

ESCORT
iMiniPlus
USER MANUAL



Product Code: MP-IN-D-8-L

Pre-Launch Manual

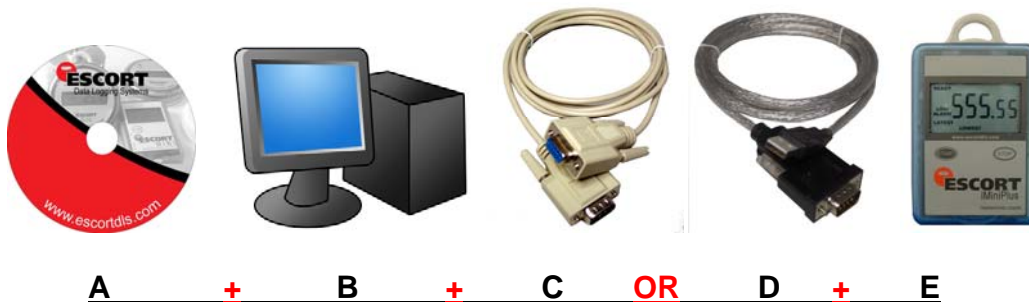
LCD Mini versus iMiniPlus

| Name | LCD Mini | I Mini Plus |
|--|--------------------------------|--------------------------------|
| LCD display | Large 5 digits | Large 5 digits |
| Start option | "START" button | "START" button |
| Stop option | PC only | "STOP" button or PC |
| Book marking | NO | YES |
| Continuous Logging mode | NO | YES |
| Display resolution | 0.5 °C | 0.1 °C |
| Accuracy | 0.5 °C [-40 °C to +70 °C] | 0.5 °C[-40 °C to-10 °C] |
| | | 0.3 °C[-10 °C to+70°C] |
| | 1.0 °F [40°F to +158°F] | 1.0 °F [-40°F to +14°F] |
| | | 0.6 °F [+14°F to +158°F] |
| Log interval | 1 minute to 4 hours 15 minutes | 5 seconds to 18 hours |
| Battery Low icon on LCD | NO | YES |
| Memory capacity | 1868 | 8048* |
| Communications | RS232/USB | RS232/USB |
| Data transfer rate | 2400 bps | 38400 bps |
| Trip counter | YES | YES |
| Lease counter | YES | YES |
| High / Low Alarms | Consecutive | Consecutive** |
| | Non Consecutive | Non Consecutive** |
| | | Catastrophe Alarm** |
| | | Integrator Alarm ** |
| User programmable description length | 16 characters | 24 characters |
| Start delay after "START" button pressed | 1 minute to 4 hours 15 minutes | 1 minute to 4 hours 15 minutes |
| Program Password protection | YES | YES |
| Data Password Protection | YES | YES |
| Can be calibrated by the user | NO | YES |
| LCD Display | Latest Log | Latest Log |
| | Highest Log | Highest Log |
| | Lowest Log | Lowest Log |
| | Average Log | Average Log |
| | Time over Specifications | Time over Specifications |
| | Time under Specifications | Time under Specifications |
| | Low/ High Alarm | Low/ High Alarm |
| | Logger state | Logger state |
| | Degrees °F or °C | Degrees °F or °C |
| | | Marked |
| | | Battery low |

Contents

- 1 Cover
- 2 LCD Versus iMiniPlus
- 3 Contents – What you need
- 4 Installing Escort Console Software
- 5 Installing USB Drivers
- 6 Cont.
Connecting the iMiniPlus to PC
- 7 Basic steps for programming
Basic steps for programming
- 8 Cont.
Placing Logger into an environment
Downloading Data from the iMiniPlus
Logger
- 9 Basic steps for downloading
- 10 Specifications
- 11 iMiniPlus New Features
Alarm Settings and Features
- 12 Alarm Settings and Features

Getting Started – What you need.



