



PC IMP View

INSTRUCTION MANUAL



THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2009

PULSAR IMP SERIES

PC IMP VIEW (SECOND EDITION)

August 2009

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Chapter 1 Start Here...

Congratulations on your purchase of a PC Imp software package. This software system has been developed over many years and represents the latest in high technology software for ultrasonic level measurement and control.

It has been designed to give you years of trouble free performance, and a few minutes spent reading this operating manual will ensure that your installation is as simple as possible.

About this Manual

It is important that this manual is referred to for correct installation and operation.

There are various parts of the manual that offer additional help or information as shown:

Tips



TIP

At various parts of this manual you will find tips to help you.

Additional Information

Additional Information

At various parts of the manual, you will find sections like this that explain specific items in more detail.

About the PC Imp Software

The PC Imp Software Package is a powerful tool that can be used in conjunction with your Pulsar Imp Process Measurement Equipment to aid you in getting the most from your Ultrasonic Level System.

It can be used to record all the Parameters for your applications, these can be saved to a floppy disk and stored. All parameters can be changed and downloaded to the instrument via your laptop. Remember it is most important to note that Parameters downloaded to an instrument must be extracted from the same software version as the system to which they are downloading otherwise errors due to incompatibility may occur.

The software can also be used to view Echo Profiles of your applications, these can be saved for your records or sent via e-mail back to Pulsar for expert analysis. Or, if you prefer you can print off an echo profile and fax it to us for an immediate response.

PC Imp software can be used to re-program your unit to the latest version of software, with any enhancements that it may contain.

System Requirements

Operating System	Windows 9X, 2000, ME, XP
Processor Speed	266 Mhz (Minimum)
Memory	64 Mb (Minimum)
Disk Space	6 Mb (approx)

Installing Your Software

Installation of the PC Imp Software is simple, just insert the CD into your drive and follow the instructions on the screen.

PC Imp will create its own directory under C:\Program Files\Imp PC or PC Imp Version xx called 'Imp PC' or PC Imp, dependant on software version.

If Autorun is not enabled on your computer, then you will need to click on your Start menu, click on Run, then use the Browse facility to locate the Set-up file in your CD drive.

Once the installation is complete, a shortcut icon will be created and installed onto your desktop, labelled 'Imp PC' or 'PC Imp', dependant on version of software simply double click on this icon to open the initial screen. As shown on page 8.

Connection Details

Connection to your computer is via a standard RS232 serial connection. A connector and lead can be supplied with your software package if requested.

We can also supply a USB/RS232 connector for computers with no nine way D type plug available.

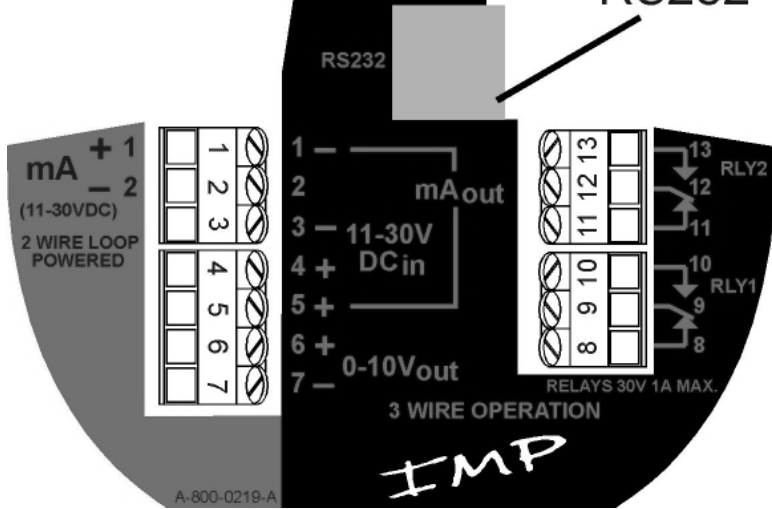
We would recommend that any connection leads required should be purchased from Pulsar to prevent any complications.

Connection to the Imp Unit is via an RJ11 plug, the connector socket can be found in-between the terminal blocks under the lid. As shown in the following illustration.

PULSAR

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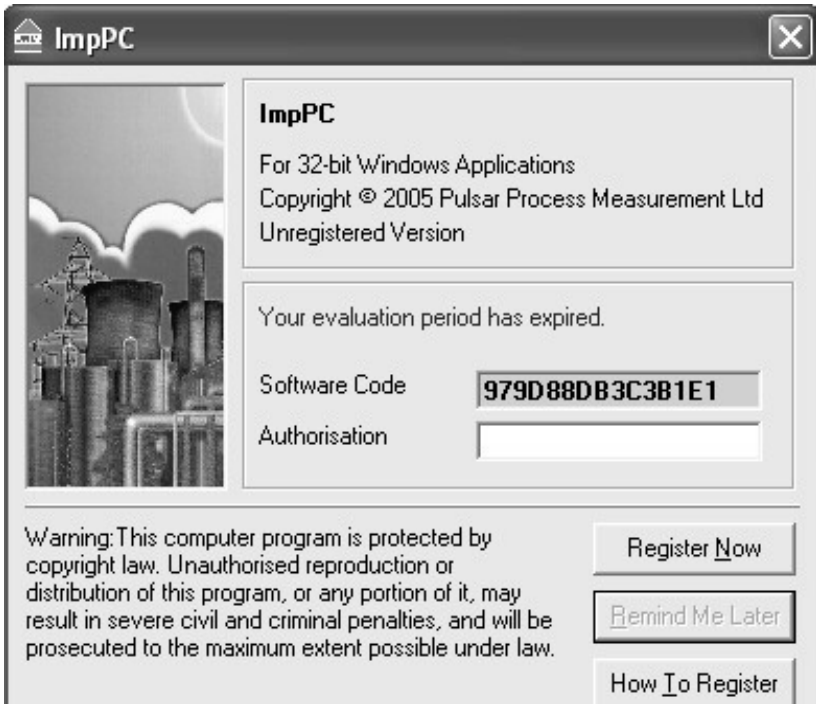
RJ12
RS232



Chapter 3 How To Run PC Imp

In order to run PC Imp once the installation is complete, double click the shortcut icon that has been installed onto your desktop, labelled 'Imp PC' or 'PC Imp', dependant on software version, this will open the initial screen . As shown below.

Screen 1.

