Life Science Suite™

ACQ7700 USB Installation Manual

Model: PNM-P3P-7002, PNM-P3P-7002XS, and PNM-P3P-7002XE
Manual: MU00211-001
Revision 52

DSI™

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DSI/Ponemah Life Science products are <u>not</u> "medical devices" intended to be used for the purposes of diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, or used as a life support device. Use of DSI/Ponemah products are solely for the purposes of conducting life science research.

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Contents

Safety

This general safety information is for both user and service personnel. Specific **WARNINGS** and **CAUTIONS** will be found throughout the manual where applicable. Please refer to the Sécurité section for the French translation of this safety section.

TERMS AND SYMBOLS IN THIS MANUAL AND ON THE EQUIPMENT

ATTENTION: Consult accompanying documents. This symbol indicates paragraphs providing cautionary and detailed information about a specific part of the instrument. That part of the equipment is also marked with this symbol (See references to this symbol in the manual).

WARNING, risk of electric shock

AC, Alternating current

Type CF Equipment Defibrillation proof

Equipotentiality / Chassis ground

STANDBY (Power is on, instrument off in standby mode)

OFF (Disconnection to AC mains)

ON (connection to AC mains)

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WARNING

IF THIS INSTRUMENT IS OPERATED OR USED IN A MANNER NOT SPECIFIED, THE PROTECTION PROVIDED BY THE SYSTEM MAY BE IMPAIRED. DO NOT USE IN THE PRESENCE OF FLAMMABLE ANESTHETICS OR FLAMMABLE AGENTS.

POWER SOURCE

This instrument is intended to operate indoors from a power source that does not apply more than 250 volts RMS between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is required. If the unit is mounted in a permanent installation (i.e. rack-mounted), then the user MUST provide access to the plug OR connect the instrument to a circuit with a user accessible breaker or power switch. The detachable power cord is the means by which the mains are disconnected.

PROPERLY GROUND THE INSTRUMENT

This instrument is grounded through the power cord. It is a Class 1 Device. Grounding reliability can only be achieved when the equipment is connected to a hospital grade receptacle. Use only the power cord and connector specified for your instrument. Use only a power cord that is in good condition.

Upon loss of the protective-ground connection, all accessible conductive parts (including knobs and controls that may appear to be insulating) may render an electric shock.

The instrument is equipped with a potential equalization conductor on the real panel.

USE PROPER TEST LEADS AND CABLES

Test leads and/or interconnect cables may carry **HAZARDOUS** live voltages. They must be examined regularly for wear. Worn leads or cables should be replaced.

The amplifier has been designed and tested for protection against the effects of the discharge of a cardiac defibrillator. For safe operation, use only the cables provided with the amplifier.

ECG ELECTRODE PLACEMENT

The user should assure that any electrodes used, including the neutral electrode, do not contact any conductive parts, including earth.

Whenever a defibrillator is used, assure that the leads are placed on the appropriate places on the subject. Leads should never be placed on grounded surfaces. Verify that defibrillator leads are NOT placed directly on the ECG electrodes.

DO NOT USE WITH HF SURGICAL EQUIPMENT

It is imperative that the ECG electrodes be removed from the subject before using any HF surgical equipment. This equipment DOES NOT provide protective means against burns when used with HF surgical equipment.

SUMMATION OF RISK CURRENT

The amplifier has been designed and tested to meet safe leakage current specifications when attached to the subject. Any additional equipment added to the subject may increase leakage. The operator should be aware of the possible summation of additional leakage currents when additional equipment is connected to the subject.

USE WITH PACEMAKERS

The operator should be aware of any possible interactions or safety hazards when the amplifier is used in conjunction with cardiac pacemakers and other stimulant devices. The manufacturer of these devices should be consulted for additional information.

EMI/RFI

The amplifier has been tested to meet EMI/RFI susceptibility and radiation standards. However, the user should be aware of possible electromagnetic interactions between this device and other devices in the same area and correct the situation as needed. Any type of conductive sheet connected to an electrical ground and placed between the source and equipment will help to reduce EMI.

WARNINGS FOR AUTHORIZED SERVICE PERSONNEL

Dangerous voltages exist at several points in this instrument. To avoid personal injury, do not touch exposed connections or components while power is on. Dependent upon the type of ACQ7700 USB, the only serviceable part may be a fuse. Disconnect power before removing protective panels, or replacing fuses. Return the unit to DSI for service and calibration.

USE THE PROPER FUSE

To avoid fire hazard, use only a fuse of the correct type, voltage rating, and current rating as specified in the parts list for your instrument.

DO NOT OPERATE WITHOUT COVERS AND PANELS INSTALLED

To avoid personal injury and equipment damage, the user should disconnect power before removing covers, panels or any grounding straps. Reinstall covers, panels, and any grounding straps *before* reconnecting power.

