

Browser Interface

for

**SlimFlex Series
Water Treatment Controllers**

LB Option: LAN-BROWSER

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Technical Support

www.aquatrac.com

1.800.909.9283 8-4 PST

This manual is SFlex_LB.pdf

Safety



Electrical Shock Hazard

Opening the controller enclosure with the controller plugged in, exposes the user to AC line voltages.



USER WARNING : CAUTION

Water Treatment Controllers operate steam and water valves and may pump hazardous, corrosive and toxic chemicals. Opening the controller enclosure exposes user to the risk of electrical shock at power line voltages.

Understand fully the implications of the control setpoints, interlocks and alarms that you select. Harm to personnel and damage to equipment may result from mis-application.

Unplug or turn OFF the AC power to the controller if you have any concerns regarding safety or incorrect controller operation and notify supervisory staff.

INDIVIDUAL CONTROLLERS

The Browser view of each controller varies with the controller type.

Your controller will not include all of the sensor and control options detailed in this manual.

Controllers with the Control Verification option show the controlling sensors downstream of the pump or solenoid that the sensor controls.

CONTROLLER OPTIONS

Any SlimFlex series controller can have one or none of the three option cards installed.

LB is the LAN-Browser option detailed in this manual.

CL is the 4-20mA current output on conductivity option.

AR is the Alarm Relay option.

1. Browser Services

1.1 Views

The controller view varies with the controller part number.

Navigating Views:

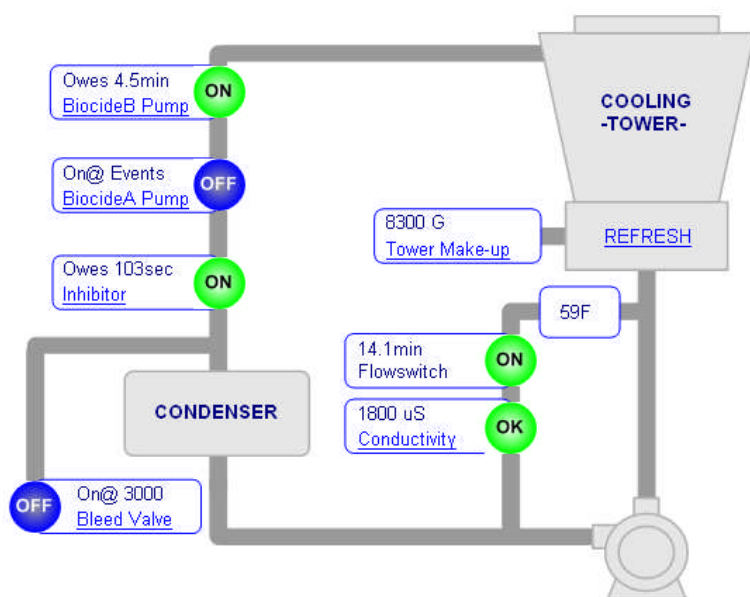
Click on sensor links to calibrate, install, set alarms or view status.

Click on pump and solenoid links to adjust setpoints and configure.

Click on [Home](#) then [Configure](#) for system level set-up and time-date adjust

Conductivity-Bleed, Inhibitor & dual Biocide Controls

Controller Type: **CO-IN-TB-TB** with option **LB**



Cooling Tower Controls

2004-10-27 07:31:44

Alarms none

Alarms,Events and Timers ☐ Reset All

Part No. CO-IN-TB-TB

Serial Number U904C9999

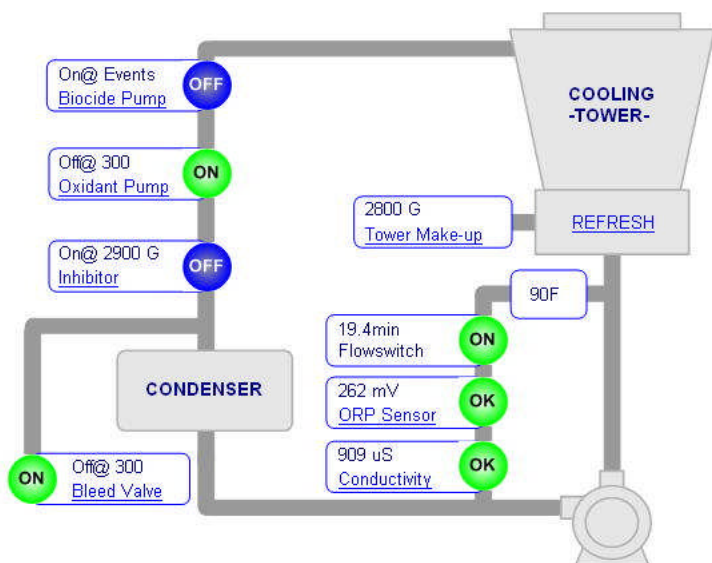
Click a link in the View to operate the controller

Setup [Configure](#)

[Submit](#) [Refresh](#)

Conductivity-Bleed, Inhibitor, ORP-Oxidant & Biocide Controls

Controller Type: **CO-IN-CX-TB** with option **LB**, Inhibitor selected.



Inhibitor Control

Today, 4.6min

Setpoints Volume
 Seconds

Control Mode ☒ Water Meter
☐ Bleed & Feed
☐ Bleed then Feed
☐ Time

Daily Limit minutes

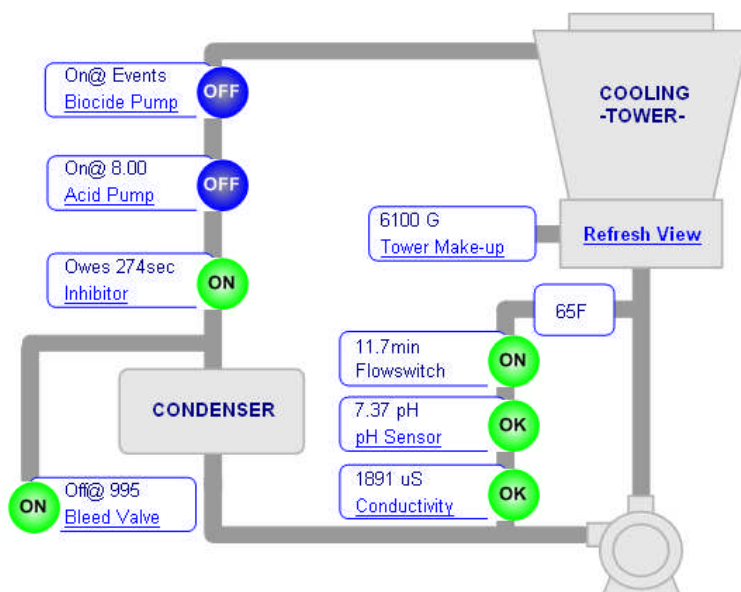
Action ☐ Prime
☐ Reset Time

[Refresh](#)

[Home](#)

