

## Encore<sup>®</sup> Series 61000 System



A quick reference guide for the Encore Series System product family. It is recommended that the user still be familiar with the complete User's Guides for the respective products, as it contains more detailed information about all of the functions, as well as the specifications and accessories.

### *Quick Reference Guide*

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Fax 732-248-1834 • [www.dranetz.com](http://www.dranetz.com)*

## **WARNING**

Death, serious injury, or fire hazard could result from improper connection of this instrument. Read and understand this manual before connecting this instrument. Follow all installation and operating instructions while using this instrument.

Connection of this instrument must be performed in compliance with the National Electrical Code (ANSI/NFPA 70-2011) of USA and any additional safety requirements applicable to your installation.

Installation, operation, and maintenance of this instrument must be performed by qualified personnel only. The National Electrical Code defines a qualified person as “one who has the skills and knowledge related to the construction and operation of the electrical equipment and installations, and who has received safety training on the hazards involved.”

Qualified personnel who work on or near exposed energized electrical conductors must follow applicable safety related work practices and procedures including appropriate personal protective equipment in compliance with the Standard for Electrical Safety Requirements for Employee Workplaces (ANSI/NFPA 70E-2009) of USA and any additional workplace safety requirements applicable to your installation.

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Printed in the United States of America.

## **ADVERTENCIA**

Una conexión incorrecta de este instrumento puede producir la muerte, lesiones graves y riesgo de incendio. Lea y entienda este manual antes de conectar. Observe todas las instrucciones de instalación y operación durante el uso de este instrumento.

La conexión de este instrumento a un sistema eléctrico se debe realizar en conformidad con el Código Eléctrico Nacional (ANSI/NFPA 70-2011) de los E.E.U.U., además de cualquier otra norma de seguridad correspondiente a su establecimiento.

La instalación, operación y mantenimiento de este instrumento debe ser realizada por personal calificado solamente. El Código Eléctrico Nacional define a una persona calificada como "una que esté familiarizada con la construcción y operación del equipo y con los riesgos involucrados."

El personal cualificado que trabaja encendido o acerca a los conductores eléctricos energizados expuestos debe seguir prácticas y procedimientos relacionados seguridad aplicable del trabajo incluyendo el equipo protector personal apropiado en conformidad con el estándar para los requisitos de seguridad eléctricos para los lugares de trabajo del empleado (ANSI/NFPA 70E-2009) de los E.E.U.U. y cualquier requisito de seguridad adicional del lugar de trabajo aplicable a su instalación.

## **AVERTISSEMENT**

Si l'instrument est mal connecté, la mort, des blessures graves, ou un danger d'incendie peuvent s'en suivre. Lisez attentivement ce manuel avant de connecter l'instrument. Lorsque vous utilisez l'instrument, suivez toutes les instructions d'installation et de service.

Cet instrument doit être connecté conformément au National Electrical Code (ANSI/NFPA 70-2011) des Etats-Unis et à toutes les exigences de sécurité applicables à votre installation.

Cet instrument doit être installé, utilisé et entretenu uniquement par un personnel qualifié. Selon le National Electrical Code, une personne est qualifiée si "elle connaît bien la construction et l'utilisation de l'équipement, ainsi que les dangers que cela implique".

Le personnel qualifié qui travaillent dessus ou s'approchent des conducteurs électriques activés exposés doit suivre des pratiques en matière et des procédures reliées par sûreté applicable de travail comprenant le matériel de protection personnel approprié conformément à la norme pour des conditions de sûreté électriques pour les lieux de travail des employés (ANSI/NFPA 70E-2009) des Etats-Unis et toutes les conditions de sûreté additionnelles de lieu de travail applicables à votre installation.

## **WARNUNG**

Der falsche Anschluß dieses Gerätes kann Tod, schwere Verletzungen oder Feuer verursachen. Bevor Sie dieses Instrument anschließen, müssen Sie die Anleitung lesen und verstanden haben. Bei der Verwendung dieses Instruments müssen alle Installation- und Betriebsanweisungen beachtet werden.

Der Anschluß dieses Instruments muß in Übereinstimmung mit den nationalen Bestimmungen für Elektrizität (ANSI/NFPA 70-2011) der Vereinigten Staaten, sowie allen weiteren, in Ihrem Fall anwendbaren Sicherheitsbestimmungen, vorgenommen werden.

Installation, Betrieb und Wartung dieses Instruments dürfen nur von Fachpersonal durchgeführt werden. In den nationalen Bestimmungen für Elektrizität wird ein Fachmann als eine Person bezeichnet, welche "mit der Bauweise und dem Betrieb des Gerätes sowie den dazugehörigen Gefahren vertraut ist."

Qualifiziertes Personal, das an bearbeiteten oder herausgestellten angezogenen elektrischen Leitern sich nähern, muß anwendbare Sicherheit bezogener Arbeitspraxis und Verfahren einschließlich passender persönlicher schützender Ausrüstung gemäß dem Standard für elektrische Sicherheitsauflagen für Angestellte-Arbeitsplätze (ANSI/NFPA 70E-2009) der Vereinigten Staaten und alle zusätzlichen Arbeitsplatzsicherheitsauflagen folgen, die auf Ihre Installation anwendbar sind.

# Safety Summary

## Definitions

WARNING statements inform the user that certain conditions or practices could result in loss of life or physical harm.

CAUTION statements identify conditions or practices that could harm the 61000, its data, other equipment, or property.

NOTE statements call attention to specific information.

## Symbols

The following International Electrotechnical Commission (IEC) symbols are marked on the top and rear panel in the immediate vicinity of the referenced terminal or device:



Caution, refer to accompanying documents (this manual).



Alternating current (ac) operation of the terminal or device.



Direct current (DC) operation of the terminal or device.



Power switch



Protective conductor terminal.

## **Safety Precautions**

The following safety precautions must be followed whenever any type of voltage or current connection is being made to the 61000.

- Connect the green safety (earth) ground first, before making any other connections.
- When connecting to electric circuits or pulse initiating equipment, open their related breakers. DO NOT install any connection of the instrument on live power lines.
- Connections must be made to the instrument first, then connect to the circuit to be monitored.
- Wear proper personal protective equipment, including safety glasses and insulated gloves when making connections to power circuits.
- Hands, shoes and floor must be dry when making any connection to a power line.
- Make sure the unit is turned OFF before connecting probes to the rear panel.
- Before each use, inspect all cables for breaks or cracks in the insulation. Replace immediately if defective.
- Pods should be connected first to the 61000, then connect to the circuit to be monitored.
- If the equipment is used in a manner not specified in this user's guide, the protection provided by the equipment may be impaired. These safety precautions are repeated where appropriate throughout this manual.

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## **Introduction**

The Encore Series 61000 System is a world-class data acquisition product developed by Dranetz. Its modular concept and design applies to both the hardware configuration and firmware architecture allowing the unit to be a multi-purpose instrument. The 61000 works from being a diagnostic tool to providing preventive and predictive information as an embedded solution.

The 61000 instrument is compliant with IEEE1159, IEC61000-4-30 Class A, EN50160 standards, and more. Also, it can be installed in a permanent or semi-permanent installation.

This quick reference guide's intended purpose is to provide information to the user to be able to setup an Encore<sup>®</sup> Series System and Software for basic monitoring. For additional information refer to the table provided at the end of this guide referencing the available user guides that provide more detailed information.

## **Getting Started**

- **Battery Charge**  
Before proceeding the unit needs to be charged for a minimum 6 hours prior to be placed in service.

## Connecting to AC Power Source

**Power specifications** The 61000 AC adapter can be connected to a 90-265V ac power input source (dependent on model version) or directly to a 12V dc external power source. Refer to the 61000 complete user guide in Appendix C for information about connecting to an external dc power source.

**CAUTION** Always set the power switch to the off position before connecting or disconnecting the input power cable.

Operation of the 61000 from an ac voltage source other than the rated voltage input stated on the unit nameplate can cause damage to the unit.

---

**PRECAUCION** Siempre fije el interruptor de encendido en la posición apagada antes de conectar o desconectar el cable de energía de entrada.

La operación del 61000 desde una fuente de voltaje de ca que no sea la entrada de voltaje nominal indicada en la placa de identificación de la unidad puede causar daños a la unidad.

---

**MISE EN GARDE** Mettez toujours l'interrupteur dans la position ouverte avant de connecter ou de déconnecter le câble d'alimentation primaire.

Mettez toujours l'interrupteur dans la position ouverte avant de connecter ou de déconnecter le câble d'alimentation primaire.

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**VORSICHT** Vor dem Einstecken bzw. Ausstecken des Eingangsnetzkabels den Netzschalter immer in die Aus-Stellung bringen.

Der Betrieb des 61000 von einer Wechselspannungsquelle, die nicht dem auf der Namensplatte der Einheit aufgeführten Nennspannungseingang entspricht, kann zur Beschädigung der Einheit führen.



The decal provides information about input power rating.  
Plug in the AC Adapter output cable into the input connector.  
AC input power source is specified as follows:

- Voltage range, 120/230V ac.
- Frequency, 50/60Hz.
- Power Consumption, 20W.

- STEP 1** Set the power switch to Off.
- STEP 2** Verify the operating voltage range for your 61000, as marked on the power input decal.
- STEP 3** Connect the appropriate power cord for the voltage rating of the unit.
- STEP 4** Make connection to the instrument first.
- STEP 5** Connect power cord to the power source.
- STEP 6** Turn power switch to On.

## ***Setting Up the Encore<sup>®</sup> Series Instrument***

### **Connecting the instrument to a personal computer**

#### *System PC requirements*

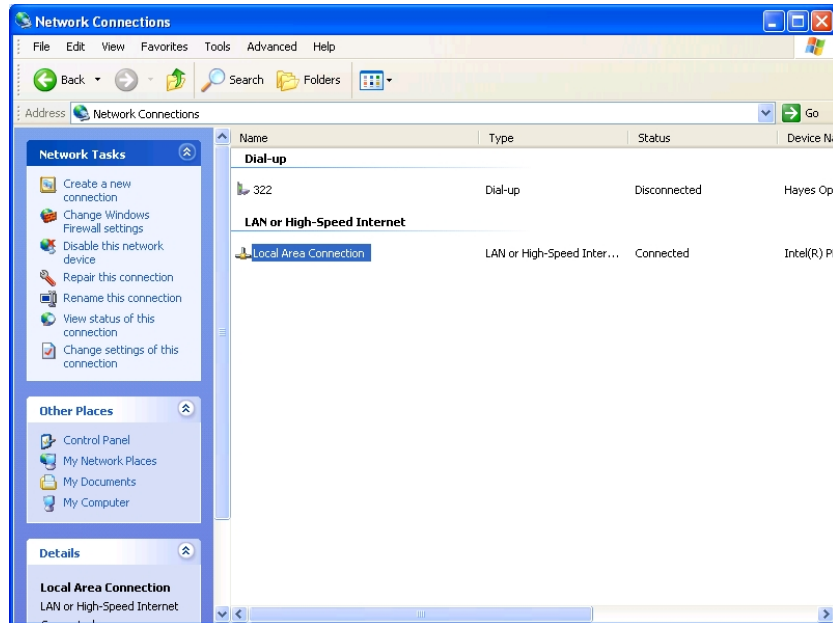
Operating system	Windows XP, Vista, Windows 7
Category 5e cable	Standard RJ45 connector, crossover cable (Not Included)
Internet Browser	Internet Explorer 7.x (or equivalent)

Connect one end of the RJ45 crossover cable to the Ethernet card of the personal computer and the other end to the Ethernet jack of the Encore<sup>®</sup> Series unit. Power ON the personal computer and then the Encore<sup>®</sup> Series instrument. Once the operating system of the personal computer is fully initialized and running proceed with the following steps.

## Setting up the IP address - *PC Settings*

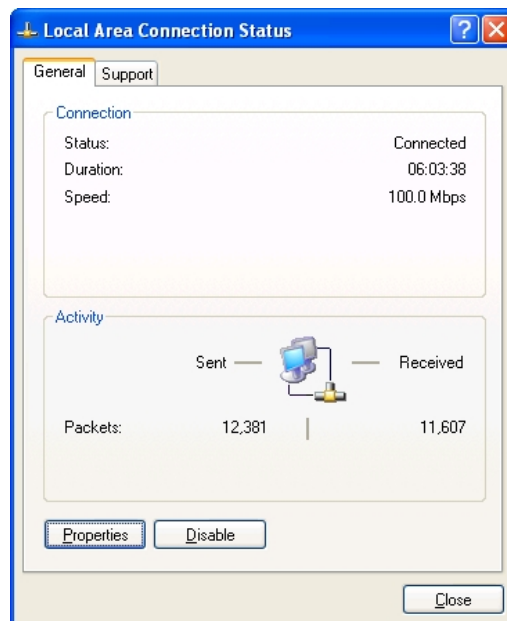
### Step 1

From the control panel select the Network connections icon and the following screen appears. Then highlight the “Local Area Connection” heading and double click to proceed to the next screen.



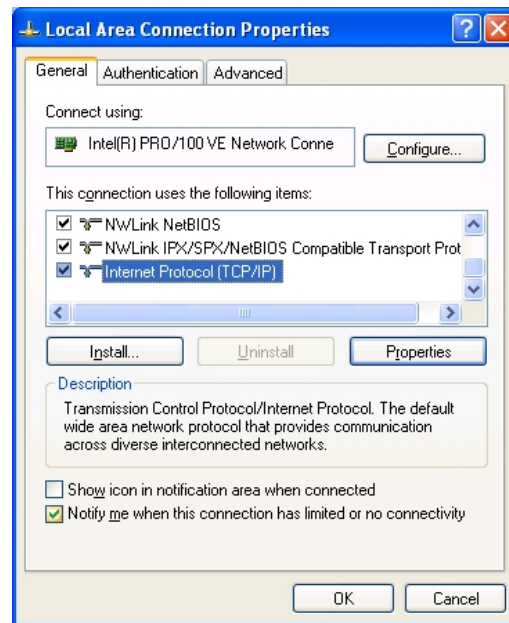
### Step 2

Select the “Properties” button and proceed to the next screen.