WARNING: NO MODIFICATION TO THIS EQUIPMENT IS ALLOWED

System Overview

ACQ7700 USB Acquisition Interface Unit

The ACQ7700 USB Acquisition Interface Unit (the model PNM-P3P-7002 is a 6 slot device, the model PNM-P3P-7002XS is a 2 slot, and the model PNM-P3P-7002XE is a 13 slot device) is one of the available acquisition interfaces for the DSI/Ponemah software. An acquisition interface unit interfaces signals into the Ponemah Physiology Platform (P3 Plus).

The ACQ7700 USB has a modular design which allows the user to easily expand the number of available acquisition inputs to a maximum of 128 (dependent upon the ACQ7700 USB being used), through the installation of various signal conditioners. The portable, rugged chassis is perfect for interfacing to a laptop, allowing for system mobility. The ACQ7700 USB interfaces to the computer by a USB connection. This is the only required user connection to the host computer. The aggregate sampling rate may be affected by the computers performance and the complexity of the real time analysis being performed.

NOTE:	It is recommended to use a USB 2.0 connection, but the ACQ7700 USB will communicate using USB 1.1.

The recommended orientation of the ACQ7700 USB is flat on a table with the grill of the filter on the bottom.

ACQ7700 Signal Conditioners

The ACQ7700 USB can accept up to 2 signal conditioners for the PNM-P3P-7002XS, 6 signal conditioners for the PNM-P3P-7002, and 13 signal conditioners for the PNM-P3P-7002XE that are fully programmable. These signal conditioners are inserted into guided slots and secured by a positive threaded latching system.

Signal conditioner setup is performed using a graphic user interface. All parameters can be programmed directly in the users test parameter units, reducing potential data conversion errors. All setup parameters can be saved as a logical protocol name for later recall, saving set up time. Because the system is completely integrated, these parameter names and units are automatically transferred and utilized throughout the system including all monitoring and analysis. The P3 Plus software handles all control and communication with the ACQ-7700 signal conditioners. The user does not have to load any additional software. When the system is started, the P3 Plus software will automatically interrogate the system and identify the ACQ-7700 signal conditioners and their slot placement.

System Requirements

The system requirements for the ACQ7700 USB are the same as the P3 Plus application with the following differences.

- Choice of instrumentation signal conditioning modules and analysis modules.

Please view the P3 Plus Manual for system requirements.

For information on DSI/Ponemah products and services, check out our website at www.datasci.com.

Configuring the System

Assistance

If assistance is required in configuring the system, contact our Technical Support department at 1-800-262-9687. The user can also request assistance from our support department by contacting us through our web site at www.datasci.com or email us at support@datasci.com.

Initial Inspection

Prior to attempting any electrical connections or operation, visually examine the unit for any damage.

Parts List

The following comprise the system:

- ACQ7700 USB - Acquisition Interface
- P02124-1 - USB interface cable (2 meters)
- ACQ-7700 Signal Conditioners
- MU00211 ACQ7700 USB Installation Manual

Software Installation

If the user did not purchase a complete system with everything installed and tested, the user will need to install the P3 Plus software. For the Acquisition Interface to operate correctly, the user must install the software onto the hard disk of the personal computer. The procedures are outlined in the Ponemah Physiology Platform reference manual.

For the ACQ7700 USB interface to work, the user must select **ACQ7700 USB** as the acquisition device in the **Acquisition Interface** tab of the **Application Configuration** dialog. This dialog is opened by selecting **Application Configuration** from the **Options** menu from within the P3 Plus application. View the **Interface Configuration** section for details.

Installing ACQ-7700 Signal Conditioners

1. Turn OFF the power to the ACQ7700 USB (The signal conditioners may be damaged if inserted or removed under power and the ACQ7700 USB must be powered with the signal conditioners inserted for the controlling software to recognize their presence). The power switch is located on the front of the ACQ7700 USB.
2. Disconnect the ACQ7700 USB power cord.
3. Remove a blank panel from the ACQ7700 USB. **NOTE**: Slots cannot be skipped. When installing ACQ-7700 signal conditioners, slots must be filled contiguously starting with slot A.. Slot A must be occupied.
4. Slide the signal conditioner into the open slot. The ACQ-7700 signal conditioner metal side plate fits into plastic guides that align the signal conditioner with the backplane mating connectors. Turn the latching screw knobs clockwise to secure the signal conditioner in its slot. Tightening the latching screws secures the mating connector, located on the rear of the signal conditioner, into the backplane connector of the ACQ7700 USB. Be careful not to over tighten these screws.
5. Connect the signal conditioner's input cables and reconnect power.

Removing ACQ-7700 Signal Conditioners

1. Turn OFF the power to the ACQ7700 USB. (The signal conditioners may be damaged if inserted or removed under power). The power switch is located either on the front or back of the ACQ7700 USB.
2. Disconnect the ACQ7700 USB power cord.
3. Disconnect the signal conditioner's input cables.
4. Turn the latching screw knobs counter-clockwise with a Phillips screwdriver until the signal conditioner is released from the slot, and slide the signal conditioner out of the ACQ7700 USB.
5. Insert a blank panel into the exposed slot. These panels perform more than simply an aesthetic function. They are required for proper system cooling and RFI/EMI shielding.