Conductivity-Bleed, Inhibitor, pH-Acid & Biocide Controls

Controller Type: **CO-IN-PH-TB** with option **LB**



Cooling Tower Controls

2004-10-18 09:04:30

Alarms none

Alarms,Events and Timers ☐ Reset All

Part No. CO-IN-PH-TB

Serial Number U904P9999

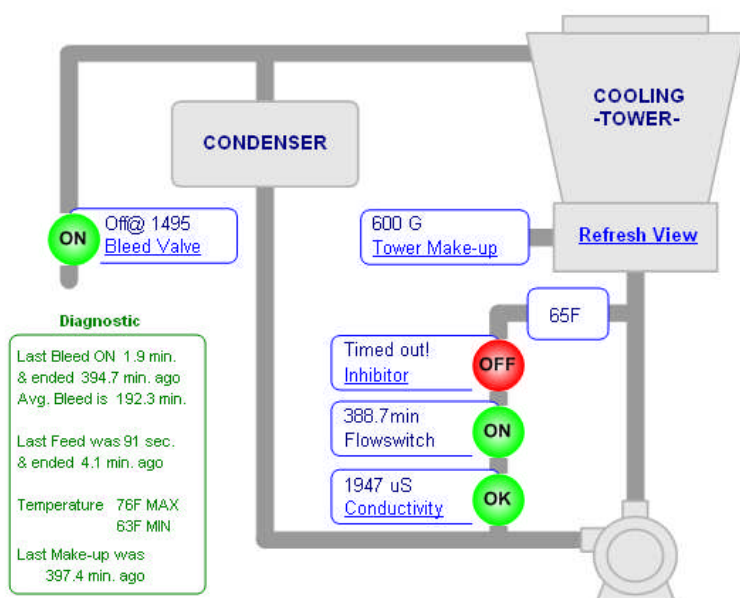
Click a link in the View to operate the controller

Setup [Configure](#)

[Refresh](#)

Conductivity-Bleed and Inhibitor Controls

Controller Type: **CO-IN** with option **LB**, [Inhibitor](#) pump daily limit exceeded.



Cooling Tower Controls

Up Time 06:33:53

Alarms [Inhibitor Pump](#)

Alarms,Events and Timers ☐ Reset All

Part No. CO-IN-V

Serial Number U904C9999

Click a link in the View to operate the controller

Setup [Configure](#)

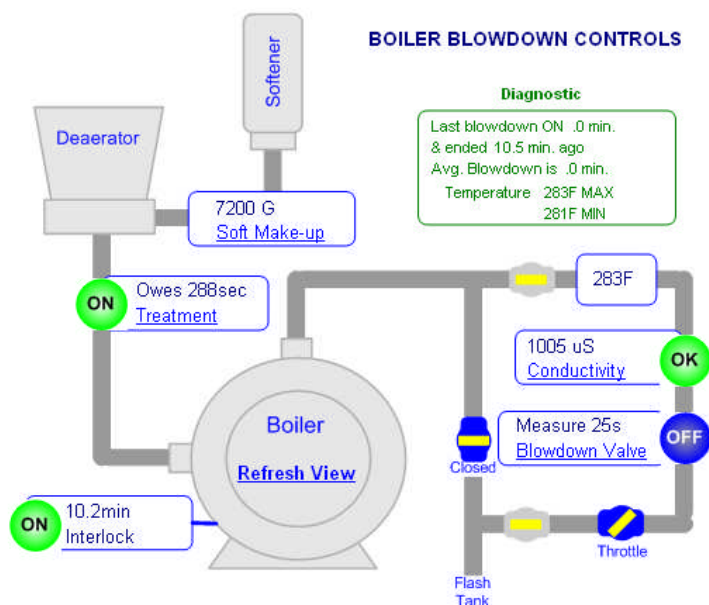
[Submit](#) [Refresh](#)

Extended **Diagnostics** are part of two relay controller Views.

In the Tower view, an average bleed of 192.3 minutes may indicate a restricted bleed or incorrect setpoints. Since the last make-up was over 400 minutes ago, it's more likely that a restricted bleed is causing the long bleed times.

Boiler Blowdown and Treatment Controls

Controller Type: **BB-IN** with option **LB**



Boiler Blowdown Controls

Up Time 00:09:22

Alarms [Temperature](#)

Alarms,Events and Timers ☐ Reset All

Part No. BB-IN

Serial Number U904B9999

Click a link in the View to operate the controller

Setup [Configure](#)

[Submit](#) [Refresh](#)

SlimFlex LAN-Browser

1.2 Home Page

1.2.1 System

Select [Refresh](#) to update
Select [Configure](#) for Controller configuration, time & date adjust..

Current controller date and time.

Mirrors alarms on Controller LCD display.

Ends Biocide Events, Bleed Valve Test & Pump Priming and owed
time on water meter feeds
Select & [Submit](#)

Part No. indicates the function of each of four control relays.
In this example, Conductivity, Inhibitor and two timed Biocides.
V indicates Control Verification option.

Serial Number sets controller type, firmware & hardware versions.

Select [Home](#)
on any page

Cooling Tower Controls

2004-09-22 14:56:48

Alarms none

Alarms,Events
and Timers ☐ Reset All

Part No. CO-IN-TB-TB-V

Serial Number U904C9999

Click a link in the View
to operate the controller

Setup [Configure](#)

[Submit](#) [Refresh](#)

1.2.2 Configuration

Select [Refresh](#) to update
Select [Home](#) to return to System page

Current day of week SUN/MON/TUE/WED/THU/FRI/SAT.
Edit & [Submit](#)

Current Date & Time.
Edit in YYYY-MM-DD, HH:MM:SS format & [Submit](#)

Select Temperature & Volume units
Select & [Submit](#)

Turn OFF Inhibitor Pump when either Biocide,
or Oxidant pump ON.
Select & [Submit](#)

Automatically restart an oxidant pump which exceeds
minutes/actuation
Select & [Submit](#)

Select [Xspeak](#) to view controller XML data set

Editing and selection changes execute on [Submit](#)

Select [Configure](#)
on [Home](#) page

System Setup

Adjust Clock [Wed](#)

YYYY-MM-DD [2004-10-27](#)

HH:MM:SS [15:40:31](#)

U.S. Units ☒ Gallons,F

Metric Units ☐ Liters,C

Inhibitor OFF
when Oxidant
or Biocide ON ☐ YES ☒ NO

Feed-limited
Oxidant resets
at midnight ☐ YES ☒ NO

XML Data Set [XSpeak](#)

[Submit](#) [Refresh](#)

[Home](#)

SlimFlex LAN-Browser

1.3 Controls

1.3.1 Bleed Solenoid

The factory default is **Conductivity Control Mode**

Select [Refresh](#) to update

Select [Home](#) to return to System page

Select [Bleed Valve](#)
in the View

Minutes Bleed Valve ON from Midnight

Current Setpoints, vary with **Control Mode**
Edit & **Submit**

Current control mode **Conductivity**
Select & **Submit**

Select one or more options & **Submit**

Setpoint on loss of Inhibitor Feed or Conductivity measure.

