iMiniPlus

USER MANUAL
Version 2.12.07MP

Copyright © 2016 Cryopak Verification Technologies, Inc. All rights reserved.

The information contained within this document regarding ConsolePro software usage is intended as a guide and does not constitute a declaration of performance. The information contained in this document is subject to change without notice. Complying with all applicable copyright laws is the responsibility of the user.

No representation or warranty is given and no liability is assumed by Cryopak Verification Technologies, Inc. with respect to the accuracy or use of such information or infringement of patents or other intellectual property rights arising from such use or otherwise.

Copyright © 2016 Cryopak Verification Technologies, Inc. All rights reserved.

www.cryopak.com

Contents

1. Introduction 5

Software Version 5

2. iMiniPlus Profile 5

iMiniPlus Models 5
iMiniPlus Images....5
System requirements 7
Getting a copy of the ConsolePro software 8
Installing the USB adaptor cable drivers 10
Getting a copy of the USB drivers from the web 11
Installing USB Driver Files using Found New Hardware Wizard 12
Installing ConsolePro Software 12

4. Quick Start Guide 13

Connecting the serial or USB cable to PC....14
Connecting the serial or USB cable to the iMiniPlus 14
Launching the software....15
Starting and using the iMiniPlus 19
Stopping the iMiniPlus....20
Retrieve information from the iMiniPlus 20

5. Preparing iMiniPlus for use 23

Getting an iMiniPlus ready for logging 23
Password Requirements 24
Program and Configuration Wizard....24
Details and Changing Password 25
Configure Sensors and Alarm Settings....25
- Specification and Alarm 26
- Alarm Type 26
- iMiniPlus Display....28
- Enable Display 28
- Display Units of measurement....28
- Display change rate....28

Checking the time clock 29
Setting the Start, Stop and logging duration 29
- Duration of trip, at least....29
- Interval between each reading....29
- Start new log trip 30
- Finish log trip 30
- Continuous logging....30
- Enable stop button in this logger(s)....30

Summary and Upload Program into iMiniPlus 30
Program upload Failure 32

6. Results from iMiniPlus 32

Getting results from iMiniPlus 32
Download Wizard 33
Inspecting the information at close range 35
View Manager 35
Views 36
Links 38
Multiple Trip Synchronization Wizard 39
Analysis 40
View Data in a Graph 43
Data 44
Sensors 45
2D Graphs 45
Zoom 46
Legend 47
Time Zone 47
Colors 47
Printing the results 48
Sending a file by e-mail direct from Console 48
Calling up previous results 48
Digital signatures 48

7. Customizing the software 48

General 49
File 50
Date 50
Time 51
Time zones 51
2D Graphs 51
Legend 52
Products 53
Communications 53
Languages 53
Colors 54
Advanced 54

8. Menus and Toolbars 55

Menu commands 56
File Menu 56
Edit Menu 57
Action Menu 59
Window Menu 59
Help Menu 60

Toolbar commands 60
Status bar 61
Print preview toolbar 61

9. Working with Networks 62

10. Getting more information 62

Getting updated software 62
Finding your software version 62

11. Warranty 62

12. Dry Ice iMiniPlus 63

Specifications 63

13. Appendix 64

Troubleshooting 64
Changing the Battery 64

14. Contact details 65

1. Introduction

This user manual will take you through the relevant steps so that you will be able to operate your iMiniPlus product.
The chapters in this manual are placed in an order that you will need to follow in order to successfully use the iMiniPlus for the first time.
This manual covers all the features included in the current version of the ConsolePro software. Therefore, if you find a feature described within this manual that does not appear in your software and/or a feature within the version of software being used that is not described in this guide, then we recommend you obtain a newer version of the software and/or a newer version of this guide

Software Version

v2.12.07

Note: This User Manual is to be used with the above version software (or later) only. If you are using ConsolePro software version earlier than the above, the content, instruction and features described herein may not be the same. Contact Cryopak Verification Technologies, Inc. or your nearest distributor for appropriate software and user manual.

2. iMiniPlus Profile

iMiniPlus Models

The iMiniPlus is available in three models.

D range	MP-ST-D-8-L	Internal sensor	Single use	-40°C to +70°C
	MP-IN-D-8-L	Internal sensor	Multi use	-40°C to +70°C
	MP-OE-D-8-L	External sensor	Multi use	-40°C to +70°C
N range (Dry Ice)	MP-ST-N-8-L	External sensor	Single use	-100°C to +40°C
	MP-OE-N-8-L	External sensor	Multi use	-100°C to +40°C

Internal sensor model has the sensor mounted inside the logger but externalized to the air to allow free movement of air media across the thermistor head (Model MP-IN-D-8-L)

The other model comes with the same sensor as above but encapsulated inside a stainless steel tip on a 1meter PVC cable. This sensor assembly is permanently connected to the body of the iMiniPlus (Model MP-OE-D-8-L/ MP-OE-N-8-L / MP-ST-N-8-L)

The iMiniPlus has a fully functional LCD display and keypad. A summary of these features and functions are summarised below.

iMiniPlus Images

MP-OE-D-8-L

MP-OE-N-8-L / MP-OE-N-8-L

External sensor
For Dry Ice logger

MP-ST-D-8-L
MP-IN-D-8-L

External sensor
For D range

Attachment lug
For fixing to item or wall

Low Battery Icon

Temperature
Latest, Highest, Lowest or Average

HIGH ALARM
LOW ALARM
alarm has been triggered

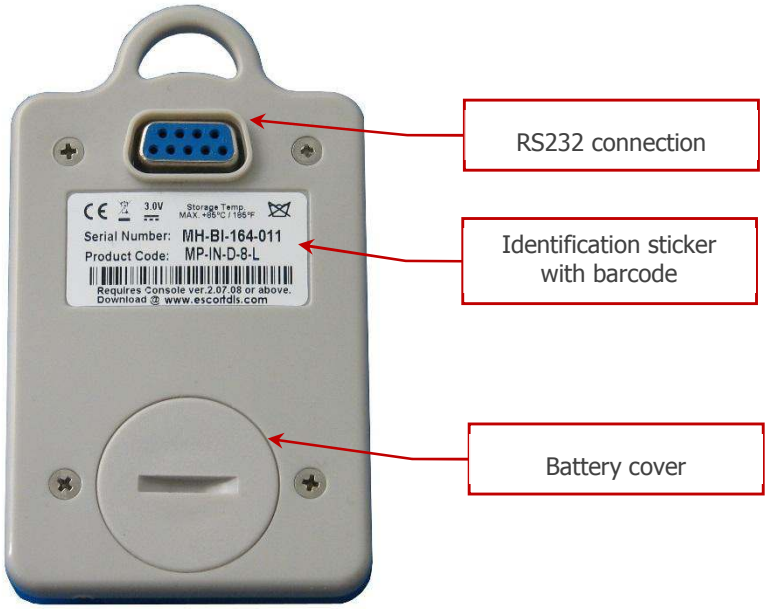
HIGHEST LOWEST AVERAGE
Displays the high, low and average recording

LATEST - Displays the last logged temperature
MARKED – Bookmark activation

START Button
start, mark and scroll functions

STOP Button
Hold for 3 seconds.

Temperature sensor
Is here



The iMiniPlus comes with water-proof covers for the RS232 connection and the battery.

Make sure that when logger is in use these covers are in place. This is important in wet or dusty environments. If covers are lost please contact your distributor for a replacement.

3. Installing the Software & USB driver

To operate your iMiniPlus logger you will need to first install the software on your computer. This will allow you to prepare your iMiniPlus for use, retrieve the readings the iMiniPlus has recorded, and analyse the data. This chapter will take you through the steps necessary to successful install the software on to your computer so you can begin using your iMiniPlus.

System requirements

To ensure that the software will be able work with your computer, the following lists the minimum specifications required:

Minimum requirements:

Pentium II 233MHz processor
64MB RAM
15MB free disk space
Windows 98, Windows Me, Windows NT, Windows 2000, Windows XP
Internet Explorer 5.0 or later
1 available USB port
800 x 600 screen resolution
256 screen colours.

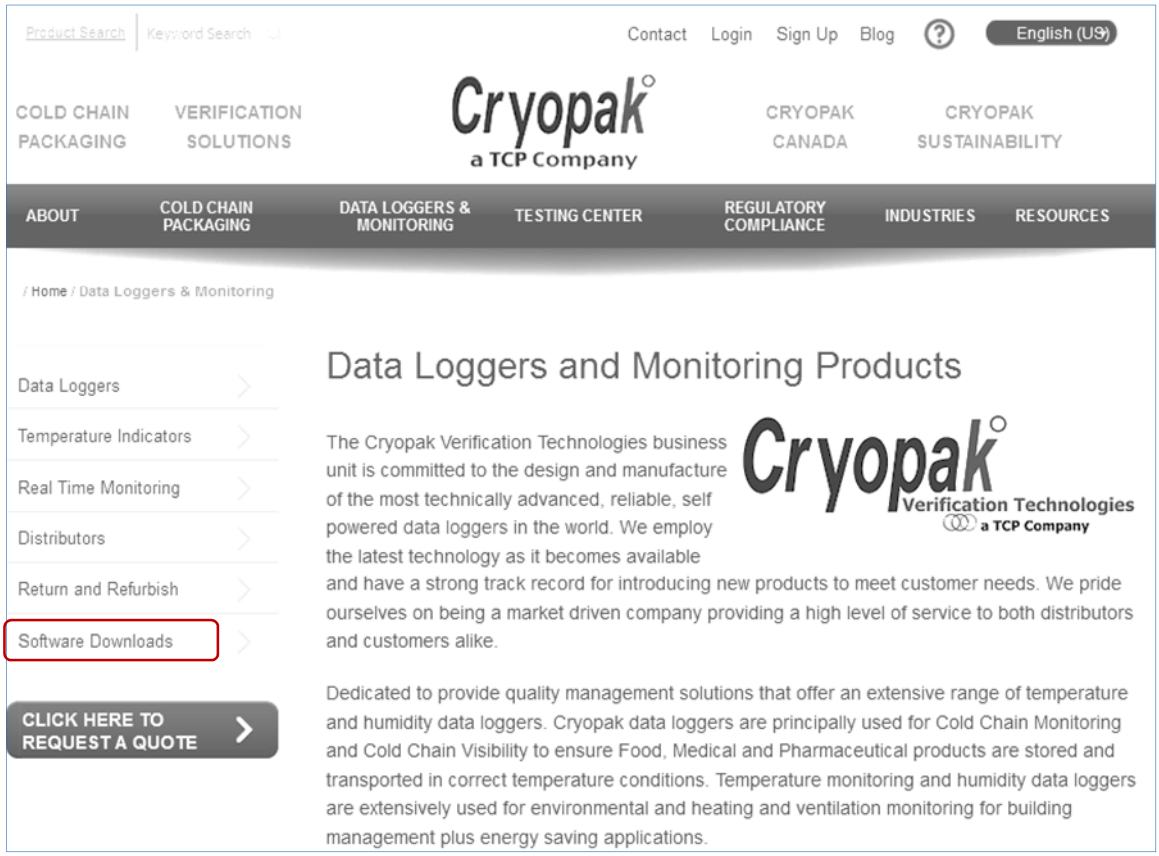
The recommended specifications are:

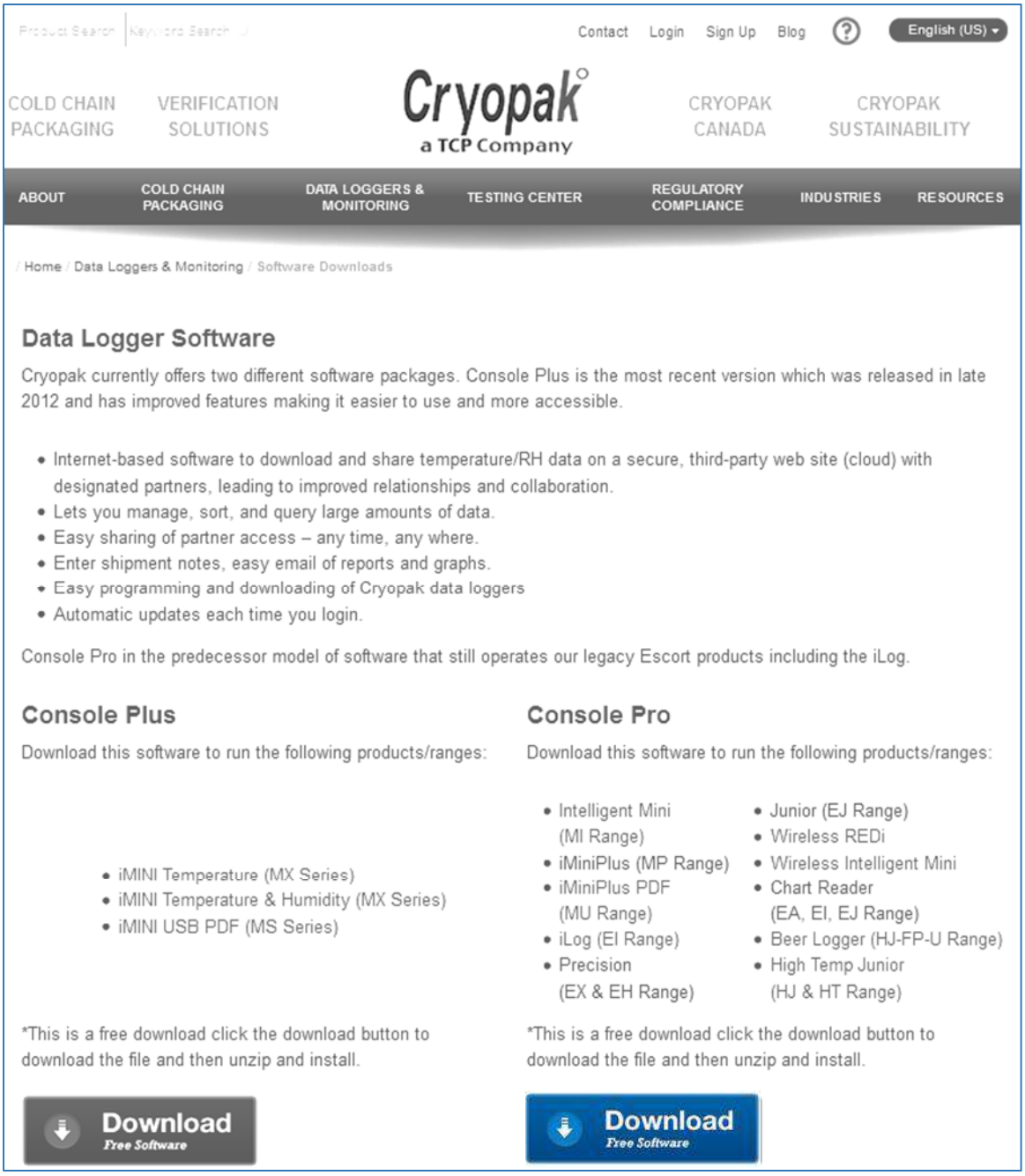
Windows 2000, Windows XP, Windows Vista, Windows 7, 8, 8.1 or Windows 10
Internet Explorer 6.0 or later
65535 (16bit), or more, screen colours.
1024 x 768, or higher, screen resolution.

Getting a copy of the ConsolePro software

The software is available on CD from your distributor or downloadable from www.cryopak.com site, Data Logging Systems does not charge for the on-line download of the ConsolePro software or for the updates to the ConsolePro software. Install the free Console Pro Software using either

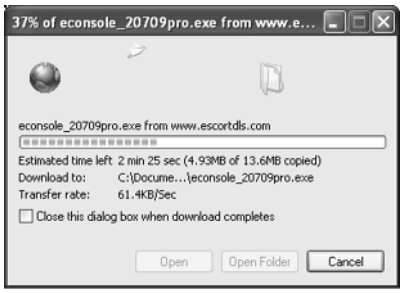
1. The Console Pro Software CD or
2. Through the CRYOAPK website www.cryopak.com
3. http://www.cryopak.com/files/1613/7599/1145/econsole_21207pro.zip
4. See instructions below for Website Installation

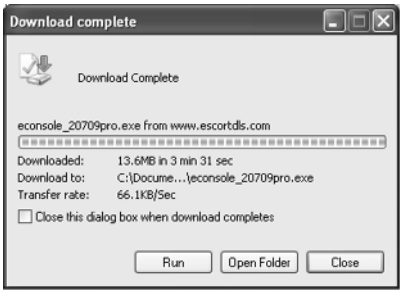




5. Once you have downloaded and installed the Console Pro Software, move on to the second phase of installation by installing the USB Drivers.

For a more in depth guide to Console Po Installation, please refer to the user manual provided on the website: www.cryopak.com





We recommend choosing the option to save the file and to save the file to your desktop. If you are an experienced user, you may wish to save the file to a different folder of your choosing. Once the installation process has been completed, this file can be safely deleted, as it is not required for using the software.

At the conclusion of the installation process, the final screen will provide you with an option to immediately start the ConsolePro software.

The installation of the ConsolePro software will also provide you with two simple methods to start the ConsolePro at a later time:

- A "Shortcut" on the desktop, which you can double click to start the software.
- A "Shortcut" in the "Start" menu system. If you are using Windows XP for example, you may need to click on the "All Programs" item to locate the "Console" shortcut.

Installing the USB adaptor cable drivers

To be able to operate the iMiniPlus with ConsolePro Software, you have to connect the iMiniPlus to your computer with a serial to USB or serial to serial adaptor. A USB cable requires driver software for it to be used. This software is supplied on mini CD format with the adaptor or from web site www.cryopak.com

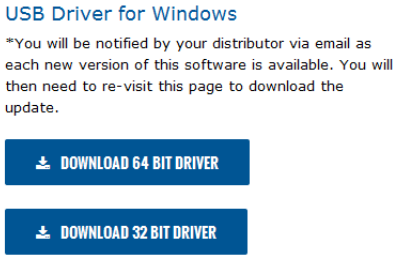
- Insert the driver mini CD into your computer CD ROM and the following screen box will be displayed. Select Auto Install

- Select Run.
- Select Next.
- Select Finish. Reboot your PC and insert the USB cable. If this does not work, you will have to install using the “Found New Hardware Wizard” on your computer Control Panel. See next sections.

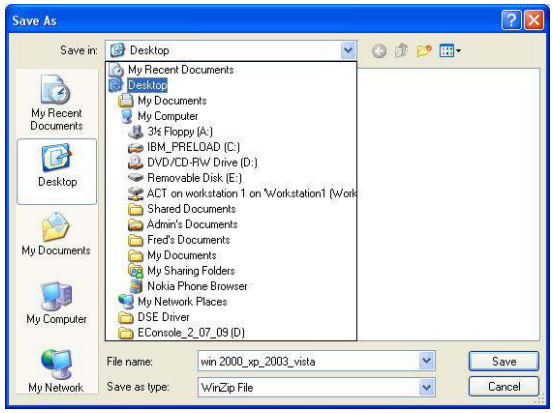
Getting a copy of the USB drivers from the web

If you misplace the driver mini CD, you can obtain the driver files from our web site www.cryopak.com
http://www.cryopak.com/temperature-monitors/software-downloads/
Here you can

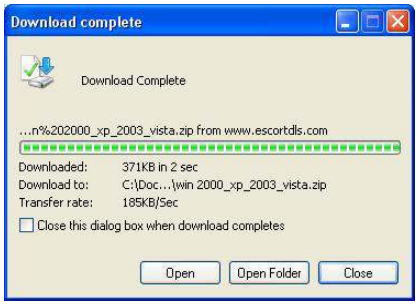
On the Software Download page, you will see a list of driver file USB driver for windows. Download the appropriate driver file for your Windows operating system and save to your desktop. Please note the file is in ZIP (compressed) format. Select save.



Select Desktop



Select close



Because the file is in compressed (ZIP) format, you will have to extract it into another folder. The file icon on your desktop may look like one of these:

win 2000_xp_2003_vista.zip

win xp_2003_vista_x64.zip

Double click on the ZIP icon and extract all the files into a new folder and name it USB Drivers. Once the files are extracted you can delete the original ZIP file if you like.

Installing USB Driver Files using Found New Hardware Wizard

If you have experienced a problem installing your USB drivers using the original instructions, you can install either the mini CD or the extracted ZIP file you have downloaded as detailed in the previous chapter, via the “Found New Hardware Wizard” in your computer Control Panel.

In some events if the driver is unable to install, user may require to extract the ∗.exe file with winrar software in a folder and by browsing the device driver update wizard to the that folder

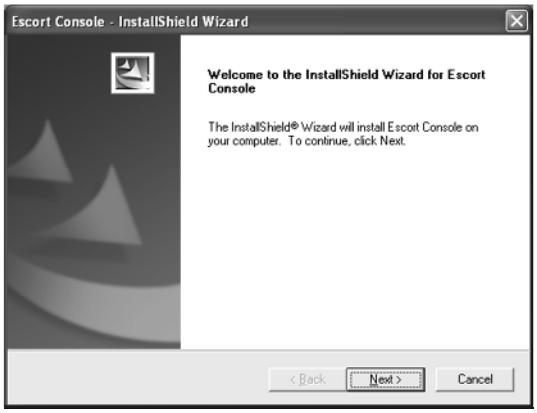
Note: User must have ADMIN rights to install driver and Console Pro software

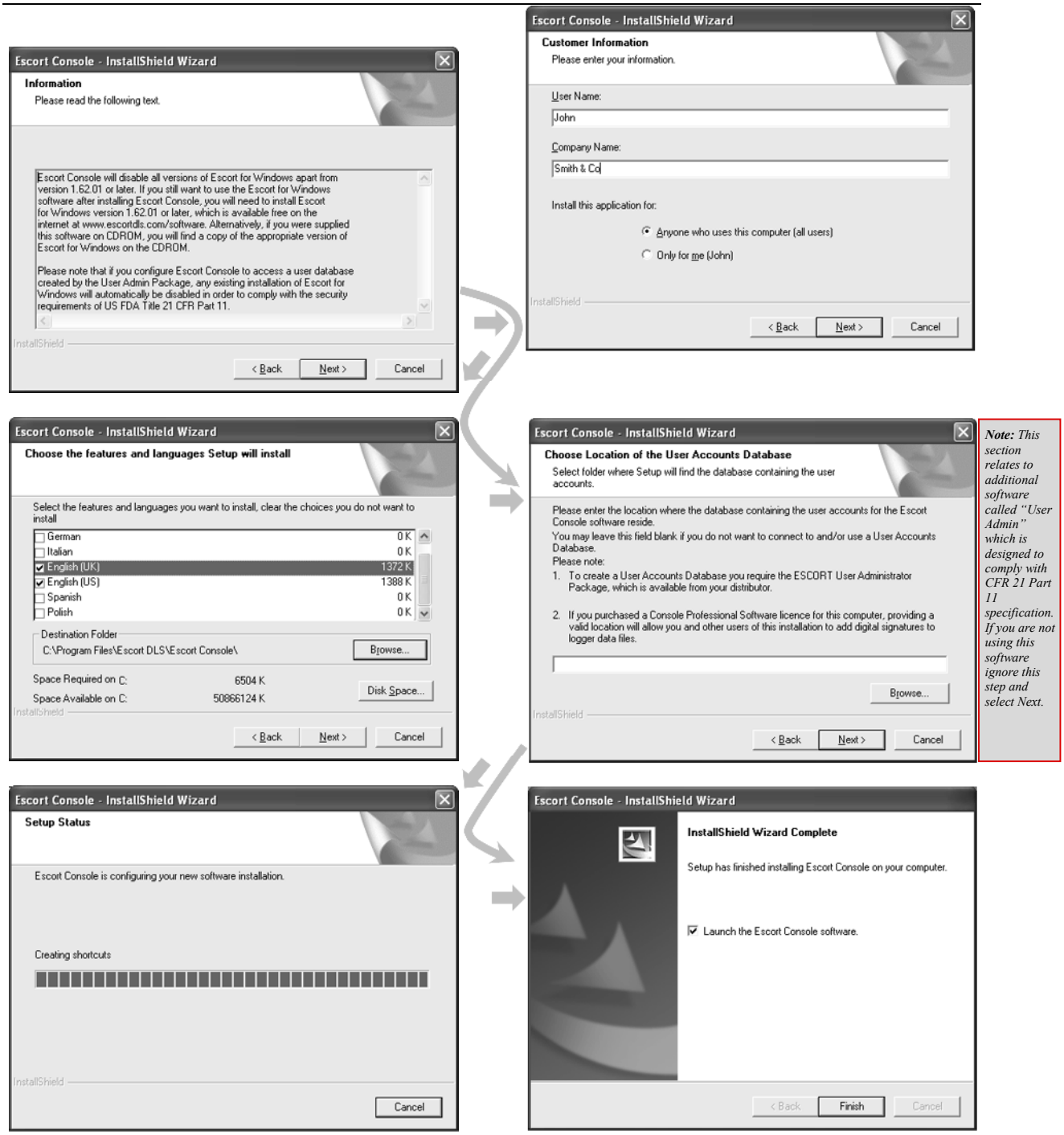
Installing ConsolePro Software

Note: User must have ADMIN rights to install driver and Console Pro software

To install the ConsolePro software, first you need to locate the installation file that was downloaded from the Cryopak website or from CD received when purchased.