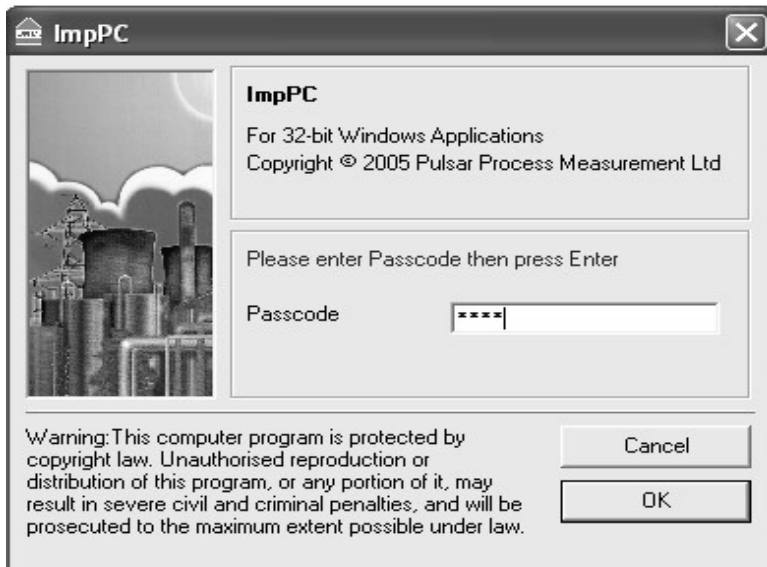


Your PC Imp program will run for 30 days until you register with us. To register, you will require your CD Serial Number (found on the back of the CD Jewel case) and the Software Code (displayed in the initial screen after starting up PC Imp), we will then provide you with an authorisation key to remove the evaluation limitation.

To obtain an authorisation key you can contact us by telephone on 0870 6039 112 or alternatively e-mail us at <http://www.pulsar-pm.com>, you can also use this e-mail address for any support issues that you may have.

When you obtain your authorisation key enter it into the Authorisation window in the opening screen and press the Register now key, your program will then be validated.

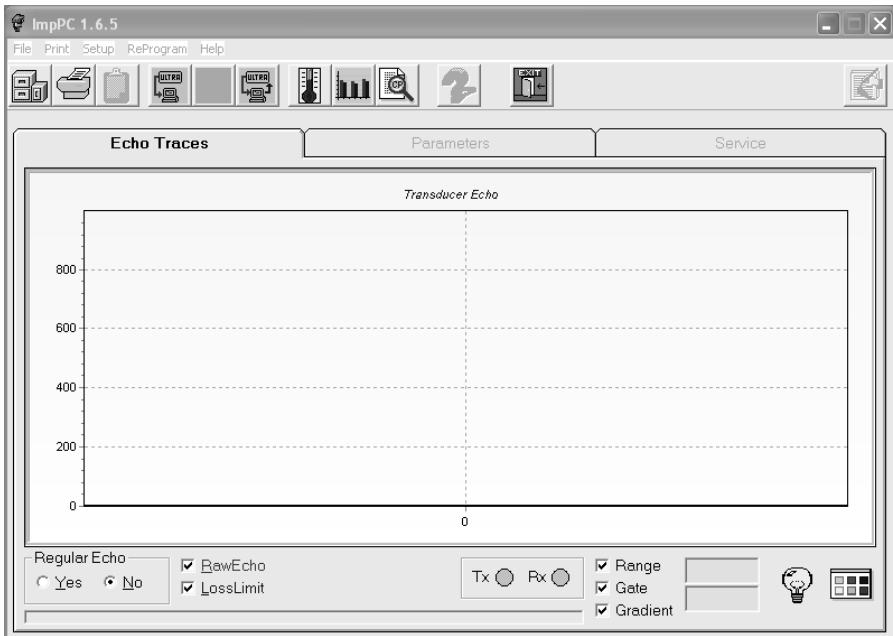
The screen below will appear if you have validated your program, or, you have pressed the remind me later key.



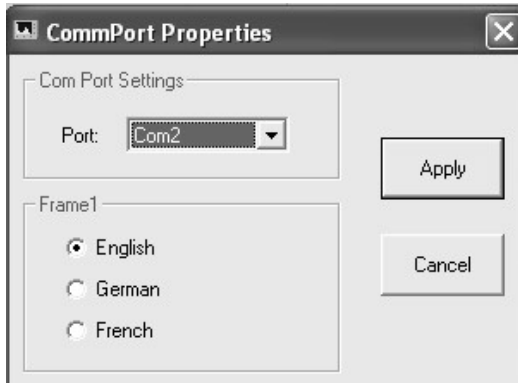
Key in the passcode 1997 and press enter to run your program.

When PC Imp has opened you will see a display similar to the one below.

Display Screen



Communication Port Configuration

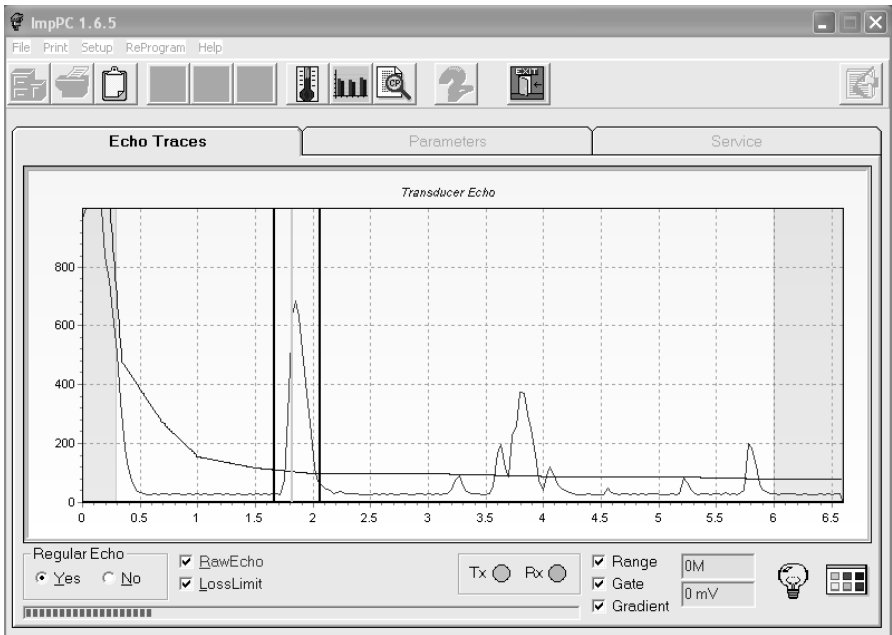


Select the port that you have connected the RS232 lead into, this is usually com port 1, but if you are using a USB to RS232 converter then the com port will be anything from com2 to com 10. To find out which ports are available and what devices are connected contact your system administrator or I.T. Department.