Edit & **Submit**

Not displayed on controllers without the **V**, Control Verify option

Editing and selection changes execute on **Submit**

Test Bleed turns ON bleed solenoid for 5 minutes.

Conductivity Control

Today, 15.6min

Setpoints Turn ON
 TurnOFF

Control Mode ☒ Conductivity
☐ Volume
☐ %Time

Action ☐ Test Bleed
☐ End Prebleed
☐ End Lockout

Loss of Control %
Bleed Override

[Refresh](#)

[Home](#)

Sidebar: The difference between Turn ON & TurnOFF, the 'deadband', is usually set to 10uS. If you are watching the tower conductivity as the sump float turns the make-up water ON & OFF, you'll observe the operating deadband exceeds 10uS.

The sump float level trip points act to increase the observed maximum and minimum conductivity in each bleed cycle.

Sidebar: Meter Control is used where sensor fouling from silica or organics continuously fouls the conductivity sensor. Percentage Time is used short term, to bleed while replacing a sensor or installing a water meter.

SlimFlex LAN-Browser

1.3.2 Inhibitor Pump

The factory default is **Bleed & Feed Control Mode**

Select [Refresh](#) to update

Select [Home](#) to return to System page

Select [Inhibitor Pump](#)
in the View

Minutes Inhibitor Pump ON from Midnight

Current Setpoints, vary with **Control Mode**
Edit & **Submit**

Current control mode **Bleed & Feed**
Select & **Submit**

Maximum number of minutes of pump ON time per day.
Edit & **Submit**

Prime turns ON the Inhibitor Pump for 5 minutes.

Editing and selection changes execute on **Submit**

Inhibitor Control

Today, 96.6min

Setpoints Percent
 unused

Control Mode
☐ Water Meter
☒ Bleed & Feed
☐ Bleed then Feed
☐ Time

Daily Limit minutes

Action
☐ Prime
☐ Reset Time

[Refresh](#)

[Home](#)

Sidebar: Bleed & Feed is used on bleed limited towers where the bleed solenoid is ON for more than 50% of the time.

Bleed then Feed is used on towers which don't have a make-up water meter; typically reducing inhibitor usage over Bleed & Feed since you are not pumping inhibitor with the Bleed ON.

Percentage Time is used to base feed during start-up or when the tower is not loaded.

Feed on Volume is usually the most accurate & reliable way to feed for towers which have a make-up meter.

Sidebar: Prime Pump will not turn ON the Pump if the flowswitch is OFF.

Inhibitor pumps set to 'Bleed then Feed' or 'Feed on Volume' modes will not feed if the Bleed Solenoid is ON. Feed starts as soon as Bleed ends.

SlimFlex LAN-Browser

1.3.3 Biocide Timed Events

The factory default is **28 Days Event Cycle**

Select **Refresh** to update

Select **Home** to return to System page

Select **Biocide Pump** or
BiocideA Pump or
BiocideB Pump
in the View

Displays current Day# 1..28 in **Event Cycle**

Minutes Biocide Pump ON from Midnight or **No events set**

Current **Event#** 1..28, start time and Pump ON time in minutes
Edit, **Select One** & **Submit**

Next Event & **Previous Event** scroll through
the scheduled events.
Select & **Submit**

Prebleed turns ON the Bleed Valve at the start of each event
Edit & **Submit**

Lockout turns OFF Bleed Valve after **Prebleed** ends.
Edit & **Submit**

Event Cycle repeats the scheduled vents every 1, 7 or 28 days.
Select & **Submit**

Prime turns ON the Biocide Pump for 5 minutes.

Editing and selection changes execute on **Submit**

Biocide A Timing now Day 4

Today, 10.0min

Event Day-Start-ON Time

5 of 28 15 07:15 30min

Select One
☐ Next Event
☐ Previous Event
☐ New Event
☐ Edit Event
☐ Delete Events

Prebleed 15 Minutes
525 Conductivity

Lockout 120 Minutes

Event Cycle
☒ 28 Days
☐ 7 days
☐ 24 Hours

Action
☐ Prime
☐ End Event

Submit

Refresh

Home

Sidebar: Events are re-sequenced by Day & Time whenever you Edit Events or Add Events.
Keying UP in Edit Events displays the event sequence from Day 1 to Day 28.

Day 1 is always Sunday for 28 and 7 Day Cycles.
If you change Cycle Days, all events are deleted.

Prebleed ends when the measured conductivity is less than the **Prebleed Conductivity**

End Event turns OFF the Biocide pump but does not end Bleed Valve, **Prebleed** or **Lockout**.
Select **Bleed Valve** to end **Prebleed** or **Lockout**.

The factory default is **pH Feed Mode**
Select **Refresh** to update
Select **Home** to return to System page

Select **Acid Pump**
in the View in the View

Minutes Inhibitor Pump ON from Midnight

Current Setpoints, vary with **Control Mode**
Edit & **Submit**

Current control mode **pH**
Select & **Submit**

Maximum number of minutes of pump ON time per actuation.
Edit & **Submit**

Prime turns ON the Inhibitor Pump for 5 minutes.
Reset Timeout restarts the **Feed Limit** timer.

Editing and selection changes execute on **Submit**

Acid Control

Today, 19.6min

Setpoints Turn ON
 TurnOFF

Feed Mode ☒ pH
☐ Volume

Feed Limit minutes

Action ☐ Prime
☐ Reset Time

[Refresh](#)

[Home](#)

Sidebar:

Acid control setpoints are usually set by measuring or estimating the pH at the target cycles of concentration. If make-up water hardness changes, the amount of acid required to maintain the setpoint pH and the acid pump ON times will also change.

The pH must be less than the TurnOFF setpoint within the feed limit time in minutes.
The limit timer prevents acid overfeeding and resulting corrosion if the pH sensor fouls or fails.

Note:

The Acid feed limit restarts every time the pump turns ON & does not reset at midnight.
Exceeding the feed limit timer may indicate problems with pH sensor or acid feed.

Sidebar: Prime will not turn ON the Pump if the flowswitch is OFF or if the pump ON time has exceeded the Feed Limit.

SlimFlex LAN-Browser

1.3.5 Oxidant Pump

The factory default is **ORP Feed Mode**
Select **Refresh** to update
Select **Home** to return to System page

Minutes Oxidant Pump ON from Midnight

Current Setpoints, vary with **Control Mode**
Edit & **Submit**

Current control mode **ORP**
Select & **Submit**

Maximum number of minutes of pump ON time per actuation.
Edit & **Submit**

Prime turns ON the Inhibitor Pump for 5 minutes.
Reset Timeout restarts the **Feed Limit** timer.