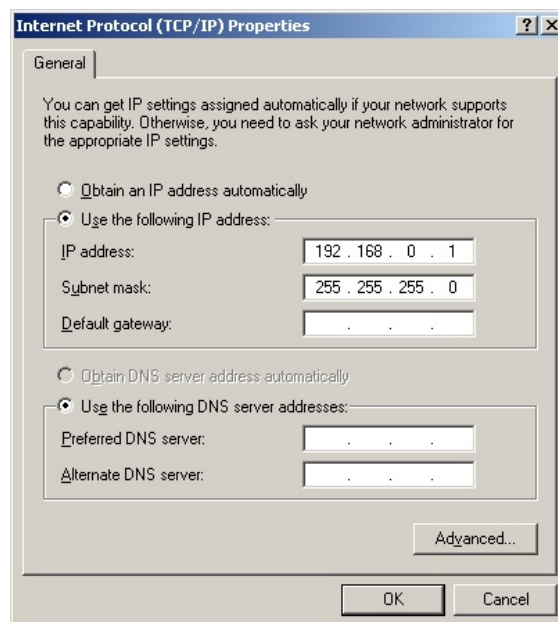
### Step 3

Highlight the “Internet Protocol (TCP/IP)” setting and double click to proceed to the next screen.



### Step 4

Select “Use the following IP address” and enter the information as follows. The default address of the instrument is factory set as 192.168.0.20 so the setting of the computer must be set within the same range and in these instructions is set to 192.168.0.1. Also, set the subnet mask to 255.255.255.0 .



## Setting up the IP address - Instrument Settings

### Step 1

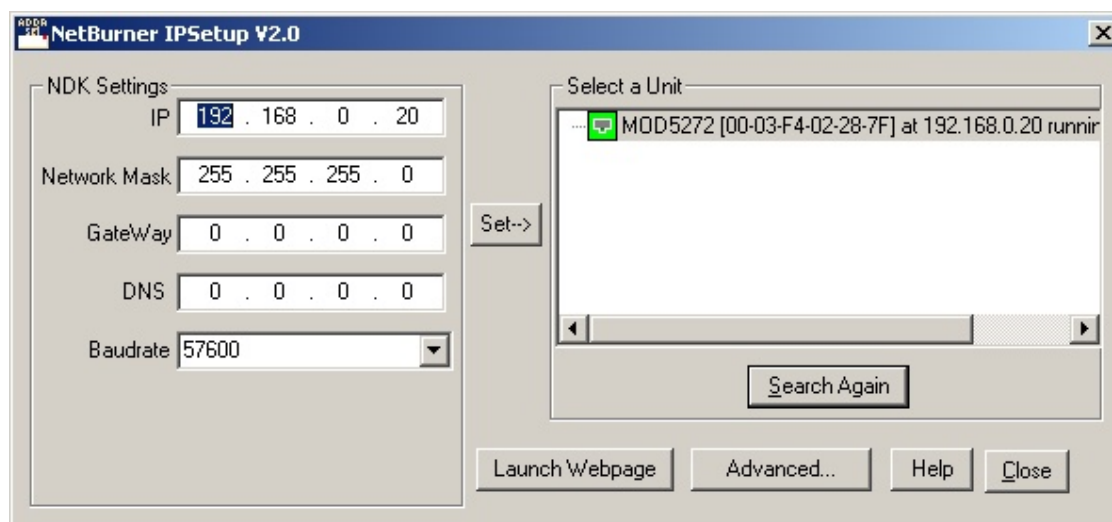
First you need to load the supplied utility software program filename "IPSetup.exe" or it can be downloaded from [http://www.netburner.com/support/public\\_downloads.html](http://www.netburner.com/support/public_downloads.html) copy the file "IPSetup.exe" from the files supplied to a temporary directory on your personal computer.

### NOTE

The Encore<sup>®</sup> Series instruments utilize a network compatible communications interface manufactured by Netburner with a web based platform integrated by Dranetz. The programs supplied from Netburner are freely distributable as long as they are used on Netburner hardware.

### Step 2

Open windows explorer or other file browser and double click on the file named "IPSetup.exe" to run the IP setup program. The following screen will appear.



### Step 3

Verify that the baud rate is set at the rate of 57600.

Note: For serial and modem communications this setting should remain at 57600 for Encore<sup>®</sup> Series 61000 to operate correctly.


The default IP 192.xx.x should appear under the Select a unit heading. Next, highlight the unit 192.xx.x then click on "Launch Webpage" The following screen will appear.

## Setting up the IP address - Instrument Settings Cont'd

### Step 4

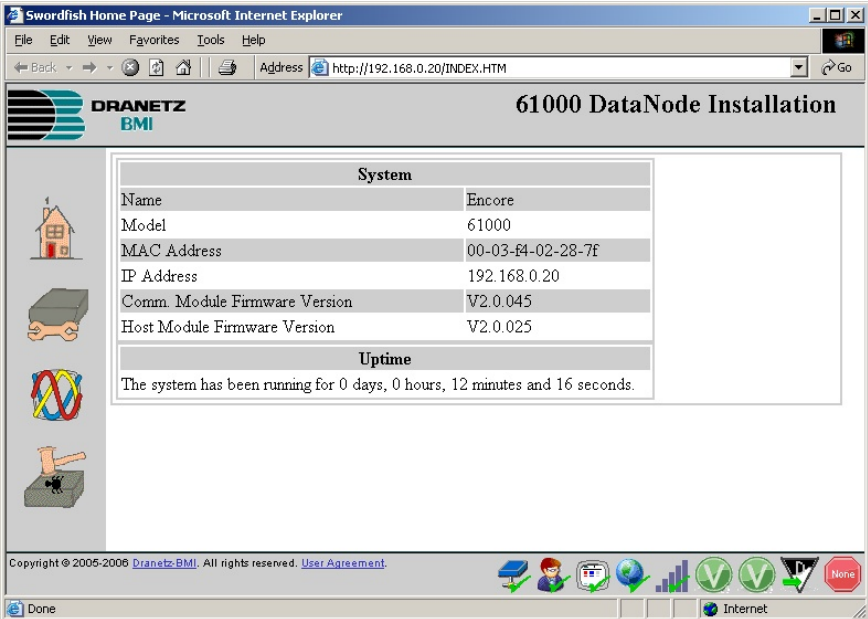
For User Name type “admin”  
and then for Password type “password”  
Next click on the “OK” button to proceed to the next screen.

Note: all characters are lowercase and the quotation ( “ ”) marks are not to be typed in the response fields.



The dialog box titled "Enter Network Password" contains a key icon and the instruction "Please type your user name and password." It displays the site as "192.168.0.20" and the realm as "Dranetz-BMI 61000 DataNode". The "User Name" field is filled with "admin" and the "Password" field is filled with "xxxxxxx". There is an unchecked checkbox for "Save this password in your password list" and "OK" and "Cancel" buttons at the bottom.

**Step 5** Once the screen below appears you have successfully verified communications with the Encore<sup>®</sup> Series 61000 instrument.



The screenshot shows a web browser window titled "Swordfish Home Page - Microsoft Internet Explorer" with the address bar showing "http://192.168.0.20/INDEX.HTM". The page content includes the Dranetz BMI logo and the title "61000 DataNode Installation". It features a table with system information and an uptime section.

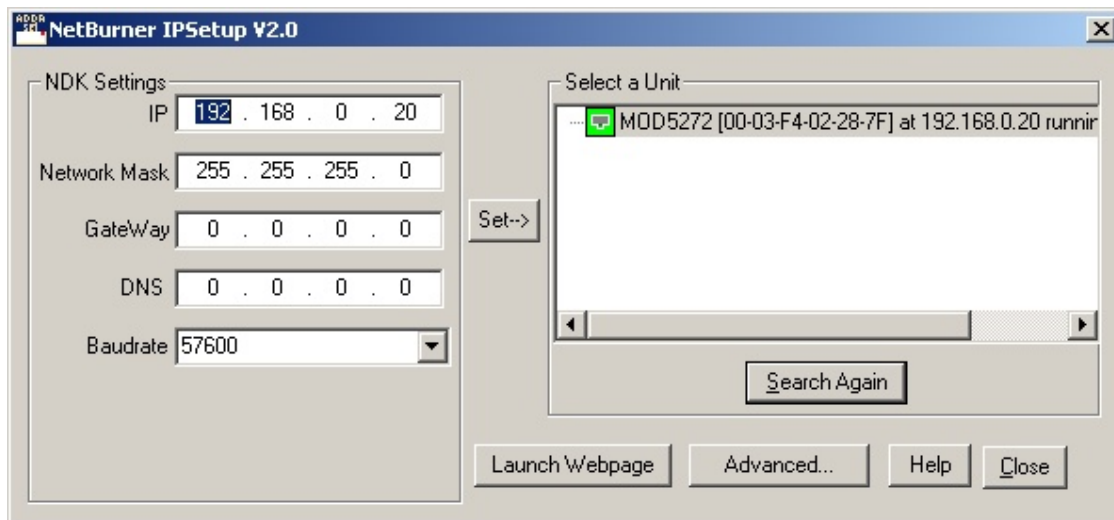
System	
Name	Encore
Model	61000
MAC Address	00-03-f4-02-28-7f
IP Address	192.168.0.20
Comm. Module Firmware Version	V2.0.045
Host Module Firmware Version	V2.0.025

**Uptime**  
The system has been running for 0 days, 0 hours, 12 minutes and 16 seconds.

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Close the Internet Browser and now you are ready to setup the IP of the instrument. Return to the IPSetup.exe program



Note: Consult your MIS department for the appropriate IP, Network Mask, Gateway, and DNS settings and make the applicable changes pertinent to your installation.

Once all of the above IP settings are verified the instrument can then be connected to your local area network.

## Setting up the GPS option

If your instrument is equipped with the GPS option you will need to setup the instrument as follows.

Connect to the applicable DataNode by typing the instrument's IP address that you have assigned to the instrument (note: the default address is <http://192.168.0.20>) and the following screen appears.

System	
Name	Encore
Model	61000
MAC Address	00-03-64-02-28-be
IP Address	72.4.197.242
Comm. Module Firmware Version	V2.0.075
Host Module Firmware Version	V2.0.029

Input Modules	
Input module 0 has not changed. Model number is	61MVSBA063
Input module 1 has not changed. Model number is	61MZPAA206
Input module 2 has not changed. Model number is	61MVSBA064
Input module 3 has not changed. Model number is	61MZPAA008

Analyzer 1	
Name	242PQ v1i2 Wye
Type	0
Monitoring Status	On

Analyzer 2	
Name	242PQ v3i4 Delta
Type	0
Monitoring Status	On

Factory	
HTTP Watchdog Status	On

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On the left hand side click on the “wrench” icon and the next screen appears.

**TCP/IP**

DHCP? ☐ Yes ☒ No

IP Address: 72.4.197.242

Subnet Mask: 255.255.255.0

Gateway: 72.4.197.4

DNS Server: 0.0.0.0

HTTP Port: 80

**Serial Port**

Baud Rate: 57600

Data Bits: 8

Stop Bits: 1

Parity: None

Used for: Modem (PPP)

**PPP**

Enabled? ☒ Yes ☐ No

DataNode IP: 192.168.1.200

Remote IP: 192.168.1.201

Modem Init: AT&C0&D0

**GSM/GPRS**

Enabled? ☐ Yes ☒ No

Access Point Name: proxy

Use Static IP? ☐ Yes ☒ No

Static IP: 0.0.0.0

User Name:

Password:

Signal Strength: 99

**MODBUS**

Enabled? ☐ Yes ☒ No

Enable MODBUS/TCP: ☐ Yes ☒ No

Modbus Address: 0.0.0.0

TCP Port: 0

**NTP**

Enable ☐ Yes ☒ No

Server Address: 0.0.0.0

Max. Adjust (sec): 0

Update Interval (hr): 168

Submit Changes

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In the above screen turn “NTP” off by selecting “No” under the Enable heading and then click on the Submit Changes for the changes to go into effect.

Next click on the “pencil / paper pad” icon located next to the “wrench” icon and the following screen appears.

The screenshot shows a web browser window titled "Swordfish Home Page - Microsoft Internet Explorer". The address bar shows "http://72.4.197.242/INDEX.HTM". The page header includes the "DRANETZ BMI" logo and the text "61000 DataNode Installation". The main content area is titled "Event Logging" and contains three sections: "Ethernet Console Logging", "SYSLOG Logging", and "Startup Control".

**Ethernet Console Logging**

NOTE: The syslog level and range also apply to this console even in syslog is disabled.

Enabled? ☐ Yes ☐ No

**SYSLOG Logging**

Enabled? ☒ Yes ☐ No

Syslog Server: 72.4.197.231

Syslog UDP Port (0 for default): 0

Debug Level (used for all debug output): Debug (7)

Debug Range (used for all debug output): Selected level and below

**Startup Control**

Restart monitoring on host startup? ☒ Yes ☐ No

Use the GPS as the host PPS? ☒ Yes ☐ No

Use the UI module? ☒ Yes ☐ No

Periodically check the host status? ☒ Yes ☐ No

Periodically save the comm module config? ☐ Yes ☒ No

Submit Changes

Next to the “Use the GPS as the host PPS” click “Yes” and click on the “Submit Changes” button and exit the Internet browser.

**Note: Once GPS and NTP settings are set you must reboot the instrument for the changes to take effect.**

## ***Installing Encore® Series Software***

### *System PC requirements*

Operating system	Windows XP, Vista, Windows 7
RAM	2 Gb minimum
Hard disk space	100 Gb minimum

Note: It is recommended that the latest operating system updates and latest Java classes should be updated before installing the Encore® Series Software.

