Manual

RS232 - TCP / IP Converter with XPico

for

Reinhardt Weather Stations

REINHARDT System- und Messelectronic GmbH

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RS232 - TCP/IP Converter indoor for Reinhardt weather stations up to version 3.3

Network TCP/IP (PoE) Power/Data (alternative) Station Data serial (only read)

RS232 - TCP/IP Converter indoor for Reinhardt weather stations since version 3.4

Network TCP/IP (PoE) Power/Data (alternative) Station Config button

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1 For compliance

1.1 Usage

The RS232 - TCP/IP-Converter for all Reinhardt Weather Stations and Sensors (MWS 10, MWS 55, MWS88 and Sensors with datalogger) contains a XPico-module, switching power supply for best efficiency, PoE interface and level converters for the RS232 serial port.

The RS232 - TCP/IP-Converter is built for connecting one Reinhardt weather station or sensor with RS-232 port (or one weather station with RS-422 port) and converting it's serial protocol into a network protocol (TCP/IP) to integrate it into a network with an exclusive IP-address. This address is established by the integrated XPico module as well as two selectable ports (10001 and 10002 by default). To change the IP-address you easy can do this opening the module's Web-interface. With this IP-address the weather station can be operated in the whole network or the internet.

Caution! Only one client can have access to the weather station over the IP-address, never more at the same time.

Power supply can be performed via PoE at the network interface or with the delivered cable with wall adaptor at the serial port.

Maximum supply voltage at serial port is 24 VDC!

1.2 Safety instructions

The instruments are manufactured in accordance with modern technical standards and can be operated without danger when used as directed.

Damage caused by non-observance of this operating manual can lead to forfeiture of warranty. REINHARDT System- und Messelectronic GmbH is not liable for subsequent damage.

REINHARDT System- und Messelectronic GmbH is not liable for damage of items or persons caused by improper handling or non-observance of the safety instructions! In such cases any guarantee claims shall become null and void.

Dear customer, the following safety and hazard notices not only protect your health, but also the appliance. Please read the following points carefully.

Do not leave the packaging material lying around. These parts are dangerous toys in the hands of children.

1.3 Mounting

The RS232 - TCP/IP-Converter is placed near a router or a switch.

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2 Commissioning

2.1 Hardware Installation

The RS232 - TCP/IP-Converter is either connected to the standard cable of you weather station or sensor (7-pole connector and additional power supply unit) and supplied by it or via PoE by the network cable.

For supplying the converter via PoE you'll need a router or swich supporting PoE (Power over Ethernet).

The weather station is also connected directly to the RS232 - TCP/IP-Converter (second 7-pole connector) by a patch cable (pins 1,3,4, and 5 are connected through).

The network cable (patch cable) connecting a router or switch is plugged into the RJ45 connector.

Please do not use any tools to fasten the connectors in order to avoid the connectors working themselves loose due to too big force when fastening the connectors!!

2.2 Software Installation

For operating the weather station a comfortable software which allows storing data via COM-port or via the RS232 - TCP/IP-Converter is included.
Using the RS232 - TCP/IP-Converter enables the software to store data via a network or the internet. For using internet connection you use a provider like DYNDNS. After creating an account on the provider's siteyou can establish a connection between your DYNDNS-client and the weather station via your router nad get the data of your weather station worldwide.
PLEASE NOTE THAT ONLY ONE CLIENT CAN GET ACCESS TO THE WEATHER STATION, NOT MORE AT THE SAME TIME.

Installation of the weather software is described in the respective manuals contained on the weather USB-Stick.

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2.3 Configuration of RS232 - TCP/IP Converter

To change the settings of your RS232 - TCP/IP-Converter on the supplied USB-Stick you'll find the DeviceInstaller from Lantronix, the documentation of the XPico module, which is built in the RS232 - TCP/IP-Converter and also a link to Lantronix, where you can find the latest documentation and firmware for your XPico module.
https://www.lantronix.com/products/xpico/

To perform this you connect your RS232 - TCP/IP-Converter to any router or switch in your network (with a patch cable) and let the Device Installer search for components in your network.
When finished the search please select the XPico module.
In the next window only accept, no password is needed.
Now you should see the Web-Interface of your RS232 - TCP/IP-Converter and you can perform your desired settings.
For details please read the respective manuals of LANTRONIX also stored on the USB-Stick.

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2.31 Configuration of the RS232 - TCP/IP converter via the serial port (RS-232)

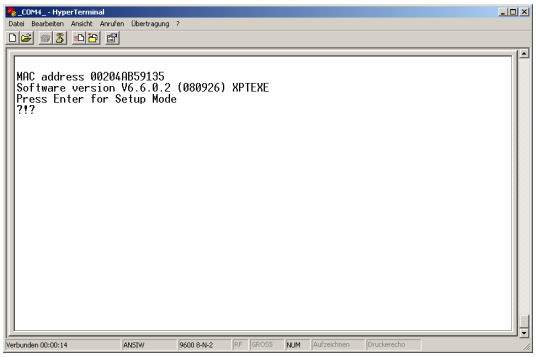
If the RS232 - TCP/IP-Converter is not yet set on your desired IP-address and you cannot get access to the Web-Interface, you may perform the settings via the COM-port.
To perform this please connect the RS232 - TCP/IP-Converter with the ready made cable to a COM-port of your computer with a **null modem adaptor**.

CAUTION!
Since version 3.3 NO null modem adaptor is needed for configuration via serial port RS-232!!!

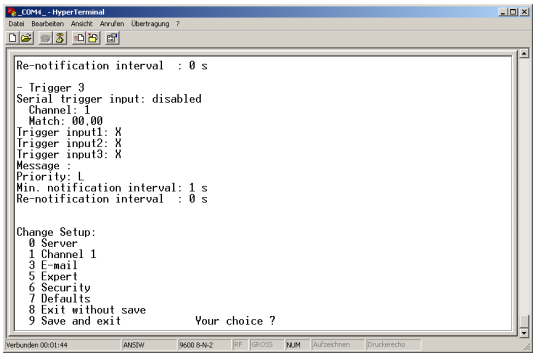
Since version 3.4 the module has got a config button instead of a socket!
Press shortly for configuration, press for more than 10 seconds for a reset!
If the converter "hangs up", press the button for 10 seconds to restart (reset)!

