



Ins-30001 Net2 485 TCP/IP Ethernet interface (Rev4)

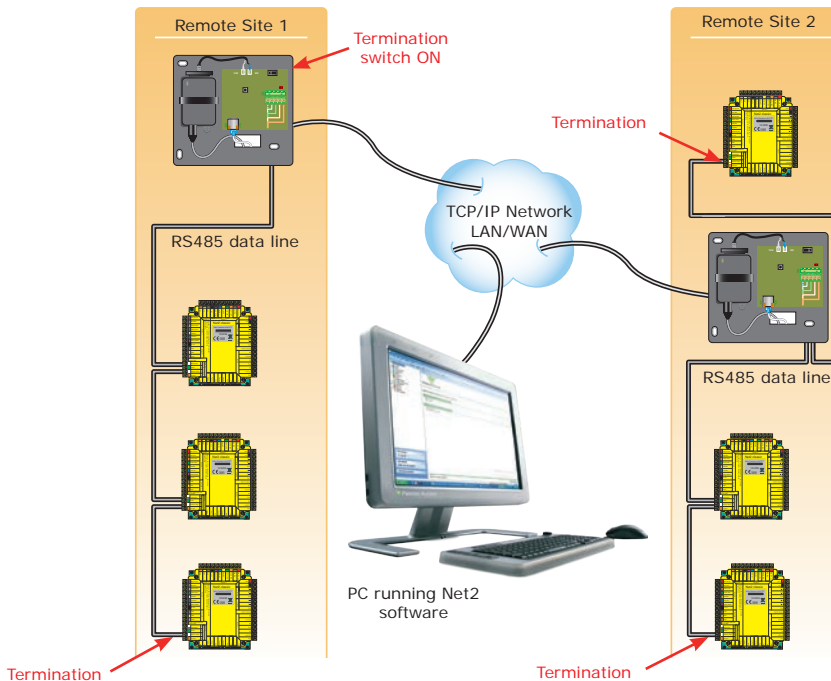


Technical help is available: Monday - Friday from 07:00 - 19:00 (GMT)
Saturday from 09:00 - 13:00 (GMT)

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The data line must be wired in a single daisy chain. The data converter may be located anywhere along the data line. 120 ohm terminating resistors must be linked across each data pair at the beginning AND end of the line. This can be done on many units with a switch or jumpers. If not, free resistors are provided with the converter.

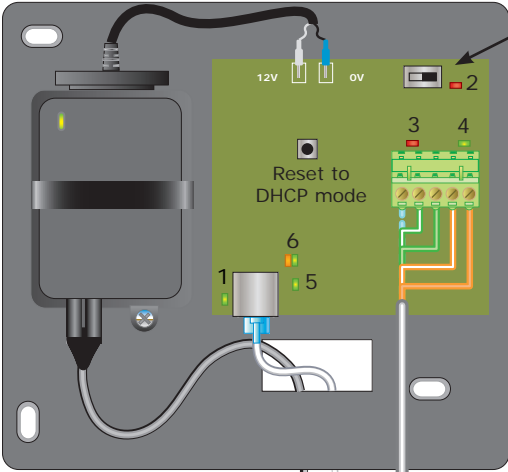
This unit has termination resistors that may be brought in circuit by means of a slide switch.



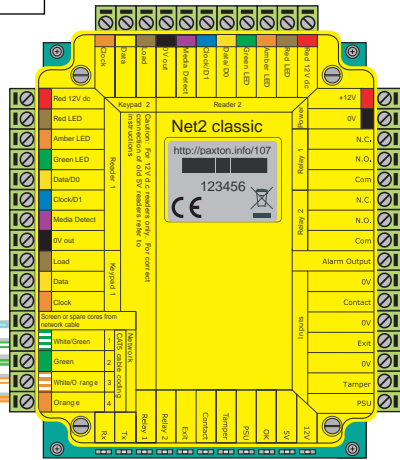
****IMPORTANT - THIS IS A NETWORK DEVICE****

Please contact your IT Administrator before installing this product

Fitting



Switchable 120 ohm resistors



To next ACU



Unswitched fused spur

The interface plugs directly into the TCP/IP Ethernet network via a standard RJ45 connection box.

To reset the unit to DHCP, power up with the reset button held down until the unit beeps. The interface is now fully reset and will now operate in DHCP mode.

LED indications

- 1. Power (Green)
- 2. Termination (Red)
- 3. Rx (Red)
- 4. Tx (Green)
- 5. Server Connected (Green)
- 6. Server Link

- 12/24V power LED.
- The on-board resistors are in place across the RS485 data pairs.
- The interface is receiving data (RS485).
- The interface is sending data (RS485).
- The TCP/IP interface is communicating with the PC Net2 server.
- Green = 100 Mbit/s : Orange = 10 Mbit/s (TCP/IP speed).

