QDSP

iSTAT Configuration and Analysis Software

Manual

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Publication Reference: QDSP/EN/M/C

GRID

ALSTOM

HANDLING OF ELECTRONIC EQUIPMENT

A person's normal movements can easily generate electrostatic potentials of several thousand volts. Discharge of these voltages into semiconductor devices when handling circuits can cause serious damage, which often may not be immediately apparent but the reliability of the circuit will have been reduced.

The electronic circuits of Alstom Grid products are immune to the relevant levels of electrostatic discharge when housed in their cases. Do not expose them to the risk of damage by withdrawing modules unnecessarily.

Each module incorporates the highest practicable protection for its semiconductor devices. However, if it becomes necessary to withdraw a module, the following precautions should be taken to preserve the high reliability and long life for which the equipment has been designed and manufactured.

1. Before removing a module, ensure that you are a same electrostatic potential as the equipment by touching the case.

2. Handle the module by its front-plate, frame, or edges of the printed circuit board. Avoid touching the electronic components, printed circuit track or connectors.

3. Do not pass the module to any person without first ensuring that you are both at the same electrostatic potential. Shaking hands achieves equipotential.

4. Place the module on an anti-static surface, or on a conducting surface that is at the same potential as you.

5. Store or transport the module in a conductive bag.

More information on safe working procedures for all electronic equipment can be found in BS5783 and IEC 60147-0F.

If you are making measurements on the internal electronic circuitry of equipment in service, it is preferable that you are earthed to the case with a conductive wrist strap.

Wrist straps should have a resistance to ground between 500k – 10M ohms. If a wrist strap is not available you should maintain regular contact with the case to prevent the build up of static. Instrumentation which may be used for making measurements should be earthed to the case whenever possible.

Alstom Grid strongly recommends that detailed investigations on the electronic circuitry, or modification work, should be carried out in a Special Handling Area such as described in BS5783 or IEC 60147-0F.

1. SAFETY SECTION

This Safety Section should be read before commencing any work on the equipment.

1.1 Health and Safety

The information in the Safety Section of the product documentation is intended to ensure that products are properly installed and handled in order to maintain them in a safe condition. It is assumed that everyone who will be associated with the equipment will be familiar with the contents of the Safety Section.

1.2 Explanation of symbols and labels

The meaning of symbols and labels may be used on the equipment or in the product documentation, is given below.

 Caution: refer to product documentation	 Caution: risk of electric shock
 Protective/safety *earth terminal	 Functional *earth terminal Note: This symbol may also be used for a protective/safety earth terminal if that terminal is part of a terminal block or sub-assembly e.g. power supply.

*NOTE: The term earth used throughout the product documentation is the direct equivalent of the North American term ground.

2. INSTALLING, COMMISSIONING AND SERVICING

Equipment connections

Personnel undertaking installation, commissioning or servicing work on this equipment should be aware of the correct working procedures to ensure safety. The product documentation should be consulted before installing, commissioning or servicing the equipment.

Terminals exposed during installation, commissioning and maintenance may present a hazardous voltage unless the equipment is electrically isolated.

If there is unlocked access to the rear of the equipment, care should be taken by all personnel to avoid electrical shock or energy hazards.

Voltage and current connections should be made using insulated crimp terminations to ensure that terminal block insulation requirements are maintained for safety. To ensure that wires are correctly terminated the correct crimp terminal and tool for the wire size should be used.

Before energising the equipment it must be earthed using the protective earth terminal, or the appropriate termination of the supply plug in the case of plug connected equipment. Omitting or disconnecting the equipment earth may cause a safety hazard.

The recommended minimum earth wire size is 2.5mm^2, unless otherwise stated in the technical data section of the product documentation.

Before energising the equipment, the following should be checked:

- Voltage rating, frequency and polarity
- VT ratio and phase sequence
- CT circuit rating and integrity of connections;
- Protective fuse rating;
- Integrity of earth connection (where applicable)
- Supply voltage

3. EQUIPMENT OPERATING CONDITIONS

The equipment should be operated within the specified electrical and environmental limits.

3.1 Current transformer circuits

Do not open the secondary circuit of a live CT since the high level voltage produced may be lethal to personnel and could damage insulation.

3.2 External resistors

Where external resistors are fitted to relays, these may present a risk of electric shock or burns, if touched.

3.3 Battery Replacement

Where internal batteries are fitted they should be replaced with the recommended type and be installed with the correct polarity, to avoid possible damage to the equipment.

3.4 Insulation and dielectric strength testing

Insulation testing may leave capacitors charged up to a hazardous voltage. At the end of each part of the test, the voltage should be gradually reduced to zero, to discharge capacitors, before the test leads are disconnected.

3.5 Insertion of modules and pcb cards

These must not be inserted into or withdrawn from equipment whist it is energised since this may result in damage.

3.6 Fibre optic communication

Where fibre optic communication devices are fitted, these should not be viewed directly. Optical power meters should be used to determine the operation or signal level of the device.

4. OLDER PRODUCTS

Electrical adjustments

Equipment's that require direct physical adjustments to their operating mechanism to change current or voltage settings should have the electrical power removed before making the change, to avoid any risk of electrical shock.

Mechanical adjustments

The electrical power to the relay contacts should be removed before checking any mechanical settings, to avoid any risk of electric shock.

Draw out case relays

Removal of the cover on equipment incorporating electromechanical operating elements, may expose hazardous live parts such as relay contacts.

Insertion and withdrawal of extender cards

When using an extender card, this should not be inserted or withdrawn from the equipment whilst it is energised. This is to avoid possible shock or damage hazards. Hazardous live voltages may be accessible on the extender card.

Insertion and withdrawal of heavy current test plugs

When using a heavy current test plug, CT shorting links must be in place before insertion or removal, to avoid potentially lethal voltages.

5. DECOMMISSIONING AND DISPOSAL

Decommissioning: The auxiliary supply circuit in the relay may include capacitors across the supply or to earth. To avoid electric shock or energy hazards, after completely isolating the supplies to the relay (both poles of any dc supply), the capacitors should be safely discharged via the external terminals prior to decommissioning.

Disposal: It is recommended that incineration and disposal to water courses is avoided. The product should be disposed of in a safe manner. Any products containing batteries should have them removed before disposal, taking precautions to avoid short circuits. Particular regulations within the country of operation, may apply to the disposal of lithium batteries.

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CONTENT

6. INTRODUCTION

6.1 General

The **QDSP** software can be used to program all communicating products in the iSTAT Transducer and Measurement Centre families.

It is simple to set-up and use, allowing fast configuration of the measurement devices.

This manual describes how to install the software, configure communications channels on the PC and describes the features of the software. For details of how to program a specific product refer to the technical manual for the product.

The QDSP software includes detailed help files, therefore this manual is only intended to get the user started with the software and familiarise them with the main features.

6.2 Products

The QDSP software runs under Microsoft Windows on a PC.

Minimum system Requirements

- Windows 98 / Millennium NT4.0 / 2000 / XP / Vista / 7
- 64 Mb RAM
- 100 MB available disk space
- Monitor with VGA resolution
- RS232 or USB communication port

There are two levels of installation for the software, both from the same CD or download

- **QDSP Standard** for setting and browser software. This software installation is free-of-charge.
- **QDSP Professional** for setting, browser, recording and Power Quality application software. This software requires a software license key to be purchased before it can be installed.

QDSP also offers additional features such as upgrading from a secure web site for both the **QDSP** software and the transducer firmware.

The QDSP software is available for download, or if the Professional version is purchased a copy will be supplied on CD along with the required CD-key.

6.3 Features

The following features are included:

- Standard type Microsoft interface, which is easy to read and navigate.
- The same programming interface for all product families, only the quantity of programming options changes depending on the features available in the product.
- Sample configuration files for each product which allows the setting options to be investigated without a product connected to the PC.
- Saving of a modified configuration file for later editing or download to the product.
- Upload of the entire product configuration and the relevant setting data (Modbus Holding Registers) from individual devices and presentation of the data.
- Changing the values of settings in the product using Modbus protocol.
- A communication browse function is included so that the communication parameters of all iSTAT products connected to the PC can be identified.
- Real time monitoring of the attached product allows periodic reading and displaying of the measurement data.

- Comprehensive Help files are available within the software

6.4 Communications

The iSTAT products can be fitted with a range of communications options, RS232, RS485, Ethernet and USB. Some products can also communicate using a memory card or Infra-red link. The QDSP software can support communication via all of these options depending on what the PC has fitted.

6.5 QDSP Software Functions

The QDSP has 5 main functions which are described in detail in later sections

6.5.1 Devices Management

The communications parameters for any connected device can be modified. Also included are browsers which scan the communications networks attached to the PC and identify all of the devices connected with their addresses and communications parameters. This can be done on RS232, RS485, USB and Ethernet connections.

6.5.2 Instrument settings

The instrument settings are organized in a tree structure and they can be modified simply as required. In addition to transferring settings to the instrument, QDSP can also store the data to settings files and read it back when required.

6.5.3 Real time measurements

All measurements can be displayed in real time in a table. Harmonics and their time-reconstruct signals are displayed graphically.

If further processing of the measurement data is required it can be copied via a clipboard and inserted into standard Windows formats.

6.5.4 Data Analysis

Analysis can be performed on the recorded data in the i5MR and i5MQ. Recorded values can be displayed in a tabular or graphical form. The events that triggered alarms can be analysed or a report on supply voltage quality can be made. All data can be exported to an Access database, Excel worksheet or a text file.

6.5.5 Software upgrading

It is suggested that the latest version of QDSP should always be used and if the system is also connected to the internet if will define if an upgrade is available for download.

7. INSTALLING QDSP

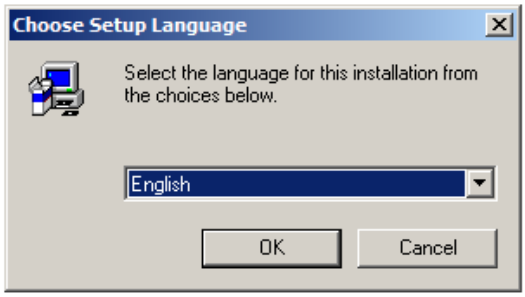
7.1 Obtaining the software

The standard version of the QDSP software is available free-of-charge. If the Professional version is purchased, the software will be supplied on a CD with the CD-key. The software is the same; it is only the installation that is different.

The software can also be copied from a CD or other storage media or downloaded as an upgrade from within QDSP. It will have a name similar to 'QDSP_1.00.0011.exe'. All of the following instructions will be the same however the software is obtained.

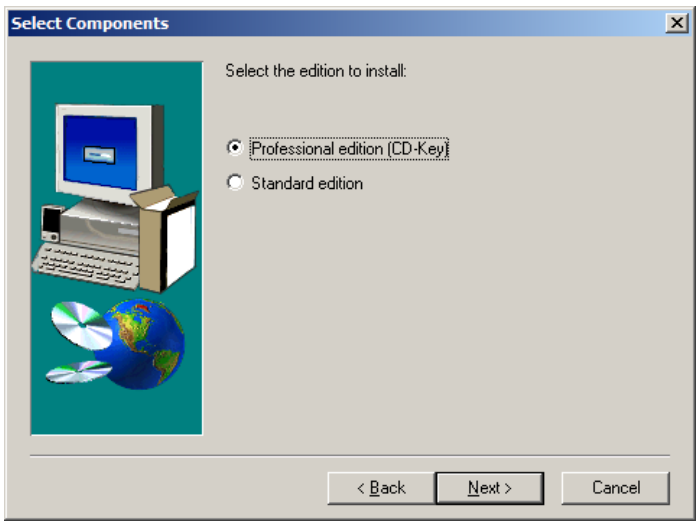
7.2 Installing the software

To install the software double-click on the 'QDSP'….exe' file name, and the software will self extract and start the installation process, by asking for the installation language.



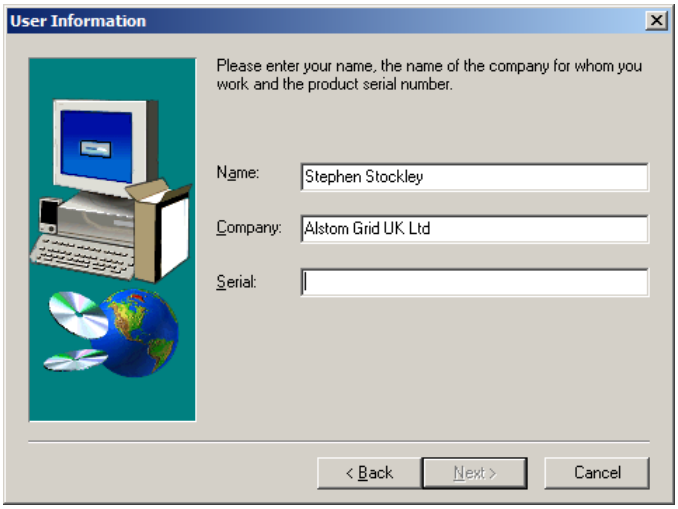
Then the following Setup screen will be seen

Follow the on screen instructions until the following screen is reached.