- A. Escort Console Software
- B. PC
- C. RS232 to DB9 connector **or**
- D. RS232 to USB connector
- E. iMiniPlus Logger
- F. Install USB Drivers

Installing Escort Console Software to PC

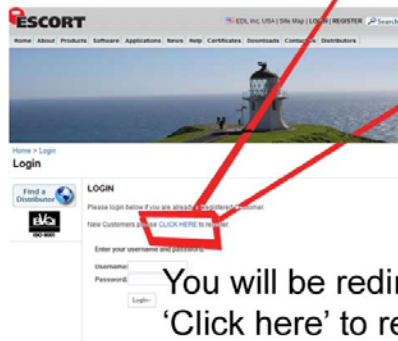
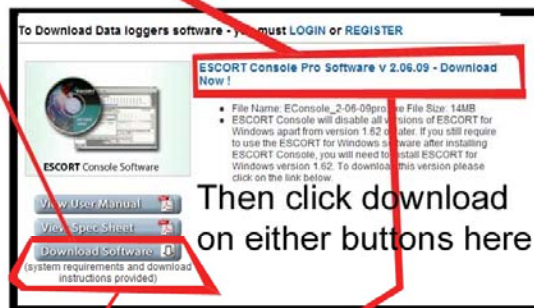
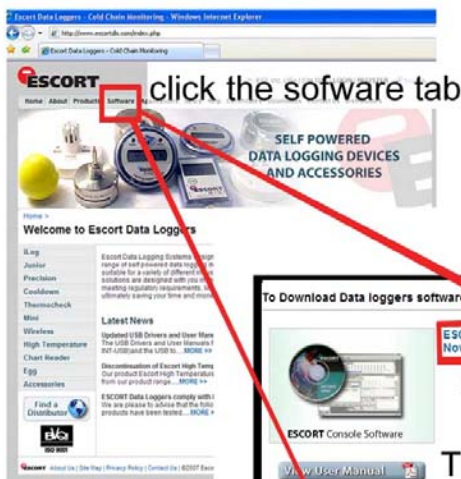


Install the free Escort Console Software to your PC/ Laptop

using either



1. The Escort Console Software CD or
2. Through the escort website www.escortdls.com on the internet.
3. See instruction below for Website Installation



You will be redirected to the login page.
'Click here' to register so that you can
log back in to download software

4. Now that you are registered, return to the downloading process by clicking on one of the download buttons (same as above); you may be required to log in again. From there you should be able to follow box steps during the process.
5. Once you have downloaded and installed the Escort Console Software
6. **OPEN CONSOLE on your PC**

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

Installing USB Drivers to PC

If using a RS232 to USB cable

(RS232-DB9 cable does not require this step)

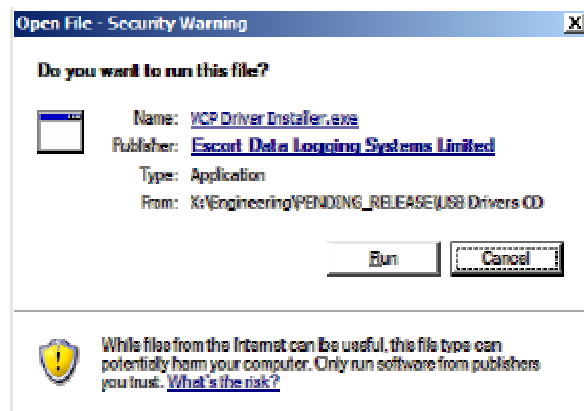
- You must install the appropriate drivers to work with the Escort Console Software. Once you do this, you are then able to use the logger with the Rs232 to USB cable. You can download from using the CD provided or through the website: www.escortdls.com under the downloads tab.

Steps for CD Installation

- Log into your PC as an administrator to install drivers and to avoid the box below.
- Insert the driver CD

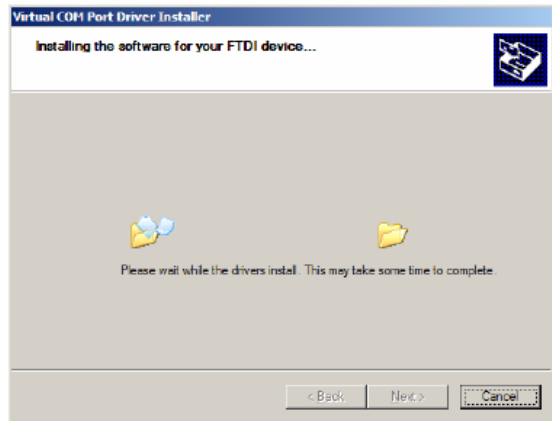


- Click Auto Install
- If security warning opens, click 'Run'





Click 'Next'



Files will upload



Click 'Finish'

- If one or both drivers were not successfully installed, you refer to the manual from the CD on how to add the driver via the 'New Hardware Wizard' route.
- See box below



Connecting the iMiniPlus Logger to PC for programming.