With RS-422 you invert the 4 data cables of the RS232_RS422_converter to realize the null modem function instead the use of a null modem adaptor.

Then start a terminal software, i.e. hypertrm with 9600baud, no parity, 8 bits, no handshake. Then insert the PSU to the mains (or shortly push the config button) and press 3 times a lower case x (or hold the x-key) within the next 5 seconds.
The following screen will appear:
After this please press the ENTER key within the next 3 seconds.



The menu shown below will appear and you can perform the desired settings.



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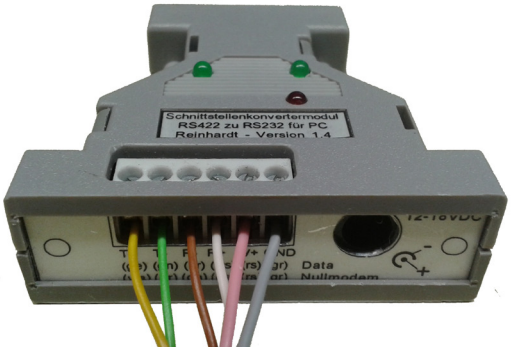
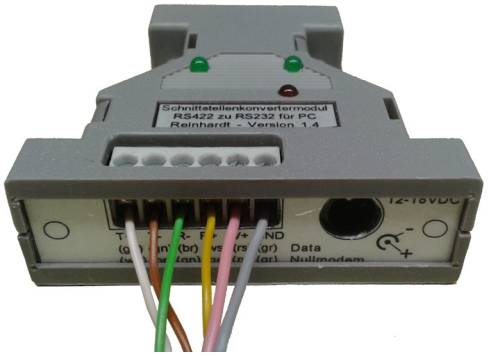
2.32 Connection of an external RS232-422 converter



Data mode (normal mode)



Nullmodem mode (for settings via CLI)

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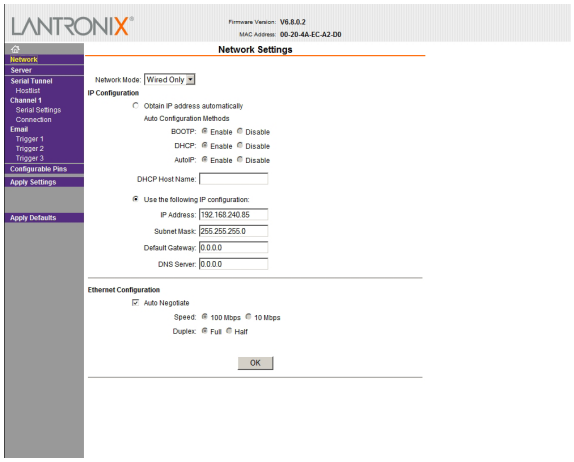
2.4 Tunnelling with RS232 - TCP/IP Converter

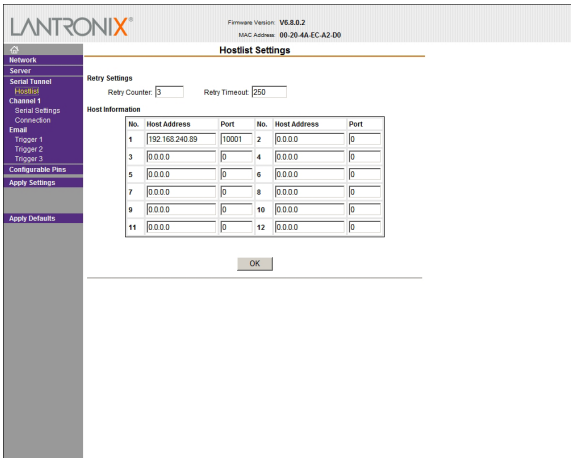
You can use two RS232 - TCP/IP-Converters as a cable replacement tunneling weather data through a network. This means that you connect the first RS232 - TCP/IP-Converter to the COM-port of your weather station and to a router / switch of your network. A second RS232 - TCP/IP-Converter is connected to a router / switch at another place in your network a converts the data back to a RS232 string to connect a weather display with serial port for example.

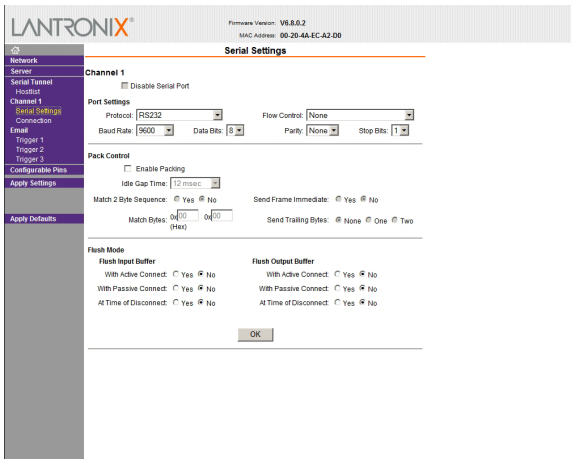
To perform this you need to configure your RS232 - TCP/IP-Converters for tunnel operation.

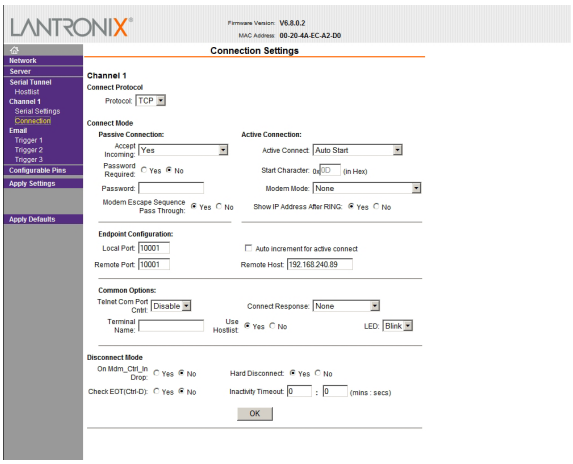
Below you can see an example for the respective settings in the Web-Interface:

Further information you'll find in the documentation of the xPico.









