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Field Guide
for
Application Software Type 7300

From serial number: 1 525 786

December 2003

INNOVA

BB 6006 – 12

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Safety Considerations

Warnings

- Switch off all equipment before connecting or disconnecting them. Failure to do so could damage the equipment.
- Never switch off the computer when using the Type 7300. Switching off can damage the database.

About this Field Guide

This Field Guide is structured as a short guide to provide the user with an overview to setting up the measurement system and using the 7300 to control the system. The table of contents at the front of this guide shows clearly where the information in this field guide can be found.

Throughout this Field Guide, references are made to Innova AirTech Instruments. So as not to write a long list each time, the 1312 Photoacoustic Multi-gas Monitor is quoted. However, the 1412 Photoacoustic Field Gas-Monitor, 1314 Photoacoustic Multi-gas Monitor, the Multi-gas Monitor Type 1302, Single-gas Monitor Type 3425 and Dual-gas Monitor Type 3426 can also be used in these applications.

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Chapter 1

Setting Up the Computer

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1.1 Fitting the Type 7300 Security Key

Warning! Switch off all equipment before connecting or disconnecting the interface cable or the Type 7300 Security Key. Failure to do so can damage your instruments and the computer.

The Security Key is a protection device that you attach directly to LPT1, the first parallel port of your computer. It ensures that only authorized owners can use the 7300. Without the key the 7300 cannot be used to make measurements.

Note: that the security key must be used even if you are using the IEEE interface to communicate with your system. If you are using printers that are connected to the parallel port, the security key must be connected to the port. The printer cable must be connected to the security key.

To fit the 7300 security key to the computer:

1. Switch off the computer.
2. Locate the computer's parallel port. If you are not sure which port this is, refer to your computer's instruction manual.

   Push the Security Key directly onto the **parallel communication port** (LPT1) of the computer, and tighten the screws fitted to the security key to secure it to the screw-fittings of the port.

NOTE: LOST SECURITY KEYS WILL NOT BE REPLACED BY INNOVA AIRTECH INSTRUMENTS.

1.2 Install the 7300 in the Computer

Important! It is recommended to make a backup copy of the existing databases before installing the 7300.

Note: Your existing databases will not be deleted when you uninstall your current software version. See the User Manual for details on how to use your existing databases.

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Hardware requirements for the 7300 software:

- Pentium II (333MHz) processor
- Minimum 20 MBytes of free space available on the hard disk
- Minimum 128 MBytes of RAM
- One serial port (RS–232) and one parallel port

  or

  One GPIB IEEE port and a parallel port
- Mouse

Software requirements for the 7300 software:

- Windows® 98, NT 4.0 (SP 6 or above), or Windows 2000 (SP 1 or above) installed

Installing 7300 on a PC:

Note: it is recommended to close all Windows programs that are open before starting the installation.

Install 7300

Insert the CD labelled “Type 7300”, version 4.0 or above in the PC. The setup starts automatically.

Follow the prompts given on screen to guide you through the installation.

When the installation is complete, a program group is created, “*INNOVA* AirTech Instruments”, which contains the 7300 icon.

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Chapter 2

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2.1 Connecting via the Computer's RS – 232 Ports

Use the following text to decide which INNOVA cables to use for connecting the instruments to the computer:

Connecting to a 25-pin COM port: Cable WL0946 (25-pin to 25-pin RS – 232)

Connecting to a 9-pin COM port: Cable WL0945 (25-pin to 9-pin RS – 232)

Connecting the 1312 and 1303(s) or 1309 together (IEEE to IEEE): Cable AO0265 (2m) or WL0845 (0.4m)

To connect the instruments to the computer:

1. Ensure that the computer and instruments are switched off before making any connections.

2. Using the appropriate cable, push one end on to the computer's COM port, and tighten the screws fitted to the cable to secure the connection.

3. Attach the other connector of the cable to the RS – 232 interface port on the rear panel of the 1312.

Connecting 1303(s) or 1309 to the 1312:

1. Push one connector of Cable AO0265 (2m) or WL0845 (0.4m) into the IEEE interface port on the rear panel of the 1312, and tighten the screws. Push the other connector of the cable into the IEEE interface port of the 1303 or 1309 and tighten the screws.