Installing the ACQ7700 USB Acquisition Interface

Steps to install the ACQ7700 USB Acquisition Interface:

1. Connect the USB cable between the Acquisition Interface and a USB connector on the PC.
2. Turn on power to the Acquisition Interface unit.
3. When the **Welcome to the Found New Hardware Wizard** dialog appears asking if Windows can connect to Windows Update, select **No, not this time** and click on the **Next** button.
4. A bubble should appear in the lower right hand corner of the screen stating that new hardware was found and that it was the DSI Ponemah ACQ7700 USB.

5. On the **Found New Hardware Wizard** dialog, select the **Install the software automatically (Recommended)** option, and click on the **Next** button.
6. After a few moments, the dialog should state that the wizard has finished installing the software for the ACQ7700 USB.
7. A bubble should appear in the lower right hand corner of the screen stating that the new hardware is a USB Device.
8. Another bubble should appear stating the new hardware is installed and ready to use.

The hardware drivers are now installed and P3 Plus can be started.

ACQ7700 USB Connections

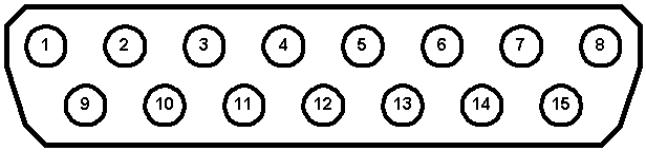
The standard ACQ7700 USB has two input/output connectors on the front panel of the USB interface board: The USB Port connector and the AUX connector. The USB acquisition board is installed in the first slot from the left on the front of the ACQ7700 USB.

USB Port Connector

The ACQ7700 USB connects to the host computer via the USB 2.0 connector on the front of the unit. The ACQ7700 USB port is backward compatible with USB 1.1. However, only when connected to a USB 2.0 compatible computer, will the ACQ7700 USB be able to download data to the computer at its maximum speed. A USB 1.0 connection is NOT recommended.

Auxiliary Connector (Preview Feature)

This is a 15 pin female D-shell connector. This 15 pin D-SUB provides connection for the auxiliary functions.



Pin	Signal	Pin	Signal
1	Trigger In	9	Event Out
2	Reserved	10	Alarm Out
3	Reserved	11	Timer Out
4	Reserved	12	Reserved
5	Reserved	13	Reserved
6	Reserved	14	Reserved
7	Reserved	15	Ground
8	+5V		

Aux. Port pin descriptions

Event Out - If an event is triggered within P3 Plus, a TTL pulse will appear on this pin.

Alarm Out - If an alarm condition occurs, a pulse will appear on this pin. The pulse is a TTL level pulse that lasts for the duration of the alarm condition. The alarm condition duration is dependent on the logging rate set. The TTL pulse will last until a logged line of data is reached where the alarm condition does not occur.

Timer Out - If a timer reaches its final time, a TTL pulse will appear on this pin. For a Timer Up configuration, once the timer reaches the set value, the pulse will execute. For a Timer Down configuration, once the timer reaches zero, the pulse will execute.

Trigger In - If this pin is set to 0V, an external event (Event y) will be triggered in P3 Plus. The recommended time that the pin should be set to 0V is approximately 1 second.

Power Connection

The only connection on the rear of the ACQ7700 USB is the power receptacle.

Getting Started

Introduction

The power switch for the ACQ7700 USB is located either on the front or back of the unit. A green light located on the front of the Acquisition Module illuminates when power is ON.

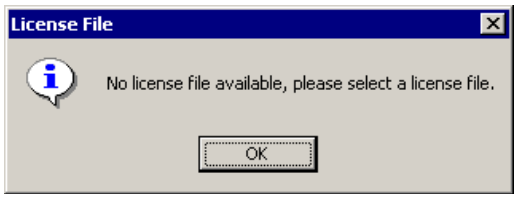
There are no operating controls for the ACQ7700 USB. Signal conditioner setup is performed through the graphical user interface. Refer to the ACQ-7700 Signal Conditioner manual for operating instructions.

Connect the input signals to the ACQ-7700 signal conditioners (refer to the ACQ-7700 Signal Conditioner manual for details if needed). Slots must be filled contiguously starting with slot A. Blank panels must be installed in all empty slots to ensure proper system performance.

Once the inputs are connected, power up the ACQ7700 USB. The user is now ready to begin recording data.

