6-channel Amplifier GSV-6ETH

Operation manual

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Contents

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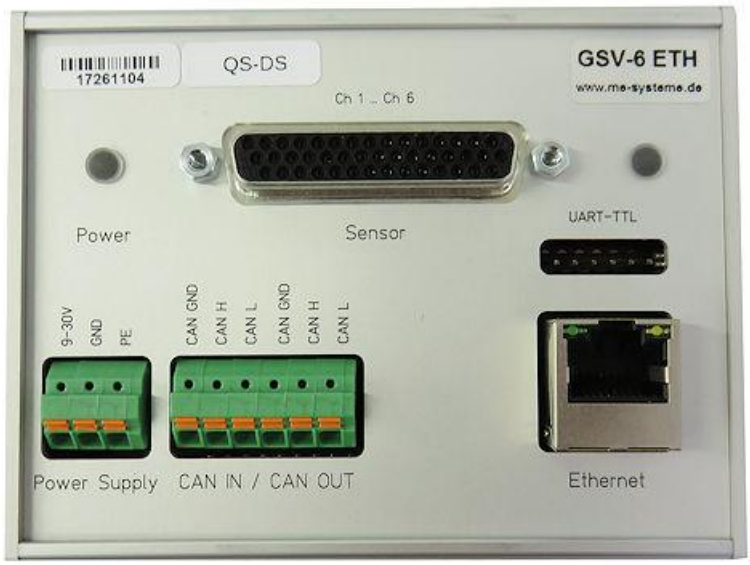
Measuring amplifier GSV-6ETH

6-channel measuring amplifier in DIN rail housing
1x SubD44HD for connecting 1-axis, as well as 3- and 6-axis sensors
Inputs configurable: 0.1 ... 8 mV/V, full bridge 350 Ohm
Data acquisition with 16Bit ADC
Measuring frequency up to 400Hz
Outputs 1x UART, 1x EtherNet, 1x CANbus
Independent calculation of the 3 forces and torques for 6-axis sensors
Reading TEDS data to channel 1



Description

The 6-channel measuring amplifier GSV-6ETH has an Ethernet communication module (XPICO) with which you can create a virtual ComPort via EtherNet. The signals from up to 6 measuring channels are transmitted.

Variants

Type	Sensor connection	Outputs
GSV-6ETH	1x SubD44HD	UART, CANbus, EtherNet

Interfaces

An EtherNet, CANbus and UART interface are available as communication interfaces.

The interface protocol on UART and Virtual ComPort (EtherNet) is identical and described in separate documentation (ba-gsvcom.pdf). The fieldbus protocol CANBus is standardized in the lower protocol layers and is also described at the application layer in the document (ba-gsvcom.pdf).

Software

The Windows program GSVmultichannel with a graphical user interface and Gsv8terminal.exe are suitable. A documented Windows function library (MEGSV8w32.dll) is available for self-programming users and a library with wrapper VIs for this DLL is available for programming with LabView ©.

Sensor connection

There are 6 analog inputs available:

- Full bridge strain gauge / transducer input
- Strain gauge input full bridges of 350 Ohm
- Input sensitivity configurable from 0.1 to 8 mV/V for all channels
- Bridge excitation (supply) voltage is 3VDC

In order for the measuring amplifier to display and record physical values correctly, it must be configured based on the connected sensor. If the sensor on channel 1 is equipped with TEDS and is wired correctly, it adopts the sensor configuration stored in the TEDS data. This includes system scaling ("AnalogOutScale"), user scaling and unit. The use of TEDS can be deactivated in GSVmultichannel under menu bar -> Sensor -> TEDS... The TEDS data can also be read and displayed in this dialog.
Sensors without TEDS can be configured with GSVmultichannel via the Configuration tab -> Input Type and ->Scaling

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Specifications

Analog Input

Accuracy class	0,1%
Number of analog inputs	6
Strain gauge input	Full bridge
Bridge supply voltage	3 VDC
Max. bridge supply current per channel	25 mA (min. resistance 120 Ohm)
Input sensitivity	0,1 mV/V to 8 mV/V

