



# 6-channel Amplifier GSV-6ETH

## Operation manual

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changes	Changelog Seite 14



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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

## 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

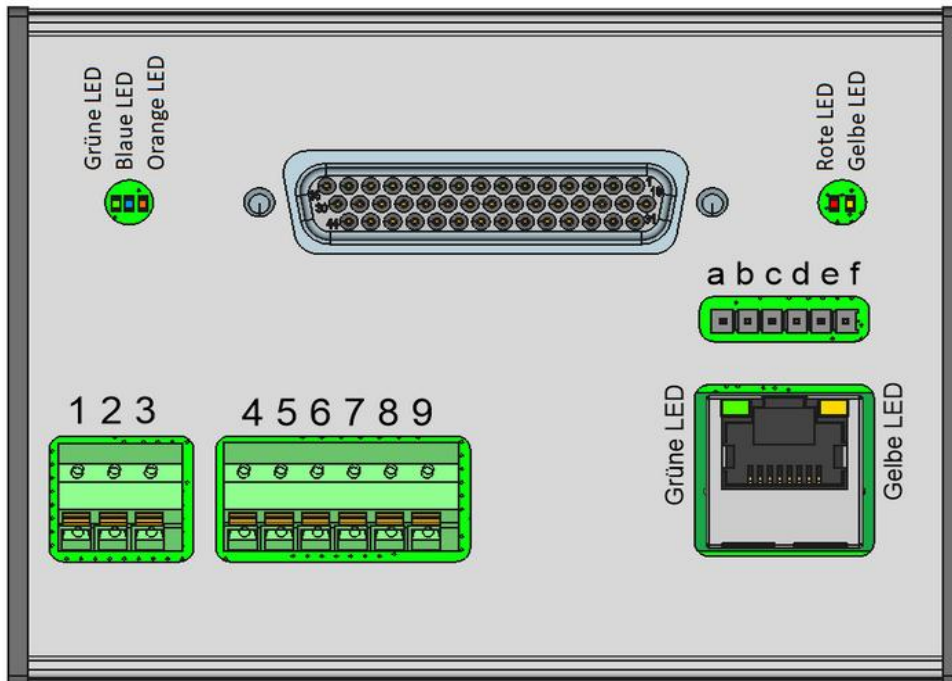
### Interfaces

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 = Active 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



## 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



## 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.

The image shows two screenshots of the XPico web interface. The left screenshot is titled "Network Settings" and shows options for Network Mode (Wired Only), IP Configuration (Obtain IP address automatically), and Ethernet Configuration (Auto Negotiate). The right screenshot is titled "Server Settings" and shows Server Configuration (Enhanced Password, Telnet/Web Manager Password) and Advanced settings (ARP Cache Timeout, TCP Keepalive, Monitor Mode @ Bootup, CPU Performance Mode, HTTP Server Port, Config Server Port, MTU Size, TCP Re-transmission timeout).

The image shows the "Connection Settings" page for Channel 1 in the XPico web interface. It includes fields for Connect Protocol (TCP), Connect Mode (Passive/Active), Endpoint Configuration (Local/Remote Port and Host), Common Options (Telnet Com Port, Terminal Name, LED), and Disconnect Mode (On Mdm\_Ctrl\_In Drop, Hard Disconnect, Inactivity Timeout).

**xPico**
**LANTRONIX**

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- Network
- Server
- Serial Tunnel
- Hostlist
- Channel 1
- Serial Settings
- Channel 2
- Serial Settings
- Connection
- Configurable Pins
- Apply Settings
- Apply Defaults

### Serial Settings

---

**Channel 1**

Disable Serial Port

**Port Settings**

Protocol:       Flow Control:

Baud Rate:       Data Bits:       Parity:       Stop Bits:

---

**Pack Control**

Enable Packing

Idle Gap Time:

Match 2 Byte Sequence:  Yes  No      Send Frame Immediate:  Yes  No

Match Bytes:        Send Trailing Bytes:  None  One  Two  
(Hex)

---

**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

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---

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### Serial Settings

---

**Channel 2**

Disable Serial Port

**Port Settings**

Protocol:       Flow Control:

Baud Rate:       Data Bits:       Parity:       Stop Bits:

---

**Pack Control**

Enable Packing

Idle Gap Time:

Match 2 Byte Sequence:  Yes  No      Send Frame Immediate:  Yes  No

Match Bytes:        Send Trailing Bytes:  None  One  Two  
(Hex)

---

**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



**xPico®**
**LANTRONIX®**

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- Network
- Server
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- Hostlist
- Channel 1
- Serial Settings
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- Channel 2
- Serial Settings
- Connection
- Configurable Pins
- Apply Settings
- Apply Defaults