Now that you have the Escort Console Software and have installed the USB drivers, you need to connect your iMiniPlus Temperature Logger to your PC for programming. See below.



iMiniPlus connected to your **PC** using either a **RS232 to DB9** cable or a **RS232 to USB** cable.

Once you have connected everything, you can begin programming.

- Tighten the screws located either side of the connector, but **Do not over tighten**.
- Plug the DB9 connector into the serial port located at the rear of your PC - if you are using USB, plug in at either front or rear ends.



A iMiniPlus Logger (rear end)



B The PC (rear view)

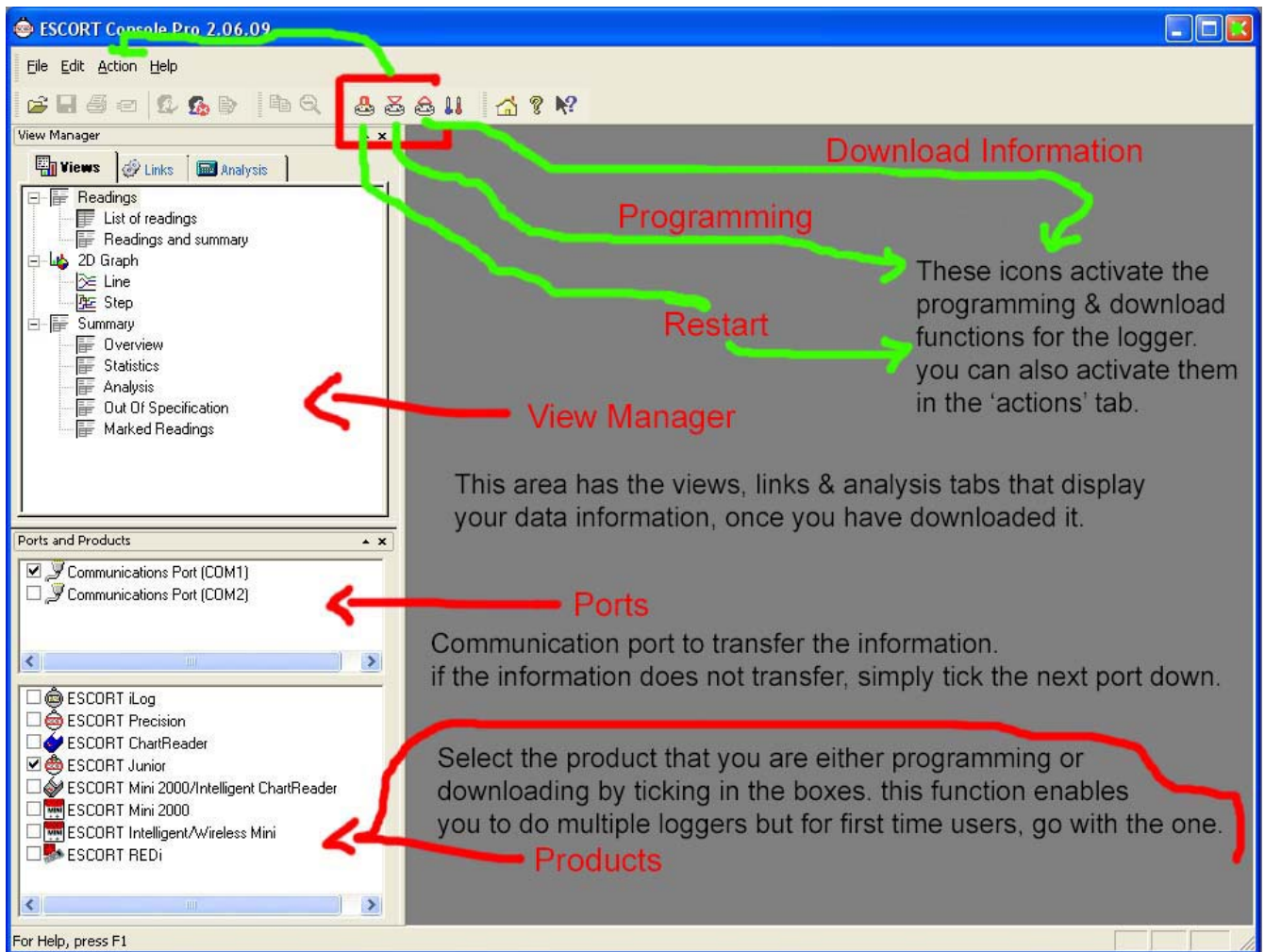
Note: Both of these cables are available for purchase from your local electronics store. Alternatively you are able to purchase the USB to RS232 cable from your ESCORT DLS distributor.

