htV-m Download Software
Install Guide & User Manual

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INTRODUCTION.

The newer *htV-m* instrument contains many advanced features in addition to an extended memory range. In order to access these features a PC is required which connects to the instrument via the built-in USB connection. This software allows:

- Data to be transferred from the instrument.

- Schedule and time settings to the defined.

- Detailed information on the instrument set-up to be viewed.

- Automated calibration, diagnostic and restore operations.

Throughout this manual you will see these two symbols used:

This symbol is used to warn you or highlight important information.

This symbol is used to suggest useful tips and suggestions to make using the instrument simpler.

HARDWARE INSTALLATION.

You should have received an USB cable with your *htV-m*: one end of which has a mini–B type plug and the other has a larger standard type–A plug. The type–A end needs to be connected to a USB port on your PC. If your PC does not have a USB port you may need to install an USB adaptor card in your PC first – see the relevant instructions included with the adaptor card before continuing.

Ensure that the PC is turned off and locate the matching socket on your PC for the USB lead – ensure that you orientate the plug correctly before pushing home. The opposite end of the cable connects to the instrument as described in the user manual. You may also want to use the mains supply for your instrument whilst it's connected to the PC.
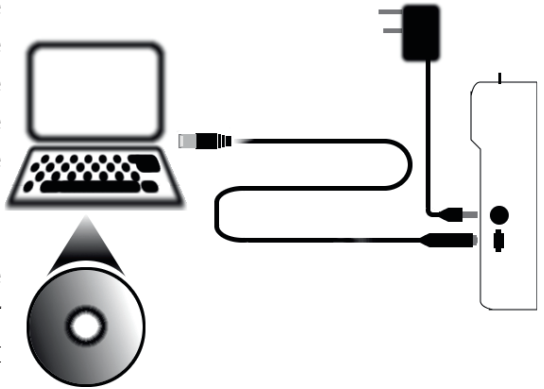
Turn the PC on and check that it operates as normal – if not turn off and remove the cable before seeking further advice.

SOFTWARE INSTALLATION.

The software is provided on a CD – insert it into your PC. If auto-run is enabled on your PC then the installation routine ought to begin. If auto-run is not enabled then proceed as follows:

- Press down the '*Windows*' key and the '*R*' key at the same time to open the '*Run…*' box.

- In the '*Run…*' box enter your CD drive letter (*D:* for example) followed by "*autorun.exe*".

- Press the '*OK*' button to start the installation.

On-screen prompts will guide you through the remainder of the install process. Once complete you can access the software in your '*Start*' menu, under '*Programs > PPM Technology > htV-m Download Software*'.

Starting with v1.0r24 of the software a password can be set and is required to carry out some tasks. When running the software, if no password has been set before, you will be asked to enter one or opt–out from it's use. It's important that you remember this password as it can't be recovered at a later date. It's also important that you keep your password secure to prevent other users who might have access to the software from altering your settings.

FIRST STEPS: CONNECTING.

When the software first starts we are presented with the main screen and most of the functions are disabled – this is because we have not connected the PC to our instrument yet. To do this we need to tell the PC where the instrument is connected.

If you are not sure which port the instrument is connected to then you can simply click on the 'Auto' button and the software will attempt to connect on each port in turn until an instrument is found.

If no instrument is found then an error box is shown – otherwise details of the instrument will be shown in the window status bar and the info strip near the bottom of the window. Also, the window icon will change to an animated icon to show that the instrument connection is OK.

Full access is now available to the software by clicking on the tabs along the top of the window. When you are done return to this screen and click 'Disconnect' to safely disconnect the instrument.

Other equipment connected to other serial ports may be affected by this automatic scan, if you have such equipment connected then use the feature with caution. See the advanced topics for instructions on how to connect manually.

If you have more than one instrument connected then only the first will be found when using the 'Auto' feature – you will need to manually select the correct ports in this case.
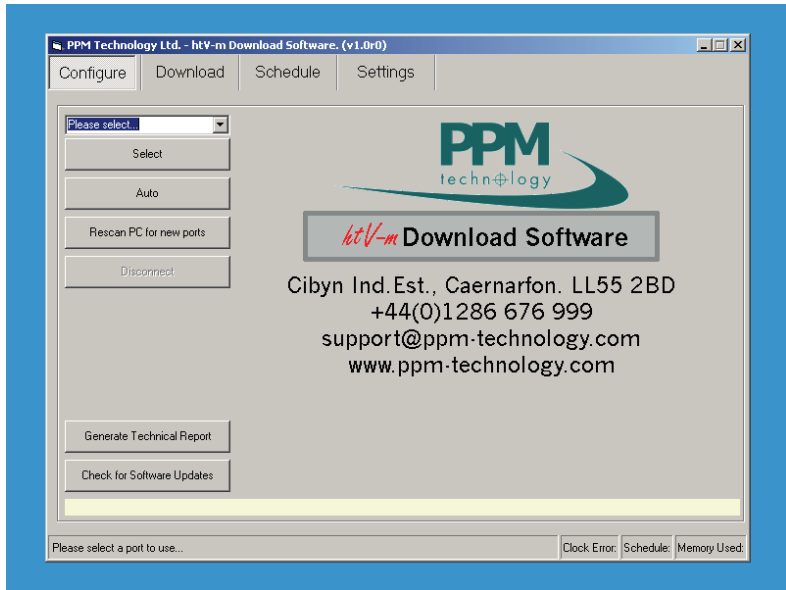
The Configure Page as shown when the application is first started.
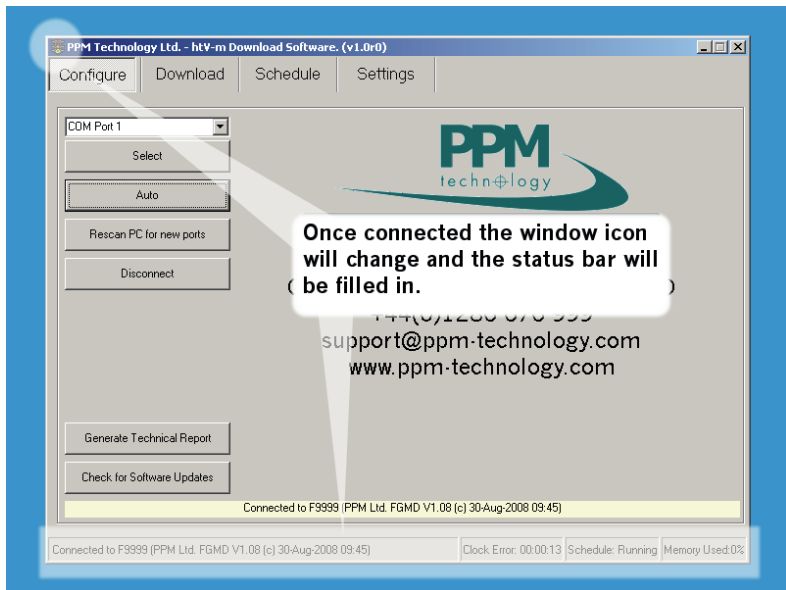
The Configure Page after an instrument has been connected.