Power Supply

Supply voltage	9 to 24 VDC
Current consumption	< 200mA

Environmental data

Operating temperature	0 °C ... +60 °C
Protection class	IP20

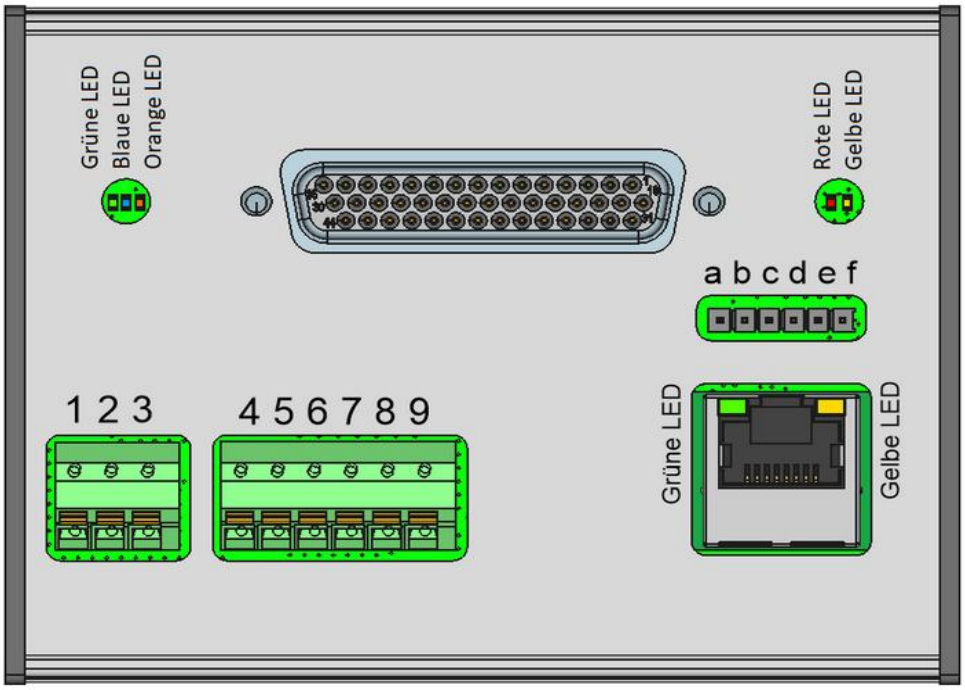
Interfaces

UART	TTL Level 3.3V 230400 Bits/s asynchronous, 8N1
EtherNet (XPC100A001-01-B)	TCP/IP, UDP/IP, ARP, Telnet, ICMP, SNMP, DHCP, BOOTP, TFTP, AutoIP, and HTTP
CANbus	Manufacturer specific (see ba-gsvcom.pdf) 1000000 Bits/s Standard ID 256 dec CAN-ID Command 257 dec CAN-ID Response

Switches and indicators

Green LED	ON = Power supply On (3,3V)
Blue LED	ON = XPICO Modul State (flashing pattern)
Orange LED	ON = VCC 5V On (UART-Connection)
Red LED	ON = Network half-duplex operation

Yellow LED	ON = 100Mbps Speed ; OFF = 10Mbps
Ethernet-Plug green LED left	ON = Aktive Led indication
Ethernet-Plug yellow LED right	ON = Link Led indication



If the cover on the right side is removed, you can see a four-pole DIP switch on the right. It offers the following:
Pos.1 Enable 120 Ohm terminating resistor for the CANbus
Pos.2 Here you can connect GND (= negative pole of the power supply) with PE (housing shield). There is an additional PE connection on the bottom.
Pos.3 Set manufacturer settings in the XPICO module
Pos.4 In the XPICO module RESET is executed

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Pin assignment

Input SUB-D44 HD

Up to 6 channels can be connected to the 44-pin SubD socket.

