Bridge Ethernet - Serial port configuration software

PWIN33 Rev.0.8
TCPServer Configurator

| Rev. #	Data	Argomento	Sigla
2.00	05.02.2021	Update	DV

OPERATING SCHEME

The configuration software for Ethernet / Serial bridges (rs232 / 485 compatible) carries out a completely transparent retransmission between an Ethernet line and a serial line. Communication is bi-directional, and the Ethernet connection must be made via RJ45 cables and 9-pin serial cables. The possible connections are:

● Ethernet <-> RS232

● Ethernet <-> RS485
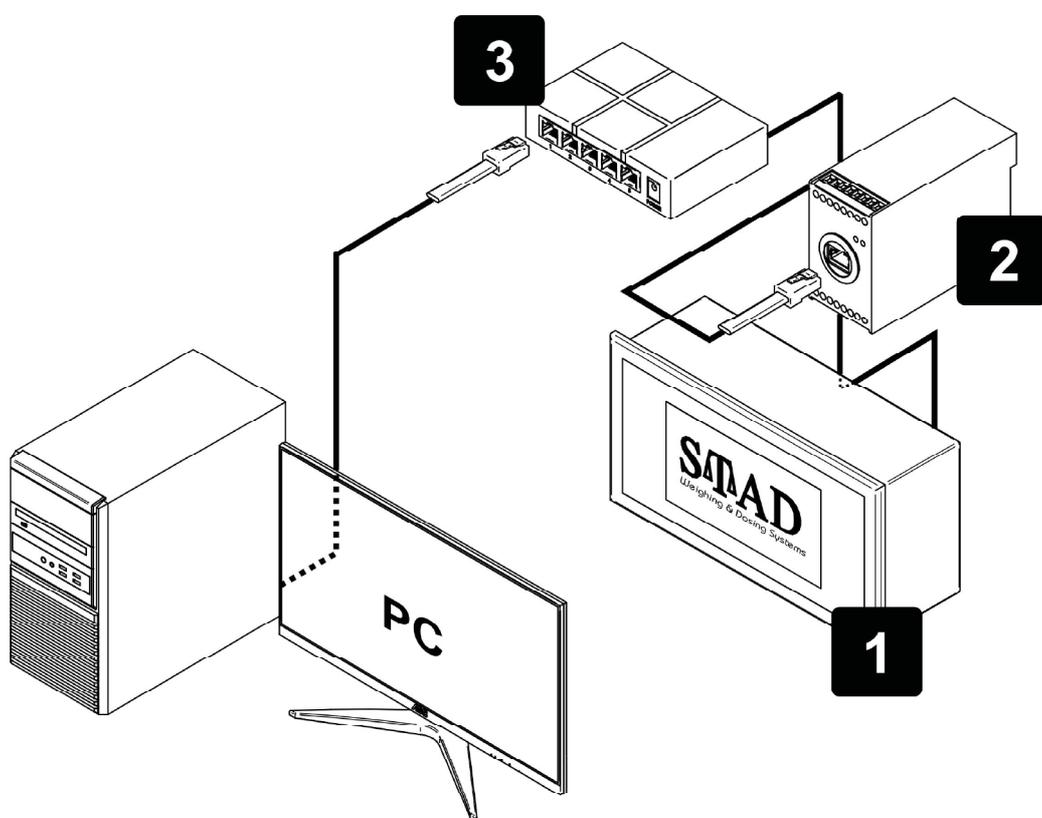
● 1. COBRA o TAIPAN 365

● 2. Bridge Ethernet - RS232/485

● 3. Hub / Switch

Sigla DV

Argomento First issue

Data 05.09.2020

Rev. # 2.00

B-1

It is possible to connect the Ethernet / serial bridge directly to the PC, without going through other network devices (routers, switches, hubs, LAN-bridges or other), but special RJ45 cables, called "cross-over", must be used. Normally the cables are of the "direct" type, and allow connection to network devices such as routers or hubs, but not to directly connect two PCs (although there are currently network cards with auto-sensing technology, which recognize the type of cable and the type of connection, allowing direct PC - PC connections even using non-cross-over cables).