Starting the Program

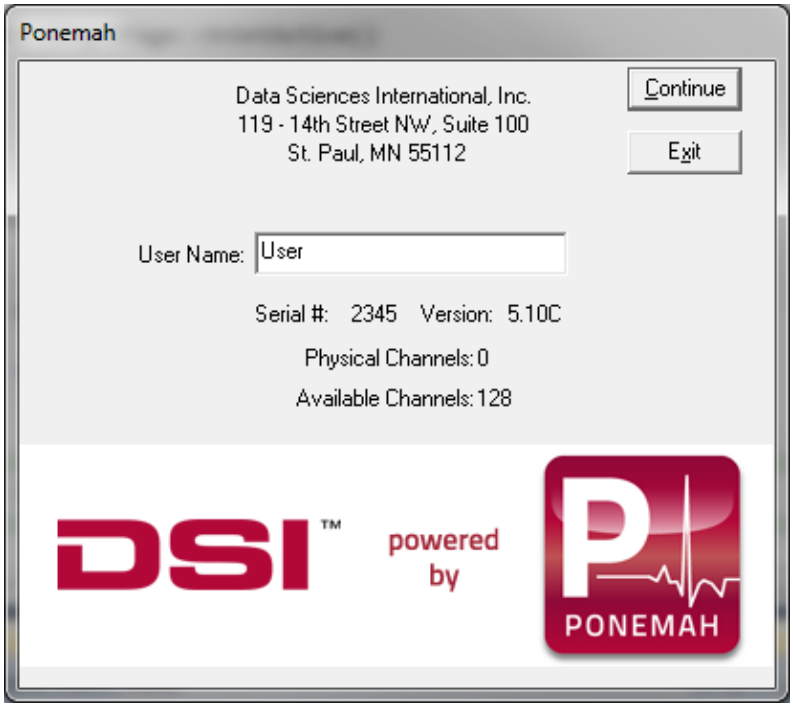
After the software has been installed, start the software by double clicking on the **P3 Plus** icon. If the software has been installed correctly, the system will display a dialog that the application needs a license file.



License File message

Click on the **OK** button and the user will be prompted to enter a license file. Insert the supplied license floppy disk and select the license file from the floppy.

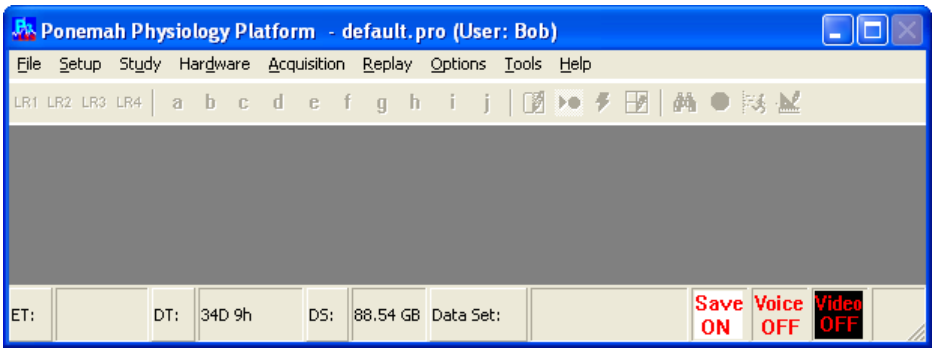
After the license has been loaded, the main P3 Plus dialog will appear as displayed below.



Main P3 Plus Dialog

The User Name that is entered will be recalled automatically the next time the system is started. The name entered here will be used on all printouts and audit logs for identification of the data collected.

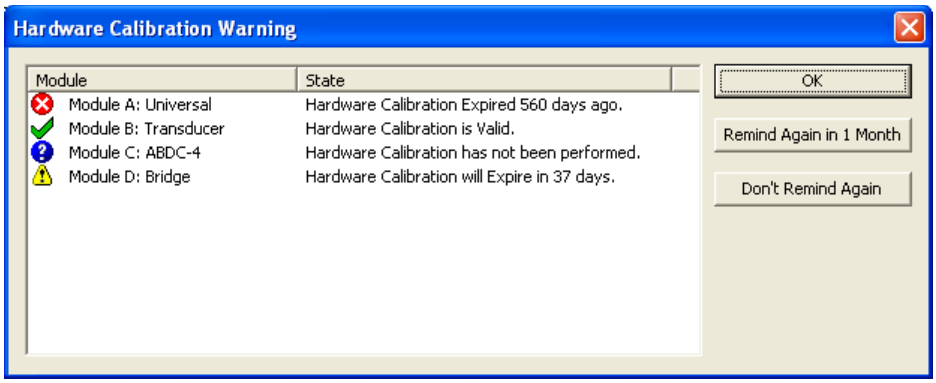
After clicking on the Continue button, the Main screen will be displayed as shown below. The user is now ready to begin setting up, acquiring and analyzing the input data.



The P3 Plus software includes a "default" setup to help the user get started. If a problem occurred during the installation, the system will report the error. See the Troubleshooting section in the Appendix if this occurs.

Calibration of Amplifiers

If one of the amplifiers is nearing its calibration due date or has past its calibration due date a dialog will appear. An example of one of these dialogs is shown below.



This dialog will appear every time P3 Plus is started and also when an acquisition is started or stopped (when amplifiers are near or past their calibration). There are four types of icons for easy reference.