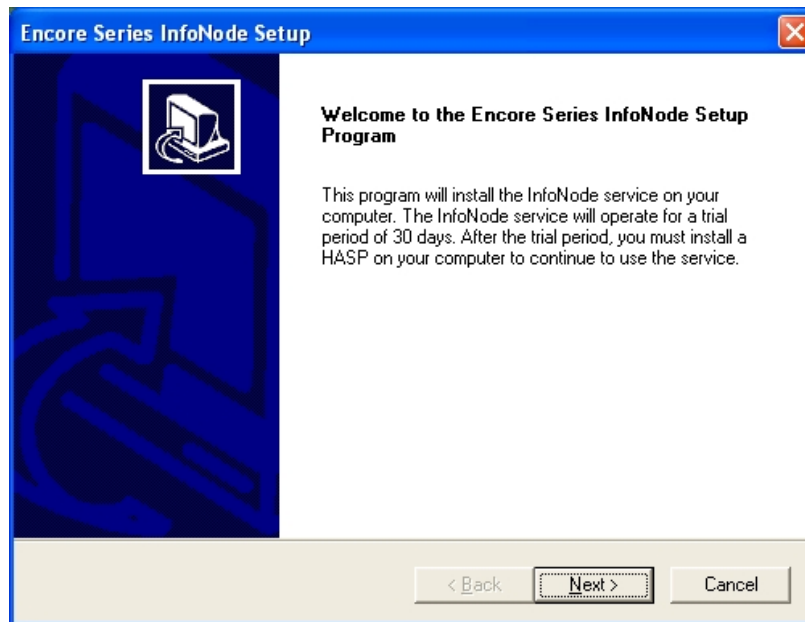
The Encore® Series Software(ESS) requires a computer running Windows XP Professional, Vista, or Windows 7 Professional. The computer must not be running any web server software such as Microsoft IIS, Microsoft Personal Web Server, Apache or SKYPE.

The ESS Program runs as a service on a Windows XP, Vista, or Windows 7 computer. Services are special programs that run in the background without any visible windows. Services can be set to automatically start, when the computer starts, even if no one logs onto the computer.

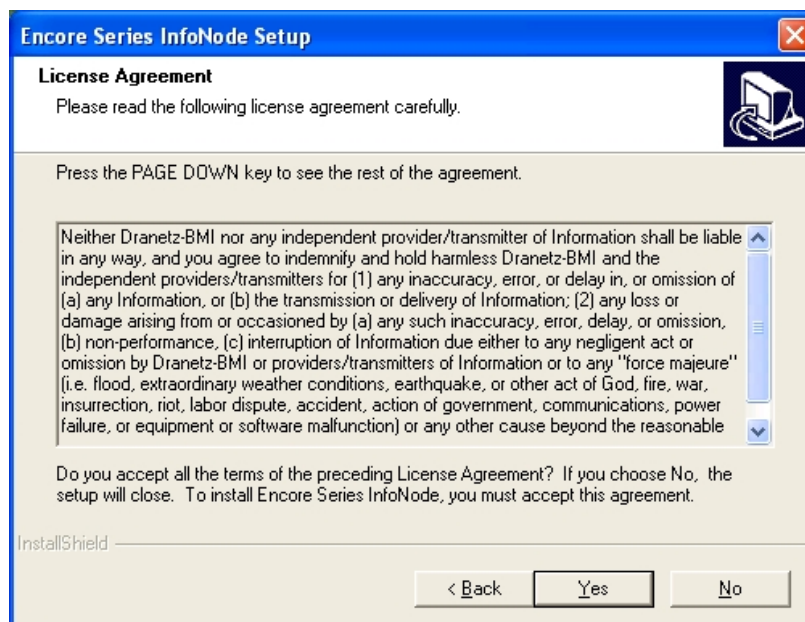
The ESS Setup program copies the service onto your computer, performs all the necessary service registration, and creates Start Menu icons for controlling the service. The ESS operates like any other InfoNode, except where noted. The ESS service will operate for a trial period of 30 days. After the trial period, you must install a HASP on your computer to continue to use the service. ++

\* Please Note: You **MUST INSTALL** the **ESS** firmware **BEFORE** you install the **HASP**.\*

To install the “ESS” please read these instructions completely. Once the setup program starts you should see the following screen, click on “NEXT” to start the ESS's installation:

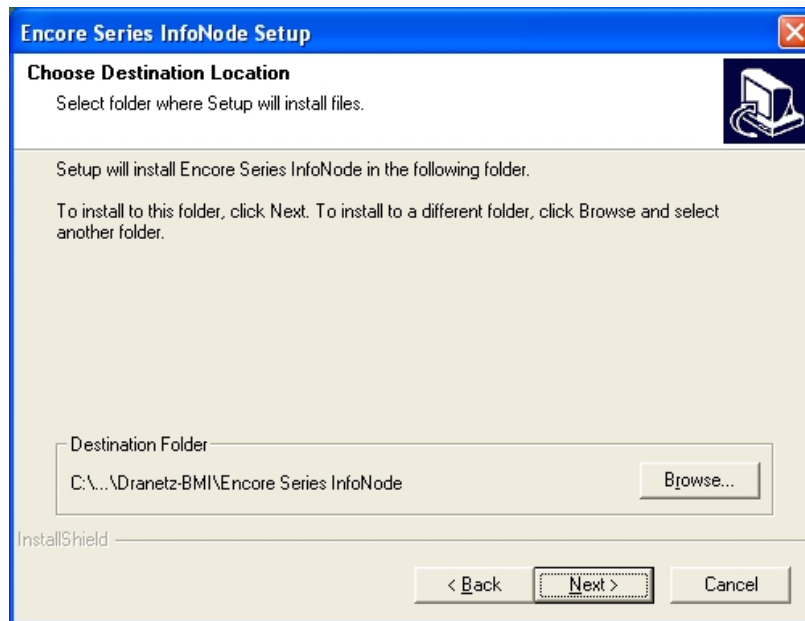


The next screen contains the ESS licensing agreement. Accept the agreement (Click on Yes) to continue the ESS installation.

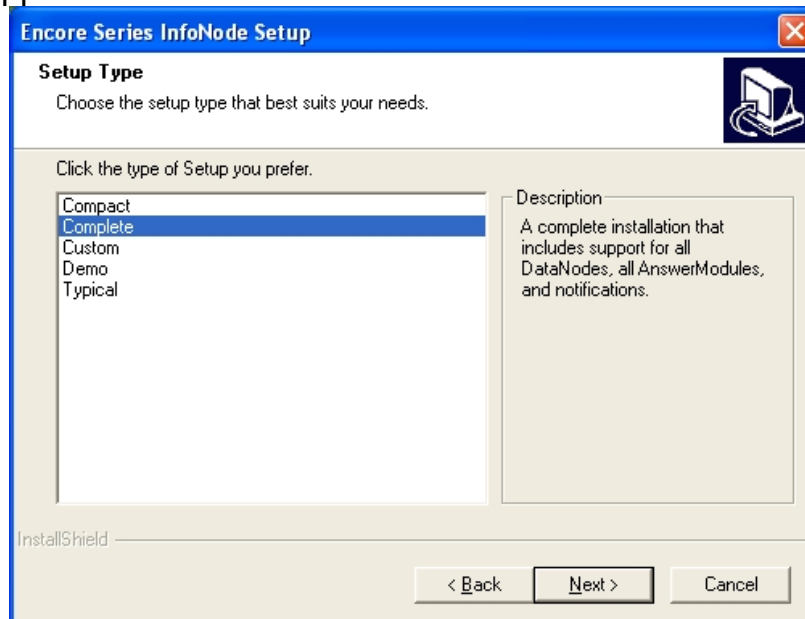


## Installing Encore® Series Software – Cont'd

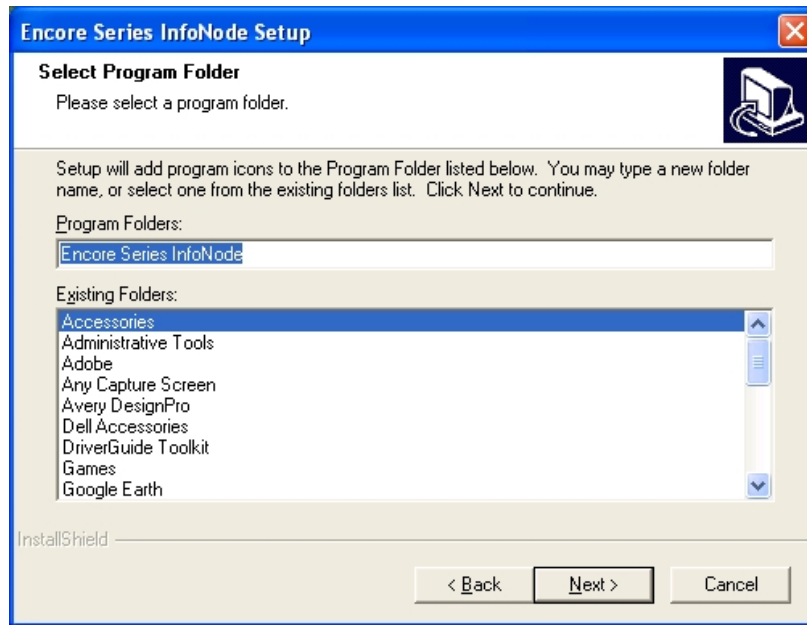
The setup program leads you through a standard set of option dialogs. The default settings should work well in most situations. Depending on available disk space on your computer, you may wish to change the destination location for installing the software. If so, click on the Browse button when the dialog box shown below appears. Otherwise, click on Next.



The next choice to make is “Setup Type”. There are five different types. Compact, Complete, Custom, Demo, and Typical. Choose the one best for your application.



Complete is recommended select next

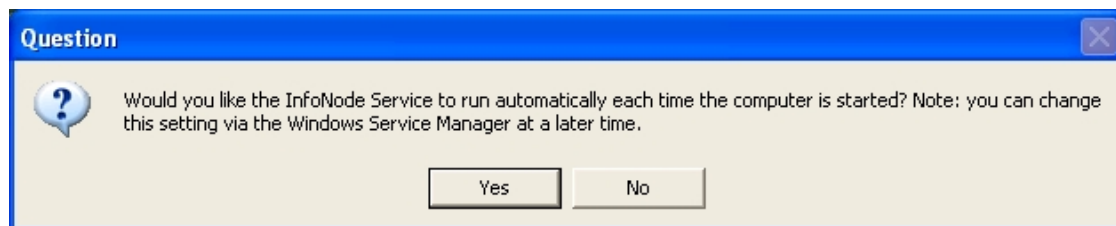


Click on the OK button

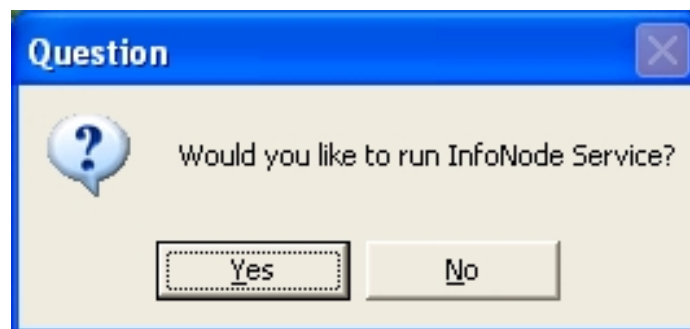
## **Installing Encore® Series Software – Cont'd**

After the software is installed, you must specify if you want the ESS service to start automatically each time your computer starts. In most case you should answer YES. This will enable the ESS Service to AutoStart, allowing an unattended computer running the ESS service to automatically recover from a power outage. The "start" mode can be changed by re-running the setup program. Each time the setup program is run, the service registration is updated. If you run the setup program to "repair" an installation you are once again asks how you want the service to start. Re-running the setup program also allows you to remove the service altogether.

Note: Also, you can change the "ESS's AutoStart option" by using the Windows Service Manager. To do this, click in this order "START", "SETTINGS", "CONTROL PANEL", "ADMINISTRATIVE TOOLS", and "SERVICES".

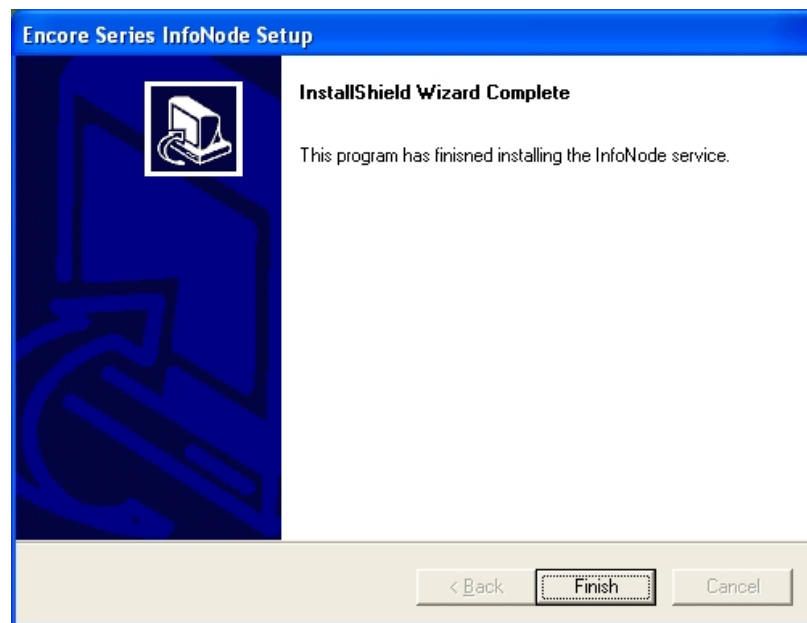


Next the setup program next asks if you want to start the service. At this time the Hasp should be plugged into an available USB port before answering the next question. Normally, you should select yes to start the service at this time.





The next screen appears indicating that ESS software has successfully been installed.



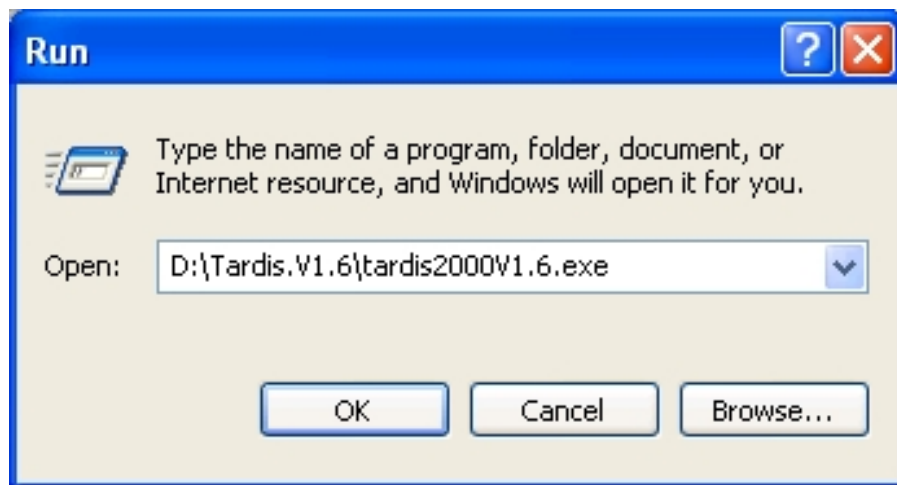
## ***Installing Tardis Software – (Time Server)***

The Tardis Time Server is a Windows service which we provide you with a licensed copy that makes sure your Personal Computer's clock is set to the correct time.