The diagrams of the two types of cables mentioned are shown below.

Diretto
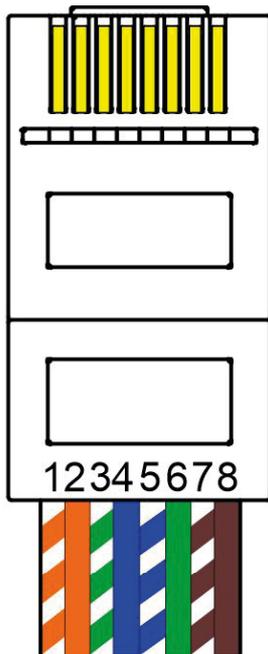
RJ45 #1	RJ45 #2
1. Bianco / Arancio	1. Bianco / Arancio
2. Arancio	2. Arancio
3. Bianco / Verde	3. Bianco / Verde
4. Blu	4. Blu
5. Bianco / Blu	5. Bianco / Blu
6. Verde	6. Verde
7. Bianco / Marrone	7. Bianco / Marrone
8. Marrone	8. Marrone

12345678   12345678

Cross-over
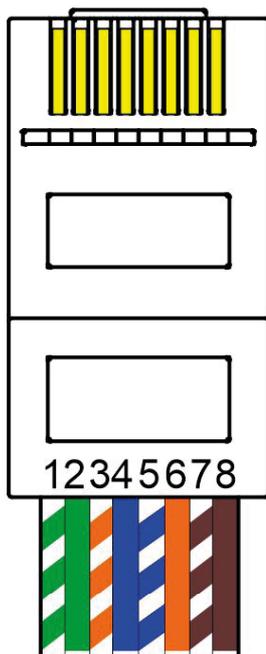
RJ45 #1	RJ45 #2
1. Bianco / Arancio	1. Bianco / Verde
2. Arancio	2. Verde
3. Bianco / Verde	3. Bianco / Arancio
4. Blu	4. Blu
5. Bianco / Blu	5. Bianco / Blu
6. Verde	6. Arancio
7. Bianco / Marrone	7. Bianco / Marrone
8. Marrone	8. Marrone

12345678   12345678

INSTALLATION PROCEDURE

Launch the SETUP.EXE application and follow the instructions of the installation procedure.