To begin the installation process, open the installation file, which is typically performed by double clicking the left mouse button. The installation process will guide you through the relevant steps to correctly and successfully install the software. If you have installed any other software, you should find the installation process familiar. To proceed through each step of the installation process, click the "Next" button. If you want to change a previous step you can click the "Back" button. When the process is ready to be completed, clicking the "Finish" button, when it appears, will finish the installation process. If you want to stop installing the software, click the "Cancel" button.





***Note:** This section relates to additional software called "User Admin" which is designed to comply with CFR 21 Part 11 specification. If you are not using this software ignore this step and select Next.*

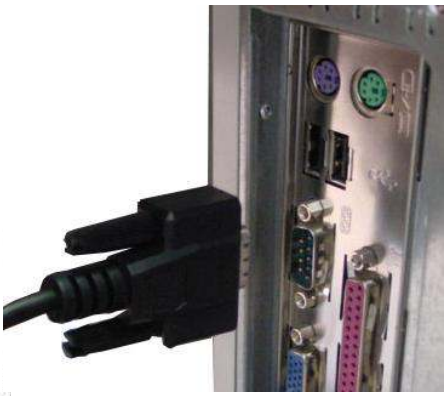
At the conclusion of the installation process, the final screen will provide you with an option to immediately start the ConsolePro software. The installation of the ConsolePro software will also provide you with two simple methods to start the ConsolePro at a later time, which are a "Shortcut" on the desktop, which you can double click to start the software and a "Shortcut" in the "Start" menu system. If you are using Windows XP for example, you may need to click on the "All Programs" item to locate the "Console" shortcut.

4. Quick Start Guide

Now you have the software and drivers installed on your computer, you can start to use the iMiniPlus. This chapter will briefly cover the steps involved to get your iMiniPlus ready to use, how to get it started and then retrieve the recorded information. The subsequent chapters will explain in more depth these steps and the various options available to you.

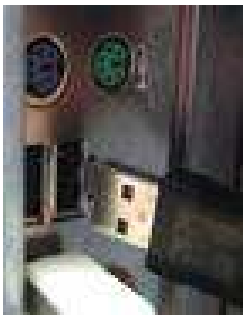
Connecting the serial or USB cable to PC

The connectors for the serial (RS232) communications ports typically look like the following picture.



Serial (RS232) communication ports can be typically found at the rear of the computer. Most serial connectors will have screws included on the plug and we recommend that these are tightened when the connector is plugged in so that it does not accidentally pull out during use.

Some of the more common USB connectors are pictured below.



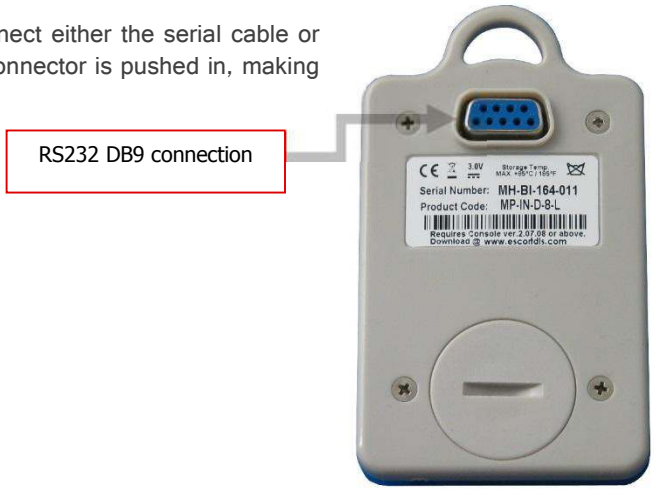
Connectors for USB devices and the sockets on the computer where USB devices are plugged in will often display a USB logo nearby to help them be identified.
The sockets for the USB communication ports are typically located at the rear of the computer. In some computers there may also be two or more USB communication ports located on a front panel of the computer and/or on the top of the computer case. Please ensure that the driver software has been installed prior to connecting the USB cable.
If the computer is using the Windows NT® operating system, a USB cable will not be able to be used, as Windows NT® does not support USB devices.

Important notes:

- **Ensure to select manual the COM port before download and program the unit**
- **If using USB to serial adaptor the COM port # will be COM3 or higher**
- **If using Serial to serial interface the COM port # will be either COM1 or COM2**

Connecting the serial or USB cable to the iMiniPlus

The iMiniPlus has a serial DB9 connection on the rear. Connect either the serial cable or USB cable DB9 male connector to this. Make sure that the connector is pushed in, making the connection tight and not loose.



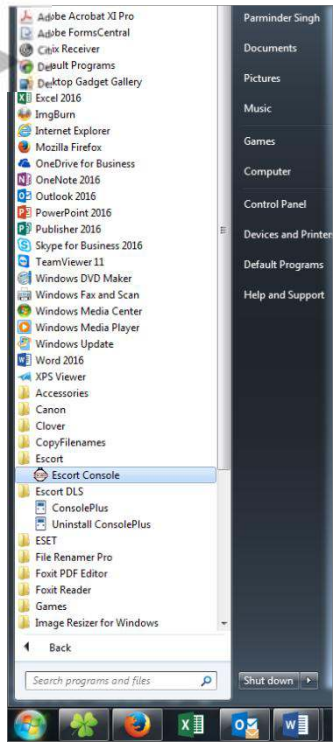
Launching the software

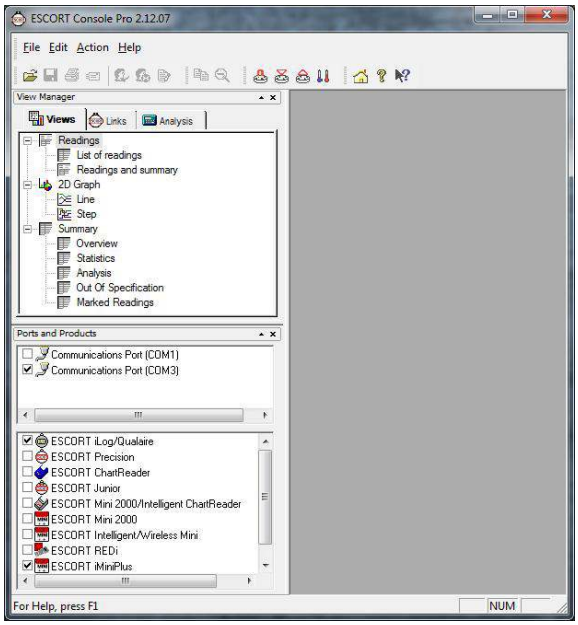
The installation of the ConsolePro software provides you with two simple methods to start the Console:

1. A "Shortcut" on the desktop, which you can double click to start the software.

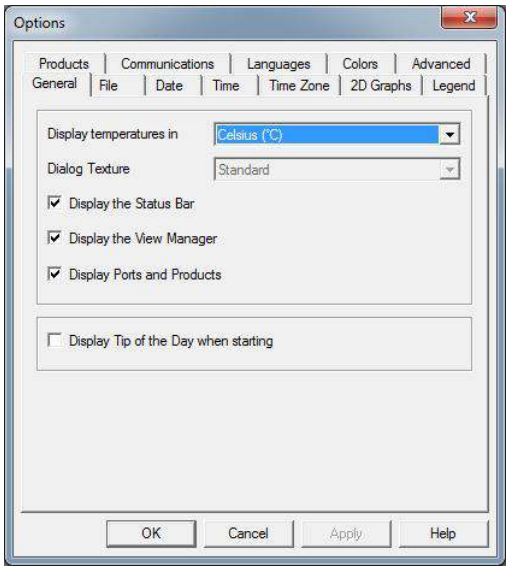
Escort Console

2. A "Shortcut" in the "Start" menu system.
   If you are using Windows XP for example, you may need to click on the "All Programs" item to locate the "Console" shortcut, like in the following picture.
3. To program the iMiniPlus to record information,
   Launch the ConsolePro software from the desktop or All Programs menu.
   The software will open and display the following screen:

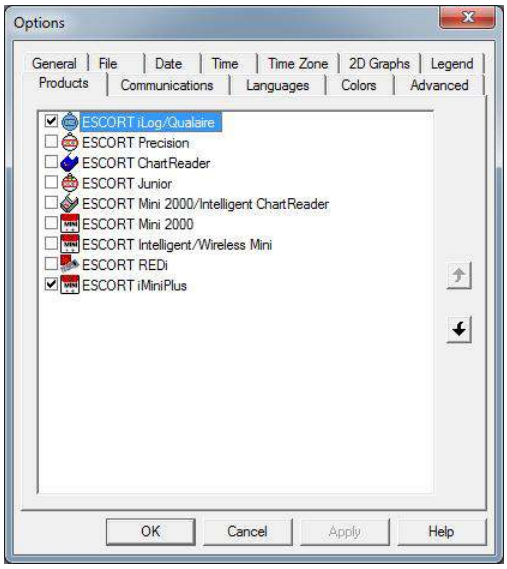




From the menu, select Edit, then Options

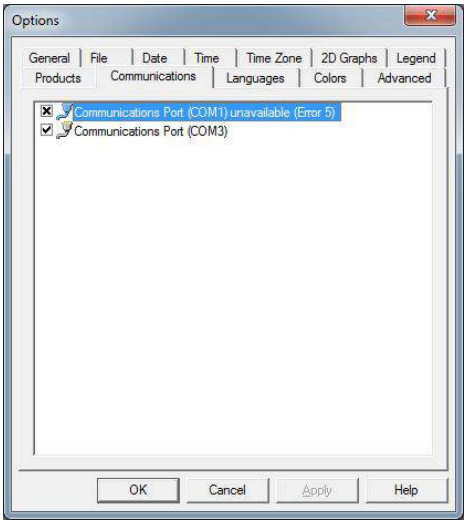


Select the Products Tab



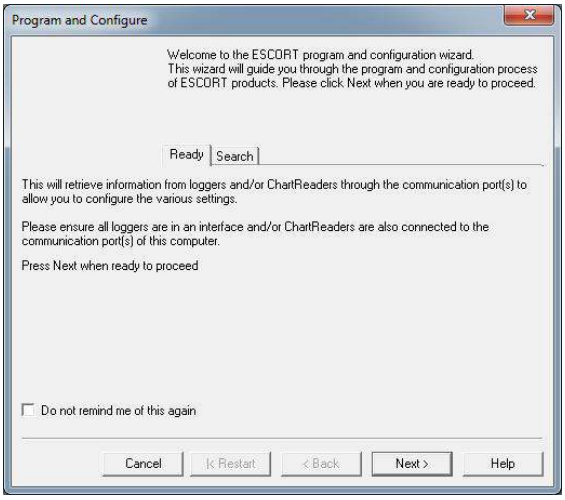
In the Products tab you will see a list of all the products supported by the ConsolePro Software. Make sure the “iMiniPlus” box is ticked and click on OK or Apply. If you intend to use other products, you may tick as many of the boxes you require. Next make sure you have selected the correct Communications Port. Note that the USB cable needs to be connected to the PC before you start the ConsolePro Software otherwise it won’t show on the list below. Click on OK or Apply.

Both the Products and Communications Ports can be selected through the Ports and Products just below the View Manager on the left hand side of the initial software page.

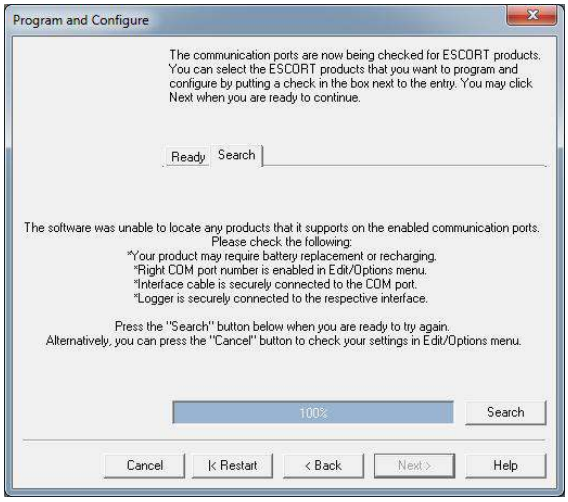


Next click on the Program and Configure icon that is located on the toolbar.

The Program and Configuration Wizard finds the communication port that the iMiniPlus is connected to enable it to be setup for use.



If your software is unable to locate a logger due to communication problems the following message will be displayed.

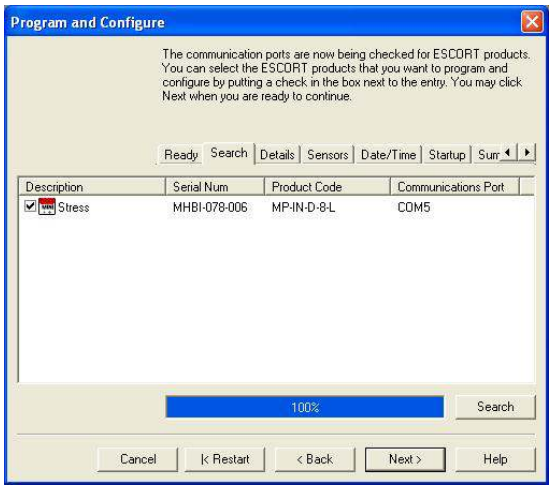


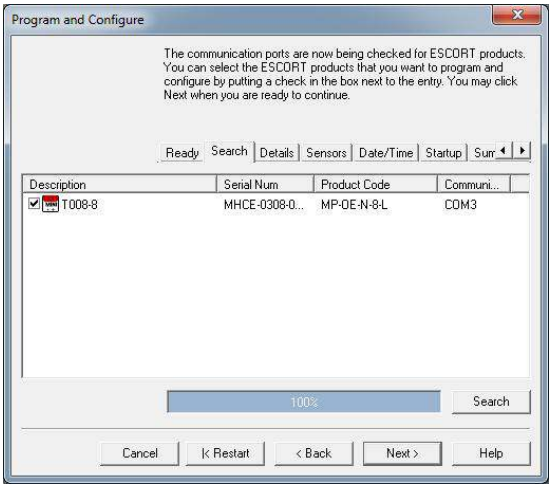
Check that all four bullet points displayed in this message are attended to. Once rectified either close the ConsolePro software and reopen or select the **Restart** button if the software was left open. If this problem continues, please consult your nearest distributor or contact Data Logging Systems.

Once your software has located a logger the window will display the loggers' description, serial number, product code and communications Port. To proceed select the **Next** button.

MP D range	MP Dry Ice

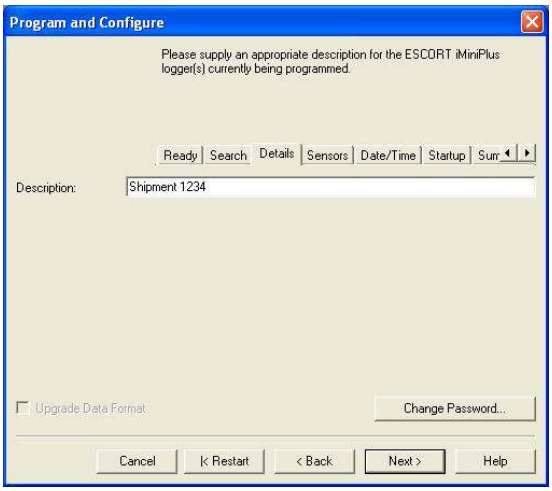
Check that the description box is ticked

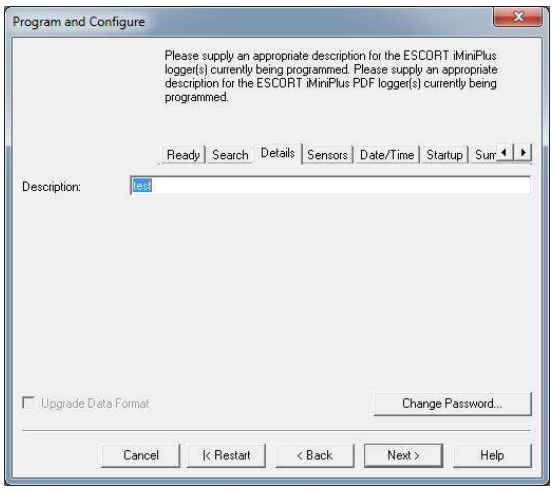




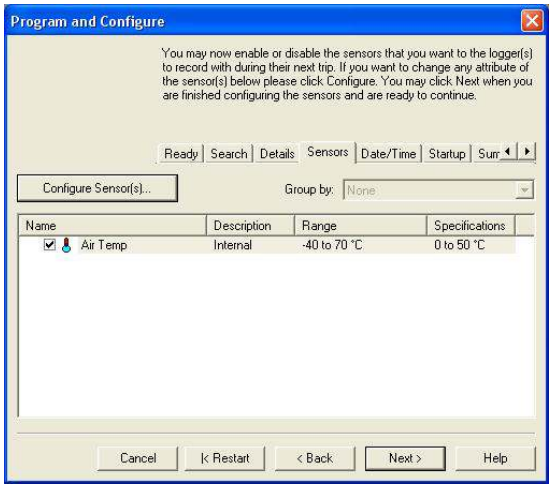
MP D range	MP Dry Ice

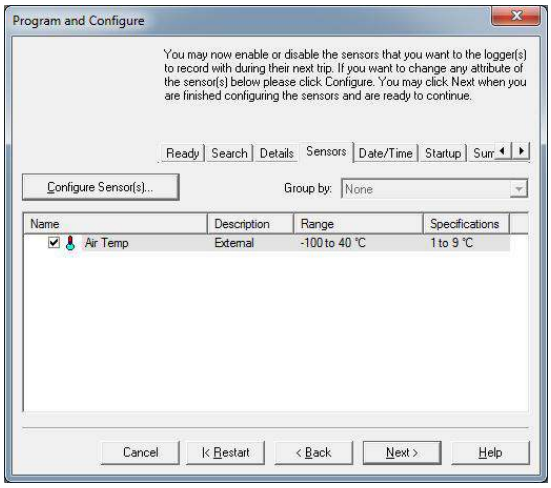
Select the **Next** button or **Details** tab.





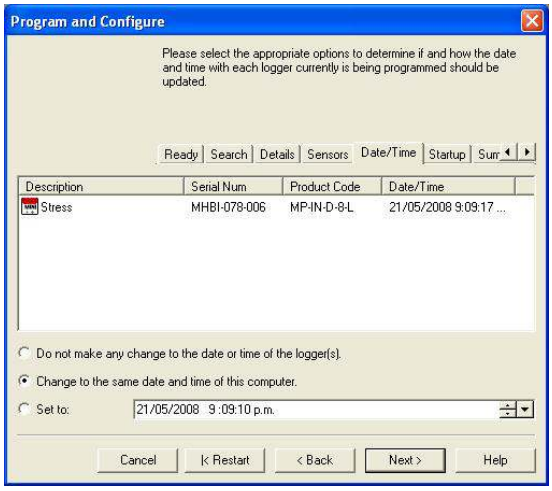
Enter a description of the temperature application in the 24 characters' box.

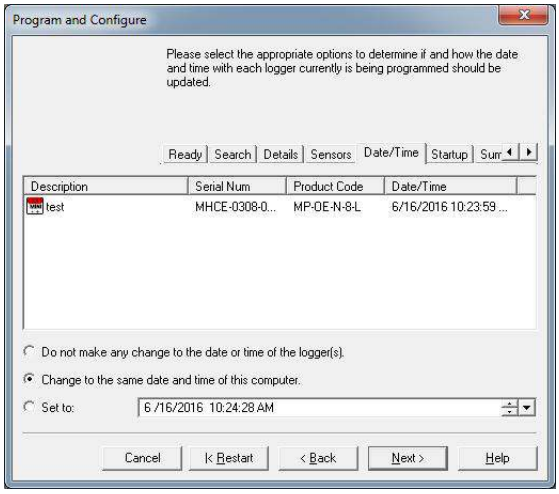




Select **Next** button or **Date/Time** tab.