When running, the ESS service turns your computer into a web server supporting HTTP, FTP, SYSLOG, NTP and Telnet services. For this reason you must make sure no other programs or services are running that use these protocols. If your computer is connected to the Internet, these protocols can be a security risk.

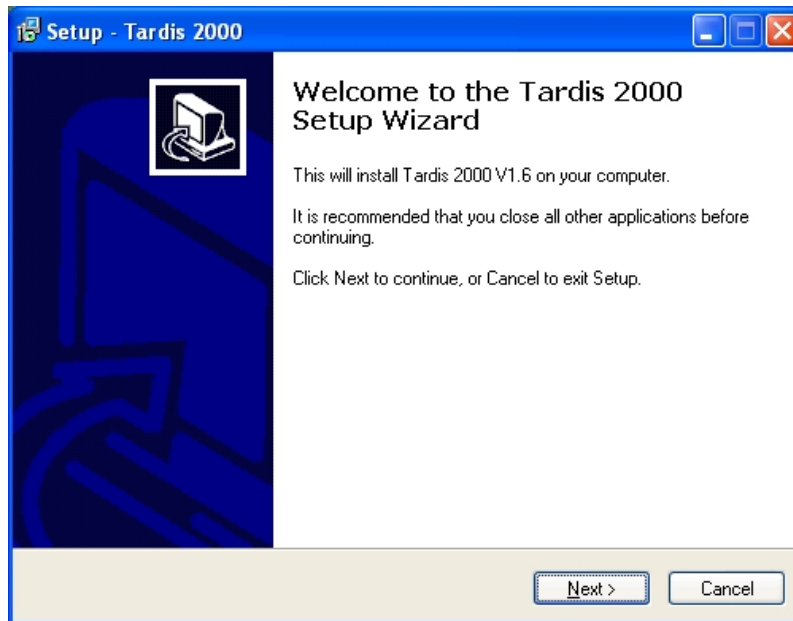
**Please Note:** In order to use the ESS System NTP time service, the **TARDIS TIME SERVER** must be installed.

To install the Tardis Time Server program “run” the program from the CD that contains the ESS software as well as the Tardis program.

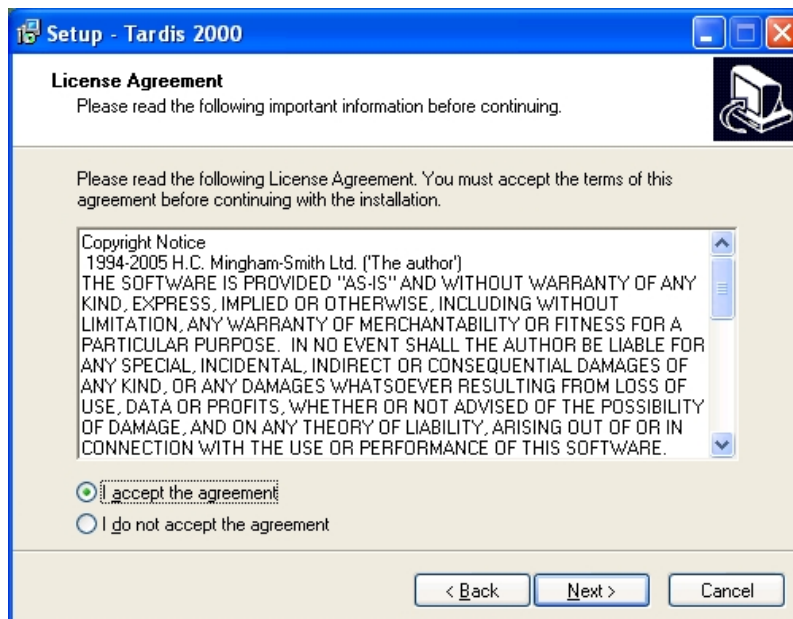


Then click “OK” to proceed to the next screen.

Once this screen appears click “Next”

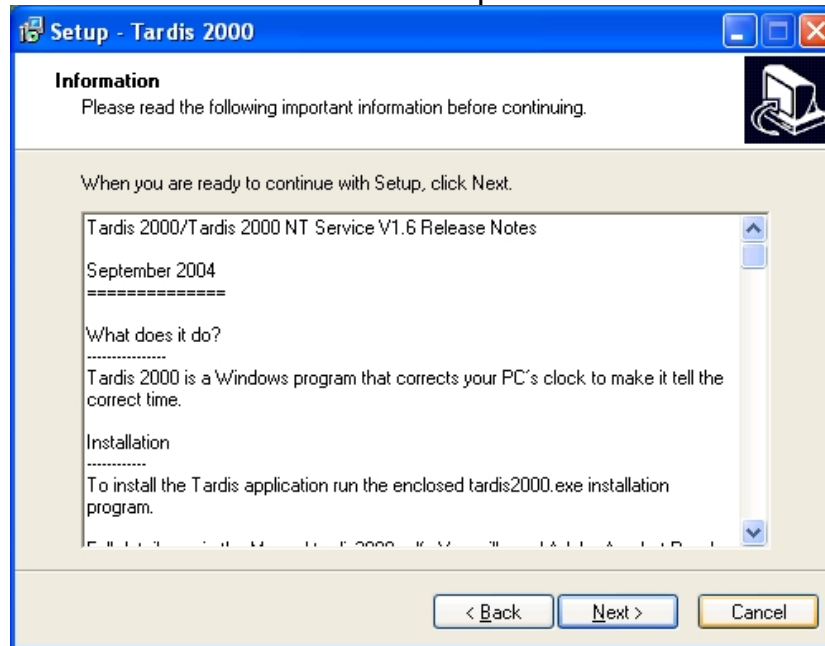


Once you have read the licensing agreement and agree to its terms, select “I accept the agreement” and click on the “Next” button to proceed.

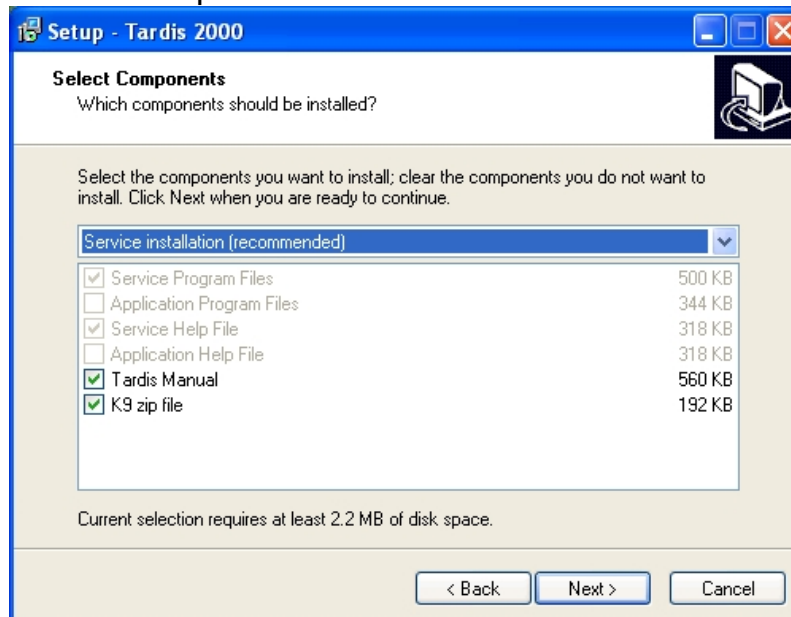


## Installing Tardis Software – (Time Server) Cont'd

In this screen provides details of the Tardis program after reviewing the information click on the “Next” button to proceed with the install.

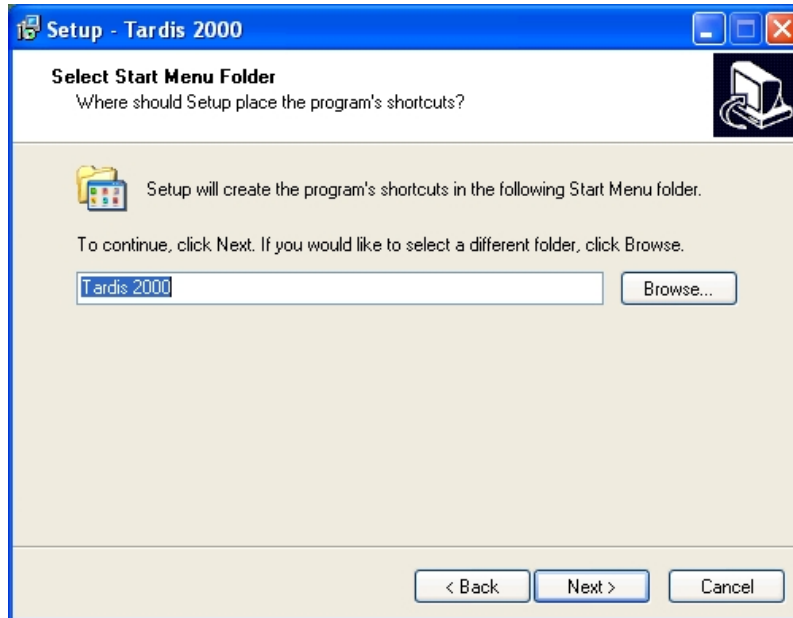


Select the following components to be installed which are the “Tardis Manual” and the “K9 zip file”.

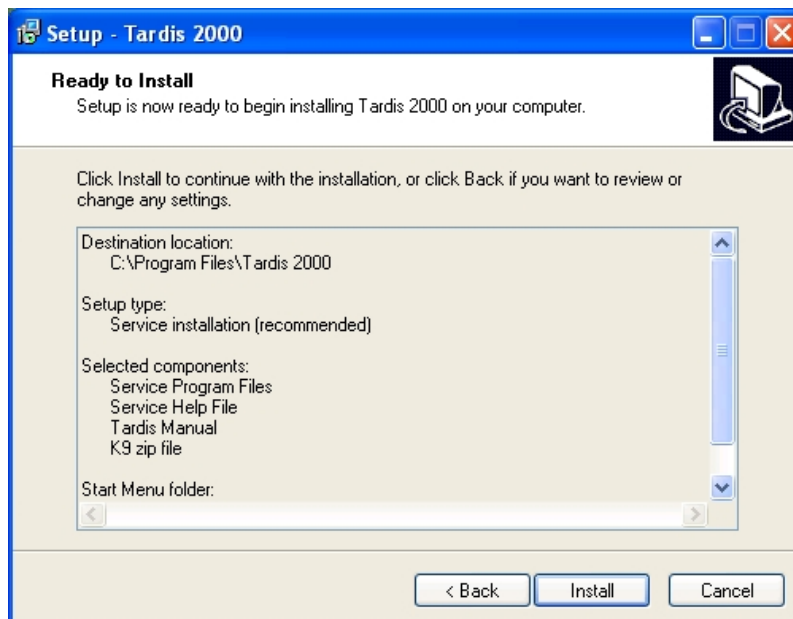


Click on the “Next” button to proceed to the next screen.

It is recommended to have the program installed to the default directory as shown. Only change the directory information if your application requires you to do so.



Click on the “Next” button to proceed to the next screen.



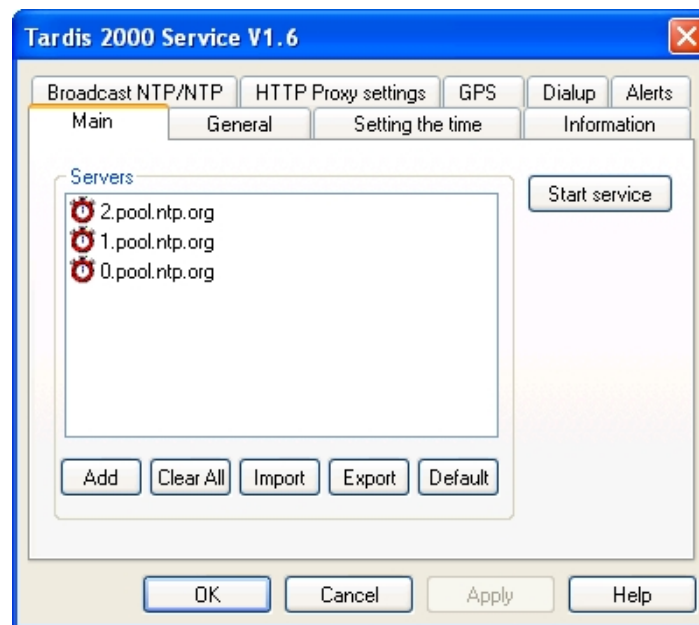
Click on the “Install” button to proceed to the next screen.

## ***Installing Tardis Software – (Time Server) Cont'd***

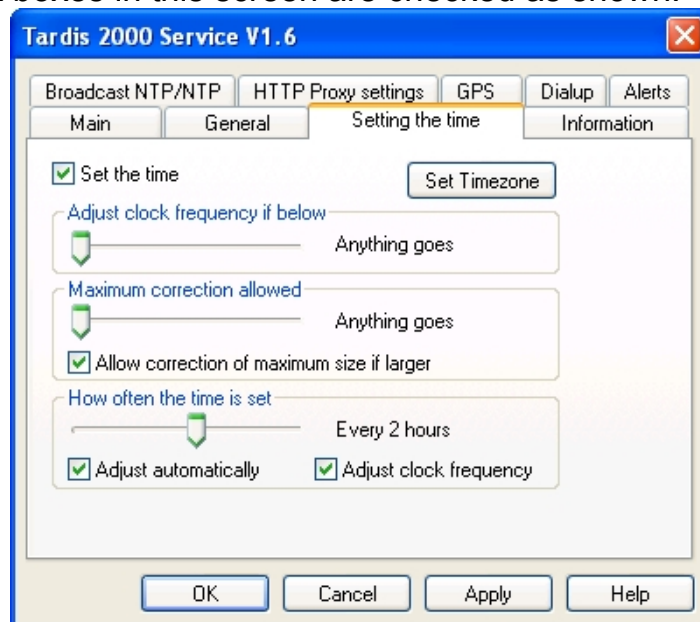
Once the install process is complete select “View Tardis.txt” and “Launch application” and then click on the “Finish” button and proceed to the next screen.