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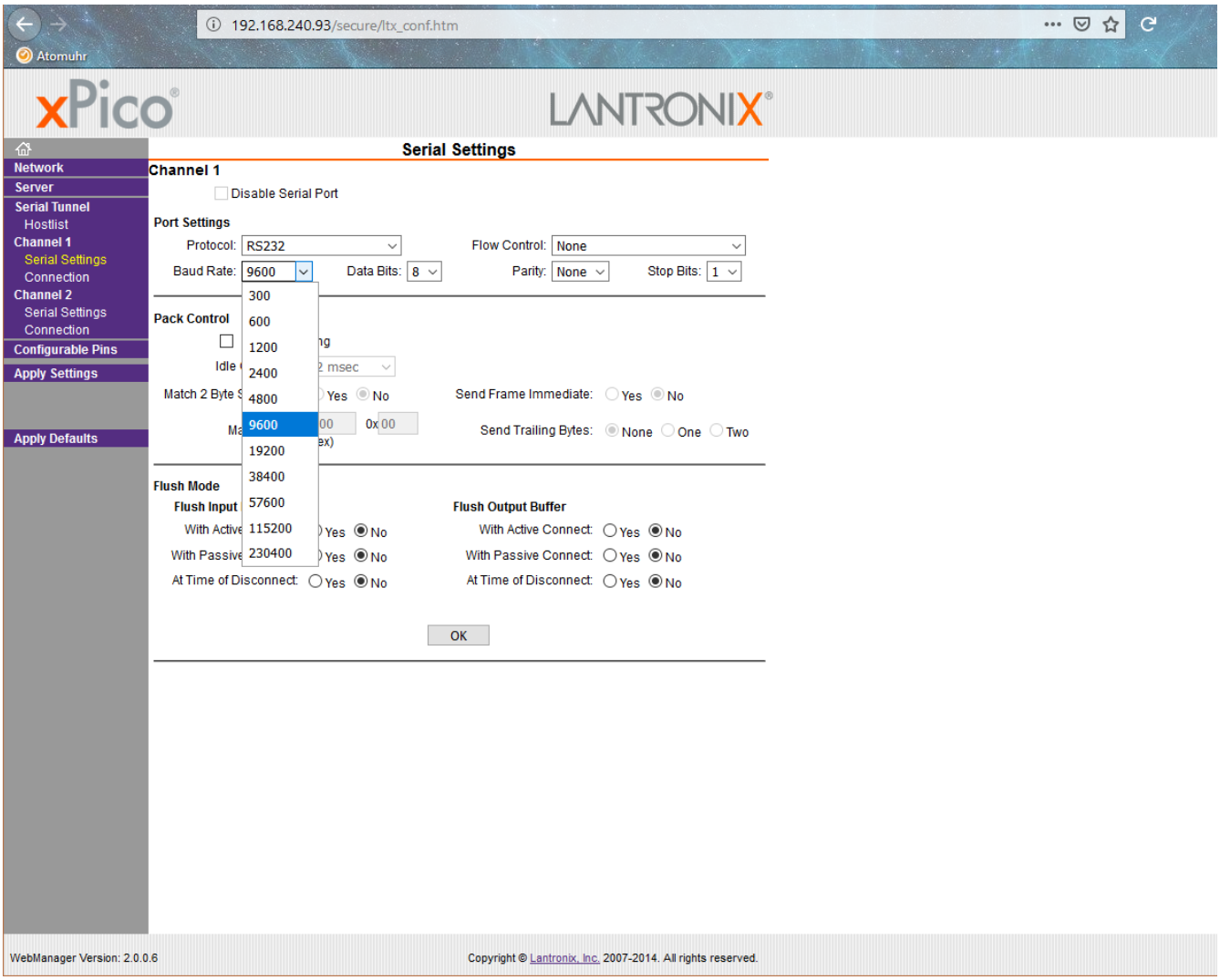
2.5 Changing the baud rate

The TCP/IP-Converter is set to 9600 baud by default. Also the connected weather station is set to 9600 baud.

You can change the baud rate by sending the command !Bx to the weather station, where x is the code for the baud rate (5=9600Baud, 6=19200, 7=38400, 8=57600 und 9=115200).
Please refer to the respective weather station's manual to check which baud rates are supported by your weather station.

After changing the baud rate of the weather station you need to change the TCP/IP-converter's baud rate too. To perform please access the converter's WEB interface by inserting the converter's IP address in a browser or using the Lantronix Device Installer (on the weather CD).
The baud rate can be changed under "Serial Settings" and "Baud Rate".

After changing the baud rate choose "OK" and then "Apply Settings".
The TCP/IP-converter now restarts and saves the new baud rate.



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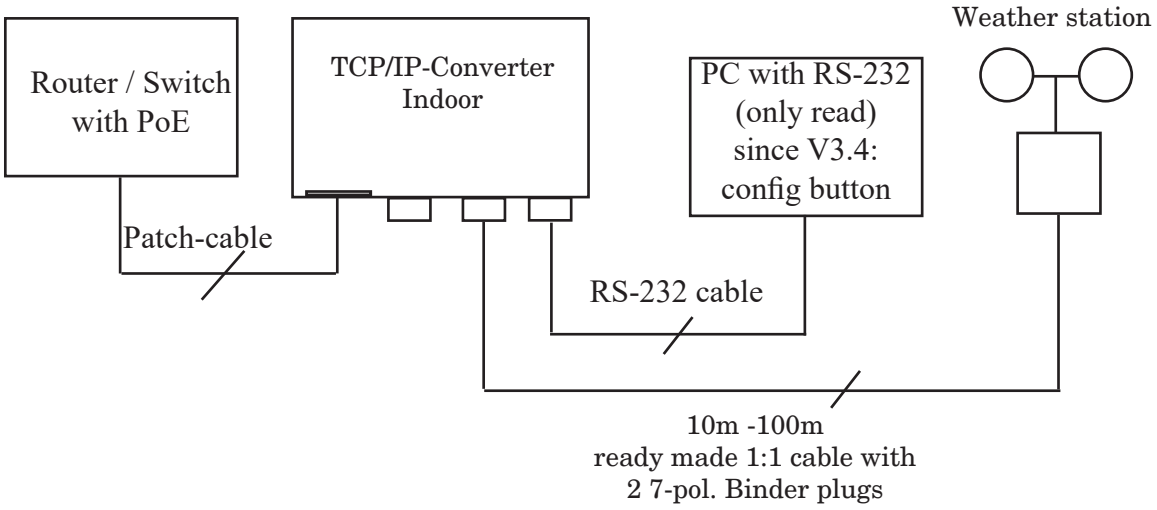
3 Connection schematics