Channels 1,2,3,4,5,6, Sub-D HD 44			
Pin	**Signal**	**Description**	**Channel**
Shield	PE	Earth (housing)	-
1	UF+	Positive bridge supply	1
2	US+	Positive bridge supply	1
3	UD+	Positive differential input	1
4	UD-	Negative differential input	1
5	US-	Negative bridge supply	1
6	UF-	Negative bridge supply	1
7	TEDS	Transducer Electronic Data acc. to IEEE 1451.4 Channel 1	1
8	UF+	Positive bridge supply	2
9	US+	Positive bridge supply	2
10	UD+	Positive differential input	2
11	UD-	Negative differential input	2
12	US-	Negative bridge supply	2
13	UF-	Negative bridge supply	2
14	TEDS	Transducer Electronic Data acc. to IEEE 1451.4 Channel 1	1
15	GND	Ground	-
16	UF+	Positive bridge supply	3
17	US+	Positive bridge supply	3
18	UD+	Positive differential input	3
19	UD-	Negative differential input	3
20	US-	Negative bridge supply	3
21	UF-	Negative bridge supply	3
22	TEDS	Transducer Electronic Data acc. to IEEE 1451.4 Channel 1	1
23	UF+	Positive bridge supply	4
24	US+	Positive bridge supply	4
25	UD+	Positive differential input	4
26	UD-	Negative differential input	4

Channels 1,2,3,4,5,6, Sub-D HD 44			
Pin	**Signal**	**Description**	**Channel**
27	US-	Negative bridge supply	4
28	UF-	Negative bridge supply	4
29	TEDS	Transducer Electronic Data acc. to IEEE 1451.4 Channel 1	1
30	GND	Ground	-
31	UF+	Positive bridge supply	5
32	US+	Positive bridge supply	5
33	UD+	Positive differential input	5
34	UD-	Negative differential input	5
35	US-	Negative bridge supply	5
36	UF-	Negative bridge supply	5
37	TEDS	Transducer Electronic Data acc. to IEEE 1451.4 Channel 1	1
38	UF+	Positive bridge supply	6
39	US+	Positive bridge supply	6
40	UD+	Positive differential input	6
41	UD-	Negative differential input	6
42	US-	Negative bridge supply	6
43	UF-	Negative bridge supply	6
44	TEDS	Transducer Electronic Data acc. to IEEE 1451.4 Channel 1	1

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Connection terminals GSV-6ETH

Pos.	Labeling	Description
1	9-30V	Supply voltage plus
2	GND	Supply voltage minus
3	PE	Shield / housing
4	CAN GND	CANbus Ground (CAN IN)
5	CAN H	CANbus CAN H (CAN IN)
6	CAN L	CANbus CAN L (CAN IN)
7	CAN GND	CANbus Ground (CAN OUT)
8	CAN H	CANbus CAN H (CAN OUT)
9	CAN L	CANbus CAN L (CAN OUT)
a	UART-TTL	RTS (no function)
b	UART-TTL	RXD Output (3,3V TTL)
c	UART-TTL	TXD Input (3,3V TTL)
d	UART-TTL	VCC 5V Input (Supply line for internal switching)
e	UART-TTL	CTS (no function)
f	UART-TTL	GND Input (Supply line for internal switching)

