Installation Manual ETH0x

1. General

The Ethernet interface in a Btichino built-in housing (ETH01) or in a DINrail housing (ETH02) is suitable for making a 'computer' communicate with the QBUS system via a standard 10Base T or 100Base T Ethernet connection.

The ETH01 (wall mounting) can operate without additional power supply. Simply connect the bus to operate the interface. In this case it does use up to 90mA from the bus. However, if you remove the 2 jumpers and connect an additional 12V (AC or DC) power supply to the freed connector then the latter will only use 10mA from the bus. You can only use 1 power supply for 1 device. This means you must NOT use the additional power supply for multiple devices on the bus. The ETH02 must always be supplied with 230V AC at the top left.

Once the device has been activated the leds on the Ethernet connector will flicker green-orange until it has started. When idle and when the network is not connected both leds must go out. If a good 100Mbit connection is established by means of the supplied YELLOW network cable with a router, switch, PC … the left led will light up green. For Ethernet communication the right led will flicker.
There are also 2 leds on the module to indicate the bus communication. When the bus is energized then the right led will light up for 2 seconds. For each valid communication packet the leds will light up and go out again.

We have noted the MAC address on each device (e.g. 00:20:4A:xx:xx:xx)
However, any device that is connected to a network and wants to communicate via TCP/IP requires an IP address.
When the device is supplied it does not yet have an IP address. Usually the device is connected to the local network (LAN) that is connected (possibly via a switch or hub) to a router. The latter often has a DHCP on-board that ensures each connected device is allocated an IP address. NOTE: First connect the network cable correctly and then energize the device in order to request an IP address via DHCP.
Obviously, it is also possible to directly connect the Ethernet interface to 1 PC. To do so you require a cross-cable. Use the supplied GREY cable.

2. PC set-up

Once you know the allocated IP address of the interface you can enter it in the QBUS Serial manager II under help programs / set-up. When you try to set up your first communication it will first search that IP address and subsequently the set COM ports. “TCP/IP active” will be displayed at the top right and in the title.
You can also find the IP address by clicking on settings at the bottom right and by clicking ‘search modules’. This will display a list of the connected Ethernet interfaces (MAC & IP address). By double clicking on this line the IP address is entered in the set-up screen. You can only communicate with a device if the first 3 digits are the same and the last digit is different. The IP address of the PC can be seen in the blue title bar of this window. When the devices are connected to a router the IP addresses are usually 192.168.1.x or 192.168.1.x, …. However, if no DHCP is present then the IP addresses are 169.x.x.x. Thus, if an ETH0x is connected to the PC with a cross-cable then both the PC and the Ethernet interface must start with the same 3 digits.
IP addresses such as 127.0.0.0 are unusable.
The fixed allocation of an IP address is currently possible via TELNET (see point 4.) and will later be built in via the set-up.
The interfaces are supplied without a password. If the interface is connected to the Internet via a router and if you want to operate the interface via the Internet we definitely recommend you enter a password to prevent any abuse. To enter a password for the first time delete the old password, enter the same new password 2x and send it to the current interface. The new password is then stored in the set-up window for the next communication.
At present multiple network card search is not supported. Only the first network card is scanned.
Communication always occurs via port 8444 and port 8445. Only the first port need be entered. This can also be set via TELNET. Port 8444 ensures web server communication, port 8445 ensures PC TCP/IP communication.
The uploading of new firmware is also available via the software. In this way you will always be able to use the latest developments. At present you can already download the latest firmware from our web site and upload it in compliance with the attached description via TFTP.