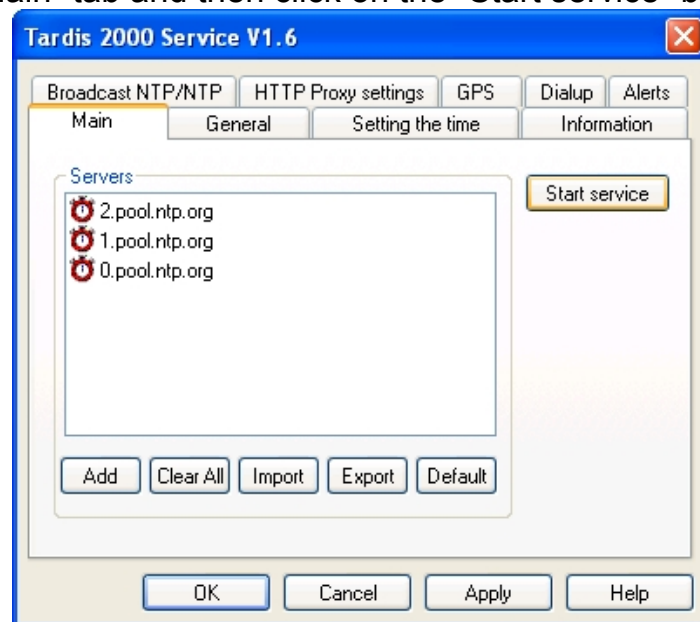
From the main menu of the tardis program select the “Setting the time” tab to proceed to the next screen.



In this screen set the “Adjust clock frequency if below” and “Maximum correction allowed” slide controls all the way to the left and make sure that all check boxes in this screen are checked as shown.

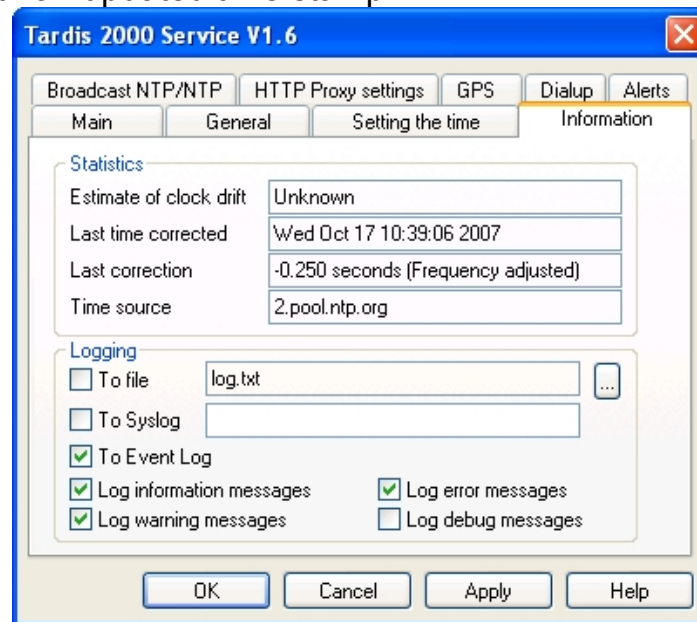


Select the “Main” tab and then click on the “Start service” button.



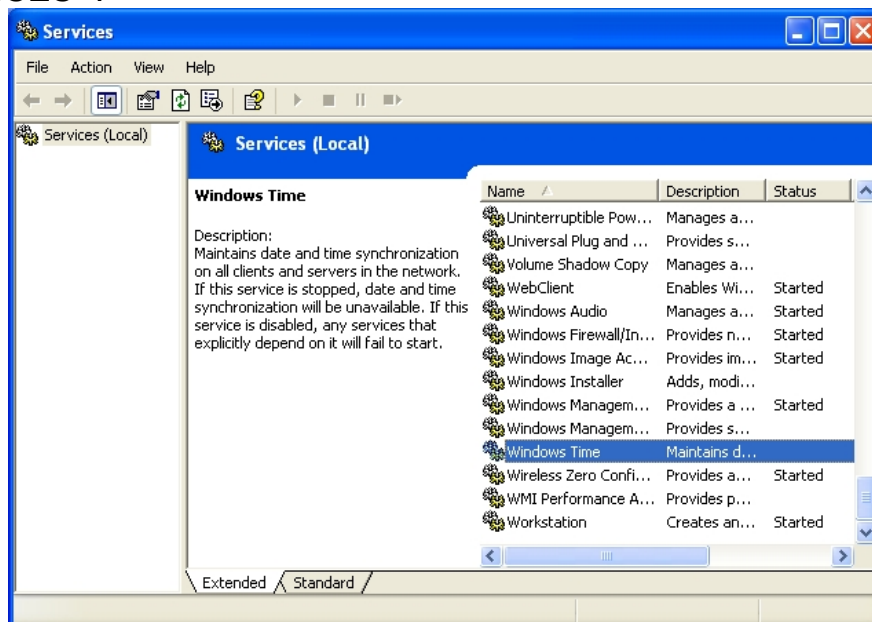
## Installing Tardis Software – (Time Server) Cont'd

Once this screen appears wait until the “Last time corrected” field is populated with an updated time stamp.



Click the “OK” button and this will complete the Tardis setup and this window should close automatically.

Note: Please verify that the Windows Time Service is disabled once the Tardis install is complete. To do this, click in this order “START””, “SETTINGS”, “CONTROL PANEL”, “ADMINISTRATIVE TOOLS”, and “SERVICES”.





## Connecting Measurement Cables, Probes, and Pods

Voltage/Current Pods (for Voltage/Current Input Module - Model 61MZP): Connects to the Encore® Series 61000 Voltage/Current input module via the 25-PIN interface cable connector on the rear panel of the instrument.

The next pages describe the possible voltage and current assembly connections to the input connectors in the rear panel of 61000.

**NOTE: VOLTAGE AND CURRENT PROBES ARE NOT SHOWN CONNECTED TO THE SPECIFIC INPUT MODULES IN THE CONNECTION DIAGRAMS PROVIDED BECAUSE THE ACTUAL VOLTAGE CABLE AND CURRENT PROBES USED ARE DEPENDENT ON THE TYPE OF INPUT MODULES AND OPTIONAL ACCESSORIES PURCHASED.**

### Measurement cable set

Description: Voltage measurement cables or customer-supplied wiring are used as connectors for Voltage input modules with safety jack or terminal block connectors, respectively. Each cable set consists of a cable and alligator clip. Voltage Rating: Direct connection of all voltage measurement cables are rated at 600Vrms max. For measuring voltages greater than 600 Vrms, potential transformers (PTs) must be used. Any customer-supplied wiring should be UL-listed for 600 Vrms minimum.

### Optional fused voltage adapter

There are two optional fuse accessory kits available for use with the measurement cables. One kit (P/N FVA-1) contains one fused voltage adapter and one measurement connecting Red cable 50 cm in length. The other kit (P/N FVA-4) contains four voltage adapters and four measurement connecting cables 50 cm in length (one Red, one Yellow, one Blue, and one Grey).

The single fuse voltage adapter kit is used for one single voltage measurement input. While the four fuse voltage adapter kit is used for a three phase and neutral voltage measurement inputs. If these fuse kits are not used, it is recommended that the user use terminal strips to fused circuits, preferably with local disconnects.

- **WARNING:** To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.
  - **WARNING:** To reduce the risk of fire, electrical shock, or physical injury it is strongly recommended to fuse the voltage measurement inputs. Fuses must be located as close to the load as possible to maximize protection.
  - **WARNING:** For continued protection against risk of fire or shock hazard replace only with same type and rating of recommended fuse. Use only fast blow type fuse which is rated 600V. Recommended fuse type is Littelfuse, part number KLKD0.30 rated 600V AC/DC, 0.3A fast blow.
  - **WARNING:** Do not replace fuse again if failure is repeated. Repeated failure indicates a defective condition that will not clear with replacement of the fuse. Refer condition to a qualified technician.
- 

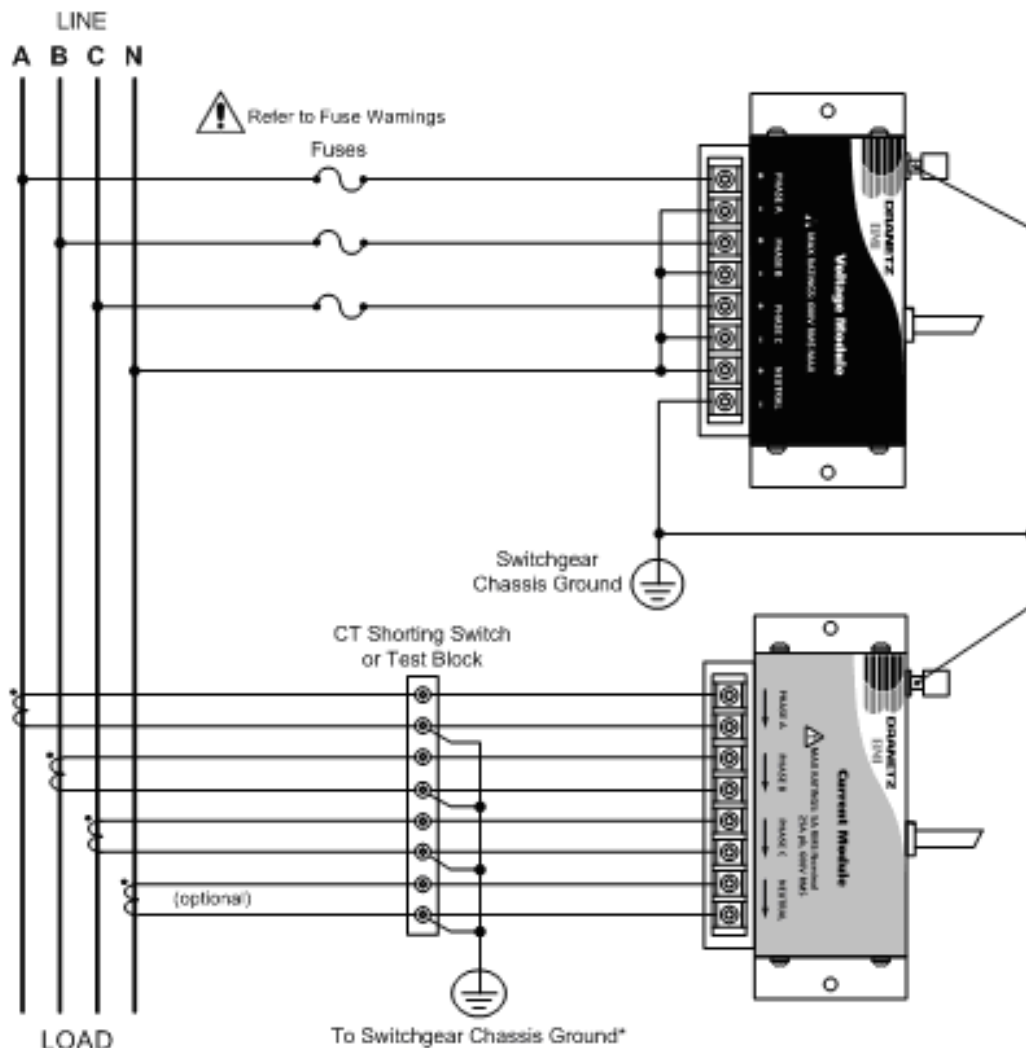
Encore<sup>®</sup> Series can monitor the following power configurations:

- Single phase
- Split phase
- 3 Phase Delta
- 3 Phase Wye
- 3 Phase 2-Wattmeter Delta
- Generic
- 2 ½ Element without Vb
- 2 ½ Element without Vc

3 Phase Wye and 3 Phase Delta are described in this Quick Reference version of the User's Guide. For other configurations, please consult the complete Users' Guide, .

### 3 Phase, Four Wire Wye

Channels A, B, and C are connected to a voltage and current pods. The neutral is connected to common and is the reference for the three channels. The figure also shows voltage connection using channel N as a differential input for measuring neutral to ground voltage. Neutral to ground measurements are important but optional.