Unless the QDSP Professional version has been purchased the Standard version must be selected. If the Professional version is selected the licence CD-key will be requested as shown below (as Serial). If the Professional version is selected and a CD-key is not available to be entered the installation will have to be aborted and started from the beginning to install the Standard version.

The Company name should be entered correctly as this will appear on all data printouts.



Continue with the installation following the on screen instructions until the ‘Setup Complete’ screen is displayed. Click Finish to complete.

The installation program loads a shortcut for the QDSP program on to the Desktop of the PC which can be used to launch the program when required.

7.3 Compatibility with ‘Windows’ versions

The QDSP software has been designed to work with ‘Windows XP’, if it is installed on a computer running ‘Windows Vista’ or ‘Windows 7’ it has to be run in ‘XP Compatibility mode’. This is achieved as follows:

- QDSP should be installed as above
- After the installation the QDSP shortcut on the desktop should be opened with a right mouse click and ‘Properties’ selected.
- On the Compatibility screen the "Windows XP (Service Pack 3)" should be selected.

8. COMMUNICATIONS SETUP

The QDSP software can communicate with the iSTAT products via IR, RS232, RS485, USB and Ethernet. The option used will depend on which communication port is fitted to the product.

The QDSP software always uses Modbus protocol to communicate with the product.

8.1 Serial Communications

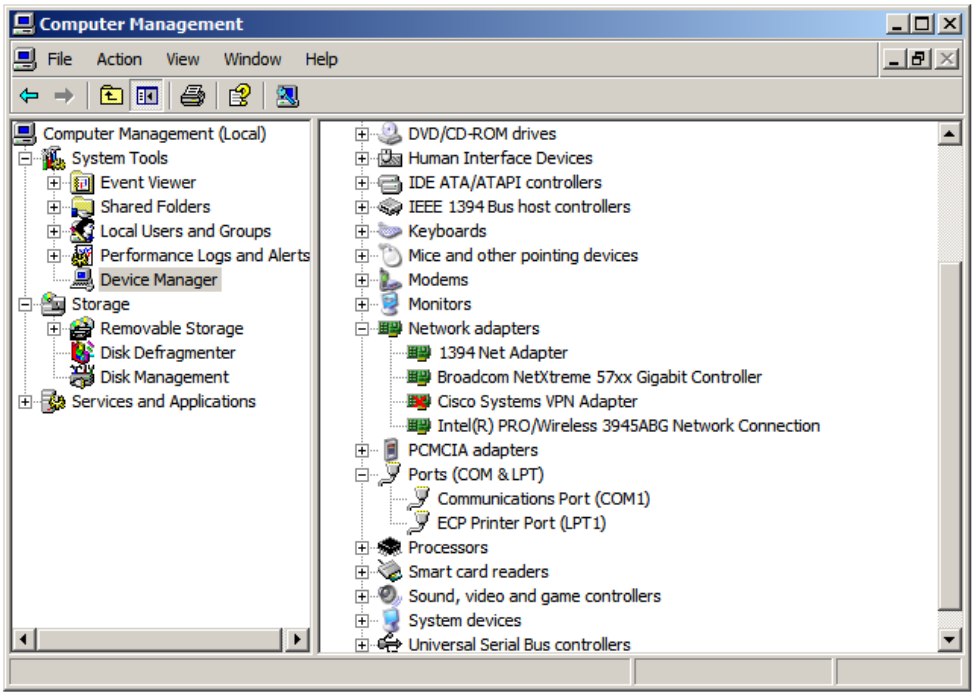
RS232 and RS485 communications are grouped in the QDSP software as Serial Communications. The QDSP interface is the same, but the hardware interface on the PC could be different.

8.1.1 RS232

The PC that is running QDSP can either be fitted with a dedicated RS232 port or it may have to use a RS232 to USB converter.

If a RS232 to USB converter is being used then it needs to be installed as defined in its instructions using the installation files supplied with the converter. The converter will be installed on a 'COM' port on the PC and the COM port number needs to be known to set up the link within QDSP. It is important that the converter is always plugged into the same USB port that it has been installed in or it may not work.

If the COM port number on the PC is not known this can be identified, but if a RS232 to USB converter is to be used it must be plugged in. To find the COM port being used right click with the mouse on the 'My Computer' ICON on the Desktop and select <Manage> to get the 'Computer Management' screen. Select <Device Manager> and 'Ports (COM & LPT)



A RS232 port will show as 'Communications Port' and the RS232 to USB converter will be identified along with its installation COM port.

8.1.2 RS485

Portable PC's usually cannot be fitted with RS485 ports; therefore an interface converter is required. This can be either an external RS232 to RS485 converter of a plug in RS485 to USB converter. It is suggested that a RS485 to USB converter is used as this can power itself from the USB port.

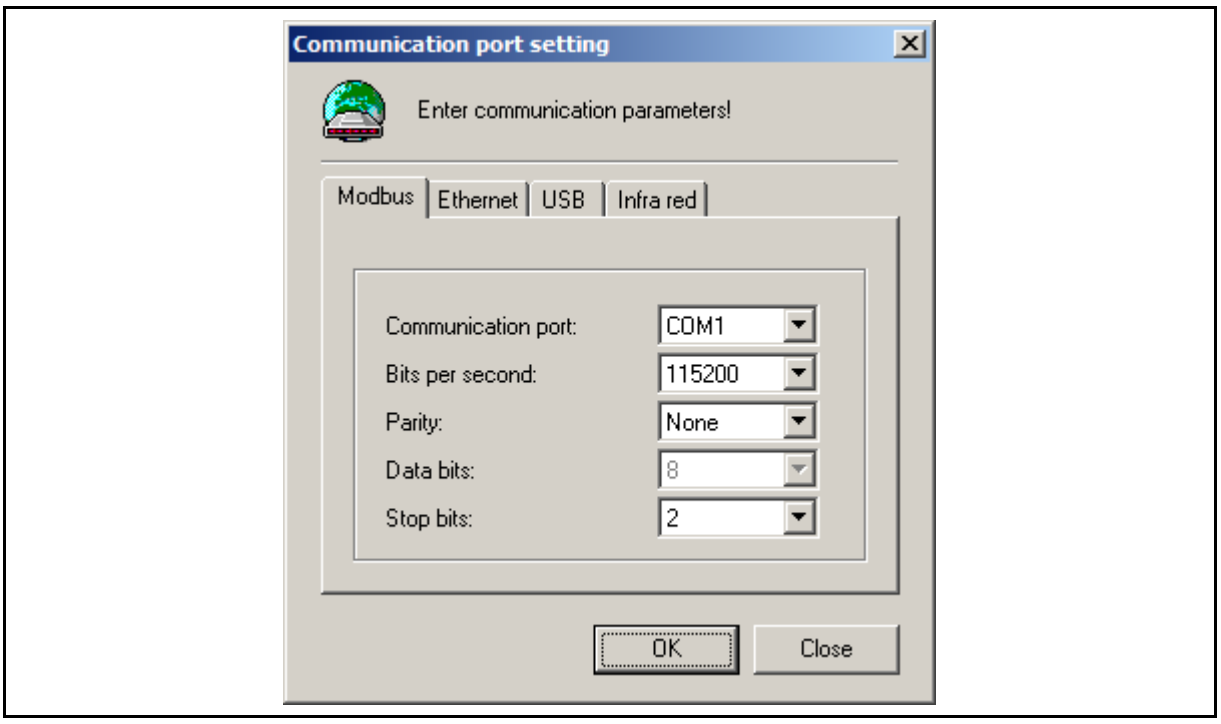
If an external RS232 to RS485 converter is used, there will be no installation required and the operation will be the same as for a RS232 port.

If a RS485 to USB converter is used, it is installed in the same way as for the RS232 to USB converter and the COM port number is obtained in the same way.

8.1.3 Serial Port Setup

The Serial Port setup is accessed by clicking <Devices><Communication port setting><Change Settings> or <Tools><Communication port setting>.

Note: If a USB to RS232 or RS485 converter is used the communication port settings for Modbus (Serial) must be configured; QDSP is communicating serially (using Modbus). The USB configuration must not be used; this should only be used for a direct USB connection when the product is fitted with a USB port



The COM port number being used should be defined along with the communications port settings for the iSTAT product connected. It is necessary that the communications settings of the PC match those of the product attached, if they are not known then they can be found using 'Scan the Network' (section 9.2).

8.2 USB

For those products that are supplied with a USB interface, direct communications via USB can be used. Before communications can be started the iSTAT product needs to be installed on the PC as a USB device. This installation is done for a specific USB port and the product must be connected to this port each time it is connected. If it is required that the product should communicate via any available USB port it needs to be installed on all of them.

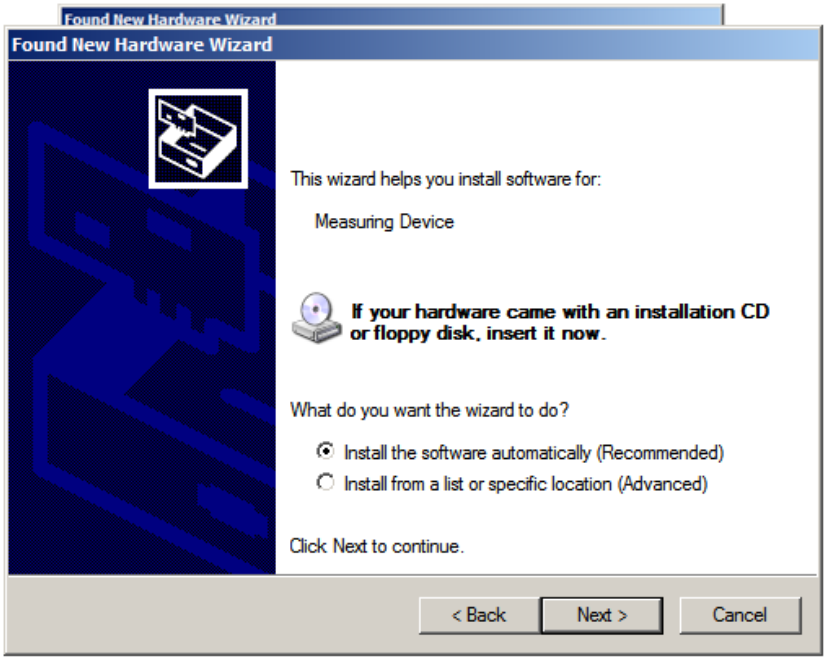
The products in the iSTAT range use more than one type of USB connector, for details of the connector type, and therefore USB cable type, see the product or its documentation.

8.2.1 Installing the USB driver

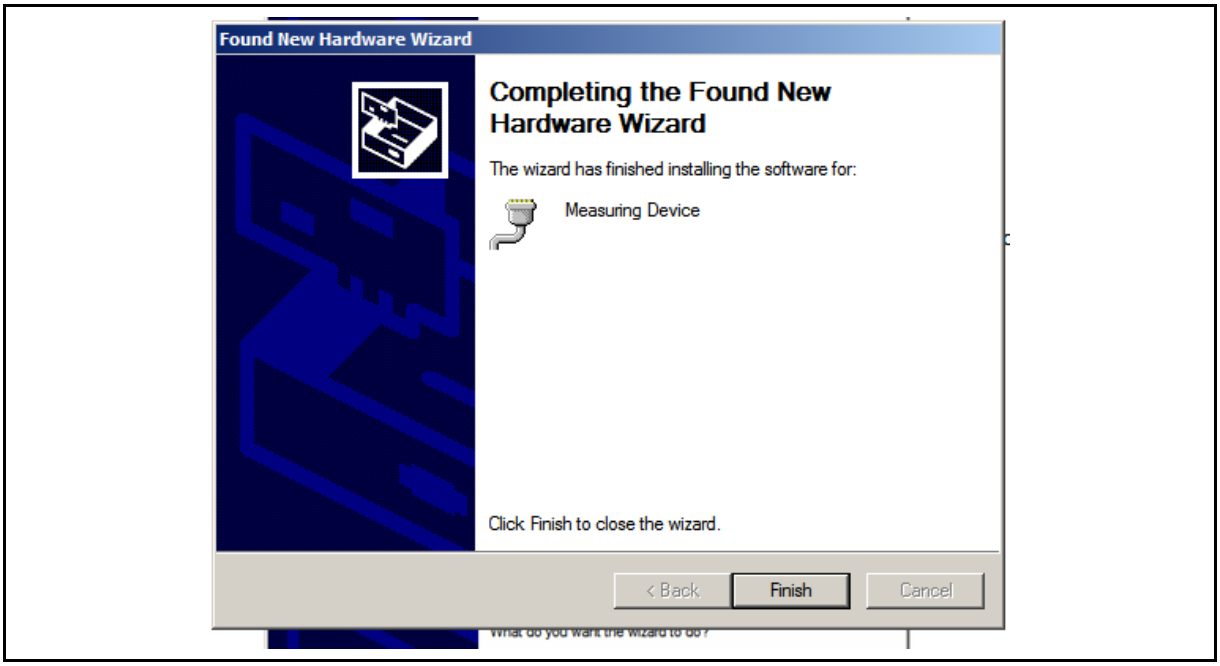
To use USB communications version 1.00.0007 or later of the QDSP software must be installed on the PC as the USB driver required is included. The following installation is described for Windows XP; the equivalent installation process should be followed for other operating systems.