PC Imp is set up for a communications port using to the following configuration.

Baud Rate 19200, 8 (data bits), 1 (stop bit), N (no parity).

After exiting Setup go to Regular Echo at the bottom left of the screen and press “Yes”. After a few moments an echo profile should appear similar to the one shown below if not an error message will appear, consult the trouble shooting section of this manual.



Security and Passwords

Your PC Imp will cease to function after 30 days unless it has been registered with us and you have received your unique authorisation code.

PCImp has two layers of password protection. The password is entered at the opening screen, 1997 is the operator passcode and will give access to all the parameters required to program your application.

The service passcode is available if required from Pulsar this will give you access to service parameters which can be used to enhance the functionality of the Ultra unit in difficult application, these adjustments should only be undertaken under the guidance of Pulsar personnel.

General Navigation and Icons.

Once you have successfully opened your program you will see some drop down menus and icons at the top of the screen. (see **Display Screen** above)

Drop Down Menus.

None of the drop down menus can be accessed if you are viewing echo profiles. To access the drop down menu's click the 'no' button in the regular echoes box.

File

The top left hand dropdown menu is File. Clicking on it will give you the option of opening a previously stored parameter file, opening a previously stored echo file, saving parameters to file (provided you have first uploaded them from your Imp unit), or, logging off the unit and exiting PC Imp.

Print

The print menu gives you three options, the first, Print echo traces will open a TeeChart preview of the current displayed profile which you can alter to suit your requirements before printing.

The second option is to print (all) parameters, and the third to print only parameters that have been changed from their factory default values. You can either print directly or, print to a file.

The best way to obtain a hard copy of your parameter list is to print the parameters to a file, the parameter list will then be copied to a file of your choice in an Excel format. The list can then be printed out from Excel at your convenience.

Transfer

The transfer menu enables you to get parameters from the unit, send parameters to the unit, and program single parameters. These three options, are mimicked by the icons with the Computer and Ultra motif. For sending and receiving parameters follow the on screen commands. When you have uploaded the parameters from your unit a list of changed parameters will appear in the right hand side of your screen, pressing the toggle parameters icon (fourth from right) will, alternately clear the screen, show all parameters, clear the screen and show changed parameters again.

For single parameter programming, press the connector icon and, when the Interactive Programming display window appears, press the connector icon, this will connect your computer to your unit, key in the required parameter number, and press the read key. Change the value to the required amount and press send, the changed will be verified. Note: pressing the Hard Default or Factory Default icons will restore factory parameters to your unit and information will be lost if not previously saved.

Re-Program

You can re-program your Imp unit with new editions of software if you feel this will benefit your application, always consult Pulsar before attempting to re-program your unit as a failure during programming may result in an unserviceable unit. You will need a software version from Pulsar that can be e-mailed to you. Once you press the Re-program icon read the instructions on the screen before attempting to upgrade your software.

Make sure you take a copy of the parameters before Re-programming as once the procedure is complete you will need to default the unit back to its factory settings (hard default) before re entering the original parameter list.

Setup

Click on to Setup, choose your Comms Port and language then press Apply and exit the pop-up.

Help

Contact Pulsar for assistance.

Icons

If an icon is greyed out then that function is not accessible, for example, if you are viewing echoes then you cannot access files, to access files you must click no in the regular echo box then a file can be accessed.

File



File.ico

Clicking on this icon will enable you to search for any echo profiles or parameter files that you wish to open, view, or examine.

Clipboard



Clip.ico

Clicking on this icon will paste the current viewed echo profile onto your clipboard, from there it can be pasted into a document such as word for recording, viewing or reporting.

Print



Clicking on the Print icon opens a TeeChart preview of the current displayed profile which you can alter to suit your requirements before printing.

Parameter Manipulation



Upload.ico



download.ico



singleprogram.ico

The next three icons are to do with parameter extraction, parameter download and single parameter programming.

The first icon enables you to get parameters from the unit, the second icon enables you to send parameters to the unit, and the third icon enables you to alter single parameters. For sending and receiving parameters follow the on screen commands. When you have uploaded the parameters from your unit a list of changed parameters will appear in the right hand side of your screen, pressing the toggle parameters icon (fourth from right) will, alternately clear the screen, show all parameters, clear the screen and show changed parameters again.

For single parameter programming, press the single programming icon and, when the Interactive Programming display window appears, press the connector icon, this will connect your computer to your unit, key in the parameter number required, and press the read key. Change the value to the required amount and press send, the changed will be verified. Note: pressing the Hard Default or Factory Default icons will restore factory parameters to your unit and information will be lost if not previously saved.

Temperature Display



Temp.ico

Clicking on this icon will enable a small graph of temperature in the top right hand corner of the screen to be displayed. Clicking the icon again will switch the display off.

Level Display



Level.ico

Clicking on this icon will enable a small graph of level in the top right hand corner of the screen to be displayed. Clicking the icon again will switch the display off.

Status Display



Status.ico

Clicking on this icon will enable a small list of relevant information about the performance of the unit to be displayed in the top right hand corner of the screen. Clicking the icon again will switch the display off.

System Information



Info.ico

Clicking on this icon will enable a small list of relevant information regarding the type of unit you have serial numbers, software version, hardware version, number of relays etc, to be viewed. Clicking the icon again will switch the display off.

Help Menu



Help.ico

Clicking on this icon will give you the software version hardware version and serial number.

Exit



Exit1.ico

Clicking on the exit icon will take you out of the program.

Changed Parameters Display



Refresh.ico

When you have uploaded the parameters from your unit (or from your laptop) a list of changed parameters will appear in the right hand side of your screen. Pressing the toggle parameters icon (fourth from right) will, alternately clear the screen, show all parameters, (with the changed parameters highlighted in red) clear the screen and show changed parameters again.

Other Features

Backlight Display

Clicking on the backlight icon which is in the bottom right hand corner of the screen will turn the backlight for the echo display on and off.



Lightoff.ico



Lighton.ico

Background Colours

The icon shown below will enable you to alter the background colour of the PC Imp display to suit your requirements. Double click the icon and select the appropriate colour.



Display Options

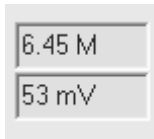
- Range
- Gate
- Gradient

Ticking the Range box will enable you to observe the Span of the instrument the 'near blanking' and 'far blanking' are highlighted in the display giving you a visual indication of the working span.