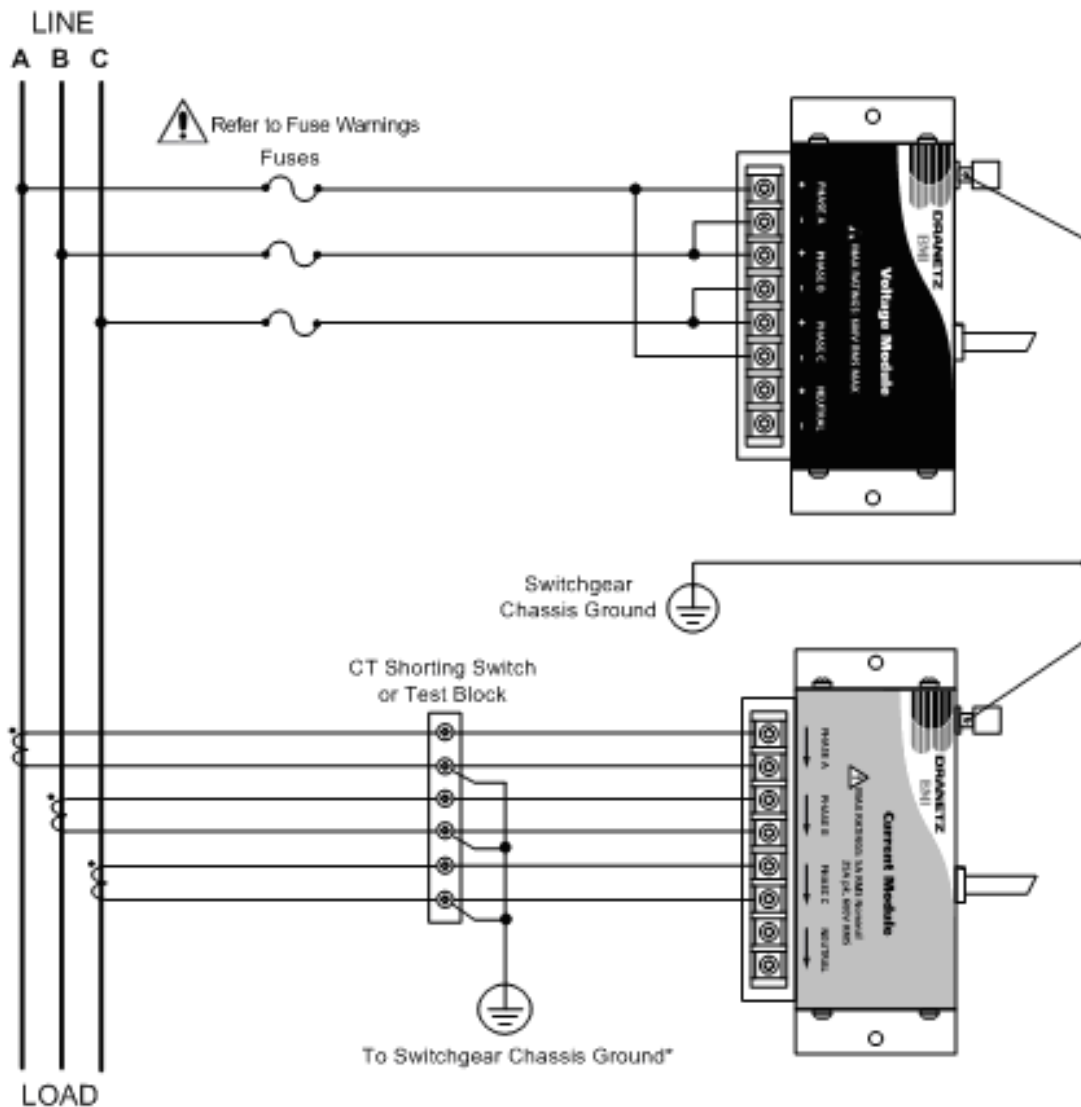


**CAUTION** Connections must be performed in compliance with all safety requirements applicable to your installation.

**\*NOTE** Connections of the CT leg to ground is recommended, but not required for proper operation.

### 3 Phase Delta

In this power connection, the Encore® Series uses voltage channels A, B, and C as differential inputs with channel A using source voltage A-B, channel B using B-C, and channel C using C-A as the reference. Current channel are connected to channels A, B, and C.

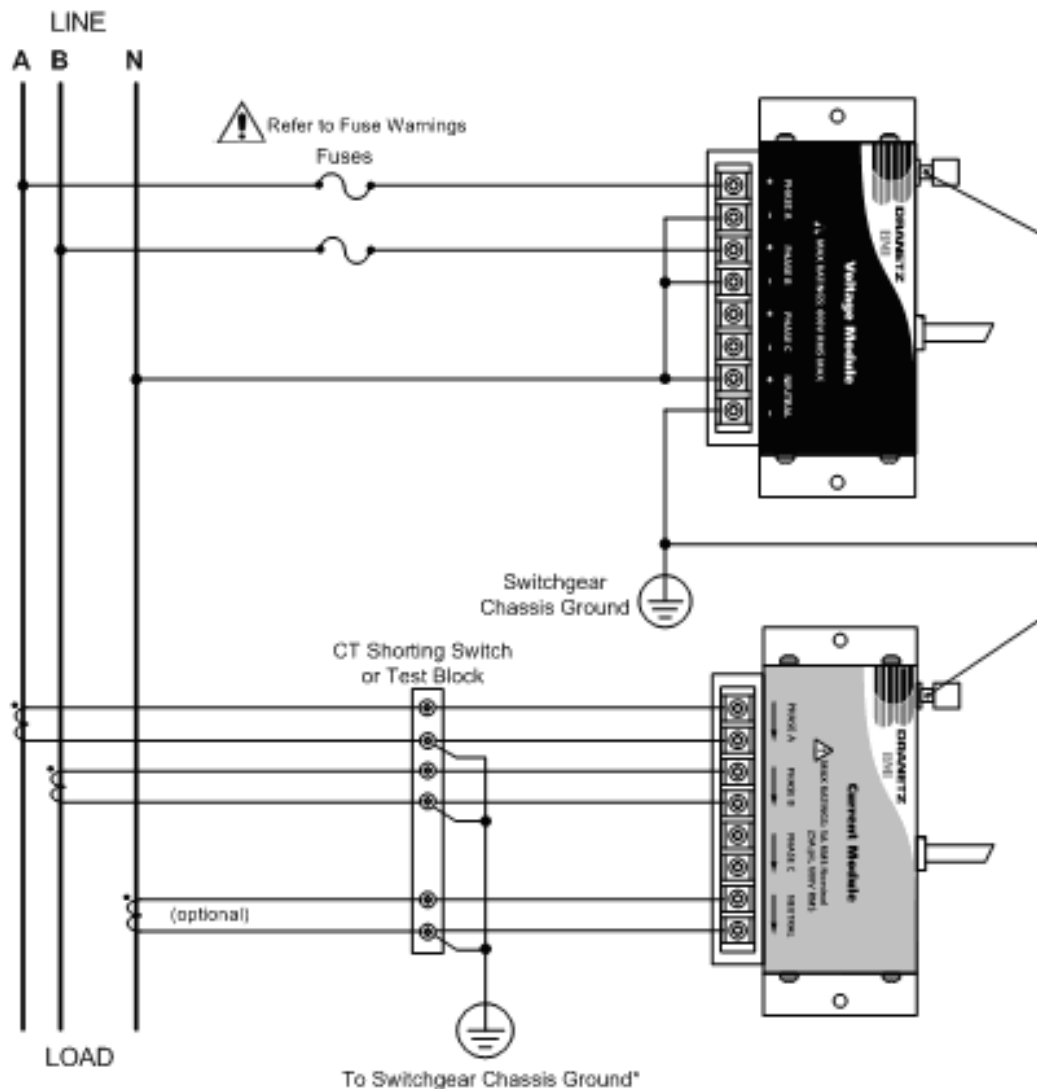


**CAUTION** Connections must be performed in compliance with all safety requirements applicable to your installation.

**\*NOTE** Connections of the CT leg to ground is recommended, but not required for proper operation.

## Split Phase

In this power connection, the Encore® Series uses only two voltage channels A and B as differential inputs with channel A using source voltage A-N or A-C and, channel B using B-N or B-C. Current channels are connected to channels A, B, and C.

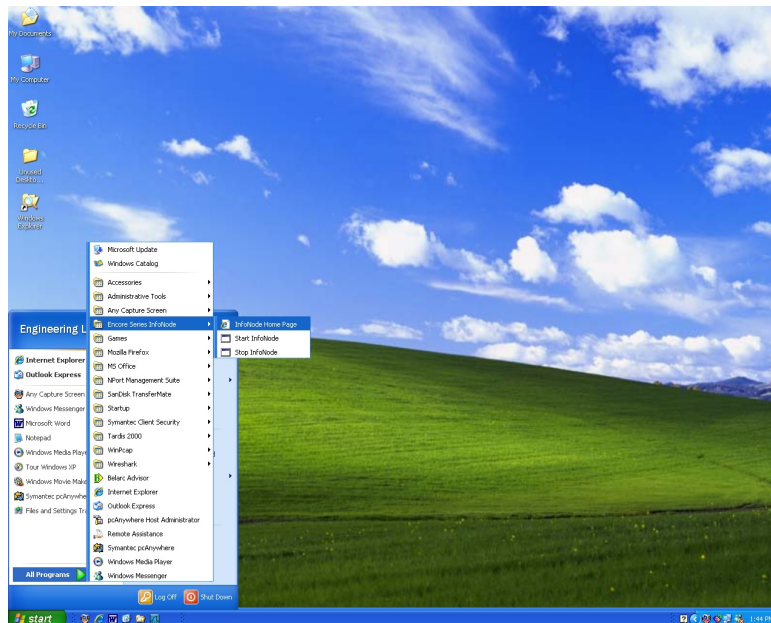


**CAUTION** Connections must be performed in compliance with all safety requirements applicable to your installation.

**\*NOTE** Connections of the CT leg to ground is recommended, but not required for proper operation.

## ***Running Encore® Series Software***

You can start or stop the ESS service manually by selecting the appropriate start menu icon from the main menu of the personal computer that the program is setup on.



You can access the ESS software using a web browser. If you are running a browser on the same machine that is running the ESS service you specify “localhost” as the address to access the ESS home page. The setup program adds a Start Menu icon to do this for you.

Other computers connected to the same network can also access the ESS software running on your computer. To do so, enter either the network name of, or the IP address of the computer running the ESS service in the address field of the web browser.

Note: The ESS service must be started before you try to connect to it with a web browser. If you have a large database, it may take several minutes for the service to respond to web requests.

After you enter the address into your web browser, the ESS service will ask you to log-on. You can log-on as the “admin” user. The default password for the “admin” user is “password”. Enter these values into the appropriate boxes and click the OK button.

The ESS home page should now be displayed as follows:

Welcome back, **admin**, to Edison Service Entrance. The time is 10-15-2007 14:02:02. You were last logged on at 02-27-2007 10:34:24.

The InfoNode is connected to [7 DataNodes](#). All DataNodes are in good health. The database is 60% full. There are 3205 disturbances.

Since your last time here, [more than 100 disturbances](#) have been logged. In the last 48 hours, [21 disturbances](#) have been logged.

There are 3 DataNodes for monitoring Quality of Supply compliance. [3 of these DataNodes](#) are reporting non-compliance.

DataNode information	
DataNode health status	There are <a href="#">7 DataNodes</a> . All DataNodes are in good health.
Database usage	60% used (1007 MB out of 2021 MB)
Total disturbances	3205
First disturbance	<a href="#">12-31-2006 21:32:38</a>
Last disturbance	<a href="#">10-15-2007 11:27:18</a> by DataNode <a href="#">Substation OCB Demo</a>
Since your last logon	<a href="#">More than 100 disturbances</a>
In the last 48 hours	<a href="#">21 disturbances</a>
Quality of Supply Compliance	For the current compliance interval the following DataNodes are not in compliance: <ul style="list-style-type: none"> <li><a href="#">Edison 6TSE-PQ</a></li> <li><a href="#">Edison SE 5560</a></li> </ul> and the following DataNodes have an undetermined compliance status: <ul style="list-style-type: none"> <li><a href="#">Substation OCB Demo</a></li> </ul>

InfoNode information	
Name	Edison Service Entrance
Description	
Model	Unknown
Serial number	2A-A3-3C-37-74-46
Firmware version	<a href="#">4.2.3</a>
Uptime	0 days, 10 hours, 23 minutes

Copyright © 1999-2007 [Encore RM](#) and [Encore Series InfoNode](#). All rights reserved. User: [Admin](#)

Apple's GridApp started

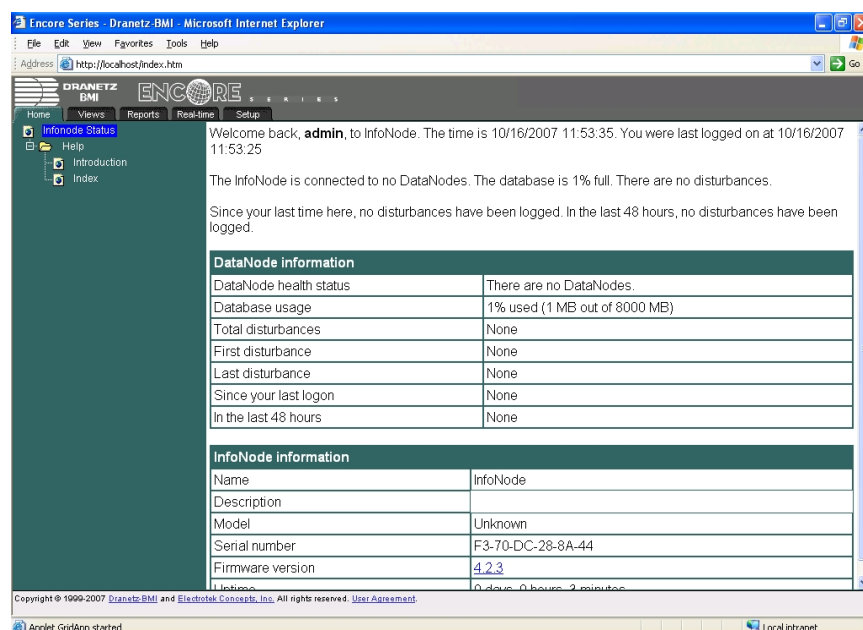
## Setting up the Encore® Series with Encore® Series Software

Connect to the local InfoNode from the start menu first select “Start InfoNode” by double clicking on the selection.



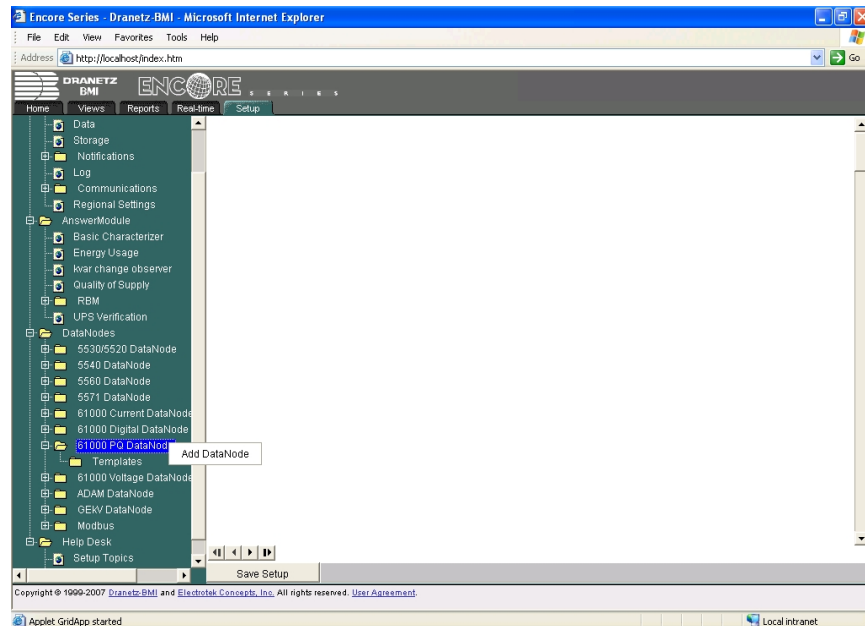
Then you will be prompted to enter the applicable “User name” and “password” and once entered click “OK”.

