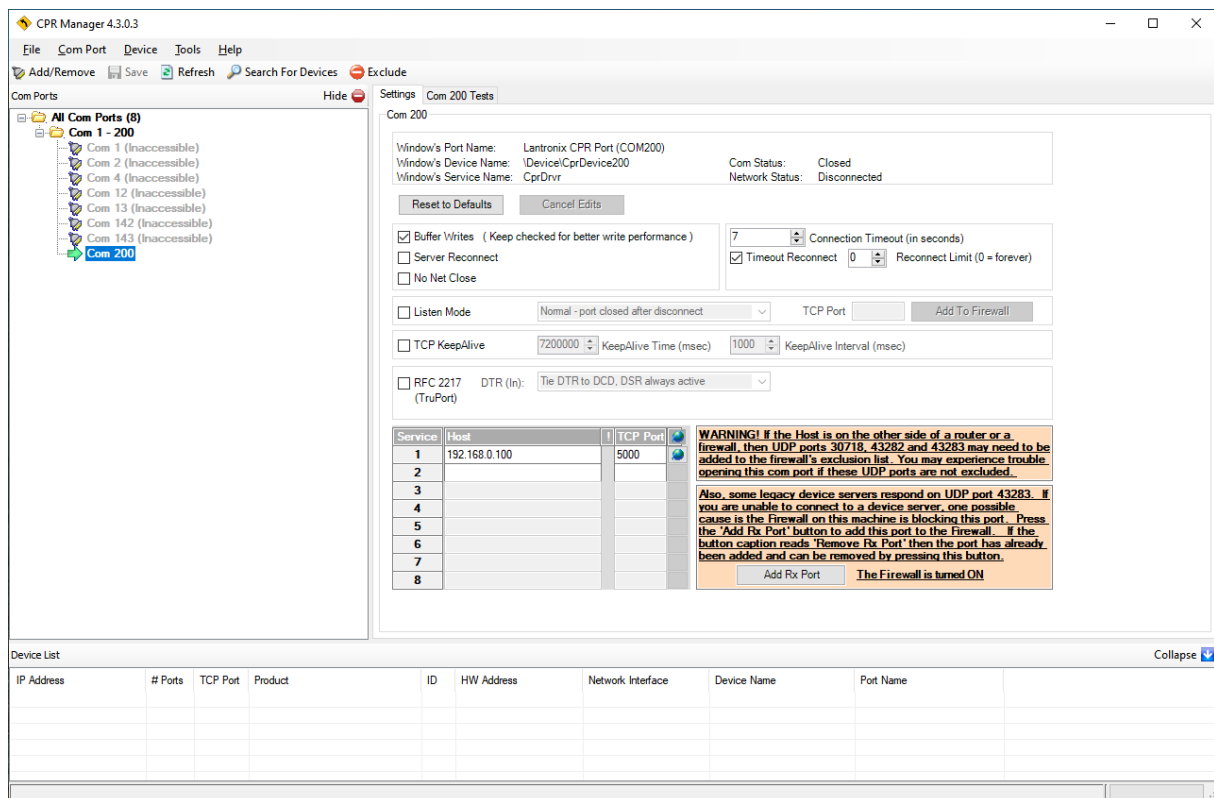
For further information related to the telnet setup refer to Lantronix Xport Device Server User Guide.

7. COM Port Redirector

In a situation when establishing a TCP socket is not able or not preferred on the host side a COM Port Redirector utility can be used. The utility creates a virtual COM port and retransmits data from the selected TCP socket to the COM port and vice versa. The utility can be downloaded from the link

<https://www.lantronix.com/products/com-port-redirector/>

A screenshot of the main window of the utility is shown in the picture below. The screenshot depicts a situation where COM 200 had been created and TCP port 5000 of the host "192.168.0.100" (which are the MBUS converter factory default settings) is assigned. Detailed information about the utility can be found on the website listed above.



**On behalf of
Embedded Electronics & Solutions, s.r.o.
we would like to thank you.**

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