Ticking the Gate box will enable the gate to appear, the gate will wrap itself around the echo that it considers to be the correct one the Blue vertical line within the gate is the point of measurement.

Ticking the Gradient box allows the background colour to be 'graded' down the display giving a more presentable viewing area.

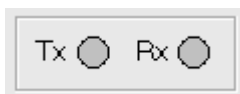
Cross Hairs



You can use the cross hairs as a measuring tool. Simply use your mouse to position the arrow where the measurement is required and view the readings for distance and signal return (milli-volts) in the boxes at the bottom right hand corner of your display. You can also use this tool to magnify any part of the echo you would like to view more closely, use the right mouse button to draw a box around the part of the echo you wish to view. To return the display to normal draw a box on any part of the display that is blank.

Transmit Receive Indication

The lights illuminate giving an indication of communications activity.



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Chapter 4 How to Use PC Imp

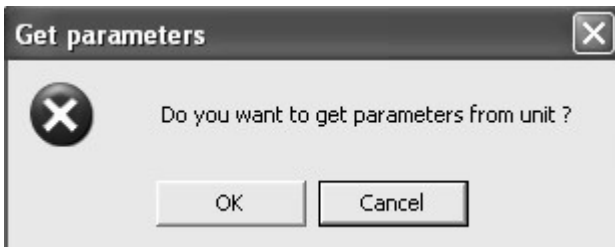
This chapter focuses on how to use the main features of PC Imp in greater detail.

Parameter Adjustment

A good first step is to download all the parameters and save them for future reference.

With your IMP powered up, and the RS232 lead connected, click the download parameters icon.

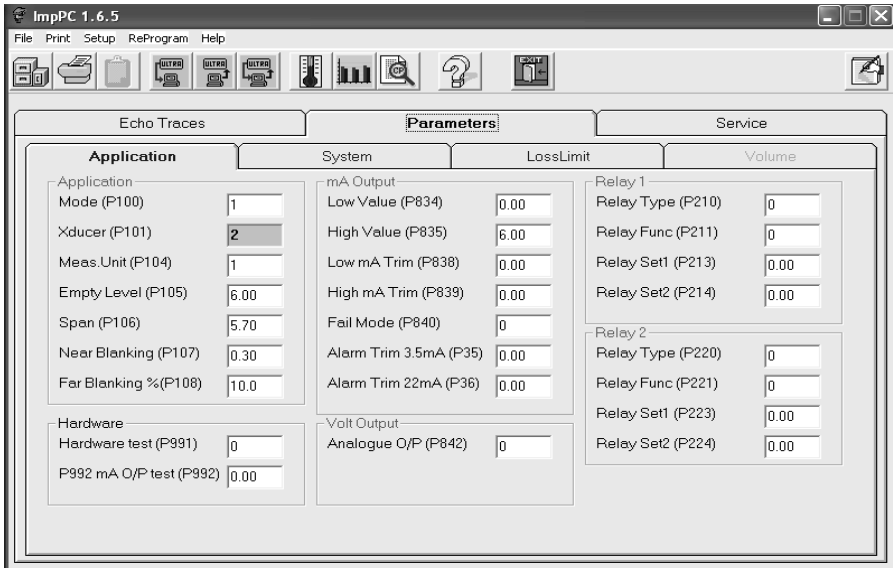
The following pop-up will appear.



Click OK to download parameters.

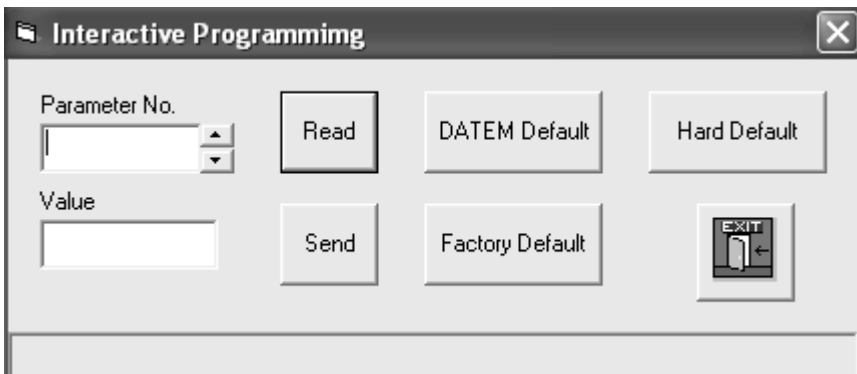
You will see a dialog box with a blue scroll bar, increasing as parameters are downloaded, if successful the TAB for will enabled, allowing you to view and change parameters.

You will then see a screen similar to the one below.



To alter parameter values click in the required field and enter the new value, use the 'send parameters' icon to download the new parameter settings to the Imp.

Parameters can also be changed using the single parameter programming icon which opens up a screen like the one below.



Having uploaded the parameters from your unit (or from your laptop) a list of changed parameters will appear in the right hand side of your screen, as shown below.

The screenshot shows the ImpPC 1.7 software interface. On the left, there is a graph titled "Echo Traces" with a sub-tab "Parameters". The graph area is currently empty, with the text "Transducer Echo" centered above it. The y-axis ranges from 0 to 800. Below the graph, there are controls for "Regular Echo" (radio buttons for Yes and No, with No selected) and checkboxes for "RawEcho" and "LossLimit", both of which are checked. A "Tx Rx" button is also visible.

On the right side of the interface, there is a table listing parameters:

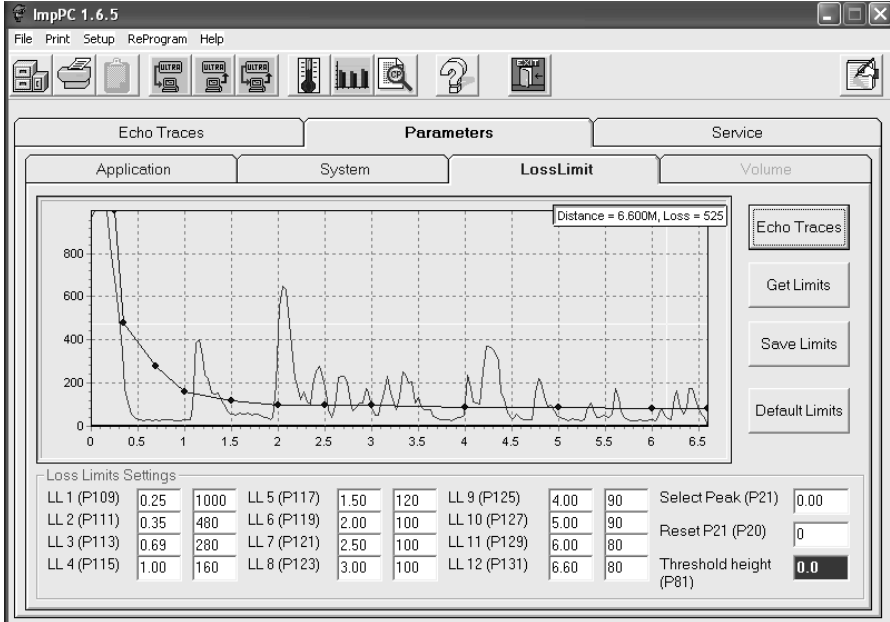
Par.	Description	Value	Default
P100	Mode (P100)	2	1
P104	Meas Unit (P104)	3	1
P210	Relay Type (P210)	2	0
P220	Relay Type (P220)	1	0
P213	Relay Set1 (P213)	10	0
P214	Relay Set2 (P214)	5	0
P223	Relay Set1 (P223)	6	0
P224	Relay Set2 (P224)	2	0
P800	Display Units (P800)	2	1
P801	Decimal Places (P801)	0	2
P809	Fail Time (P809)	3	2
P835	High Value (P835)	5700	6000
P808	Fail Mode (P808)	2	1
P852	Temp. Source (P852)	3	1
P854	Fixed Temp. (P854)	70	200
P111	LL 2 (P111)	410	350
P113	LL 3 (P113)	630	690
P114	LL 3 (P114)	200	28
P115	LL 4 (P115)	940	1000
P116	LL 4 (P116)	200	16
P117	LL 5 (P117)	1000	1500
P118	LL 5 (P118)	420	12
P119	LL 6 (P119)	1310	2000
P120	LL 6 (P120)	430	10
P121	LL 7 (P121)	1490	2500
P122	LL 7 (P122)	170	10
P81	Threshold height (P81)	0	7

Pressing the toggle parameters icon, (farthest to the right), will clear the list of parameters from the screen, activating the toggle parameters icon again will then show a list of all parameters, (with the changed parameters highlighted in red). Successive toggling of the icon will clear the list of parameters from the screen and display them in turn.

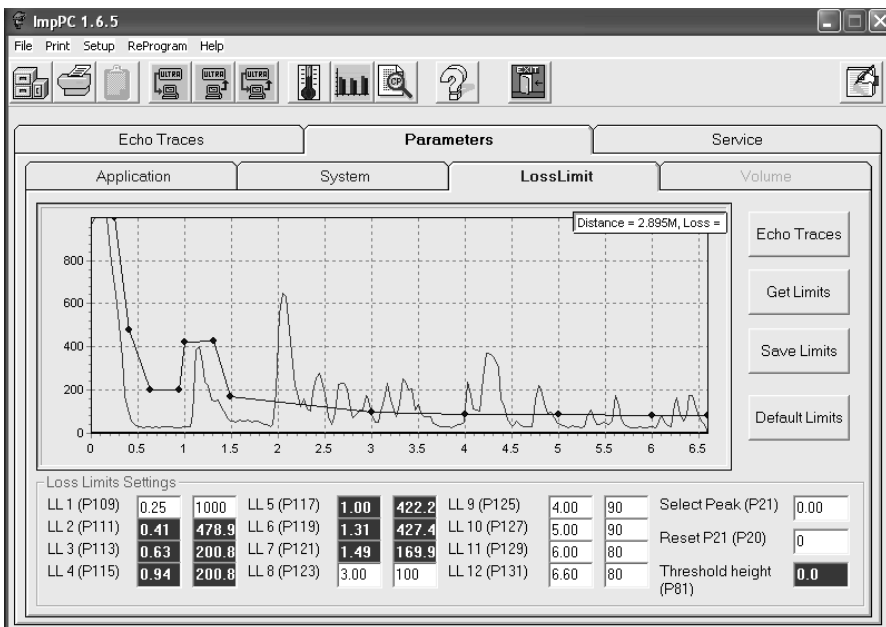
Par.	Description	Value	Default
P020	Reset P21 (P20)	0	0
P021	Select Peak (P21)	0	0
P028	Fing duration us (P28)	200	200
P033	Low Volt offset (P33)	0	0
P034	Hi Volt offset (P34)	0	0
P035	Alarm Trim 3.5mA (P35)	0	0
P036	Alarm Trim 22mA (P36)	0	0
P045	Echo Average (P45)	3	3
P047	Outside Count (P47)	3	3
P049	Scale First (P49)	40	40
P067	Echo Source (P67)	1	1
P086	Fing Delay sec (P86)	1.5	150
P088	Hard Default (P88)	0	0
P090	Customer ID (P90)	0	0
P100	Mode (P100)	2	1
P102	Material (P102)	1	1
P104	Meas Unit (P104)	3	1
P105	Empty Level (P105)	6000	6000
P106	Span (P106)	5700	5700
P107	Near Blanking (P107)	300	300
P108	Far Blanking % (P108)	10	10
P109	LL 1 (P109)	250	250
P110	LL 1 (P110)	1000	100
P111	LL 2 (P111)	410	350
P112	LL 2 (P112)	480	48
P113	LL 3 (P113)	630	690
P114	LL 3 (P114)	200	28
P115	LL 4 (P115)	940	1000

Setting and Adjustment of Loss Limits

After downloading parameters click on the loss limit tab a screen similar to the one below should appear. Click on the Echo Traces and Get Limits tabs to receive traces.