First Steps: Downloading Data.

On the '*Download*' tab there are initially two sections – '*Memory Usage*' that summarises the memory used on the instrument and '*Download Memory*' that lets you download and erase the whole of the instrument memory or just portions of memory.

Usage:

Along with the maximum capacity the number of used and free slots are shown – each slot records a single sample. The '*Refresh*' button will update these figures, useful if a schedule is running or you have recently taken some manual samples whilst the instrument is connected. If the communication link to the instrument is idle then the application will periodically update the memory usage for you.

The coloured surround on the '*Refresh*' button gives a quick indication of the free capacity as it's colour changes from green to red as the amount of free memory drops. The percentage of memory used is also shown in the status bar at the bottom of the window.

Download:

There are four buttons in this section: The top two buttons will download all the memory or erase all of the memory. The remaining two buttons will perform the same functions but only on a selected portion of the memory – the portion is defined by using the sliding control between the two sets of buttons. The portion related controls are only shown when there are enough slots to download. In addition, it is only possible to erase portions of memory when the selection starts from the first slot.

In order to save any data it must first be downloaded from

> ⚠ After downloading, the data is stored in the PC memory only and will be lost if you disconnect from the instrument; the application is closed or the PC is switched off.

> ⬤ When you download data it is only copied from the instrument memory – it is not removed until you choose to erase it from the instrument memory.

the instrument into the PC memory using either the '*Download All*' or '*Download Portion*' buttons. For now we will download the whole of memory (assuming that you have taken some samples which are ready to be downloaded). Clicking on the '*Download All*' button will start the process, the progress bar and the status bar will show details of the download. We are now ready to save the data.
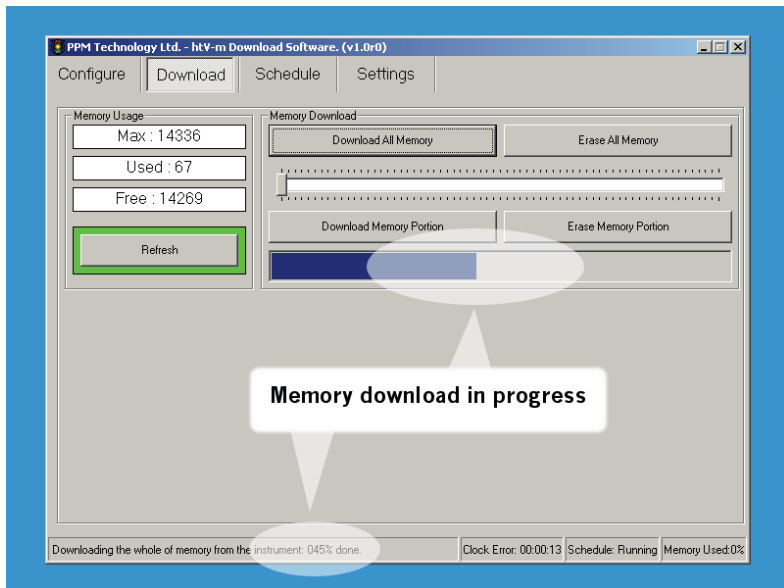
THE DOWNLOAD PAGE WHILST A DOWNLOAD IS IN PROGRESS - THE STATUS BAR INDICATES THAT 45% OF THE DOWNLOAD IS COMPLETE.

FIRST STEPS: SAVING DATA.

Once data has been downloaded you can choose the way that your data is presented in the output by using filters, there are many to choose from:

All

All of the downloaded data will be saved to the output file. The format for the date field in the saved data can be changed by selecting one of the four sub-formats. As an example each format would save the 23rd of January, 2008 as follows:

dd–mmm–yyyy	"23–Jan–2008" *(International style)*
dd/mm/yy	"23/01/08" *(British style)*
mm/dd/yy	"01/23/08" *(US style)*
UTC	"1201089600" *(Internal representation)*

By Schedule

You may opt to only save data which was stored as part of schedule – manual samples will be omitted from the output file.

By Date Range

Only samples taken between two dates will be saved to the output file. The dates are defined by using the controls which appear to the right of the filter list when this filter is selected. Data which was saved before the selected time on the selected day ('*From:*') or after the selected time on the selected day ('*To:*') will be omitted from the output file.

By Concentration Range

This, the most complicated filter, will let you define which samples to save based on the formaldehyde concentration of the sample. You may choose from three comparisons:

A<=C<=B	Sample is saved if it is between concentrations 'A' and 'B'
!(A<=C<=B)	Sample is saved if it is not between concentrations 'A' and 'B'
C==A	Sample is saved if it is the same as concentration 'A'

Concentration 'A' and 'B' are defined by using the scroll–bars in the boxes labelled 'A' and 'B'.