### Connection Settings

---

**Channel 2**

**Connect Protocol**  
Protocol: TCP

**Connect Mode**

**Passive Connection:**

Accept Incoming: Yes

Password Required:  Yes  No

Password:

Modem Escape Sequence Pass Through:  Yes  No

**Active Connection:**

Active Connect: None

Start Character: 0x0D (in Hex)

Modem Mode: None

Show IP Address After RING:  Yes  No

---

**Endpoint Configuration:**

Local Port: 10002      Remote Port: 0

Auto increment Local Port for active connect      Remote Host: 0.0.0.0

---

**Common Options:**

Telnet Com Port Cntrl: Disable      Connect Response: None

Terminal Name:       Use Hostlist:  Yes  No      LED: Blink

---

**Disconnect Mode**

On Mdm\_Ctrl\_In Drop:  Yes  No      Hard Disconnect:  Yes  No

Check EOT(Ctrl-D):  Yes  No      Inactivity Timeout: 0 : 0 (mins : secs)

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- Network
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- Channel 2
- Serial Settings
- Connection
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- Apply Defaults

### Configurable Pin Settings

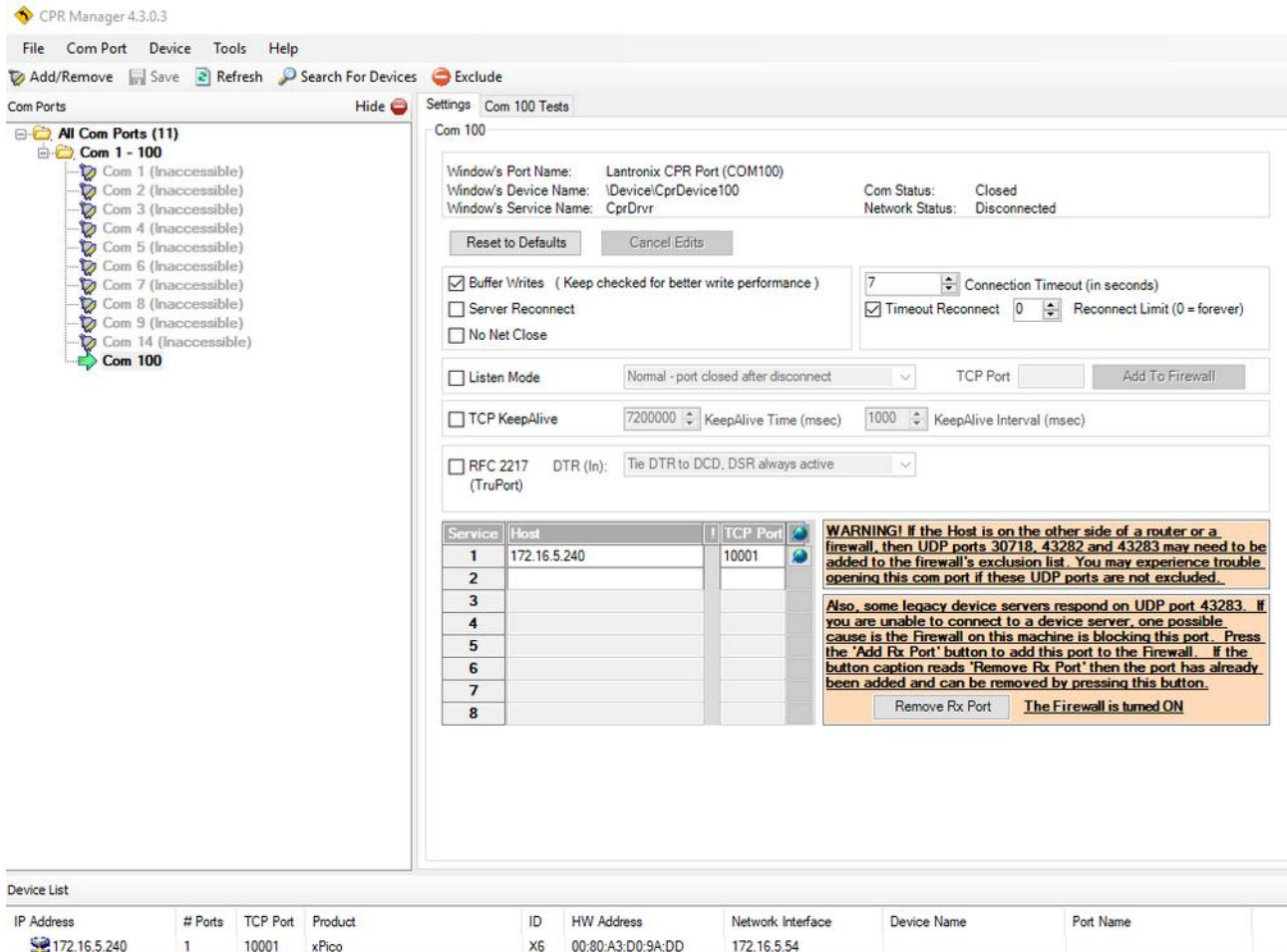
---

CP	Function	Direction	Active Level
1	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
2	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
3	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
4	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
5	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
6	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
7	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
8	<span>General Purpose I/O</span>	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High