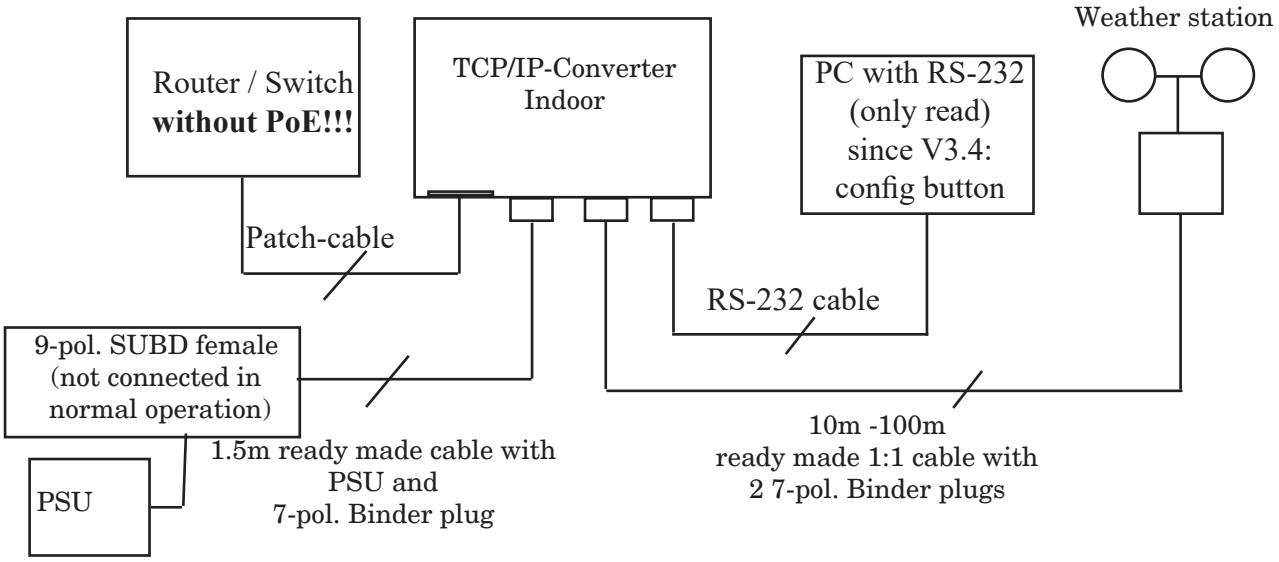
3.1 Standard connection with RS-232 via PoE

Below you see the standard connection of the TCP/IP converter indoor.
Both the weather station and the TCP/IP converter are powered via PoE by the switch or router.



3.2 Standard connection with RS-232 cable and PSU

Below you can see the standard connection configuration when a standard RS-232 cable with power supply is used (for switches or routers without PoE).
The converter and the weather station are supplied by the same PSU.