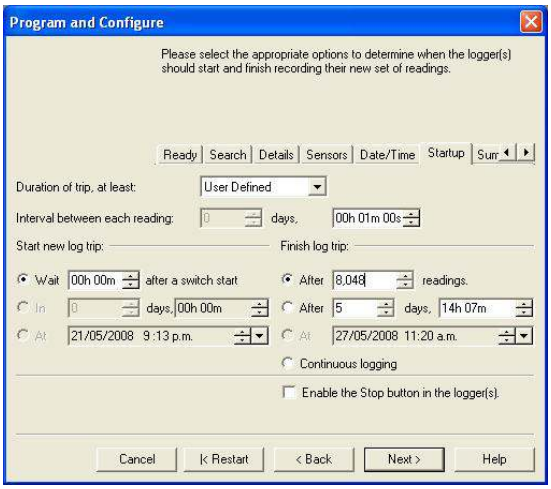
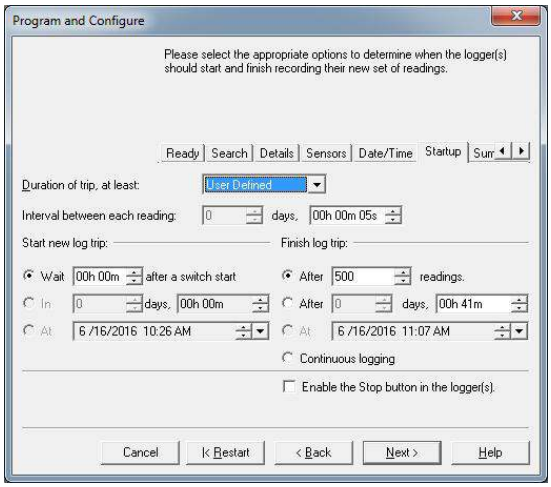
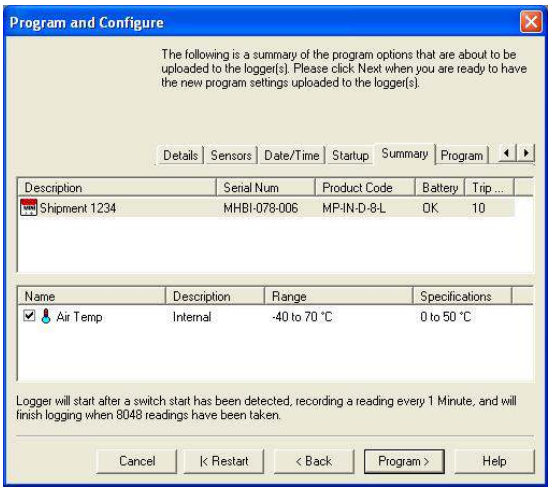
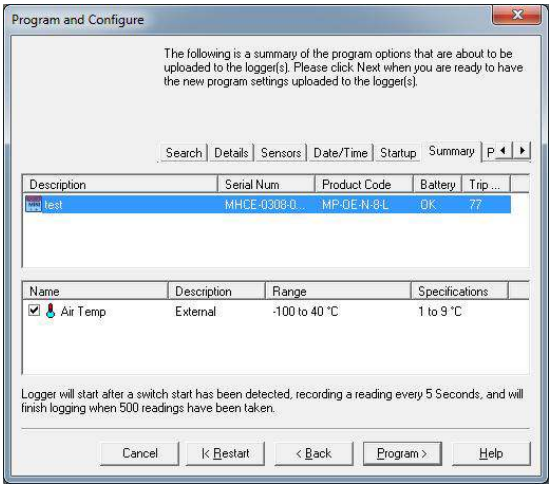
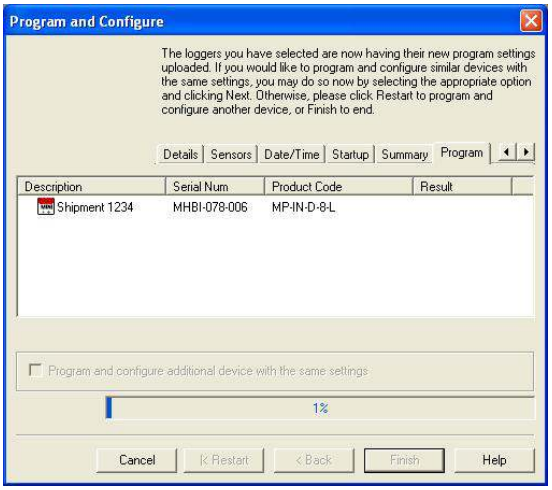
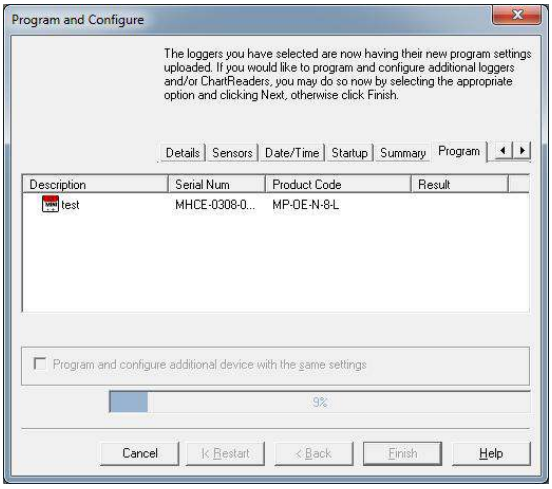
Check that the date and time is correct.

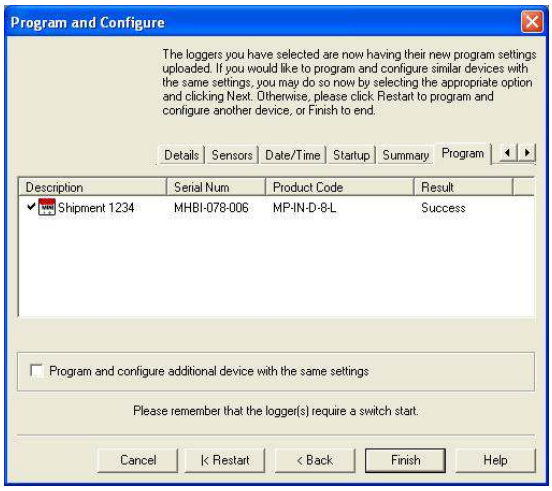
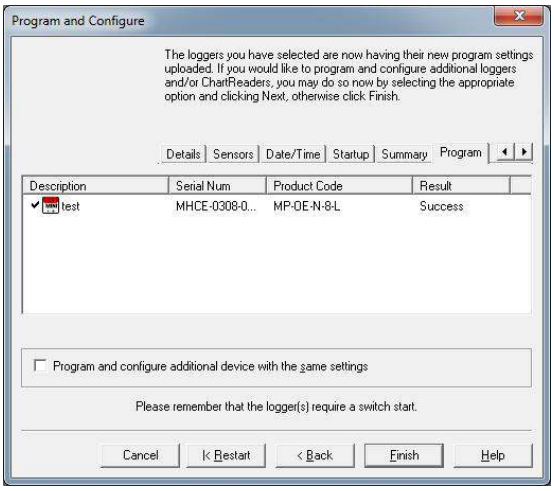
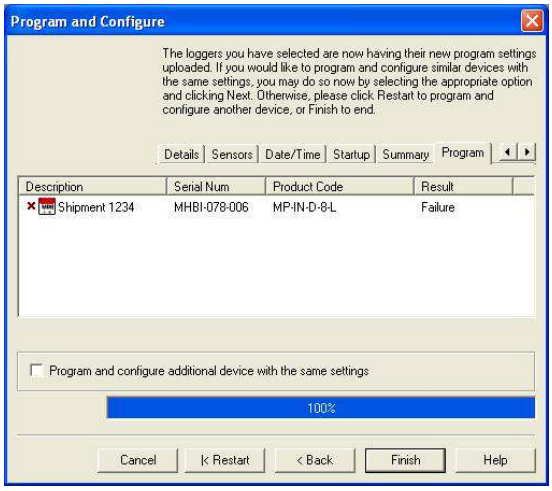
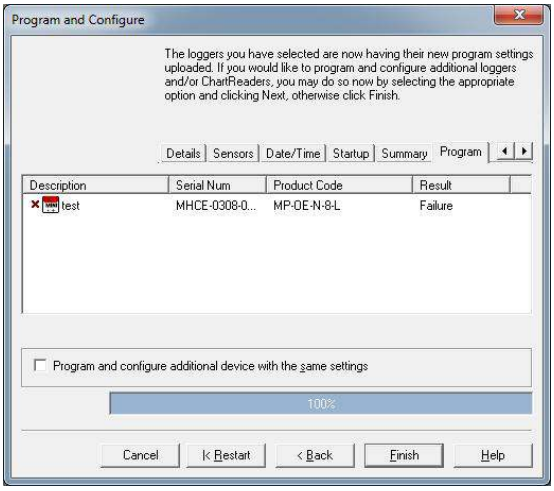




Select **Next** button or **Startup** tab.

Configure the start, recording and stop conditions.

	MP D range	MP Dry Ice
		
Select **Next** button or **Summary** tab.		
Check that program settings are what you want.		
Select **Program** button or **Program** tab		
Program conditions are being uploaded to iMiniPlus		

	MP D range	MP Dry Ice
The iMiniPlus has been correctly programmed		
Select the Finish button		
! Program conditions have not been successfully uploaded into the iMiniPlus.		

If the upload has failed either select the Cancel button to close the software and start again or select the Restart button to start the sequence again. If the iMiniPlus still fails to upload, contact your local distributor or Cryopak Verification Technologies, Inc.

Starting and using the iMiniPlus

Once an iMiniPlus has been successfully programmed for use it is ready to be started. It will have the word "**READY"** displayed in the top left of the screen. If it has any different information displayed, the iMiniPlus cannot be started.
To activate the iMiniPlus press and hold the START button until the display changes to a series if dashed lines and then the temperature reading.

If a delayed start has been programmed, the word **"IN DELAY"** will be displayed in the top middle of the screen, until such time as the iMiniPlus starts logging. At that time the temperature will be displayed.
During operation the last logged temperature will be displayed on the screen with the word **"LATEST"** flashing in the bottom left of the screen.

By pressing the Start button during logging, the "**HIGHEST", "LOWEST"** and **"AVERAGE"** temperature to date will be displayed in succession and the bottom of the screen.

By pressing the Start button again, the words **"HIGH ALARM"** and **LOW ALARM"** will flash in succession and the time outside the alarm threshold will also be display.

By pressing the Start button a third time, the display will return to the Latest reading.

The display will always return to the Latest reading after a 1 minute if the Start button is not pressed.
You can also have the iMiniPlus record a “bookmark” at any time while it is recording, simply by pressing and holding the Start button for 2 seconds. The word **“MARKED”** will be displayed at the bottom of the screen.
If the iMiniPlus has stopped recording then the bookmark feature cannot be used.
See the section ***iMiniPlus Profile*** at the beginning of this guide for a full description of the display and button functions.

Stopping the iMiniPlus

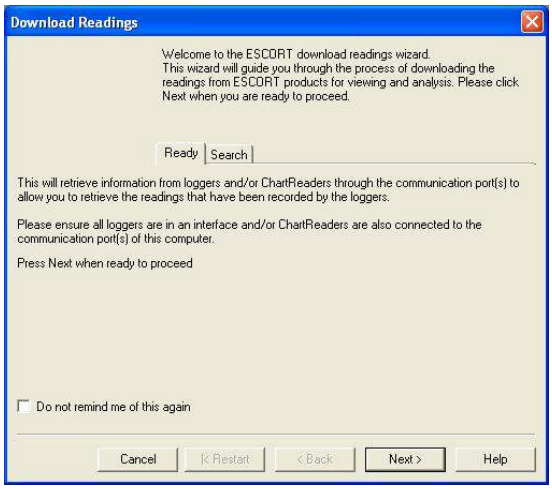
The iMiniPlus can be stopped only if this has been enabled in the program conditions. (See Opening the Software section).
To stop the iMiniPlus press the Stop button and hold for 2 seconds, the word **“STOPPED”** will be displayed in the top right corner.
If the Start button is pressed the Latest reading will be displayed and subsequent pressing of the Start button will result in the Highest, Lowest, Average and Alarm conditions being displayed as before.
However, after 1 minute of continuous display of either feature, the display will always return to show the word **“STOPPED”.**

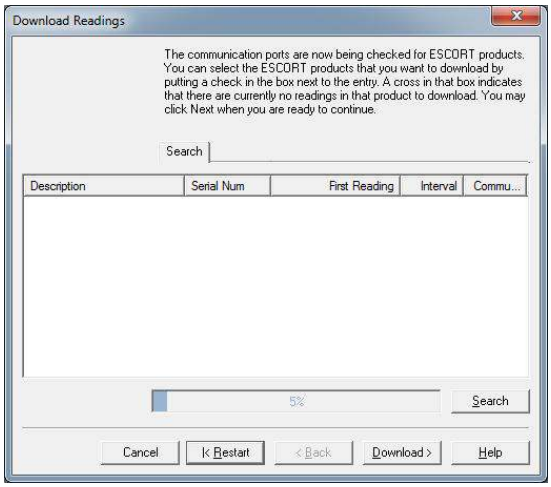
Retrieve information from the iMiniPlus

When you are ready to view the recordings that are stored in the iMiniPlus, connect it to the USB or serial cable and connect the cable to your PC as before. If the iMiniPlus is still logging when you go to download the readings it will continue to record without interruption so you will be able to download again later if you choose.
Open the ConsolePro Software as previously described and click on the Download icon.

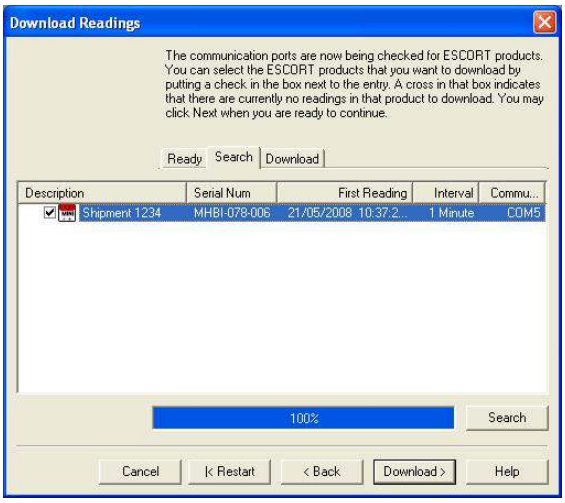
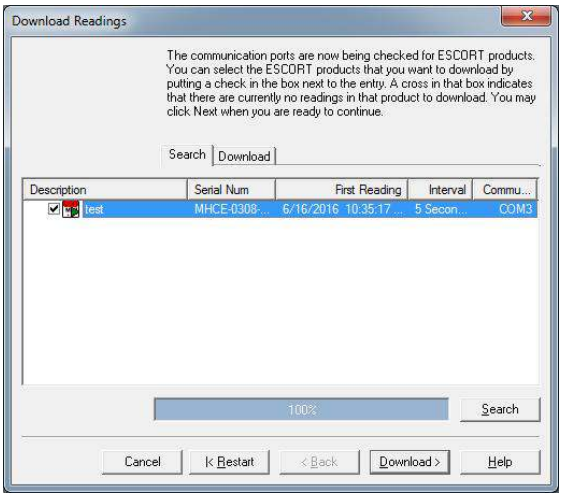
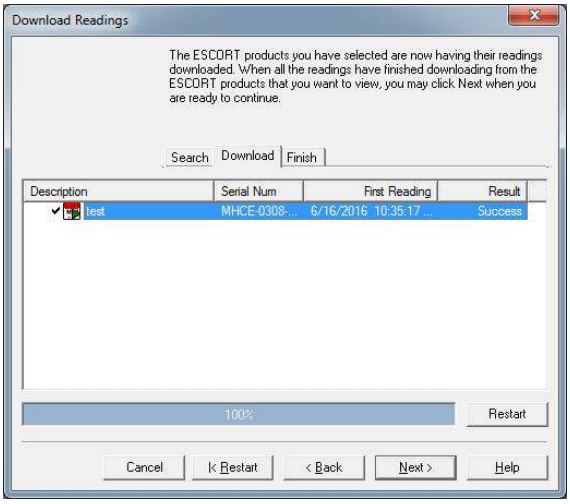
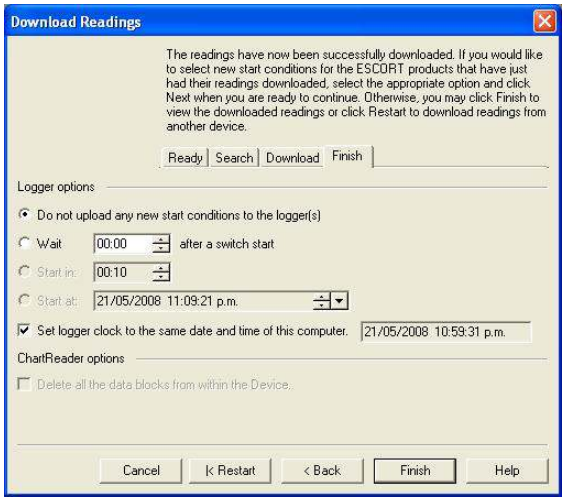
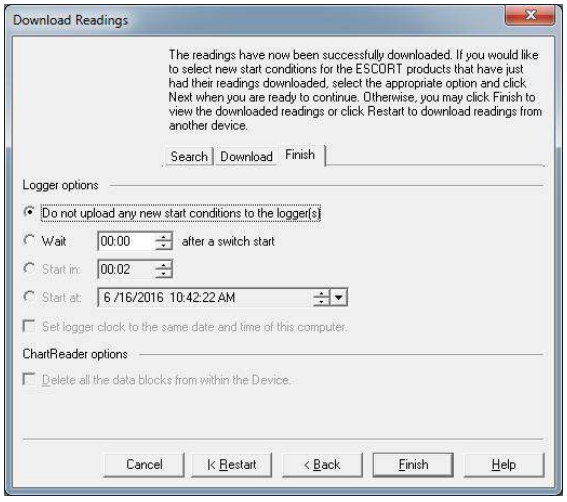
In the “Download Readings” Select the **Next** button or **Search** tab.

MP D range	MP Dry Ice

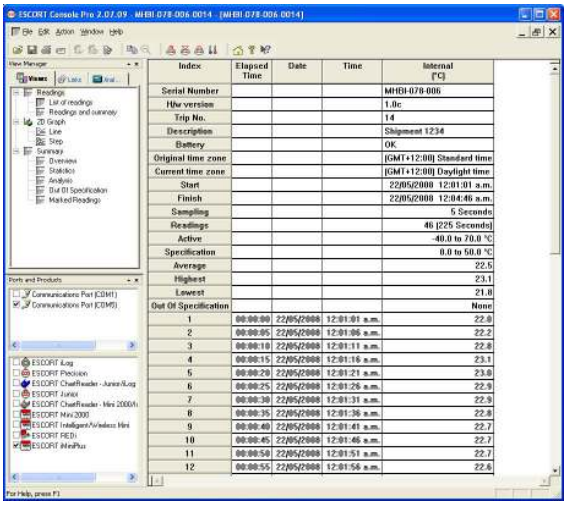


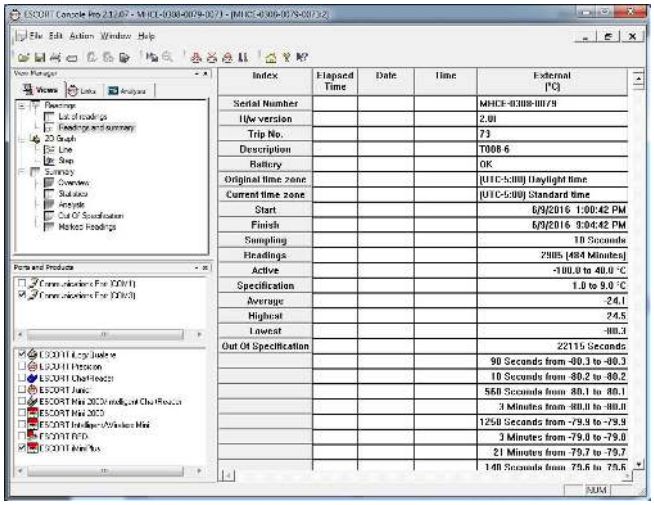


Select the **Download** button or tab.

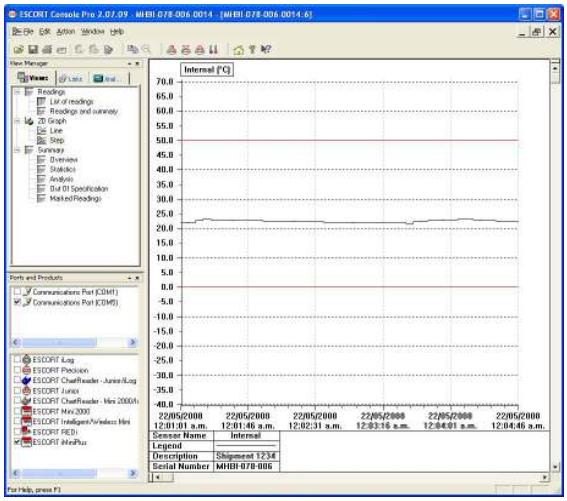
	MP D range	MP Dry Ice
		
Select the **Next** button or **Finish** tab.		
Select the **Finish** button.		

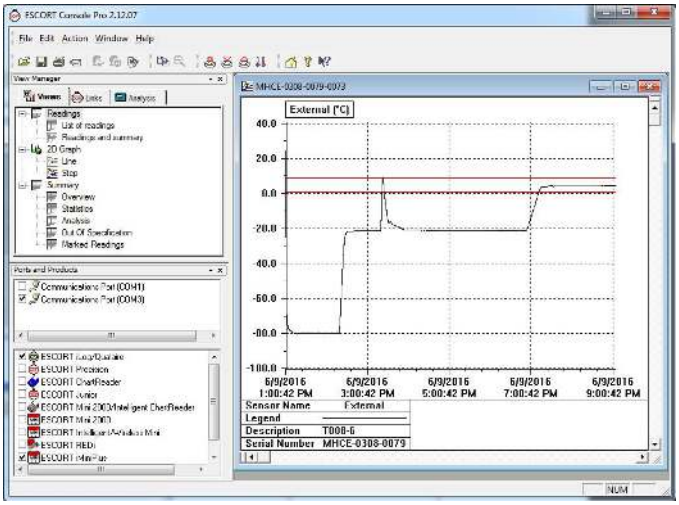
Readings and Summary is displayed.





Select the 2D Graph from the View Manager to show data in graphical form.





Following information of a logger is displayed

Serial Number
H/w version
Trip No.
Description
Battery
Original time zone
Current time zone
Start
Finish
Sampling
Readings
Active
Specification
Average
Highest
Lowest
Out Of Specification

Save the data file for a permanent record. The data is saved by default to a folder called “My Logger Data” in the “My Documents” folder on your computer. You can change this destination if you prefer it to be saved for instance to a shared network drive. See Chapter ***Data from iMiniPlus*** that explains in more detail the information that is displayed as a result of downloading the iMiniPlus.

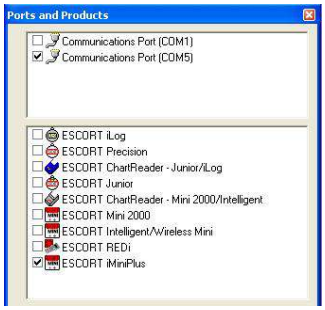
5. Preparing iMiniPlus for use

Before you can start using an iMiniPlus to log the environment you must first prepare it for use. The process of preparing an iMiniPlus for use allows you to define a number of parameters, including:

- How long it should log the environmental condition for, so that you can be assured that it will record for the duration of time required? For example, if you want it to record the temperatures of a shipment that will take 25 days to deliver, you will be able to make sure it will record the temperatures throughout the entire 25-day period.
- How often it should log the environmental conditions?
- Under what conditions it should display an alarm? An alarm indicates when the environment being logged is not within programmed limits.
- This section explains how to prepare an iMiniPlus for use and what the options mean.

Getting an iMiniPlus ready for logging

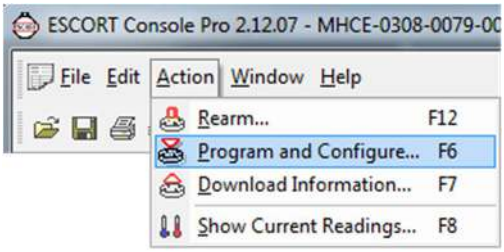
Make sure the USB or serial cable is connected to your PC and to the iMiniPlus.



After you have opened the ConsolePro Software (***see section Opening Software***) it is necessary to select the correct COM port and the iMiniPlus from the list of products. If these are not selected the iMiniPlus will fail to communicate with the software.
You can only select one COM port at a time and if the iMiniPlus fails to communicate with the software, select another.
Please note that you must connect the USB cable before you open ConsolePro software. If you open the software first, then connect the cable, the software will fail to recognize it and the COM port will be omitted from the list.
There are two ways to prepare an iMiniPlus for use, both of which will achieve the same result.