## Settings GSVmulti

1. Lantronix Device Manager must be installed

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



CPR Manager 4.3.0.3

File Com Port Device Tools Help

Add/Remove Save Refresh Search For Devices Exclude

Com Ports Hide Com 100 Tests

All Com Ports (11)

- Com 1 - 100
  - Com 1 (Inaccessible)
  - Com 2 (Inaccessible)
  - Com 3 (Inaccessible)
  - Com 4 (Inaccessible)
  - Com 5 (Inaccessible)
  - Com 6 (Inaccessible)
  - Com 7 (Inaccessible)
  - Com 8 (Inaccessible)
  - Com 9 (Inaccessible)
  - Com 14 (Inaccessible)
  - Com 100

Settings Com 100

Com 100

Window's Port Name: Lantronix CPR Port (COM100)  
 Window's Device Name: \Device\CprDevice100  
 Window's Service Name: CprDrvr

Com Status: Closed  
 Network Status: Disconnected

Reset to Defaults Cancel Edits

Buffer Writes (Keep checked for better write performance)  
 Server Reconnect  
 No Net Close

7 Connection Timeout (in seconds)  
 Timeout Reconnect 0 Reconnect Limit (0 = forever)

Listen Mode Normal - port closed after disconnect TCP Port Add To Firewall

TCP KeepAlive 7200000 KeepAlive Time (msec) 1000 KeepAlive Interval (msec)

RFC 2217 (TruPort) DTR (In): Tie DTR to DCD, DSR always active

Service	Host	TCP Port
1	172.16.5.240	10001
2		
3		
4		
5		
6		
7		
8		

**WARNING!** If the Host is on the other side of a router or a firewall, then UDP ports 30718, 43282 and 43283 may need to be added to the firewall's exclusion list. You may experience trouble opening this com port if these UDP ports are not excluded.

Also, some legacy device servers respond on UDP port 43283. If you are unable to connect to a device server, one possible cause is the Firewall on this machine is blocking this port. Press the 'Add Rx Port' button to add this port to the Firewall. If the button caption reads 'Remove Rx Port' then the port has already been added and can be removed by pressing this button.

Remove Rx Port The Firewall is turned ON

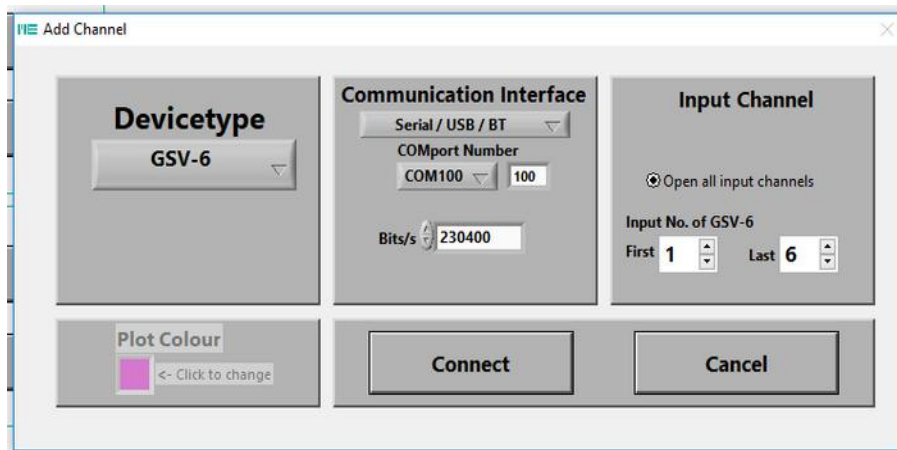
Device List

IP Address	# Ports	TCP Port	Product	ID	HW Address	Network Interface	Device Name	Port Name
172.16.5.240	1	10001	xPico	X6	00:80:A3:D0:9A:DD	172.16.5.54		

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



ME Add Channel

Devicetype: GSV-6

Communication Interface: Serial / USB / BT

COMport Number: COM100

100

Bits/s: 230400

Input Channel

Open all input channels

Input No. of GSV-6

First: 1 Last: 6

Plot Colour: <- Click to change

Connect Cancel



## **Changelog**

<b>Version</b>	<b>Date</b>	<b>Changes</b>
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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