2. If you have two 1303 units, connect the second cable, AO0265 (2m) or WL0845 (0.4m), to the back of the connector mounted on the *first* 1303 unit. Then connect the other connector of the cable into the IEEE interface port of the second 1303 and tighten the screws, as before.

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2.2 Connecting via an IEEE 488 Interface Port

Use the following INNOVA cables:

Connecting the computer to the instruments: Cable AO0265

Connecting the 1312 and 1303(s) or 1309: 1 or 2 Cables AO0265 (2m) or WL0845 (0.4m)

To connect the instruments to the computer:

1. Ensure that the computer and instruments are switched off before making any connections.

2. Insert the connector of Cable AO0265 into the computer's IEEE interface port, and tighten the screws fitted to the connector to secure the connection.

3. Push the connector at the other end of Cable AO0265 into the 1312's IEEE interface port, and tighten the screws.

4. Push one connector of Cable AO0265 onto the back of the connector already mounted on the 1312's IEEE interface port and tighten the screws. Push the other connector of the cable into the IEEE interface port of the 1303 or 1309 and tighten the screws.

5. If you have two 1303 units, repeat the procedure given in step 4, connecting the second cable to the back of the connector mounted on the *first* 1303 unit.

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Chapter 3

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3.1 Making, Opening and Closing a Database

Before configuring the 7300 to the measurement system, setting up and starting a measurement, you must first open a database in which the data from the measurement can be stored. This is done using either the **New** or the **Open** function in the **File** menu.

Note: you cannot use the **New** or **Open** functions when a database is already open.

To make a new database:

1. Pull down the **File** menu and click on **New**.
2. Type in the name you want for the database (max. 8 characters).
3. Click on **OK** to make and open the new database.

To open an existing database:

1. Pull down the **File** menu and click on **Open**.
2. Use the scroll facility to locate the desired database. Click on the file-name to highlight it.
3. Click on **OK**.

To close a database that is open:

1. Pull down the **File** menu and click on **Close**. The Close Database dialogue is displayed.
2. Click on **OK** to close the database.

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3.2 Setting the Configuration Parameters

The **Configuration** function in the **Set-up** menu configures the 7300 to the instruments in the measurement system, and selects the communication channel between the computer and the instruments.

Note: if you are using the IEEE interface between the computer and the 1312, ensure that the 1312 is **not** set up as the system controller of the IEEE interface.

To configure the 7300 to your system:

1. Pull down the **Set-up** menu and click on **Configuration**.
2. Click on the communication interface port.
3. Select the type and number of sampling units you are using.
4. Click on **OK**.

3.3 Setting the Communication Parameters

The **Communication** function in the **Set-up** menu sets the parameters for communication between the computer and the 1312/1303(s) or 1312/1309.

If you are using the RS–232 interface, ensure that there is no IEEE cable connected between the PC and the 1312.

Note: the 7300 automatically sets the 1312 to Switched line and Hard-wired.

Note: if you are using the IEEE interface between the computer and the 1312, ensure that the 1312 is **not** set up as the system controller of the IEEE interface.

To set the communication parameters for a system using the IEEE interface:

1. Pull down the **Set-up** menu and click on **Communication**.

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2. Type in the correct device addresses for the 1312 and 1303 or 1309 units.

3. Click on **OK**.

To set the communication parameters for a system using the RS–232 interface:

1. Pull down the **Set-up** menu. Click on **Communication**.

2. Click on the values for Baud rate, parity, data bits and stop bits that are set in the 1312. Also set up the device addresses for the 1312 and 1303 or 1309 units.

3. Click on **OK**.

3.4 Multipoint Monitoring Tasks

Multipoint monitoring tasks are for monitoring gas-concentrations in several locations, simultaneously. These measurements use only the sampler systems of the 1303 units. The general procedure for performing multipoint monitoring tasks is as follows:

- Set up the 1312 for the gases you will be measuring
- Set up the 1303/1309 unit(s) by selecting which sampling channels you will use in each measurement location
- Set up alarm limits for each gas you will be monitoring

Each of these steps is described in turn in the following subsections.