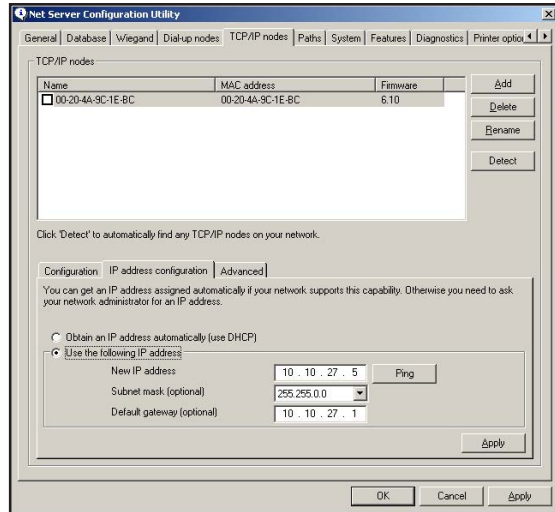
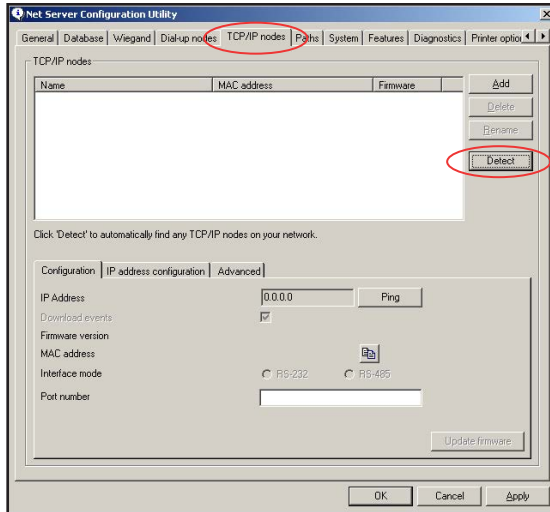
****IMPORTANT****
 Apply power to the unit after connecting the RJ45 plug to a network point.

This device requires Net2 v4.07 or later to operate. Earlier Net2 software is not compatible with this unit. If your PC can only support Net2 v3 software, please contact Technical Support for further advice.

When connecting to a LAN

The IP address should be assigned a fixed value, or should be given a DHCP reservation. Unreserved IP addresses issued by DHCP servers are not guaranteed to be constant, leading to potential failure of communication between Net2 software and the device.

Run the Net2 Server Configuration Utility (Start/Programs/Net2) and Click on TCP/IP nodes.



Click on **Detect** and the MAC address of the device(s) will appear in the table. You must then use the "IP address configuration" tab to manually assign the IP address, subnet mask and gateway.

Be aware that if the IP address that you give the device is not in the same IP range as the PC, the device will no longer respond until you connect to it with a PC that is in the same IP range.

Some firewall/virus protection software and other wireless hardware can block the IP detection process. Disable these and try to detect the device again. Please contact Technical Support if you require further advice.

If you detect the MAC address but the device now shows 'Not Responding', you must check the IP address, to make sure it is still in range with the PC or network. If it is not, you should either change the IP address of the PC or the IP address of the device so they are both again in the same range. Our Technical team can talk you through this if you need help.

If the MAC address does not appear when you click **Detect**, ensure that the following ports are open on all devices between this unit and the Net2 PC: -

9999	TCP
10001	TCP
30718	UDP

If you still cannot detect the MAC address of the device, call our Technical Support Help line.

Connecting to a WAN or different subnet mask

If you are connecting this device to a remote subnet which is different from the Net2 software PC, the standard detect mechanism cannot work across the network routers between them. The IP address, along with the correct subnet mask and gateway for the remote subnet have to be set. Either do this on the local subnet with the existing Net2 PC, or use a PC on the remote subnet once the device is installed.

The PC that has the Net2 server installed must be able to access the IP address range on the WAN/remote site. This may require the routers and gateways to be configured between the networks. Again, this would be done by the Network administrator of that site. Make sure the ports listed above are open on all intermediate routers.

Once installed, create a record with the **Add** button (if none was created during initial set up) and you should then be able to detect its MAC by entering the IP address in the Configuration screen Ping box.

Naming TCP/IP Ethernet interfaces

The rename button can be used to give an interface a meaningful name in the system. This can be especially useful when more than one interface is used. The name will appear in the doors screen within Net2 showing which ACU's are connected to which data line, helping in any future fault finding process.

TCP/IP Loopback test

The following test should be run if there are problems setting up the IP configuration of the interface. This test sends data to the device and checks this against the data it receives back. This confirms that the network is working correctly.

The Net2 server program must be shut down during this test.