The basic steps for programming the iMiniPlus Temperature Logger

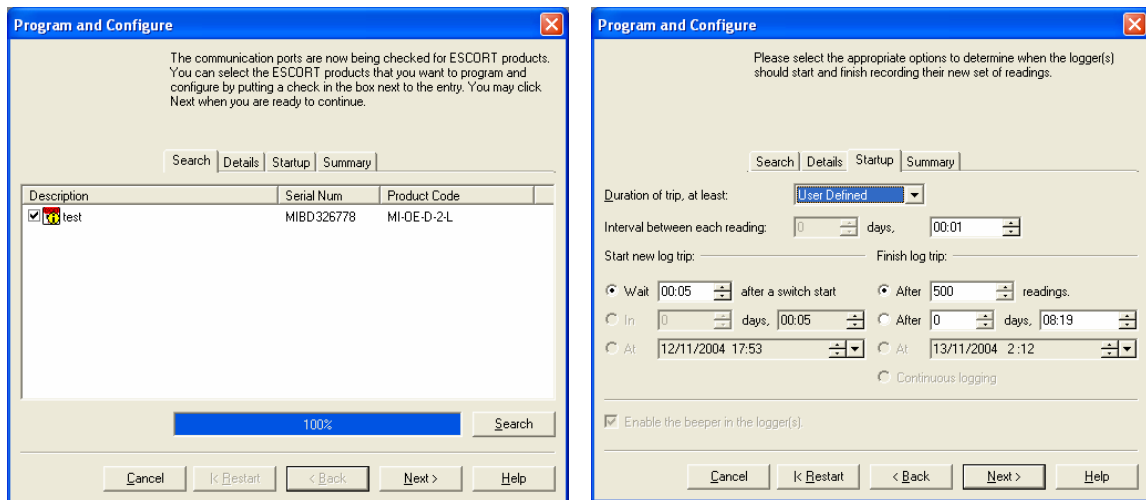
- Enter your login/password details (use same as initial registration)
- Now you're connected, Console is open and you're ready to programme the logger.
- Next step is to select a com port by ticking a box (it may already be ticked) through this process if programme fails to open logger, change the com port by ticking the next box down until you are able to connect. You may have more than two com ports; therefore move down until you have a successful result.

- Below that, select the product you are programming – in this case you are using an iMiniPlus Temperature Logger so tick the _box
- Select the programme & configure icon to connect to the logger for programming
- Follow the instructions from there on, clicking 'NEXT' to follow through each tab to check and make changes appropriate to the monitoring environment specifications.
- One you have gone through the tabs, click 'PROGRAM' to programme the logger.
- The below box images should indicate what you are seeing during the process.

This is what it should look like in Escort Console



- The below box images should indicate what you are seeing during the process.



Once the programming is completed, put the logger to work!

NOTE: There is a cohesive and advanced manual that outlines all the features in the Escort Console Software. For further information, please refer to the Console user manual provided free for downloading via the website www.escortdls.com

Placing the logger into the environment for monitoring

- Ensure that the environment of the 'placed' logger is within the specifications of the product
-
- Be sure that the environment temperatures will in no way exceed the loggers temperature limits
-
- If unsure please refer to the specification sheet provided on the last page of this manual or check the details on the website: www.escortdls.com

Downloading data from the iMiniPlus Logger

Now that you have taken the temperature readings, you need to reconnect your iMiniPlus Temperature Logger to your PC for downloading the information using the Escort Console Software. This process is the same as programming but is set in reverse for retrieving the stored information.



iMiniPlus connected to your **PC** using either a **RS232 to DB9** cable or a **RS232 to USB** cable.