Plug in the product to the required USB port and the PC should report that it has found a new USB device which is defined as ‘Measuring Device’. The ’Found New Hardware’ wizard will appear and ‘No, not this time’ should be selected.

Then the following screen is shown and the ‘Install the software automatically’ option should be selected.

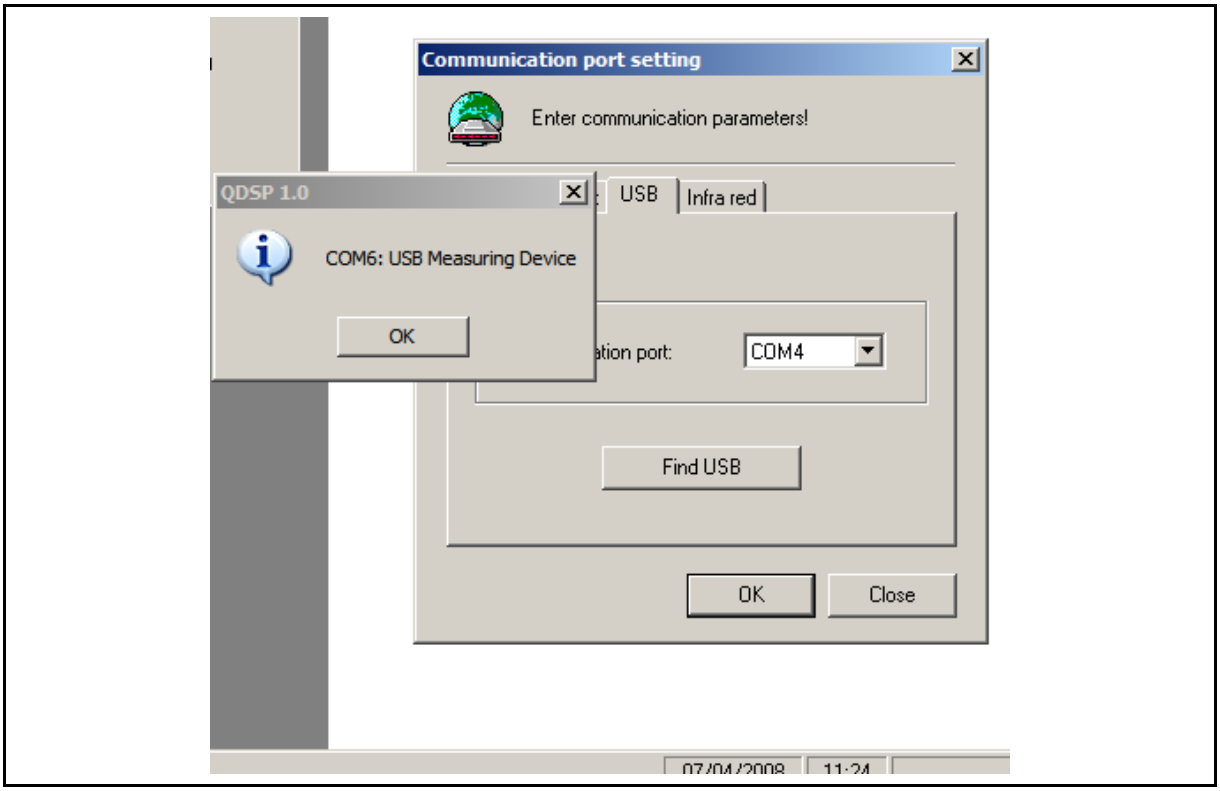


The software will now be installed which could take some time and then the completion screen will be displayed.



8.2.2 USB Port setup

The USB Port setup is accessed by clicking <Devices><Communication port setting><Change Settings> or <Tools><Communication port setting>



When ‘Find USB’ is selected the software will report which USB COM port is connected to an iSTAT product. When ‘OK’ is clicked the USB COM port reported as connected to the iSTAT product will be loaded as ‘Communication port’

8.3 Ethernet

When using the QDSP over Ethernet the set-up will depend on how the PC and the product are connected. The Communication interface must have a unique IP address in the Ethernet network. Two modes for assigning IP are available:

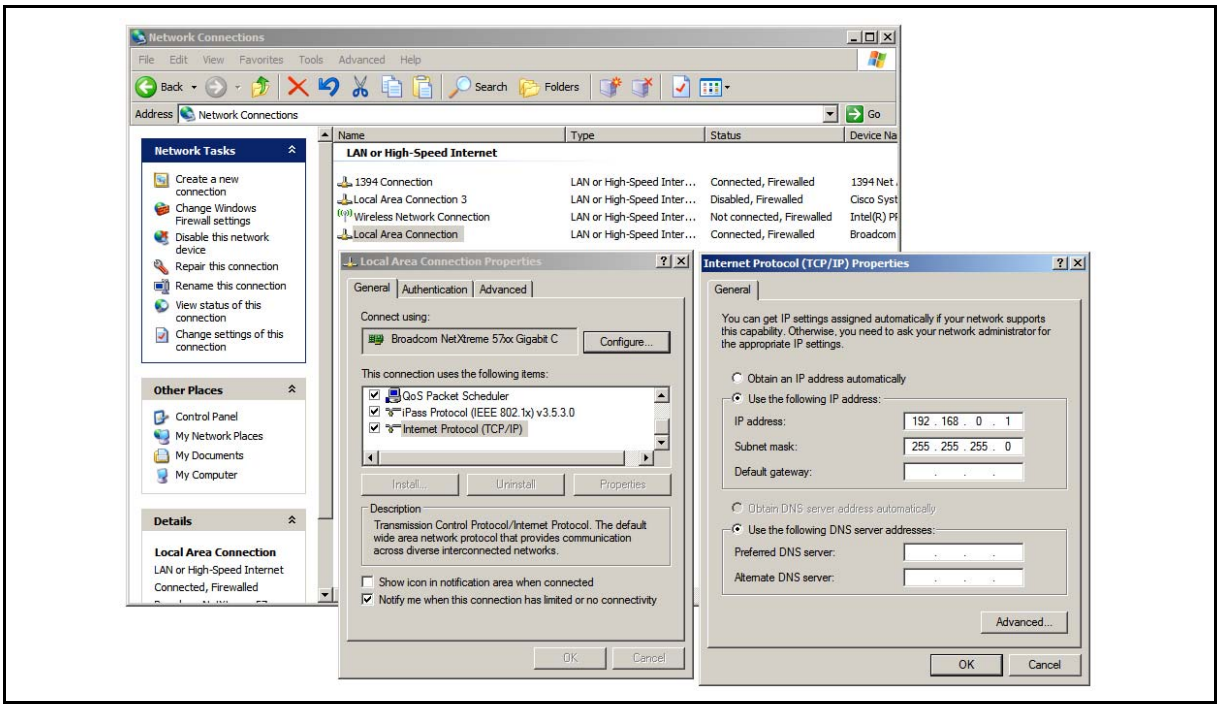
Fixed IP address: In most installations a fixed IP address is required. A system provider usually defines IP addresses. An IP address should be within a valid IP range, unique for your network and in the same Subnet mask as your PC.

DHCP: Automatic method of assigning IP addressed (DHCP) is used in most networks. If you are not sure if DHPC is used in your network, check it with your system provider.

8.3.1 Using Fixed IP address

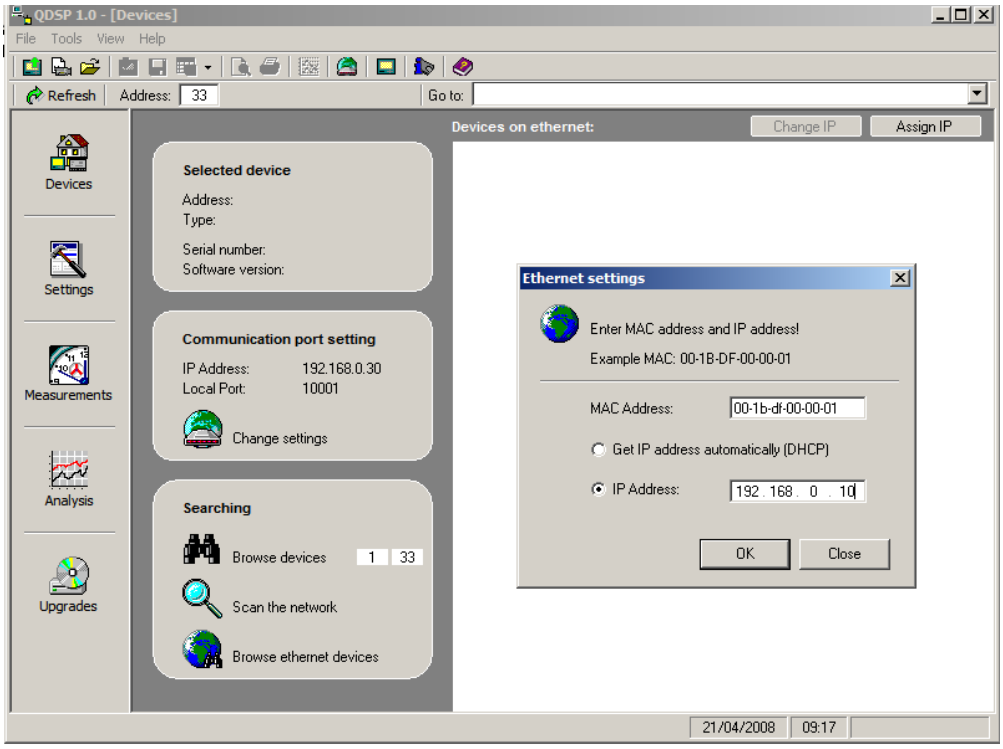
When the PC is directly connected to the Instrument a Fixed IP address will have to be used with the PC configured in the local area connection. If the connection is made without a Hub or Switch, the connection has to be made with a Crossover Ethernet cable.

To set the PC for local area connection, go to <Settings><Network Connections> then high-light the Local Area Connection, select 'Internet Protocol (TCP/IP)', right click and select 'Properties'. Select 'Use the following IP address' and define an IP address, it is suggested that it is set to 192.168.0.1., the Subnet mask will be set automatically. Click 'OK' to close the windows and setup the PC.

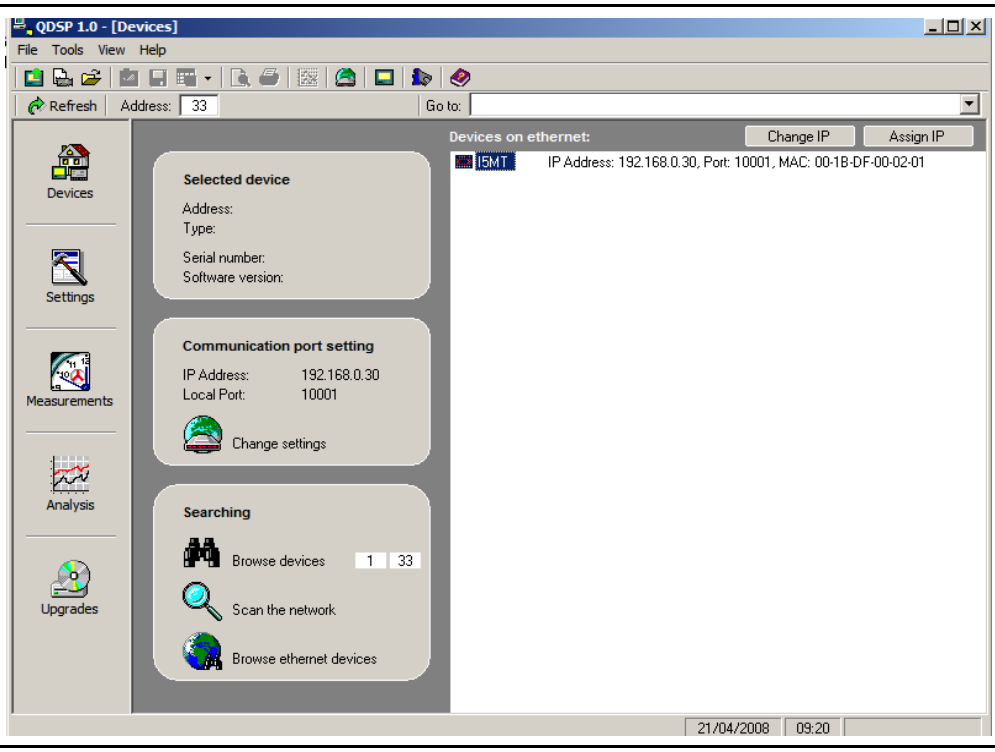


With the PC set to Local Area Connection and the device connected it is necessary to set an IP address in the device. Using the 'Browse Ethernet Devices' function (section 9.4) the product will not be found unless it has been previously assigned an IP address in the required range.