Click the Program and Configure icon on the toolbar

Click the "Program and Configure..." item located under the Action menu.



Once an iMiniPlus has been through the Program and Configuration process to get it ready for next use, any readings previously recorded will no longer be available for retrieval

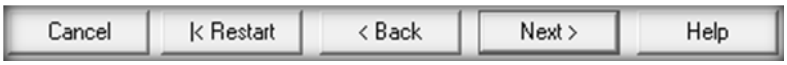
Password Requirements

The iMiniPlus supports password option that, when enabled, results in users being required to provide the correct password to gain further access to the iMiniPlus. When the password option is enabled, a window similar to the following picture will be displayed allowing the user to enter the correct password.

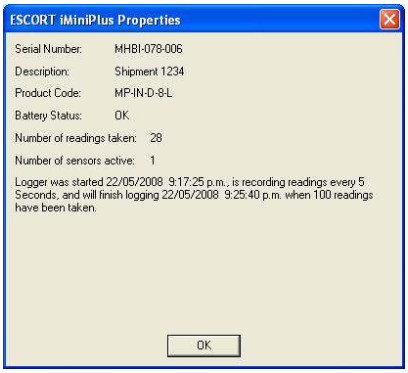
The Program and Configure process will only continue successfully if the correct password is supplied by the user. Passwords are digits only, up to 4 characters.
You can enter a password to safeguard your logger from unauthorized tampering. Make sure that you keep a note of your password and logger serial number in a safe place. If you lose or forget the security code, the logger will have to be returned to your nearest distributor or Data Logging Systems to restore default password.

Program and Configuration Wizard

During the progress of the Program and Configuration Wizard, you will see a series of 5 buttons at the bottom of the wizard box.



The "**Cancel"** button immediately stops and closes the wizard. To start again you will have to select the Program icon. The "**Restart"** button enables you to start the Wizard progress from the beginning without closing the feature. **"Back"** enables you to go back one step in the step-by- step progress and **Next** takes you to the next step. The **Help** button will provide description and instruction about the step you are in. Please note that this feature may make reference to other products from time to time. Additionally some Help documentation may not be present due to the software version you are currently using. Consult this iMiniPlus manual if you are not sure about any description.



Search Tab - displays the description of the recorded environment, iMiniPlus serial number, the iMiniPlus product code and the communication port the iMiniPlus is connected to.

If a small green arrow is present, this signifies that the iMiniPlus is still logging.

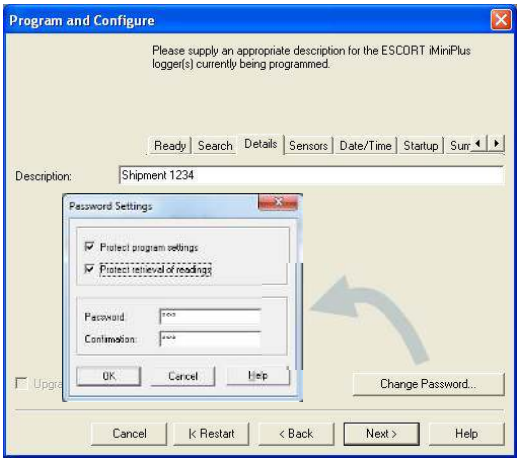
By double clicking on this description line, the iMiniPlus Properties box can be displayed.

The properties box displays, serial number, description, product code, battery status, no. of readings taken, active sensors and a summary of the logging parameters.

If the description box is unticked, it means the password to protect program settings in the logger has been set. You will have to click on the box and enter the password.

If there is a X in the description box, only the Search tab will be displayed and the Program and Configure Wizard cannot proceed any further.
This may indicate a fault with either the software or iMiniPlus itself (for example, low battery or lease of the current logger has expired). Consult your nearest distributor or Cryopak technical support team

Details and Changing Password



Details Tab - Enter a description of the temperature application in the 24 characters' box. This can be a location, product etc.

Change Password – if you have password protected the iMiniPlus or are wanting to add a password for the first time you can do this here.

Protect program settings - Tick this option if you want to protect your programming settings for the current logger.

Protect retrieval of readings- Tick this option to disallow viewing of data from the current logger without a password.

Password are digits only, up to 4 characters.

Please keep your password safe and make sure no unauthorized person has access to it. If you forget your password, the protection cannot be disabled and you will have to return the iMiniPlus to your nearest distributor.

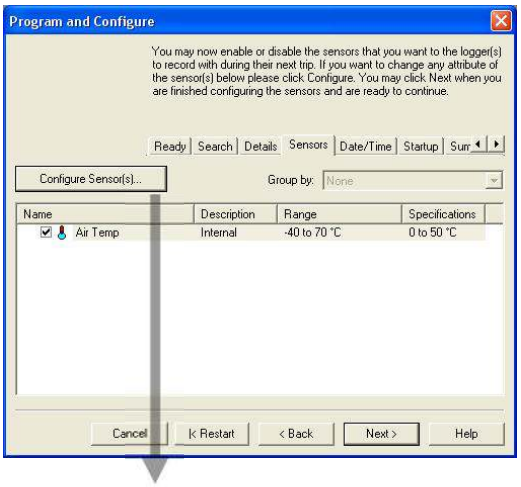
If you leave the password blank but enable the protection, to access the iMiniPlus just click OK in the Password Required dialog.

Configure Sensors and Alarm Settings

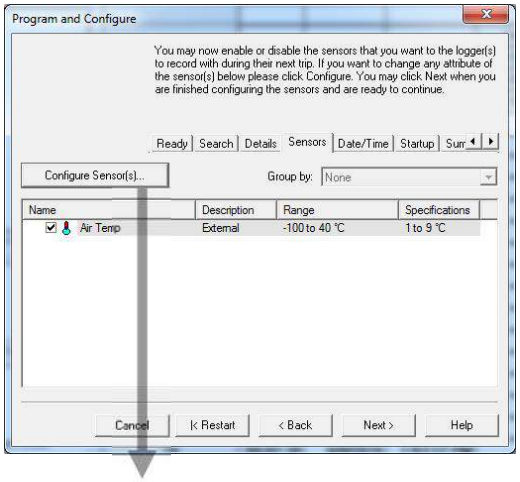
Sensors Tab - this displays the sensor information some of which can be changed by using Configure Sensor(s) and others that remain fixed i.e. range -40°C to 70°C. The description **"Internal"** refers to the type of sensor as opposed to **"External**" which will display on the external sensor model.

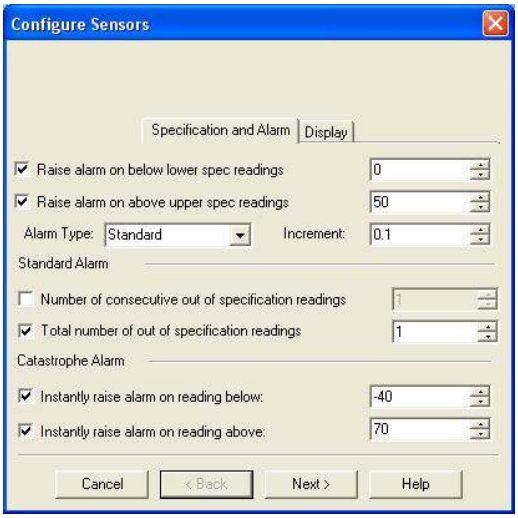
Configure Sensor(s)… - click on this button to set up the alarm and LCD display parameters.

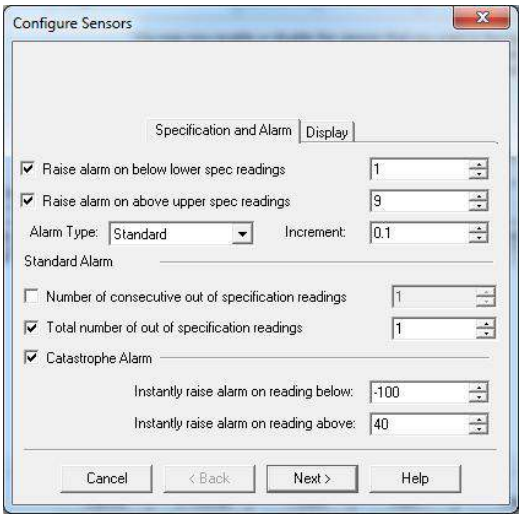
MP D range



MP Dry Ice







Specification and Alarm

Raise alarm on below lower spec readings – tick this box if you want to activate the low alarm and select the value in the box immediately to the right. Note if the lower spec value is 0°C, then the alarm can be triggered at -0.1°C, not 0.0°C as this value is considered within specification.
Raise alarm on above upper spec readings – tick this box if you want to activate the high alarm and select the value in the box immediately to the right. Note if the upper spec value is 50°C, then the alarm can be triggered at 50.1°C, not 50.0°C as this value is considered within specification.
Increment - the grouping size used for listing out-of-specification readings.

Alarm Type

This feature allows the user to specify the condition that will trigger an alarm.

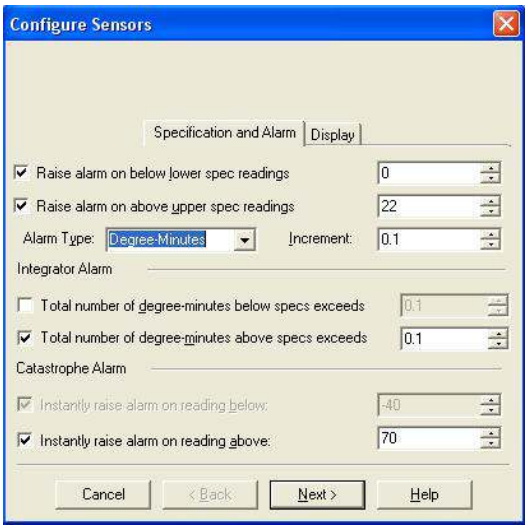
Standard Alarm

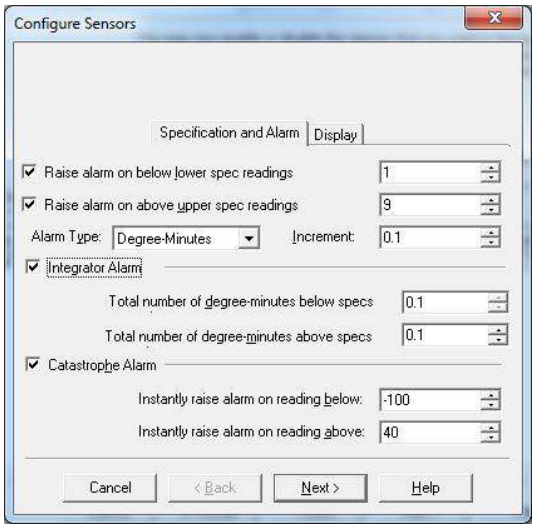
Number of consecutive out of specification readings – the alarm is triggered if the readings are consecutively over or under the specified threshold. For instance, if the upper spec is 50°C and the value for the number of consecutive out-of-spec readings is 3 and the logging interval is 10minutes, the readings will need to be in excess of 50C for 30 minutes before the alarm is triggered. If the readings fluctuate outside upper and lower threshold temperatures, the same rule applies (providing the appropriate "raise alarm" box is ticked). Once reading(s) return inside alarm limits, the consecutive alarm is reset.

Total number of out of specification readings (cumulative) - the alarm is triggered if the total number of out of spec readings equals the entered value. In this case the alarm is NOT reset if readings return to within the specified parameters, and each out-of-spec reading is added to the previous one until the number equals the entered value.
Do not set the Total number of out-of-spec readings value to be less than the Consecutive out-of-spec readings as this will mean that the Consecutive out-of-spec readings alarm will never be triggered.

Degree-Minutes Alarm (Integrator Alarm)
The Degree-Minutes Alarm is a special feature that "integrates" temperature and time parameters into one value.

MP D range	MP Dry Ice





Total number of degree-minutes below specs exceeds - the alarm is triggered when the total number of temperature degrees below the low alarm spec is greater than the value entered.

Total number of degree-minutes above specs exceeds - the alarm is triggered when the total number of temperature degrees above the upper alarm spec is greater than the value entered.

Catastrophe Alarm

This alarm is always secondary to the Standard and Degree-Minute alarms and there is no delay. Do not set Catastrophe Alarm inside normal alarm limits because other alarms will never be triggered.

Instantly raise alarm on readings below - tick this box if you want to immediately trigger the low alarm and select the value in the box immediately to the right. Note if the lower spec value is 0°C, then the alarm can be triggered at -0.1°C, not 0.0°C as this value is considered within specification.

Instantly raise alarm on readings above - tick this box if you want to immediately trigger the high alarm and select the value in the box immediately to the right. Note if the upper spec value is 50°C, then the alarm can be triggered at 50.1°C, not 50.0°C as this value is considered within specification.

The table below demonstrates arbitrary data from an iMiniPlus and how different alarm sources will be triggered. This is complicated scenario for alarm settings based on:

- Upper spec alarm: +20°C
- Number of Consecutive out of spec readings: 4
- Total number of out of spec readings: 5
- Total number of degree-minutes above specs exceeds: 8
- Instantly raise alarm on readings above: +23°C

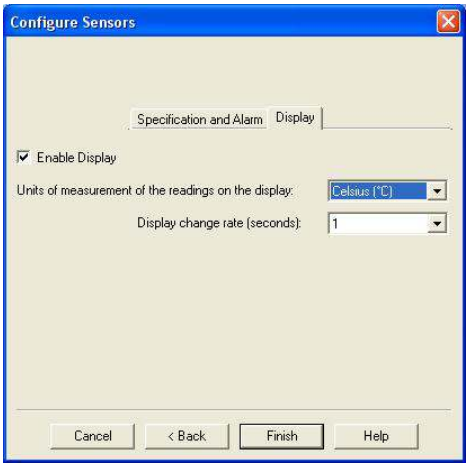
Time [min]	T [° C]	Consecutive	Total	Integrator	Catastrophe
0	19	OFF / 0	OFF / 0	OFF/0	OFF
1	20	OFF / 0	OFF / 0	OFF/0	OFF
2	23	OFF / 1	OFF / 1	OFF/3	ALARM ON
3	21	OFF / 2	OFF / 2	OFF/4	ALARM ON

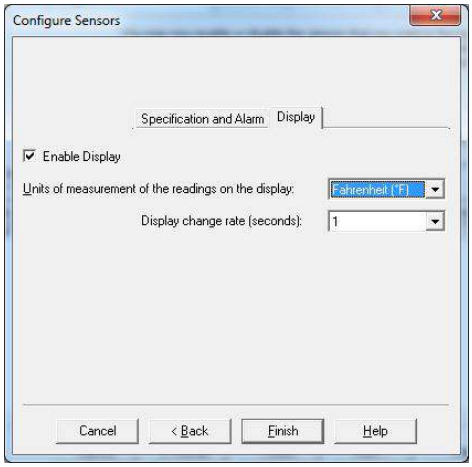
4	19	OFF / 0	OFF / 2	OFF/4	ALARM ON
5	21	OFF / 1	OFF / 3	OFF/5	ALARM ON
6	22	OFF / 2	OFF / 4	OFF/7	ALARM ON
7	24	OFF / 3	OFF /5	ALARM ON /11	ALARM ON
8	22	OFF / 4	ALARM ON /6	ALARM ON /13	ALARM ON
9	21	ALARM ON /5	ALARM ON /7	ALARM ON /14	ALARM ON
10	19	ALARM ON/0	ALARM ON /7	ALARM ON /14	ALARM ON

iMiniPlus Display

The iMiniPlus LCD can be configured to display or not display the temperature information.

MP D range	MP Dry Ice





Enable Display

Tick this box if you want to enable the display to show the temperature readings and statistics.

If the box is un-ticked, all other features will be greyed out. The iMiniPlus LCD will show **"d-off"** instead of a temperature value. Additionally you will not be able to scroll through the highest lowest, average and out of spec readings. The word **"LATEST"** will flash and if any alarm had been triggered, **"HIGH ALARM"** or **"LOW ALARM"** will be displayed.

The bookmarking function can still be used when the display is disabled.

When the iMiniPlus is stopped using the Stop button or it stops because it has reached the end of a logging trip, the words **"d-off"** will disappear and the word **"STOPPED"** will appear.

Display Units of measurement

You can select the LCD to display the temperature in Celsius or Fahrenheit.

Display change rate

You can select a frequency or 1, 2, 3 or 4 seconds that the LCD scrolls between the Highest, Lowest, Average and out-of-spec information. Note that the **"LATEST"** reading will only change at a frequency

equal to the logging interval. So if the iMiniPlus is programmed to log every 1 minute, that will be the rate at which the **"LATEST"** reading changes.

Checking the time clock

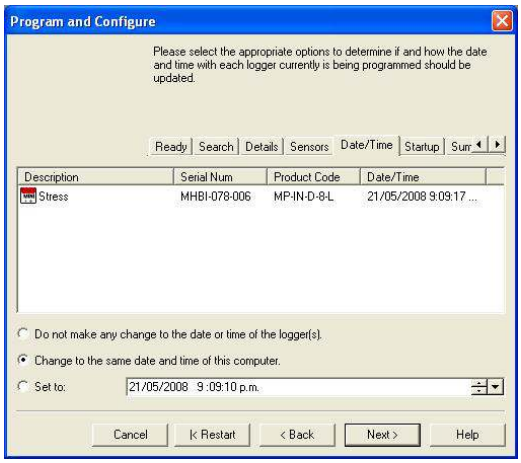
There may be times when the time clock on the iMiniPlus may alter. This is the case when the battery is removed and not replaced for more than 30seconds.

Date/Time Tab - Check that the date and time is correct.

If you have removed batteries from the iMiniPlus for any length of time, make sure you either select:

- **Change to the date and time on this computer (default)**
- **Set to**

The software will always default to the "Change to the date and time on this computer." option.



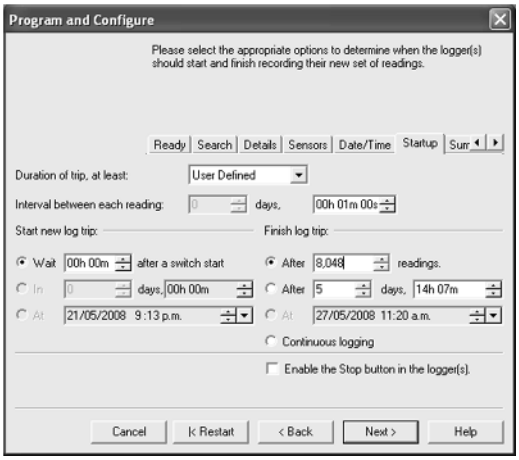
Setting the Start, Stop and logging duration

Startup Tab - Configure the start, recording and stop conditions.
The left-hand side of this tab displays the start conditions and the right-hand side the logging and stop conditions

Duration of trip, at least

If you are using the iMiniPlus to record the temperature of a trip (shipment) for instance, you have the option of setting up the parameters yourself or let the ConsolePro software calculate these automatically for you.

The software takes the total memory available (8048 readings) and calculates the maximum interval between each reading and the finish log trip time and date based on the trip duration you select. You can select 1day to 60day trip duration this way.
You will notice that each time you select a trip duration, the logging interval will change.



Interval between each reading

This is sometimes called the logging interval or logging rate and is described as the period of time between each logged reading. If the interval is a low number, then the iMiniPlus memory will be filled quickly compared to a high number. If you want to record acute changes in temperature over short periods of time, it is best to select a low number or faster logging interval. If you want a logger to record readings over a long period of time, then you will be best advised to use a lower logging interval or high number.
The fastest logging interval the iMiniPlus can log at is every 5 seconds.

The slowest logging interval the iMiniPlus can log is every 18 hours.

Start new log trip

The only way to start an iMiniPlus is by using the START button. With other products it is possible to have a timed or date start as well as a switch start.

You can also program a delay into the starting process of up to 4 hours 15 minutes. This will show immediately after the Start button is pressed within the iMiniPlus LCD with the words "**IN DELAY**". See section ***Starting and using the iMiniPlus***.

Finish log trip

There are several ways to cease a logging trip or period.
You can program the iMiniPlus to log until all the memory is used up (8048 readings) or you may wish to log only 100 readings for instance.

Alternatively, you can select a certain number of days at which the iMiniPlus will stop logging. For instance you may only want to record the temperature for a discrete period like a few days, after which you are not interested in any further data recording.
At each time the iMiniPlus will stop logging and "**STOPPED**" will be displayed on the LCD

Continuous logging

If you are intending to place the iMiniPlus in an environment that you want to record temperatures 24/7 (for example, laboratory refrigerator), you can select the iMiniPlus to log continuously. This means that the iMiniPlus will log until the memory it filled up at which time it will start overwriting the first logged data with the latest.
Users must be careful to routinely download data from the iMiniPlus otherwise data may be lost. Careful selection of the logging interval is required in this case.
It is possible to download at any time while the iMiniPlus is logging, without changing the program settings.

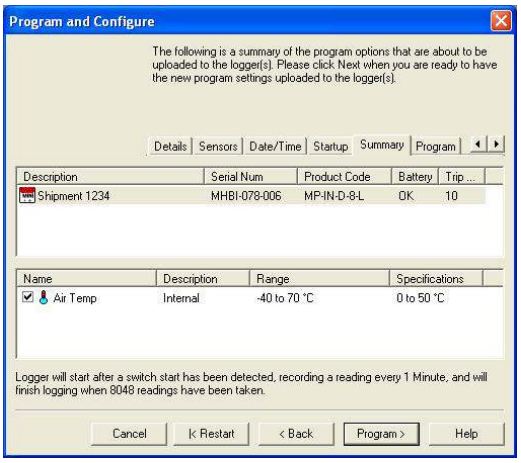
Enable stop button in this logger(s)

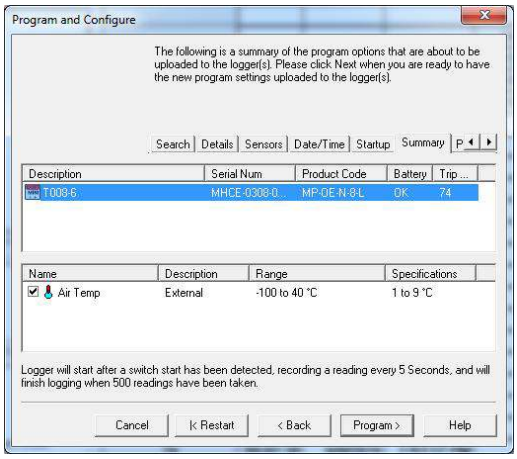
The iMiniPlus Stop button can be activated through programming by simply ticking the appropriate box. See section ***Stopping the iMiniPlus.***

Summary and Upload Program into iMiniPlus

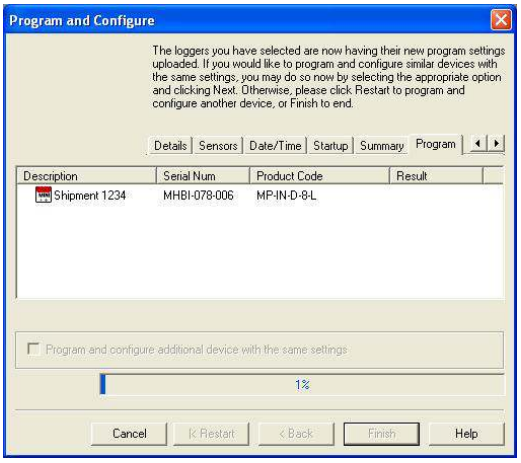
Once you have completed the programming, you will be given an opportunity to review all the conditions in the **Summary tab** before you upload into the iMiniPlus. If you are not happy with them select the **<BACK** button to return to the appropriate sections and amend.
Check that program settings are what you want.