This information will be written to the Application Log.

 - Yellow Warning

This icon will appear if the amplifier is getting close to its calibration date. If the amplifier is within 90 days of calibration, this icon will appear.

 - Blue Information

This icon will appear if the calibration date is not stored electronically on the amplifier. The calibration date printed on the amplifier will need to be checked.

 - Green Check Mark

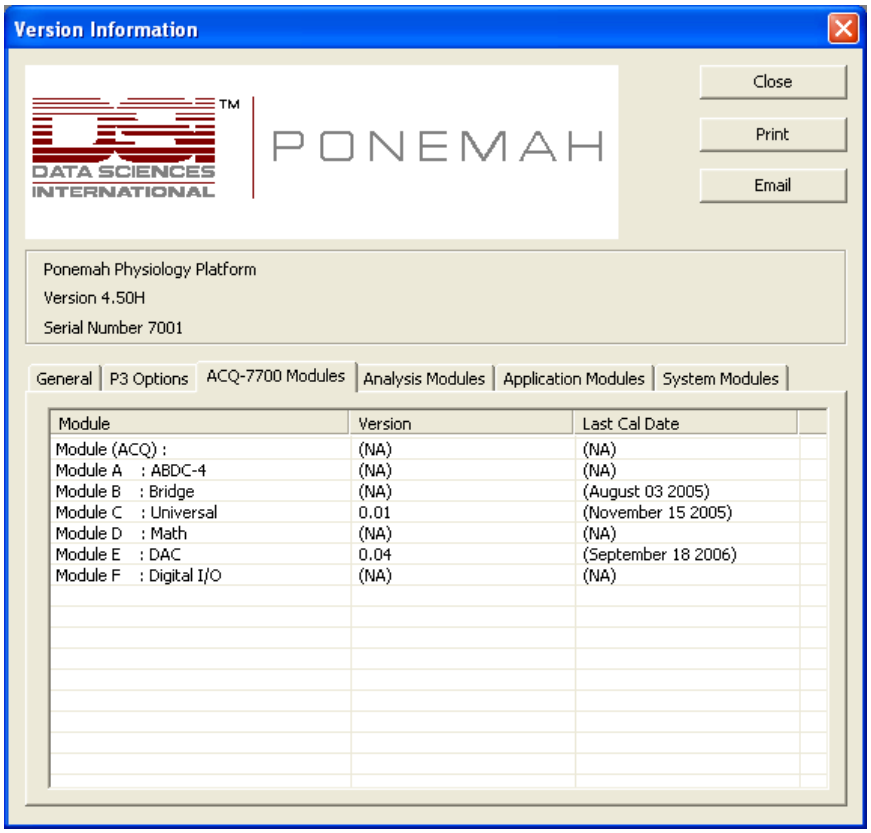
This icon will appear if the amplifier is within calibration and is more than 90 days from its next calibration.

 - Red X

This icon will appear if the amplifier is past its calibration date. The amount of days that have expired will be listed.

Product Information

More information can be viewed regarding each amplifier. If the user selects **Product Information** from the **Help** menu and selects the **ACQ-7700 Modules** tab, a dialog similar to the one listed below will appear.



This tab lists each module, the DSP Version, and the Last Cal Date of each amplifier. If a DSP does not exist on an amplifier it will be listed as (NA). If the calibration date cannot be stored electronically on the amplifier it will be listed as (NA).

Maintenance

Introduction

This section describes routine maintenance procedures for the ACQ7700 USB. If the unit needs repair, consult the local Service Representative. Service/repair parts are available from the factory. A detailed parts list may be obtained from the factory upon request.

Cleaning

General

To maintain proper operation, clean the ACQ7700 USB when necessary as described below. If the ACQ7700 USB is used in dirty or dusty environments, cleaning should be performed more frequently.

When necessary, power down the recording system and gently wipe the case with a damp rag using a mild soap and water solution. Allow surfaces to dry thoroughly before installing signal conditioners in the case.

Filter

The air filter is located on the bottom of the ACQ7700 USB for the 2 and 6 slot and on the rear for the 13 slot. This filter should be inspected and cleaned periodically. If the ACQ7700 USB is used in dirty or dusty environments, cleaning should be performed frequently.

To inspect or clean the filter, turn off the ACQ7700 USB and remove the power cord.

For the 2 slot: Use slight force to remove the filter retainer.

For the 6 slot: Unscrew the four Phillips screws retaining the filter cover, lift the cover off, and remove the filter.

For the 13 slot: Pull on one side of the filter guard, it should snap off, and remove the filter.

Visually inspect the filter and if it requires cleaning wash it in a mild soap and water solution. Rinse the soap out thoroughly, shake out the excess water, and air dry. Be sure the filter is completely dry before reinstalling.

Re-Certification of Performance

For continued safe operation and verification of specifications, it is recommended that the ACQ7700 USB, including the signal conditioners, be recertified (calibrated) annually by the factory. For further information please contact Technical Support at 1-800-262-9687 or e-mail support@datasci.com.