Comprehensive

Using this filter will output all available information for each slot and as such will generate the largest output file. Most of the data saved is internal diagnostic information and of not much use to the end user. The filter is included so that if there is a problem the resulting file can be sent to the instrument manufacturer.

Once you have selected a filter you may use the '_Test Filter_' button. This will show a summary of how much of the

When data is saved using the '_By Schedule_', '_By Date Range_' or '_By Concentration Range_' filters the date of each sample will be formatted using the '_dd–mmm–yyyy_' rule.

downloaded data will be saved using the selected filter.

When you are ready to save your data you may also select the type for your output file - this is done by selecting the appropriate type from the 'Save as type' list after pressing the 'Save Data' button. There are four types available:

CSV (Comma)	Each field is separated by a ","
CSV (Semicolon)	Each field is separated by a ";" *Use this if the decimal point for your locale is a comma to prevent confusion.*
Text (Tab)	Each field is separated by the tab character.
Text (Space)	Each field is separated by a single space.

In general the default type should be OK for most uses – CSV files are ultra-portable and can be opened by most types of data manipulation applications. If you have problems opening the output file then try one of the other file types or study the documentation for the application you are trying to use to open your data.

For now we'll use the default 'All (DD — MMM — YY)' filter and save the data as 'CSV (Comma)', clicking on the 'Save Data' will open a new window where you can specify a filename and location for your data.

> The application will suggest a filename for you based on '*HTV_*' followed by the date and time but you can change this to be something more meaningful. There is no need to add the '*CSV*' or '*TXT*' extension to the filename as the application will do this for you.

Using *Windows Explorer* navigate to where you saved your file and open it using a text editor such as *Notepad*. You should see your data, separated by commas, as follows:

```
Date,Time,Reading/ppm,Temperature/oC,Humidity/%rh,Reading/mg.m^-3,Notes
04-Jun-2008,02:59:25,0.168,23.9,61.3,0.2068,Scheduled
06-Aug-2008,10:01:03,0.253,22.84,67.2,0.3126,Manual
06-Aug-2008,10:05:17,2.05,23.01,65,2.5315,Manual
06-Aug-2008,10:21:14,0.139,22.97,67.2,0.1717,Scheduled
06-Aug-2008,10:22:19,0.108,22.6,66.8,0.1336,Scheduled
```

Opening the same file with an application which understands *CSV* files will result in your data being tabulated as follows:

Date	Time	Reading /ppm	Temperature /oC	Humidity /%rh	Reading /mg.m^-3	Notes
04-Jun-2008	02:59:25	0.168	23.9	61.3	0.2068	Scheduled
06-Aug-2008	10:01:03	0.253	22.84	67.2	0.3126	Manual
06-Aug-2008	10:05:17	2.05	23.01	65	2.5315	Manual
06-Aug-2008	10:21:14	0.139	22.97	67.2	0.1717	Scheduled
06-Aug-2008	10:22:19	0.108	22.6	66.8	0.1336	Scheduled

The '*Notes*' column holds extra information on each sample such as how the sample was taken; whether the instrument was calibrated and if the battery was running low. You may notice that there are gaps in the data, this can be because the software pauses the running schedule when downloading data; the instrument failed to sample or the instrument was turned off during the schedule.
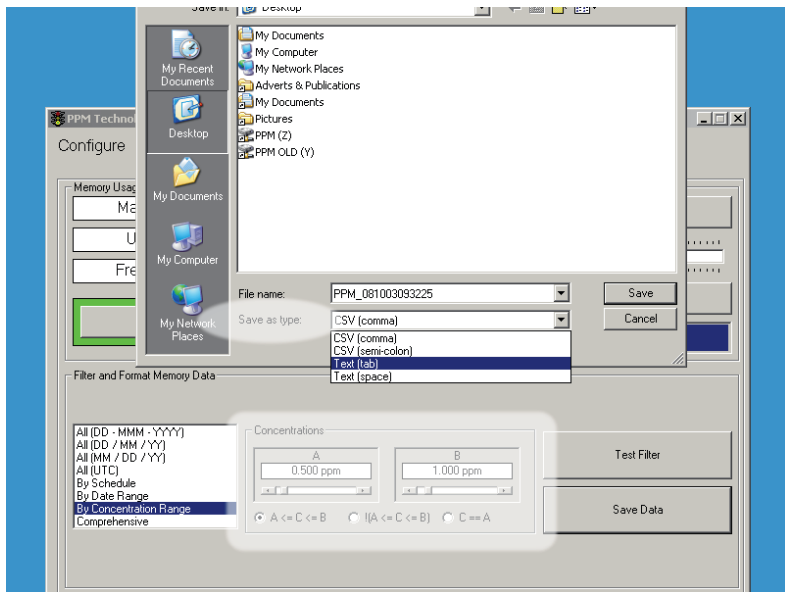
SAVING DOWNLOADED DATA AS A TAB SEPARATED TEXT FILE USING THE CONCENTRATION FILTER.

You will need your password to erase data from your instrument.

FIRST STEPS: SCHEDULES.

Schedules allow the instrument to use it's internal clock to automatically take samples over a defined period of time. The instrument can also be instructed to only sample on certain days and to only fill — not overwrite — it's memory bank whilst in a schedule.

The '*Schedule*' tab is where most of these settings for the instrument schedule can be viewed and changed: by default only the basic controls are shown, the more advanced controls will be covered in later sections. Along the bottom are buttons that will let you:

- Save and load the current schedule settings to the instrument.

- Control the schedule that has been loaded on to the instrument.

The other visible controls adjust the sampling frequency within the schedule; the schedule ending conditions and a graphical representation of the schedule settings.

The '*Sampling Frequency*' control can be adjusted from 1 minute up to 1 hour. The instrument will then take samples at this rate, assuming that the sensor is sufficiently clear. If the sensor is not clear when a sample is due then the sample will be taken as soon as the sensor is able to as long as it's within the bounds of the schedule. When the sampling frequency is set to '*Continuous*' the instrument will take samples as often as possible by only waiting for the previous sample to clear from the sensor. Changing the sample frequency whilst in the default '*Simple*' mode will adjust the hidden schedule settings to be "all day, every day".