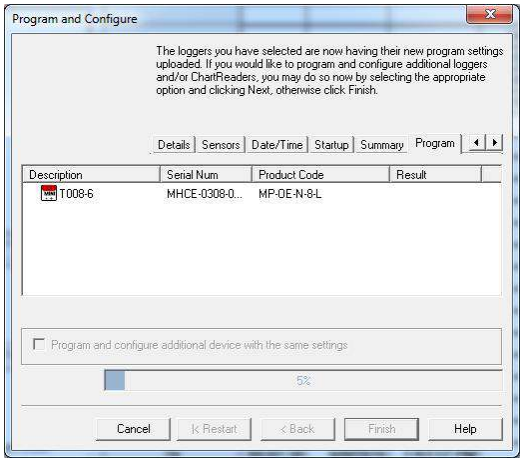
MP D range	MP Dry Ice





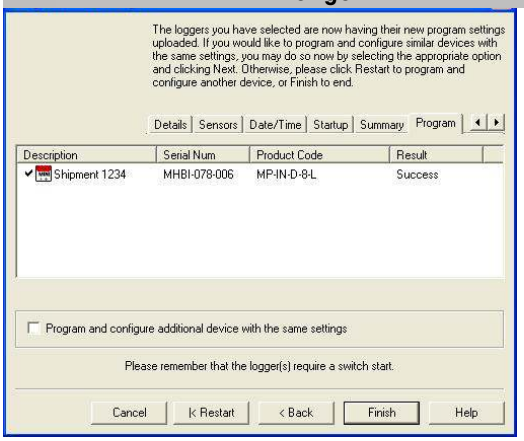
Program conditions are being uploaded to iMiniPlus



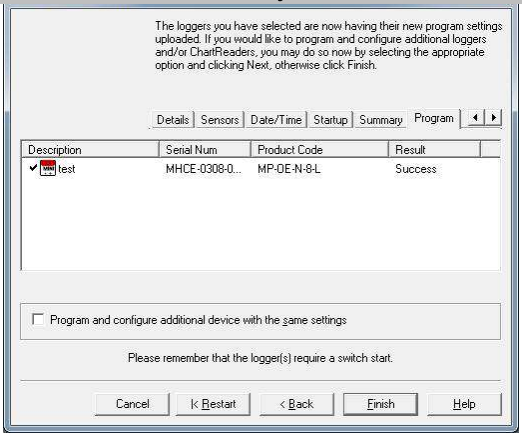


The iMiniPlus has been correctly programmed

MP D range



MP Dry Ice



If the program settings have been uploaded correctly the blue progress bar will show 100% and the word **"Success"** display in the Result field. There will also be a tick next to icon in the Description field. Select

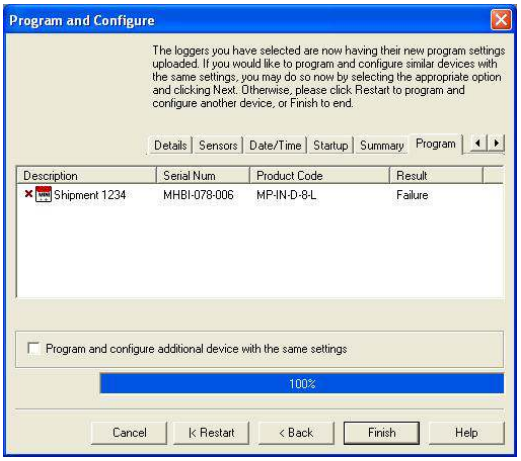
the Finish button and when ready start the iMiniPlus and place in the environment to be recorded. See section ***Starting and using the iMiniPlus.***

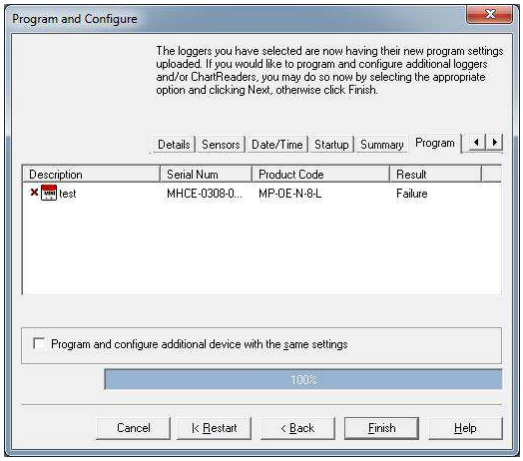
Program upload Failure

If the upload has failed either select the Cancel button to close the software and start again or select the Restart button to start the sequence again. If the iMiniPlus still fails to upload, contact your local distributor or Cryopak Verification Technologies

Program conditions have not been successfully uploaded into the iMiniPlus.

MP D range	MP Dry Ice





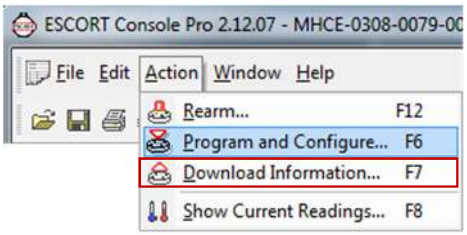
6. Results from iMiniPlus

The iMiniPlus stores the logged readings in its internal memory so you must use the ConsolePro software to extract these readings through the USB or serial adaptor and into a format that can be displayed on the PC screen. It is usually very important that the information retrieved from an iMiniPlus is retained. Through the software you can save the information retrieved from an iMiniPlus to your disk drive so that you can view the information at a later date. This chapter explains how you can retrieve the logged data stored within an iMiniPlus and have the software display it to you on the screen in a meaningful way.

Getting results from iMiniPlus

Make sure the USB or serial cable is connected to your PC and to the iMiniPlus.
There are two ways to retrieve the data from an iMiniPlus, both of which will achieve the same result.
Click the Download Information icon on the toolbar

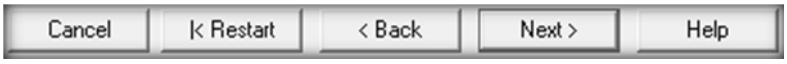
Click the "Download Information..." item located under the Action menu.



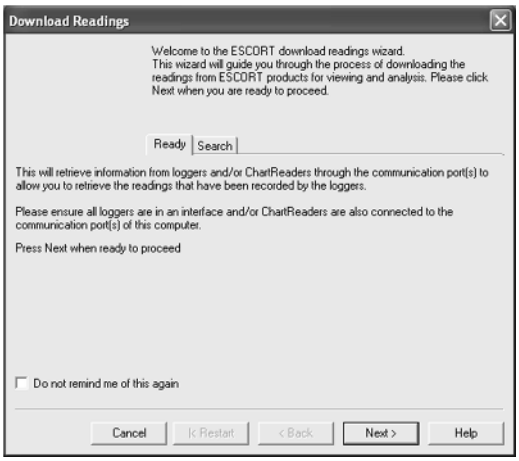
The process of retrieving data stored within an iMiniPlus does not erase it from the memory. If the iMiniPlus is currently recording while you retrieve the information, it will continue to record without interruption.
The Download Information feature initiates the Download Wizard.

Download Wizard

During the progress of the Download Wizard, you will see a series of 5 buttons at the bottom of the wizard box.

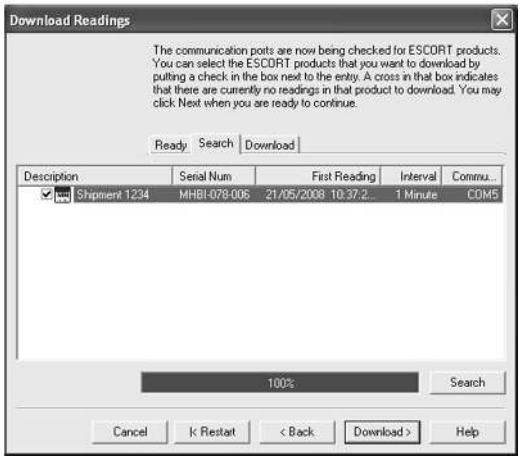


The "**Cancel"** button immediately stops and closes the wizard. To start again you will have to select the Download icon. The "**Restart"** button enables you to start the Wizard progress from the beginning without closing the feature. **"Back"** enables you to go back one step in the step-by- step progress and "**Next"** takes you to the next step. The Next button is preceded by the **"Download"** button. The **Help** button will provide description and instruction about the step you are in. Please note that this feature may make reference to other products from time to time. Additionally some Help documentation may not be present due to the software version you are currently using. Consult this iMiniPlus manual if you are not sure about any description.



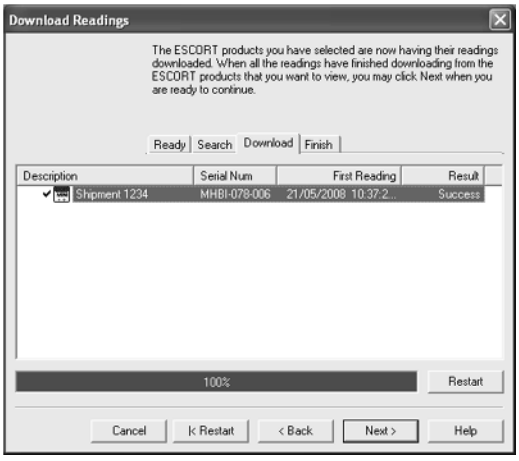
Download Wizard Start page

Displays information about the iMiniPlus along with the date and time of the first reading.

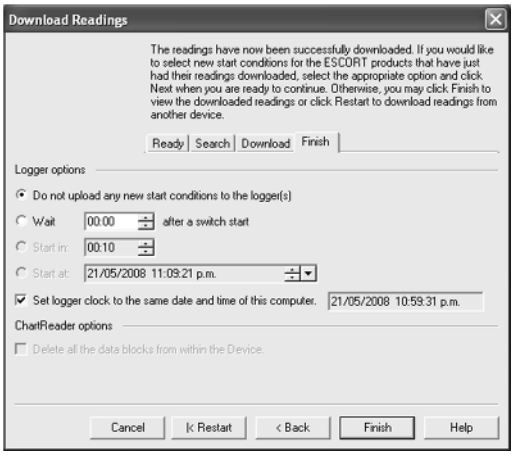


Displays information about the iMiniPlus along with the date and time of the first reading. Click **'Download'**

Indicates that the Download was successful.



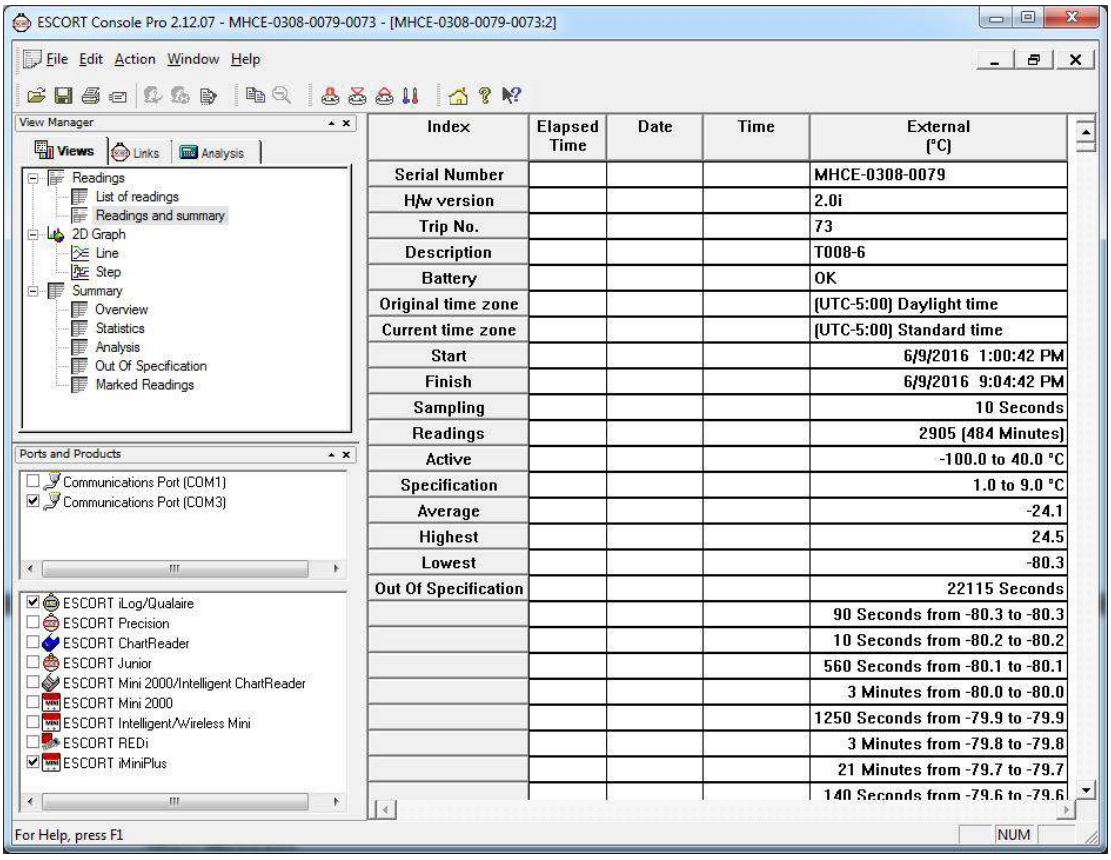
If **FAILURE** appears in the Result and there is a **RED X** next to in the Description this may indicate the iMiniPlus has already been programmed. If this is not the case, there is a fault with the iMiniPlus and it will need to be returned to your distributor.



You have the option of programming the new start conditions. This may be help for instance when you are having to reset a large number of iMiniPlus loggers for a new application. Otherwise leave Logger option at default setting “Do not upload any new start conditions to the logger(s)”

Inspecting the information at close range

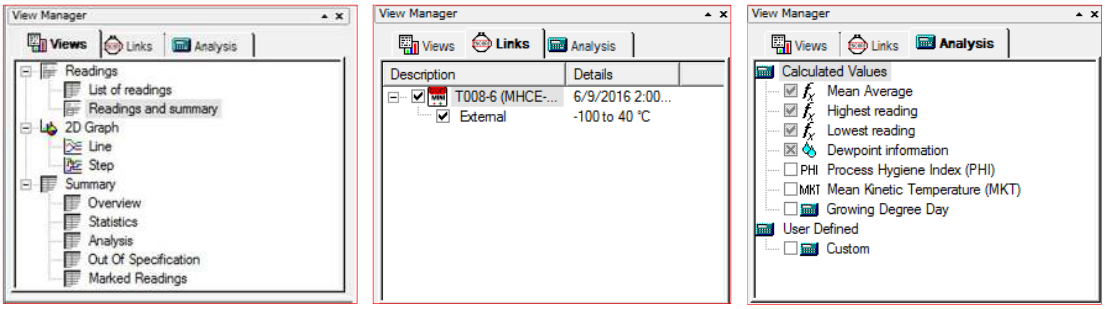
When a file is displayed either from downloading or from calling up a stored data file, the file first appears as a list of readings. It might look something like this:



Index	Elapsed Time	Date	Time	External (°C)
Serial Number				MHCE-0308-0079
H/w version				2.0i
Trip No.				73
Description				T008-6
Battery				OK
Original time zone				(UTC-5:00) Daylight time
Current time zone				(UTC-5:00) Standard time
Start				6/9/2016 1:00:42 PM
Finish				6/9/2016 9:04:42 PM
Sampling				10 Seconds
Readings				2905 (484 Minutes)
Active				-100.0 to 40.0 °C
Specification				1.0 to 9.0 °C
Average				-24.1
Highest				24.5
Lowest				-80.3
Out Of Specification				22115 Seconds
				90 Seconds from -80.3 to -80.3
				10 Seconds from -80.2 to -80.2
				560 Seconds from -80.1 to -80.1
				3 Minutes from -80.0 to -80.0
				1250 Seconds from -79.9 to -79.9
				3 Minutes from -79.8 to -79.8
				21 Minutes from -79.7 to -79.7
				140 Seconds from -79.6 to -79.6

View Manager

The View Manager is a useful data viewing tool and by default, occupies the left side of the ConsolePro window. The View Manager will only be functional when a set of data has been opened or been downloaded from an iMiniPlus.

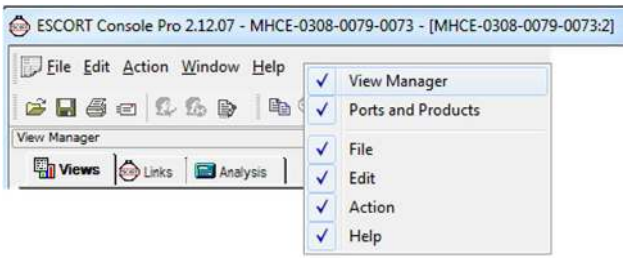


If you want to see the View Manager in any other ConsolePro window location, simply select and drag. The View Manager has 3 tabs:

1. **Views -** Manages the type of reading, graph or summary you would like to display.

2. **Links -** Manages which data you would like to analyze or compare.
3. **Analysis** - Manages which type of analysis you would like to add in the displayed readings or graphs.

To hide or display the View Manager, choose ***Options*** from the ***Edit*** menu. Select or deselect ***Display the View Manager*** option from the ***General*** tab. Alternatively you can right click on the menu or toolbar area to select the View Manager. As shown:

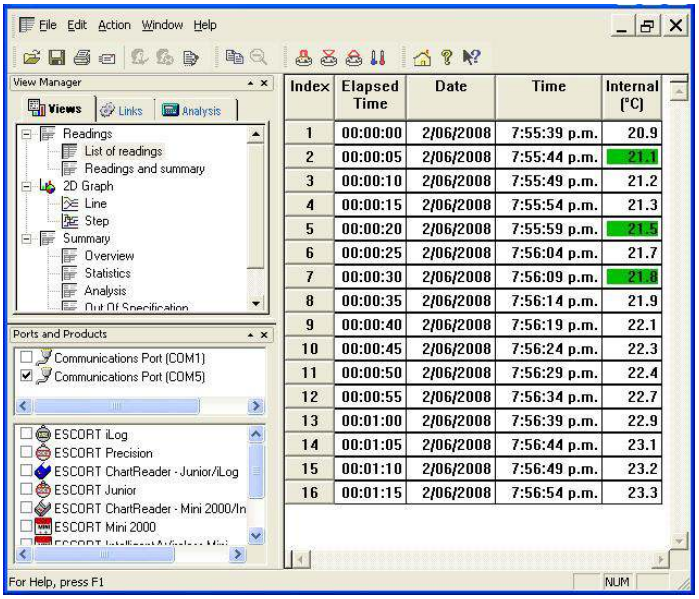


Views

The Views window has 3 top-level headings. To expand or collapse the content of any headings just left click on it. Each heading contains a drop down list of further items. To display the item double-click on the item you would like to see.

Readings

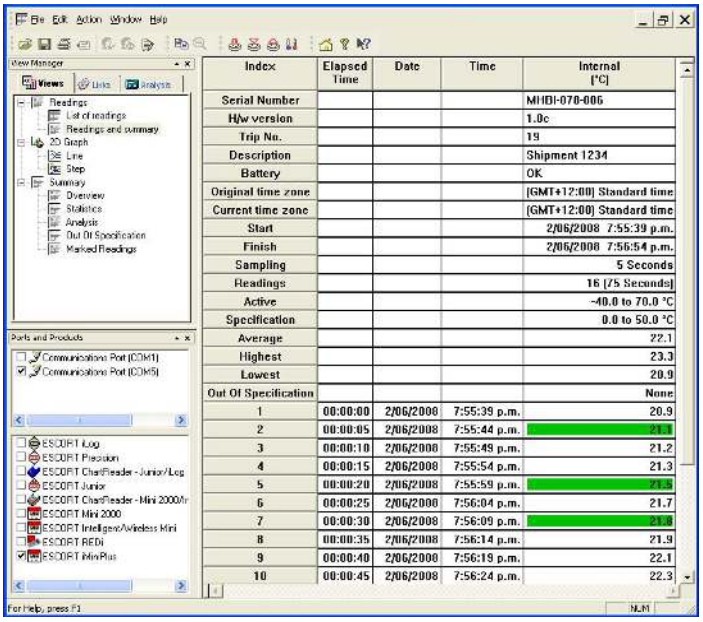
List of readings - displays a table with separate line for each reading taken. Each line shows the date and time the reading was made and the measurement made by each sensor.



Index	Elapsed Time	Date	Time	Internal [°C]
1	00:00:00	2/06/2008	7:55:39 p.m.	20.9
2	00:00:05	2/06/2008	7:55:44 p.m.	21.1
3	00:00:10	2/06/2008	7:55:49 p.m.	21.2
4	00:00:15	2/06/2008	7:55:54 p.m.	21.3
5	00:00:20	2/06/2008	7:55:59 p.m.	21.5
6	00:00:25	2/06/2008	7:56:04 p.m.	21.7
7	00:00:30	2/06/2008	7:56:09 p.m.	21.8
8	00:00:35	2/06/2008	7:56:14 p.m.	21.9
9	00:00:40	2/06/2008	7:56:19 p.m.	22.1
10	00:00:45	2/06/2008	7:56:24 p.m.	22.3
11	00:00:50	2/06/2008	7:56:29 p.m.	22.4
12	00:00:55	2/06/2008	7:56:34 p.m.	22.7
13	00:01:00	2/06/2008	7:56:39 p.m.	22.9
14	00:01:05	2/06/2008	7:56:44 p.m.	23.1
15	00:01:10	2/06/2008	7:56:49 p.m.	23.2
16	00:01:15	2/06/2008	7:56:54 p.m.	23.3

Readings and summary

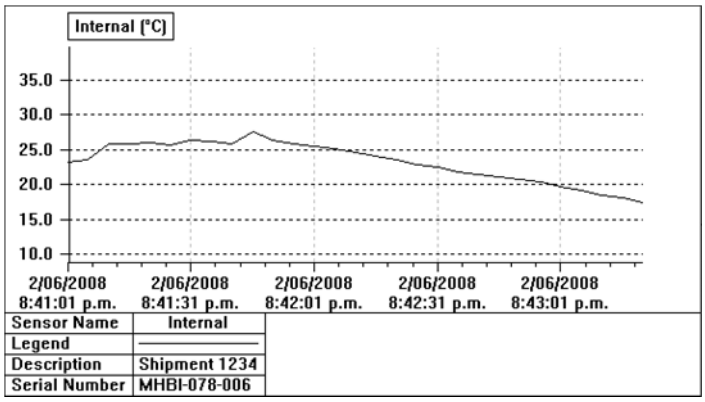
Displays reading summary report followed by detailed list of actual readings. Summary report includes such facts as the serial number of the iMiniPlus and a description of the environment recorded, trip number, start and finish dates, time zone, number of readings, etc.