STARTING THE APPLICATION

Select the program "PWIN33" from the Programs menu under "PWIN33". The main screen of the application will appear (following figure).
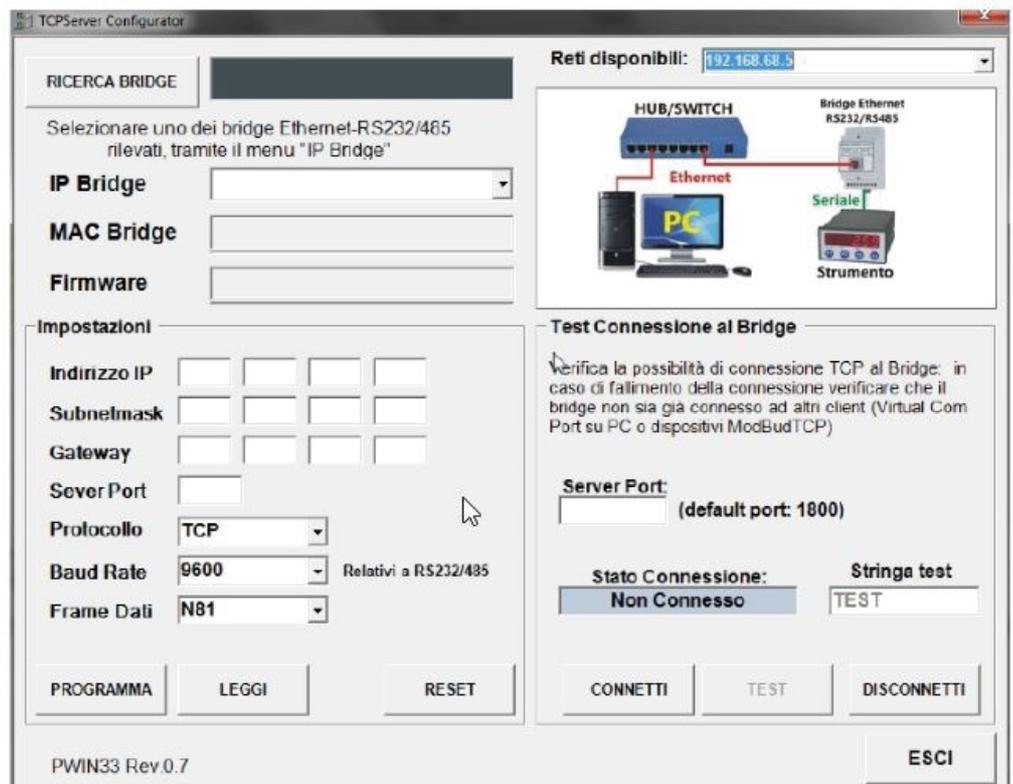
The application presents a screen in which three sections can be identified:

Research section of connected Ethernet bridges: at the top of the screen, accompanied by an image that represents a generic diagram of the connections. It also displays the list of instruments detected by the automatic search. Allows you to select the bridge you want to program

Setup section: on the left side of the screen, this is the section where the programmable parameters of the Ethernet bridge are displayed. In this section. It is also possible to modify these parameters to reprogram the instrument.

The programmable parameters on the instrument are:

1. IP address

2. SubnetMask

3. Network gateway

4. Server Port (client / server communication port for TCP / IP protocol)

5. Protocol: selection between classic TCP and Modbus-TCP

6. Baud Rate: setting of the bridge's serial port baud rate

7. Data Frame: data format, selectable from those compatible with the micro used

Bridge connection test section: the right part of the screen allows you to connect to the selected bridge. This allows you to test the actual operation of the TCP protocol with the selected tool. The only parameter required is the application's Server Port. After a parameter reading this field is automatically completed with the port read from the bridge. The programming buttons are collected in the lower part of the screen, together with the program exit key. These allow to read or write the bridge settings and to carry out the software reset of the instrument (operation carried out automatically after a programming command, since they would not be applied, and therefore used, until the device is restarted). The reset can be done at any time, for example if there are problems during the connection test.

Bridge programming is always done in UDP mode, using the connectionless protocol.

The networks available on your PC are displayed at the top right.

OPERATIONAL OPERATION

All Ethernet devices connected to the network and operational are automatically detectable by the application. To start the survey press the SEARCH BRIDGE button. The program will send a command on the network that will be recognized only by the connected Ethernet bridges, which will respond with their MAC address (physical address) and the Firmware version loaded on the bridge. Each detected device will be added to the list of IP servers that can be selected from the appropriate drop-down menu. The last IP address detected as an Ethernet / serial bridge will also be displayed.

The search for any active bridges on the network lasts for a few seconds: during this period the buttons on the screen are temporarily disabled in order to avoid communication problems (which would occur, for example, by sending the parameter reading command while searching for bridge is still running). Once the search is finished, the buttons are enabled again. If no instrument is found in the network and another network is present in the PC in use (e.g. WiFi), you will be asked whether to search on the other available networks.