3.4.1 Setting Up the 1312

To set up the 1312:

1. Pull down the **Set-up** menu and click on **Monitor**. The dialogue in Fig.3.1 is displayed.

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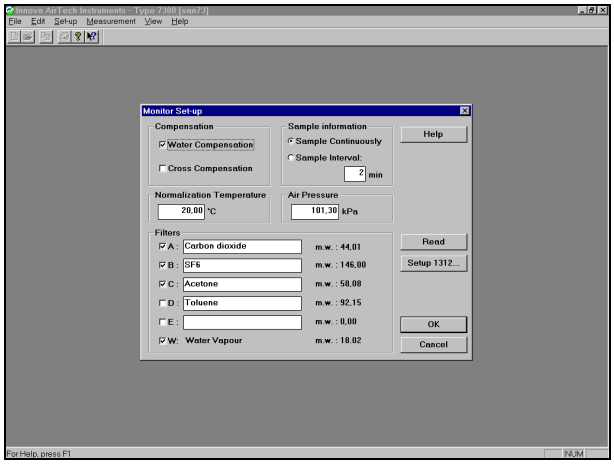

Fig.3.1 The Monitor Set-up dialogue

Water compensation lets you choose if you want to compensate for water-vapour interference in your measurements.

Cross compensation lets you choose if you want cross-compensation for interferents.

Normalization temperature is the temperature used to convert the gas-concentrations unit mg/m^3 to ppm.

Air pressure is the actual air pressure at the measurement locations. (This is not displayed when a 1309 is used.)

Sample continuously lets you decide if you want the 1312 to begin a new measurement immediately after finishing the previous measurement.

Sample interval sets the time-interval from the start of one measurement cycle to the beginning of the next for the 1312.

A, *B*, *C*, *D*, *E*, and *W* represent the optical filter positions of the 1312. Alongside each box are two text fields. The first is for the name of the gas being monitored using that filter; the second is for the molecular weight of the gas being monitored.

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Read lets you read-out the gas-names and molecular weights resident in the 1312's memory.

Setup 1312... (*only available when a 1312, 1314 or 1412 is used*) opens a new dialogue, see Fig.3.2.

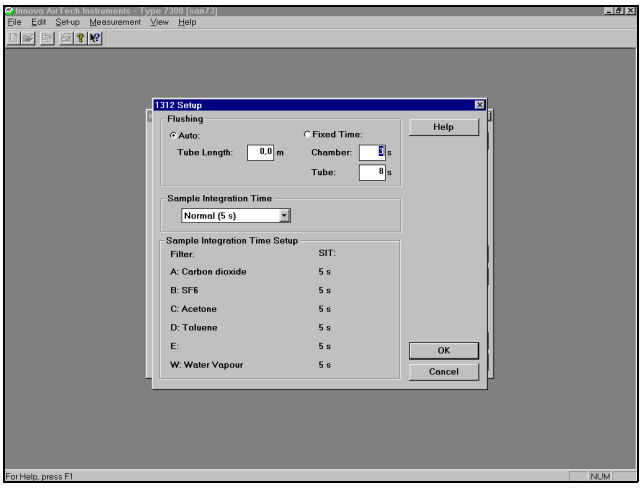

Fig.3.2 The 1312 Set-up dialogue

This dialogue allows you to change certain parameters, which will be transferred to the 1312 when the 7300 starts a measurement. These parameters are:

Flushing: there are two options *Auto* and *Fixed Time*. *Auto* allows you to define the length of sample tubing. The monitor then sets the flushing time automatically. *Fixed Time* allows you define the flushing times for both the measurement chamber and the sample tubing. The default values are Chamber 8s and Tube 3s. The chamber

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time can be less than the default (tube is fixed at 3s), but as the time decreases the flushing error % increases.

Chamber Time (s)	Error %
3	2
4	0.8
8	0.25

Note: when a multiplexer is connected, only the Fixed Time option is available, where the tube flushing is set automatically.

Sample Integration Time (S.I.T): this allows you to define the integration times for the sampled gases. There are four settings: *Fast (1s)*, *Normal (5s)*, *Low Noise (20s)* and *Advanced*. When Advanced is selected, the S.I.T for each filter can be set individually. The values available are: 0.5, 1, 2, 5, 10, 20 and 50s.

Sample Integration Time Setup: this shows the S.I.T values for the selected filters. This is of particular interest when the Advanced S.I.T option is selected.

For more details about these parameters, refer to the 1312 Instruction Manual.

2. Select the desired types of compensation and sampling. Define the correct Normalization Temperature and Air Pressure.

3. Click on **Read**.

   Edit the gas names if required. These new names are stored in the 7300 database, but will not affect the 1312's memory.

   Note: filter position *W* is always for measuring water vapour.

