

Bridge NET



The **Bridge NET** is a communications gateway that converts the Ethernet physical environment to RS-485 serial communications.

The Bridge **NET** device is a serial physical environment to Ethernet communications converter that uses TCP/IP communication packages. The gateway is responsible for the transparent conversion under TCP or UDP connections. The operation is determined by the parameterisation carried out in the internal configuration web menu.

TECHNICAL FEATURES

Power circuit	
Single-phase(A1 – A2)	196...253 Vac
Earth connection terminal	⏚
Frequency	47...63 Hz
Maximum consumption	9 VA
Working temperature	-10...+60 °C
Humidity(no condensation)	5...95%
Mechanical features	
Enclosure material	UL94 – V0 self-extinguishing plastic
Unit protection degree	IP 20
Dimensions (mm)	35.4 x 73 x84.68 mm (2 modules)
Weight	120 g
Maximum operating height	2,000 m
Network interface	
Type	Ethernet 10BaseT/ 100BaseTX self-detecting
Connector	RJ45
Network Protocols - Accesses	TCP/ UDP/ Modbus/ TCP - HTTP
Serial interface	
Type	RS-485 three-wires (A+/S GND/ B-) (RX/GND/TX)
Transmission speed (Configurable)	1.2, 2.4, 4.8, 9.6, 19.200, 34.8, 57.6, 115.2 kbps
Data bits	7, 8
Parity	No parity, odd, even
Stop bit	1 or 2
Security and electrical features	
Facilitie security	Category III/ EN61010
Electric shock protection	Double-insulated class II
Standards	
Standards	IEC 60664, VDE 0110, UL 94, EN61010-1, EN55011, EN 61000-4-2, EN 61000-4-3, 61000-4-11, EN 61000-6-4, EN 61000-6-2, EN 61000-6-1, EN 61000-6-3, EN 61000-4-5, CE

ETHERNET COMMUNICATION

The **BRIDGE NET** device is a serial physical environment to Ethernet communications converter that uses TCP/IP communication packages. The gateway is responsible for the transparent conversion under TCP or UDP connections. The operation is determined by the parameterisation carried out in the internal configuration web menu.

The device is equipped with a self-detecting 10BaseT / 100Base TX connection for the physical connection of the BRIDGE NET converter to an Ethernet network. For its configuration, the device has IPSetup pc software from which the user can define the network protocol used to communicate with the management software or communications system master.

Ethernet addressing

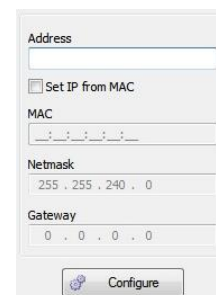
As the unit is connected to the master communication system by means of an IP connection, the addressing parameters must be configured. The configuration modes include the assignment of a fixed IP or configuration of a DHCP name.

Ethernet address assignment

To configure the IP address configuration in any of the available formats, run the **IPSetup.exe** executable supplied with the unit.

Fixed IP assignment

Run IPSetup and select the Bridge NET converter. To assign the fixed IP address, enter the **MAC** address shown on the permanent side label attached to the device, the format of which is 00:26:45:XX:XX:XX.



In the **IP Address** field, enter the IP address being configured; do the same with the **Netmask** and the **Gateway** if necessary. After entering the device configuration, press **“Configure”** to send the configuration to the unit.

DHCP IP assignment

Once the device is configured, to assign the DHCP name, activate this option by clicking on the **DHCP** checkbox. The settings fields **IP address**, **Netmask** and **Gateway** will be blocked.



SOFTWARE PC

Once the unit is connected to the Local Area Network (LAN) and the IP address is configured or in the DHCP mode, the remaining configuration can be established in the IPSetup software console. When the unit has been fully configured, the configuration can be sent by clicking on **“Configure”**.

Network protocol

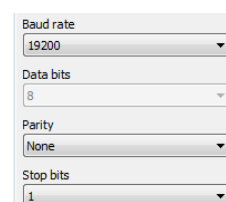
The unit can be connected to the master communications system by means of three types of network protocols and to a configurable port (TCP, UDP or Modbus/TCP).

Configuration of the Serial port

The communication parameters of the serial bus are fully configurable in terms of baud rate (1.2 kbps to 115.2 kbps), data bits (7 or 8), parity (none, odd or even) and stop bits (1 or 2). The data will be configured by default to 8 by selecting the Modbus/TCP communications protocol.

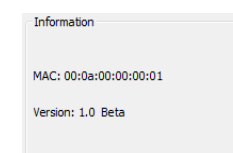
Device information

When the unit is connected with IPSetup, the top part of the screen shows the firmware version and the machine address of the device (the same address as that shown on the permanent side label).



Save changes

Once any change has been made to the aforementioned sections, the information must be saved using the **“Configure”** option. If you wish to return to the default configuration, select **“Load default”**.

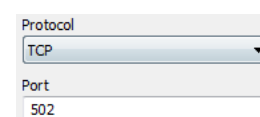


Configuration of network protocols

TCP Protocol

In the TCP/IP protocol stack, TCP is the intermediate layer between the Internet protocol (IP) and the application. In general, applications need reliable communications. The IP layer offers an unreliable datagram service (no confirmation), so the TCP adds the functions required to offer a secure, error-free and zero loss service for the communications between two systems.