See Switches and Indicators

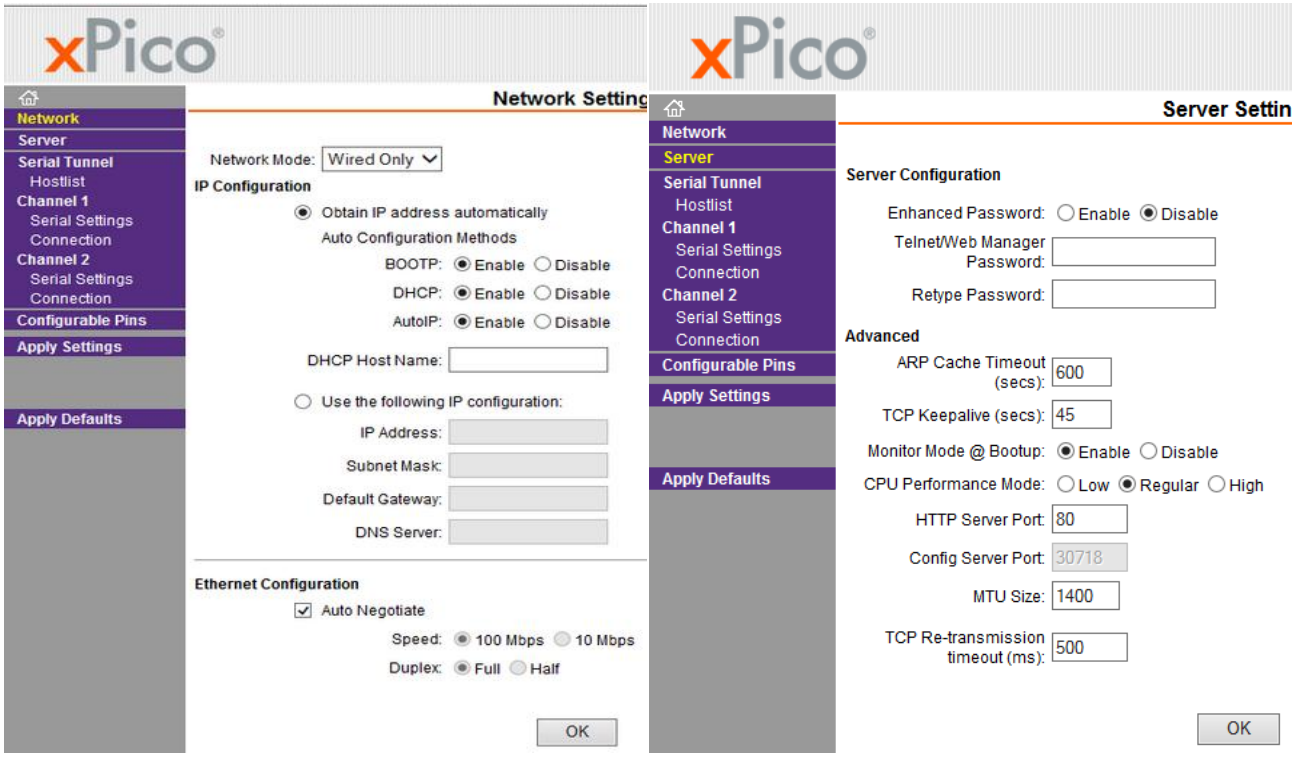
Connection of the TEDS cables for sensors with Transducer Elec. Data sheet

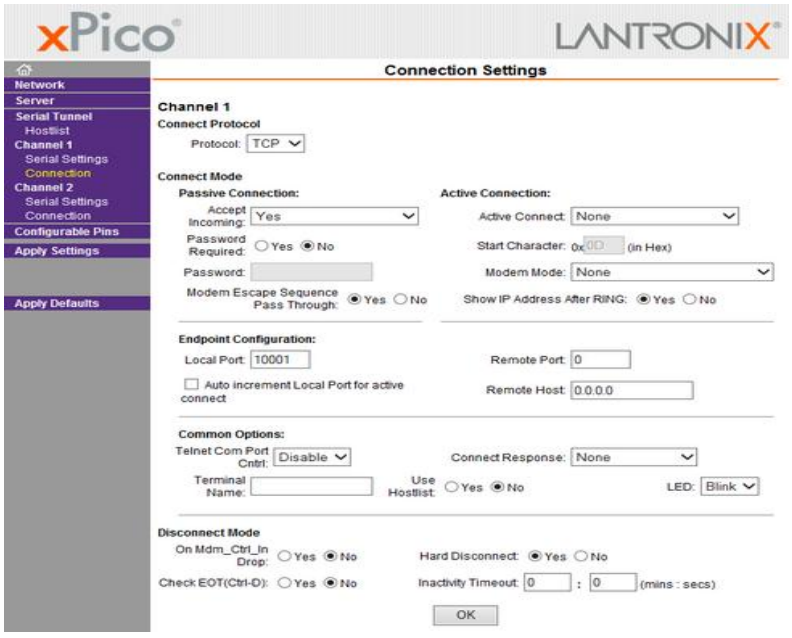
The 1-wire EEPROM memory chip located in the sensor or in the sensor plug is connected with two lines: the ground of the EEPROM to GND and the signal line (also its supply line) to the TEDS connection.