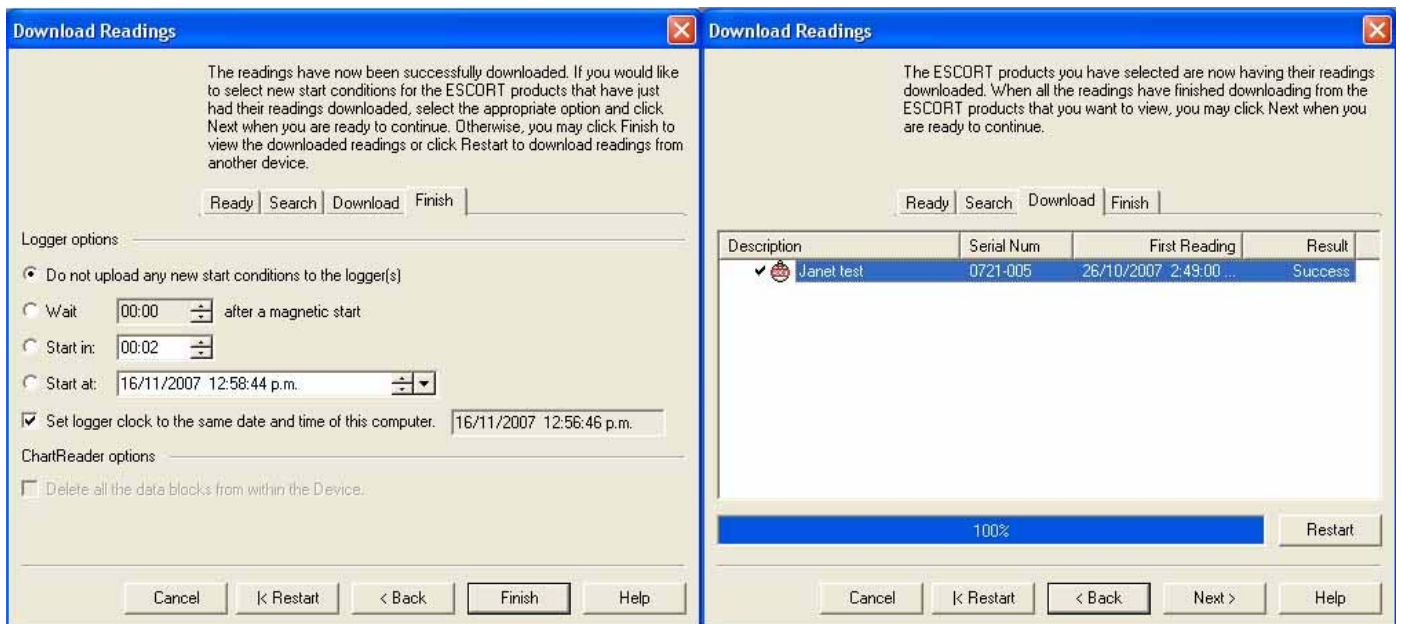
Now that you are all placed and plugged in again, open the Escort Console Software to begin retrieving the data.

Screen Reminder of Console

The screenshot shows the ESCORT Console Pro 2.06.09 software interface. The window title is "ESCORT Console Pro 2.06.09". The menu bar includes "File", "Edit", "Action", and "Help". The toolbar contains icons for file operations and a red box highlights three icons: a floppy disk, a download arrow, and a refresh/circular arrow. The "View Manager" pane on the left lists various views: "Readings" (List of readings, Readings and summary), "2D Graph" (Line, Step), and "Summary" (Overview, Statistics, Analysis, Out Of Specification, Marked Readings). The "Ports and Products" pane at the bottom shows two communication ports (COM1 and COM2) and a list of products including ESCORT iLog, Precision, ChartReader, Junior, Mini 2000/Intelligent ChartReader, Mini 2000, Intelligent/Wireless Mini, and REDi. Annotations with red arrows and text explain these elements: "Download Information" points to the download icon; "Programming" points to the floppy disk icon; "Restart" points to the refresh icon; "View Manager" points to the left pane; "Ports" points to the COM1/2 section; and "Products" points to the product list. A text box on the right states: "These icons activate the programming & download functions for the logger. you can also activate them in the 'actions' tab." Another text box explains the ports: "This area has the views, links & analysis tabs that display your data information, once you have downloaded it." A third text box explains the products: "Communication port to transfer the information. if the information does not transfer, simply tick the next port down." A final text box explains the product selection: "Select the product that you are either programming or downloading by ticking in the boxes. this function enables you to do multiple loggers but for first time users, go with the one."