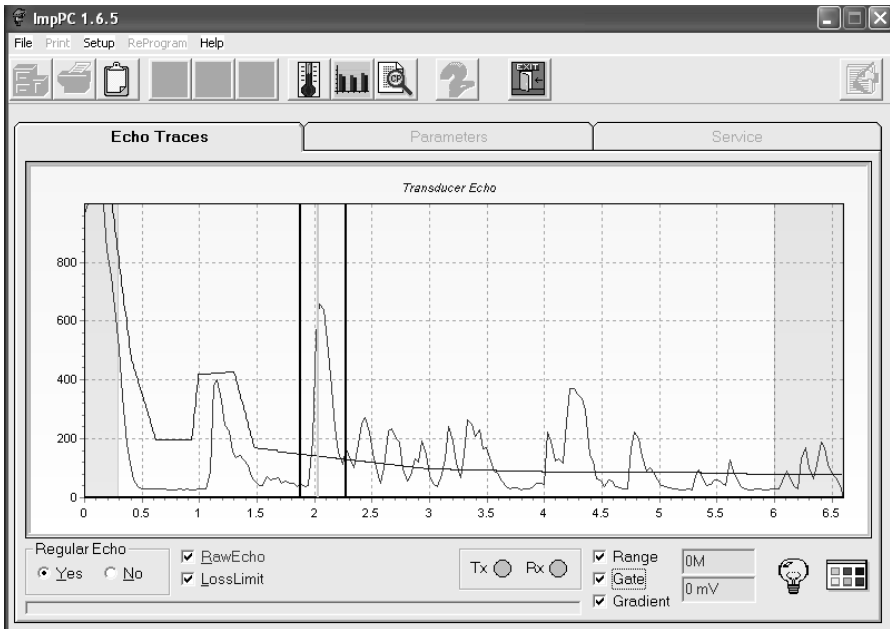
The dots on the blue line can be dragged and dropped in order to avoid the false echo at 1.2m as shown in the next screen.



The points highlighted in red have been adjusted in order to set the loss limits above the blue line, the unit only considers echoes above the blue line to be valid so the obstruction is now ignored by the unit.

Once the all correct loss limit points are set they can then be sent to the unit by clicking the save limits key.

The following screen will then appear when you return to the Echo Traces screen and click on regular echoes.



The echo being measured is now shown between the black vertical lines (the gate)

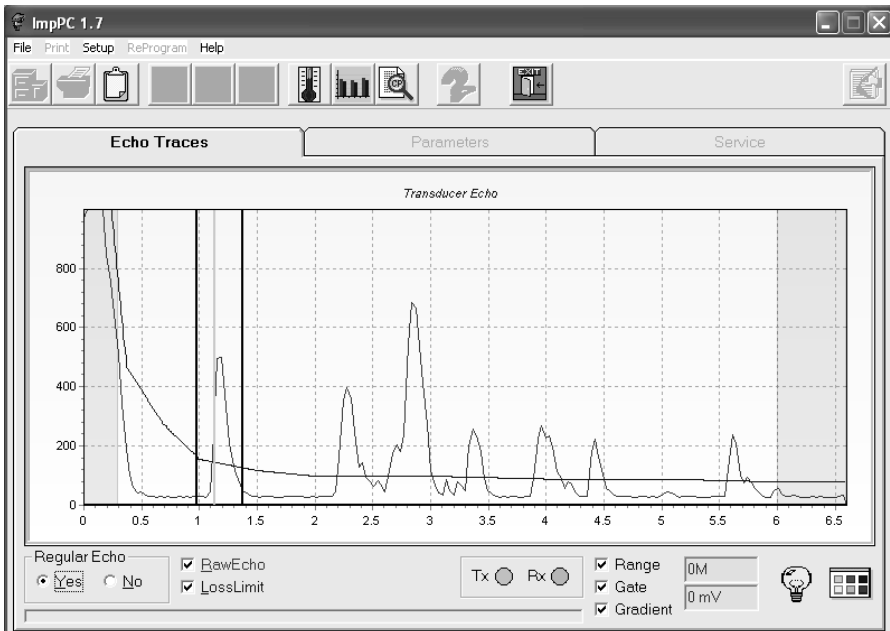
The vertical blue line is the point on the leading edge of the true echo that is being measured. In this case, just over 2m distance.

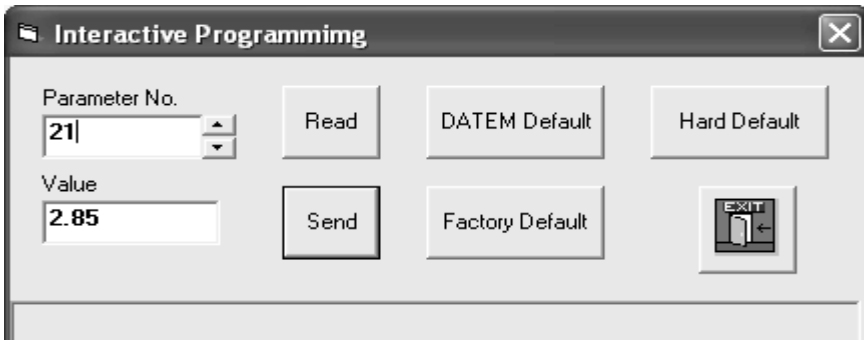
Using P21 to Mask Out False Echoes

Echoes can be masked out automatically by the unit instead of manually setting your loss limit values, to do this you need to go to parameter 21 and enter the distance to the target to within 10 cm. This procedure will then mask out any false echoes between the transducer and the true target.

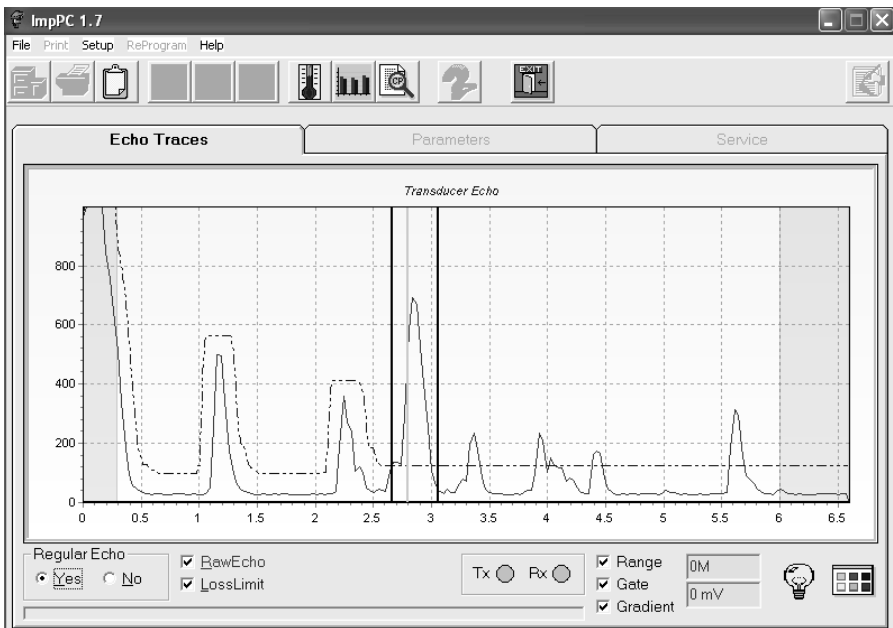
If the echo trace looks like the one shown below the unit may have locked on to a false echo, if the echo is in front of the true echo and has a certain amplitude then the unit will assume this is the true target.