4. Click in the boxes to select the filters.

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5. When using a 1312, 1314 or 1412, click on **Setup 1312...**. Define the Flushing parameter and the Sample Integration Times for the selected filters. When you have set these parameters, click on **OK**.

6. Click on **OK** to store the data in the 7300 database.

3.4.2 Setting Up the 1303 or 1309 Units

To set up the 1303 or 1309 units:

1. Pull down the **Set-up** menu and click on **Multiplexer**. The Multiplexer dialogue is displayed, Fig.3.3.

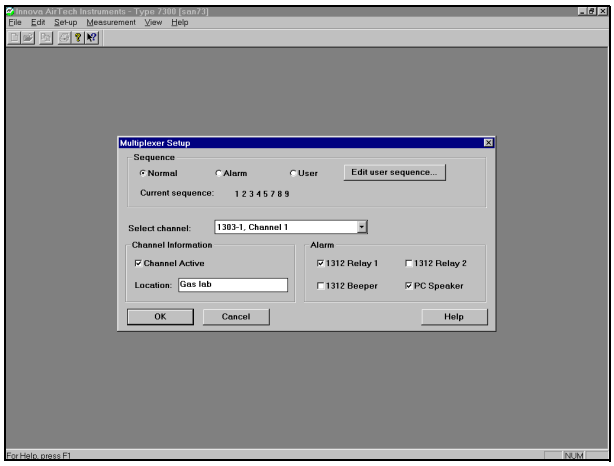

Fig.3.3 The Multiplexer Set-up dialogue

Sequence field allows you to select the manner in which the active channels are sampled:

Normal: samples the channels in the order shown in the *Current sequence* field. When the last channel has been measured, the multiplexer loops back to the first channel.

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Alarm: enables you to closely monitor channels where the alarm limit has been reached. When an alarm is reached, the sequence in the *Current sequence* field is overridden, every second measurement is now made on the channel showing the alarm.

User: this allows you to define the measurement sequence, using the **Edit user sequence** soft-key. When this soft-key is pressed the following dialogue is displayed, see Fig.3.4.

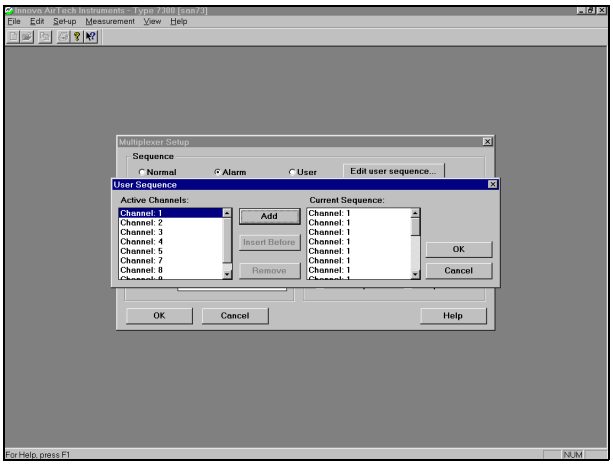

Fig.3.4 The User Sequence dialogue

By highlighting the desired channel in the *Active Channels*: field, the **Add** soft-key can be used to create a user-defined sequence. If you need to edit the list in the Current Sequence field, highlight the desired entry in the list, this can now be removed using the **Remove** soft-key or an entry made in front of it using the **Insert Before** soft-key. The Current Sequence field can have a maximum of 20 entries.

Select Channel allows you to select the sampling channel on the multiplexer. If you are using one 1303 unit, only 6 chan-

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nels are available, while if you are using two 1303 units or one 1309 12 channels are available.

Channel Information allows you to make the channel shown in the *Select channel* field active and provide this sample channel with a descriptive label in the *Location* field.

Alarm lets you select the relay, beeper or speaker, through which an alarm signal is sent.

2. Select the type of sampling sequence desired.

   If you are using the **User** option, use the **Edit user sequence** to define the sampling sequence. When the list is complete, press **OK** and go to step 8.

3. Pull down the *Select channel* list and click on the desired sampling channel.

4. Click on *Channel Active* to activate the channel

5. In the *Location* field, type in the name of the location from which the selected sampling channel is taking samples.

6. In the *Alarm* field, click on the types of alarm you want to use.

   If you select 1312 Relay 1, any alarm signal will be sent via that relay. If you select 1312 Relay 2, any alarm signal caused by an upper alarm limit being exceeded will be sent via that relay. With 1312 Beeper or PC Speaker, any alarm signal will be audible via the 1312 or the PC, respectively.