To set the required IP address select 'Assign IP' and enter the unique MAC address of the product, this will be found on the connection label on the side of the product. Then select 'IP address' and input an IP address in the same range as the PC, e.g. 192.168.0.10. After clicking 'OK' the product must be powered down and then restarted to complete the change of the IP address



Once the IP address has been set-up in the required range, ‘Browse Ethernet devices’ can be used to find the product.



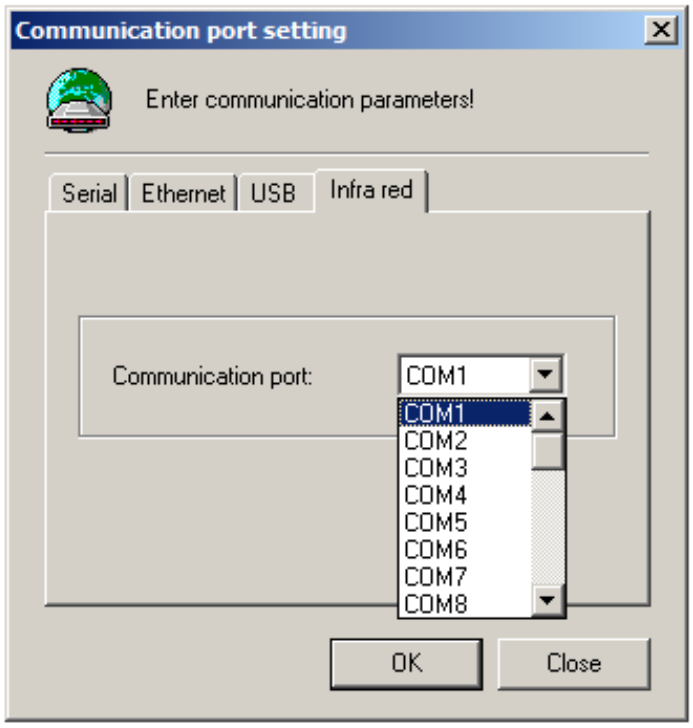
By clicking on the device identification for the product of interest the communications port settings will be selected to allow communications with the product. The default device address of the product is set to 33, for products with only Ethernet communications on COM1 it is suggested that the device address remains at 33. If the device address is no longer set to 33, it can be determined using ‘Scan the network’ (section 9.2).

8.4 IR – Infra-Red

The Infra-Red (IR) communications device can be used with the M241 Measurement Centre with Logger and requires the IR interface to be ordered separately.

The IR interface is connected to a RS232 port; see section 8.1.1 to find how the COM port number is identified.

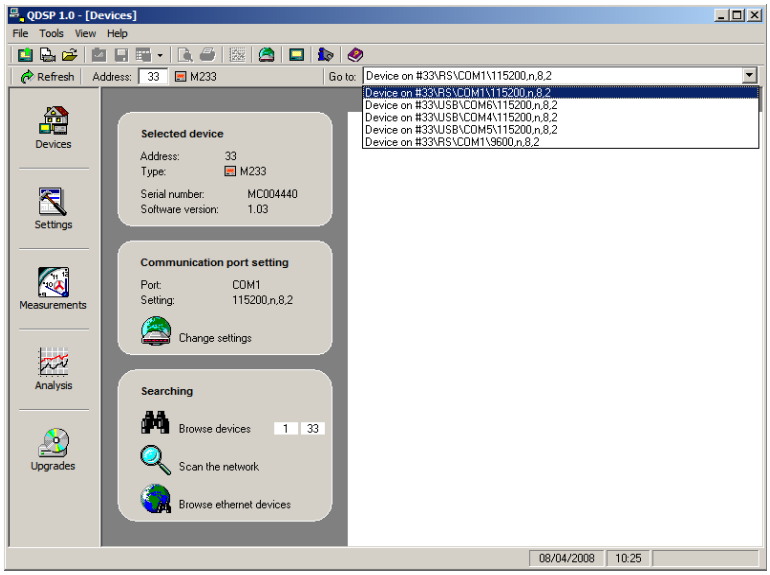
The IR Port setup is accessed by clicking <Devices><Communication port setting><Change Settings> or <Tools><Communication port setting>> and selecting the required COM port.



No other communications settings need to be defined.

9. DEVICES MANAGEMENT

When the ‘Devices’ icon is clicked the following screen is seen.

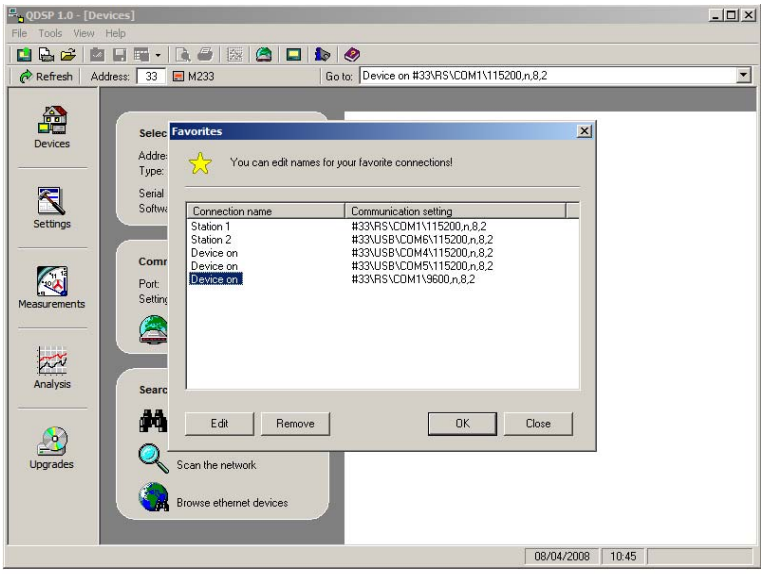


The Selected device is shown that is currently being communicated with. Details of devices in the Favourites devices list are shown in the drop down menu after ‘Go to:’ which allows a quick change between devices.

In addition are options to change the Communication port settings and to Search for connected devices by either Scanning or Browsing.

9.1 Favourite devices

It is possible to record the communication settings for any of the instruments that are commonly connected to. To access the Favourites go to <Tools><Favourites>.

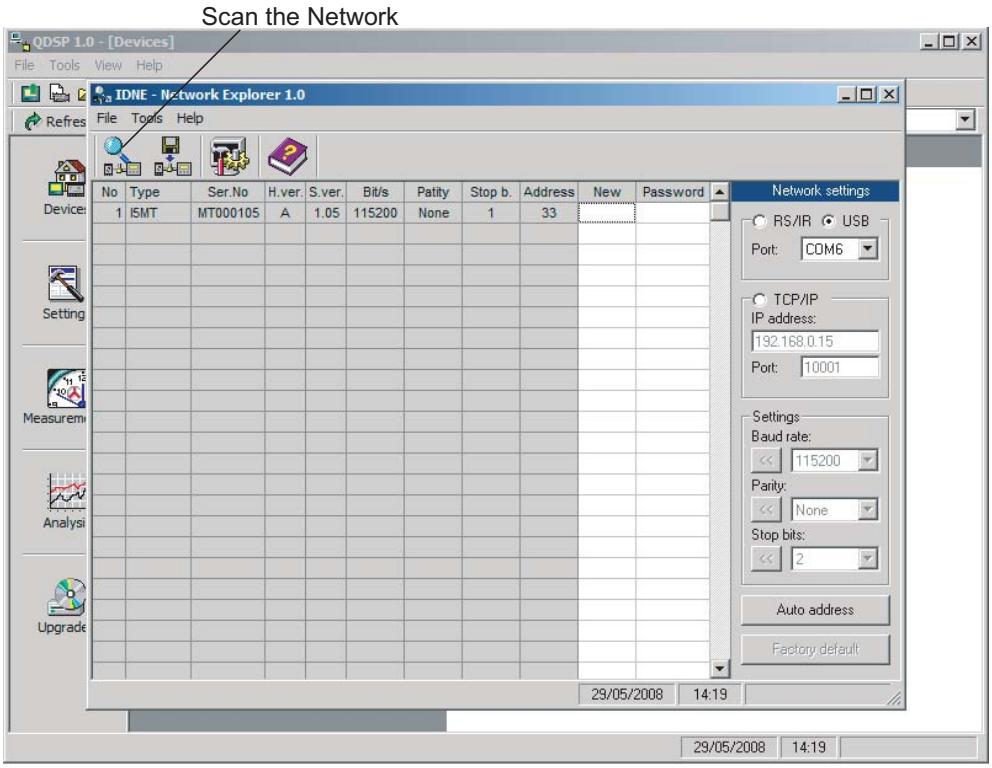


All connections where the communications have been successful are stored in the list, but those that are no longer required can be removed. To make the settings meaningful, they can be edited to give a Connection name that relates to the application. After editing all of the Connection names of interest click ‘OK’ to save the changes and exit.

The settings will appear in the ‘Go to:’ list to allow different devices to be selected quickly.

9.2 Scan the Network

When QDSP is first connected to an instrument or a network of instruments the communications setting and device addresses will probably not be known. By using 'Scan the network' from 'Devices' the information for all connected devices can be obtained.



For serially connected devices (RS/IR) the software will interrogate all combinations of communications setting to identify what devices are connected. If nothing is found on the first attempt check to ensure that the correct COM port number is defined and then click on the 'Scan the network' icon as shown.

Note: If a USB to RS232 or RS485 converter is being used then 'RS/IR' must be selected for the Scan. 'USB' should only be selected when a direct USB connection is being used to a USB port on the product connected.

For a product connected directly using USB the scan is done in a similar way as for serially connected devices with 'Port' set to the COM port number of the USB connected instrument.

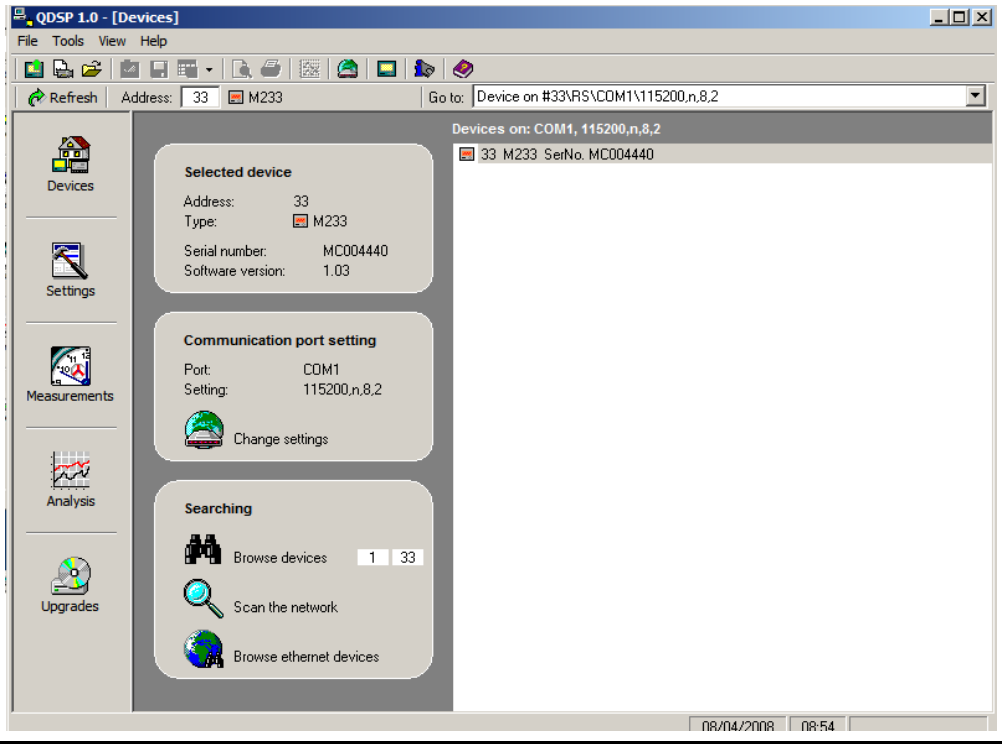
If Ethernet communications are selected the details of the product at the specified IP address can be obtained.

9.3 Browse Devices

When working with a network of serial devices that have the same communications settings, it may be necessary to confirm that all of the devices are connected and communicating correctly. This can be done quickly with the 'Browse devices' function

It will use the Communications port settings defined, which can be modified, and the device address range entered and will define the devices that respond to the specific settings.