The schedule, once started, will continue until either it is

turned off or one of the stop conditions selected in the '*Settings*' box are met. These are:

• **Run Once** — The schedule will only run through once and then stop. With the default "all day, every day" this means that sampling will continue for a single week and then stop.

• **Repeat (Until Full)** — The schedule will continue until there are no more free slots in the memory or it is stopped.

• **Repeat (Overwrite)** — The schedule will continue until it is stopped. When the memory becomes full then the oldest data slot is erased and overwritten with new data.

The remaining section in '*Simple*' mode shows a simple '*Preview*' of the schedule indicating the start time and duration of the sampling period with a yellow strip. Once you have changed the settings to your requirements using the '*Use These Settings*' button will transmit them to the instrument. If you wish to reload the settings from the

The '*Stop on Full*' item on the instrument '*Conf*' menu takes precedence over the stop conditions so if it is set then no memory slots will be overwritten — see the instrument *Operation Manual* for more details.

instrument, undoing any changes you may have made, then use the '*Reload from Instrument*' button. Changing the schedule settings whilst one is running will disrupt the sampling so it may be better to stop the running schedule first: do this by clicking on the '*Start/Stop Schedule*' button which will toggle the schedule state.
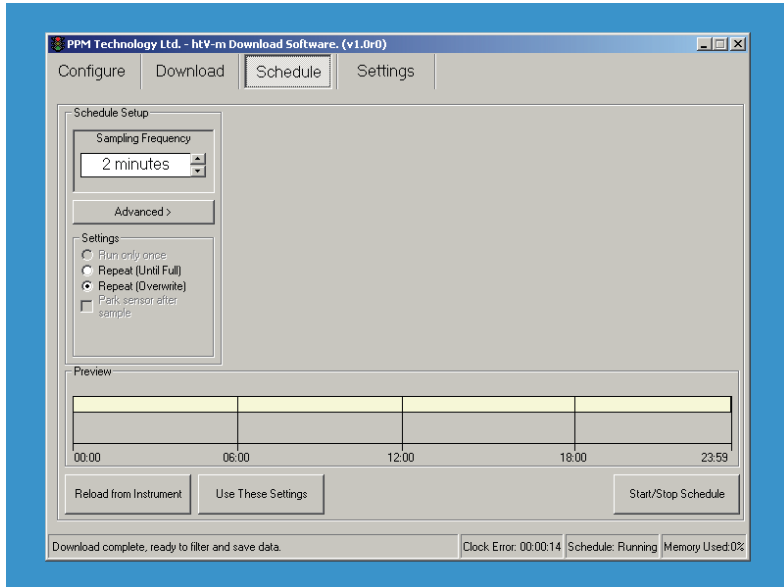
THE SCHEDULE PAGE AFTER AN INSTRUMENT HAS BEEN CONNECTED SHOWING THE "ALL DAY, EVERY DAY" SCHEDULE WITH A SAMPLING FREQUENCY OF 2 MINUTES.

> ⚠ You will need your password to alter the Schedule settings on your instrument.

FIRST STEPS: SETTINGS.

Miscellaneous instrument settings and information are placed on the '*Settings*' tab. From here the instrument sampling mode and settings can be seen; the audible alarm settings can be changed (if the appropriate hardware is fitted) and the instrument clock can set. More advanced features are hidden at first as they should only be adjusted in conjunction with detailed instructions or when instructed by the manufacturer or their local agent.
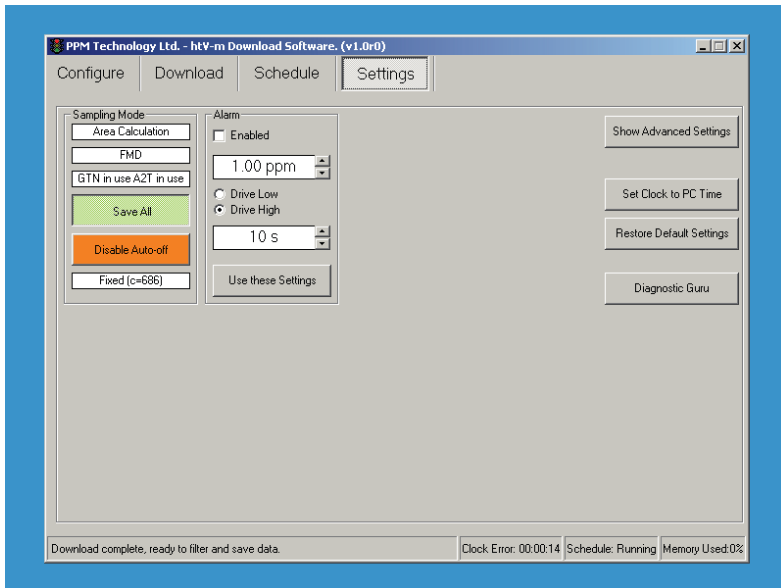
THE SETTINGS PAGE SHOWING THE INSTRUMENT SETUP.

> ⚠ You will need your password to alter some of the settings on your instrument.

DATA DOWNLOAD AND SAVING.

Cancelling a Download.

To cancel a memory download whilst it's in progress double-click on the status-bar. Any slots previously downloaded will be lost and you will not be asked to confirm the action.

Memory Portions.