Accessories / Replacement Parts

Hospital grade power cable with NEMA 5-15P plug cap (P02198) (supplied)

For North America 230V, a NEMA 6-15P plug cap may be required.

USB 2.0 Cable, 2 meters long (P02124-2) (supplied)

Note: Replace cables when subjected to deterioration or abuse

Appendix

Specifications

Electrical	
Line Voltage	Auto-switching 120/240VAC (±10%)
Line Frequency	50/60Hz
Fuse (2 slot)	Not serviceable
Fuse (6 slot)	T/250V 3.5A (Internal, not serviceable)
Fuse (13 slot)	T/250V 6.3A (Internal, not serviceable)
Analog Inputs	
Maximum Input Number	128 (dependent on ACQ-7700 signal conditioners)
Acquisition System	
Maximum Aggregate Sample Rate	1M samples/second (dependent on system)
Resolution	16 bit, signal conditioner dependent
Auxiliary Output	
Outputs	3 TTL level I/O lines
Inputs	1 TTL level I/O line
Environmental	
Storage Temperature	-25 to 85°C
Operation Temperature	0 to 40°C
Humidity	20% to 80% Relative Humidity
Altitude	2000m
Physical Size (2 slot)	
Height	7.2 inches (18.3cm)
Width	4.3 inches (10.9cm)
Depth	11.7 inches (29.7cm)
Weight	5 pounds (2.26kg)
Physical Size (6 slot)	
Height	6.75 inches (17.15cm)
Width	10.5 inches (26.65cm)
Depth	17 inches (43.18cm)

Weight	12 pounds (5.5kg)
Physical Size (13 slot)	
Height	9 inches (22.86cm)
Width	17.5 inches (44.45cm)
Depth	14.5 inches (36.83cm)
Weight	27 pounds (12.2kg)
Safety	
Equipment Classification	Class 1, continuous operation, and IP20
Pollution	Degree 2 - Equipment should be stored or operated where no conductive pollution occurs

Troubleshooting

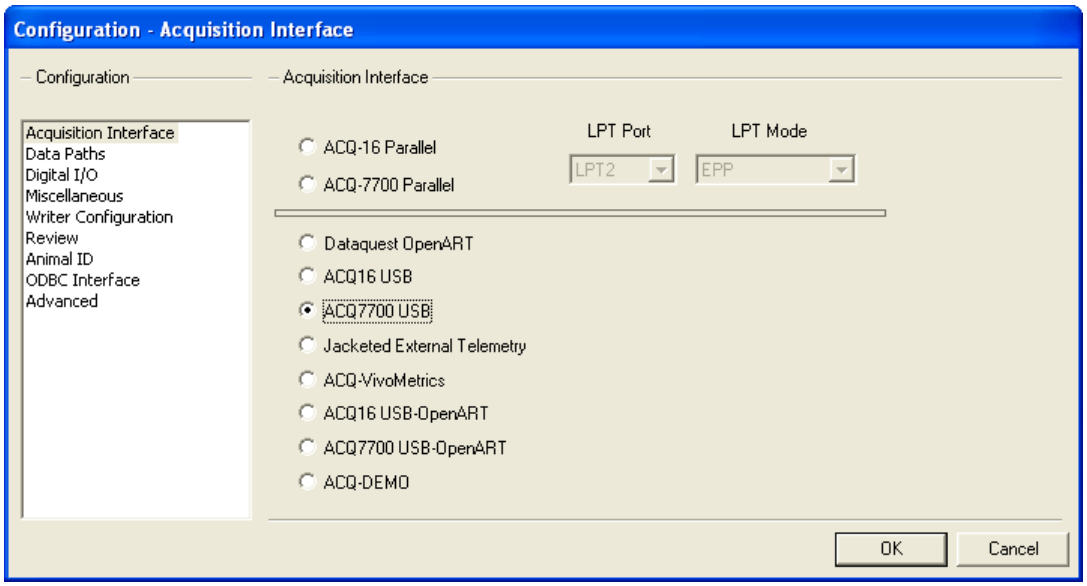
If the system displays the following message on startup, **Acquisition Unit Not Found**, then verify the following:

1. The ACQ7700 USB is powered up and the USB port cable is connected to the personal computer.
2. Windows device driver needs to be functional. Check the device through the Hardware Devices menu.

Interface Configuration

The configuration of the application interface is done within P3 Plus. Select **Application Configuration** from the **Options** menu and select the **Acquisition Interface** tab.

Below is an example of the **Application Configuration** dialog.



Declaration Electromagnetic Emissions/Immunity

Electromagnetic Emissions/Immunity Tables

Guidance and manufacturer's declaration – electromagnetic emissions		
The equipment is intended for use in the electromagnetic environment specified below. The customer or the user of the equipment should assure that it is used in such an environment.		
Emissions Test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions EN 55011	Group 1	The equipment uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
Harmonic emissions EN 61000-3-2	Class A	
Voltage fluctuations / flicker emissions EN 61000-3-3	Complies	The equipment is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.