CE STAD
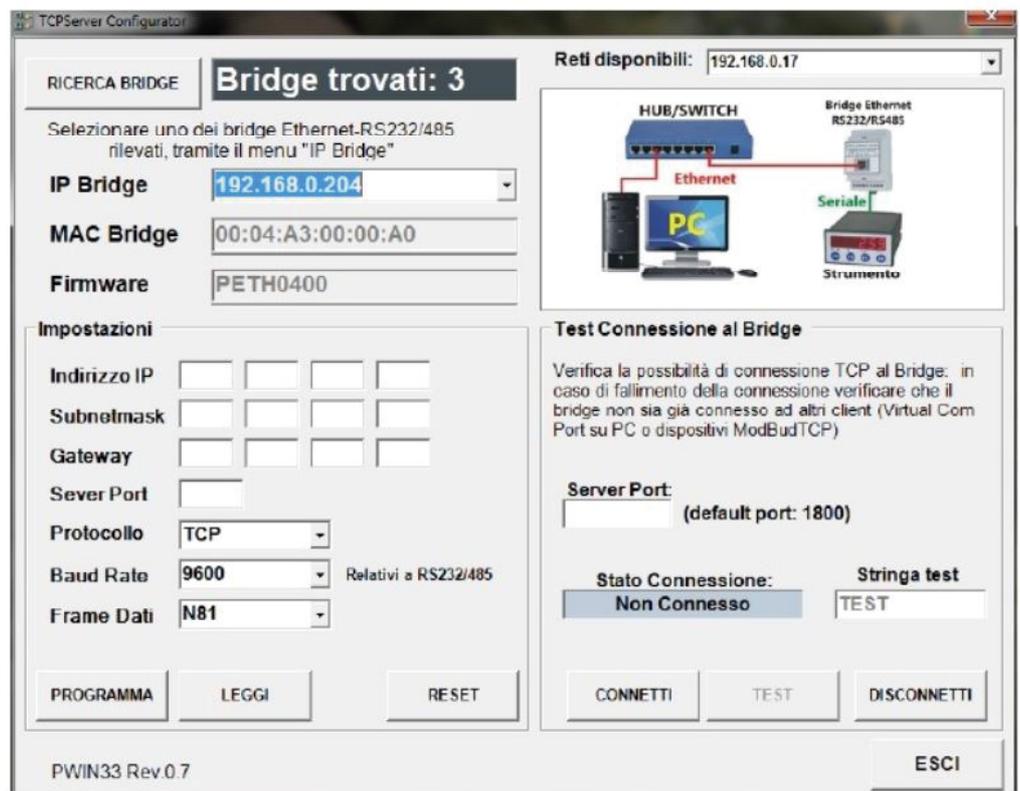
Bridge programming

To use the configuration utility, simply:

Select the desired bridge:

Via the drop-down menu at the top of the screen. The MAC Server field will be automatically updated to the MAC address of the instrument corresponding to the IP address just selected.

Once the IP Server of the bridge to communicate with has been selected, it is possible to read the programmable parameters currently set on the instrument, modify them and reprogram them. It is also possible to completely write all the settings and send them via the "Program" button. If programming is successful, a confirmation message will be displayed.

If there are communication problems, both in the reading and writing phase, the software will show an error warning. In this case, check the connections and if necessary reconnect to the instrument, or send the reset command.

Reset command

The reset command is sent automatically after each programming command. However, you can RESET the bridge at any time, using the appropriate button.

Bridge Connection Test

The program provides this possibility to test the correct operation of the Bridge with the TCP connection protocol (also used in ModBus-TCP mode). To test the connection, simply enter the Server Port for the selected instrument in the appropriate section, and press the "Connect" button. To terminate the connection, press the "Disconnect" button. It is not possible to connect multiple clients to the Bridge at the same time, so make sure there are no active connections with the bridge already.

Pressing the TEST key sends the related string over the network via the TCP connection.