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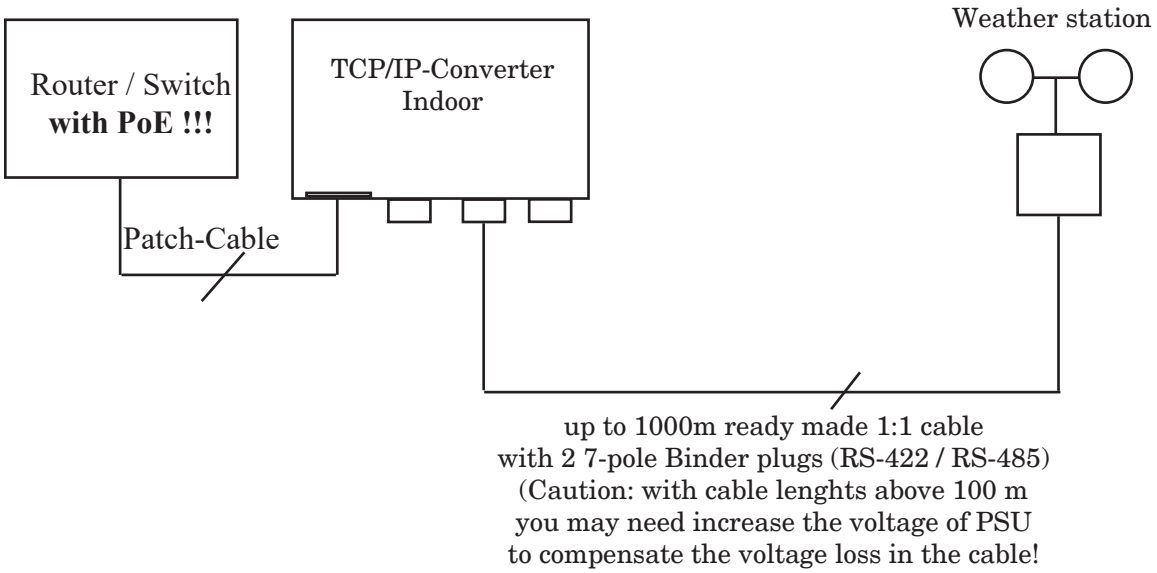
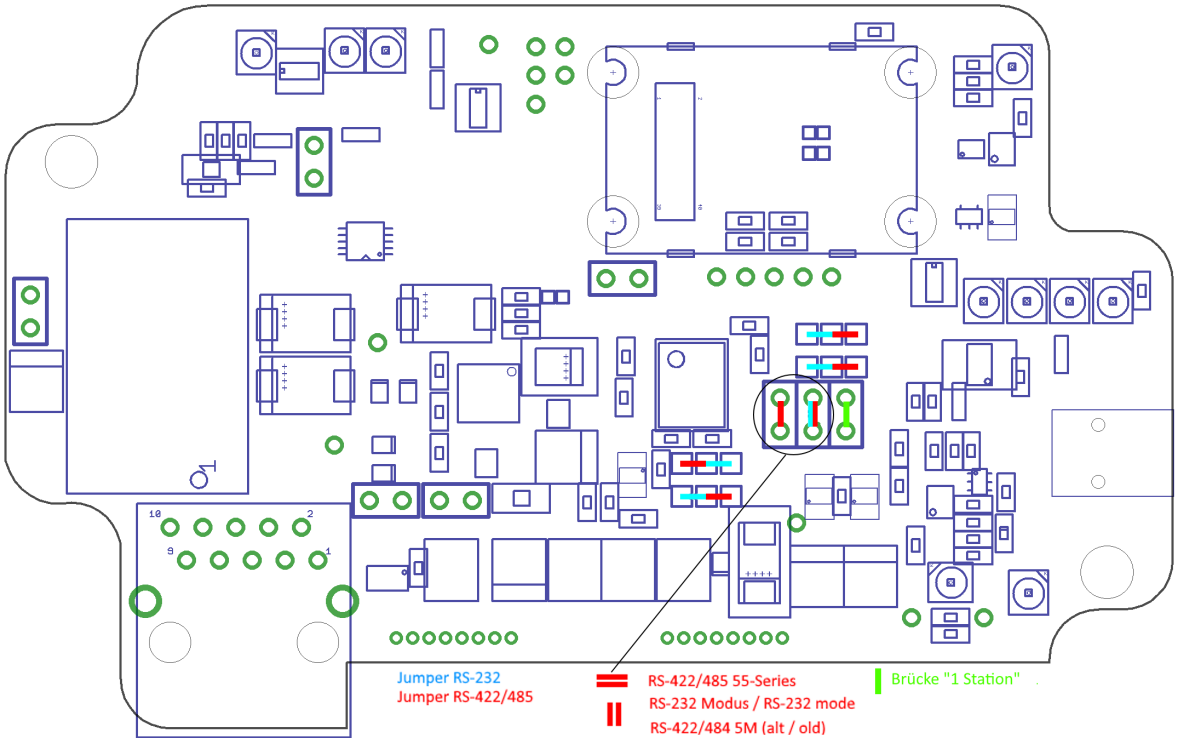
3.3 Connection with option RS-422 port with PoE

If your TCP / IP converter and the weather station are equipped with the RS-422 option, the connection to a switch with PoE takes place according to the following scheme:



Below the jumper settings for RS-232 or RS-422 / RS-485 operation:



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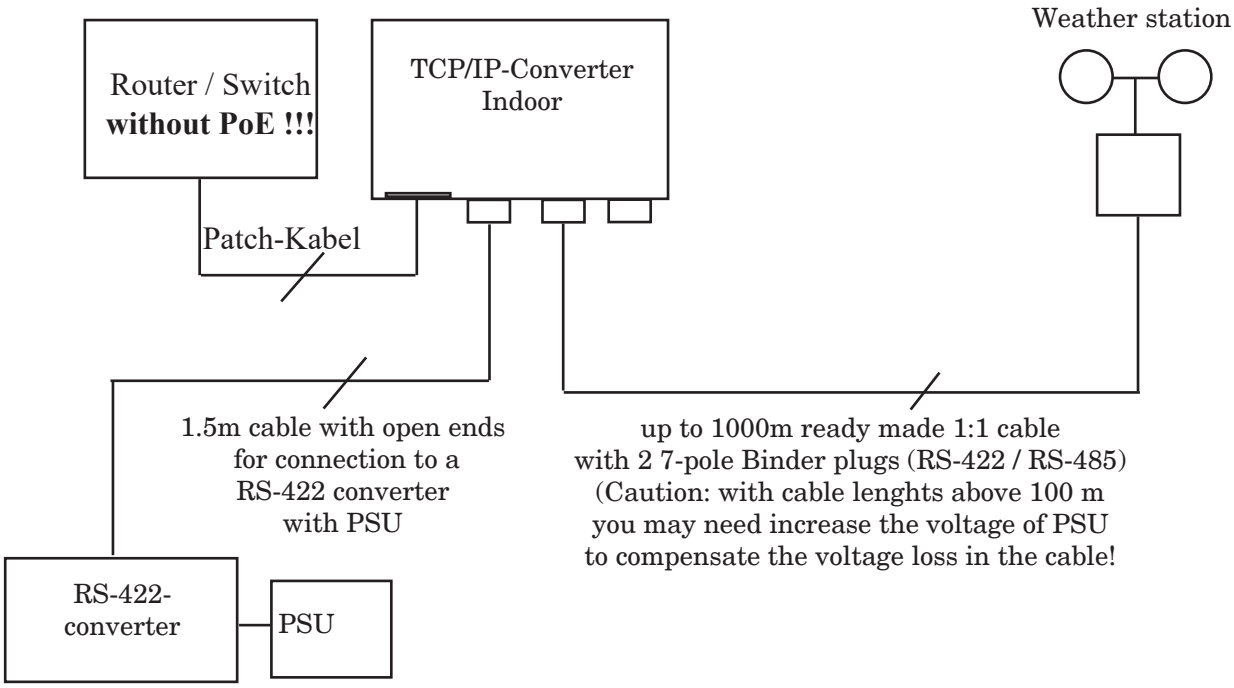
3.4 Connection with option RS-422 port without PoE

If your TCP / IP converter and the weather station are equipped with the RS-422 option, the connection to a switch without PoE takes place according to the following scheme:



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4 Subsequent connection to an existing weather station

4.1 Connection without PoE with 2 PSUs

Here you can see how the TCP / IP indoor converter is subsequently connected to an existing REINHARDT weather station. You can continue to use the existing RS-232 cable of the weather station and do not need any new wiring to the weather station.