7. Repeat steps 2 to 6. for each sampling channel that you want to use.

8. When you have set up the 1303 or 1309 units for your measurements, click on **OK**.

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3.4.3 Setting Alarm Limits

To set alarm limits:

1. Pull down the **Set-up** menu and click on **Alarms**. The Alarms dialogue is displayed.

   Alarm limits: these text fields on the right of the dialogue contain the alarm limits for each named gas you are monitoring using each optical filter.

   Alarm factor: lets you set a "warning" and a "danger" alarm limit, in conjunction with 1312 alarm relays 1 and 2. If gas-concentrations exceed one of the alarm limits that you have typed-in, a signal will be given through 1312 alarm relay number 1, the 1312 beeper or the PC speaker. If gas-concentrations exceed the alarm limit multiplied by the alarm factor, a signal will be given through 1312 alarm relay number 2. For example, if the "warning" level is 10 ppm, and the "danger" level is 15 ppm, the alarm factor should be 1.5. It is not possible to do this using the PC speaker and 1312 beeper.

   Alarm for 1312 (No 1303): lets you select alarm relays when you are using the 1312 without 1303 or 1309 units. If you are using 1303 or 1309 units, you cannot use this function.

2. Type in the alarm limit for each gas and define the Alarm Factor (must be at least 1.0).

3. If you are not using 1303 or 1309 units, click on the type of alarm you want to use in the *Alarm for 1312 (No 1303):* box.

4. Click on **OK**.

3.5 Starting Up and Stopping a Measurement

To start a measurement:

1. Pull down the **Measurement** menu and click on **Start**.

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2. Click on **Immediate** to start a measurement.
   Click on **Delayed** to delay the start. Type in the start date and time.

3. Click on **OK**.

To stop a measurement:

1. Pull down the **Measurement** menu and click on **Stop**.

2. Click on **OK**.

3.6 Units of Measurement

The Units dialogue in the **Set-up** menu lets you choose the units of measurement that the 7300 will use when displaying data, and in prints/plots of screens.

To select the units of measurement:

1. Pull down the **Set-up** menu and click on **Units**.

2. Click on the units you want to use.

3. Click on **OK**.

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Chapter 4

Displaying Measurement Data

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4.1 Using the Graphic Data Window

The graphic data window displays data in graph form with up to 6 curves plotted on the same axes.

4.1.1 Setting up and Plotting Curves

To set up the x-interval and style of the graph:

1. Pull down the **View** menu and click on **Graphic window**. The Graphic window is displayed in Fit to Window mode.

   A panel of "buttons" is displayed on the left side of the graphic window. These buttons are dedicated to the graphic window, and are used to set up the graphs you want to see or plot. Show Panel is a toggle function: to remove the panel, pull down the **View** menu and click on **Show Panel**.

2. Click on Graph Set-up in the panel. Use the fields described below to set up the graph.

   X-interval selects the time-period which the graph will cover.

   Y-axis type selects if the y-axis will be scaled linearly or logarithmically.

   Grid mask selects the background to the graph: a crossed (**X-Y**) grid; vertical lines (**X**); horizontal lines (**Y**); or no grid.

   Grid style selects if the grid will be drawn in dotted lines or solid lines.

   Y-scale lets you choose the type of y-axis: either showing actual values (**Off**); or scaled from 0 to 1, with a scaling factor and the unit of measurement displayed (**On**). The **On** option is used when you have several different types of data plotted on the same graph.

   Resolution lets you choose the x-axis resolution of the graph from 1 to 100%. 100% means that there is one point per mm.

3. Click on **OK**.

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4.1.2 Choosing Data to be Plotted and the Style of the Curves

Click on **Data Select** in the panel. The Select data to show on graph dialogue is displayed.