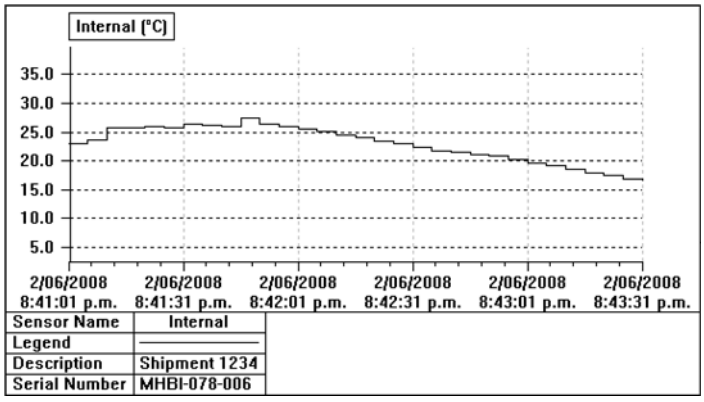
Index	Elapsed Time	Date	Time	Internal [°C]
Serial Number				MHDI-070-006
H/w version				1.0c
Trip No.				19
Description				Shipment 1234
Battery				OK
Original time zone				(GMT+12:00) Standard time
Current time zone				(GMT+12:00) Standard time
Start				2/06/2008 7:55:39 p.m.
Finish				2/06/2008 7:56:54 p.m.
Sampling				5 Seconds
Readings				16 (75 Seconds)
Active				-40.0 to 70.0 °C
Specification				0.0 to 50.0 °C
Average				22.1
Highest				23.3
Lowest				20.9
Out Of Specification				None
1	00:00:00	2/06/2008	7:55:39 p.m.	20.9
2	00:00:05	2/06/2008	7:55:44 p.m.	21.1
3	00:00:10	2/06/2008	7:55:49 p.m.	21.2
4	00:00:15	2/06/2008	7:55:54 p.m.	21.3
5	00:00:20	2/06/2008	7:55:59 p.m.	21.5
6	00:00:25	2/06/2008	7:56:04 p.m.	21.7
7	00:00:30	2/06/2008	7:56:09 p.m.	21.8
8	00:00:35	2/06/2008	7:56:14 p.m.	21.9
9	00:00:40	2/06/2008	7:56:19 p.m.	22.1
10	00:00:45	2/06/2008	7:56:24 p.m.	22.3

2D Graph.

Line - displays the logger's reading as a line graph.



Step - displays the logger's readings as a step graph.



You can enlarge a section of the graph with the mouse. Move the mouse to one corner of the area you want to zoom, press the left mouse button, drag the mouse to the opposite corner, and release the button to enlarge a section of the graph. Press the toolbar zoom button or right click the mouse to restore (un-zoom) the graph.

Summary.

Overview - displays overview information of the current logger such as serial number, trip number, battery report, time zone, start and finish dates, number of readings, readings interval, logger's range and specification.

	External (°C)
Serial Number	MHCE-0308-0079
H/w version	2.0i
Trip No.	73
Description	T008-6
Battery	OK
Original time zone	(UTC-5:00) Daylight time
Current time zone	(UTC-5:00) Standard time
Start	6/9/2016 1:00:42 PM
Finish	6/9/2016 9:04:42 PM
Sampling	10 Seconds
Readings	2905 (484 Minutes)
Active	-100.0 to 40.0 °C
Specification	1.0 to 9.0 °C

Statistics - displays the serial number, the description, the highest and the lowest value of readings, the average value of readings, the Process Hygiene Index (PHI), Mean Kinetic Temperature (MKT), a Custom value and Grower Degree Day (GDD).

	External (°C)
Serial Number	MHCE-0308-0079
Description	T008-6
Average	-24.1
Highest	24.5
Lowest	-80.3
PHI Aerobic	0.01
PHI Anaerobic	0.01
MKT	-5.17
Growing Degree Day	0.0

Analysis – displays a summary report and includes previous parameters.

	External (°C)
Serial Number	MHCE-0308-0079
H/w version	2.0i
Trip No.	73
Description	T008-6
Battery	OK
Original time zone	(UTC-5:00) Daylight time
Current time zone	(UTC-5:00) Standard time
Start	6/9/2016 1:00:42 PM
Finish	6/9/2016 9:04:42 PM
Sampling	10 Seconds
Readings	2905 (484 Minutes)
Active	-100.0 to 40.0 °C
Specification	1.0 to 9.0 °C
Average	-24.1
Highest	24.5
Lowest	-80.3
PHI Aerobic	0.01
PHI Anaerobic	0.01
MKT	-5.17
Growing Degree Day	0.0
Out Of Specification	22115 Seconds

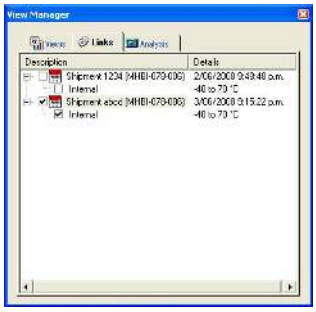
Out-of-Specification – displays a breakdown of the out of specification readings.

	External (°C)
Serial Number	MHCE-0308-0079
Description	T008-6
Out Of Specification	22115 Seconds
	90 Seconds from -80.3 to -80.3
	10 Seconds from -80.2 to -80.2
	560 Seconds from -80.1 to -80.1
	3 Minutes from -80.0 to -80.0
	1250 Seconds from -79.9 to -79.9
	3 Minutes from -79.8 to -79.8
	21 Minutes from -79.7 to -79.7
	140 Seconds from -79.6 to -79.6
	340 Seconds from -79.5 to -79.5
	10 Seconds from -79.4 to -79.4
	1 Minutes from -79.3 to -79.3
	40 Seconds from -79.1 to -79.1
	50 Seconds from -78.9 to -78.9
	40 Seconds from -78.8 to -78.8
	40 Seconds from -78.6 to -78.6
	20 Seconds from -78.4 to -78.4
	40 Seconds from -78.2 to -78.2
	20 Seconds from -78.1 to -78.1
	20 Seconds from -78.0 to -78.0

Marked Readings - displays the bookmarked readings.

Index	Elapsed Time	Date	Time	Internal (°C)
Serial Number				MHBI-078-006
H/w version				1.0c
Trip No.				21
Description				Shipment 1234
Battery				OK
Original time zone				(GMT+12:00) Standard time
Current time zone				(GMT+12:00) Standard time
Start				2/06/2008 9:48:48 p.m.
Finish				2/06/2008 9:57:03 p.m.
Sampling				5 Seconds
Readings				100 (495 Seconds)
Active				-40.0 to 70.0 °C
Specification				10.0 to 25.0 °C
1	00:00:45	2/06/2008	9:49:33 p.m.	23.3
2	00:01:55	2/06/2008	9:50:43 p.m.	26.0

Links

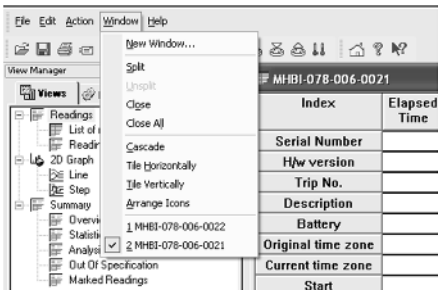


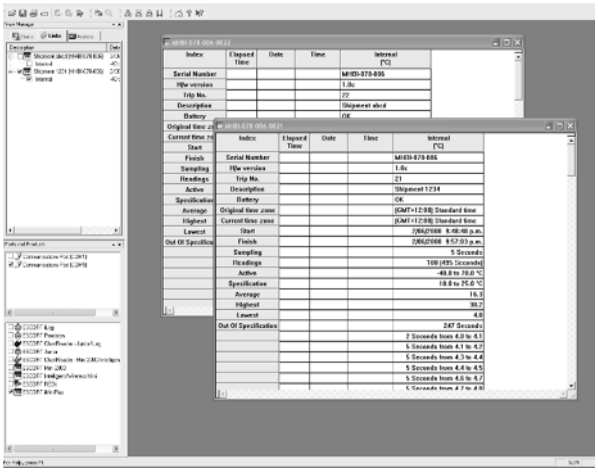
The Links window provides a way to analyze and/or compare data from multiple iMiniPlus loggers, which could have been logged over different time periods and/or different logging intervals.

Simply download the iMiniPlus loggers you are interested in comparing. The data may also be from previous logged period on the same iMiniPlus. For download instructions see the section ***"Download Wizard".*** In the Links window you can see all the iMiniPlus loggers or data that ConsolePro has currently open and displayed. Simply select the iMiniPlus and its sensor to include it into the current display window. Note that ConsolePro shows the ***"Internal"*** under the description and serial number of the iMiniPlus. This is automatically selected when the parent box is selected. It refers to the sensor description of the iMiniPlus model MP-IN-D-8-L in which the sensor is housed internal to the iMiniPlus body. The word ***"External"*** will be show in the model MP-OE-D-8-L and it refers to the sensor that is externally connected to the iMiniPlus via a one meter cable.

Each time an iMiniPlus is downloaded into ConsolePro software or a series of data is opened, a separate Readings and Summary box is opened like the picture below:

Each iMiniPlus dataset can be maximized into the ConsolePro window and then be selected through the ***Window menu*** as below:



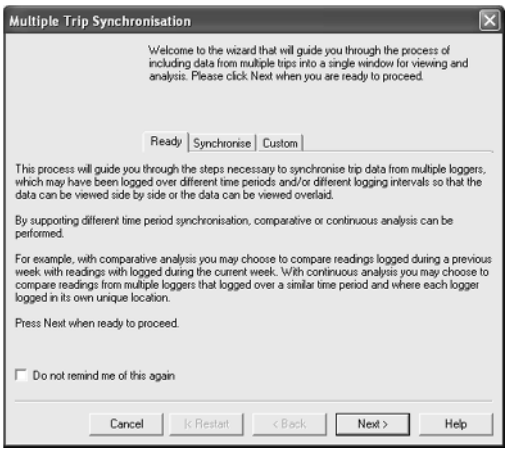


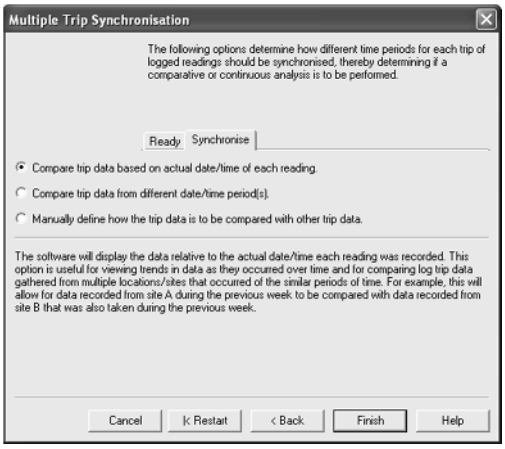
Multiple Trip Synchronization Wizard

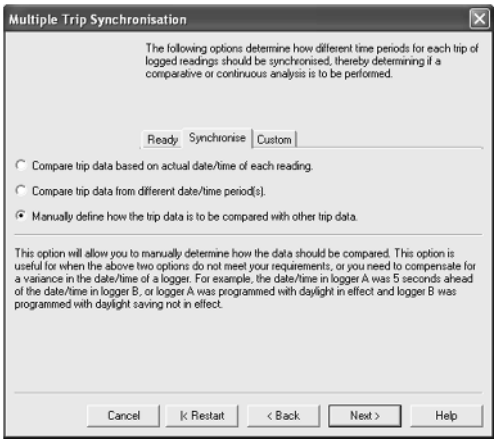
When more than one set of data appears in the Links window and is selected with a tick, the ***Multiple Trip Synchronization Wizard*** will start and guide you through the process of including the data from the other iMiniPlus into the current display.

To compare log trip data gathered from multiple locations at similar periods of time, it is recommended that you select the option ***"Compare trip data based on actual date/time of each reading"***. For example, this will allow data recorded from one site to be compared with data from another during the same interval of time.

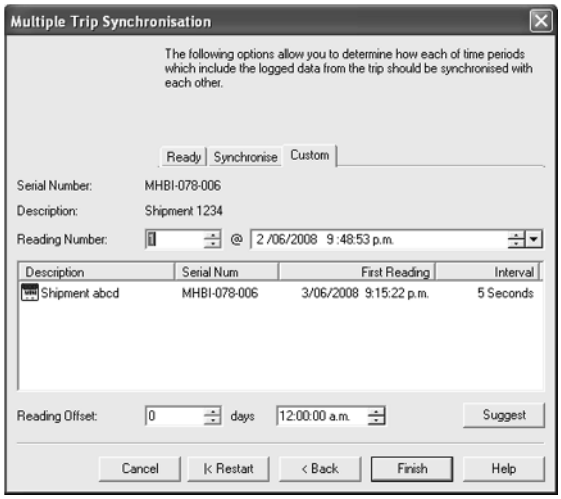
To compare log trip data gathered from multiple and/or the same location during different periods of time, it is recommended that you select the ***option "Compare trip data from different date/time period(s)***'. This is useful for comparing current log data with that of a previous week.







To customize how the log trip data from an iMiniPlus is included, select the option ***"Manually define how the trip data is to be compared with other trip data"***.

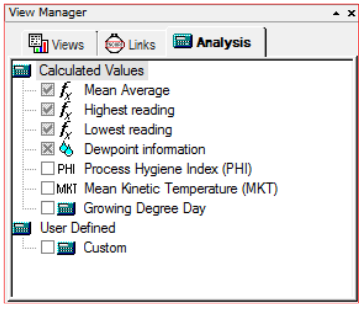


This step provides you with a screen that will allow you to manually adjust the alignment offset through the Reading Offset controls.

- **Serial Number** displays the serial number of the iMiniPlus to be added to the current view.
- **Description** displays the description of the iMiniPlus to be added to the current view.
- **Reading Number** shows the reading number, the iMiniPlus has/would have taken at the date/time specified in **@** field.
- **Reading Offset** allows you to adjust first reading time of the currently displayed iMiniPlus to synchronize it with first reading time of the iMiniPlus that is going to be added to the current view.

You can use Reading number or @ fields to set time and date to be used for the first reading of the iMiniPlus to be added or you can use **Suggest** button to allow software set first reading date and time.
Also you can see details of the currently displayed iMiniPlus: description, serial number, date and time of the first reading, interval between readings.

Analysis



When a file is displayed either from downloading or from calling up a stored data file, the software will automatically calculate and display some statistics of the recorded data. These statistics can be displayed in the Readings, 2D Graph and Summary features of the View tab. When choosing a 2D Graph view, these statistics can be optionally displayed in the graph window.

The Analysis window has 2 top-level headings. To expand or collapse the content of any headings just click on it. Additionally if you right click on the Values or User Defined statistics, you will be able to edit and/or view reference material. See right image below:

Calculated Values

Mean Average

Select this option to display the average value of readings in the 2D graph legend.

The Mean Average reading is the arithmetic mean of the sequence of data points. It is calculated by adding all the data point values together and then dividing the total by the number of data points. Mathematically this formula can be expressed as illustrated in the following picture:
Where:

av	the calculated arithmetic mean
n	the number of data points to include in the calculation
t_i	a data point to include in the calculation

For example, if there were 5 data points to calculate the arithmetic mean of and they were, 12.3, 15.9, 16.2, 14.7, 14.9, then the arithmetic mean would be 14.8.

Highest reading

Select this option to display the maximum value of the iMiniPlus readings in the 2D graph legend.

Lowest reading

Select this option to display the minimum value of the iMiniPlus readings in the 2D graph legend.

Dewpoint information

This statistic is not available on the iMiniPlus. (Relative Humidity loggers only)

Process Hygiene Index (PHI)

Select this option to display the aerobic and anaerobic process hygiene index of iMiniPlus readings in the 2D graph legend.

Process Hygiene Index (PHI) is:

- a unit of potential microbial growth equivalent to one generation of Escherichia coli ;
- an approximation of the amount of potential bacterial growth during the cooling process of meat products from slaughter until the meat has cooled to 7°C (44.6°F) or less;
- a way of evaluating the overall hygiene of the meat cooling process.

Process Hygiene Index (PHI) consists of:

- **Aerobic growth** (growth on the outer layer of the meat carcass) of Escherichia coli during the cooling process;
- **Anaerobic growth** (growth internal to the meat carcass) of Escherichia coli during the cooling process;
- the temperature of the meat during the cooling process.

The Process Hygiene Index (PHI) standard:

The MAF (New Zealand) Industry Standard 6 indicates that PHI values should not exceed a maximum of 14, and a mean of 7. For more detailed information on the application and use of PHI calculations, refer to New Zealand Ministry of Agriculture and Forestry (MAF) Industry Standard 6, Processing of Edible Product, which is available through the Internet site (http://www.maf.govt.nz)

Software calculates Process Hygiene Index (PHI) using the following formulas:

Temperature (°C)	Generations/hour
Aerobic growth	
7 - 30	$(0.0513 \times T - 0.17)^2$
30 - 40	$(0.027 \times T + 0.55)^2$
40 - 47	2.66
<7 or > 47	0
Anaerobic growth	
7 - 30.5	$(0.0433 \times T - 0.15)^2$
30.5 - 40	$(0.0163 \times T + 0.676)^2$
40 - 45	1.77
<7 or > 47	0

T is the temperature in °C.

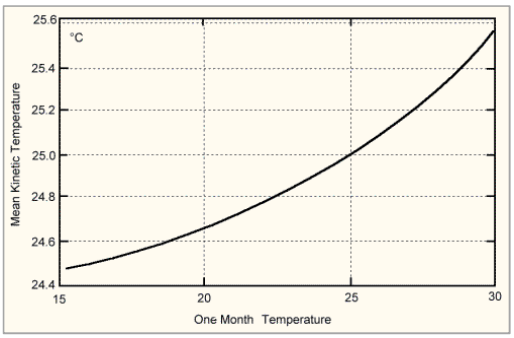
Mean Kinetic Temperature (MKT)

Select this option to display the Mean Kinetic Temperature of the iMiniPlus readings in the 2D graph legend.

There are some products and materials that exist which have accelerated rates of degradation at higher temperatures. For example, perishable food items, pharmaceutical products and many forms of bacteria can grow/degrade exponentially as the environmental temperature increases.

$$\frac{\Delta H/R}{-ln\left(\frac{e^{-\Delta H/RT_1}+e^{-\Delta H/RT_2}+\ldots+e^{-\Delta H/RT_n}}{n}\right)}$$

Mean kinetic temperature is a calculation that accommodates the non-linear thermal effect temperature can have on products. Mean kinetic temperature is represented as the equivalent temperature the product was thermally subjected to during the period of time the various temperature readings were recorded. As an illustration of how the MKT calculation will affect an expressed mean for a yearly calculation (important for the long term storage of critical drugs and chemicals), here is an illustration:



If the temperature is constant for an entire year, but is "off" for a single month of that year, there will be a difference in the calculated arithmetic mean (the sum of all of the measurements divided by the number of measurements--a simple mean) and the kinetic mean.

The following graph and table show the differences which are calculated by both methods:

Effect on Kinetic and Arithmetic Mean Temperatures on storage for one month at other than 25° C.

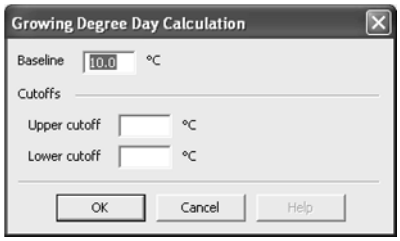
Temperature (one month)	Mean Temp.(Kinetic)	Mean Temp.(Arithmetic)
15	24.48	24.17
16	24.51	24.25
17	24.54	24.33
18	24.58	24.42
19	24.62	24.50
20	24.67	24.58
21	24.72	24.67
22	24.78	24.75
23	24.85	24.83
24	24.92	24.92
25	25.00	25.00
26	25.09	25.08
27	25.18	25.17
28	25.29	25.25
29	25.41	25.33
30	25.53	25.42

Although the effect is not dramatic, it is clear that the MKT method weights the higher temperatures in a series more than the lower temperatures.

Growing Degree Day

GDD are calculated by taking the average of the daily maximum and minimum temperatures compared to a base temperature, T_{base}, (usually 10 °C). As an equation:

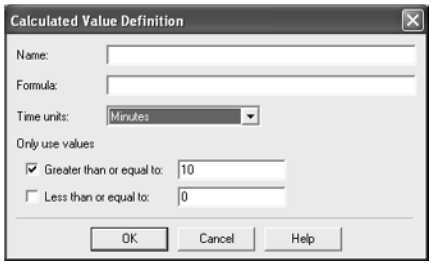
$$GDD = \frac{T_{\max} + T_{\min}}{2} - T_{\text{base}}$$



GDDs are typically measured from the winter low. Any temperature below T_{base} is set to T_{base} before calculating the average. Likewise, the maximum temperature is usually capped at 30 °C because most plants and insects do not grow any faster above that temperature. However, some warm temperate and tropical plants do have significant requirements for days above 30 °C to mature fruit or seeds.

Custom Value

Select this option to display custom defined value of readings in the graph's Legend. Double clicking on the Custom item opens the Calculated Value Definition dialog box.



Name - any name you wish. For example, ''Calculated fresh value of food''.

Formula - enter the formula used to convert each sensor's reading into the calculated value.

Example:

The value of fresh food is given as:

Fresh Value = (Measured Temperature - Target Temperature) * Time

Assume the Target Temperature is 60°C.

Set the Formula to $ - 60.

Set the Time Units to hours.

Select Greater than or equal to option and set limit to 60.

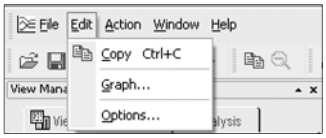
The mathematical operations currently supported include:

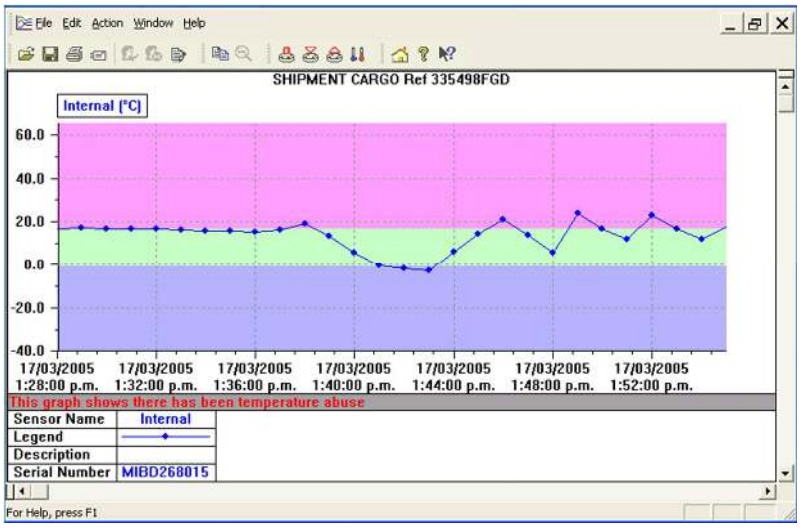
Symbol	What it means
+	addition
-	subtraction
*	multiplication
/	division
^	raise to power
(	left bracket
)	right bracket
sqrt( )	square root
exp( )	exponential
log( )	natural logarithm
log10( )	base 10 logarithm
abs( )	absolute value
$	where to put sensor value into the formula

View Data in a Graph

Open the data either from downloading an iMiniPlus or from a saved file. When the data opens it will present a List and Summary Report. Go to the View Manager and select the View tab. Then select 2D graph either Line or Step. The graph will presented like below:

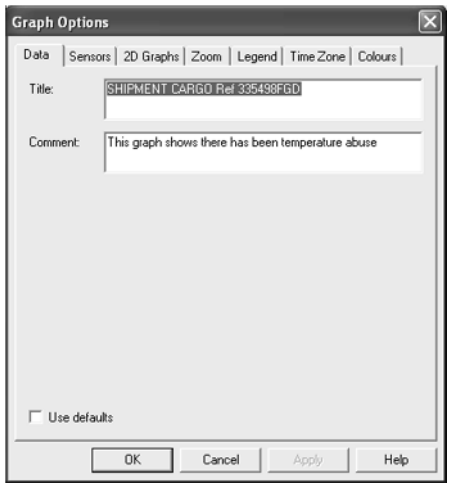
You can select the **Graph** option under the **Edit** menu to customize the look of the 2D graph.