Sometimes you may only want to download or erase a subset of the entire memory. For example, the entire memory was downloaded yesterday and only ten further readings have been taken today – by only downloading the last ten samples the time taken is much reduced. Likewise you may want to delete the readings that have been downloaded yesterday but preserve the ten samples from today. This is done by defining a portion of memory.
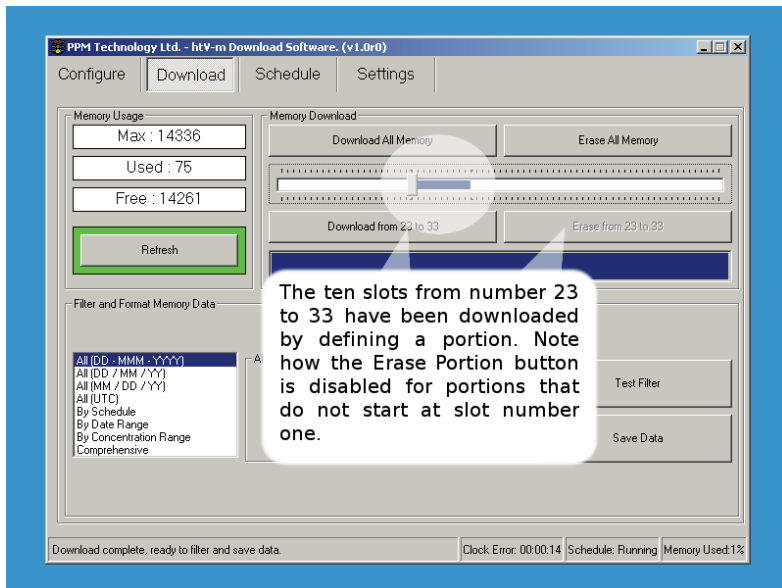
SELECTING A PORTION OF MEMORY TO WORK WITH CAN SPEED UP THE DOWNLOAD PROCESS. USE THE 'SHIFT' BUTTON TO DEFINE THE PORTION.

To select a portion first drag the slider on the '*Download*' page to the first or last slot in your portion – the portion number will be shown in the box above the slider. Now hold down the **SHIFT** button on the keyboard whilst you drag the slider again to the other end of your portion – the mouse pointer will change from being the normal cross-hair to being a double-ended arrow whilst you drag the slider. Release the slider to complete the selection process.

The '*Download Portion*' and '*Erase Portion*' buttons will now change to indicate the portion you have defined and the slider bar will be highlighted over the range of the portion. To cancel the selected portion simply click on the slider.

The slider is not shown if there are less than three samples in the instrument memory. Erasing saved samples can only be performed on portions that start from the first slot – the '*Erase Portion*' button will remain disabled is the portion does not contain slot one.

Saving Your Data when "0.1" is shown as "0,1".

After you have downloaded your data and saved to a CSV file as recommended you may find that when you open the saved file in another application that extra columns have been inserted into your data or that the values in the file do not match what you saw on the instrument. This is a common problem with CSV files in countries in which the practise is to use the ',' character to denote the decimal point in numbers.

The problem come about because 'pure' CSV files use the ',' character to separate the data columns so when the data "1" "2.3" and "4.5" is saved it is written as "1, 2.3, 4.5" but the local settings makes the output file become "1, 2,3, 4,5" which is then incorrectly read back as being "1" "2" "3" "4" and "5".

The solution in these areas is to use the 'alternative' CSV format which uses ';' to separate the data columns and therefore avoids the confusion. The problem can also be avoided by using one of the two text formats that use white–space characters to separate the data. You may need to specify the data separation character used when you import the data into the third-party application.

In most cases the application will detect which is the best format to save data in and will select either the comma or semi-colon CSV format for you. If you find that this detection does not work correctly for your region please contact the developer to report the problem.

SCHEDULE CONTROL.

When the application is first run much of the complexity behind setting the schedule is hidden until the '*Advanced*' button is pressed. All the controls are then revealed and can be used to refine the schedule. Pressing the button again (note that the label changes) will hide the extra controls.
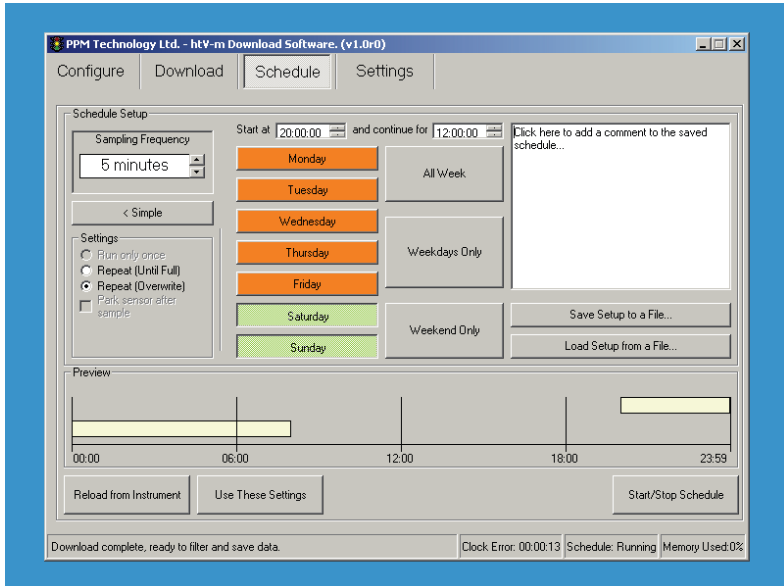
THE ADVANCED SCHEDULE CONTROLS ALLOW MORE ADVANCED SCHEDULES TO BE SETUP AND SAVED TO FILE.

These extra controls allow the starting time and duration of the schedule to be defined as well as the exact week days. In addition it is also possible to save the schedule set–up to a file on the PC to be reloaded at a later date.

As an example we will set up a schedule to take samples between 8pm and 8am. Along the top of the page adjust the times so that the sentence reads as '*Start at [20:00:00] and continue for [12:00:00]*'. Note how the coloured bar in the '*Preview*' pane adjusts and wraps round to the next day.

Now we need to decide how often we wish the instrument to sample in our schedule, this is done with the 'Sampling Frequency' control as before. For our example five minutes will be sufficient so set the the 'Sampling Frequency' to be '5 minutes'.