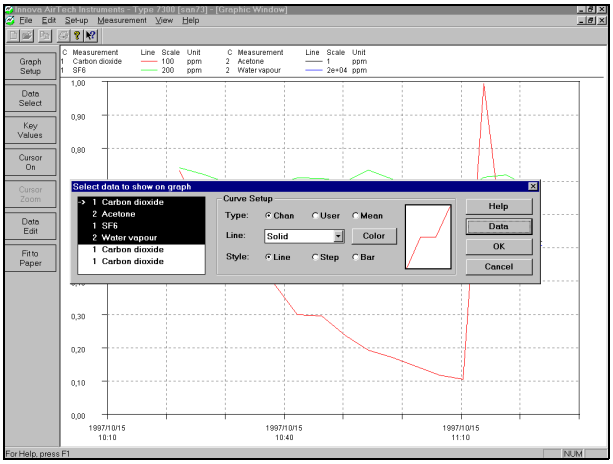

Fig.4.1 The Select data to show on graph dialogue

The 6 text-fields on the left of the dialogue indicate which of the 6 available curves you are setting up. By double clicking on these, you activate the curves to be displayed. "**W**" and "**UW**" indicate the weighted and unweighted averages of the curve, respectively. "**+**" and "**–**" indicate the maximum and minimum values of the curve, respectively.

Use the fields described below to set up the graph.

Type selects the type of data you want to plot. The three types of data are: measurement results from each sampling channel (**Chan**), data from a user program (**User**), and averages of measurement results taken from two or more sampling channels (**Mean**).

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Data lets you select the actual data you want to plot as curves. It displays a dialogue specific to the type of data you want to plot (chosen in the **Type** field).

Color, Line, Step and **Bar** select the color and style of a curve.

The Channel Data dialogue

In the Select data to show on graph dialogue, select **Chan** and then click on **Data**. The Channel Data dialogue is displayed.

Channel represents the sampling channels.

Location gives the name of the measurement location.

Filter is the name of the gas measured by the filter.

Filter lets you choose which data from the chosen sampling channel will be plotted.

Type

Min gives the minimum value of the displayed curve (if compressed or averaged).

Mean gives the average value of the displayed curve (if compressed or averaged).

Max gives the maximum value of the displayed curve (if compressed or averaged)

1. Click on the desired settings.
2. Click on **OK**.

The User Data dialogue

In the Select data to show on graph dialogue, select **User** and click on **Data**. The User Data dialogue is displayed.

Data Index represents the specific data from the external program that you want to use.

1. Click on the index number to select the data you want to use.

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2. Click on **OK**.

The Select Mean Data dialogue

In the Select data to show on graph dialogue, select **Mean** and click on **Data**. The Select Mean Data dialogue is displayed.

Filter: is the name of the gas measured by the filter.

Channels lets you select the sampling channels from which measurement data will be averaged.

Filter lets you select which type of data will be averaged from the sampling channels you choose.

Type lets you choose to weight the averaged results with the volume of the measurement location chosen under *Channels*. You can also select the type of data you want to average: the min, mean or max values of the selected data.

4.1.3 Using the Graphic Window to Calculate Measurement Parameters

To define a region on the curves using the cursors:

1. Click on **Cursor On** in the panel.

   Two vertical cursors are displayed.

   To remove the cursors, click on **Cursor Off**.

2. Move the mouse arrow onto the left cursor, and press and hold the mouse button. Then drag the cursor to the position you require. Repeat this procedure for the right cursor.

3. Click on **Cursor Zoom**.

   The data-interval between the cursors will now be the entire data-interval that can be seen.

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To define a region on the curves using the mouse:

1. Move the mouse arrow onto the upper left-hand corner of the region you wish to zoom on. Press and hold the mouse button. Then drag the arrow to the bottom right-hand corner of the region you wish to zoom on.

2. Release the mouse button. The region of the graph enclosed by the box will now be the entire graph that can be seen.

3. To cancel the mouse zoom function, type in the original start and end times in the Graph Set-up dialogue.

Note: the mouse zoom will not function if the cursors are on.

To select parameters for calculation:

1. Click on **Key Values** in the panel and the Key Values dialogue is displayed.

   This dialogue shows a list of parameters for which the 7300 can calculate values, using the data you have defined on your measurement result plots. You can select a maximum of 4 parameters.

   Parameters which cannot be selected are indicated in grey.

2. Click on the desired parameters.

   Fitting chooses how much of the curve between the cursors is used for calculating the extrapolation coefficient. If you choose 33%, only the last third of the curve between the cursors is used.

   If you select any of the following: **Time over y-value**, **Measurements over y-value**, **Area between curve and y-value**, type-in the y-value that you require in the **y-value** field.

   Under is used when you want to calculate the area under a concentration-decay curve.