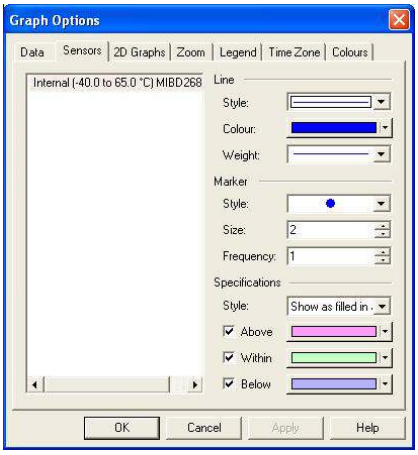


Data

You can add a title to the top of the graph and place a comment below.

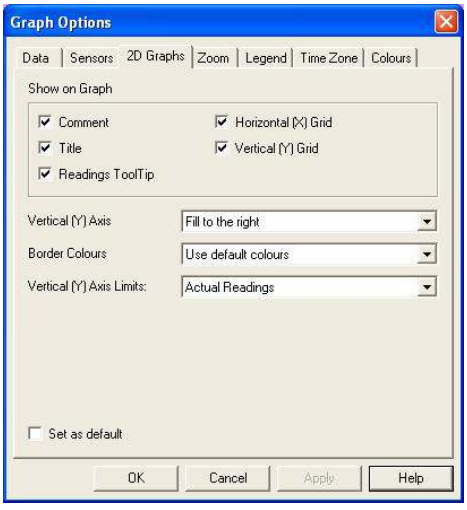


Sensors



In the Sensors tab you can customize the look of the graph with various line and color styles. You can color the graph to show the alarm (specification) limits as shown in this example.
In the left hand side of the box the description of the iMiniPlus data is displayed. If there were more than one data file was selected through the Multi Trip Synchronization feature, you would see those listed here as well.
By selecting each sensor description, you can customize how each is displayed on the Multi Link graph.
See Multiple Trip Synchronization Wizard section

2D Graphs



Comment

Select this box if you want to display the comment line on the bottom of the graph

Title

Select this box if you want to place a title on the top of the graph.

Readings ToolTip

Select this box if you want the Tooltip box to open next to the mouse cursor on the graph. The box will show the date, time and reading at any point along the x-axis.

Horizontal (X) Grid

Select this box if you want to display a dashed horizontal grid on the graph.

Vertical (Y) Grid

Select this box if you want to display a dashed vertical grid on the graph.

Vertical (Y) Axis

This enables you to fill the graph from the left or right or use both sides of the graph.

Border Colors

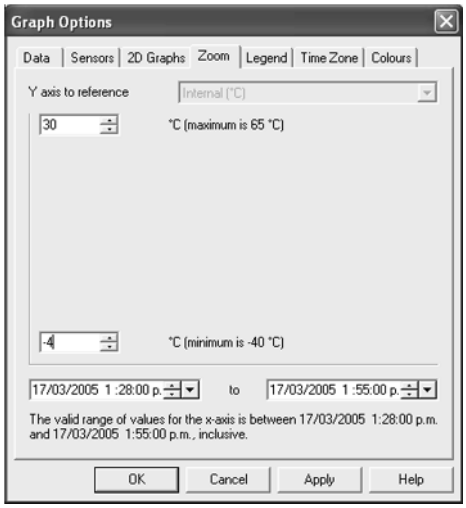
This enables you to select border colors for your graph.

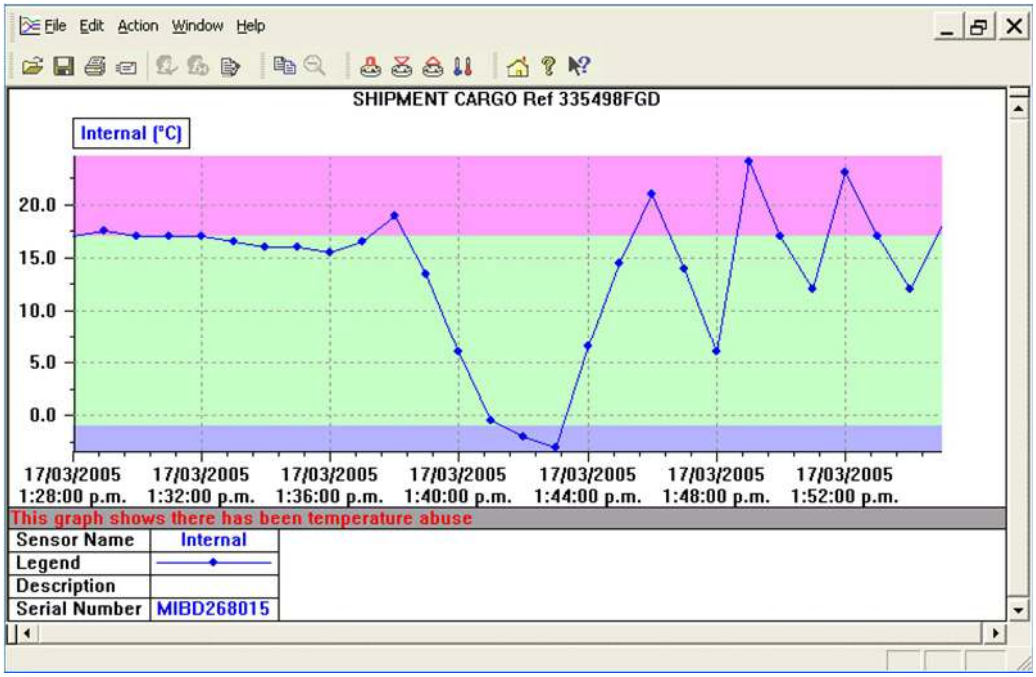
Vertical (Y) Axis Limits

This enables you to display the graph Y-axis (temperature readings) to fit either the complete range of the sensor (-40°C to +70°C) or within the alarm limits (if programmed) or from 0°C to the actual readings. Select the Apply button to update the 2D graph.

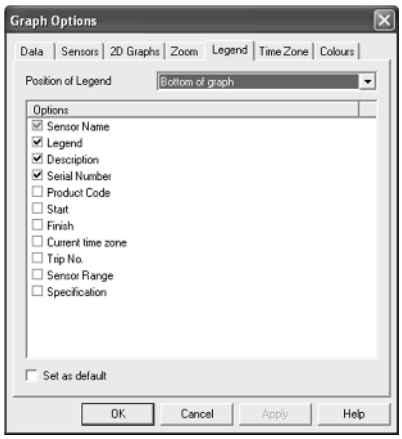
Zoom

The Zoom feature allows you to manually adjust the temperature and time co-ordinates to select certain areas of interest. In this example +30°C and -4°C have been selected.



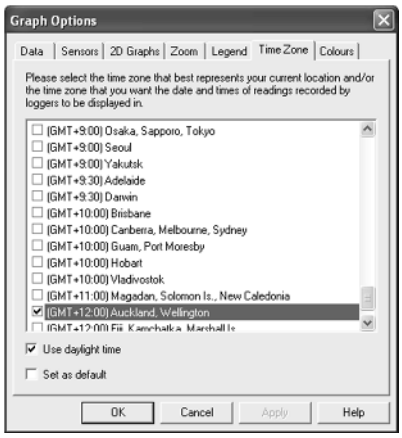


Legend



The legend can be positioned at the top, bottom, left and right of the graph, or omitted altogether. As well as the above Legend options, the various Calculated values and/or Custom value can be displayed. See Analysis in the View Manager section. These values can be selected or deselected from the Manager while the 2D graph is displayed.

Time Zone



In some cases, the configuration time zone will be different from the time zone at the download location. This allows you to select which time zone will be used to display dates and times within the graph and data displays. This option will not have any effect on the original recorded data.

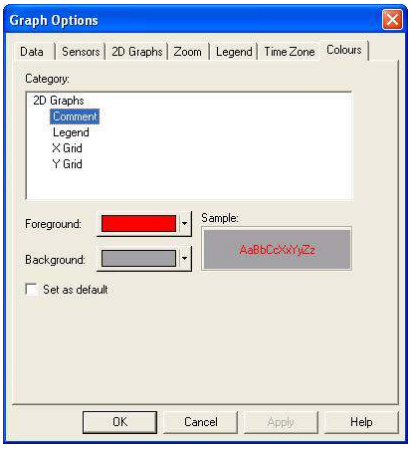
GMT Time Zone

All times are displayed in Greenwich Mean Time representation

Use daylight time

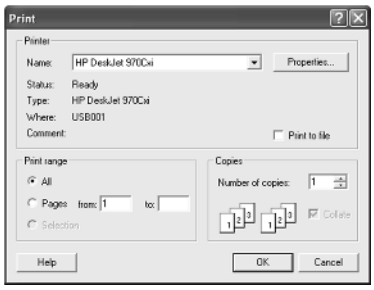
By selecting the box, the iMiniPlus data will shift +1 hour to accommodate Daylight Saving Time.

Colors



2D Graphs can be customized to your color preferences.

Printing the results



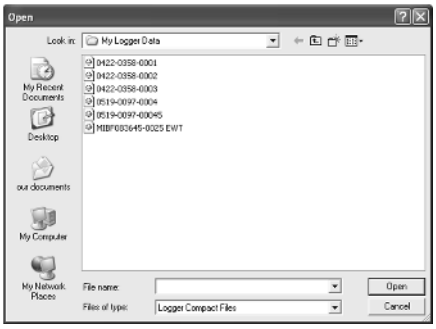
The print window can be brought up by simply clicking once on the "Print" icon located on the ***toolbar*** or by clicking the "Print..." menu item from within the File menu.

Sending a file by e-mail direct from Console

You can send files of interest to another person, by e-mail, directly from the software without the need to exit to your e-mail software or to deal with file attachments.
While you have the file of interest open and being displayed on the screen, just click once on the "Send Mail" icon located on the ***toolbar*** and your e-mail software will pop up with the file already inserted as an attachment. Type the desired e-mail address to send the file of interest to, add any message that you wish to include, and then click "Send".
Clicking the "Send..." menu item within the File menu will achieve the same results as clicking the "Send Mail" icon as previously described.
Note, the recipient of the file will also need to have a copy of the ConsolePro software to open and view the file that you sent. ConsolePro software is free and can be downloaded from www.cryopak.com

If you want to attach your data files in file formats other than the ConsolePro format, save the desired file formats in ***Save As*** section of the ***File*** menu, and attach to an email through the email software.

Calling up previous results



The files that have most recently opened and displayed are listed towards the bottom of the "***File***" menu. To open other files, click the "Open" icon located on the ***toolbar***, which will display the "Open" file dialog similar to the following picture and allows the user to locate and open one or more files of interest.

Clicking the "Open..." menu item within the File menu will achieve the same results as clicking the "Open" icon as previously described.

Digital signatures

Support for digital signatures is primarily provided for compliance with the US FDA 21 CFR Part 11 regulation - Electronic records and electronic signatures. Various industries however, may find inclusion of digital signatures beneficial towards their quality control and assurance systems.

Digital signatures allow users to include their digital signature within an ConsolePro file along with a meaning/reason for the inclusion of the digital signature. To add digital signatures to ConsolePro files, a licensed copy of User Admin software must also be installed. For more information about how to use User Admin software contact your distributor.

7. Customizing the software

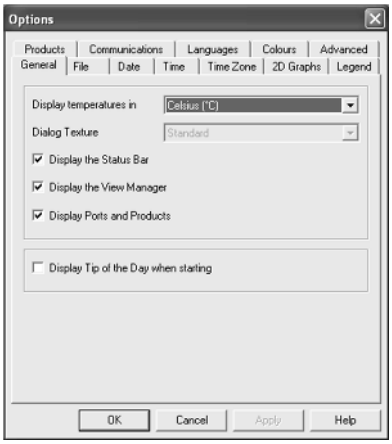
In the "Edit" menu is a command called "Options..."

This menu command opens a Window, which will allow the many of the features that the software offers to be customized. The following sections will provide an explanation of each of these options so that users will be able to make the best use of the software. The options that are available for customization are grouped together into the following sections:

- *General*
- *File*
- *Date*
- *Time*
- *Time Zone*
- *2D Graphs*
- *Legend*
- *Products*
- *Communications*
- *Languages*
- *Colors*
- *Advanced*

Nearly All of the options available will change the software in real time. For example, if the language selection and/or the date format are changed, all windows that are open will be updated without the need to restart the software. If you make a change which does require ConsolePro to be restarted, you are informed by an on screen message.
All these options are stored on a per user basis. Therefore, if more than one user operates on a single workstation the software will allow different customization settings for each.

General



The General Settings options allow you to change various preferences that will affect the overall appearance of the information shown by the software.

Display temperatures in

This will determine what units of measurement temperatures will be displayed in. The options include:

- Fahrenheit (°F)
- Celsius (°C)
- Kelvin (K)

Dialog Texture

The feature is disabled

Display the Status Bar

Select this box to display the Status bar and the bottom of the software screen. See Chapter 8 Menus and Toolbar.

Display the View Manager

Select this box to display the View Manager in the left hand side of the screen. See section called View Manager.

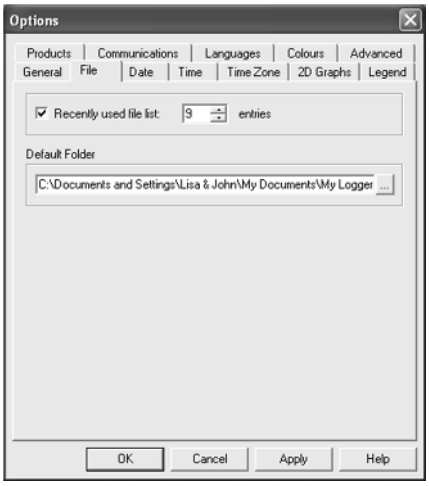
Display Ports and Products

Select this box to display the available communications ports and list of loggers that need to be selected. See section Getting an iMiniPlus ready for logging.

Display Tip of the Day when starting

Select this box if you want to display a Tip of the Day box when ConsolePro is first opened. This can be particularly useful for new users of ConsolePro software.

File



Recently used file list

This determines how many of the most recently accessed files are listed in the "***File***" menu for quick access to be opened and viewed again. Once this number of files has been reached, the reference to the oldest file opened will be removed and the most recently opened file will be added to position 1. Only the file reference is removed from this list, the actual file is not deleted. Changing this setting will take effect the next time ConsolePro is started.

Default Folder

This determines the location where the files are stored. The location defined here can specify a local drive path or a network drive path. UNC folder names are supported. The button at the end of the edit control will assist you to locate the default store folder by browsing the folder structure available to you, if you choose to use it. Since this is the default location where files are stored, this also represents the default folder that will be used when searching for files to open (through the Open command in the File menu). The default location is "..\My Documents\My Logger Data".

Date

The Date setting allows how the date information can be displayed by the ConsolePro software. It does not affect how the date information is stored and therefore, how the date information is shown can be changed at any time. Within this option window, a sample of the date using the formats selected will be displayed.

To customize how the date information is displayed, the following elements may be used. If spaces are used to separate the elements, these spaces will appear in the same location in the date displayed. The letters must be in uppercase or lowercase as shown in the following table (for example, "MM" not "mm"). Characters that are enclosed in single quotation marks will appear in the same location and unchanged in the date displayed.

Element	Meaning
d	Day of month as digits with no leading zero for single-digit days.
dd	Day of month as digits with leading zero for single-digit days.
ddd	Day of week as a three-letter abbreviation.
dddd	Day of week as its full name.
M	Month as digits with no leading zero for single-digit months.
MM	Month as digits with leading zero for single-digit months.
MMM	Month as a three-letter abbreviation.
MMMM	Month as its full name.
y	Year as last two digits, but with no leading zero for years less than 10.
yy	Year as last two digits, but with leading zero for years less than 10.
yyyy	Year represented by full four digits.

Time

To customize how the time information is displayed, the following elements may be used. If spaces are used to separate the elements, these spaces will appear in the same location in the time displayed. The letters must be in uppercase or lowercase as shown in the following table (for example, "ss", not "SS"). Characters that are enclosed in single quotation marks will appear in the same location and unchanged in the time displayed.

Element	Meaning
h	Hours with no leading zero for single-digit hours; 12-hour clock.
hh	Hours with leading zero for single-digit hours; 12-hour clock.
H	Hours with no leading zero for single-digit hours; 24-hour clock.
HH	Hours with leading zero for single-digit hours; 24-hour clock.
m	Minutes with no leading zero for single-digit minutes.
mm	Minutes with leading zero for single-digit minutes.
s	Seconds with no leading zero for single-digit seconds.
ss	Seconds with leading zero for single-digit seconds.
t	One character time-marker string, such as A or P.
tt	Multi character time-marker string, such as AM or PM.

Time zones

In some cases, the configuration time zone will be different from the time zone at the download location. This allows you to select which time zone will be used to display dates and times within the graph and data displays. This option will not have any effect on the original recorded data.

GMT Time Zone

All times are displayed in Greenwich Mean Time representation

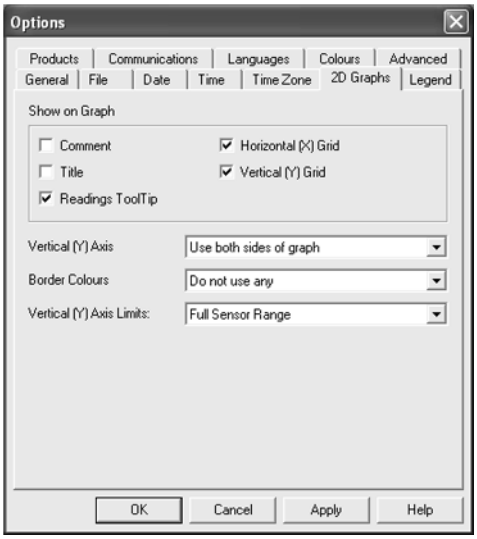
Use daylight time

By selecting the box, the iMiniPlus data will shift +1 hour to accommodate Daylight Saving Time.

2D Graphs

Comment

Select this box if you want to display the comment line on the bottom of the graph



Title

Select this box if you want to place a title on the top of the graph.

Readings ToolTip

Select this box if you want the Tooltip box to open next to the mouse cursor on the graph. The box will show the date, time and reading at any point along the x-axis.

Horizontal (X) Grid

Select this box if you want to display a dashed horizontal grid on the graph.

Vertical (Y) Grid

Select this box if you want to display a dashed vertical grid on the graph.

Vertical (Y) Axis

This enables you to fill the graph from the left or right or use both sides of the graph.

Border Colors

This enables you to select border colors for your graph.

Vertical (Y) Axis Limits

This enables you to display the graph Y-axis (temperature readings) to fit either the complete range of the sensor (-40°C to +70°C) or within the alarm limits (if programmed) or from 0°C to the actual readings. Select the ***Apply*** button to update the 2D graph.

For more information about how to create and customize graphs, see section ***View Data in a Graph***

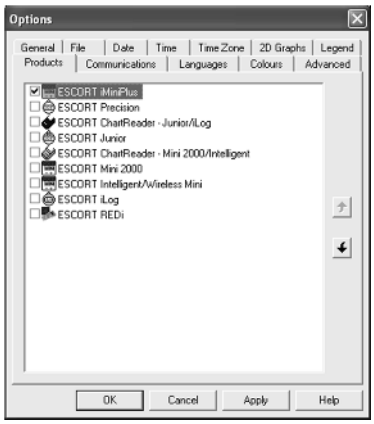
Legend

Each graph generated has a legend that information can be added to.

The legend can be positioned at the top, bottom, left and right of the graph. Or omitted altogether. As well as the above Legend options, the various Calculated values and/or Custom value can be displayed. See ***Analysis*** in the ***View Manager*** section. These values can be selected or deselected from the Manager while the 2D graph is displayed.

Sensor Name	Internal
Legend	
Description	
Serial Number	MIBD268015
Product Code	MI-IN-D-2-L
Start	4/08/2004 2:39:00 p.m.
Finish	5/08/2004 11:29:00 a.m.
Current time zone	(GMT+12:00) Daylight time
Trip No.	184
Sensor Range	-40.0 to 65.0 °C
Specification	2.0 to 8.0 °C
Average	6.0 °C
Highest	17.5 °C
Lowest	4.5 °C
PHI Aerobic	0.6
PHI Anaerobic	0.4

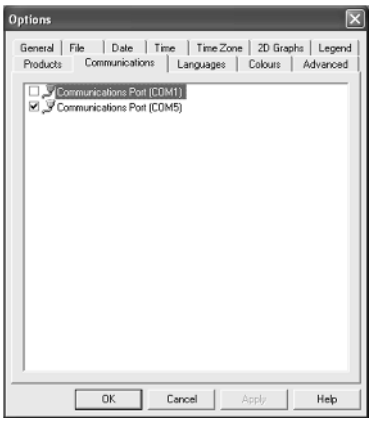
Products



Because ConsolePro supports other logger models, you can select the appropriate type. Make sure the box called iMiniPlus is ticked, otherwise the software will not be able to find the logger

By using the arrow buttons down the right of the box, the priority of the model can be set. This may be important when more than one logger type is used and may speed up the communication of the model selected.

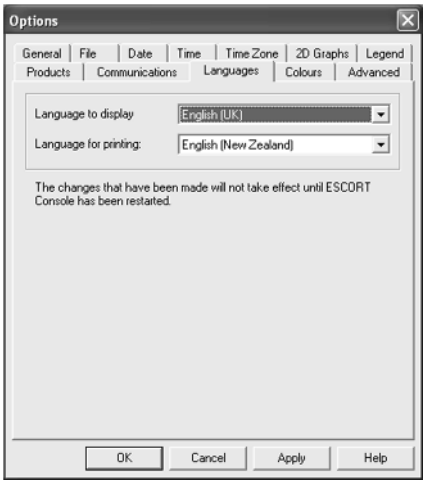
Communications



You need to select the correct communication port that is connected to the iMiniPlus. The box above displays all the ports available to be used within Console. Please make sure that if a USB adaptor is used it is connected BEFORE you start Console, otherwise it will not show in the list. If more than one port is displayed and you are unsure which is the one connected to the iMiniPlus, tick one and then select the Download or Program and Configure Wizard. If the iMiniPlus doesn't communicate with the software then select another port until you are successful.
If a USB adaptor has been used but removed, ConsolePro Software will default to COM1. If this cannot be used, you must close the software, reconnect the USB adaptor (COM5 shown above) and restart ConsolePro again.

Note: If no Com Port is available, you cannot communicate with a logger, but you can view data files.

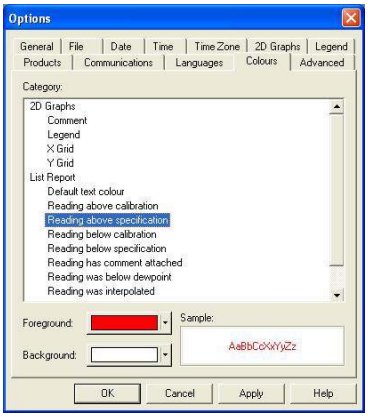
Languages



ConsolePro has multi language support. If a change is made it will not take effect unless ConsolePro has been restarted.