Basic steps for Downloading

- Enter your login/password details from registration – same as initial programming step.
- Now you're connected, console is open and you're ready to download the logger.
- Next step is to select a comport by ticking a box (it may already be ticked) through this process if you fail to download information, change the com port by ticking the next box down.
- Below that, select the product you are programming – in this case you are using an iMiniPlus Temperature Logger so tick the _box
- Select the Download icon to connect to the logger for downloading
- Follow the instructions from there on, clicking 'Download' and next buttons to finish.
- Make sure to save your readings to a data logging folder. You will be prompted by the software to do so.
- Now that you have saved your readings, they should automatically be open for you to view. To open a new format e.g. graph & line views, and to also compare readings, use the View Manager box feature to navigate and synchronize readings)



Example screens

NOTE: There is an advanced manual that outlines all the features in the Escort Console Software. For further information, please refer to the Console user manual provided free for downloading via the website www.escortdls.com

Specifications for iMiniPlus

Specifications of standard configuration

| | | | | | | | | | | | | | |
|-------------------------------|--|----------------|-----------------------|--------------|--|----------------------|----------------|------------|-----------------------|------|--|------------------------|--------|
| Temperature range | D range | | | | | | | | | | | | |
| Sensors | 1 x Internal or 1x External | | | | | | | | | | | | |
| Accuracy (internal sensor) | <table border="0"> <tr> <td>Celsius</td> <td>from -40 °C to -10 °C</td> <td>±0.5°C [1°F]</td> </tr> <tr> <td></td> <td>from -10 °C to +70°C</td> <td>±0.3°C [0.6°F]</td> </tr> <tr> <td>Fahrenheit</td> <td>from -40 °F to +14 °F</td> <td>±1°F</td> </tr> <tr> <td></td> <td>from +14 °F to +158 °F</td> <td>±0.6°F</td> </tr> </table> | Celsius | from -40 °C to -10 °C | ±0.5°C [1°F] | | from -10 °C to +70°C | ±0.3°C [0.6°F] | Fahrenheit | from -40 °F to +14 °F | ±1°F | | from +14 °F to +158 °F | ±0.6°F |
| Celsius | from -40 °C to -10 °C | ±0.5°C [1°F] | | | | | | | | | | | |
| | from -10 °C to +70°C | ±0.3°C [0.6°F] | | | | | | | | | | | |
| Fahrenheit | from -40 °F to +14 °F | ±1°F | | | | | | | | | | | |
| | from +14 °F to +158 °F | ±0.6°F | | | | | | | | | | | |
| Resolution | Display resolution of ±0.1°F or ±0.1°C | | | | | | | | | | | | |
| IP Rating | IP65 | | | | | | | | | | | | |
| Size | 83mm x 57mm x 17 (Case excluding lug) | | | | | | | | | | | | |
| Operating temperature | Single thermistor based temperature sensor covering a -40°F to +158°F range(-40°C to +70°C) | | | | | | | | | | | | |
| Weight | 70 grams | | | | | | | | | | | | |
| Temperature response | T90 of 20mins Internal - 5mins External (TBC) | | | | | | | | | | | | |
| Time and date | Real time clock accurate to ±1minute per month | | | | | | | | | | | | |
| Sampling frequency | 5 seconds – 18hours | | | | | | | | | | | | |
| Power source | User replaceable lithium chloride battery | | | | | | | | | | | | |
| Typical battery life | 1 – 2 years operating life from a user-replaceable battery | | | | | | | | | | | | |
| Traceability | Can be provided to ISO 9002 | | | | | | | | | | | | |
| Software | ESCORT Console Version 2.07.00 or later, available free for download on www.Escortdls.com | | | | | | | | | | | | |
| Recorder start up | Programmed, start & stop button | | | | | | | | | | | | |
| Warranty | 24 months (excluding batteries) | | | | | | | | | | | | |
| Case material | Polycarbonate/ABS | | | | | | | | | | | | |
| Storage Temperature | -40 c - +70 c | | | | | | | | | | | | |
| Liquid crystal display | Operating temperature -20 c + 70 c 1 st button press - High, low, average readings 2 nd button press - Time spent under/ over specifications | | | | | | | | | | | | |
| Communications | Download via IBM compatible PC at 38400bps | | | | | | | | | | | | |