- **Protocol:** TCP Mode
- **Port:** Destination TCP Port number



UDP Protocol

User Datagram Protocol (UDP) is a minimum transport level message-oriented protocol that has been documented in the RFC 768 of the IETF.

In the Internet protocol family, UDP provides a simple interface between the network layer and the application layer. UDP does not offer guarantees for the delivery of its messages and the UDP origin does not withhold the states of UDP messages sent to the network. UDP only adds the multiplexing functionality to the application and the verification sum of the header and useful load. Any type of guarantees for the transmission of information must be implemented in higher layers.

- Protocol: **UDP Mode**
- Port: **Destination UDP Port number**

Protocol	UDP
Port	10001

Modbus/TCP Protocol

Modbus/TCP is a variation or extension of the Modbus® protocol, which enables it to be used on the TCP/IP transport layer. Therefore, Modbus/TCP can be used throughout the Local Area Network or the Internet. This was one of the objectives that motivated its development (the specification of the protocol was submitted to the IETF, Internet Engineering Task Force).

- **Protocol:** Modbus/TCP Mode
- **Port:** Fixed port number 502

Protocol	ModbusTCP
Port	502

Tx Delay Rx Time

The Bridge NET converter uses two communication parameters to control the Modbus frames on the RS485 bus.

- **Tx Delay:** additional delay of the RS serial bus
- **Rx Time:** maximum bus waiting time


TX delay	40
RX time	500

INSTALLATION

Bridge NET must be connected to a power circuit with GL fuses in compliance with IEC 269, or M type with values from 0.5 to 1 A.

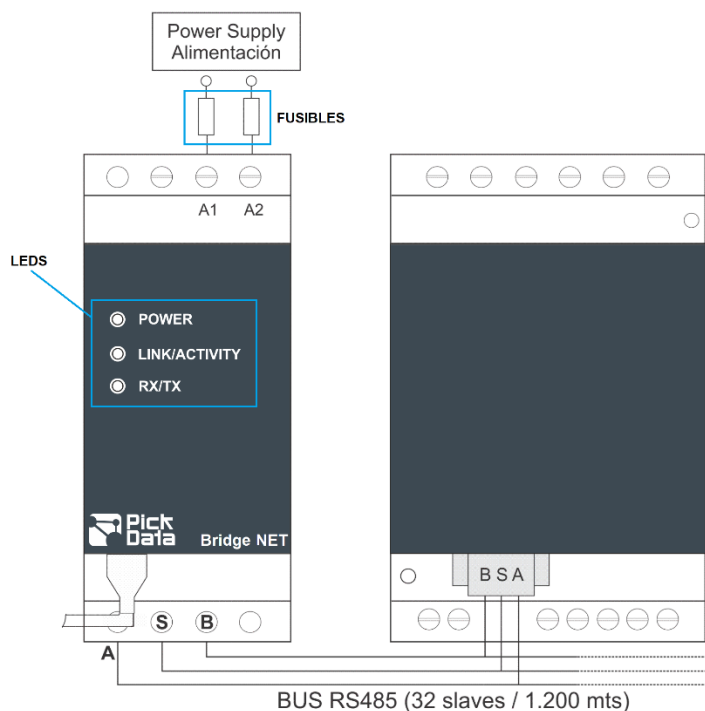
Bridge NET Must be fitted with a circuit breaker switch or equivalent device. Power supply cable must have a minimum cross-section of 1 mm².

Bridge NET has been designed for DIN rail mounting.

	<p>IMPORTANT</p> <p>Take into account that when the device is connected, the terminals may be hazardous to the touch, and opening the covers or removing elements may provide access to parts that are dangerous to the touch. Do not use the device until it is fully installed</p>
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* If the unit is not operated according to the manufacturer's specifications, its guaranteed degree of protection may be compromised.

CONNECTIONS AND LEDS



	Description
Power LED	Flashing: Powered unit and CPU activity
RX/TX LED	Flashing: RS-485 frame delivery and reception activity
Link/Activity LED	Flashing: Activity in the Ethernet bus Green: Speed 10/100 Mb/s

SAFETY PRECAUTIONS

	<p>DANGER</p> <p>Warns of a risk, which could result in personal injury or material damage caused by an incorrect handling or installation of the unit. In particular, handling with voltages applied may result in electric shock, which may cause death or serious injury to personnel. Defective installation or maintenance may also lead to the risk of fire. Read the manual carefully prior to connecting the unit. Follow all installation and maintenance instructions throughout the unit's working life. Pay special attention to the installation standards of the National Electrical Code.</p>
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DISCLAIMER

PickData, SL reserves the right to make modifications to the device or the unit specifications set out in this instruction manual without prior notice.

PickData, SL on its web site, supplies its customers with the latest versions of the device specifications and the most updated manuals.

MAINTENANCE AND TECHNICAL SERVICE

Device doesn't require maintenance.

In the case of any query in relation to unit operation or malfunction, please contact the PickData, SL technical support service.

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