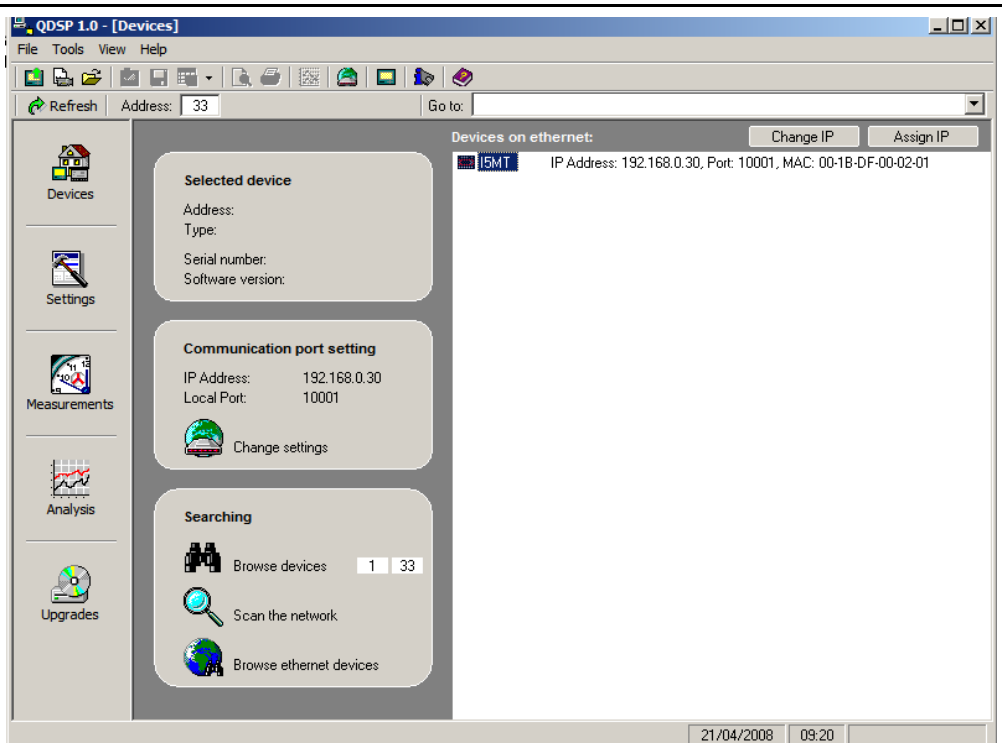
If the communications port setting defines a USB COM port the Browse software will also identify the device connected to the defined COM port.



By clicking on the device identification for the product of interest the communications port settings will be selected to allow the communications with the product.

9.4 Browse Ethernet devices

When working with Ethernet connected devices 'Browse Ethernet devices' can be used to find all those devices connected which have a valid IP address. If a device is not found then its IP address may be outside the valid range.



By clicking on the device identification for the product of interest the communications port settings will be selected to allow the communications with the product. It is necessary that the device address is also set correctly, this can be found using 'Scan the network'.

10. SETTINGS

10.1 Introduction

In order to modify the settings with QDSP the current parameters must be loaded first. Instrument settings can be acquired via a communications link or they can be loaded off-line from a file on a local disk.

The QDSP contains sample settings files for each product variant that can be downloaded to show the range of settings available for the specific product. Being able to modify the sample setting file is a very powerful tool as it allows configuration options to be checked without a product being purchased. Any combination of settings and their values that the software allows should be reproducible in a product ordered with the same hardware configuration.

These files can be modified and then stored under a different name allowing an instrument configuration to be generated off-line without an instrument attached, and downloaded at a later date.

The list of settings can be printed if required.

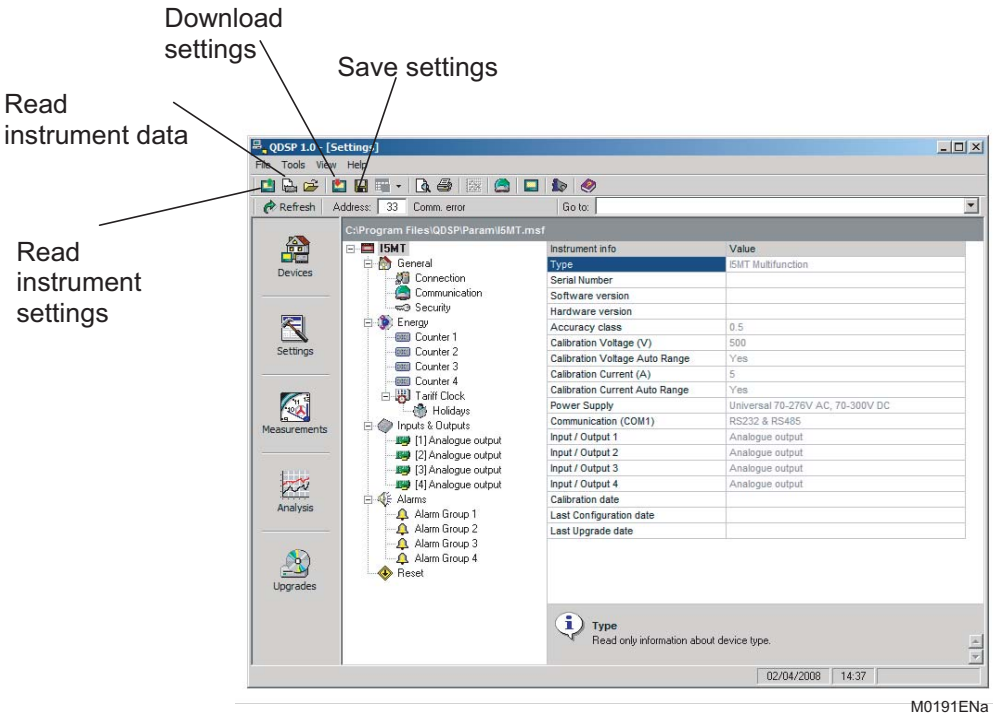
10.1.1 Working On-line

When the communication links with the products have been established the settings for any of the products can be downloaded by changing the address and pressing ‘Read instrument settings’.

The complete hardware configuration of the device is uploaded along with the current settings for all parameters. The hardware configuration of the product is fixed and if changed in QDSP it can not be downloaded to the product (see Working Off-line)

The parameters can be changed on the screen and when required these are downloaded to the product by pressing the ‘Download settings’.

The settings can be saved to a file using ‘Save settings’.



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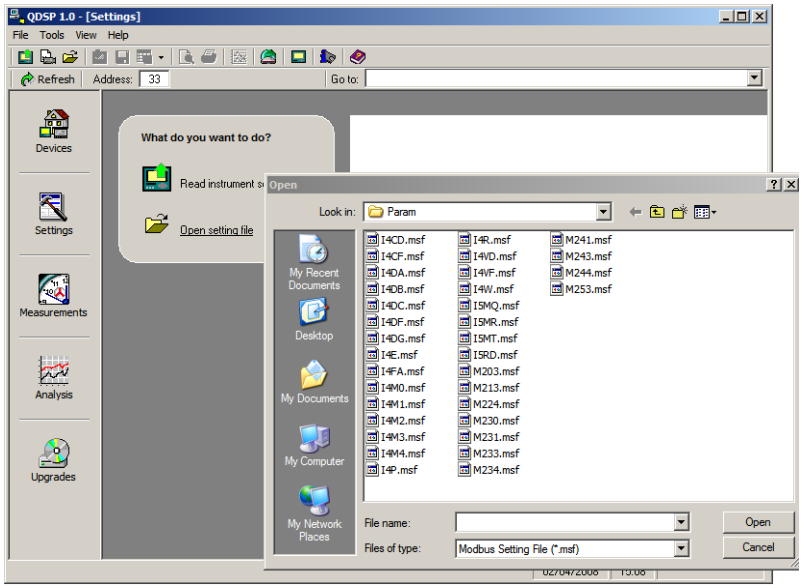
10.1.2 Working Off-line

To work Off-line no product needs to be attached to the PC; instead a stored configuration file can be used.

To load a standard sample configuration, select ‘Settings’ in the left hand ICONS, then ‘Open setting file’ to get the list of product files from which the required file can be selected.

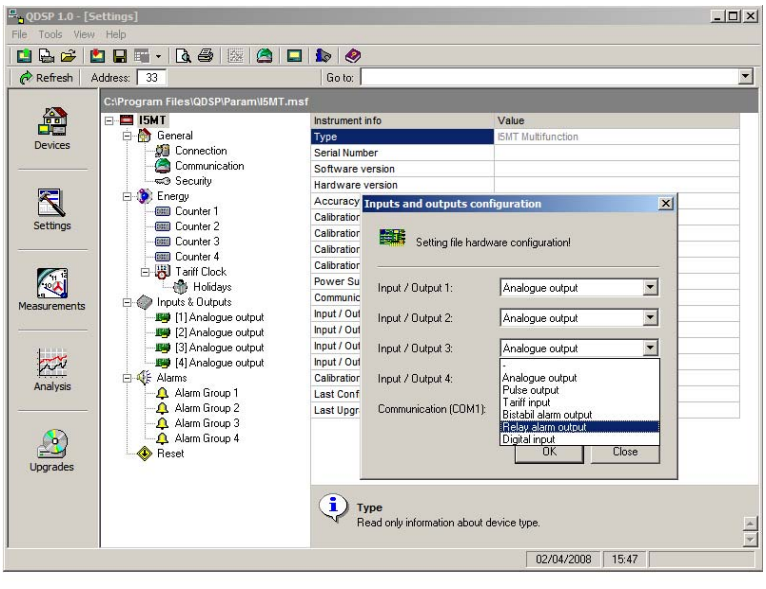


If a configuration file specific to an application has been stored previously it can be accessed in the same way, but the directory to be looked into may have to be changed.

To change the settings file that is being looked at Off-line without shutting QDSP down then go to <File ><Open>.

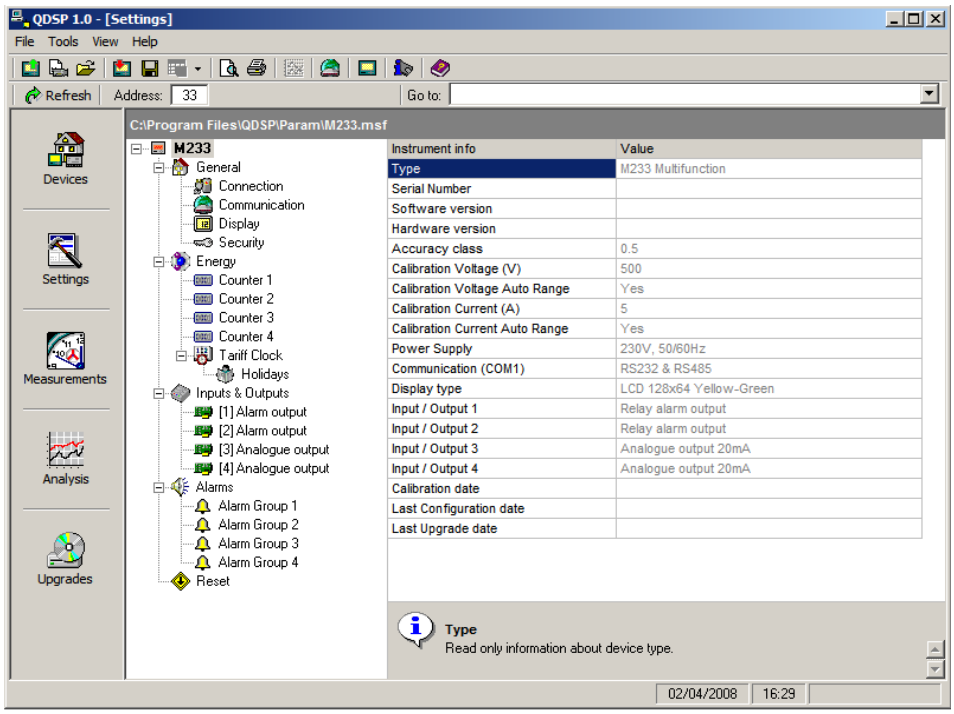
The configuration file will define a set of Input and Output modules fitted to the product. If the hardware I/O modules shown do not meet the requirements and it is necessary to look at their configuration then they can be changed. To be able to modify the hardware configuration defined in the file it is necessary that the configuration file has a file name different to that of the default file for the product.

Go to <Tools><Inputs and Outputs configuration>, to obtain the following screen on which the available I/O modules can be selected.



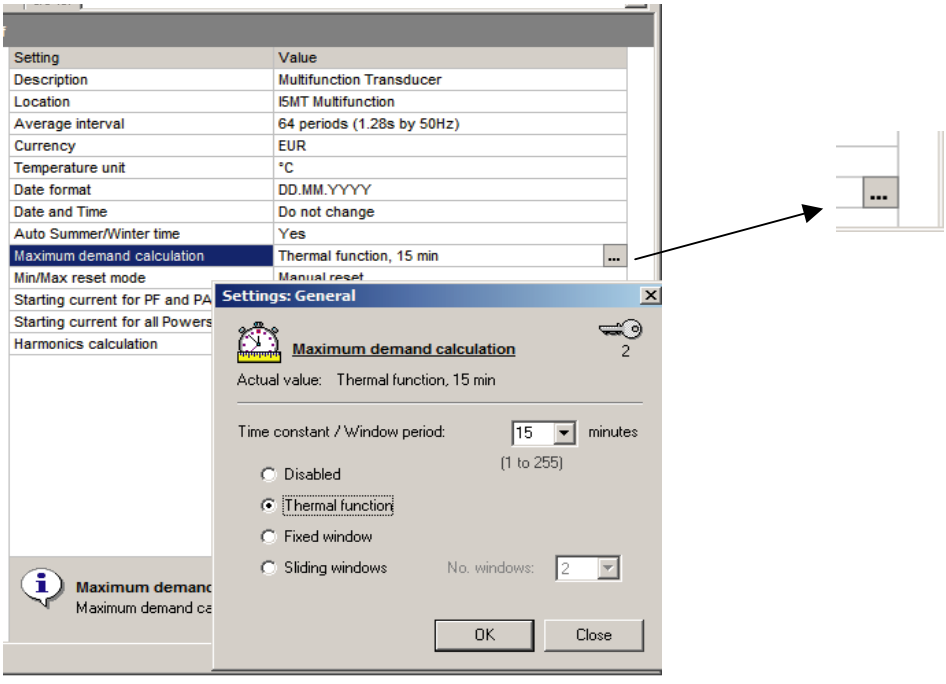
10.2 QDSP Interface

Product configurations and settings are displayed in the QDSP setting window.