   Over is used to calculate the area above a concentration-growth curve.

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Extrap extrapolates concentration-decay or concentration-growth curves to infinity, allowing calculation of area, local mean age-of-air, room average age-of-air, and air-exchange efficiency from the extrapolated graph.

Graph bases the calculations of the key values on the entire graph and not, as otherwise, on the section of the graph between the cursors. It also allows you to display the key values you choose, and their corresponding values, in prints/plots of the graphic window.

3. Click on **OK**.

To calculate values for the parameters you have selected:

1. Pull down the **View** menu and click on **Show Values**.

   The Values Panel is displayed at the top of the graphic window, Fig.4.2.

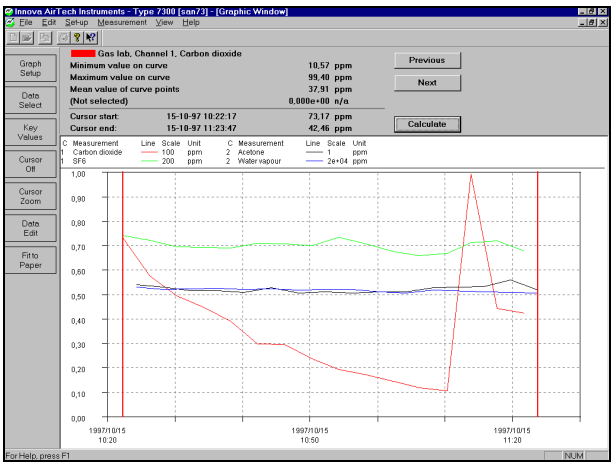

Fig.4.2 The Values Panel in the graphic window

2. In the Values Panel, click on **Calculate**.

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To edit data on the curves:

1. Move the two cursors to define the region of data that you want to edit from the active curve.

2. Click on **Data Edit** in the panel. The Edit Data dialogue will be displayed: click on **Erase**. If you want to restore the data, click on **Data Edit** to display the Edit Data dialogue, then click on **Unerase**. If you want to restore all the data in the database, click on **Data Edit** to display the Edit Data dialogue, then click on **Unerase All**.

To change the display mode of the graph:

1. Click on **Fit to Paper** in the panel.

2. To return to the Fit to Window mode to view the entire graph, click on **Fit to Window**.

4.2 Using the Numeric Data Window

The numeric data window shows data in table form. It can show the same types of data as the graphic window, but cannot be used for calculating measurement parameters, etc.

To use the numeric window to display the data you require:

1. Pull down the **View** menu and click on **Numeric window**. The numeric window is displayed.

2. Pull down the **View** menu again and click on **Show Panel**.

   A panel of "buttons" will be displayed on the left side of the numeric window. These buttons are used to set-up the numeric window to display the data you want.

3. Click on **Graph Set-up** in the panel. The Numeric Data Interval dialogue is displayed.

   X-interval selects the time-period which the display will cover.

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4. Type in the period of time that you want the numeric data window to cover.

To use the scroll function of the numeric window:

Click on **Enable Scroll** in the numeric window's panel.

This enables you to move through the data 10 records at a time. To remove the scroll function, click on **Disable Scroll** in the panel.

4.3 Using the Status Data Window

The status data window shows the current operating status of the system. It informs you; what type of measurement is currently being performed; if any warnings or errors have occurred; of the current date and time; and shows which alarms are active. The status window can be displayed in two forms, a reduced form and an extended form.

In the Status window, you can shut off alarms that have been triggered by high gas concentrations.

In its extended form, the status window displays the most recent measurement results from a single or all measurement channels (lower section of the window).

To activate the Status window:

1. Pull down the **View** menu and click on **Status window**.

2. To show the most recent measurement results from a particular measurement location, click on **Select Channel**. Click on the number of the measurement channel from which you want to display data. If you want to show data from each active channel, as it is received from the instruments, click on **ALL CHANNELS**.

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To shut off alarms that have been activated:

In the **Alarm (press to shut off)** area, click on the alarms that are active (On). This deactivates the alarms.

An alarm that has been shut off cannot be activated for the next 5 minutes, even if the lower alarm limit (the "warning" level) for that gas has been exceeded. If, however, the upper alarm limit (the "danger" level) is exceeded for any gas, the alarm will be activated.