The last step is to decide on which days we wish the schedule to run – for our example we only wish to sample over the weekend. Click on the 'Weekend Only' button: the column of week day switches should change over so that 'Saturday' and 'Sunday' only are selected (green). You could also manually select which days the schedule will run on by clicking on them to toggle.

At this point we will save the schedule to a file so we can recall it at a later date for use on other instruments or to build up a library of schedule settings (for example, we may want a different set–up during the week and a special set–up for holiday weekends which extends into Monday). Click on the 'Save Set–up to a File' button and then choose a filename and location for the schedule. When you want to reload a set–up from a file use the 'Load Set–up from a File' button.

Press the 'Use These Settings' button to transmit the set–up from the display to the connected instrument.

The day switches control which days the schedule will **start on**, so in our example the schedule will continue to sample up to midnight on Sunday *and then continue until 8am on Monday morning*.

On the instrument the schedule settings are only tested at the start of each minute. This means that the seconds are ignored – 12:34:56 will be read as 12:34:00 by the instrument.

OTHER INSTRUMENT SETTINGS.

In the left hand corner of the 'Settings' page you can find a brief summary of the 'Sampling Mode' being used by your instrument. The top line tells you which mode the instrument is in (Area, Timed or Peak Detect); the next line tells you which instrument type and limit set–up is being used and the last line tells you if the extra settings available when in Area sampling mode are turned on or not (GTN and A2T). At the foot of the section the current mg/m^3 conversion factor is shown. You may not change these settings from the application – see your Operation Manual for more details.

Below the instrument information are two option buttons marked as 'Save All' and 'Disable Auto-off': you may toggle their settings by clicking on the buttons. When the option is active the button turns green and the option is changed on the instrument immediately. The default setting for both options is inactive so the buttons will be orange.

The 'Save All' option will force the instrument to save all samples to the internal memory slots – the usual behaviour is to only save manual and scheduled samples but not those initiated by third-party devices such as the AMS-2 or SPC-1. If you use such devices and wish to maintain a local 'backup' of the samples then you would activate this option.

The 'Disable Auto-off' option will prevent the instrument from turning itself off after being idle for a period of time. This option would be used when the instrument is being powered from a DC input or is unattended in between schedule periods, for example.

Alarm.

If you have the appropriate hardware fitted to your

instrument then you can adjust the alarm settings in the '*Alarm*' box. Set the concentration you wish to trigger an alarm condition and then set the number of seconds the alarm should be active for. Setting a alarm duration of zero seconds will force the alarm condition to continue until a new sample is taken (which may then re-trigger the alarm).

When an alarm is triggered the instrument controls the connected hardware – the logic used when doing this is controlled by selecting the '*Drive Low*' or '*Drive High*' option. If the '*Drive High*' option is selected then the connected hardware will be active (*i.e.*: the sounder will be on or the lamp will be lit) when an the instrument enters an alarm condition. If the '*Drive Low*' option is selected then the connected hardware will be inactive (*i.e.*: the sounder or lamp will be off) when an the instrument enters an alarm condition.

The alarm function will only be activated when the appropriate hardware is installed and the alarm function has been enabled via the '*Enabled*' tick-box or the instrument '*Conf*' menu. Once you are happy with the alarm configuration pressing the '*Use these Settings*' button will transfer them to the connected instrument.

Clock.

When the instrument is first connected and at periodic intervals the built-in clock will be checked against the PC time, if the instrument is found to be more than two minutes out then a warning message is shown prompting you to set the instrument time correctly. Clicking on the '*Set Clock to PC Time*' button on the '*Settings*' page will synchronise the instrument clock with the PC clock. An indication of the difference between the PC and instrument time is shown in the status bar at the bottom of the application window.
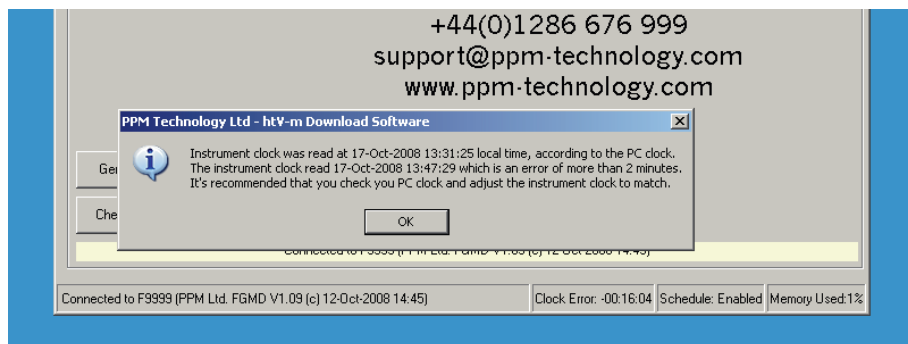
THE APPLICATION WILL WARN YOU IF THERE IS A SUBSTANTIAL TIME ERROR BETWEEN THE PC AND THE INSTRUMENT.

When the instrument leaves the manufacturer the clock is set to the correct time in the GMT/BST time zone. The instrument does not correct for daylight saving or for changes in time zone so it is recommended that you connect to the instrument as soon as possible after a change in the local time and correct any errors. If a schedule is found to be enabled at the new time it will be activated but the time and date of previous samples recorded in the instrument memory will remain unchanged. By altering the clock setting it is possible for more than one sample to be saved with the same date and time.

The instrument clock has a drift between ±5.91 and ±0.09 minutes per month, depending on the temperature stability – if you find that your instrument exhibits more drift than this then contact your supplier to have the clock recalibrated at the factory.

Pump And Valve.

By using the '*Advanced Settings*' mode it is possible to adjust the instrument sampling mechanics by changing the appropriate pump and valve settings. Note that altering these settings will reset the instrument calibration.

> ⚠️ Please note that valve settings will only take effect on instruments where a valve has been fitted — if it is not fitted then you should not activate this feature as changing the settings may result in a inoperable instrument.