The left part displays a hierarchical tree structure of setting sections available for the product and can vary in length from three sections to a list that more than fills the window. For the same product type the length of the tree can vary due to the hardware build options selected.

The right hand part displays parameter values of the chosen setting group.



To change a parameter value, click on the setting name to high-light and if the value can be changed a grey square with 3 dots will appear at the right hand side of the value. Click on the grey square and the settings window will open for the parameter

10.3 Product details

By clicking on the product name at the top of the hierarchical tree all of the details for the product will be displayed. If the data is for an actual product the manufacturing configuration is displayed allowing the product details and hardware option list to be read.

10.4 General Settings

General Settings are essential for the operation of the measuring transducer. The settings are divided between the General section and four additional sublevels, Connection, Communication, Display and Security.

For different products some of the sub-levels will be omitted, i.e. for transducers, Display will be omitted as no display is fitted as standard.

10.4.1 Connection

The settings for the connection mode, CT, VT etc are defined. The setting of the connection parameters must reflect the actual application or the measurements will not be valid.

10.4.2 Communication

The settings displayed depend on the hardware options on the specific instrument connected or the settings in the specific settings file that is being worked on off-line.

For some of the products with simple communications capability the communication settings are displayed in the General section.

10.4.3 Display

The settings allow the display visibility and parameter display sequence to be defined.

10.4.4 Security

The settings for the password system can be accessed.

10.5 Energy

The parameters defining the energy measurement and totalising can be modified. After modifications have been done the energy meters must be reset or all subsequent energy measurements will be incorrect.

10.6 Inputs and Outputs

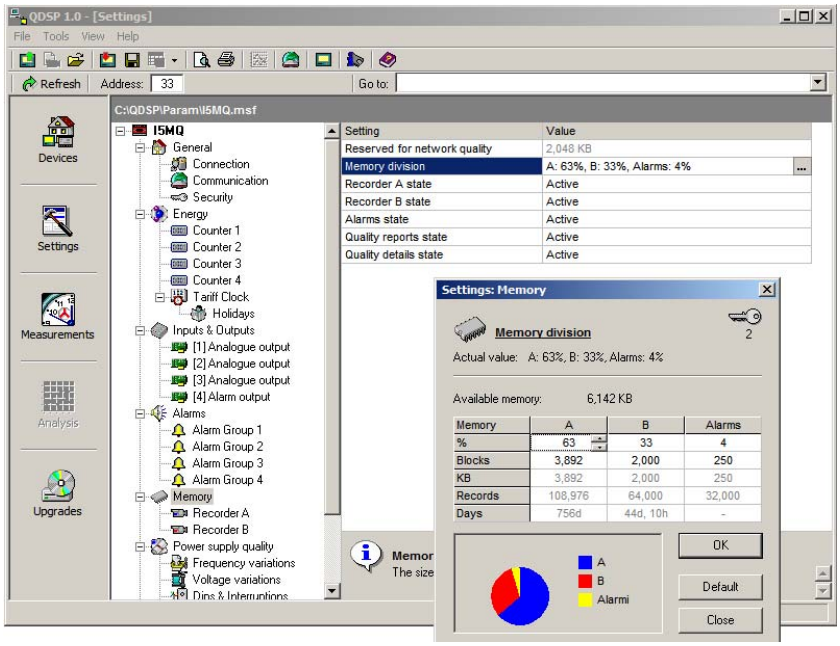
The number of I/O modules shown depends on the product and how many of the optional modules have been selected. The settings displayed will depend on the type of I/O module built in to the instrument or defined in the settings file if working off-line.

10.7 Alarms

The Alarms section will only be displayed if the product has alarm capability. Specific products can have alarm capability without having hardware output alarms fitted.

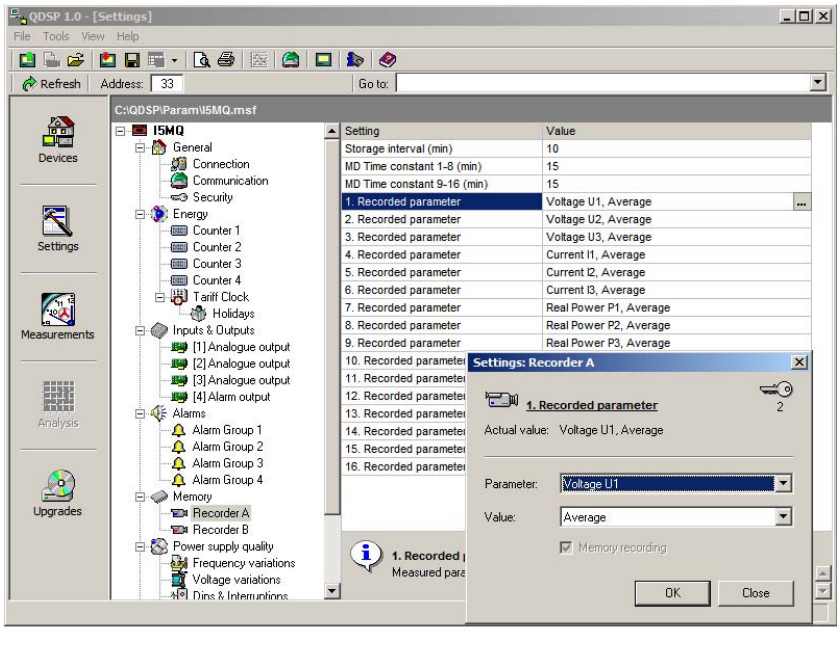
10.8 Memory

Measurements, alarms, reports and details of supply voltage quality can be stored in the internal memory on certain products with data logging or power quality capability. All records stored in the memory are accessible using QDSP Professional.



The individual data recorders can be made active or stopped and the amount of memory assigned to each recorder can be defined.

The data that is to be stored on each channel of the logger can be defined



10.9 Power Supply Quality

The settings for the Power Quality Analyser can be set.

10.10 Reset Operations

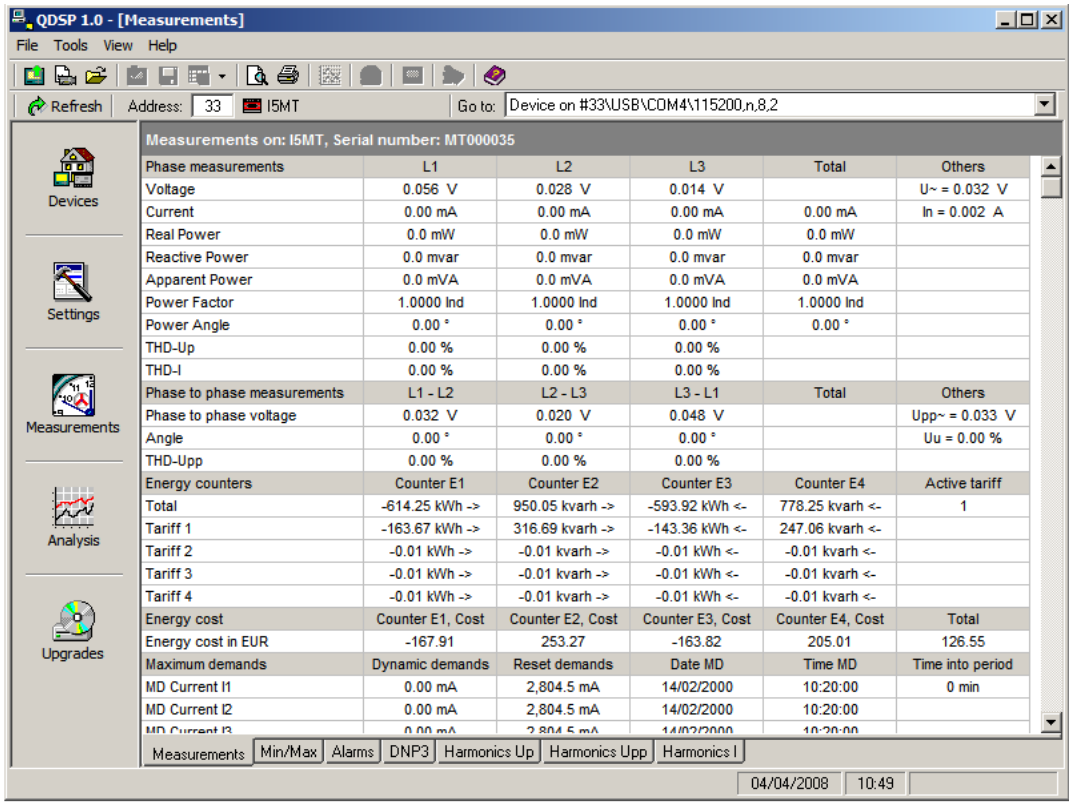
This allows the reset of certain values, i.e. Counters.

11. MEASUREMENTS

When the Measurements ICON is selected, measurements from the connected product can be seen in real time in a table form, while harmonics and their time-reconstructed signals are displayed also graphically. The measurements can appear on more than one measuring sheet, depending on the number of measurements supported by the specific product.

To view real time measurements, the communications link to the product must be established. The data will be refreshed approximately every 2 seconds.

A simulation option is available which shows how the Measurements will be displayed if a product is attached.



To stop the measurements and Hold the data, right click on the data display table and select ‘Hold Measurements’. When the Measurement data is ‘Held’ it can be printed out.

To restart the real time measurements press ‘Refresh’.

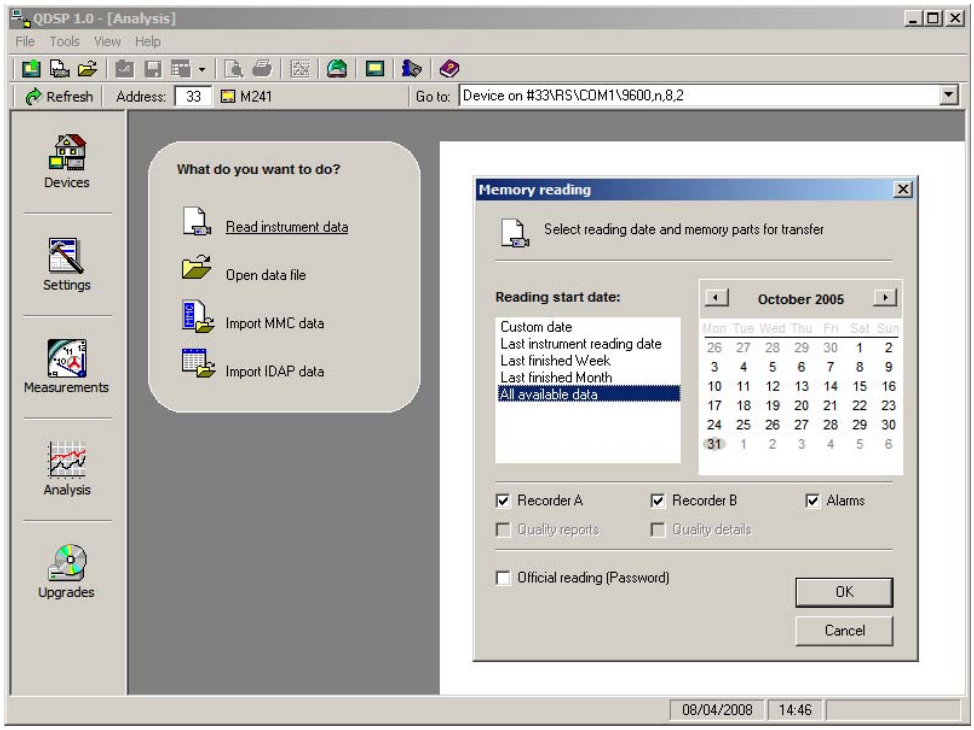
12. DATA ANALYSIS

The data analysis section will only be available if the QDSP Professional version has been installed on the PC.