Once we have told the unit where the true target is then the false echo is permanently mapped out.





The true echo is at 2.85 metres distance, we enter this value into P21 and the units display will then look like the one below with the false echoes mapped out and the true echo surrounded by the gate.

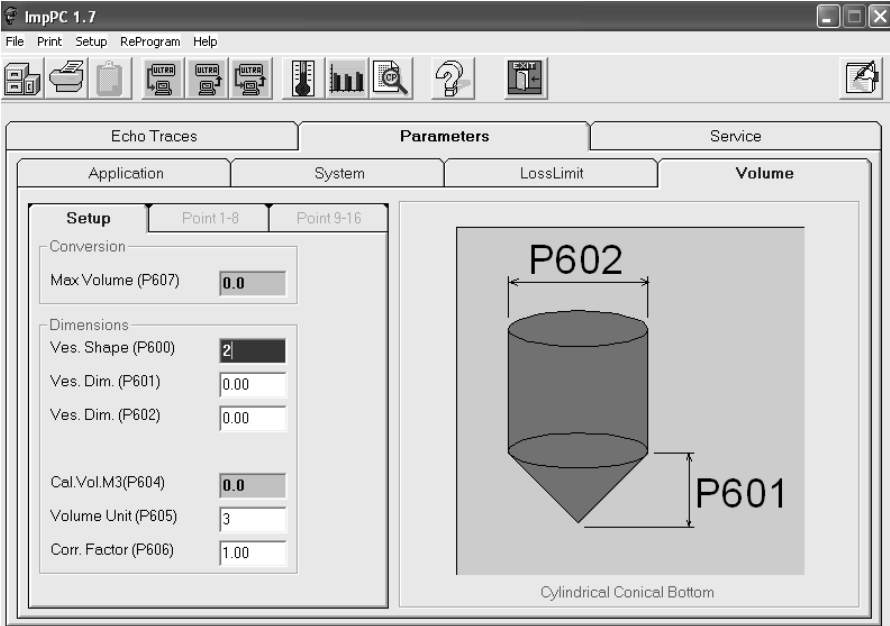


The dotted blue line indicates that the unit is using the loss limits adopted by performing a P21 rather than the values in the loss limit table.

Volume Conversion and Multi Point Curve Fit

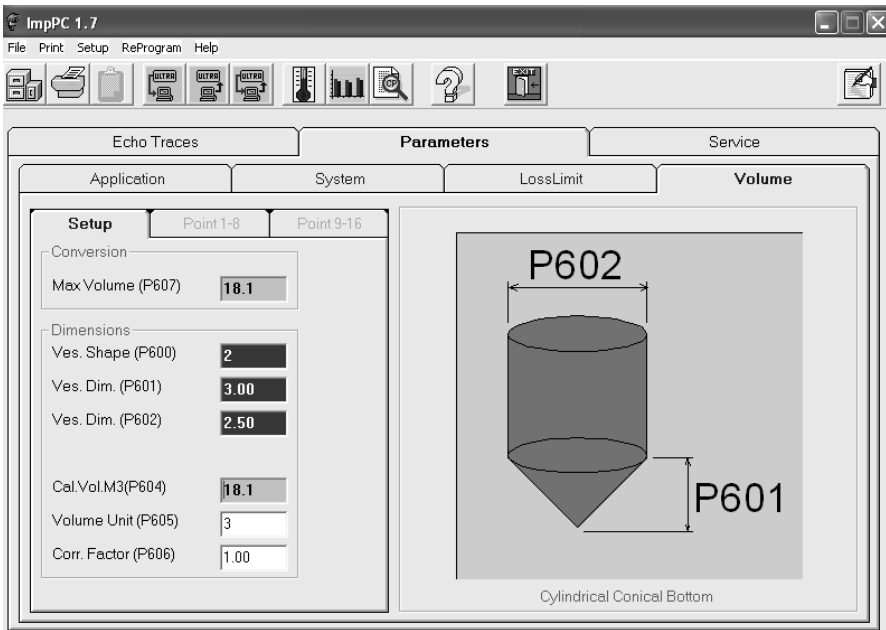
Volume Conversion

Setting P100 to 4 enables the volume tab to be seen.



Entering a value into P600 brings the vessel shape into view on the right hand side of the screen. In the example below vessel shape 2 has been entered, which is a cylindrical tank, with a cone shaped bottom.

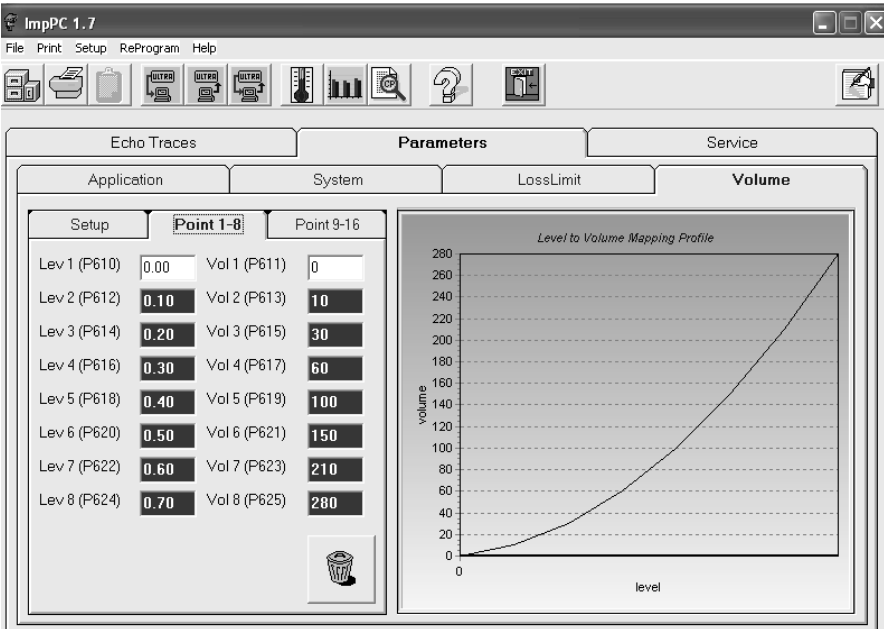
Enter your vessel dimensions and send to the unit. When you then retrieve your parameters the calculated volume should be present in parameter P604.