When shown, the 'Pump & Valve' pane is separated into a preview area and two sections where the *Pump settings* and the *Valve settings* can be adjusted both of which have the same controls. For each actuator it is possible to define the running mode, an offset ('Start at...') and a duration ('Run for...'). It is also possible to change the sample activation point but it is highly recommend to leave this as the default '*Sample at Time Zero*' – if this setting is changed or is found to be the non-default on the instrument then a warning message is shown advising the user to revert to the '*Sample at Time Zero*' setting.

The three running modes are '*Never*', '*Always*' and '*Timed*' the offset and duration settings are only available when the actuator is running in '*Timed*' mode.

The offset controls when an actuator will start it's run with respect to '*Time Zero*' which is marked on the preview with a red line. The offset can be adjusted between –12.8 and +12.7 seconds. The duration controls the amount of time that an actuator runs for and can be adjusted between 0 and 25.5 seconds.

When a sample is requested the instrument works out which actuator needs to start first after the sample button is pressed (or the schedule triggers the sample or an external device triggers a sample). Analysis and zeroing of the sample then takes place at '*Time Zero*' under the default settings. If the '*Sample on Button Press*' option is selected then the analysis begins as soon as the first

actuator starts (the black bar on the preview). The pump settings are shown by the green line on the preview and the valve settings are shown by the blue line. If either are set to '*Always*' then a light grey line is shown instead.

 Pressing on the '*Use these Settings*' button will transmit the settings to the instrument while '*Re-Load Settings*' will populate the application with the current instrument set–up.

Restore Original & Default Settings.

 If you have lost track of changes to the instrument setting and caused a malfunction then it is possible to use the application to revert the instrument to either a known factory default or the settings in use when the instrument was first connected to the software. This is done by clicking on the '*Restore Default Settings*' or '*Restore Original Settings*' buttons — this will revert most settings to a default state by transmitting a series of commands to the instrument. The function will not delete any saved samples but will reset the instrument calibration as the *Pump* and *Valve* settings are restored.

 The factory defaults are supplied from a separate settings file provided with the application but updates to this file may be available from the manufacturer — if you find that your problem is not fixed by using this feature then it may be worth obtaining a more recent settings file by contacting the manufacturer directly and requesting an update.

 The original settings for the instrument are saved when the instrument is connected for the first time — if the instrument settings had alredy been altered at this time then restoring to these settings may not correct your problem.

ADVANCED TOPICS.

Some of the features not covered previously are described here but the user should be aware that misuse of the more advanced settings could lead to unexpected results and others should only be used when instructed to do so by the manufacturer or agents. Take care and think before you transmit your settings to the instrument.

Manual COM Port Selection.

If you have problems with the 'Auto' function not finding your instrument or connecting to the incorrect instrument then you will need to manually select the correct COM Port. This is done by using the drop down list on the 'Configure' page to select the correct port and then pressing on the 'Select' button.

If the port you wish to use is not shown in the list (maybe it's a USB adaptor which you connected after starting the application) then pressing the '*Rescan PC for new ports*' button will re-populate the list. If you still can't find the correct port then please check that the port has enumerated correctly in the Windows Device Manager — you can find this in the Control Panel under System Properties or by using the '*Windows*' Key and the '*Break/Pause*' Key together.

The Data Dump Format.

If you have placed the instrument into the '*Data Dump*' mode you can download the whole of memory to a serial terminal or printer. The data is transferred in *CSV* format (for a description of the *CSV* file see the chapter on '*FIRST STEPS: SAVING DATA.*') with each line being terminated with the "`<CR><LF>`" pair. The file layout is shown in the table.

Column	Title	Description
1	**Date**	yyy-mm-dd
2	**Time**	hh:mm:ss
3	**Limit**	instrument type 1 to 4
4	**Area Result**	in ppm
5	**Time Result**	in ppm
6	**Peak Result**	in ppm
7	**Time-to-Peak**	in seconds
8	**Temperature**	in °C
9	**Humidity**	as %age R.H.
10	**Flags**	see below

The 'Flags' column contains information about each sample encoded as a series of eight zeroes or ones the positions of which indicate a certain property being true or not. The flag positions are explained in the table.

Position	Meaning
1st : -------x	1 if instrument was calibrated.
2nd : ------x-	1 if the reading was offset.
3rd : -----x--	1 if the sample triggered a gate setting.
4th : ----x---	1 if the sample was part of a schedule.
5th : ---x----	1 if the sample was taken remotely[1].
6th : --x-----	1 if instrument battery voltage was low.
7th : -x------	1 if sample temperature was offset[2].
8th : x-------	internal flag — ignore sample if '1'.

[1] See description of 'Save All' in 'Other Instrument Settings' for more details about this flag.

[2] If this flag becomes '1' then your instrument may have developed faulty settings, see the procedure to 'Restore Default Settings' in 'Other Instrument Settings'.

Generating a Log File of your Session.

If you run into problems and require technical support you may be asked to provide a log file of the problem you are encountering this is a simple text file which contains a list of actions performed by the application. The log file will help the support personnel to pinpoint where the application is going wrong and to provide a solution.

By default no log file is created but if the application is launched with the correct command line switch then a file will be generated. To do this open the Windows '*Run...*' box

by pressing the '*Windows*' Key and the '*R*' key at the same time or select '*Run...*' from the '*Start*' menu.

 Use browse button to locate the application executable, this will depend on your installation selection and your operating system but is typically "*C:\Program Files\PPM Technology Ltd\htV-m Download Software\htvM_if.exe*". To create a fresh log file add the switch "/lc" to the end. If you would prefer to append each session to the existing file then only use the "/l" switch at the end instead.