The following screen shows the application connected to an active bridge, after reading the programmable parameters via the TCP protocol.
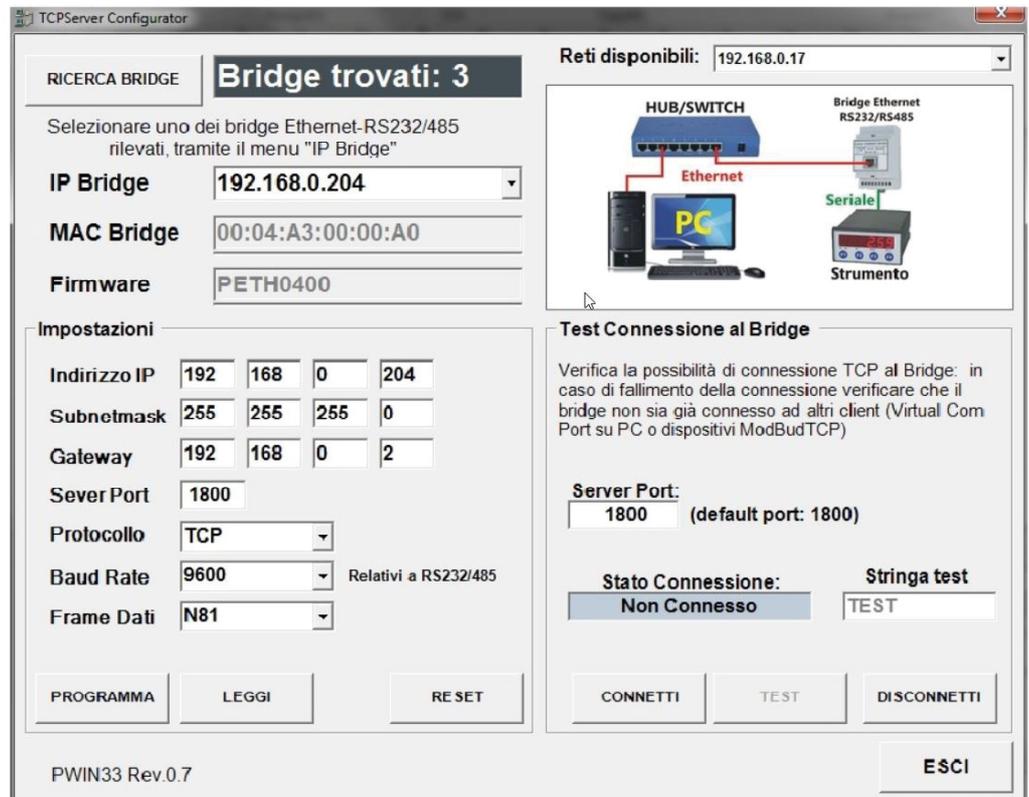
During the reading of the parameters, which can take a few seconds due to the delays introduced by the network (especially if it is used a lot by other stations), an hourglass appears next to the mouse cursor, indicating that operations are in progress. Therefore, avoid carrying out other operations in this short period of time (such as sending a new read command, or trying to connect). Other operations could in fact disturb the communication and lead to communication problems.

CE STAD

IP addresses and compatibility between networks

It may not always be possible to immediately make a TCP connection with the Ethernet bridge

Serial. This in many cases is due to an incompatibility between the IP address programmed on the bridge and the Ethernet network in which it is installed for the first time.

To explain this we use a simple example. The LAN networks inside an office and / or company generally use standard addresses, among the most common are:

- Networks with addresses 192.168.0.XXX

- Networks with addresses 192.168.1.XXX

- Networks with addresses 10.0.0.XXX

These networks are not compatible with each other (for simplicity we do not consider the concept of subnet mask, or network sub-mask, which in turn affects the mapping of LAN networks). This means that, for example, a PC with the address 192.168.0.100 IS unable to connect directly via TCP protocol with a PC with the address 10.0.0.199.

This also applies to Ethernet bridge tools. If it is found that the installed tool has an incompatible address, you must first change the IP address and make it compatible with the network. To change the IP, you must necessarily use the UDP protocol for programming (since it will not be possible to establish a TCP client / server connection)