Multi Point Curve

There is also a multi-point linear/curved, level/volume fit available by entering 11 or 12 respectively.

When you have entered your head/flow points a display similar to the one below should appear.



Relay Settings.

For the Relays to work on the IMP, the IMP has to be wired in three wire mode.

In three wire mode the Backlight and Voltage Output will also function.

The relays can be set as 0 = off, 1= Alarm, 2 = Control.

Alarm

Relay 1	
Relay Type (P210)	1
Relay Func (P211)	1
Relay Set1 (P213)	1.5
Relay Set2 (P214)	1.4

Control

Relay 1	
Relay Type (P210)	2
Relay Func (P211)	1
Relay Set1 (P213)	1.5
Relay Set2 (P214)	1.4

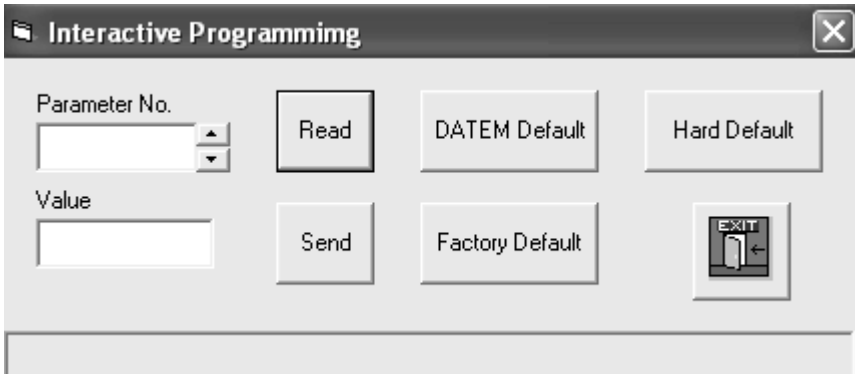
As you hover the mouse over the parameter window another window will appear giving you the options available.

Defaulting Imp to Factory Settings

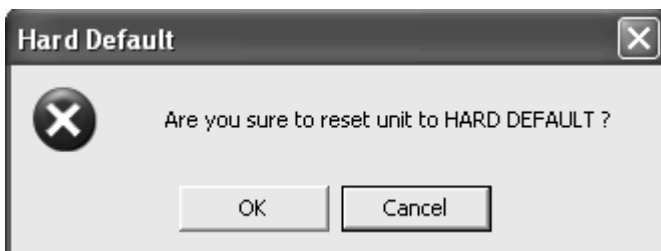
The unit can be defaulted via PC Imp.

There are two options for Parameter default values, Factory or Hard default.

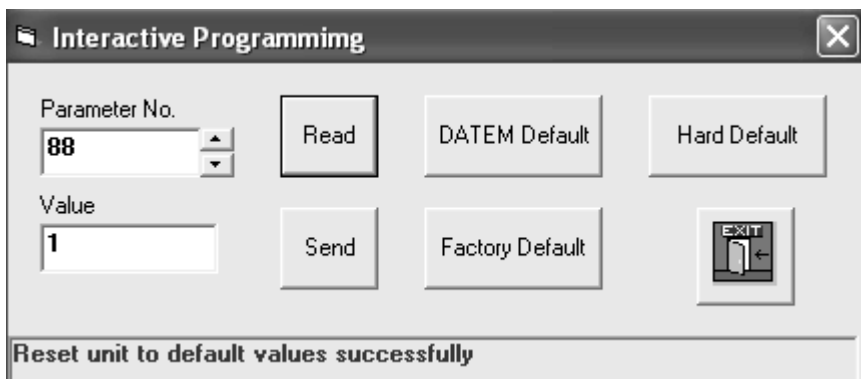
Factory default will set all the operator settings back to their original values, a Hard default will set all the operator and service parameters back to their original values



For example to Hard default



When the unit has successfully performed a (hard) reset the following window should appear.



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Troubleshooting

This section describes some problem symptoms, with suggestions as to what to do.

Symptom	What to Do
The program will not install correctly.	Check that your computer is running Windows 9x or better.
The program will not open.	Close down all other Windows applications that you may be running. PC Imp needs up to 65% of your resources to be able to run. To check this go to your Start menu click Settings then System then click the Performance tab.
The registration period has ended.	Contact the distributor of your software with your software code (see page 4).
The program and unit will not communicate.	Is your unit switched on, and stabbed for the correct voltage. Check the cable is installed correctly. Check that your comms port has been set correctly, (see page 8 for details).
The display will not show echo profiles.	The unit is not communicating with your computer (see above).
The unit is slow to accept key presses.	The unit is busy displaying regular echo profiles, switch the Regular echo tab to 'no'.

Frequently asked questions

Q When I connect my RS232 lead into my IMP it draws 20ma?

A When the IMP is connected as a two wire unit, i.e. loop powered , the IMP detects that an RS232 connection has been made, and switches on the RS232 interface, this needs extra current to run. Removing the RS232 connection after use, the IMP will return to normal.

Q What is the minimum voltage the IMP will run on?

A 11 volts, for standard IMP and 12Volts for IS version.

Q How long is it from switch on to the IMP getting a valid reading?

A When IMP boots, the time taken is 2 seconds for boot-loader, plus approx 20 seconds for the IMP to charge a main capacitor, then there is the echo lock time. The IMP looks for a target set to 50% of span, so worst case is about 15 seconds. Total time is 37 seconds, once the IMP has been powered up once the capacitor charge will last 24hrs, so next power up, the time to find and lock onto a valid echo will be 27 seconds.

Q What is the average current consumption in 3 wire mode?

A The IMP connected to a 24Volts supply, with the relays off, backlight off the average current consumption is 12ma for the IMP, 9ma for each relay, plus the 4-20ma current, the backlight current is about 12ma , which is switched off automatically after 2 minutes.

Q What is the IMP start up current in Loop power mode?

A The IMP will draw 12ma on start up, until it locks onto a valid target.

Q Can I leave my RS232 lead plugged in to the IMP permanently?

A The IMP is not designed to have the lead connected all the time.

Q When does the voltage output work?

A You have to connect the IMP in 3 wire mode, i.e. a auxiliary supply to terminal 4, this will enable the relays, backlight and 0-5Volt output, this voltage can be switched to 0-10Volt by setting P842 to 1. The voltage output mimics the 4-20ma demand except for the alarm modes.