 The log file will be saved to "*debuglog.txt*" in the same folder as the application executable — please make sure that this location is accessible by the application beforehand. When you close the application a message will be shown to confirm the creation of the log file.
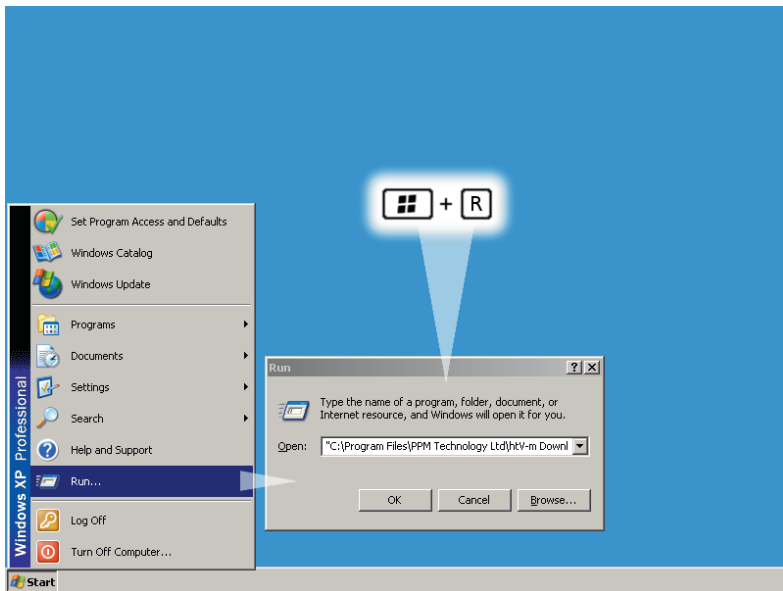
RUNNING THE APPLICATION FROM THE RUN BOX.

You can also click on the '*Generate Technical Report*' button on the '*Configure*' page: this will not only collect the current session log but also the current instrument settings and data along with information about your system into a special file which you can then send to the support personnel. This *'Technical Report*' will be saved to your *My Documents* folder and will be called "*TechnicalFile.htv*".
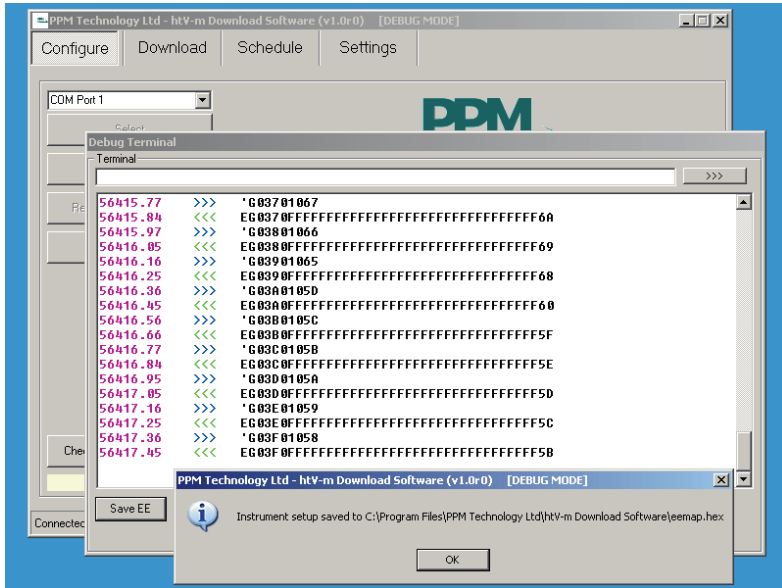
Activating Terminal Mode.

As part of an attempt to resolve any problems you may have you may be asked by the technical support personnel to enter what is known as '*Terminal Mode*' which bypasses the normal application user interface and allows direct communication with the instrument. This mode is activated by using the "/d" command line switch when launching the application. See the previous section on how to add command line switches when launching the application.

When '*Terminal Mode*' is activated you will see an extra window along with the usual application window and the main window title will also include the message **[DEBUG MODE]**. Using the normal procedure, connect to your instrument. Now you may type raw instrument commands into the top line of the Terminal window and press the button marked with '>>>' to transmit them. A log of the 'conversation' will be shown in the larger box on the Terminal window, this log can copied to your clipboard by using Ctrl+A to '*Select All*' followed by Ctrl+C to '*Copy*' it.

When you are done disconnect from the instrument as normal from the main application window before closing the application. You may also generate a log file of the session by using the "/l" or "/lc" switches in addition to "/d".

The '*Save EE*' button at the foot of the Terminal window

will transfer an image of the instrument settings to a

USING TERMINAL MODE TO DOWNLOAD THE INSTRUMENT SETTINGS TO A FILE.

special file which you can then send to the technical support personnel this file can then be used to replicate your exact instrument set–up in order to replicate any potential problems. The set–up file is saved to the application directory by default and a message will be shown when the transfer is complete which indicates the path and filename used.

Checking for Software Updates.

 Clicking on the '*Check for Software Updates*' button on the '*Configure*' tab will check the PPM technology Ltd. server for any updates to the system files. If you need to connect your PC to the internet to do this (i.e. dial-up connection or access a WiFi hotspot) then you should do so before using the feature.

New configuration files and docuemntation required by the application will be downloaded and any new distributions will be presented to the user for download. It's recommended that you save these to your PC and close the application before installing them. The system could also show you important documentation and notices which you should read carefully.

Changing the Password.

If you wish to change the password used to access the secured functions in the application then use the "/n" command line switch when launching the application. See the previous sections on how to add command line switches when launching the application.

When you use this switch you will be asked for your current password and to enter your new password. You must enter your new password twice to confirm that you entered it correctly. The new password will take affect immediately.

The System Tray Icon.

The application makes use of the System Tray to display information, errors and messages to the user, the application will also minimise to the System Tray rather than the Task Bar.

You can right-click the System Tray icon to bring up a menu where you can Auto Connect to an instrument; Download & Save the data from the instrument; turn the Schedule on or off on the instrument and Disconenct from the instruemnt. Double-clicking on the icon will show or hide the window and a sinlge click will show the last message bubble.

You can start the application minimised to the System

Tray by using the "/m" command line switch. See the previous sections on how to add command line switches when launching the application.