Options

| | |
|--------------------|--------------------|
| Number of readings | Memory 4, 8 or 16k |
|--------------------|--------------------|

Accessories

| Item | Product Code | Description |
|-------------------------|--------------|---|
| RS232 to DB9 cable | | Cable for purchase at your local electronics store or you can purchase one from us. |
| RS232 to USB cable | | Cable for purchase at your local electronics store or you can purchase one from us. |
| Escort Console Software | | ESCORT Console Version 2.07.00 or later, available free on www.Escortdls.com |

DISCLAIMER:

Escort Data Logging Systems Limited reserves the right to change the specifications without notice.

Copyright © 2007, Escort Data Logging Systems Limited

iMiniPlus new features

- **“STOP”** button – logger stops immediately after you press this button. You can enable or disable this option by programming
- **“CONTINUOUS LOGGING MODE”** – logger continuously logging without need for reprogramming. Only last 8048 logs are physically stored in a memory but statistics is calculated for entire trip.
- **“BATTERY LOW INDICATOR”** – logger displays battery low symbol on LCD display once battery voltage falls below 2.8V. Logger checks battery status every 10minutes or when is interrogated by software.
- **“BOOKMARKING”** – reading is MARKED when you press “START” button. You can see word “MARKED” on LCD display and Escort Console distinguishes this reading from others.
- **“CALIBRATION”** hardware supports temperature reading adjustment by the user. This will be implemented once user software will become available.

ALARM Settings/ features

- ALARMS. There are 4 sources of alarm in this logger. Traditional Consecutive / Non Consecutive and also new Catastrophe alarm and Integrator alarm. HIGH or LOW alarm can be triggered by ANY of these sources and then it latches indefinitely. Therefore be careful while choosing alarm source.
 - Consecutive, Non Consecutive and Integrator Alarms are sharing the same Upper and Low limits but have different delays.
 - Catastrophe Alarm has separate Upper and Low limits and no delays.
 - Consecutive and non consecutive alarm are using simple counter that is incremented every time reading is outside of alarm limits if enabled. Once reading return inside limits Consecutive alarm counter is reset. Alarm is triggered once this counter exceeds delay value.
 - Integrator alarm is programmed in degree – minutes. This means logger counts by how much and how long readings were out of limits.
- For instance we enabled High Alarm and set Upper Alarm limit to +20 °C and also Consecutive alarm delay to 4, Non Consecutive alarm delay to 5 and High Integrator Alarm to 8 [degree – minutes] and also used Catastrophe Alarm with different upper limit + 23 °C. This means that we want to rise alarm if logger either:
 - Record more then 4 readings above +20°C in a row
 - Record more then 5 readings above +20°C in total
 - Spend more then 8 degree – minutes above +20°C in total
 - Record one reading above +23°CTable below demonstrates arbitrary data from logger and how different alarm sources will be triggered. This is complicated scenario for alarm settings. We do not recommend using multiple alarm sources unless it is necessary. Usually one or maximum 2 alarm sources are sufficient to cover your requirement.

| Time [min] | T [° C] | Consecutive/ | Non Consecutive | 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 |

IMPORTANT!

Reading that is equal to alarm limit is considered inside alarm limits.

Do not set Non Consecutive Alarm Delay less then Consecutive Alarm Delay because Consecutive Alarm will never be triggered.

Do not set Catastrophe Alarm inside normal alarm limits because other alarms will never happen.