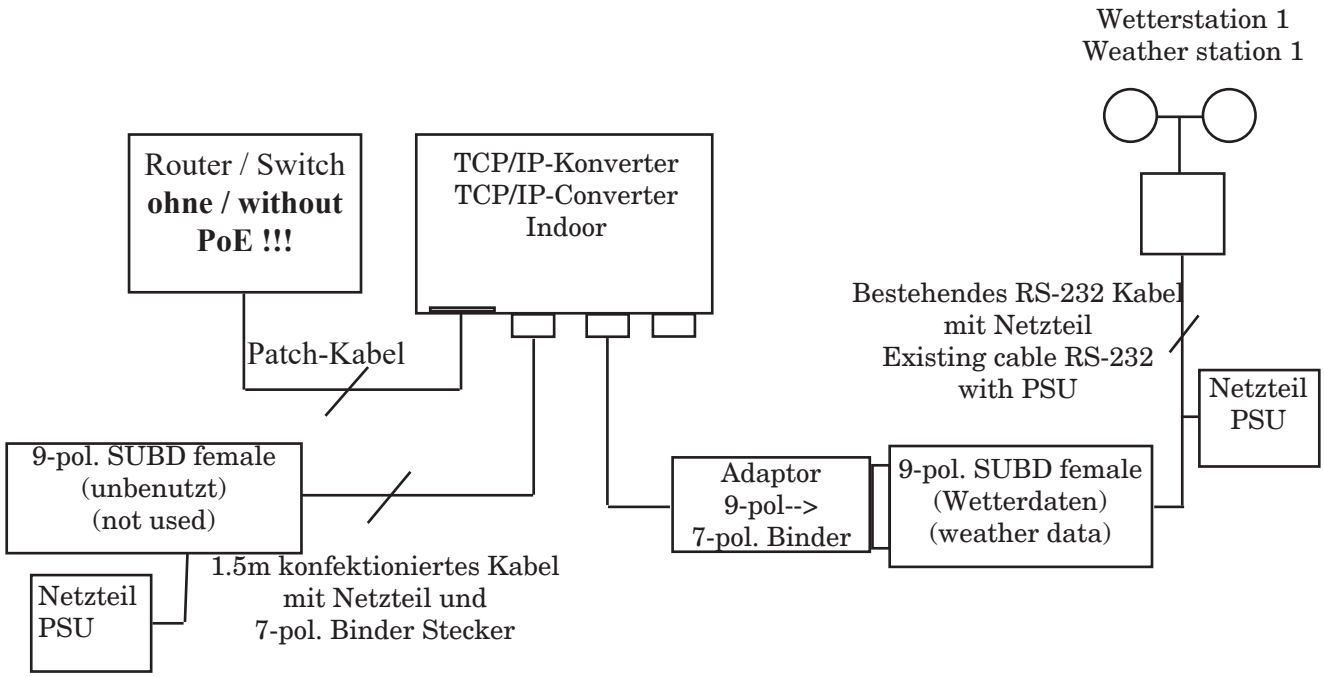
Here the weather station and the converter are each supplied with their own power pack.

The existing cable remains on the weather station, the new 1.5m long cable with power supply unit and 9-pin. SUB-D plug is used to supply the converter (left 7-pin socket).

The data line of the weather station is connected to the serial input of the converter via the supplied adapter (9-pin SUB-D male to 7-pin binder) (middle 7-pin socket).

Use this configuration EXCLUSIVELY with switches or routers WITHOUT PoE !!

The 3rd socket (right) can be used to only read the serial data.