Additional information

Settings *XPICO* Module

Settings for Lantronix interface with access via RS232 (Lantronix DeviceInstaller software). The manufacturer configuration is shown below.





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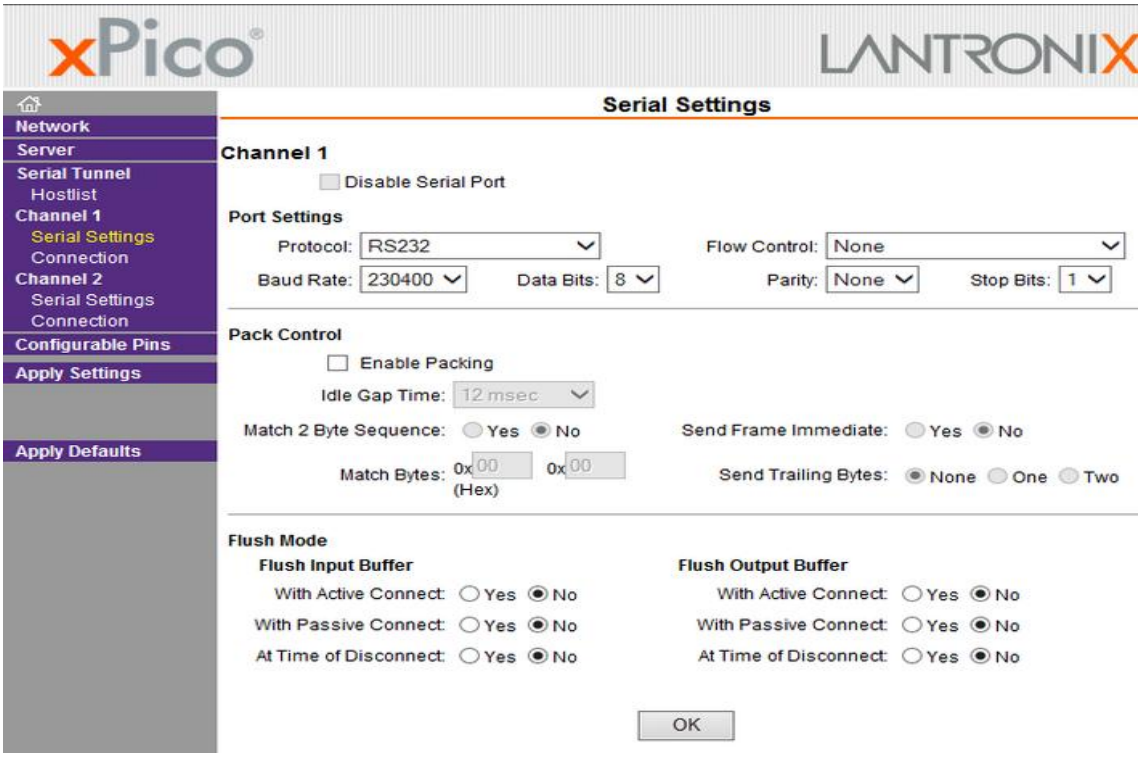
xPico
LANTRONIX
Network
Server
Serial Tunnel
Hostlist
Channel 1
Serial Settings
Connection
Channel 2
Serial Settings
Connection
Configurable Pins
Apply Settings
Apply Defaults
Serial Settings
Channel 1
Disable Serial Port
Port Settings
Protocol: RS232
Flow Control: None
Baud Rate: 230400
Data Bits: 8
Parity: None
Stop Bits: 1
Pack Control
Enable Packing
Idle Gap Time: 12 msec
Match 2 Byte Sequence: Yes No
Send Frame Immediate: Yes No
Match Bytes: 0x00 0x00 (Hex)
Send Trailing Bytes: None One Two
Flush Mode
Flush Input Buffer
With Active Connect: Yes No
With Passive Connect: Yes No
At Time of Disconnect: Yes No
Flush Output Buffer
With Active Connect: Yes No
With Passive Connect: Yes No
At Time of Disconnect: Yes No
OK