Editing and selection changes execute on **Submit**

Select [Oxidant Pump](#)
in the View

Oxidant Control

Today, 60.0min

Setpoints Turn ON
 TurnOFF

Feed Mode ☒ ORP
☐ % Time

Feed Limit minutes

Action ☐ Prime
☐ Reset Timeout

[Refresh](#)

[Home](#)

Sidebar: ORP is an indirect measure of available oxidant & may change slowly at high oxidant levels. ORP typically will not change if there is no residual oxidant in the tower.

Select %Time mode to base feed Oxidant
The Oxidant Pump turns OFF if the Feed Limit is exceeded.

Sidebar: Prime will not turn ON the Pump if the flowswitch is OFF or if the pump ON time has exceeded the Feed Limit.

SlimFlex LAN-Browser

1.4 Sensors

1.4.1 Conductivity Sensor

Select [Refresh](#) to update
Select [Home](#) to return to System page

Displays, Alarm, Fails Calibrate or [Sensor OK](#)

Current conductivity, change to [Calibrate](#)
Edit & [Submit](#)

[Factory Reset](#) returns sensor to default calibration.
Select & [Submit](#)

Current Alarm levels
Edit & [Submit](#)

Editing and selection changes execute on [Submit](#)

Select [Conductivity](#)
in the View

Conductivity Sensor

Sensor OK

Calibrate uS

Sensor ☐ Factory Reset

Alarms uS High
 uS Low

[Refresh](#)

[Home](#)

1.4.2 pH Sensor

Select [Refresh](#) to update
Select [Home](#) to return to System page

Displays, Alarm, Fails Calibrate or [Sensor OK](#)

Current pH, change to [Calibrate](#)
Edit & [Submit](#)

[Factory Reset](#) returns sensor to default calibration.
Select & [Submit](#)

Current Alarm levels
Edit & [Submit](#)

Editing and selection changes execute on [Submit](#)

Select [pH Sensor](#)
in the View

pH Sensor

Sensor OK

Calibrate pH

Sensor ☐ Factory Reset

Alarms pH High
 pH Low

[Refresh](#)

[Home](#)

SlimFlex LAN-Browser

1.4.3 ORP Sensor

Select [Refresh](#) to update
Select [Home](#) to return to System page

Displays, Alarm, Fails Calibrate or [Sensor OK](#)

Current conductivity, change to [Calibrate](#)
Edit & [Submit](#)

[Factory Reset](#) returns sensor to default calibration.
Select & [Submit](#)

Current Alarm levels
Edit & [Submit](#)

Editing and selection changes execute on [Submit](#)

Select [ORP Sensor](#)
in the View

ORP Sensor

Sensor OK

Calibrate mV

Sensor ☐ Factory Reset

Alarms mV High
 mV Low

[Refresh](#)
[Home](#)

1.4.4 Watermeter

Select [Refresh](#) to update
Select [Home](#) to return to System page

Displays volume measured In [Gallons](#) or [Liters](#) and
days operating this calendar year

Contact head meter are [Volume/Contact](#)
Turbine-Paddlewheels are '[K](#)' factor
Edit & [Submit](#)

Current water meter type
Select & [Submit](#)

Editing and selection changes execute on [Submit](#)

Select [Tower Make-up](#)
or [Soft Make-up](#)
in the View

Tower Water Meter

This year 562400 G

On-Line 234 days

Volume/Contact

Type ☒ ContactHead
☐ Paddlewheel

[Refresh](#)
[Home](#)

2. Browsing Controllers

2.1 Connecting to a LAN

Most site, residential and commercial Ethernet LANs provide a DHCP (Dynamic Host Configuration Protocol) service which automatically provides an IP address for the controller as soon as you connect the controller RJ45 Ethernet jack.

Do not connect to a site network until you have permission from the site IT staff. IT staff may require the controller MAC (Media Access Control), a unique number which identifies the micro web server installed in the controller.

Viewing the Controller 'MAC'

Press **UP - DOWN** until you see **LAN IP**

The displayed **IP** is the factory default **10.10.6.101**
OR the **IP** assigned by DHCP
OR the **IP** you manually set, detailed in Section 2.5

Press **ENTER** twice to view the controller **MAC**

The **MAC** is usually shown as six,
2 digit hexadecimal numbers.
This format does not fit the 16 character controller display.

In this example the **MAC** would be **00 03 75 0F 65 58**

The diagram illustrates the navigation steps through the SlimFlex LAN-Browser interface. It consists of three rectangular boxes representing the screen display, connected by blue arrow icons indicating the sequence of actions.

- First Screen:** Displays "LAN IP" at the top and "10.10.6.101" below it. A blue arrow points to the right of the text.
- Second Screen:** Displays "View MAC" and "Edit IP" stacked vertically. A blue arrow points to the right of "View MAC", and a blue arrow points down to the right of "Edit IP".
- Third Screen:** Displays "MAC" at the top, followed by "? 12" on the right. Below this, it shows "0003 750F 6558" with a blue arrow pointing to the right.

The site IT staff may wish to know the function and capabilities of the Ethernet web server installed in the controller.

The controller server has been selected to limit the set of services required for water treatment command & control. The controller server is a NetMedia SitePlayer SP1, fully documented at www.siteplayer.com.