3. Web server

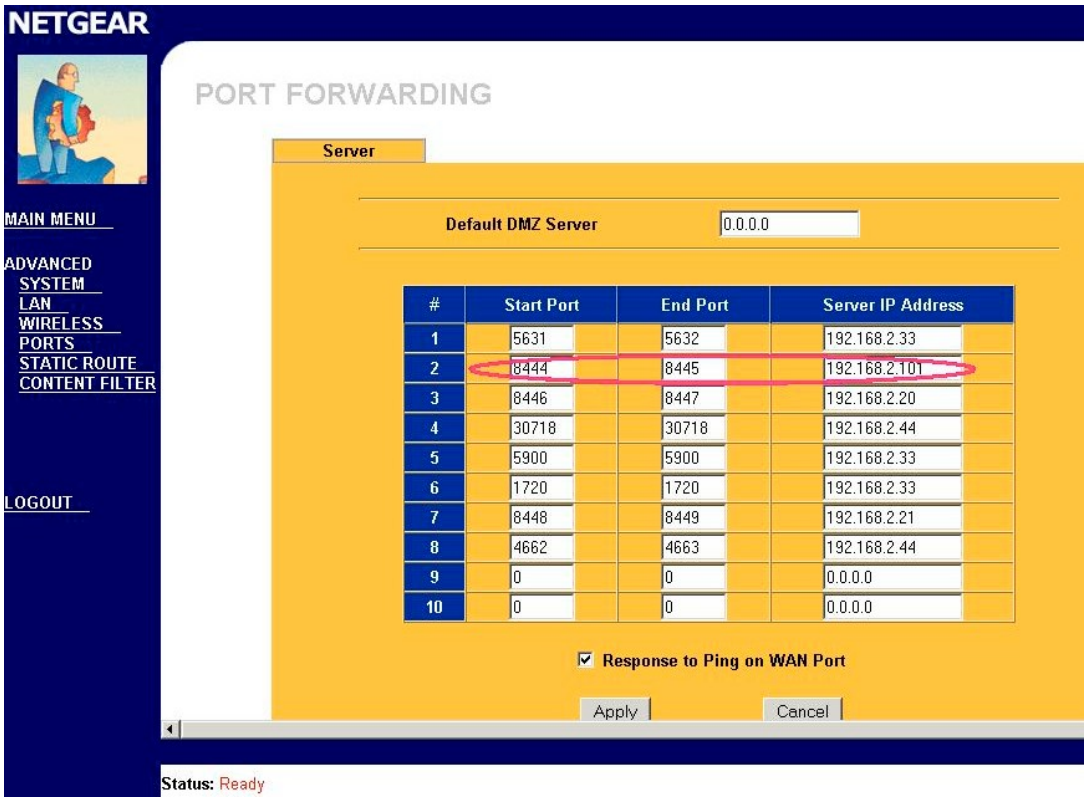
Each interface has an integrated web server on board. This is a graphic interface from which you can access and operate the outputs connected to the QBUS system. To do so the controller must be equipped with firmware version 9.17 or higher. The ETH0x always uses the settings of operating table 1. Previously, (firmware up to v1.2.6) the interfaces were supplied with a web server requiring JAVA VM. The start page can be opened from the browser using http://x.x.x.x:8444/QbusMenu2.html in which x.x.x.x represents the IP address of the interface (8444 being the port number). However, the java applets are not compatible with all systems and versions. Therefore as from firmware 1.4.0 (May 2005) QBUS opted for a purely HTML interface, that does not have these (java) problems. This interface can now be started by surfing to the IP address on the set port (8444): http://x.x.x.x:8444. You can now access and operate everything with any browser on any computer connected to the network. The most recent version can always be found on the website via download / software.