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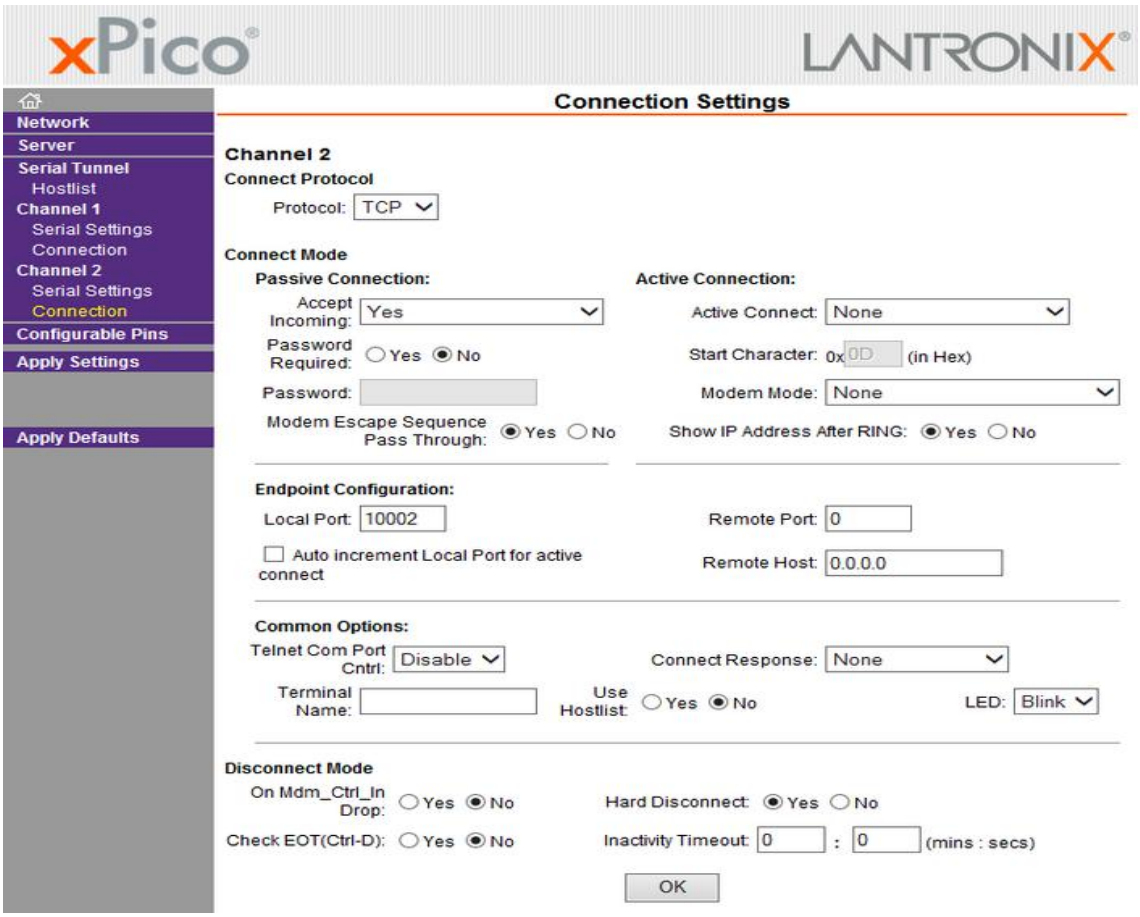
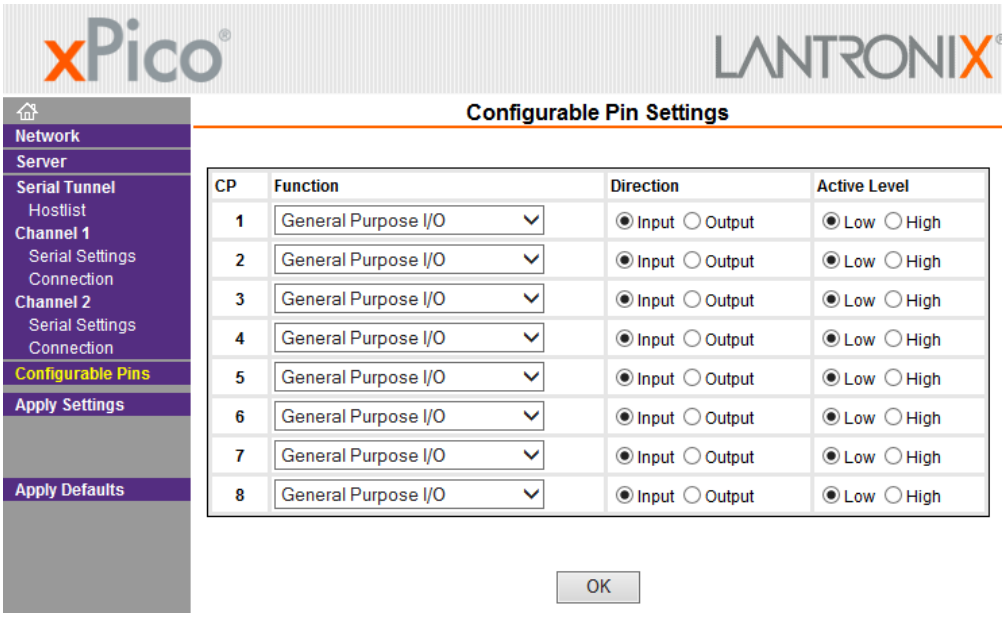
Apply Settings
Apply Defaults
Serial Settings
Channel 2
Disable Serial Port
Port Settings
Protocol: RS232
Flow Control: None
Baud Rate: 9600
Data Bits: 8
Parity: None
Stop Bits: 1
Pack Control
Enable Packing
Idle Gap Time: 12 msec
Match 2 Byte Sequence: Yes No
Send Frame Immediate: Yes No
Match Bytes: 0x00 0x00 (Hex)
Send Trailing Bytes: None One Two
Flush Mode
Flush Input Buffer
With Active Connect: Yes No
With Passive Connect: Yes No
At Time of Disconnect: Yes No
Flush Output Buffer
With Active Connect: Yes No
With Passive Connect: Yes No
At Time of Disconnect: Yes No
OK