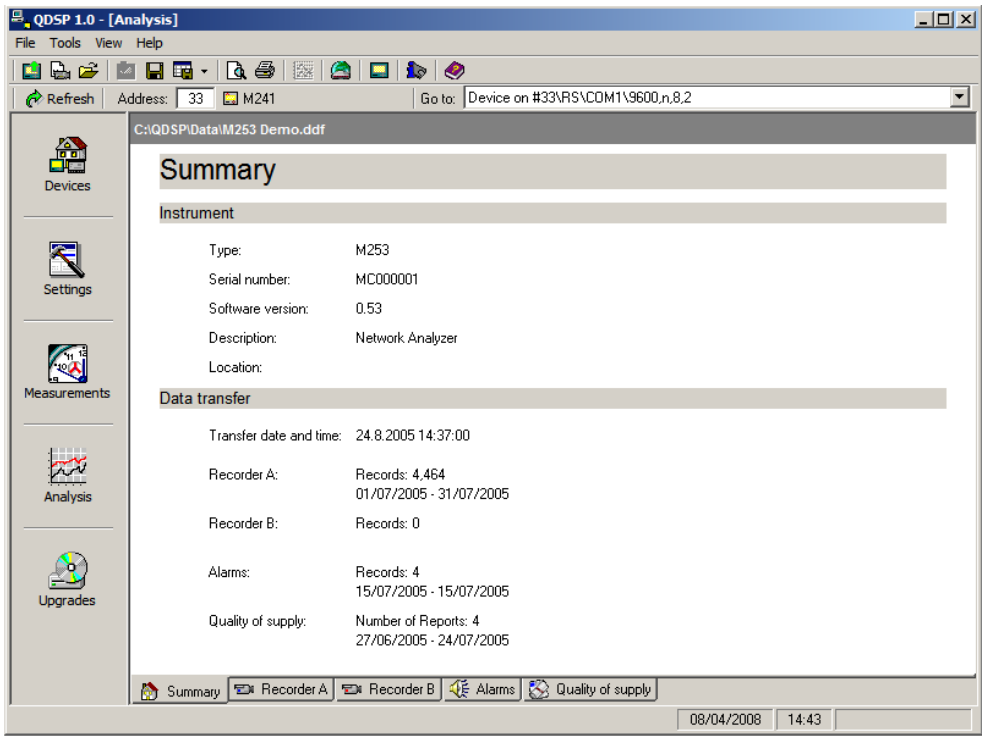
The Data Analysis section downloads and displays the data from products that have internal memory for logging data and power quality events. When Analysis is selected there are four options of where the data is obtained from for analysis, from the connected device, a previously stored file, MMC card data file or an IDAP data file.

12.1 Read Instrument Data

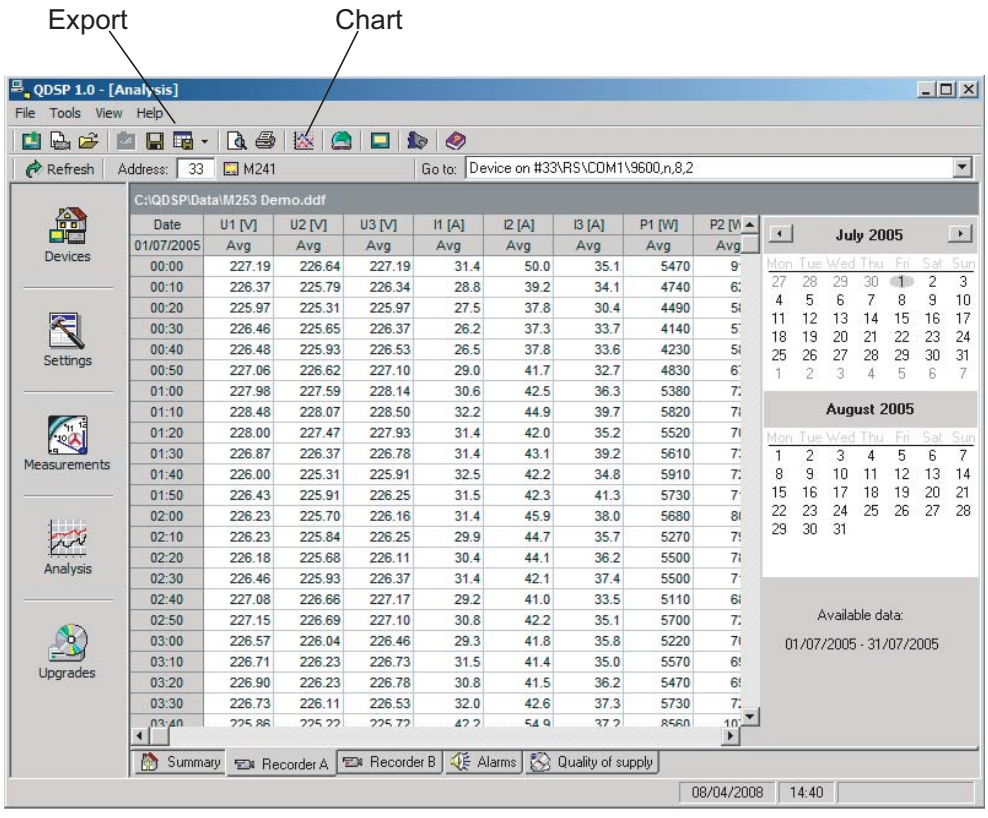
If 'Read instrument data' is selected the following screen is seen that defines which memory sections are available and allows definition of the data that is to be downloaded.



The data will then be downloaded and a summary of the data transferred is displayed.



The Recorder data is displayed in a table for which the start date can be defined.



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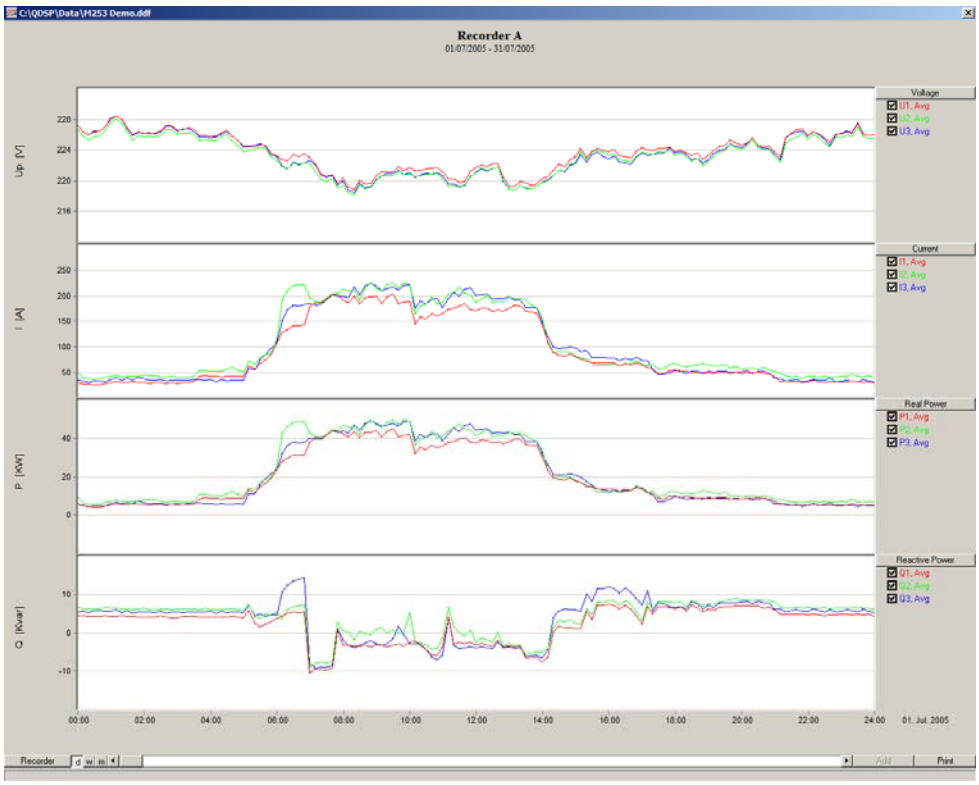
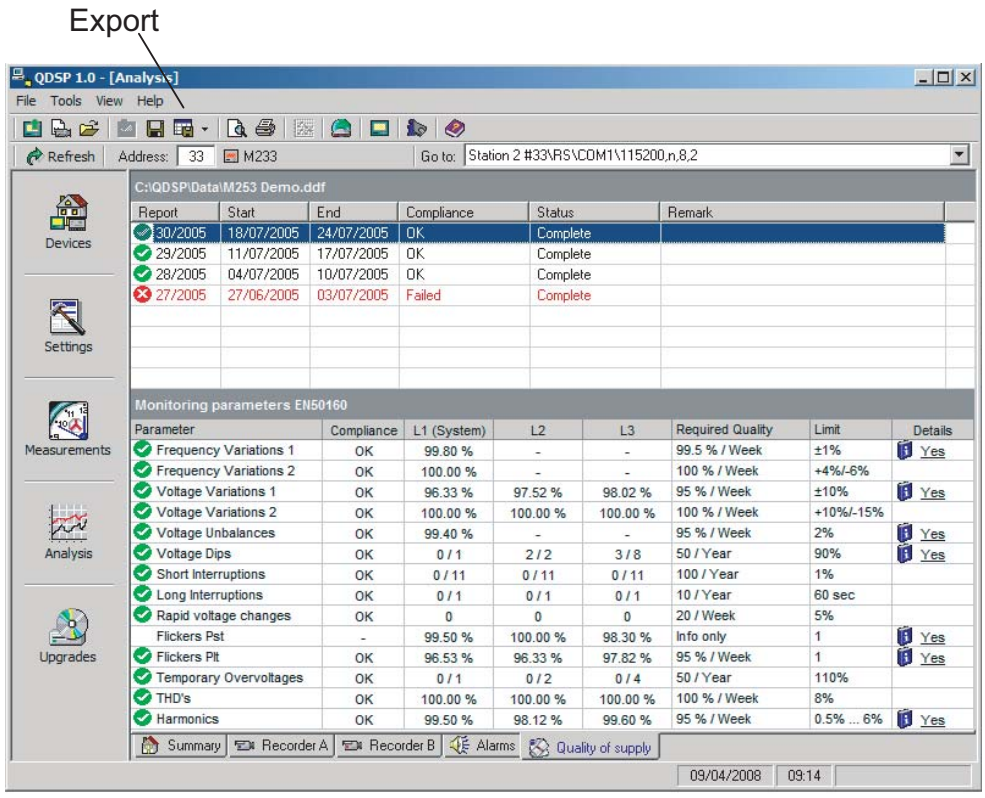
There is a ‘Chart’ function that displays data graphically.



The data can be exported to a ‘csv’ for reading in Excel etc.

The Quality of supply is displayed in tabular form, when individual Power quality reports are high lighted the quality data for the measurements is displayed. The data can be exported as a ‘csv’ file for reading in Excel etc.



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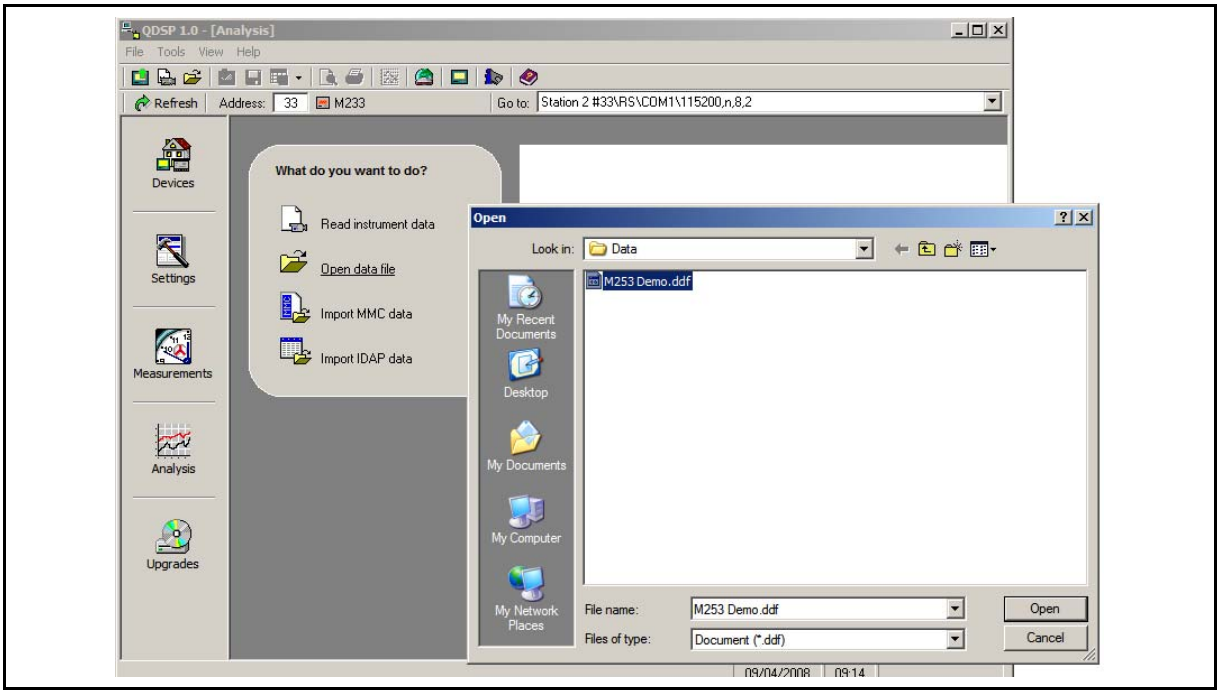
12.2 Open data File

When ‘Open data File’ is selected any previously stored downloaded data can be accessed. In addition a demonstration data file is available allowing the Analysis software to be tried without having data that has been downloaded from an instrument.