Again from the start menu, select “InfoNode Home page” and double click and proceed to the following screen.

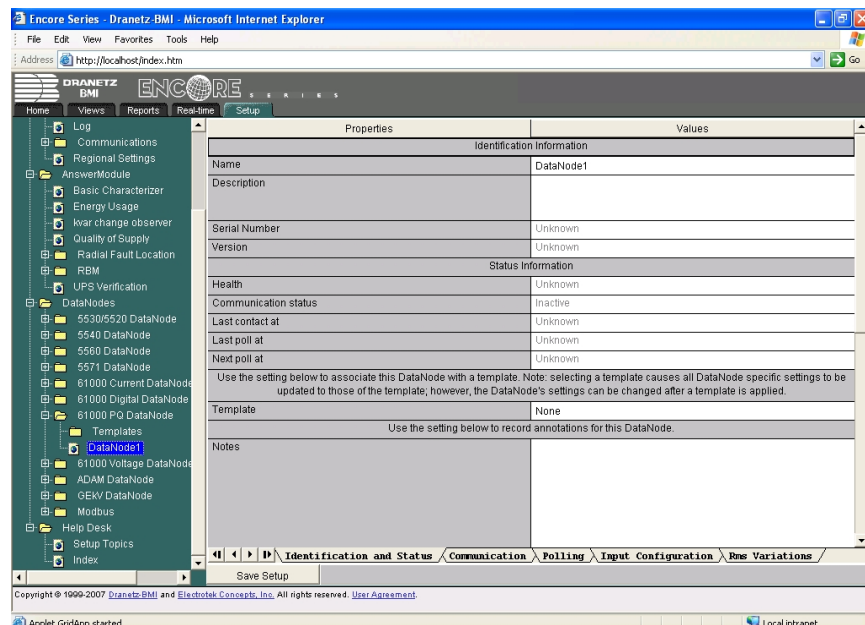




Click on the Setup tab and highlight the 61000 PQDataNodes title and right click and “Add DataNode” appears, left click on this selection to proceed to the next screen.

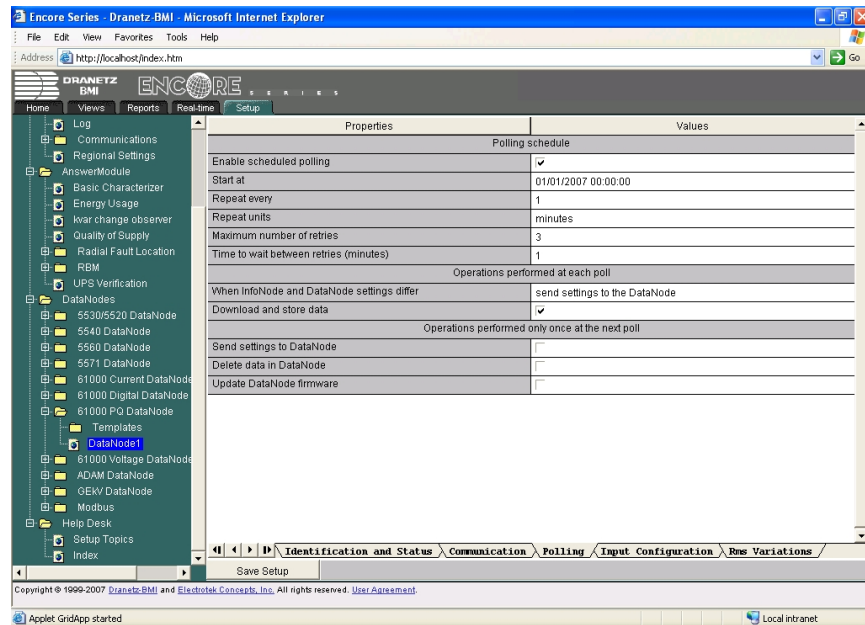


Next the added datanode “DataNode1” will be added to the list. Highlight the datanode you would like to select and left click with the mouse to be able to proceed to the following screen.

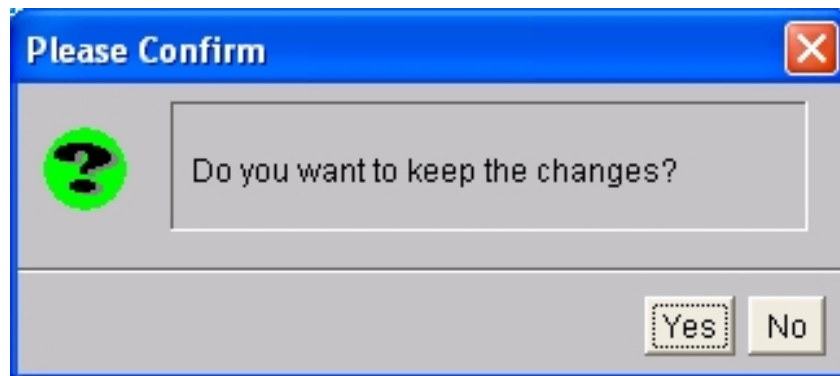


## Setting up the Encore® Series with Encore® Series Software -Cont'd

Select the polling tab and enable the checkmark for the “Enable scheduled polling” and change the “When InfoNode and DataNode differ” to “send settings to datanode”.

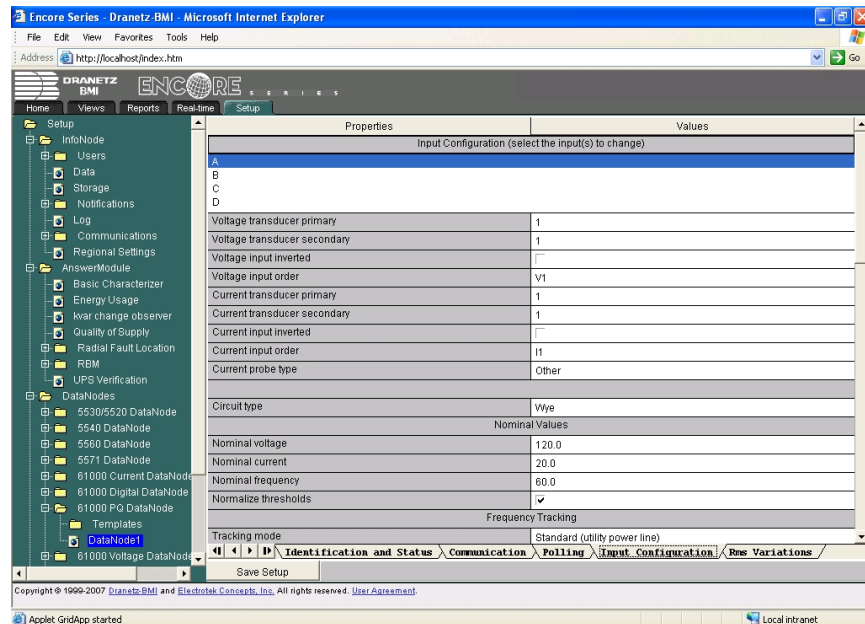


Whenever settings are changed before advancing to the next screen the user will be prompted to save settings.

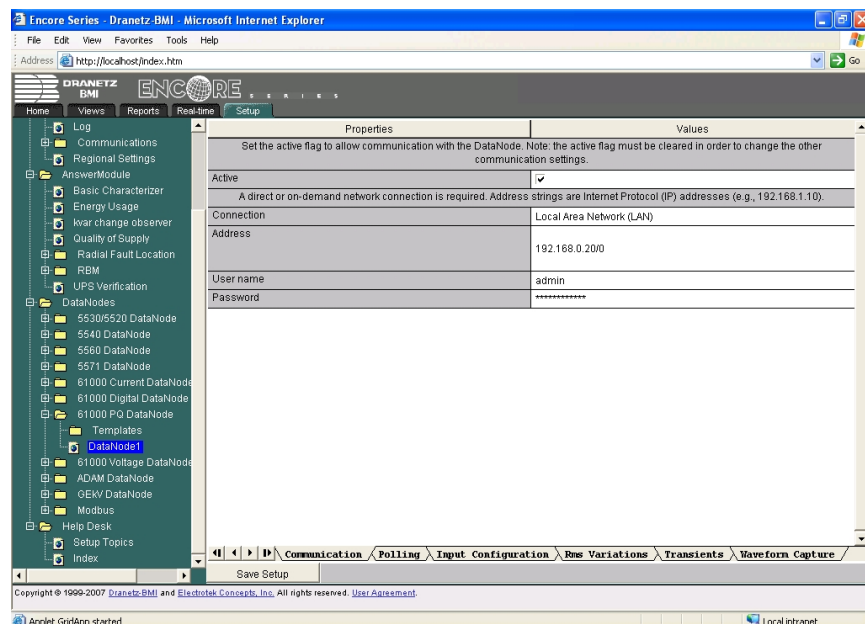


When this screen appears respond to the applicable action before proceeding to the next screen.

Next set the “Input configuration” tab and Set the applicable input configuration, nominal voltage, current, and frequency for your application.



Next, select the communications tab and the following screen will appear.

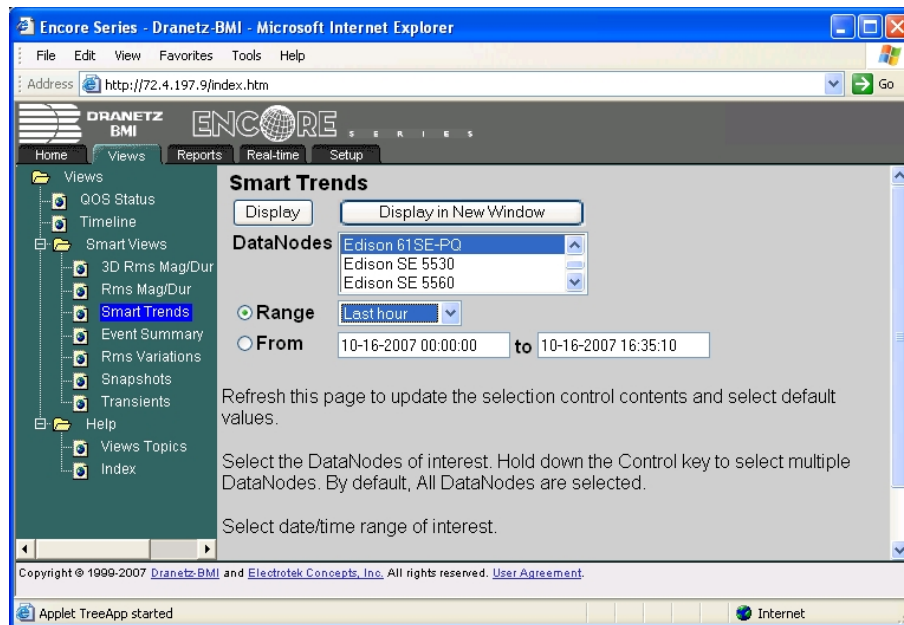


Enable the checkbox to the “Active” state and enter the applicable IP setting for the instrument followed by “/x” where “x” is the analyzer number

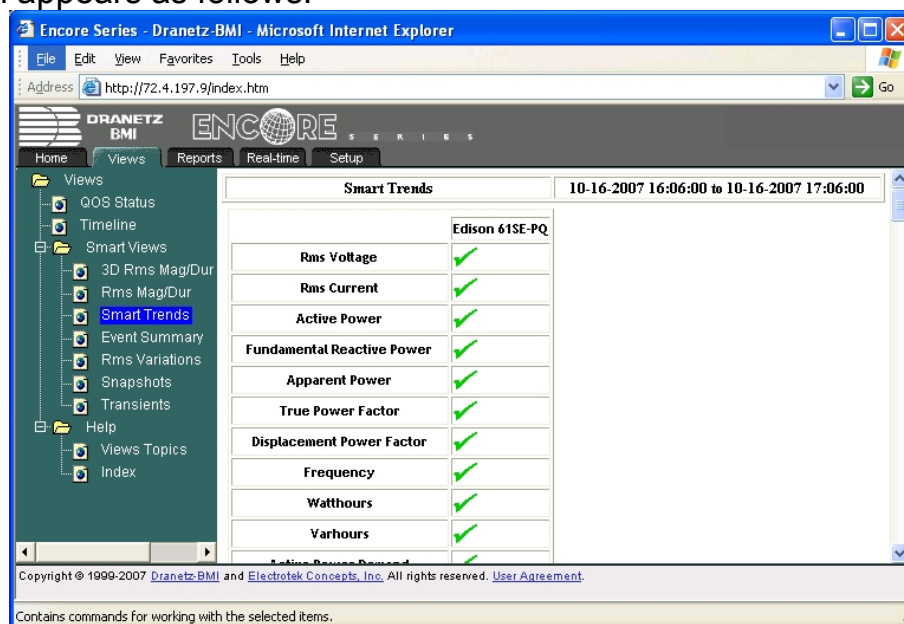
Note: 0 is reserved for Virtual Analyzer 1  
 1 is reserved for Virtual Analyzer 2  
 2 is reserved for Virtual Analyzer 3  
 3 is reserved for Virtual Analyzer 4

## Verify monitoring operation

Once you have successfully configured the Encore® Series 61000 it is strongly recommended to verify that the instrument is monitoring and trending parameters correctly after the unit has been monitoring for at a least an hour. Run the ESS software and from the “Views” tab select the applicable DataNode

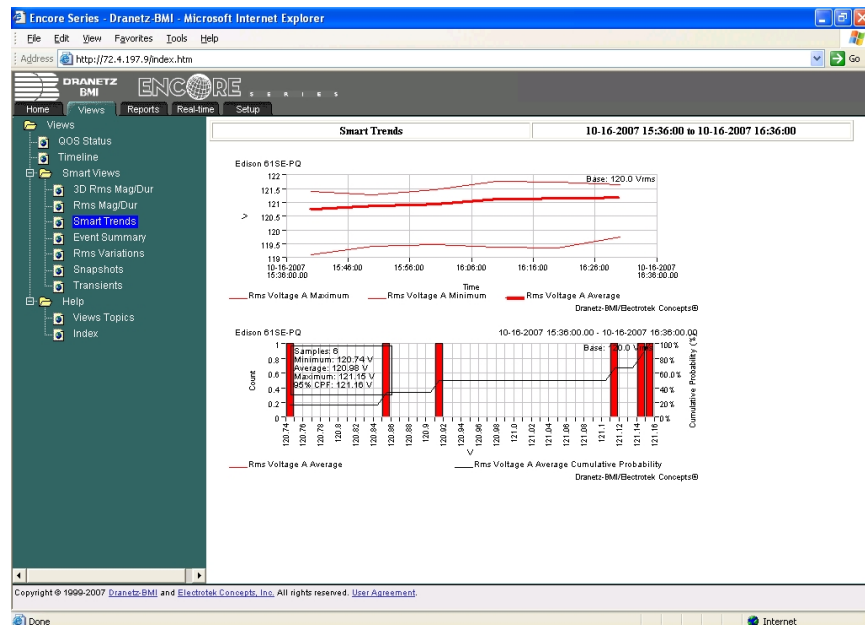


Next, select the Range as “last hour” and then “display” so the next screen appears as follows.