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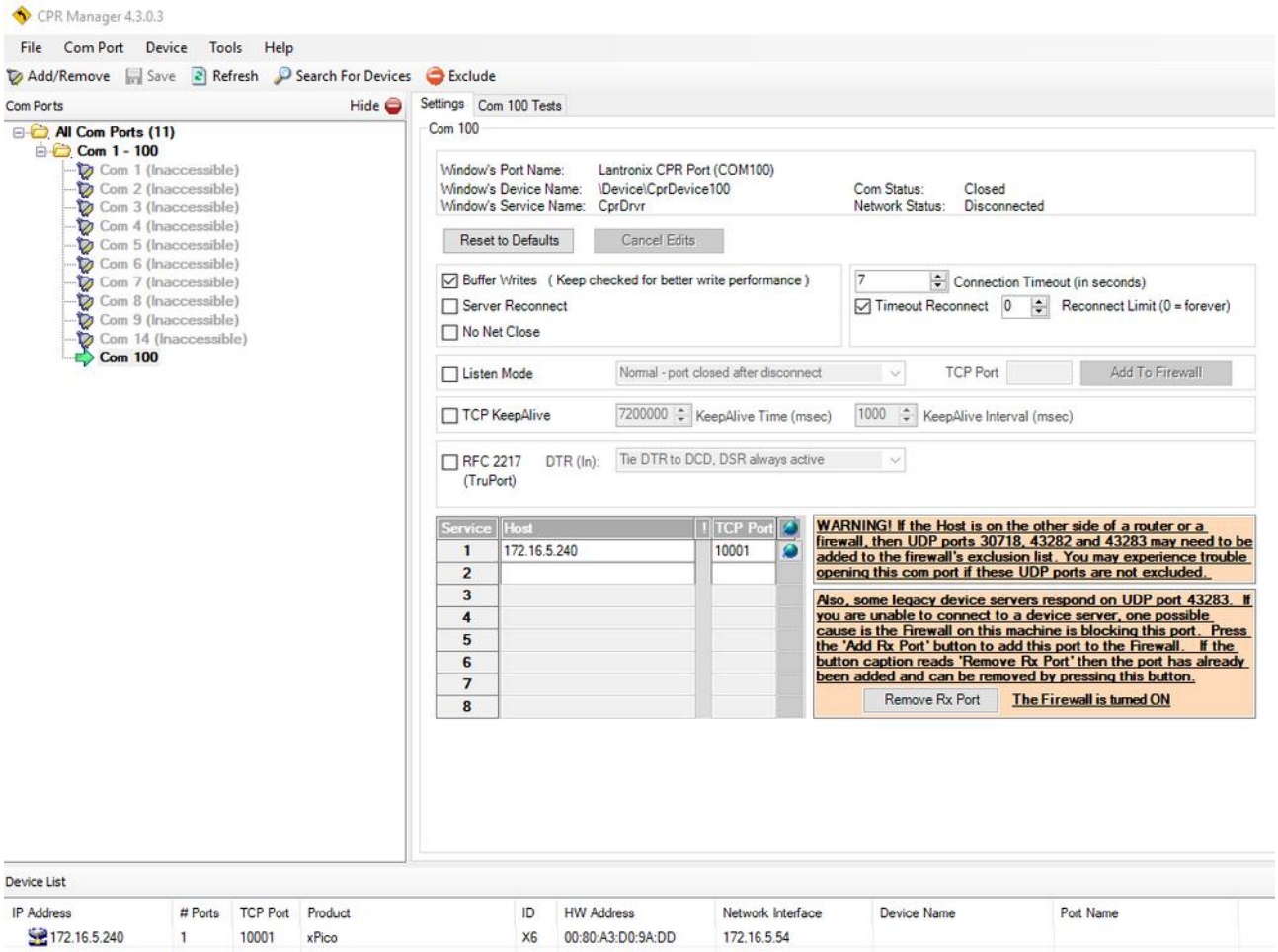
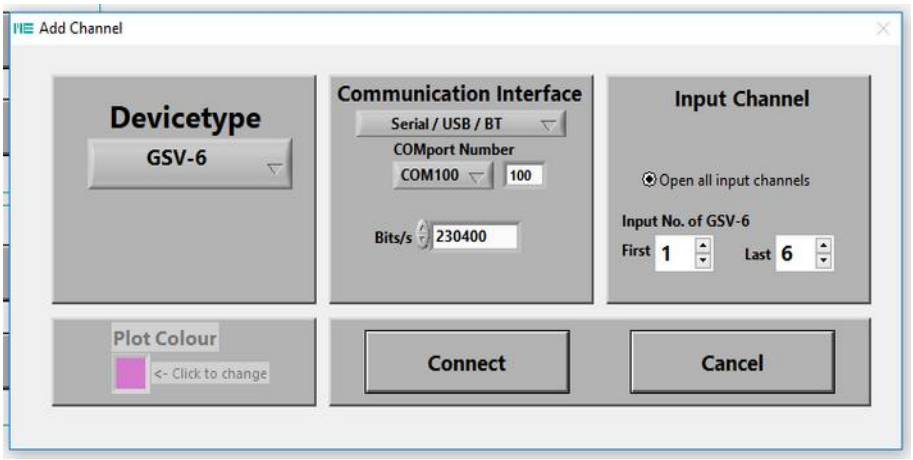
Settings GSVmulti

1. Lantronix Device Manager must be installed

https://www.lantronix.com/products/deviceinstaller/



2. Add the corresponding port via “Add”.
3. Enter Host IP and TCP Port
4. A connection via GSV-Multi is then possible via the corresponding COM port



Changelog

Version	Date	Changes
ba-gsv6ETH_ver01.odt	09/12/2018	1st version (TMS)
ba-gsv6ETH_ver02en.odt	05/07/2024	Clarifications, English translation (SW)

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