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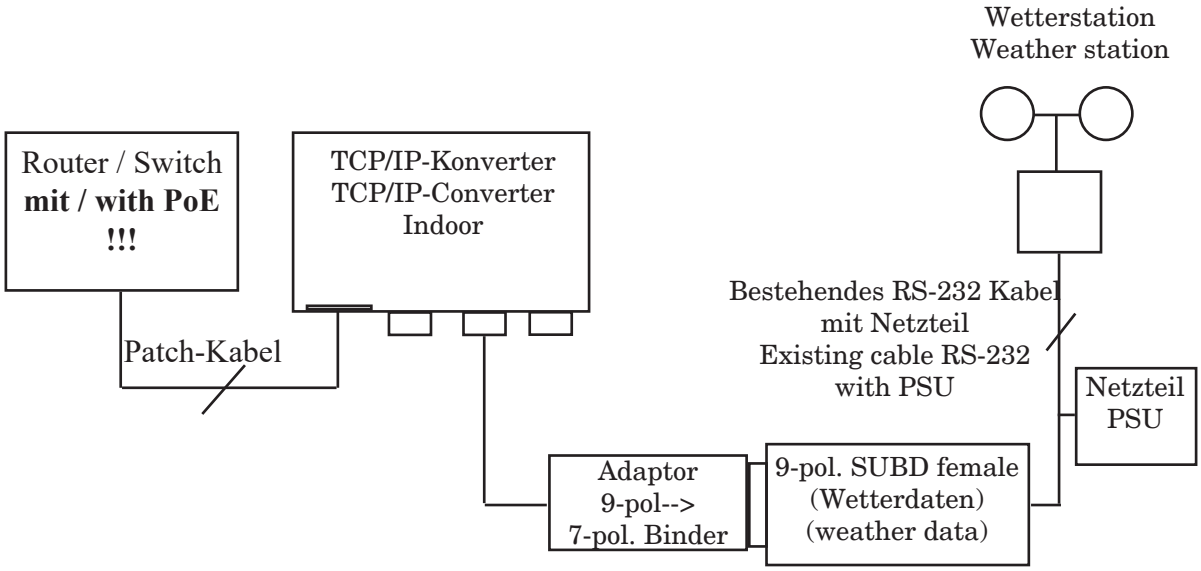
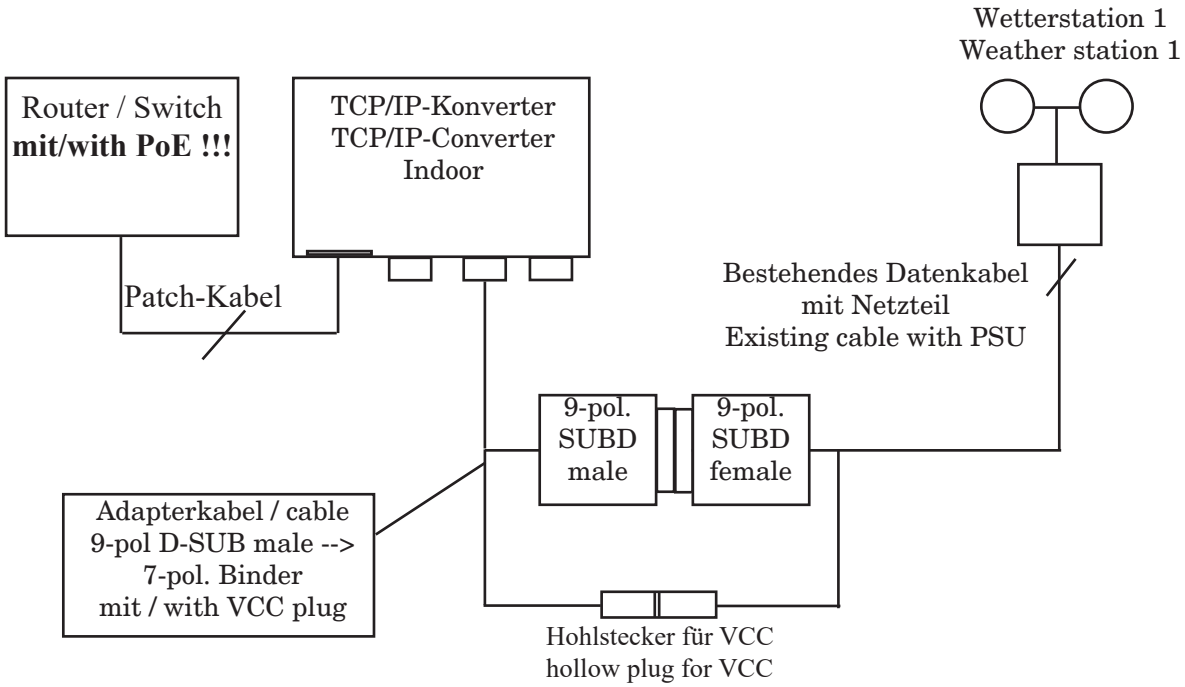
4.2 Connection with PoE with 1 PSU

The expansion of an existing station with a TCP / IP converter for connection to a router or switch with PoE is carried out as follows.
You will receive an adapter for data transmission over the existing cable
(Adapter 9-pin male -> 7-pin binder):

The 3rd socket (right) can be used to only read the serial data.