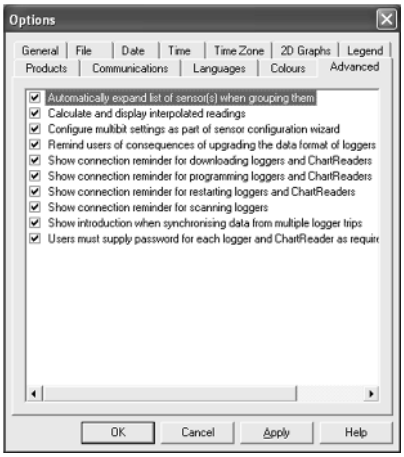
Colors

2D Graphs and List Reports can be customized to your color preferences.



Advanced

The Advanced tab in Options enables you to select or deselect certain parts of the ConsolePro software program. See descriptions below.

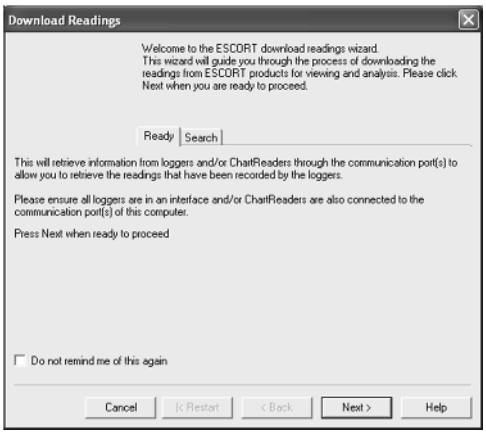


These options not apply to iMiniPlus:

Automatically expand list of sensors(s) when grouping them
Calculate and display interpolated readings
Configure multibit settings as part of sensor configuration wizard
Remind users of consequences of upgrading the data format of loggers and ChartReaders
Show connection reminder for scanning loggers
Users must supply password for each logger and ChartReader as required

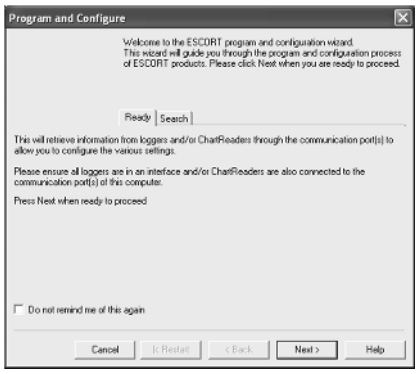
Show connection reminder for downloading loggers and ChartReaders

This description box appears at the start of the download wizard and can either be selected or disabled through the Advanced tab or disabled by ticking the “Do not remind me of this again” box at the bottom.



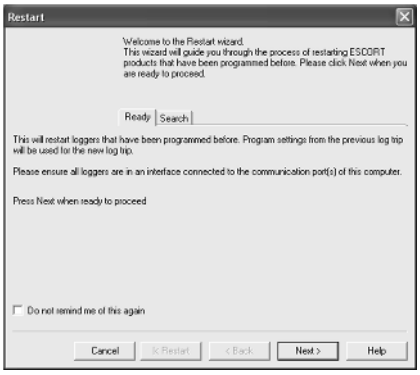
Show connection reminder for programming loggers and ChartReaders

This description box appears at the start of the program and configuration wizard and can either be selected or disabled through the Advanced tab or disabled by ticking the “Do not remind me of this again” box at the bottom.



Show connection reminder for restarting loggers and ChartReaders

This description box appears at the start of the Restart wizard and can either be selected or disabled through the Advanced tab or disabled by ticking the “Do not remind me of this again” box at the bottom.



Show introduction when synchronizing data from multi logger trips

This description box appears at the start of the Multi Trip Synchronization wizard and can either be selected or disabled through the Advanced tab or disabled by ticking the “Do not remind me of this again” box at the bottom.

8. Menus and Toolbars

At the top of the screen for the ConsolePro software, just below the title bar, which contains the name of the software, is the menu system and toolbar for the software. The toolbar provides quick access to some of the more commonly used functions within the menu system. The menu system contains lists of all the operations and commands that are available to you while using the software.

Title bar

Menu bar

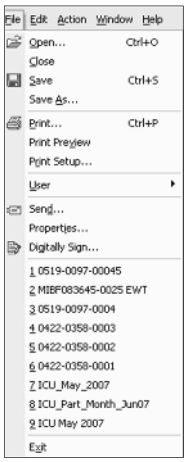
Menu commands

The menu system has been separated into groups of related commands. Each of these menu groups is explained in more depth in the subsequent sections. The software will only display the menu groups and commands within each menu group that are appropriate depending on what you are currently doing with the software.

You may also see that some of the menu commands have a reference after the command name, for example Ctrl+O. These represent key strokes on the keyboard that instruct the software to perform the appropriate command, without out the need to select the menu or toolbar command. For example to cause the command to be performed you must press and hold down the first key mentioned while pressing the other key once. When letters are used in the key reference, for example Ctrl+O, it does not matter whether or not the caps lock is on or off.

File Menu

The "File" menu contains commands that generally relate to an iMiniPlus file as a whole. An iMiniPlus file contains a variety of information that relates to a data set representing readings that were recorded over a discrete period of time by a single iMiniPlus. The File menu will appear similar to the following picture.



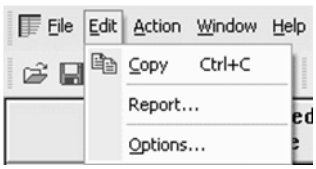
The following table outlines the commands and the explanation of each command that may appear in the "File" menu when using the ConsolePro software:

Command	Explanation
Open... ( )	This will display the Open file dialog, which will allow you to open iMiniPlus files that contain readings previously retrieved and saved as "Logger Compact File (.lcf)" format It will start at the folder defined in the ***Default Folder*** settings section in ***File*** under ***Options***.
Close	This command will close all windows that are displaying information about the open file that is currently selected. If no files are currently open this command will not be visible.
Save ( )	This will save any changes you have made to the iMiniPlus file to your disk drive.
Save As...	This will display the Save As file dialog, which will allow you to save a copy of the file currently being displayed in the same or different folder with the same or different file name.
Print... ( )	This will open a window allowing you to print a copy of the iMiniPlus file to an output device, which will typically be a printer. This command is further explained in the section "***Printing the results***".

Print Preview	This will change the display mode of the software to show you a copy of how a printout of the currently selected file and window would look like. In "Print Preview" mode you will not be able to zoom in or out of a graph. Click **"Close"** to exit the "Print Preview" mode and return to normal display mode.
Print Setup...	This will open a window allowing you to view and/or adjust one or more of your printer's settings.
User	When User Admin software is installed, users must logon to the software prior to being permitted to use the software. When User Admin software is not installed this feature will be greyed out.
Log On ( )	This allows a user to logon to and use the ConsolePro software. Therefore, this command will only be available if the ConsolePro software is connected to the User Admin software. If a user is already logged on to the software, then this command is not visible.
Log Off ( )	This allows the currently logged on user to logoff the ConsolePro software. If there is no currently logged on user, this command is not visible.
Change Details...	This allows the currently logged on user to modify their password that they use to logon to the ConsolePro software. This command will only be available if User Admin software is installed and the User Admin administrator has granted the appropriate user permissions.
Send... ( )	This will help you send, by email, the currently open and selected file to another user without the need to exit to your email software or to deal with file attachments. This command is explained in further detail in the section "***Sending a file by email direct from Console***".
Properties...	This will open a window that will display the information about the file that is being displayed and currently selected. This same window and information will be displayed if you view the properties of the file from Microsoft Windows Explorer.
Digital Sign... ( )	This will open a window to display a list of digital signatures that have been included with the file. It also allows you to add and print this list of digital signatures. This command is explained in further detail in the section "***Digital signatures***".
1, 2, 3, etc	This portion of the menu represents a list of the most recently files you have viewed. To reopen one of these files, simply click on the entry (name of the file) to open. If a file that you want to view is not included in this list, you may use the "Open..." command included in this menu. The number of files included in this list can be adjusted through the "***File***" section of the ***Options***.
Exit	This command will exit and close down the ConsolePro software. Any files that you currently have open will also be closed automatically for you. If a user is currently logged on to the ConsolePro software when the ConsolePro closes, the user will be automatically logged off. F you have downloaded data from a logger and not saved it, you are prompted whether to save it or not.

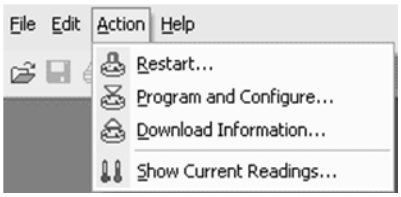
Edit Menu

The "Edit" menu contains commands that generally relate to the contents of an iMiniPlus file and will appear similar to the following picture.
The following table outlines the commands and the explanation of each command that may appear in the "Edit" menu when using the ConsolePro software:



Command	Explanation
Copy ( )	Places a copy of the contents of the currently displayed window onto the clipboard, which can then be pasted into any Windows® application. If you are copying a graph, the graph at its current zoom range is copied to the clipboard. If you are copying from one of the tabular style windows (Readings or Summary), then the entire contents of the window are copied to the clipboard, regardless of what part of the data you have scrolled to view.
Report...	This opens a box called List Report Options. This allows you to select the date and time range you want to view. This feature is visible only when a Readings data file is opened in Console.
Graph...	This opens a box called Graph Options. This allows you to customize the look of the graph. This feature is visible only when a Graph is opened in Console.
Options...	This will open a window allowing you to customize the software. This command is further explained in the chapter "***Customizing the software***".

Action Menu

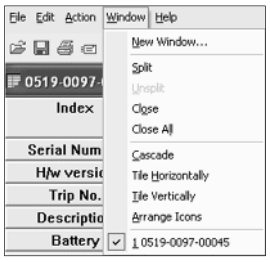


The "Action" menu contains commands that generally relate to the usage and interaction with loggers.

The following table outlines the commands and the explanation of each command that may appear in the "Action" menu when using the ConsolePro software:

Command	Explanation
Restart ( )	This will display a wizard that will help you to restart an iMiniPlus that has been programmed before, using the previous settings for the new log trip.
Program and Configure...( )	This will display a wizard to help you through the necessary steps to prepare the iMiniPlus for its next use. This command is explained in further detail in the chapter "***Preparing iMiniPlus for use***".
Download Information... ( )	This will display a wizard to help you through the necessary steps to retrieve a copy of the recorded readings stored within the Escort(s). This command is explained in further detail in the chapter "***Results from iMiniPlus***".
Show Current Readings... ( )	**This feature is not available for the iMiniPlus.**

Window Menu



The "Window" menu contains commands that relate to the management of each Window open within the ConsolePro software that displays the contents of an iMiniPlus file.

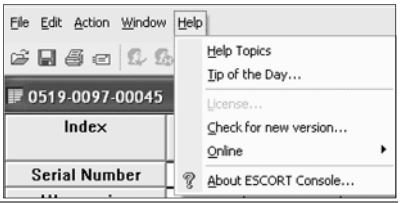
The following table outlines the commands and the explanation of each command that may appear in the "Window" menu when using the ConsolePro software:

Command	Explanation
New Window	Opens a new window that contains a copy of the information of the currently selected window.
Split	Use this command to split the active window into panes. You may then use the mouse or the keyboard arrows to move the splitter bars. When you are finished, press the mouse button or enter to leave the splitter bars in their new location.
Unsplit	Removes the split panes.
Close	Closes the currently selected window within the ConsolePro software.
Close All	Closes all the windows within the ConsolePro software.
Cascade	Arrange all the windows within the ConsolePro software in an overlapping style.
Title Horizontally	Arrange all the windows within the ConsolePro software as horizontal non-overlapping tiles.
Title Vertically	Arrange all the windows within the ConsolePro software as vertical non-overlapping tiles.
Arrange Icons	Arrange all the minimized windows within the ConsolePro software at the bottom of the main window.

1, 2, 3, etc	The tick mark beside these entries indicates the window that is currently selected. If you want to change the currently selected window to one of the windows listed, just click/select the appropriate entry on this list.

Help Menu

The "Help" menu contains commands that relate to providing you with help and assistance with using the ConsolePro software.



The following table outlines the commands and the explanation of each command that may appear in the "Help" menu when using the ConsolePro software:

Command	Explanation
Help Topics	Opens a window that contains the online help.
Tip of the Day...	Displays a number of helpful suggestions about using the ConsolePro software. This can be enabled at the software startup. See the ***"General"*** tab of ***"Options".***
License	Not required - No longer available
Check for new version...	This is a simple way of checking to see if there is a newer version of this software available for download. This command is explained in further detail in the chapter "***Getting updated software***".
Online...	This will open your default Internet browser software and display www.cryoapk.com This command requires that your computer be currently connected to the Internet to successfully display the website.
About Console... ()	Display the version information about the ConsolePro software that you are using.

Toolbar commands

Each picture on the toolbar represents a unique command. The pictures that are included on the toolbar represent the following commands:

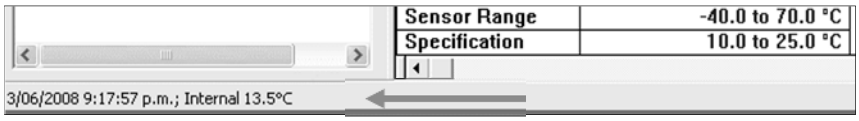
	This will display the file open window to allow you to locate and open iMiniPlus files that contain previously retrieved readings.
	Save a copy of the iMiniPlus data to a file on your disk drive.
	Opens the window that will allow you to print a copy of the iMiniPlus data to a printer.
	Creates a new blank email for sending a copy of the currently selected open file as an attachment to a recipient of your choice.
	This will log a user onto the ConsolePro software provided User Admin software is also installed.
	This will log the user off the ConsolePro software provided User Admin software is also installed.
	Displays information about any digital signatures included in the currently selected open file, which is also allows where new digital signatures can be added to the file and where you can print a copy of the digital signatures.
	Places a copy of the currently displayed information to the Windows clipboard so that you can paste it into another Windows software package.
	Zooms out one level of the actively displayed graph. If you are displaying a graph and this function is not available, then all data that is available to be displayed is currently been displayed and therefore there is no more additional information that can be displayed by zooming out.

	Opens Restart Wizard that reprograms iMiniPlus using previous logging settings for new logged trip.
	Opens Program and Configure Wizard to help you through the necessary steps to prepare the iMiniPlus for its next use. This command is explained in further detail in the chapter "***Preparing iMiniPlus for use"***
	Opens Download Information Wizard to help you through the necessary steps to retrieve a copy of the recorded readings stored within the Escort(s). This command is explained in further detail in the chapter "***Results from iMiniPlus***".
	This feature is not available for the iMiniPlus.
	Opens your default Internet browser software and display www.cryopak.com
	Displays the version information about the ConsolePro software that you are using.
	This will allow you to show the help topic on any particular command or topic that you subsequently select.

Status bar

The status bar is a handy one line instruction of a menu activity or shows the graph co-ordinates. It is displayed at the bottom left of the ConsolePro window.
To hide or display the Status Bar, choose ***Options*** from the ***Edit*** menu and uncheck or check ***Display the Status Bar*** option from the ***General*** tab.
Description of the Menu activity. When a menu item is selected the appropriate description will appear in the Status Bar.

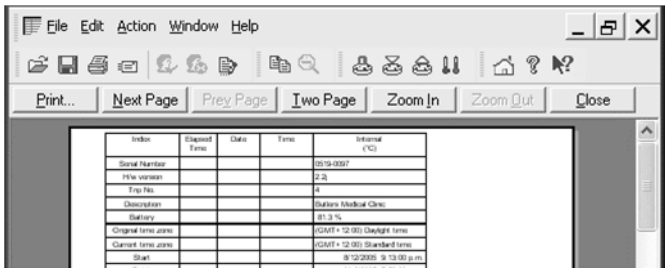
Displays the date, time and temperature along the x-axis when a 2D graph is displayed.



See sections 2D graphs and View Data in Graph.

Print preview toolbar

The print preview feature, available through the ***File menu***, of the software will display copy of the data as it would be included on a print out. When the software is displaying a file in print preview mode, an additional toolbar will appear, similar to the following picture.



Command	Explanation
Print...	This will open a window allowing you to print a copy of the iMiniPlus file to an output device, which will typically be a printer. This command is further explained in the section "***Printing the results***".

Next Page	This will display the next page included in the print out. This button will be disabled if there are no more pages available to be displayed.
Prev Page	This will display the previous page included in the print out. This button will be disabled if there are no previous pages available to be displayed.
One Page	Selecting this button will change the display so that only one page is displayed at a time. Once this button is selected it will change to "Two Page".
Two Page	Selecting this button will change the display so that two consecutive pages are displayed side by side at the same time. This button will be disabled if there is only one page in the print out, like a graph. Once this button is selected it will change to "One Page".
Zoom In	This will zoom in the display of the print out making it appear larger on the screen. It will not affect what information is included in the print out.
Zoom Out	This will zoom out the display of the print out making it appear smaller on the screen. It will not affect what information is included in the print out.
Close	This will close the print preview mode of display and make the display revert to normal mode, which will allow users to switch between graph display and data listing display, for example.

9. Working with Networks

When using and deploying software in a network environment, network administrators often require additional technical information about the software so they can integrate support for it correctly and seamlessly. Contact your distributor or Cryopak Verification Technologies for further information.

10. Getting more information

Getting updated software

There will be no further updates in ConsolePro software. The last final version 2.12.07.

Finding your software version

Within the "***Help***" menu, is the "About Console..." command, which will display a Window similar to the following picture.

Within this window, amongst other information, the full version number of the software being used is displayed. This information is useful, for example, to determine if the same software version is installed on multiple computers and/or if the manual being referenced refers to the version of software being used.

11. Warranty

The iMiniPlus has a 24 months warranty valid from date of purchase. In the event of a malfunction please contact your distributor. The warranty has the following exclusions:

1. If the unit has been modified from manufacturer's specifications.
2. Exposure of the logger to temperatures less than -40°C or greater than 70°C.

3. Loss or damage caused by the ingress of moisture.
4. Evidence that the printed circuit board has been removed or tampered with.
5. Evidence of mistreatment or abuse.
6. Loss of unit.
7. Batteries are not covered by this warranty.

12. Dry Ice iMiniPlus

Important Notes:

1. Do not place the logger inside the dry ice temperatures, use external probe instead
2. Battery of iMiniPlus is not able to withstand temperatures below -40°C
3. Do not crush or cut the external probe

Specifications

Description	Specifications
Product Code	MP-OE-N-8-L (Multi use External sensor)
	MP-ST-N-8-L (Single use External sensor)
Memory Options	8K; 8032 readings
Program Interval	5 seconds to 18 hours
Time Accuracy	±1 minute per month
Sensors	External
Temperature Range	-100 °C to +40 °C (-148 °F to +104 °F)
Temperature Accuracy	±1.0 °C (-100 °C to -80 °C), ±1.8 °F (-148 °F to -112 °F)
	±0.7 °C (-50 °C to +40 °C), ±1.3 °F (-112 °F to -58 °F)
	±0.6 °C (-50 °C to +40 °C), ±1.0 °F (-58 °F to +104 °F)
Resolution	0.1 °C (0.1 °F)
Sensor Response Time	External Sensor – T90 of 5 minutes in moving air
LCD Operating Range	-20 °C to +70 °C (-4 °F to +158 °F)
Alarm Thresholds	Two
Alarm Configuration	High & low
Bookmark	Yes
Preprogram Option	User Programmable
	Preprogram also available
Start Option	Push button and/or timer
Start Delay	Yes
Stop Option	Yes, Stop button (can be disabled)
Size	83 x 57 x 17mm (excluding lug)
Weight	70 grams (including battery)
Case Material	Polycarbonate/ABS
Battery	3.0V, user replaceable
IP Rating	IP65 (with plastic cap over USB connector)
Warranty	24 months, excluding battery (Multi use loggers)
	One Trip, excluding battery (Single use loggers)
Calibration	Upon request
Accuracy Certificate	Yes
Other Certification	ISO9001:2008, CE, RoHS, EN12830
Battery Life	1-2 years (depending on usage)
Interface	USB (included)
Software	Console Pro

Default File Format	PDF & LRF
Data Export	TXT, CSV, SYLK & LCF
Security	Password protected (programmable using Console Pro Software) encrypted binary file is generated along with PDF

13. Appendix

Troubleshooting

Problem	Solution
My iMiniPlus appears to be "dead". There are no readings on the LCD.	Change the battery using a CR2450 (3V Lithium coin cell.)
The Stop button is not working	Reprogram the iMiniPlus and tick the Enable Stop button box in the Startup tab of Program and Configure. See section Setting the Start and logging duration or Quick Start Guide section. Note this defaults back to unselected at the next program
The iMiniPlus appears to be working but I cannot program it. Software displays error " The software was unable to find any products that it supports...."	Make sure you have tried all the solutions the Wizard has suggested. Check you have the current version of ConsolePro software If it still does not communicate you will need to return it to your distributor for service.
My iMiniPlus is reading -40°C / 70°C /-100°C /+40°C all the time.	The sensor has become damaged. Send the iMiniPlus to your distributor for service.
The year, date and time on the downloaded data is incorrect.	The battery has been removed from the iMiniPlus for more than 30 seconds. Re-program the iMiniPlus and select the PC clock in the Date/Time tab of Program and Configure. See section Checking the time clock.
When I press the Start button to start my iMiniPlus it displays some readings then displays "Stopped"	You have to re-program the iMiniPlus to enable the Start button to initiate another logging cycle. See Program and Configure section

Changing the Battery

The iMiniPlus displays battery low symbol on LCD display once battery voltage falls below 2.8V. The iMiniPlus checks the battery status every 10minutes or when it is interrogated by software i.e. downloading or program and configure.

To change the battery, turn the iMiniPlus over and unscrew the battery cover on the back with a coin. Remove the old battery and exchange for a fresh one. Be careful not to damage the plastic thread on the inside of the battery compartment when removing the old battery, otherwise the battery cover may not fit securely back and in turn may allow moisture to enter the logger.

Note, if the battery is removed for a period of longer than 30 secs, the internal clock will need adjustment back to the present data and time. This is done through the Program and Configure Wizard. See section Checking the time clock.

14. Contact details

If you require further information regarding CRYOPAK Verification Technologies, Inc. products please contact us at:

USA

Mailing Address:	PO Box 309, Buchanan, VA 24066
Office:	120 Parkway Drive, Buchanan, VA 24066
Phone:	+1-540-254-1433
	+1-732-346-9200 Ext. 150
Fax:	+1-540-254-2433
Email:	techsupport@cryopak.com

CANADA

Phone:	+1-514-324-4720
	+1-514-773-5966
Fax:	+1-514-324-9623
Email:	support@cryopak.com

FRANCE

Address:	TCP Cryopak France
	1 Rue Berthelot
	Z.I. La Maine
	76150 Maromme
Phone:	+33 2 32 82 59 65
Email:	techsupport@cryopak.com

You can find additional information regarding all of our products on our website:

www.cryopak.com
http://www.cryopak.com/en/verification-products/

Copyright © 2016 Cryopak Verification Technologies, Inc. All rights reserved.