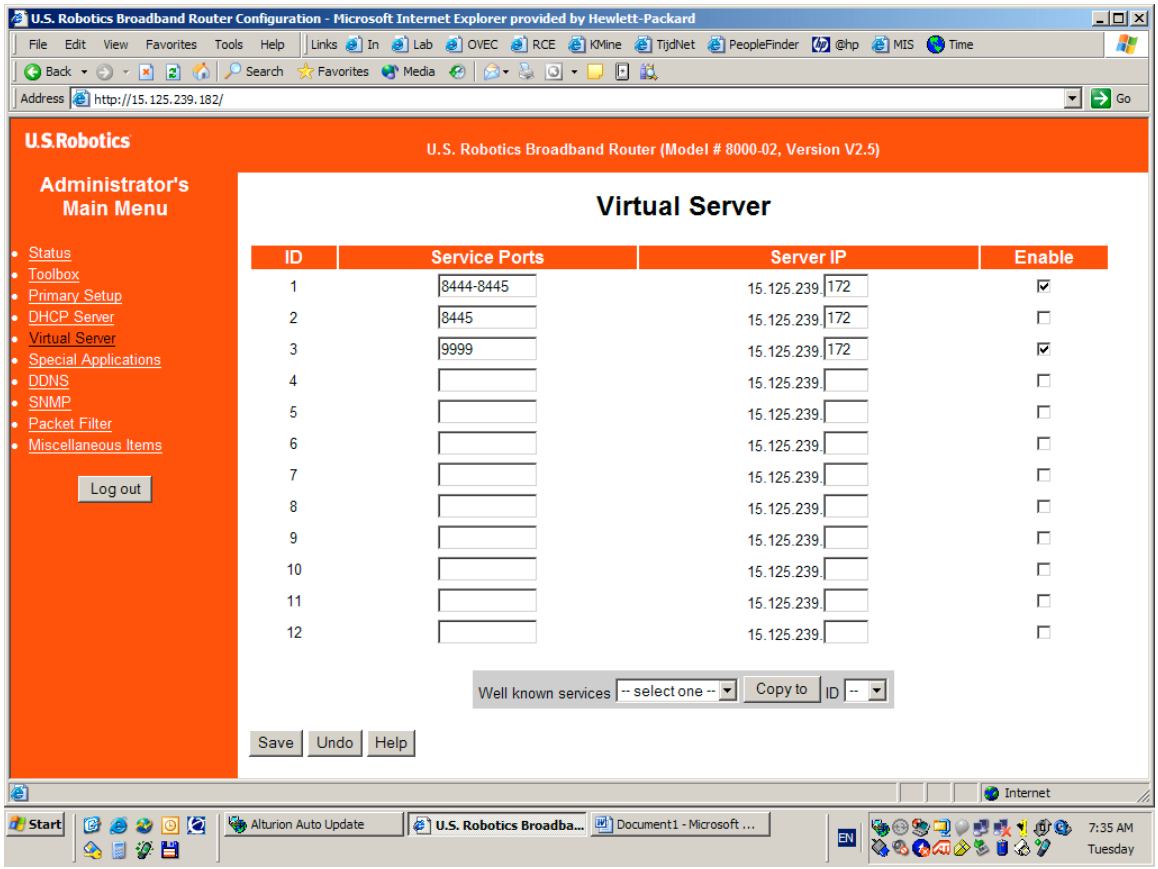
4. TELNET

The module also has a built-in TELNET interface. This interface can be accessed via port 9999
E.g.: TELNET 192.168.2.44 9999
Menu option 0 allows you to set the device's IP address either variably (0.0.0.0) or allocate it permanently. In most cases Netmask allows you to stand on 8 (bits). This corresponds to a mask of 255.255.255.0
Here you can also enter your password (maximum 4 characters).
The Gateway is also adjustable. This is the local IP address of the router. Usually this is x.x.x.1
Enter the HTTP communication port (default 8444) via option 3
Select the standard parameters (baud rate 19200, port 8444 …) via option 7
Option 8 to cancel and option 9 to store the setting and stop.

5. Linking via the Internet

If you want to make the Ethernet interface communicate via the router from the 'outside', then a number of ports must be forwarded to the local IP address. This is called 'Port Forwarding' or 'Virtual Server' …
Via your web browser (MS Internet Explorer, Mozilla Firefox, …) surf to your router's address (e.g.: 192.168.2.1) and follow the instructions indicated in your router's manual. Below you will find an example for a Netgear router, for a US Robotics router and for an SMC router.





With Port forwarding the incoming communication on the specific port (for QBUS 8444 and 8445) of the external IP address allocated to your connection by your Internet provider is forwarded to the set local IP address. You can also find your actual external IP address in the status screen of your router. Some specific sites also display your external IP address on screen (e.g. http://www.whatip.com/)

This allocated IP address may change regularly with some (especially ADSL) providers. It is quite difficult to remember four digits. This is why certain services allow you to convert these dynamic IP addresses into a name (e.g. http://www.dyndns.org). When you register on such a site, you can for instance activate the name “MYOWNNAME.DYNDNS.ORG”. They then link the chosen host name to your IP address. When you enter these settings (including your login and password) via the “DynamicDNS” page on your router, then the latter will ensure this link remains up-to-date. You will then be able to make the qbus system communicate both externally via the Serial Manager II and via a web browser via this created host name (instead of an IP address)

Additional queries or comments are always welcome on support@qbus.be or mail via the QBUS forum.