Remove any wires from the RS485 data line connector and create a hardwired data loop as follows. Connect the Orange to White/Green and Green to White/Orange. To run the test, go to Net2 Server Config Utility/TCP/IP Nodes/Advanced and click on Loopback test. If the test fails, connect the unit directly to the PC with an RJ45 patch cable and test it again. Should this still fail, please call Technical Support for further advice.

Technical Help

1 - Cannot detect ACU via a TCP/IP interface.

1. The TCP/IP interface must be listed in the Net2 Server Configuration Utility, and responds when PINGed from the utility. We recommend that a static IP address is used.
2. If the interface is responding, try a loopback test. (See Loopback section)
3. The Net2 data line should be checked for resistance readings.

2 - Cannot detect TCP/IP interface.

1. Click Detect in the Net2 Server Configuration Utility to search for the TCP/IP interfaces.
2. Power the device down and ensure it is connected to the network, then power it up again.
3. Check the LED's to ensure there is network activity and confirm the server is connected.
4. If they have a firewall running, make sure the ports are not blocked. (see port list)
5. Ensure the TCP/IP interface and server PC are on the same subnet.
6. PING the IP address. If it is being used over a WAN/VLAN then add it manually.
7. Check the unit with a Loopback test (see previous section).

3 - Direct connection to a PC via the network port.

To communicate directly via the TCP/IP interface on the PC, a standard network cable may be used. If the unit does not detect the presence of a DHCP server it will default to an IP address in the range 169.254.X.X.

Check the IP address of the network card of your PC by typing IPCONFIG at the command prompt. Detect the interface through the Net2 Server Configuration Utility and change the IP address of the interface to an address similar to that of your machine. For example, if the IP address of the PC is 192.168.10.7, change the IP address of the TCP/IP interface to 192.168.10.8. Once the IP address of the interface has been changed into the range of the PC then Net2 will be able to communicate with it.

NOTE: Do not change the IP address of your PC to 169.254.x.x, this will not allow the IP address of the TCP/IP interface to be fixed correctly.

4 - Can we use a DHCP IP address?

The Ethernet interface does support DHCP, but for more reliable communication, a static IP address must be reserved for the unit. Some network servers issue different DHCP addresses each time they are restarted. This then requires the Net2 interface to be manually set up again - a time consuming process for the user.

Here is the list of topics about this product that receive the most technical support enquiries. We list them here to help you speed up the installation and trouble shooting process.

5 - TCP/IP communication over a WAN.

We need to establish two-way communications between a PC on site A and a Net2 485 TCP/IP Ethernet interface on Site B.

Each site needs to know the gateway IP address required to route data to the other site and the IP address of the unit they are trying to locate.

- PC Setup (Site A)

The IP routing at Site A is done automatically by network hardware.

LAN addressing is normally set up such that different groups are reserved for specific remote sites (10.20.x.x, 10.30.x.x, etc). In this case, messages that are for the Ethernet interface on site B (e.g. 10.20.0.25) will be routed out through the correct gateway by their network hardware.

The IP address of the PC is included in the outgoing message and will be used by the Ethernet interface as the return address when it responds.

- TCP/IP Interface Setup (Site B)

This requires an IP address and a gateway to be loaded in the unit before it is taken to site.

Using the Net2 Server Configuration Utility, set the IP address for the Net2 485 TCP/IP Ethernet interface that defines it within it's own LAN. (e.g. 10.20.0.25) and the IP of the gateway (e.g. 10.20.0.1) it will use to respond to data from site A.

Port '9999' must be allowed through any firewall software!

RS485 data line

90% of installation faults are caused by wiring errors on the RS485 data line. Special attention to getting this right first time saves a lot of time and effort.

Specifications

Electrical		Min	Max	
Voltage		11V DC	14V DC	
Current			250 mA	
Environment		Min	Max	
Operating temperature		- 20 °C	+ 55 °C	
Waterproof	NO - If used externally, it must be protected in a plastic weatherproof housing			
Features		Min	Max	
ACU per data line		1	200	Max 500 per system
Data lines per PC		1	100	Net2 v4.14
Ethernet network speed		10 Mbit/s	100 MBit/s	
Ethernet bandwidth requirement			200 kbits/s	
DHCP support (fixed IP recommended)				Yes
RS485 network speed			115.2 kbit/s	
Dimensions		Width	Height	Depth
Plastic Housing		170 mm	175 mm	40 mm

Contents in box

485/TCP/IP converter			
Black Plastic Housing			
1A power supply with Figure 8 IEC power lead			
Documentation			
		Qty	Description
Fitting Kit	fk1-039	4	120 ohm resistor
TCP/IP		2	Cable Tie
Fitting Kit	fk1-056	4	Pozi pan self tapping screw - zinc
PSU box		4	Wall Plugs
		2	Pozi pan self tapping screw - small
		3	Cable tie



The declaration of conformity is available on request. Contact details are provided at: <http://paxton.info/596>