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Chapter 5

Management of Data

5.1 Backing Up and Restoring Data.....5 – 2

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Restoring Data to the 7300 ..... 5 – 2

5.2 Using the Compress Data Function .....5 – 3

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5.1 Backing Up and Restoring Data

Back up enables you to safeguard data that you wish to keep and to save disk-space in the computer, it is recommended that you back up databases of older measurement results onto disks. You can also use this function to store databases with special set-ups. You can restore the data from the disks if you want to use this data again. This section tells you how to do this using the 7300's **Backup** and **Restore** functions.

5.1.1 Backing up Data From the 7300

The **Backup** function in the **File** menu lets you back up databases from the 7300. Note that a single database can contain several disks-full of data, so before you begin backing up, ensure that you have several formatted disks ready.

Note: Never back up more than one database on one disk or drive.

To back up databases from the 7300:

1. Pull down the **File** menu and click on **Backup**.
2. Click on and highlight the database to be backed up.
3. Click on **OK**.
4. Use the mouse to define the backup destination drive.
5. Click on **OK**.

The 7300 will display an alert telling you when (if necessary) to change the back-up disks.

5.1.2 Restoring Data to the 7300

The **Restore** function in the **File** menu lets you restore backed up databases to the 7300. Note that there must be enough space on the computer's hard disk to accept the restored database. It

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is recommended that you ensure you have enough space before proceeding with this function.

This function makes it easier to set up a database with a standard set-up for a particular type of measurement by restoring an empty database with the required standard set-up.

Important! You can only restore one database from one disk or one drive.

To restore a backed up database to the 7300:

1. Pull down the **File** menu and click on **Restore**.
2. Using the mouse, click on the drive of the database to be restored.
3. Click on **OK**.

The database will be restored to the 7300. Note that you cannot restore a backed up database to an existing database in the 7300 which has the same name. The existing database must be removed if you wish to restore the backed up database to a database with that name.

5.2 Using the Compress Data Function

The **Compress Data** function in the **File** menu is used to compress data in the current database. Compression is done by reducing the measurement results in the database, and storing these results in the place of the full set of data.

You can compress data from previous measurements in order to release storage space in a database while keeping a record of the measurement results. Thus, further measurements can be added to the database. You can also compress data during a measurement, when the available disk-space is full.

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Note:

- Data compression cannot be reversed once done. If you want to keep all the original data, you must first make a back-up of the database before doing the compression. See section 5.1.1 for details of how to do this.
- Compressing data does *not* create more disk space. It merely creates space within the database for further measurement results.

To use the data compression function:

1. Pull down the **File** menu and click on **Compress Data**.
2. Click on the time period over which you want to reduce data.

   For example, if you select **10 min.**, the measurement results in the database will be "cut" into 10-minute sections, and the results in each 10-minute period will be reduced as described above. The reduced values will then be stored in place of the full set of data for each 10-minute period.
3. Click on **OK** to begin compressing the data in the database.

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Chapter 6

Warning/Error/Status Flags

6.1 Warning/Error/Status Flags.....6 – 2

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6.1 Warning/Error/Status Flags

The flags used by the 7300 to indicate the system's operating status can be seen in the 7300's status window and the numeric window. The flags are divided into 7300, 1312 and 1303 or 1309 flags. These are defined as follows:

Flag	Flag-name	Flag Priority	Generated by	Bit no.
7300:				
D	**D**ata Edit flag	No priority		0
A	**A**larm limit exceeded	1 (Mon. mode only)		1
C	**C**ommunication error	2		2
R	**R**eboot	3		3
1312:				
A	**A**irway error	5*		4
B	**B**ad result	6		5
E	**E**quipment failed	1		6
W	Equipment **W**arning	2		7
M	**M**echanical error	3		8
P	**P**ower failure	7	S2	9
V	**V**ibration too high	4		10
1303 or 1309:				
D	**D**osing pump weak	2 (Vent. mode only)	W7	11
E	**E**quipment failed	1	E1;E2;E3;E7;W2	12
G	**G**as pressure	4 (Vent. mode only)	E5	13
P	**P**ower failure	5	W1; W3	14
S	**S**ample channel blocked	3*	E4	15

Table 1 The Warning/Error/Status flags used in the 7300

Note: The 7300 flag is not shown in the numeric window or in the Warnings/Errors view in the status window, but the status

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window opens automatically and the alarms are activated when the alarm limits are exceeded.

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