Guidance and manufacturer's declaration - electromagnetic immunity			
The equipment is intended for use in the electromagnetic environment specified below. The customer or the user of the equipment should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) EN 61000-4-2	±6kV contact ±8kV air	Complies	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst EN 61000-4-4	±2kV for power supply lines ±1kV for input / output lines	Complies	Mains power quality should be that of a typical commercial or hospital environment.
Surge EN 61000-4-5	±1kV differential mode ±2kV common mode	Complies	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines EN 61000-4-11	<5% *Ut* (>95% dip in *Ut*) for 0,5 cycle 40% *Ut* (60% dip in *Ut*) for 5 cycles 70% *Ut* (30% dip in *Ut*) for 25 cycles <5% *Ut* (>95% dip in *Ut*) for 5 sec	Complies	Mains power quality should be that of a typical commercial or hospital environment. If the user of the equipment requires continued operation during power mains interruptions, it is recommended that the equipment be powered from an uninterruptible power supply or a battery.
EN-61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: *Ut* is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity

The equipment is intended for use in the electromagnetic environment specified below. The customer or the user of the equipment should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the equipment, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF EN 61000-4-6	3Vrms 150kHz to 80MHz	3Vrms	$d = [\frac{3,5}{10}]\sqrt{P}$
Radiated RF EN 61000-4-3	3V/m 80MHz to 2,5GHz	3V/m	$d = [\frac{3,5}{10}]\sqrt{P}$ 80MHz to 800MHz $d = [\frac{7}{10}]\sqrt{P}$ 800MHz to 2,5GHz Where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1: At 80MHz and 800MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Field strengths from fixed transmitters, such as base stations for radio (cellular / cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the equipment is used exceeds the applicable RF compliance level above, the equipment should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the equipment.

Over the frequency range 150kHz to 80MHz, field strengths should be less than 10V/m.

Sécurité

Cette information générale de sécurité est pour l'utilisateur et le personnel de service. Des AVERTISSEMENTS et les ATTENTIONS spécifiques seront trouvés dans tout le manuel là où il est applicable.

LIMITES ET SYMBOLES DE CE MANUEL ET SUR L'ÉQUIPEMENT

ATTENTION : Consultez les documents d'accompagnement, Ce symbole indique des paragraphes fournissant des informations d'avertissement et détaillées au sujet d'une pièce spécifique de l'instrument. Qu'une partie de l'équipement est également identifiée par ce symbole (voir les références à ce symbole dans le manuel).

AVERTISSEMENT, risque de décharge électrique

C.A., courant alternative

L'Équipement de classe CF Preuve de Defibrillation

La terre d'Equipotentiality/chassis

EN ATTENTE (le courant passe, instrument eteint en mode 'attente')

OUTRE DE (débranchage aux forces à C.A.)

EN MARCHE (raccordement aux forces à C.A.)

Les produits de DSI/Ponemah ne sont pas "les dispositifs médicaux" prévus pour être employés pour les buts du diagnostic de la maladie ou d'autres conditions, ou dans le traitement, la réduction, ou la prévention de la maladie, ou pour être employés comme dispositif de soutien de la vie. L'utilisation des produits de DSI/Ponemah sont seulement pour les buts de conduire la recherche de la science de vie.

AVERTISSEMENT

SI CET INSTRUMENT EST ACTIONNÉ OU UTILISÉ de quelque sorte NON INDIQUÉ, LA PROTECTION FOURNIE PAR LE SYSTÈME PEUT ÊTRE ALTÉRÉE. N'EMPLOYEZ PAS EN PRÉSENCE DES ANESTHÉSIQUES INFLAMMABLES OU AGENTS INFLAMMABLES.

SOURCE D'ÉNERGIE

Cet instrument est prévu pour fonctionner à l'intérieur à partir d'une source d'énergie qui n'applique pas plus de 250 volts de RMS entre les conducteurs d'approvisionnement ou entre l'un ou l'autre conducteur d'approvisionnement et la terre. Une prise de terre protectrice par le conducteur de terre dans le cable électrique est exigée. Si l'unité est montée dans une installation permanente (c.-à-d. monté sur crémaillère), l'utilisateur DOIT permettre d'accéder à la prise OU relier l'instrument à un circuit avec un commutateur ou un disjoncteur accessibles à l'utilisateur. Le cable électrique détachable est le moyen par lequel les forces sont débranchées.

CORRECTEMENT RECTIFIER L'INSTRUMENT

Cet instrument est fondu par le cordon du secteur. C'est un dispositif de la classe 1. Fondre la fiabilité peut seulement être réalisé quand l'équipement est relié à un réceptacle de catégorie d'hôpital. Utilisez seulement le cordon et le connecteur de secteur indiqués pour votre instrument. Employez seulement un cordon de secteur qui est en bon état.