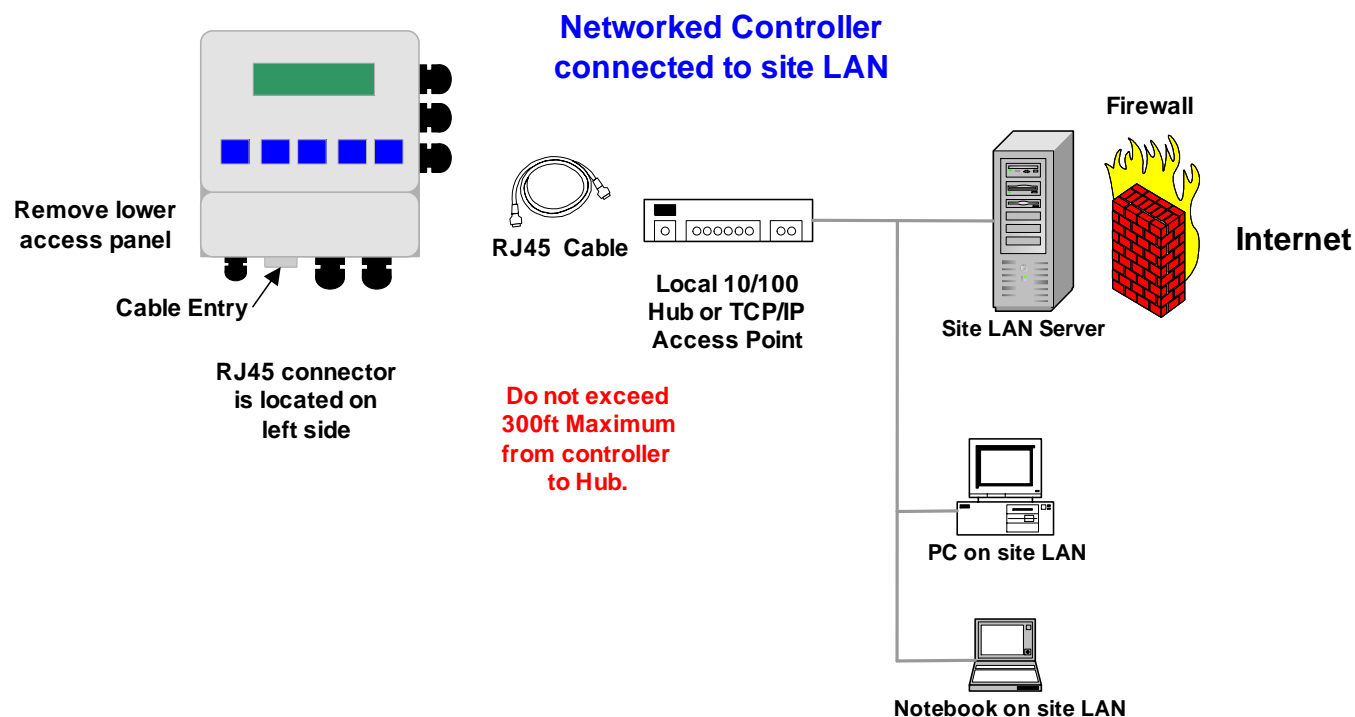
CAUTION: Do not make controllers Internet accessible unless you are using a VPN (Virtual Private Network) to ensure secure access.

If your site does not provide DHCP services or you are connecting to the controller using a crossover cable, you may manually set the controller IP. Refer to Section 2.5

2.2 Cabling

If you are using a pre-assembled Ethernet patch cable you will likely use the convenience cable entry supplied with the controller which provides a dust cover but not a weather tight seal.

If you are terminating the Ethernet cable on-site, replace the convenience entry with a PG11 size non-metallic cable gland.



Electrically noisy industrial sites will not allow 300 feet between controller and hub.

Do not install the Ethernet cable in a common conduit with AC power wiring.

Verify the cable route by using a notebook PC at the target controller location, connected to the target hub before installing the controller.

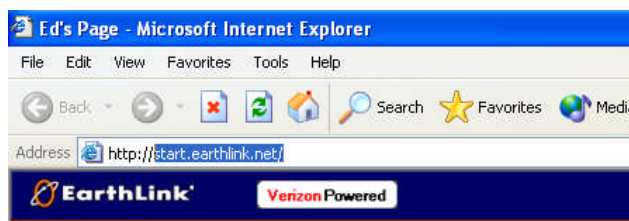
2.3 Connect & Browse Sequence

Open your browser.

Most users will select the Internet Explorer icon on their PCs or notebook's desktop.

Your browser will connect or try to connect you to your Home page.

Highlight the part of the site name after **http://**



and replace it with



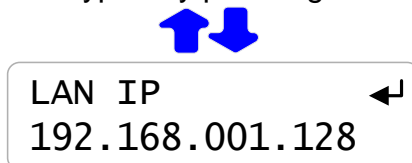
the IP address of the controller.

In this example the controller address **192.168.2.101** is used.



If the controller is powered ON, connected to the local Ethernet LAN and assigned the IP address you entered into the browser address line & you are connected to the same network as the controller, you will view the controller.

Verify the controller IP at the controller keypad by pressing the UP or DOWN keys until you view:



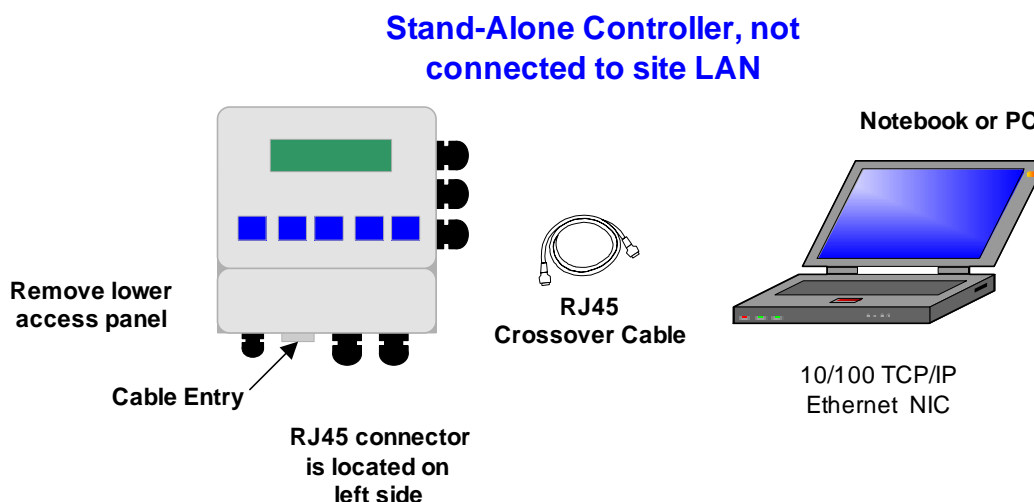
In this example, either DHCP or a user has changed the controller IP from the factory default, **10.10.6.101** to the current value of **192.168.1.128**

2.4 Browsing a non-LAN connected Controller

Controllers not connected to a network may be browsed using a crossover cable and a notebook's or local PC's Internet browser.

'Crossover' cables are widely available. Comp USA is a typical vendor. Non-crossover cables will not communicate or connect.

Connect the crossover cable between the controller's and the Notebook PC's Ethernet jack.



You can either:

1. Change the controller IP to match your notebook's or PC's IP.
2. Change your notebook IP to match the controller IP.

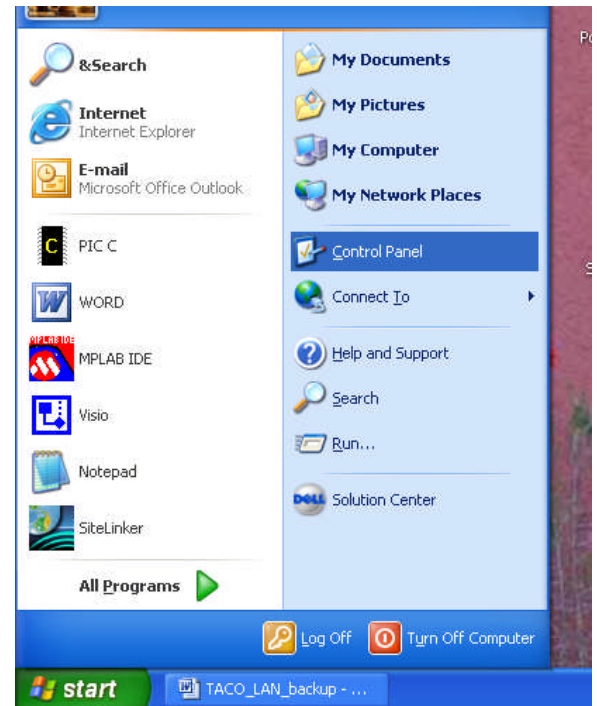
In either case you'll need to know the IP of your notebook so you can place the notebook and the controller on the same network.