4.21 Connection with PoE to existing cable without PSU



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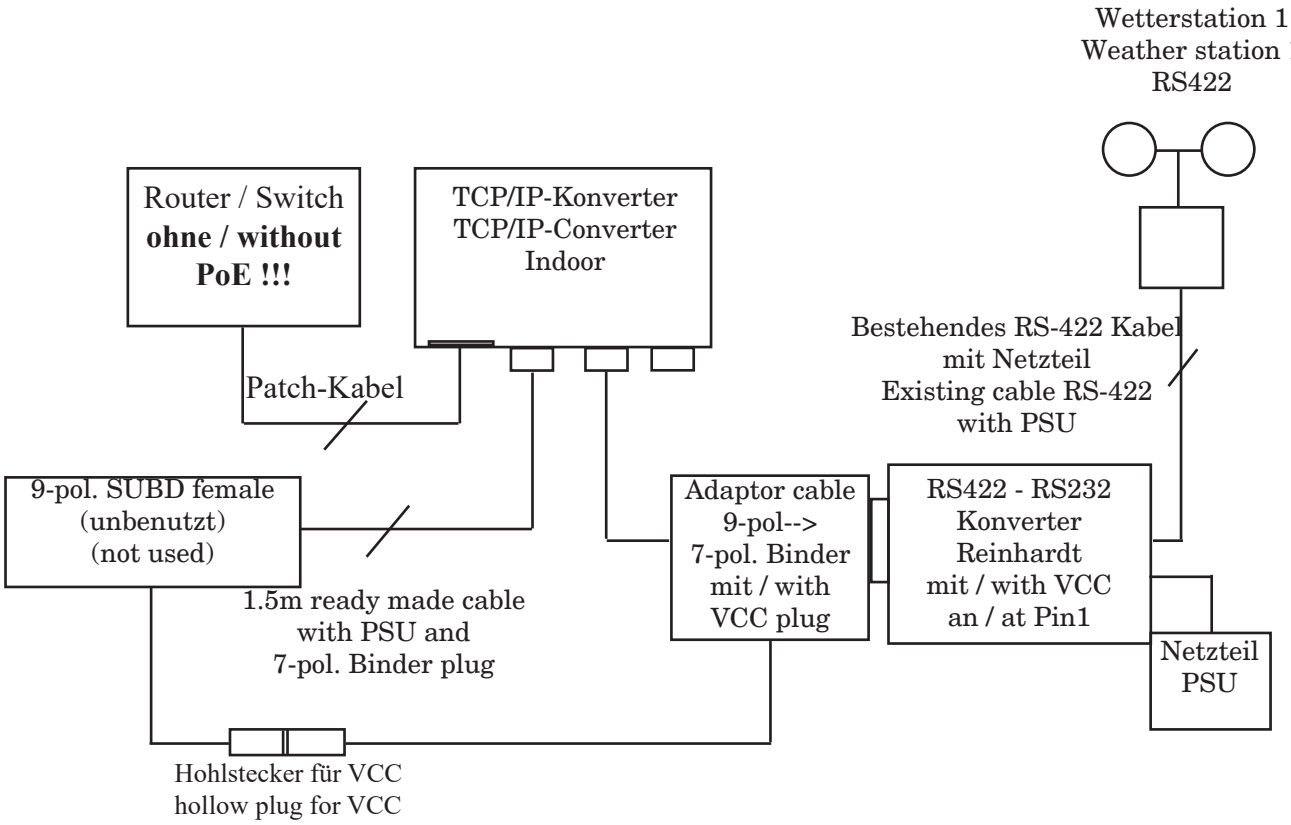
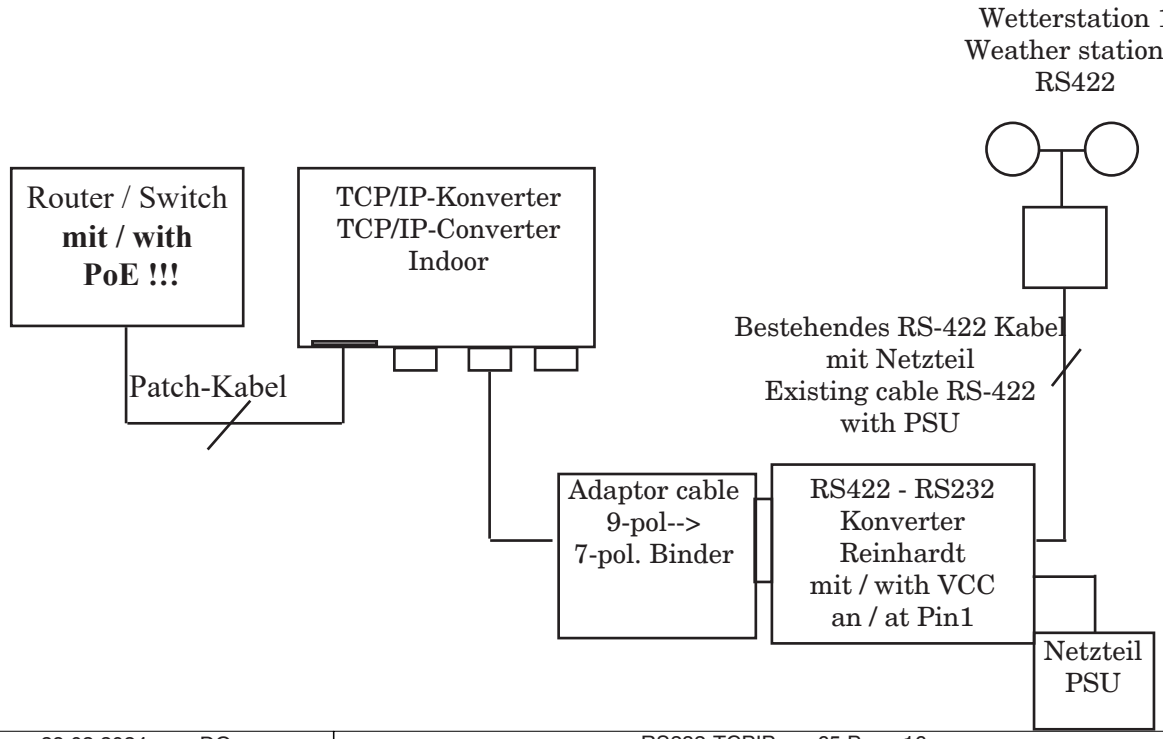
4.3 Connection with external converter RS422 without PoE



4.4 Connection with external converter RS422 with PoE



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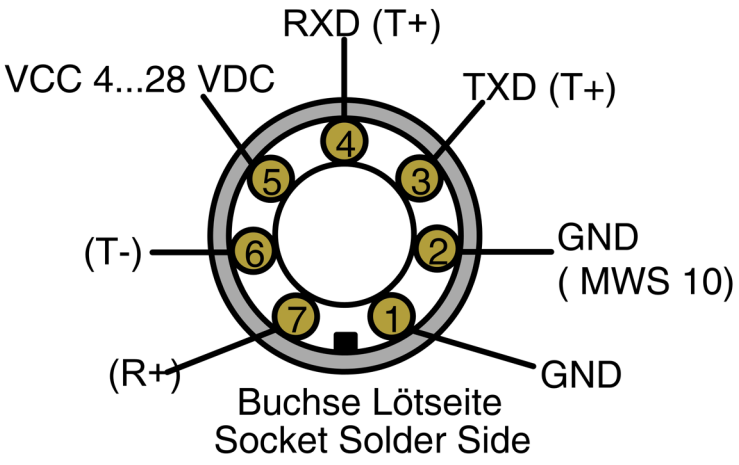
5 Connectors of TCP/IP converter

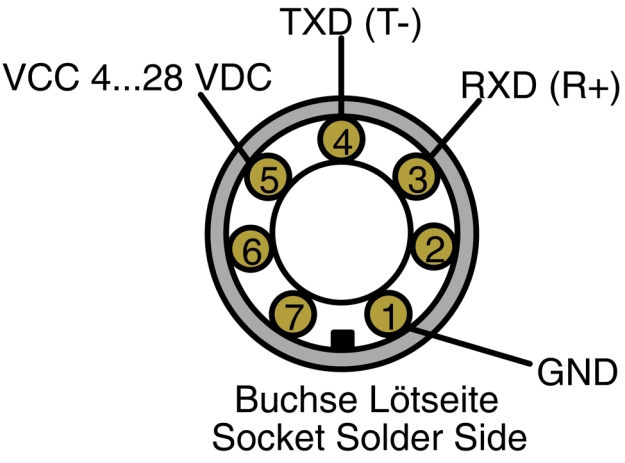
5.1 Connector external power

Buchse Station 1 / Connector Station1



5.2 Connector weather station

Buchse Power ext. / Connector Power ext.



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5.3 Connector network / PoE

Since version 3.6, the network socket has two LEDs.

- Orange: xPico active
  - flashes slowly when trying to connect to network
  - flashes fast or is permanently on when connected to network

- Green: PoE active
  - if voltage is applied via PoE, the LED lights up permanently
  - if there is no voltage via PoE, the LED is off

  --> external supply must be fed at the socket "Power extern"!