12.3 Import MMC data

If a data file has been copied off of a MMC or SD card this can be accessed as the source of the data for analysis. See section 14 for details of the MMC card operation.

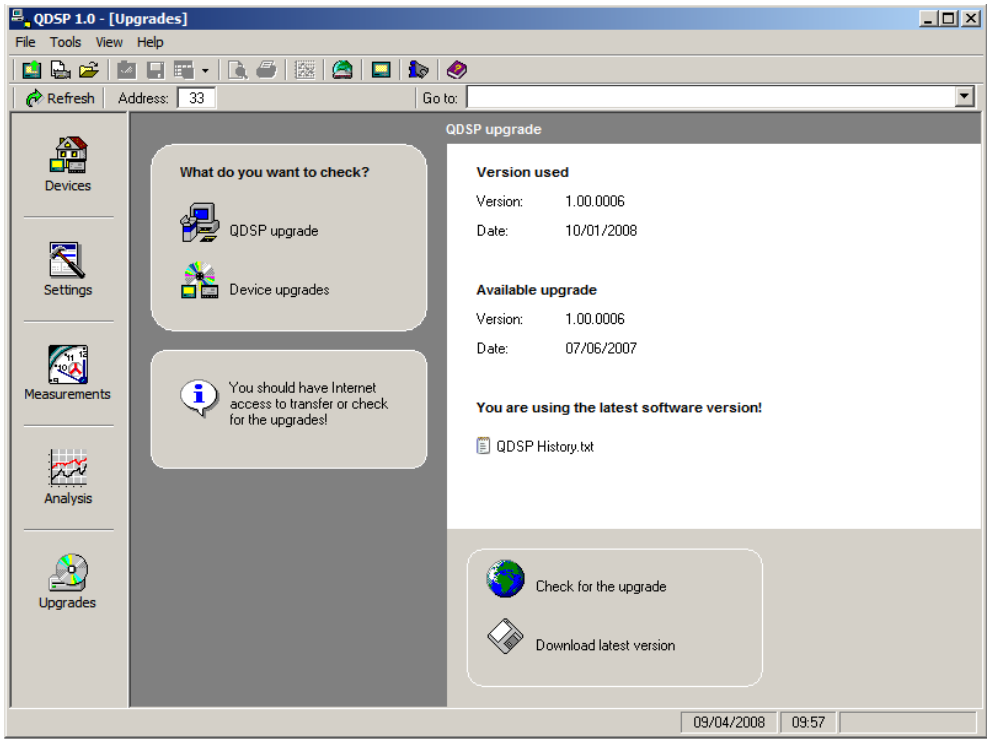
12.4 Import IDAP data

Allows a data file produced using the previous software package, IDAP, to be used for analysis.

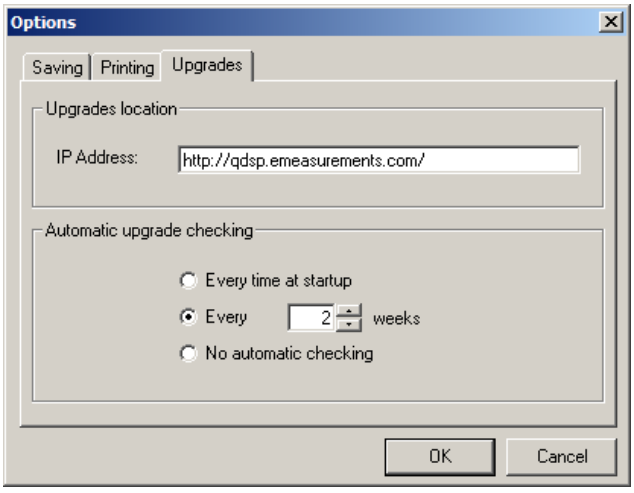
13. UPGRADES

13.1 QDSP Upgrade

It is possible to check for the availability of a newer version of the QDSP software if the PC is connected to the Internet. Click 'Upgrades', 'QDSP upgrade' and 'Check for Upgrade' and the status of the software being used will be defined.



QDSP can also be configured to automatically check for updates by clicking <Tools><Options><Upgrades> and selecting the required option as shown below.

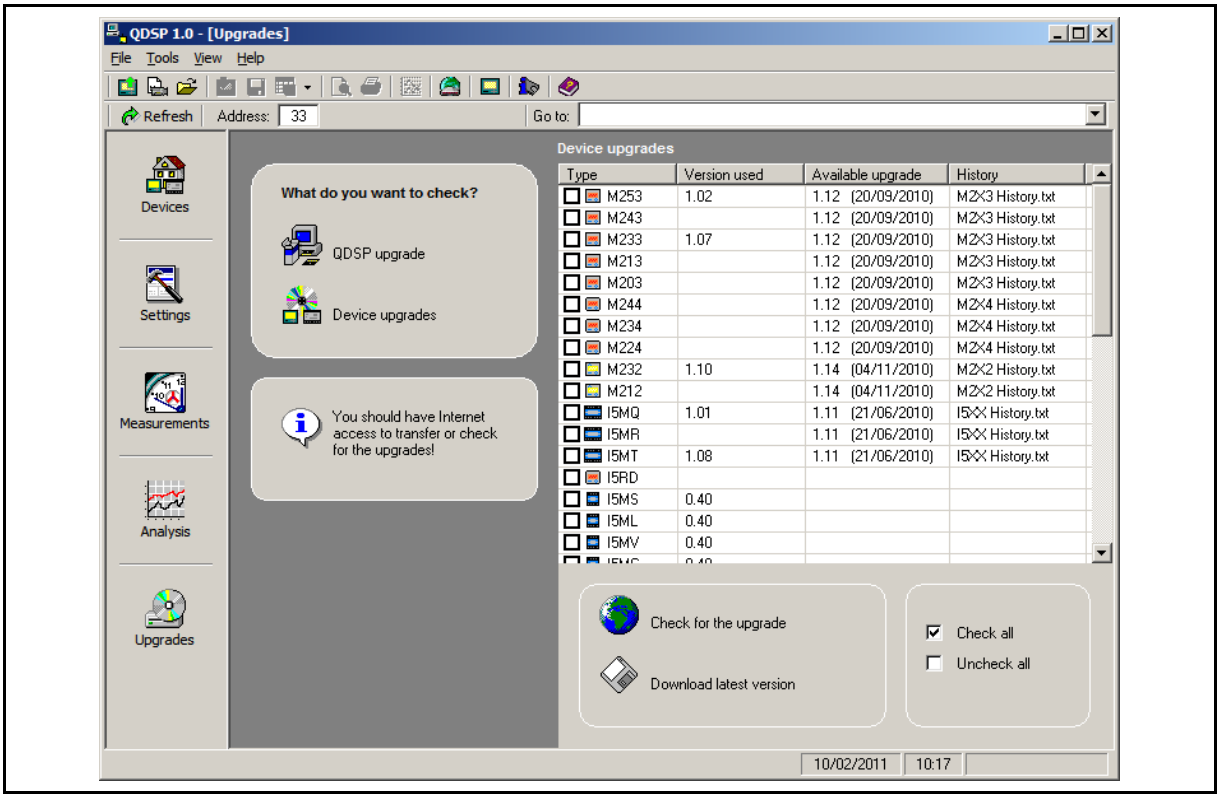


If the latest version is not being used an upgrade can be downloaded. Also the change history file for QDSP can be downloaded.

13.2 Device Upgrade

It is also possible to check the current release level of the Firmware of the iSTAT products.

If the PC is connected to the Internet, click ‘Upgrades’, ‘Device upgrades’ and ‘Check for the Upgrade’ to display data on the latest firmware version for the products



Also the modification history file can be downloaded for each product family to identify what modifications have been done.

If necessary a new version of product firmware can be downloaded and this includes full details of how to upgrade the iSTAT product. Upgrading an iSTAT product should only be done if a ‘bug fix’ or new feature is required, as any interruption during the upgrade process can damage the product such that it may not be economical to repair.

14. OTHER FEATURES

14.1 MMC card operation

The M2x3 range of products is fitted with a MMC memory card interface for data transfer without needing to have a PC on site. The card can be used to transfer device settings and the contents of the data logger and power quality memory storage if fitted. To use the MMC card the PC being used will have to be fitted with a MMC card reader.

For details on importing and exporting data to the MMC card please see the QDSP help files. For details of using the MMC card with the product see the applicable technical manual.

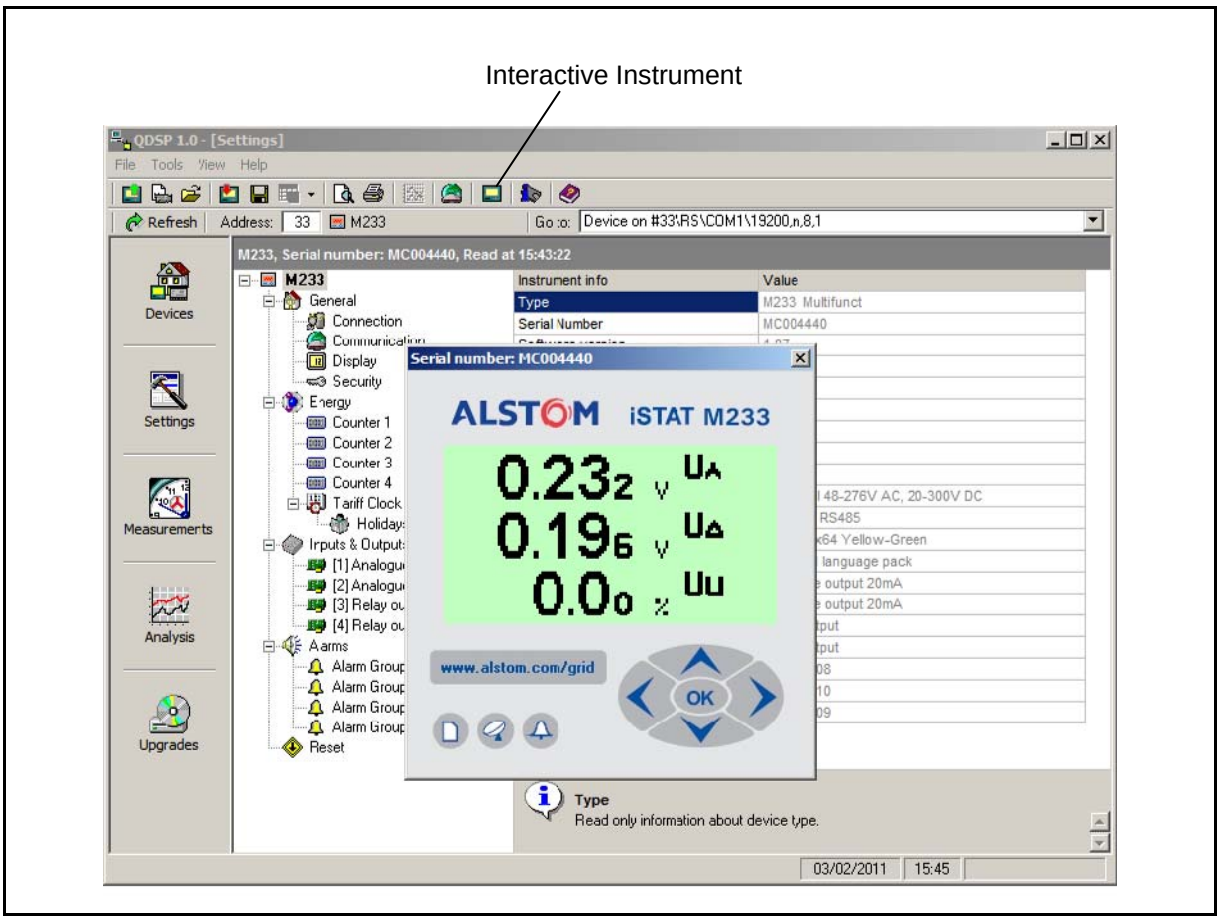
On Alstom labelled versions of the M2x3 an SD memory card can also be used instead of the MMC memory card.

14.2 Interactive Instrument

The Interactive instrument operates with all instruments that are fitted with an integral display, allowing a representation of the instrument front panel to be controlled from the QDSP software.

When communications have been established with the instrument the Interactive instrument is started by clicking on the icon as shown below. The icon will not be active for instruments without an integral display or when QDSP is in the Measurements mode.

The display currently on the instrument is displayed and by clicking on the arrow keys and OK the operation of the instrument can be controlled from QDSP. This allows the display of measurements and settings, and the changing of any settings in the same way as if the instrument front panel was being used. Also if the display is controlled from the product's front panel any changes will be shown on the Interactive instrument on QDSP.



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Alstom Grid Worldwide Contact Centre

www.alstom.com/grid/contactcentre/

Tel: +44 (0) 1785 250 070

www.alstom.com

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