Both the notebook and the controller need to be on the same network but not the same IP number, before you can use a crossover cable to communicate.

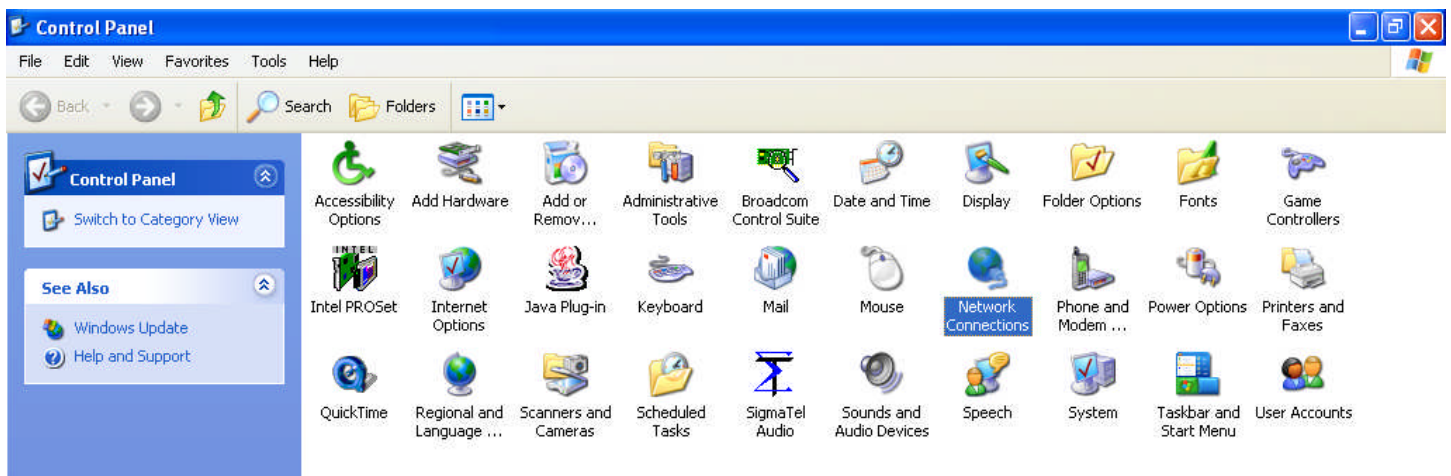
2.4 Viewing & Changing your notebook's IP Address

These instructions are typical for Windows XP users. Although your preferences may have set your screen appearance differently from the following screens, the same screen sequence is required.

Select **start** & then **Control Panel**



Then double click **Network Connections**



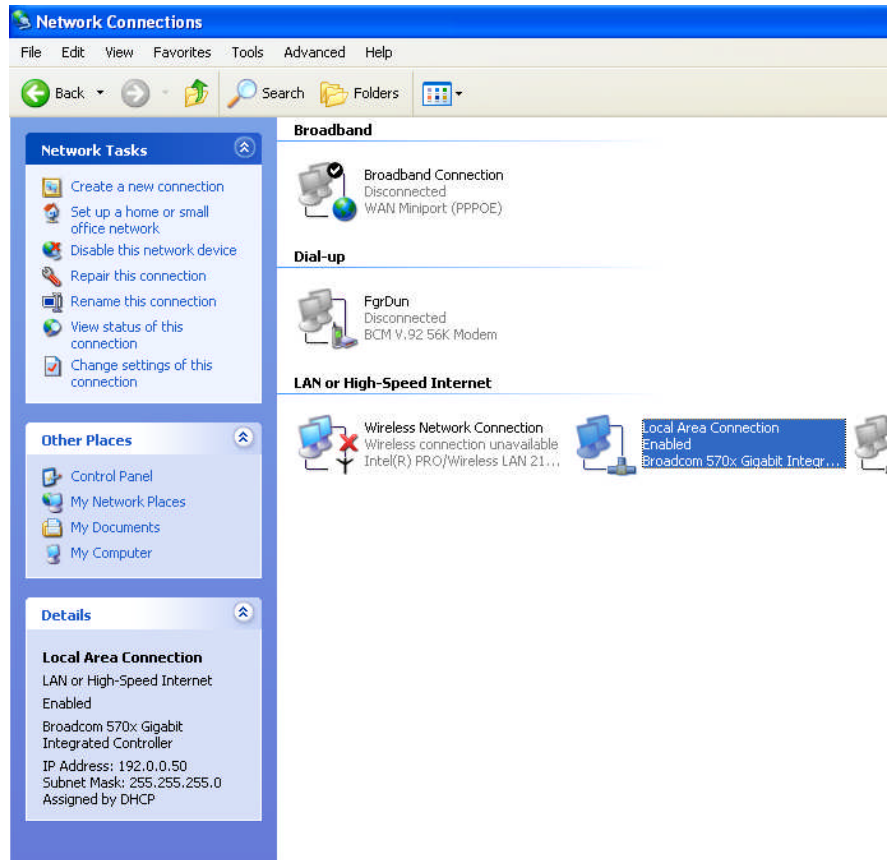
Select **Local Area Connection**

This connection is the hardware Ethernet jack of your notebook

If you are using a **USB-to-Ethernet** adapter, select the adapter instead **Local Area Connection**

You may or may not have wireless connections and one or more VPN connections for business use.

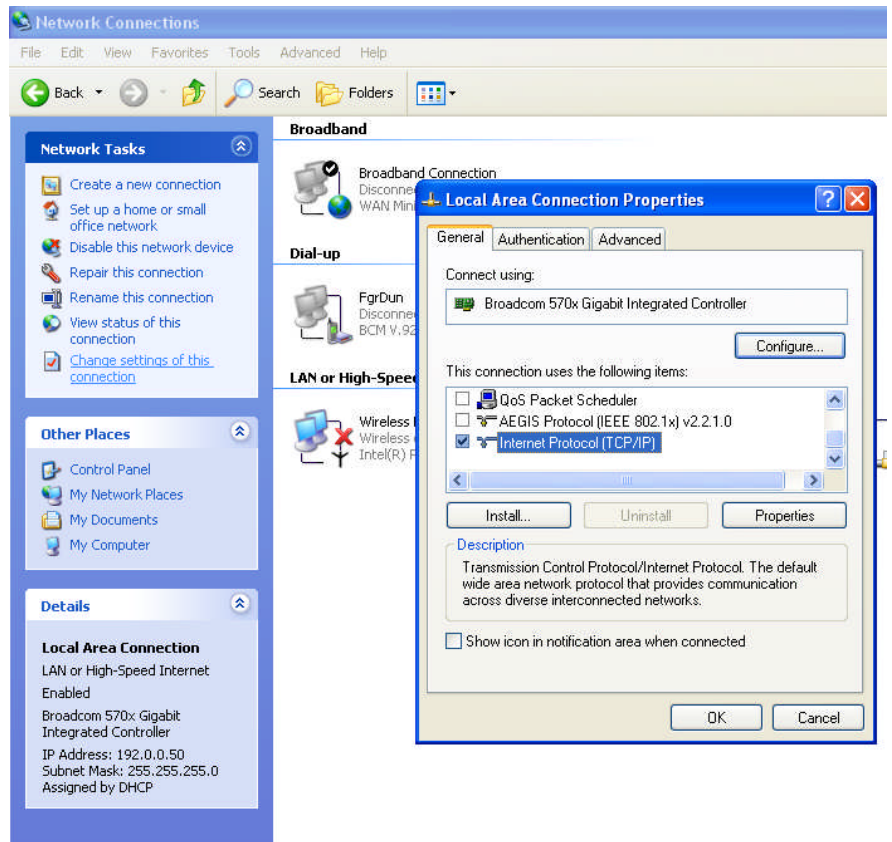
Note on the bottom, left the current **Local Area Connection** address has been assigned automatically by DHCP and is **192.0.0.50**



Select **Change setting of this connection** in the **Network tasks** window

Then you'll see **Local Area Connection Properties**

Scroll down in the **This connection use the following items:** window & select **Internet Protocol(TCP/IP)**



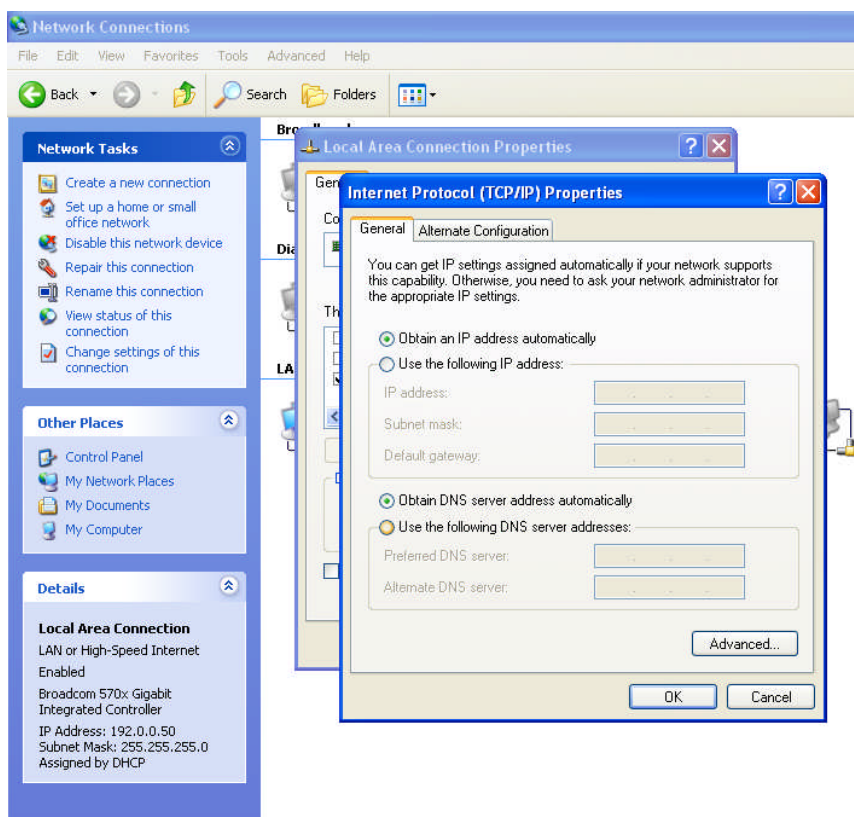
If you are going to change the controller IP, leave your notebook at **Obtain an IP address automatically** and go to

2.5 Changing the Controller IP

If you are going to change Notebook IP & an IP exists, write down the **IP Address**, **Subnet mask** & if it exists, **Default gateway**.

You'll need to restore these values when you are finished with the controller.

If you using a **USB-to-Ethernet** adapter, you'll simply change the **IP Address** for each controller connection



Change your notebook's IP as follows:

Select, **Use the following IP address**

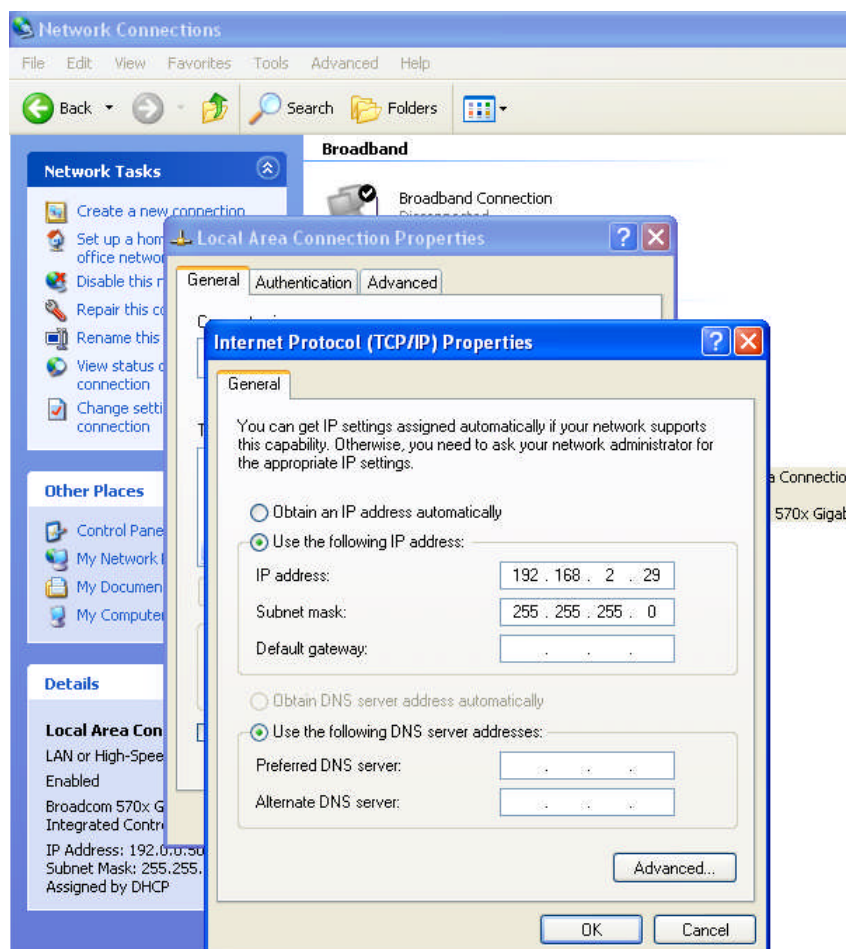
If the controller IP is **192.168.2.101** then set your notebook to **192.168.2.29**.

If the controller IP is unchanged from the factory default of **10.10.6.101** then set your notebook to **10.10.6.29**

The first 3 numbers must match & the last number can be from **1-254** but not **101**.

If you tab after '29', Windows will set the Subnet Mask to **255.255.255.0** or you can type it.

Select **OK** to execute.



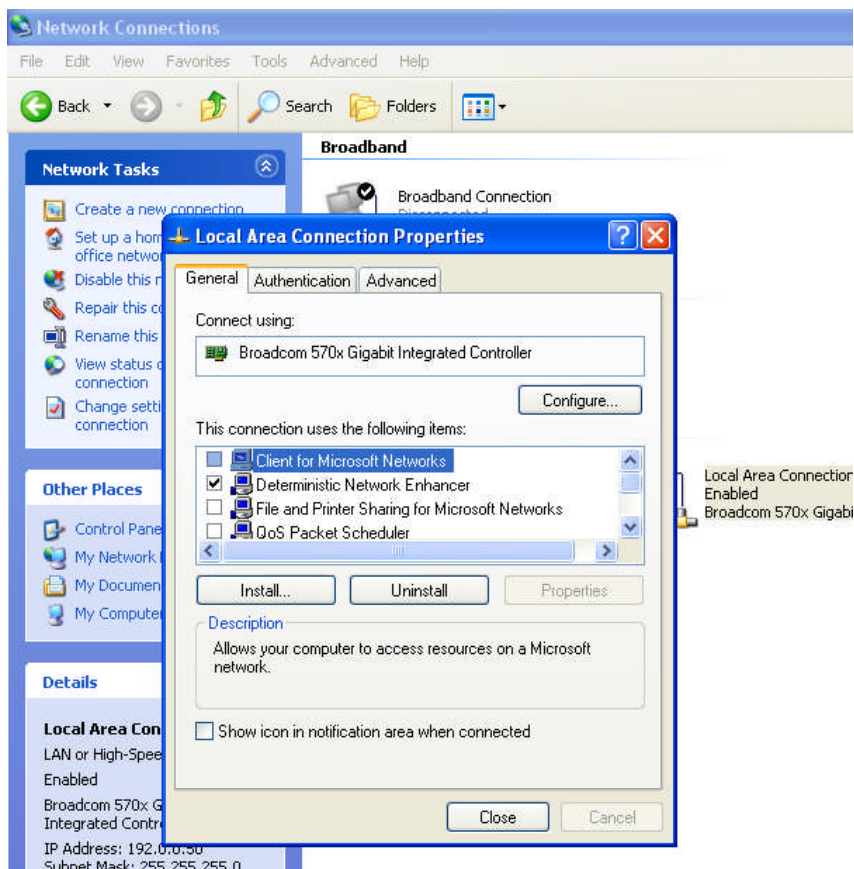
You'll return to **Local Area Connection Properties**, Select **Close**.

Minimize the **Network Connections** window.

You may wish to return when you've finished browsing the controller to return your Local Area Connection to its original state.

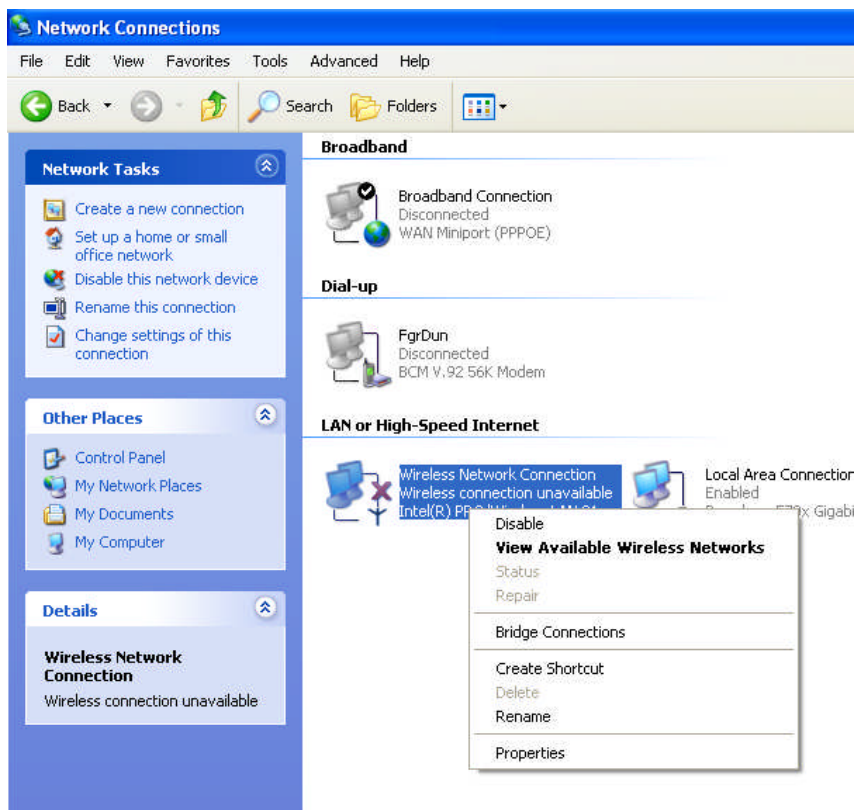
Connect the crossover cable between notebook & controller & start your browser.

See **2.3 Connect & Browse Sequence**



If your notebook wireless LAN card is preventing controller Browsing, return to **Network Connection**, right click on the connection & select **Disable**

Enable when you are finished browsing.



2.5 Changing the Controller IP

Press **UP - DOWN** until you see **LAN IP**

The displayed **IP** is the factory default **10.10.6.101**
OR the **IP** assigned by DHCP

Caution:

Disconnect the controller from the local Ethernet LAN if you are going to change the IP from the IP used by the LAN.

Note the current IP & reset to this value
before re-connecting to the LAN

Press **ENTER**, **DOWN** & **ENTER** to change the current IP

Use the **RIGHT** key to move between the four numbers and
the **UP** & **DOWN** keys to change the numbers.

Press **ENTER** to execute or **EXIT** to escape

Normally the first 3 IP numbers match the first
three numbers of your PC or notebook IP,
with the last number differing and not **0** or **255**.

View MAC ↵
Edit IP ↓

↩

MAC ? 12
0003 750F 6558 ↵

Edit IP ↵
View MAC ↓

↩

Edit & ENTER
10.10.6.101 ⬆

⬆ ⬇ then ↩

LAN IP ↵
10.10.6.85

Controller IP changed