Select “RMS Voltage” and the voltage trend will be displayed as follows.

The following voltage trend demonstrates that the voltage parameters is correctly being trended for the selected DataNode.



Note: Typically the Encore Series Software system can handle up to 100 DataNodes with full parameter monitoring of about 286 parameters for each DataNode.

For larger systems the number of DataNodes as well as the number of parameters being monitored may be limited since they both have an impact on the performance of the overall system.  
Please contact the factory for details for your application.

## General Specifications

### Dimensions

*61000 without LCD panel*

Size: 11.25" Width x 3.5" Height x 7 3/4" Depth

Weight: 4 pounds

*61000 with LCD panel installed in 19" Rack*

Size: 19" Width x 8" Depth

Weight: 5 pounds

### Environmental

Operating: -10 to 60 °C (-15 to 140 °F)

Storage: -40 to 85 °C (-40 to 185 °F)

Humidity: 95% non-condensing

### Altitude:

3000m (9480 ft) maximum

### Installation categories

Mains supply:

Installation Category II, Pollution Degree 2

Measurement inputs:

Installation Category III, Pollution Degree 2

## Frequently Asked Questions    **General**

### ***1. What is Encore<sup>®</sup> Series System?***

Encore<sup>®</sup> Series System is the next generation permanently installed, fixed systems product from Dranetz. Encore<sup>®</sup> Series combines the strengths of pre-existing Dranetz products such as Signature System, 4400/PX5 and Measuring Pad. Key design goals are modularity, strong communications, measurement compliance, built-in intelligence, visualization and legacy product compatibility. Encore<sup>®</sup> Series model 61000 is a modular instrument that allows the user to choose the appropriate modules for their application.

### ***2. How many modules can I have with the Encore<sup>®</sup> model 61000?***

The instrument can support up to 4 modules. The exception is when you choose the high speed transient option for the voltage or current modules. This is a daughter board that is mounted to the module that takes the space of an additional module so the module now occupies the space of 2 slots.

### ***3. Can I upgrade the Encore<sup>®</sup> model 61000 after purchase to add more modules?***

Yes but the instrument needs to be returned to the factory or authorized service center to install the new module(s). The modules are mounted internal to the instrument and cannot be added by the user.

### ***4. How is memory managed in the Encore<sup>®</sup> 61000?***

The Encore<sup>®</sup> 61000 has 1GB of internal (cannot be removed) flash memory. Data is managed in a circular buffer. When memory is near full older data is erased to make space for newer data.

### ***5. How many parameters can I monitor?***

Typically the Encore Series Software system can handle up to 100 DataNodes with full parameter monitoring of about 286 parameters for each DataNode.

For larger systems the number of DataNodes as well as the number of parameters being monitored may be limited since they both have an impact on the performance of the overall system.

Please contact the factory for details for your application.

## **Frequently Asked Questions    General – Cont'd**

### ***6. Can temperature monitoring be incorporated into the System?***

Yes, using Encore® Series analog input module. 0-24V or 4-20ma modules are available. A conditioned output is required.

### ***7. Is Encore® Series compatible with pre-existing Dranetz products?***

Yes, Encore® Series Software fully supports all Signature System DataNodes and the 7100 PQNode

### ***8. What is IEC61000-4-30? Why is it so important?***

Encore® Series model 61000 is IEC61000-4-30 Class A compliant. IEC61000-4-30 is an international standard that outlines the design requirements of a power quality instrument. It defines such things as accuracy, measurement techniques, algorithms and other details. The standard defines two types of instruments: Class A and Class B. Encore® Series model 61000 is Class A which means it fully complies with all requirements of the standard. Class B means at least one requirement is not met. Therefore, a Class B instrument can be very close to being fully complaint or not meet any of the requirements, buyer beware!

Why is this so important? The goal of this standard is repeatability of measurements and constancy among manufactures meaning if two Class A instruments are measuring the same circuit at the same time they will provide the same results.

As a result IEC61000-4-30 Class A is required by regulation in many parts of the world including Europe and parts of Asia and Latin America. However, even if not required such as in the US, compliance is very beneficial as Class A compliance indicates the instrument is designed to meet the strictest of requirements and will provide accurate and repeatable results.

### ***9. Can Encore® Series operate on DC Voltage?***

Yes. External 120/220VDC and 48VDC power supplies are optionally available.

### ***10. Can the Encore® Series model 61000 measure DC?***

Yes. Like most Dranetz products, all voltage and current modules are DC coupled and can measure up to 600VDC. AC/DC current probes are also available to measure DC current.



## **Frequently Asked Questions    General – Cont'd**

### ***11. What is NodeLink?***

NodeLink is communications software that downloads data remotely from Encore<sup>®</sup> Series software and stores in the PQDIF file format. Once downloaded data can then be read by PQView or DranView Enterprise. Note that PQView can now communicate directly with Encore<sup>®</sup> Series software eliminating the need for NodeLink in network based applications.

### ***12. What installation, training and commissioning services are available?***

Dranetz's Technical Support staff is available for training and to assist with the installation and commissioning of systems on a per day basis plus expenses. Electrotek Concepts offers complete turnkey and software customization services.

### ***13. How many instruments can I use with Encore<sup>®</sup> Series Software?***

For the typical application, PC based Encore<sup>®</sup> Series Software can support up to 50 or more instruments. The actual number of instruments depends on the amount of data each instrument is trending and recording which is what determines the 'load' on the software. We recommend that you contact the factory for support should your application require a large amount of instruments. We will help determine if one Encore<sup>®</sup> station is sufficient for your system or you will need multiple stations.

### ***14. I need to share information with my co-workers and consultants. How can I do this?***

It is very easy to share Encore<sup>®</sup> Series information with others with the Encore<sup>®</sup> Series Software multi-user interface. Encore<sup>®</sup> Series Software supports up to 10 simultaneous users via the network. The users can be viewing the same or different data.

### ***15. How do I know if I have the latest software revisions?***

- Check the home page of the Encore<sup>®</sup> Series Software which will indicate the latest version of the software for the ESS and the Encore<sup>®</sup> Series instruments.
- Check the Dranetz website at [www.dranetz.com](http://www.dranetz.com) for latest available downloads and revision information.

## **Frequently Asked Questions    Communications**

### ***1. What types of communications are available with Encore<sup>®</sup> Series? What types of communications are available with Encore<sup>®</sup> Series?***

The Encore<sup>®</sup> Series model 61000 has built-in standard support for Ethernet, RS232 and RS485 communications. Modem and GSM/GPRS communications are also available using external interfaces that are available from Dranetz. Encore<sup>®</sup> Series software supports all of these methods of communications so you can choose what's appropriate for your application.

### ***2. When using GSM communications do I need a GSM modem at both the instrument and PC locations?***

No, the GSM modem is only needed at the remote instrument.

### ***3. What type of network can I use with the Encore<sup>®</sup> Series? 10BaseT, 10Base2, Fiber?***

Encore<sup>®</sup> Series can directly connect to, or be easily adapted for use with virtually any network that supports the TCP/IP Internet protocol. The RJ-45 connector allows for direct connection to most networks in use today. If you have another type of network such as Fiber, coaxial (10Base2) or other, inexpensive off the shelf adapters should be available to connect to such networks.

### ***4. There is typically one phone line into a substation. How can I share this single phone line with multiple Encore<sup>®</sup> Series instruments?***

Off the shelf telephone line multiplexers are available that allow the user to share one phone line with multiple devices. Such multiplexers typically work by adding characters to the telephone number string to direct the call to the correct instruments. Ex: "1732-555-1212#2" will direct the incoming call to the instrument connected to port #2 of the multiplexer.

## Frequently Asked Questions      **Data Management**

### ***1. Can the Encore<sup>®</sup> Series automatically tell me when a disturbance or other important event occurs?***

Yes, Encore<sup>®</sup> Series Software has a built-in (alarm) notification system. There are presently three methods of notification available. The user can select the method of notification along with the source (disturbance, system health, etc.):

- **Pager:** Alphanumeric or numeric page containing alarm details to a list of recipients. In order to prevent nuisance pages when many problems occurs at or around the same time, pages are aggregated over a short period of time. Therefore, one page will be sent instead of many pages.
- **E-mail:** Similar to pager notification. Since an e-mail can be of a larger size than a page messages are more descriptive. Hyperlinks to event details are also available.
- **Contact Closure:** A contact closure adapter for connection to a PC COM port is available providing 4 solid state dry contacts. The user selects the combination of contacts to close upon an alarm. This allows for simple encoding of messages to 3rd part SCADA, HMI, BMS, or other systems in use.

### ***2. Can the Encore<sup>®</sup> 61000 dial tell Encore<sup>®</sup> Series Software when an event occurs?***

No, dial-out communications from the instrument is presently not supported. If the instrument is connected via Ethernet, Encore<sup>®</sup> Series software polls each instrument every minute or so to download any new data so this feature may not be necessary.

### ***3. What is the polling rate for Encore<sup>®</sup> Series Software?***

For an Ethernet connection the polling rate can be as fast as once per minute. However, modem and serial based communications are typically very slow and it may take many minutes to download data from one instrument. Therefore, the polling rate should be much slower, once per day is typically recommended.

### ***4. What happens if errors occur during data communications?***

Encore<sup>®</sup> Series Software will try again should this occur. The user can program the maximum number of retries.

## **Frequently Asked Questions      Data Management (Cont'd)**

### ***5. How does Encore® Series Software back up data?***

Encore® Series Software does not have any built in backup features. Since Encore® Series Software installs as a service on your XP or WIN2000 PC off the shelf back up software and hardware can be used for this.

### ***6. When viewing recorded data in the web browser is the Encore® Series Software database transferred to my PC for viewing?***

No, only a formatted web page is transferred to your PC for viewing in your web browser. When the user requests to see a report, timeline, or any other type of recorded data, Encore® Series Software creates a web page containing the requested data which is much more efficient than uploading the entire database

### ***7. Can one line system diagrams be developed?***

Yes, there is a OneLine answer module that is a customization service that adds custom web pages with your systems one line or other diagrams. Instrument monitoring points can be overlaid onto the diagram with real time measured data continually being updated such as V and I. Each point can have a color coded event alarm notification and easy link to data from that specific point.

## Troubleshooting

### ***1. How do I prevent unwanted users from accessing Encore® Series data?***

Encore® Series Software is a password protected web site. Each user must first log on with a valid user name and password. There are 4 levels of security ranging from a guest who can only view limited data to administrator who has unlimited access to data and setups.

### ***2. What is the maximum distance from an Encore® Series instrument to the computer running Encore® Series Software?***

This depends on the type of communications used. When communicating via Ethernet the distance dependant on the design of the network and can potentially be unlimited. An example would be the Internet or corporate Intranet. On a simple one to one network with just a wire connecting the computer to the instrument (no hub) the maximum distance from end to end is about 300ft. Standard off the shelf hubs, repeaters, routers, etc are available to easily build a network appropriate for your application. It is important to note that certain features such as external instrument cross-triggering may not work on large, routed networks like the Internet since the timing cannot be guaranteed.

Telephone and GSM/GPRS modem communication distances can go as far as the phone or wireless system can take you so it is difficult to specify and distance limit. Please speak with your telephone or wireless provider for details.

When communicating via RS232 the distance is limited to about 15ft, RS485 can be up to 4000Ft on a well designed cable system.

### ***3. What are the blinking lights on the front panel used for?***

The function of the front panel LED's are discussed from left to right

- |                     |   |
|---------------------|---|
| 1 <sup>st</sup> LED | Status Indicator.<br>LED will illuminate steadily when an abnormal condition is detected.   |
| 2 <sup>nd</sup> LED | The unit is operating normally when light is OFF.<br>Monitoring Indicator<br>LED will illuminate if monitoring is ON.<br>Monitoring status if off when light is OFF.                                  |
| 3 <sup>rd</sup> LED | Power Indicator<br>LED will blink once every 10 seconds for each installed measurement module and repeat the pattern indicating the unit and the number of installed modules are operating correctly. |

## User Guides

The following table is a list of the available user guides that provide additional information about the Encore<sup>®</sup> Series and its applications and should be referred to for additional information when applicable.

Title	Document Number
Encore <sup>®</sup> Series 61000 System Installation Guide	UG-61000
Encore <sup>®</sup> Series Software User's Guide	UG-ENCORE-SW
Encore <sup>®</sup> Series 61000 System User Interface Operation Guide	UG-61000UI

## **Statements and Notices**

### **Statement of warranty**

All products of Dranetz are warranted to the original purchaser against defective material and workmanship for a period of one year from the date of delivery. Dranetz will repair or replace, at its option, all defective equipment that is returned, freight prepaid, during the warranty period. There will be no charge for repair provided there is no evidence that the equipment has been mishandled or abused. This warranty shall not apply to any defects resulting from improper or inadequate maintenance, buyer-supplied hardware/software interfacing, unauthorized modification or misuse of the equipment, operation outside of environmental specifications, or improper site preparation or maintenance.

### **Statement of reliability**

The information in this manual has been reviewed and is believed to be entirely reliable, however, no responsibility is assumed for any inaccuracies. All material is for informational purposes only and is subject to change without prior notice.

### **Notice regarding FCC compliance**

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

**Notice regarding proprietary rights**

This publication contains information proprietary to Dranetz. By accepting and using this manual, you agree that the information contained herein will be used solely for the purpose of operating equipment of Dranetz.

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