Après la perte du raccordement du protecteur-terre, toutes les pièces conductrices accessibles (y compris des boutons et des contrôles qui peuvent sembler être isolés) peuvent rendre une décharge électrique.

L'instrument est équipé d'un conducteur potentiel d'égalization sur le vrai panneau.

EMPLOYEZ LES FILS TEST ET LES CÂBLES APPROPRIÉS

Les fils test et/ou les câbles d'interconnexion peuvent porter des tensions de phase DANGEREUSES. Ils doivent être examinés régulièrement pour l'usage. Des fils ou les câbles usés devraient être remplacés.

L'amplificateur a été conçu et examiné pour la protection contre les effets de la décharge d'un défibrillateur cardiaque. Pour l'exploitation sûre, n'employez que les câbles équipés d'amplificateur.

PLACEMENT DE L'ÉLECTRODE ECG

L'utilisateur devrait s'assurer que toutes les électrodes employées, y compris l'électrode neutre, n'entrent en contact avec aucune partie conductrice, y compris la terre.

Chaque fois qu'un défibrillateur est utilisé, assurez que les fils sont placés sur les endroits appropriés sur le sujet. Les fils ne devraient jamais être placés sur les surfaces au sol. Vérifiez que les fils du défibrillateur ne sont pas placés directement sur les électrodes ECG.

N'EMPLOYEZ PAS AVEC L'ÉQUIPEMENT CHIRURGICAL DE HAUTE FRÉQUENCE

Il est impératif que les électrodes d'ECG soient enlevées du sujet avant d'utiliser n'importe quel équipement chirurgical de haute fréquence. Cet équipement ne fournit pas des moyens protecteurs contre des brûlures quand l'équipement est utilisé avec l'équipement chirurgical de haute fréquence.

ADDITION DU COURANT DE RISQUE

L'amplificateur a été conçu et examiné pour répondre à des spécifications de fuite courantes une fois attaché au sujet. N'importe quel matériel supplémentaire ajouté au sujet peut augmenter la fuite. L'opérateur devrait se rendre compte de l'addition possible des courants additionnels de fuite quand le matériel supplémentaire est relié au sujet.

UTILISATION AVEC DES STIMULATEURS

L'opérateur devrait se rendre compte de tous les interactions ou risques en matière de sécurité possibles quand l'amplificateur est utilisé en même temps que les stimulateurs cardiaques et d'autres dispositifs de stimulant. Le fabricant de ces dispositifs devrait être consulté pour toute information supplémentaire.

EMI/RFI

L'amplificateur a été examiné pour répondre à des normes de susceptibilité et de rayonnement d'EMI/RFI. Cependant, l'utilisateur devrait se rendre compte des interactions électromagnétiques possibles entre ce dispositif et d'autres dispositifs dans le même secteur et corriger la situation si nécessaire. N'importe quel type de feuille conductrice mis à une terre électrique et placé entre la source et l'équipement aidera à réduire l'IEM.

AVERTISSEMENTS POUR LE PERSONNEL DE SERVICE AUTORISÉ

Les tensions dangereuses existent à plusieurs points dans cet instrument. Pour éviter des blessures, ne touchez pas les raccordements ou les composants exposés tandis que le courant passe. La personne à charge sur le type d'USB ACQ7700, la seule partie utile peut être un fusible. Débranchez l'appareil avant d'enlever les panneaux protecteurs ou remplacer fuses. Renvoyez l'unité à DSI pour le service et le calibrage.

UTILISEZ LE FUSIBLE APPROPRIÉ

Pour éviter le risque d'incendie, utilisez seulement un fusible du type correcte, de l'estimation de tension, et de l'estimation courante comme indiqué dans la liste des pièces pour votre instrument.

N'UTILISEZ PAS SANS COUVERTURES ET PANNEAUX INSTALLÉS

Pour éviter des blessures et des dommages aux équipments, l'utilisateur devrait débrancher l'appareil avant d'enlever les couvertures, les panneaux ou les attaches. Réinstallez les couvertures, les panneaux, et les attaches avant de rebrancher l'appareil.

Product Issue Report

Product Issue Report Form

Sales Person:

Customer Name:

Company:

Address:

Phone Number:

Email Address:

P3 Plus Version (including Service Pack):

Serial Number:

Priority:

Date:

Hardware:

Status of issue (check one)

[] Unreproduced [] Reproduced

[] Needs repair [] As intended

Computer hardware/software

Brand/Model:

CPU Speed:

RAM:

Operating System (including Service Pack):

Networked

[] Yes [] No

Issue:

Steps to Repeat

Feature Request

Feature Request Form

Sales Person:
Customer Name:
Company:
Address:

Phone Number:
Email Address:

P3 Plus Version (including Service Pack):
Serial Number:
Priority:
Date:
Hardware:

Feature (check one)

[] Unevaluated [] Pending
[] Implement [] Already Exists

Description: