PORTABLE INTERFACE/2 (PI/2)

MODEL P/N: 17TES0062

OPERATOR'S MANUAL

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Portable Interface/2 (PI/2)
Operator's Manual
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TABLE OF CONTENTS

SUBJECT/DESCRIPTION **Page**

Introduction Intro1
1.0 Getting Started - PI/2 Operation 1
1.1 Connecting the PI/2 to L#AR Flight Recorder 1
1.2 Resetting the PI/2 unit 2
1.3 Connecting the PI/2 to the Power Adapter 2
2.0 Loading Aircraft details onto PI/2 3
2.1 Creating the Aircraft File 3
2.2 Load the Aircraft file onto the PI/2 4
2.3 Removing or adding Aircraft details from the PI/2 5
2.4 Add Additional Aircraft directly to the PI/2 6
2.5 Delete Aircraft directly from the PI/2 7
3.0 FDR Data Down Load and Operations 9
3.1 Downloading Data Operations 9
3.2 Download All Data 9
3.3 Download Since Last 11
3.4 Download Time 11
3.5 Download Size 12
3.6 FDR Operations 13
3.7 FDR Status and Output 13
3.8 Fault Logs 14
4.0 CVR Data Download and Live Audio 17
4.1 CVR Download All 17
4.2 CVR Download Time 17
4.3 CVR Live Audio 18
4.4 CVR Audio Record and Playback 19
5.0 Live Data View 21
6.0 Storage Operations 23
7.0 Network Operations 25
8.0 Device Configuration 27
8.1 Clock Settings 27
8.2 Memory Settings 30
8.3 File Settings 31
8.4 Network Settings 31
8.5 USB Settings 33
8.6 SECURITY SETTINGS 34
8.7 Live Data Settings 36
8.8 Shortcut options 38
8.9 Settings Profile 39
9.0 Uploading Files via FTP (Active Ethernet connection required) 41

TABLE OF CONTENTS (Continued)

SUBJECT/DESCRIPTION **Page**

9.1 Connecting the PI/2 to the Network 41
9.2 FTP Setup 43
9.3 Upload files to FTP Server 44

LIST OF FIGURES

FIGURE/DESCRIPTION **Page**

Figure 1.0 -PI/2 Legend Intro1
Figure 1.1 Connect PI/2 to Flight Recorder 1
Figure 1.2 PI/2 Loading 1
Figure 1.3 Resetting the PI/2 Unit 2
Figure 1.4 - Power Adapter Connections 2
Figure 2.1 - Create a csv file with headings 3
Figure 2.2 - Create a list of each Aircraft, Model and Tail number 4
Figure 2.3 - "Load Aircraft" 4
Figure 2.4 - Loading Aircraft Complete 5
Figure 2.5 - Remove Aircraft no longer required 5
Figure 2.6 - Adding Additional Aircraft directly to the PI/2 6
Figure 2.7 - Adding Additional Aircraft directly to the PI/2 7
Figure 2.8 - Confirming the additional Aircraft Manufacturer, Model and Tail Number 7
Figure 2.9 - Deleting Aircraft Manufacturer, Model and Tail Number 8
Figure 3.1 - Download Operation 9
Figure 3.2 - Download All Data 10
Figure 3.3 - Download All Data Complete 10
Figure 3.4 - Download Since Last 11
Figure 3.5 - Download Time 12
Figure 3.6 - Download Size 13
Figure 3.7 - FDR Status and Output 14
Figure 3.8 - Fault Logs 14
Figure 3.9 - Clear Latched Faults and Dump Debug Trace 15
Figure 4.1 - CVR Download All 17
Figure 4.2 - CVR Download Time 18
Figure 4.3 - CVR Live Audio 18
Figure 4.3 - CVR Live Audio 19
Figure 4.4 - CVR Live Audio Volume Control 19
Figure 4.5 - CVR Play Back 20
Figure 4.6 - CVR Play Back Volume Control 20
Figure 5.1 - Live View Data 21
Figure 6.1 - Storage Operation 23

TABLE OF CONTENTS (Continued)

LIST OF FIGURES (Continued)

FIGURE/DESCRIPTION **Page**

Figure 6.2 - Storage Copy files 24
Figure 7.1 - Network Operations 25
Figure 8.1 - Device Configuration 27
Figure 8.2 - Clock Settings 27
Figure 8.3 - Time Format 28
Figure 8.4 - Set Date 29
Figure 8.5 - Set Time Zone 29
Figure 8.6 - Memory Setting 30
Figure 8.7 - Memory Device 31
Figure 8.8 - File Settings 31
Figure 8.9 - Network Settings 33
Figure 8.10 - USB Settings 34
Figure 8.11 - Restrict Menu 35
Figure 8.12 - Remove Restrict 35
Figure 8.13 - Live Data Settings 37
Figure 8.14 - Default Word Offset 37
Figure 8.15 - Change Dispaly Format 38
Figure 8.16 - Shortcut Options 39
Figure 8.17 - Shortcut Choices 39
Figure 8.18 - Settings Profile 40
Figure 9.1 - Ethernet Connections 41
Figure 9.2 - Renew Lease options for IP Address 42
Figure 9.3 - Manually Assign an IP Address 43
Figure 9.4 - FTP Setup 44
Figure 9.5 - FTP Login and Password 44
Figure 9.6 - FTP Server File Upload 45

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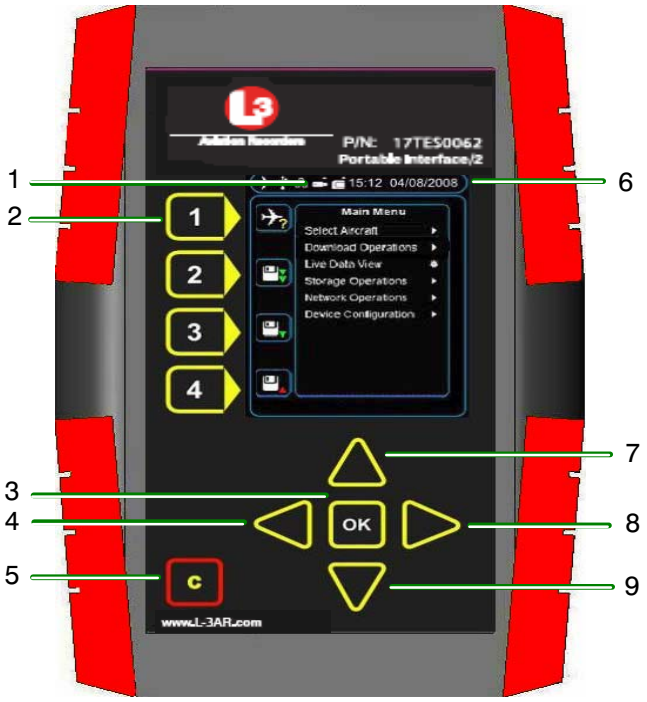
Portable Interface /2 (PI/2) P/N: 17TES0062

Introduction

PI/2 Display Diagram



PI/2 Legend

1 - Connection s Include:
USB, Ethernet, USB Key, SD
2 - Shortcut Keys
3 - Ok confirm buttons
4 - Left Cursor (Back Navigation)
5 - Cancel Button (Exit Screen)
6 - Time and Date Display
7 - Up Scroll Button
8 - Right Cursor (Next Screen)
9 - Down Scoll Button
10 - Connector to FDR
11 - USB Key Port
12 - Reset Buttom
13 - Connector for USB Cable
14 - SD Slot
15 - Ethernet Connector
16 - Audio Jack

TOP View

BOTTOM View

PI/2 Kit

PI/2 Kit Legend

PI/2 Kit P/N: 17TES0065
Includes the following:

1 - PI/2 Unit, P/N: 17TES0062
2 - USB 2.0 Cable, P/N: 024E5002-00
3 - USB Adapter, P/N:147E4785-00
4 - USB Key, P/N:253E5106-00
5 - Advance Operators Guide, P/N: 165E1631-00
6 - FA2XXX FDR Interface Cable, P/N: 024E5000-00
(Cable Not Shown)
7 - F1000 FDR Interface Cable, P/N: 024E5001-00
(Optional, Sold Separately) (Cable Not Shown)
8 - Carrying Case, P/N: 0319800071
9 - Audio Head Set (Head Set Not Shown)

Figure 1.0 -PI/2 Legend

Description

The PI/2 is a hand held interface unit which connects directly to multiple types of L-3 Aviation Recorders Models FA2100 FDR/CVR/CVDRs, Models FA2200/FA2300 MADRAS and Model F1000 FDR. The PI/2 incorporates all of the features of the original PI including downloading/monitoring of flight and voice data. It supports multiple memory devices for downloading flight data onto an SD card, CF card, and USB Key drive.

The PI/2 offers significant cost advantages by eliminating the need for very costly individual interfaces specific to each Flight Recorder. The download L-3AR Flight Recorders provides power to the PI/2 so there are no internal batteries required for recharging purposes.

Key Features:

- Sunlight readable, full color screen.
- Shortcut keys (user defined) to allow quick access to commonly used functions
- Monitor data words in real time (hex, octal, decimal or binary).
- Download options include:
  - (1) Download all data, Download since last copy, Download time, Download size
  - (2) CVR Download All, CVR Download time
  - (3) CVR audio replay
- Powered by the L-3AR Flight Recorder (28VDC or 115VAC) - no internal batteries
- Internal memory storage, Secondary Memory device support for USB drive, SD Card and CF card
- PI/2 can be powered through USB 2.0 as mass storage to PC/Laptop/Tablet or for use with ROSE and CATS software
- Ethernet for data transmission, and secure FTP file transfer
- Fully functional web interface connection to upload aircraft details, and modify PI/2 device configuration

Specifications

Table 1.0 - PI/2 Specifications

Parameter	Value	Unit	Value	Unit
Dimensions				
Weight	300	g	10.58	oz
Length	145	mm	5.71	in
Width	95	mm	3.74	in
Depth	36	mm	1.42	in
Length (including protruding connector)	147	mm	5.79	in
Robustness				
Min. Operating Temperature	-20	^{0}C	-4	^{0}F
Max. Operating Temperature	+60	^{0}C	+140	^{0}F
Power Supply & Power Consumption				
Recorder powered 28V nominal				
Max. Voltage	38	VDC		
Min. Voltage	21	VDC		
Nominal Current	130	mA		
Max. Current	150	mA		
Power (@ 28V, 130mA)	3.64	W		
Power (@ 28V, 150mA)	4.5	W		
Recorder powered 36.6V nominal				
Max. Voltage	38	VDC		
Min. Voltage	21	VDC		
Nominal Current	102	mA		
Max. Current	113	mA		
Power (@ 28V, 130mA)	3.43	W		
Power (@ 28V, 150mA)	3.8	W		
Recorder powered 110V 50Hz nominal				
Max. Voltage	264	VAC		
Min. Voltage	86	VAC		
Max. Frequency	440	Hz		
Min. Frequency	47	Hz		
Nominal Current	19.3	mA		
Max. Current	21	mA		
Power (@ 28V, 130mA)	2.33	W		
Power (@ 28V, 150mA)	2.53	W		

Table 1.0 - PI/2 Specifications (Continued)

Parameter	Value	Unit	Value	Unit
USB powered 5V nominal				
Max. Voltage	5.5	VDC		
Min. Voltage	4.4	VDC		
Nominal Current	450	mA		
Max. Current	500	mA		
Power (@ 28V, 130mA)	2.25	W		
Power (@ 28V, 150mA)	2.5	W		
Isolation Filtering and Suppression				
Display				
X Resolution	240	Pixels		
Y Resolution	320	Pixels		
Colors	61K			
Memory				
Internal Memory				
RAM	64	MB		
SD card size supported	2	GB		
SD card supplied size	1	GB		
Firmware memory size	512	KB		
Memory available for storage	800	KB		
External Memory				
SD Card				
Max supported size	8	GB		
File System	Fat32			
USB Stick				
Max supported size	-	GB		
File System	Fat32			
CF Stick				
Max supported size	-	GB		
File System	Fat32			
Connectivity				
USB				
Compliant	2			
Max Speed	12	Mbps		
Ethernet				
Max Speed	100	Mbps		
Protocols Supported	HTTP, FTP			

1.0 Getting Started - PI/2 Operation

1. To download flight data using the PI/2 you will need the following:

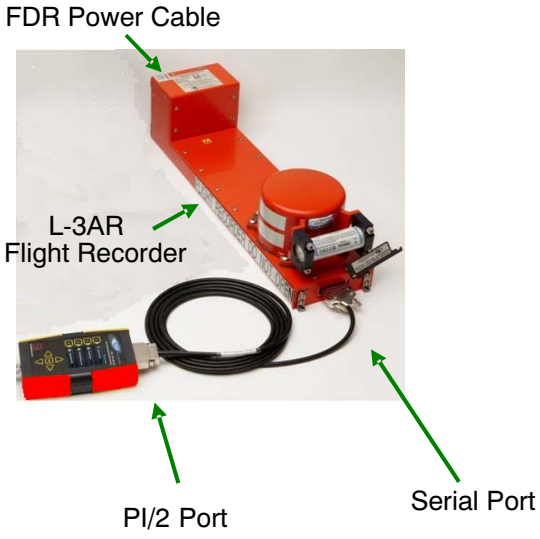
- The PI/2 Kit (includes the PI/2, USB Key, USB cable/power adaptor, corresponding black serial cable used, and head set).
- A L-3AR Flight Recorder used for the download/monitor required.
- A FDR power cable to power up all the L-3AR flight recorders and the PI/2 once connected (1 is provided in the kit). The exception is the F1000 power cable is optional and can be ordered from L-3 Aviation Recorders

NOTE: Refer to the the appropiate L-3AR Model Installation and Operation Instruction Manual or Component Maintenance Manual to power up the L-3AR Flight Recorder.

- This Advanced User Manual will be available through the L-3AR Website www.L-3ar .net .

1.1 Connecting the PI/2 to L-3AR Flight Recorder

1. To begin, attach the corresponding black serial cable clearly labelled with the correct FDR type, from the PI/2 serial port to the front of the Flight Recorder serial port as shown in Figure 1.1. Make sure you have a power supply going to the L-3AR Flight Recorder. The PI/2 will boot up and load the shortcuts for downloading (see Figure 1.2).



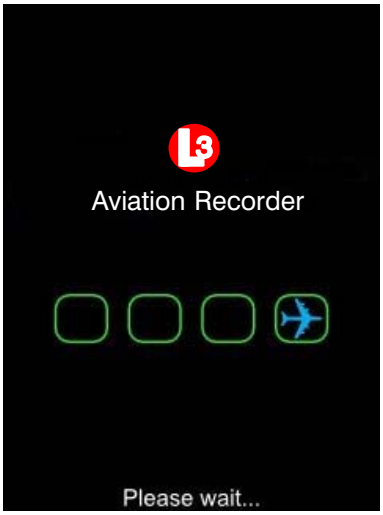


Figure 1.1 Connect PI/2 to Flight Recorder **Figure 1.2 PI/2 Loading**

NOTE: Do not attempt to connect PI/2 with an External SD card inserted on start up. The Internal SD memory will clash with the External SD card. It can

only be used after the program has loaded and ready to begin storing data files.

1.2 Resetting the PI/2 unit

1. If the PI/2 ceases to respond during operation press and hold the reset button for 5 seconds. It is located on the bottom of the unit where the connections are found. It is in the top left corner as shown.

Figure 1.3 Resetting the PI/2 Unit

2. Once the reset button is pressed the System will reboot and take you back to the Shortcut screen.

1.3 Connecting the PI/2 to the Power Adapter

This is when the PI/2 is away from the aircraft and not powered by the L-3AR flight Recorder. To power the PI/2 you need the power adapter and the USB cable provided in the kit.. Power adapter has several electrical prong adapters which are interchangeable depending on the the electrical current of the local area. Using the PI/2 with the Ethernet refer to Paragraph 9.0.

1. Connect the USB cable to the Power Adapter and to the PI/2.
2. Install power adapter with the proper prong adapter in the electrical socket. The PI/2 should boot up.

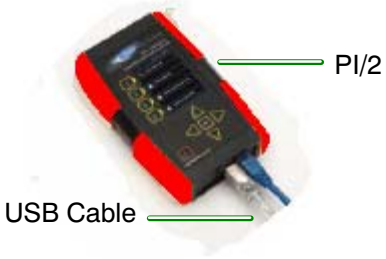


Figure 1.4 - Power Adapter Connections

NOTE: Do not attempt to connect PI/2 with an External SD card inserted on start up. The Internal SD memory will clash with the External SD card. It can only be used after the program has loaded and ready to begin storing data files.

2.0 Loading Aircraft details onto PI/2

The PI/2 can be with loaded aircraft fleet details such as Aircraft Model and Tail number to determine which download comes from each aircraft. This is done proir to first use of the PI/2. This process requires a file that must be created (using a PC in Notepad)and save as a .CSV file in order to load the aircraft and its details onto the PI/2. The file then needs to be loaded onto the PI/2 ready to select an aircraft to download. Here are the steps to follow:

2.1 Creating the Aircraft File

1. Load the USB Key provided with the kit on your PC.
2. Create a new document in **"Notepad"** on a PC.
3. Go to **"File"**>**"Save as"** and name the file **aircraft.csv** (the PI/2 will only recognize this file name). Save the file on the USB Key.
4. Store an additional file copy as a backup on your C: drive.
5. In order to match up the correct aircraft manufacturer, model and tail numbers type in MFCT, MODEL, and TAIL on the first line as shown below in figure 2.1:

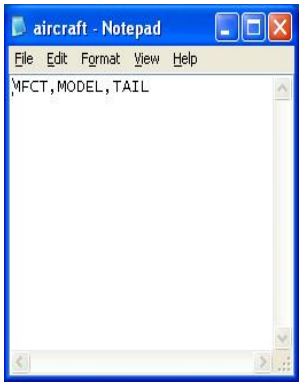


Figure 2.1 - Create a csv file with headings

6. Then on each new line create in quotation marks each manufacture & the corresponding model, and tail (all in quotation marks with a comma separating).

NOTE: Avoid using symbols as they may not be recognized with the csv file format.

7. See figure 2.2 below to ensure your format is correct. Then confirm and save the file again to both the USB key and the backup file on your C: drive..

Figure 2.2 - Create a list of each Aircraft, Model and Tail number

2.2 Load the Aircraft file onto the PI/2

1. Disconnect the USB Key from your PC and insert it into the PI/2.

2. Once the USB drive appears attached on the PI/2 screen press the right arrow scroll button on start up (once the shortcut menu screen has loaded) to get access to the **"Main Menu"**> then **"Device Configuration"** > then select **"Settings Profile"**. Press **"OK"** on **"Settings Profile"** and select "**Load Aircraft**".

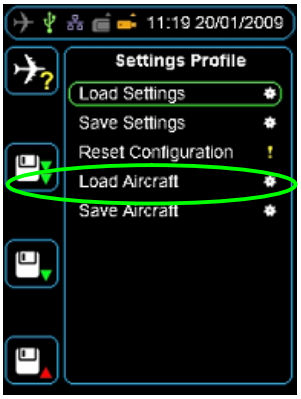


Figure 2.3 - "Load Aircraft"

3. The Select Memory Device menu will load. You need to select which storage device to load the .csv file. Select **"USB stick"**.

4. The Loading Aircraft screen will appear and show as complete **"Loaded aircraft.csv."**

Figure 2.4 - Loading Aircraft Complete

5. Navigate back to the **"Main Menu"** and enter the **"Select Aircraft"** screen to confirm all Aircraft Types, Models and Tail numbers are visible and ready to select when downloading from the L-3AR Flight Recorder.

2.3 Removing or adding Aircraft details from the PI/2

1. In order to remove or add aircraft/s from the list in the PI/2 simply take out the USB key and plug it back into the PC ready to edit the .csv file.

2. Once you open the .csv file (in Notepad) from the USB key folder you need to remove or add the aircraft manufacturer, model and tail number from every line that are no longer required or required. See figure 2.5 below:

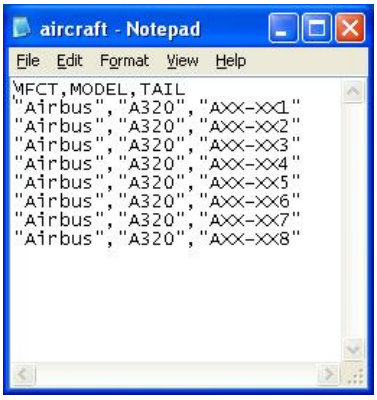


Figure 2.5 - Remove Aircraft no longer required

3. Once the aircraft/s have been removed or added from the list save the document in .csv format again.

4. Disconnect the USB Key from the PC and plug it back into the PI/2.

5. From the **"Main Menu"** go back into **"Device Configuration"**> **"Settings Profile"** > **"Load Aircraft"** and the .csv file will update the list displaying the changes made.

2.4 Add Additional Aircraft directly to the PI/2

A PI/2 with an aircraft list may require additional Aircraft to be added or removed instead of having to edit the Aircraft.csv file.
The user can add an aircraft by going through the Select Aircraft screen in the main menu as shown:

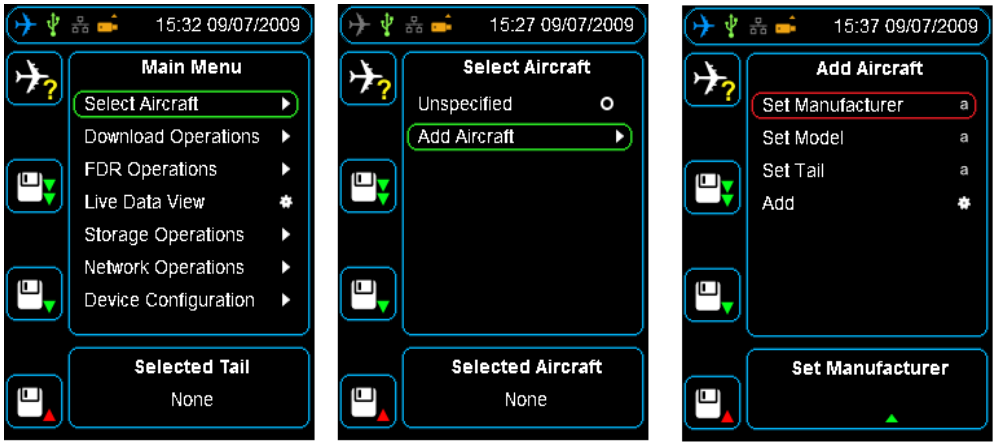


Figure 2.6 - Adding Additional Aircraft directly to the PI/2

1. In order to add the Manufacturer as shown in Figure 2.6 press the **"OK"** button so Set manufacturer is highlighted in RED and then press the top cursor ▲ on the PI/2.

2. Add the characters required to complete the manufacturer name. See Figure 2.7.

3. Once the manufacturers name is complete press the cancel button **"C"** to exit the screen, **Set manufacturer** will be highlighted in RED.

4. Press **"OK"**, this will save and highlight the **Set Manufacturer** to GREEN.

5. If a character is mistyped at any stage press the right cursor button changing the GREEN highlight back to RED which allows the operator or modify/remove characters using the left and right cursor buttons.

6. Press the top cursor to return to the shortcut screen and add the new character/s or remove the unwanted character by selecting a blank square and press right cursor to enter changes.

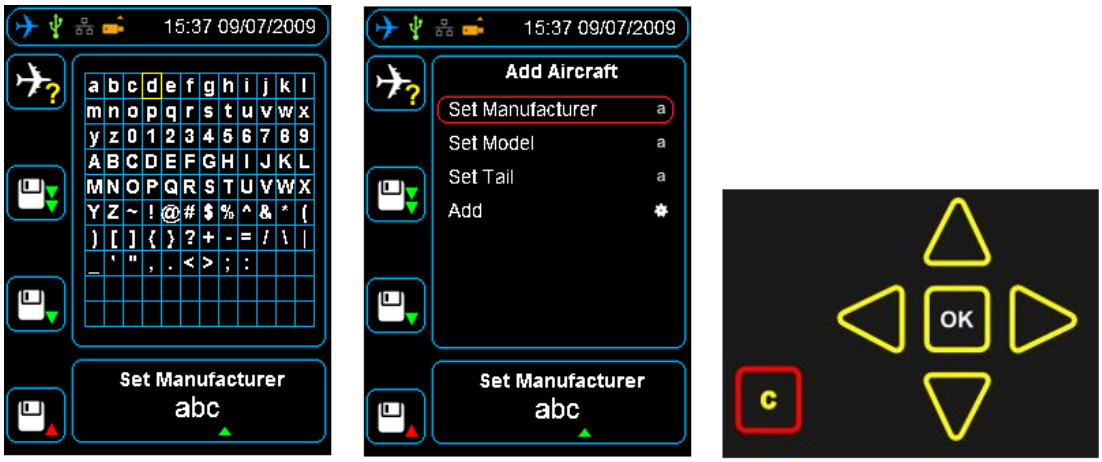


Figure 2.7 - Adding Additional Aircraft directly to the PI/2

7. Repeat steps 1 - 4 to enter the Aircraft Model and Tail Number

8. To confirm the addition of the aircraft in the **"Add Aircraft"** menu screen, scroll down to **"Add"** and press the right cursor button which will bring up the confirmation screen. Press **"OK"** to confirm the Manufacturer, Model and Tail number.

Figure 2.8 - Confirming the additional Aircraft Manufacturer, Model and Tail Number

2.5 Delete Aircraft directly from the PI/2

Some Aircraft may discontinue or no longer in service therefore an easy to delete aircraft function has been added.

1. From the **"Main menu"** go to > **"Device configuration"** then > **"Aircraft Settings".**
2. Select **"Delete Aircraft"** and press the right cursor button to search for the corresponding Aircraft Manufacturer, Model and Tail.
3. Confirm by pressing **"OK"** to delete the Aircraft details.

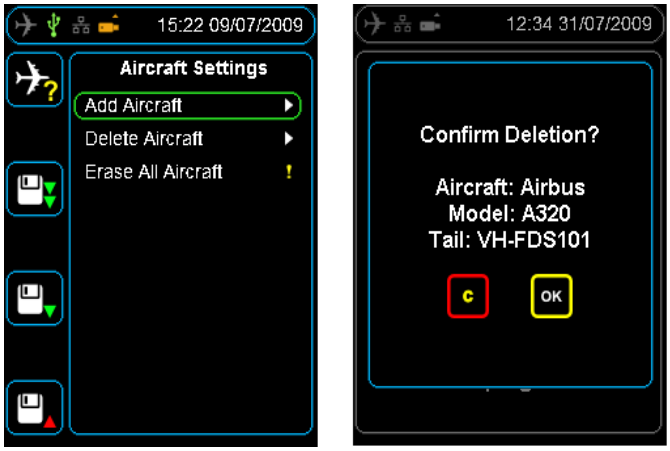


Figure 2.9 - Deleting Aircraft Manufacturer, Model and Tail Number

3.0 FDR Data Down Load and Operations

3.1 Downloading Data Operations

There are five options to choose from when downloading data from the Flight Recorder (FDR) onto the PI/2. Each option offers a method which suits different downloading situations and relevant requirements relied on.

1. To begin downloading press the right arrow scroll button on start up (once the shortcut menu screen has loaded) to get access to the **"Main Menu"**.
2. Press **"Select Aircraft".**
3. The next menu should give you a list of options of the Aircraft types or unspecified (if entered during setup) that are preloaded on the PI/2. Select the required aircraft manufacturer and model you are downloading from.
4. Finally select the corresponding tail number or registration to specify exactly which aircraft you are downloading from.
5. You can now return back to either the Shortcut Menu or **"Main Menu"** to begin by selecting a chosen downloading operation.

3.2 Download All Data

The option to **"Download All"** is captured by the PI/2 to download the full memory storage kept on the FDR and. This function relates generally to readouts required on a once a year basis or if an incident has occurred.

1. Once you have selected an aircraft type, name and tail number you are ready to perform the Download All operation.
2. You can press the shortcut key (if applicable) or select **"Download Operations"** then select **"Download All"**. See the examples below:

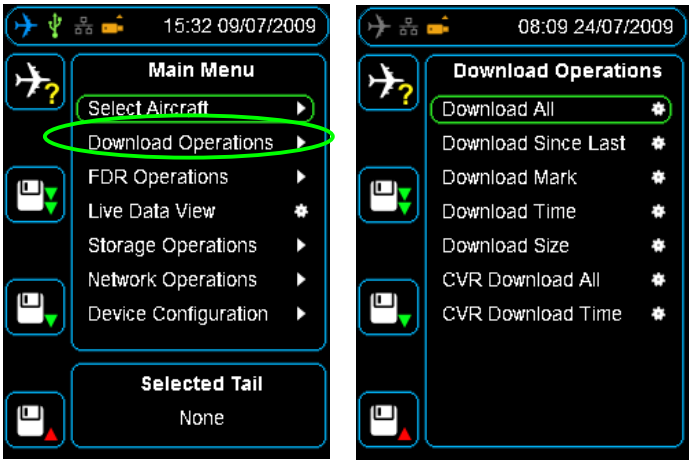


Figure 3.1 - Download Operation

3. Select the memory device you nominate to store the data.
   Note - if you wish to download a file onto the PI/2's Internal Memory it will not appear if a SD memory card is connected. The SD card will cancel out the internal memory function. Remove the SD storage card if internal memory is the preferred choice.
4. Download All Data will initialize.
   Note - Do not remove the power cable from the FDR and PI/2 during the download.

(a) Using Internal or USB (b) Using SD or USB (c) Downloading all data begins

Figure 3.2 - Download All Data

5. If you need to cancel the download press **"c"** button, otherwise complete finalization will be displayed.
6. Press **"OK"** once download has completed to exit back to the **"Main Menu"**.

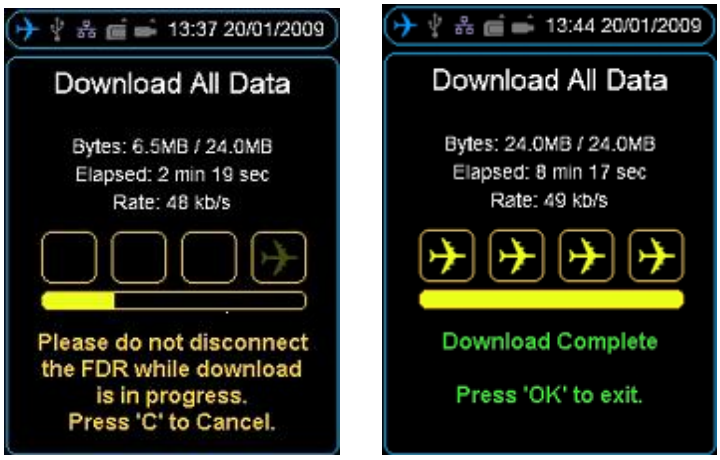


Figure 3.3 - Download All Data Complete

3.3 Download Since Last

This option is used to download data from the FDR since the last download was performed. The size of the file will vary based on how long it's been since the last download was performed. It may be required to capture only the small amount of data required for a specific analysis.

1. Go to select aircraft and once you have selected an aircraft type, name and tail number you are ready to perform the Download Since last operation.
2. From the **"Main Menu"** press **"Download Operations"**. Then select **"Download Since Last"**.
3. Press **"OK"** when the download is complete and ready to process.

Figure 3.4 - Download Since Last

3.4 Download Time

The instructions for capturing data from a specific time may be required for investigation or reporting. A certain amount of time maybe required depending on when a download was last captured or a specific timeframe needs to be analysed.

1. Once you have selected an aircraft type, name and tail number you are ready to perform the Download Time operation. From the **"Main Menu"** press **"Download Operations"**.
2. Then select **"Download Time"**.
3. Use the scroll keys to adjust the amount of time (in minutes) then press **"OK"** to download.

4. Press **"OK"** when the download is complete and ready to process.

Figure 3.5 - Download Time

3.5 Download Size

A request may arise to download a specific amount of data from an FDR. If the size of a download file is required you can select the download size in Download Operations.

1. Once you have selected an aircraft type, name and tail number you are ready to perform the Download Time operation. From the **"Main Menu"** select **"Download Operations"**.

2. Adjust the size in megabytes to suit the amount you require then press **"OK"** to download.

3. Select **"Download Size"**.

Figure 3.6 - Download Size

4. Use the scroll keys to adjust the amount of data (in MB) then press **"OK"** to download.

5. Press **"OK"** when the download is complete and ready to process.

3.6 FDR Operations

NOTE: To view this set of options the user must have the PI/2 connected to the FDR. FDR Operations will be displayed under Download Operations.

3.7 FDR Status and Output

To view the status of the FDR connected to the PI/2 use the following steps:

1. In the **Main Menu** select **FDR Operations**.

2. Select **FDR Fault Output**.

3. Toggle the Fault Output to **"Forced On"** using the right cursor button.

4. Go back to **FDR Operations** and select **"FDR Status"** which should pull through data from the recorder to display the status of the FDR.

Figure 3.7 - FDR Status and Output

3.8 Fault Logs

To dump the Fault log file:

1. Go to **"FDR Operations"** & select **"Dump Fault Log"**.

2. Copy the fault log to USB, SD or CF Card by using the storage options in the main menu.

3. Go to FDR Operations and select **"Clear Fault Log"**. This will clear the contents of the log file.

Figure 3.8 - Fault Logs

4. For clear latched faults and dump debug trace repeat steps 1 - 2.

Figure 3.9 - Clear Latched Faults and Dump Debug Trace

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4.0 CVR Data Download and Live Audio

NOTE: The CVR Download and Live audio option only applies to PI/2 units that have the L-3 FA2100 Cockpit Voice Capability. Refer to the applicable L-3 Installation and Operation Instruction Manual or Component Maintenance Manual when applying power to the unit with CVR capability.

4.1 CVR Download All

To Download All data from the CVR:

1. Attach the interface cable FA2100FDR into both the CVR and the PI/2. Ensure the PI/2 recognises the L-3 CVR recorder.
2. In Main menu go to Download operations and then press CVR Download All.

Figure 4.1 - CVR Download All

4.2 CVR Download Time

1. To download the amount of time requested go to **Download options** > then **CVR Download time**.
2. Select the number of minutes using the Up and Down buttons and press **"OK"** to confirm.

Figure 4.2 - CVR Download Time

4.3 CVR Live Audio

This function is used whenever the CVR is installed into the Aircraft from repair, first installation or readout. Audio Head Set is provided with the PI/2 Kit.

1. Upon boot up of the PI /2 wait for the blue plane in the top left corner of the screen to appear and go to main menu.

2. Install Audio Head Set jack into the PI/2 receptacle as shown below.

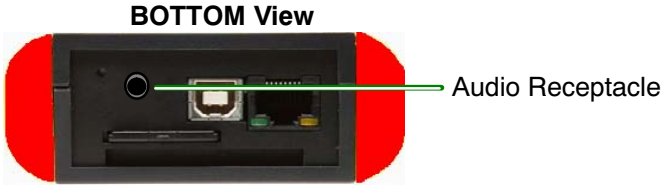

Figure 4.3 - CVR Live Audio

3. Select Audio Operations using scroll keys and the right cursor then select CVR Live Audio.

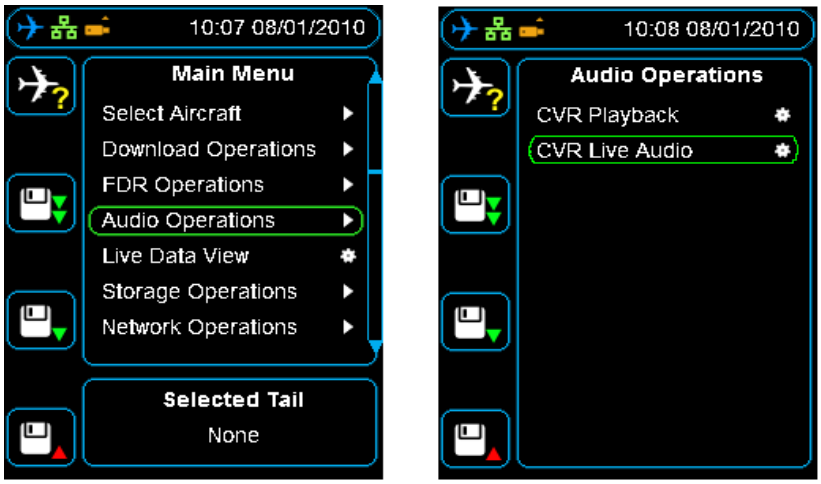

Figure 4.3 - CVR Live Audio

4. Select the appropriate channel used to record the microphone sound by using the up and down scroll keys.

5. The Live Audio recording will start automatically . To stop, Press OK button.

6. Adjust the volume using the shortcut key 2 to raise the audio volume and shortcut key 3 to reduce the audio volume.

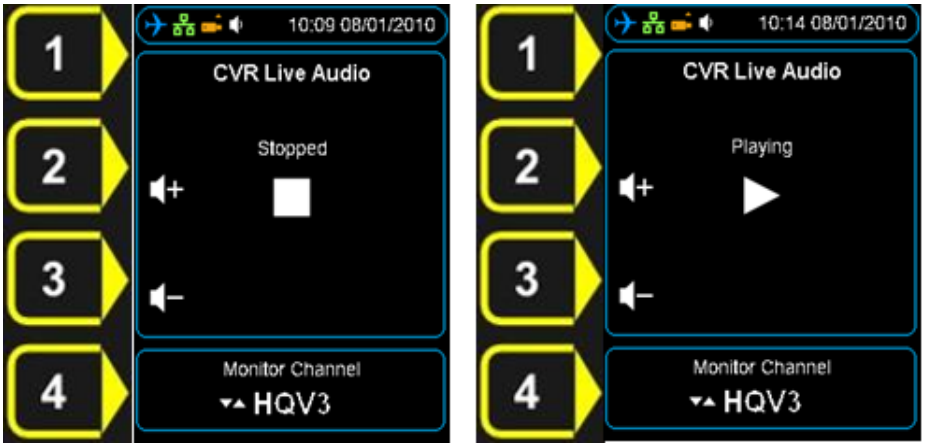

Figure 4.4 - CVR Live Audio Volume Control

4.4 CVR Audio Record and Playback

This function is used to replay CVR audio from the CSMU memory module.

1. Upon boot up of the PI /2 wait for the blue plane in the top left corner of the screen to appear and go to main menu.

2. Install Audio Head Set jack into the PI/2 receptacle.
3. Select Audio Operations using scroll keys and the right cursor.
4. Select CVR Playback as shown below:

Figure 4.5 - CVR Play Back

5. The PI/2 will automatically begin replaying the CVR audio file.
6. Select the appropriate channel used to replay the CVR audio by using the up and down scroll keys.
7. To stop or pause playback press OK button. To resume playback press OK button again.
8. To rewind and fast forward use the left and right cursor buttons.
9. Adjust the volume using the shortcut key 2 to raise the recording sound and shortcut key 3 to reduce the recording sound.

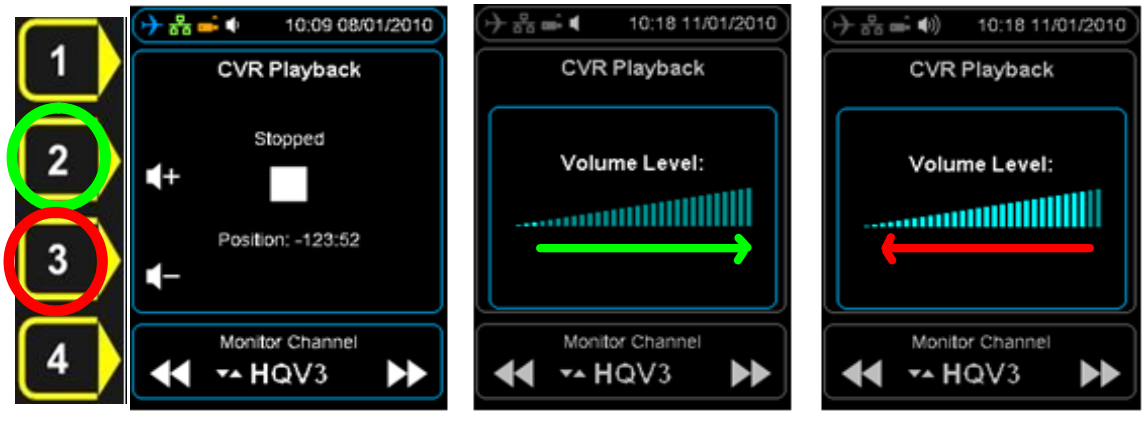

Figure 4.6 - CVR Play Back Volume Control

5.0 Live Data View

Engineers now have the ability to view and compare live data coming from the aircraft FDR when connected to the PI/2. Live Data View can display data feeding from the FDR in four different formats depending on the parameters that are set. These include:

- Binary (Base 2)
- Octal (Base 8)
- Decimal (Base 10)
- Hexadecimal (Base 16) To view live data from the FDR follow the steps provided:

1. Go to **"Main Menu"**.
2. Scroll down and select **"Live Data View"**.
3. Once the parameters start loading scroll through each sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.
4. To adjust the viewing parameters e.g. decimal to binary refer to Paragraph 7.6 Live Data Settings.

Figure 5.1 - Live View Data

As shown in the diagrams above the sub frames for each word can be viewed as well as seeing all subframes for each word number selected.

(a) Live Data View Option

(b) Live Data Connecting

(c) Live data in octal format showing all sub frames and two word offset

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6.0 Storage Operations

There are a number of different ways to download data from the Flight Recorder (FDR) onto the PI/2 and three optional storage methods available as a secondary device. Three different storage options which include:

- PI/2 Internal Memory
- USB Key (Provided 4GB)
- SD card

1. To copy files from one storage component to another you must first select the file/files. Select using the right cursor on **"Storage Operations"** then press **"Select File(s)"**.

2. The select file screen will give a choice of which storage device the files are located.

3. Once you locate the file(s) scroll down and press each file for copy. The box next to each should comeup with a tick.

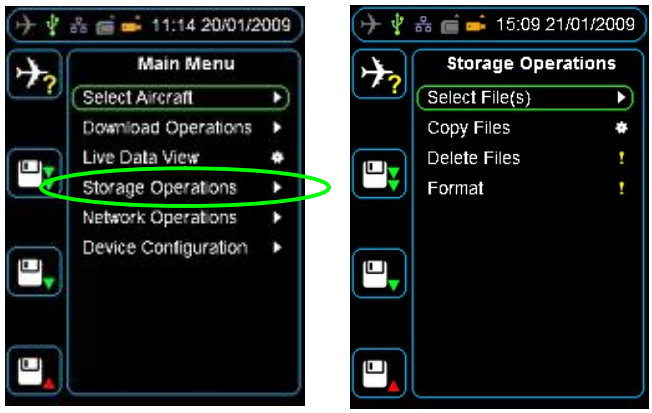

Figure 6.1 - Storage Operation

4. Go back using the left cursor to **"Storage Operations"** screen and press **"OK"** on Copy files.

5. The next screen **"Select Memory Device"** will ask for which storage device you wish to copy the selected file/s.

6. The PI/2 will begin the copying of the file. Once it's complete press **"OK"** to confirm.

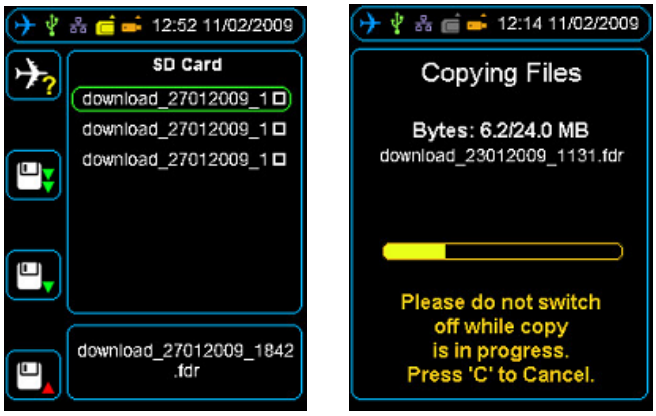

Figure 6.2 - Storage Copy files

- To delete a file or number of files, repeat steps 2 & 3 then scroll back to **"Storage Operations"** and select **"Delete Files"**.
- To format a storage device simply select the **"Format**" option in **"Storage Operations"** then select the device you wish to format. The screen will show a complete format. Press **"OK"** to return to storage operations.
  NOTE: Ensure you backup the files stored for future purposes if required.

7.0 Network Operations

The PI/2 has the ability to be recognized as a mass storage device with PC's and networks. Each unit contains its own MAC address assigned when manufactured. The DHCP application allows each unit to be assigned a new IP address if auto configuration is required. This allows the PI/2 to be recognized and operate as a functioning network device with the option to upload files from its internal memory or secondary storage device to chosen FTP server.

The PI/2 can be used in conjunction with a web interface to update aircraft lists directly onto the unit's internal memory. The PI/2 contains an IP address that has been automatically assigned due to previous use in a network operation or during file uploading. It can expire due to lease timeout and may require a renewed lease to create a new IP address for the unit.

1. Connect the USB cable to the PI/2 and the PC or network.

2. In the **"Main Menu"** select **"Network Operations"** then press **"OK"**.

3. Select **"Renew lease (DHCP)"**.

4. The Renew lease screen will come up and confirm a new IP address for the unit that has been assigned. Scroll back using the left cursor to begin network file transfer or file upload.

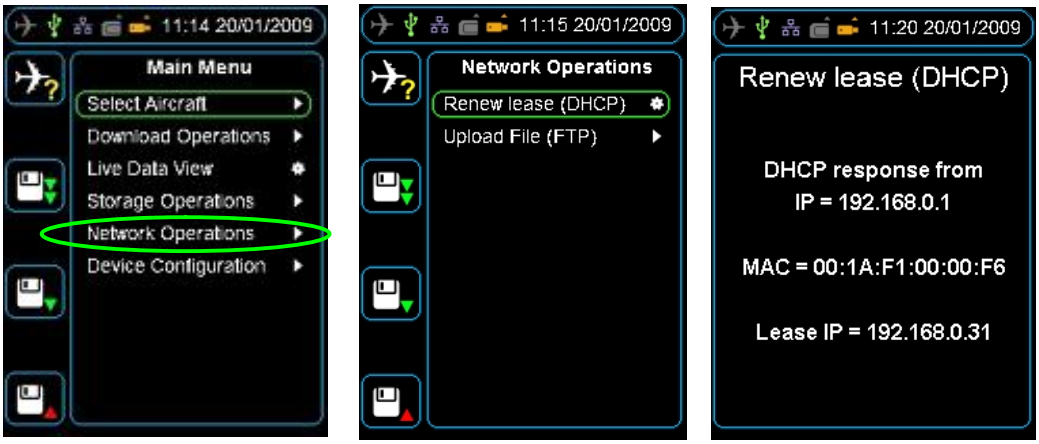

Figure 7.1 - Network Operations

NOTE: Refer to Section 8.0 Uploading files via FTP and FTP setup.

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8.0 Device Configuration

A configuration menu is made available for users to change certain settings from any function utilised on the PI/2. This section helps illustrate any changes the user may want to make according to the specific functions preferred.

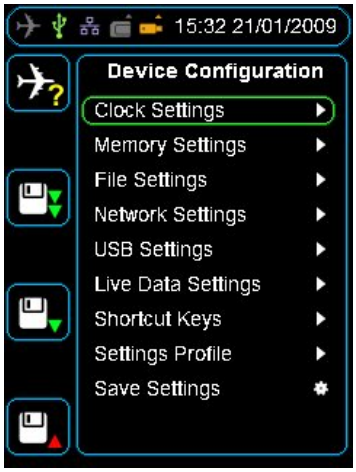

Figure 8.1 - Device Configuration

8.1 Clock Settings

Depending on the user's requirements and location on a global perspective, they may wish to have the clock and date displayed in a specific format. Setting the time and date is made available to adjust with different time zones to select depending on which country the user is working in. The option to display time and date can be selected as well.

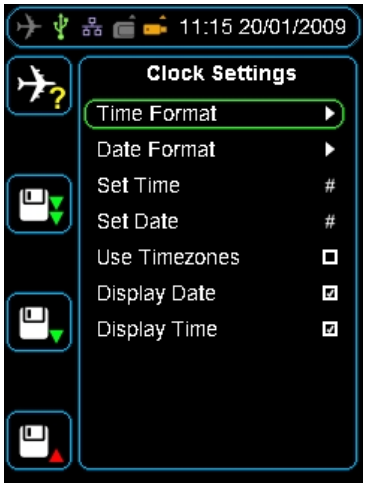

Figure 8.2 - Clock Settings

To change the Time Format:

- From the **"Device Configuration"** menu select **"Clock Settings"** as shown below.
- Select **"Time Format"**.
- Select from either **"12 hour"** or **"24 hour"** format and press **"OK"**.
- To return to **"Clock Settings"** press the left cursor.

To change the Date Format:

- From the **"Device Configuration"** menu select **"Clock Settings"** as shown below.
- Select **"Date Format"**.
- Select from one of the different formats and press **"OK"**.
- To return to **"Clock Settings"** press the left cursor.

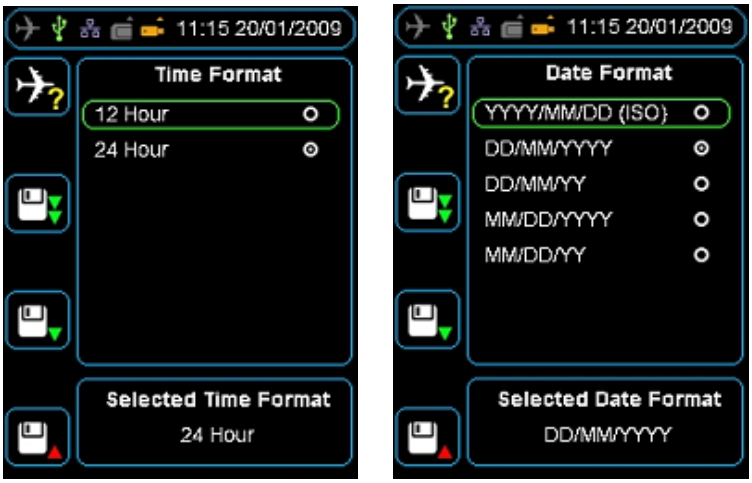

Figure 8.3 - Time Format

To change the Time:

- In **"Clock Settings"** scroll to set time.
- Move the left cursor over to the corresponding number you need to change.
- Adjust by using the up and down cursors to adjust the numbers **"0 - 9"**.
- To exit back to the **"Clock Settings"** press the cancel button.

To change the Date:

- In **"Clock Settings"** scroll to set date.

- Move the left cursor over to the corresponding number you need to change.
- Adjust using the up and down cursors to adjust the numbers **"0 - 9"**.
- To exit back to the **"Clock Settings"** press the cancel button.

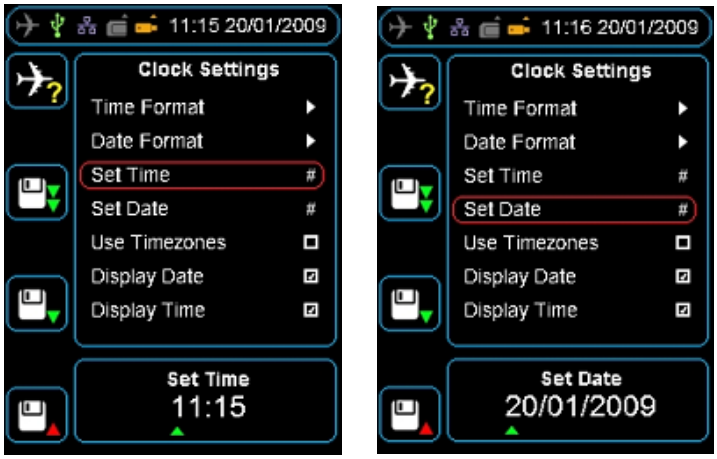

Figure 8.4 - Set Date

To change the Time zone to match your location:

- In **"Clock Settings"** scroll down to **"Use Time Zones"** and press **"OK"**.
- Scroll down to the drop down option **"Select Time Zone"** that appears.
- Using the up and down cursors scroll through the time zones until you find the standard time that matches your region. Press **"OK"** to confirm the change.
- Scroll back to the **"Clock Settings"** using the left cursor button.

Figure 8.5 - Set Time Zone

8.2 Memory Settings

Memory settings allow the user to select from three memory devices used with the PI/2. The option to ask for a device when downloading or transferring files can be made simply by selecting **"Ask for Device"**. If the user wishes to select a default priority list, select **"Use Priority List"**. This takes you to the **"Memory Priority"** menu where you can select a device and move it up or down the list using the up and down cursors. Press **"OK"** when the device you want is in the correct order.

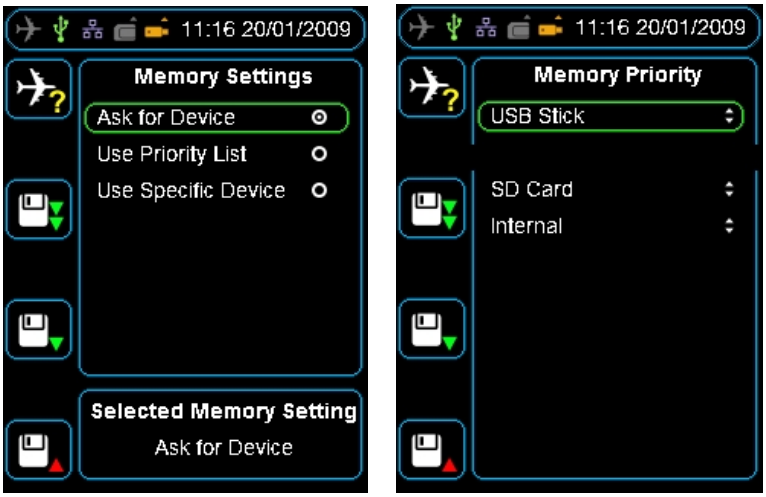

Figure 8.6 - Memory Setting

If the user wishes a single device to be used by default they can select **"Use Specific Device"**. As shown when selected, **"Memory Device"** will appear in a drop down option. Press **"Memory Device"** to bring up the Memory Device list. Choose a device that will be used as the only memory setting to appear for storage and transfer.

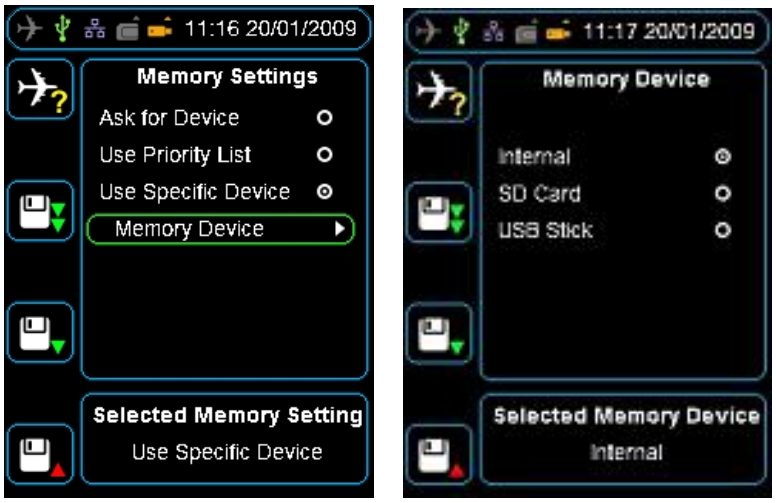

Figure 8.7 - Memory Device

8.3 File Settings

The option is given to append what is shown in a file once downloaded. By simply going through **"Main Menu"** > **"Device Configuration"** > **"Filename Settings"** brings up the list of options to add aircraft, aircraft model, tail number, date or time. An example of a file download is: A23-025 FDS09 824 23-10-2008.fdt. is lists the Model and Registration number along with time then date as specified in the select tabs below.

Figure 8.8 - File Settings

8.4 Network Settings

Network setup is required when connecting the PI/2 via Ethernet connection, transferring files or setting up the PI/2 as a network device. Select the **"Enable**

Networking" located in "**"Device Configuration""** > **"Network Settings"**. Important points to note include:

- Auto configure (DHCP) allows an IP Address to be automatically assigned.
- If you wish to setup a permanent ID address to be assigned to the PI/2 follow these steps:

1. In **"Main Menu"** scroll down to "**"Device Configuration""** and press **"OK"**.
2. Scroll down to **"Network Settings"**. This will display the menu for changing the IP Address. 3. Confirm that Enable Networking box is ticked. Then select **"Auto configure (DHCP)"** option.
3. This will untick the **"Auto configure (DHCP)"** and the option for **"Manual Configure"** will appear underneath.
4. Select **"Manual Configure"** to display the list of networking options.
5. When changing **"IP Address"**, **"Netmask (Subnet)"** or the **"Gateway"** to which network you are connecting to you need to use the left and right cursor keys to move to the corresponding number.
6. Use the up and down arrow keys to adjust each number according to the network details specified.

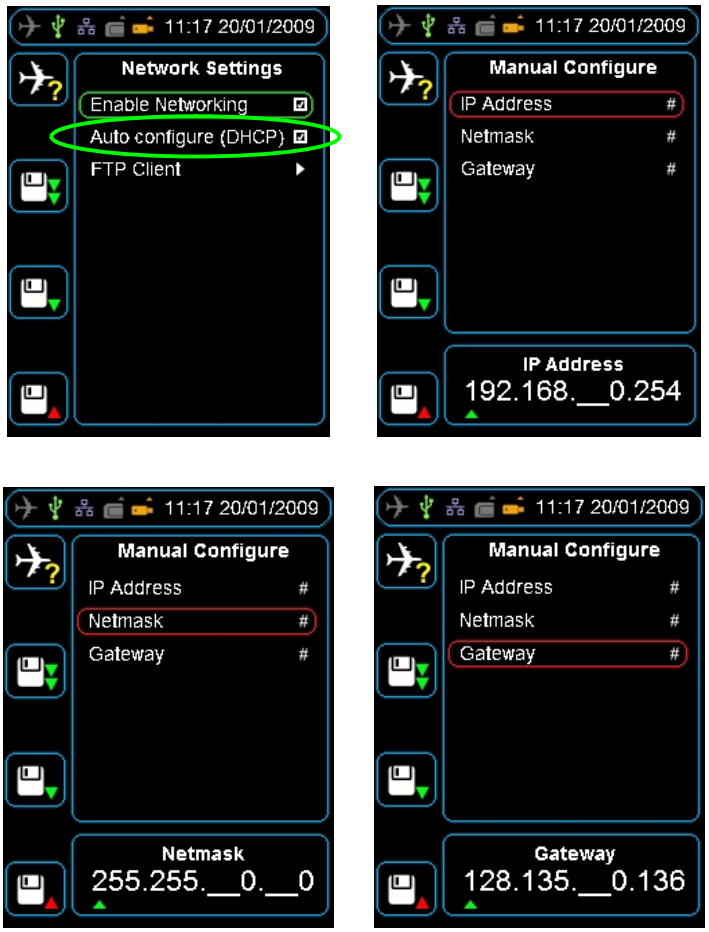

Figure 8.9 - Network Settings

NOTE: For instructions on how to change FTP settings see 8.0 Uploading files via FTP.

8.5 USB Settings

The PI/2 can be used as its own storage device when plugged into a PC/Notebook. When required some files may need to be taken from the PI/2 and imported into a replay software system or stored onto the PC as a backup.

1. To activate the PI/2 for such activities firstly plug the USB cable from the PI/2 into the PC.
2. In the PI/2 **"Main Menu"** select **"Device Configuration"** > **"USB Settings"** > then select "**Mass Storage Device**". Press **"OK"** and the PI/2 will appear as a storage device.
3. The PI/2 can now upload files onto the PC or a relay software system for reporting.

Figure 8.10 - USB Settings

8.6 SECURITY SETTINGS

Users of the HHMPI have the ability to restrict access to either the device configuration menu where most of the display settings and format is setup as well as restricting the main menu where the user only has access to the shortcuts.

Restrict Device Configuration

1. Go to the Main Menu > and then select Device Configuration.
2. Select Security Settings. Then select "Restrict Config" using the right cursor button which will tick the check box selected.
3. Scroll down to the Set Passcode that comes up when Restrict Config is selected and press the right cursor to display the pass code.
4. Enter the new 4 digit pass code by scrolling up and down for numbers 0 - 9. Move right cursor for each number.
5. Once the new pass code has been created press OK to confirm.
6. Go back to Main menu then access the Device configuration to ensure the pass code prompt is required.

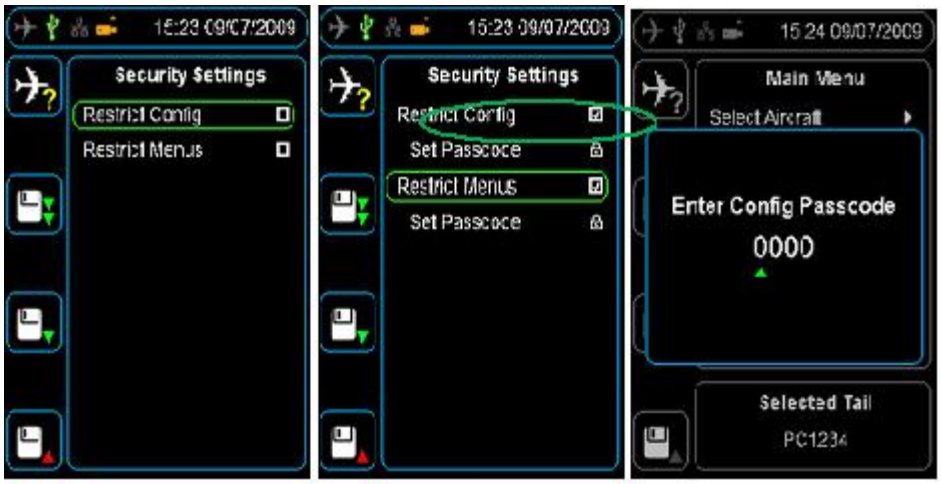

Figure 8.11 - Restrict Menu

Restrict Menu Configuration

1. From the main menu go to Security settings > and then select Restrict Menus.
2. Similar to the Restrict Config setup use the right cursor to tick the Restrict menus box.
3. Select Set Pass code using the right cursor as shown below.
4. To test the change, navigate back to the beginning Shortcut screen and press the right cursor to enter the Main menu. The user will be prompted as shown in screen (iii) to enter a pass code.

Figure 8.12 - Remove Restrict

Remove Restrict Config or Restrict Menus

1. Scroll onto the Restrict Config option again and press the right cursor to enter. This will un tick the option to restrict the device configuration menu and disable the prompt to require a pass code.
2. Repeat the same step to turn off restrict menus.

8.7 Live Data Settings

Operators of the PI/2 have the ability to change the preference on the way to view live data. In order to change the option to view data at the aircraft the user needs to go into **"Live Data Settings"** located in the **"Device Configuration"** menu. Some users have specifications and parameters that are referred to show different frame viewing and formats. Once setup correctly, the user can then navigate through preferred chosen live data on the aircraft as it reads on the PI/2 to determine any sensors that may be out of alignment.

1. To change Sub-Frame & Word Offset views:
2. Go into ""**Device Configuration**"" settings from the **"Main Menu"** and select **"Live Data Settings"**.
3. Select **"Default Sub-Frame"** to determine the amount of sub frames you wish to view ranging from **"1 - 4"** and if required **"ALL"** option can be selected.
4. View the screen option below the menu and scroll through using the up and down buttons to select the preferred Sub-Frames for viewing. Press **"OK"** once a selection has been made.

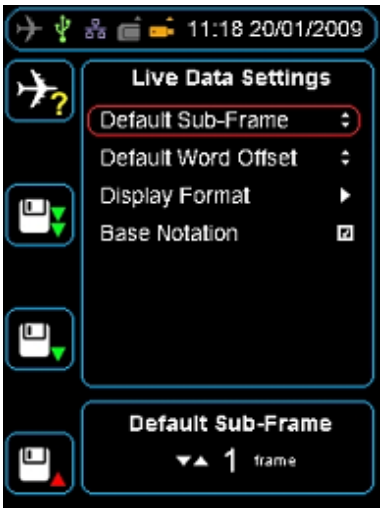

Figure 8.13 - Live Data Settings

5. For **"Default Word Offset"** scroll to the option and press **"OK"**. The selection menu will appear below to view how many word offsets are required. The range can be from **"1 - 2048"** words to display. Select the preferred number of word offsets and press **"OK"** to finalise selection.

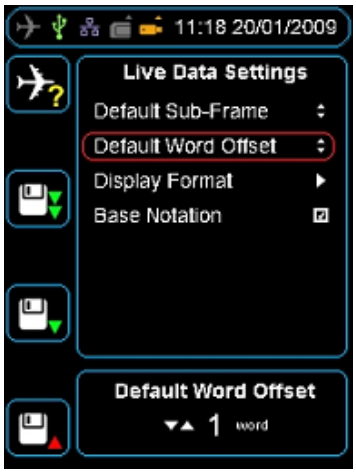

Figure 8.14 - Default Word Offset

Changing Display Format:

1. In **"Live Data Settings"** scroll down and select **"Display Format"**.
2. The **"Display Format"** gives the user the option to select which type of format to view live data such as; Hexadecimal (Base 16), Decimal (Base 10) Octal "(Base 8), and Binary (Base 2).
3. Simply select the preferred format and press **"OK"** to confirm the default setting.
4. If the user wishes to have the base notation displayed scroll back to **"Live Data Settings"** and confirm **"Base Notation"** has been ticked.

Figure 8.15 - Change Dispaly Format

8.8 Shortcut options

For efficient downloading and basic operations users may prefer to have certain shortcuts displayed when the PI/2 loads. To change the four shortcuts that appear once the PI/2 loads, the user needs to navigate to the **"Device Configuration"** and then select **"Shortcut Keys"**.

1. Once in the Shortcut Keys menu select **"Shortcut 1"**.

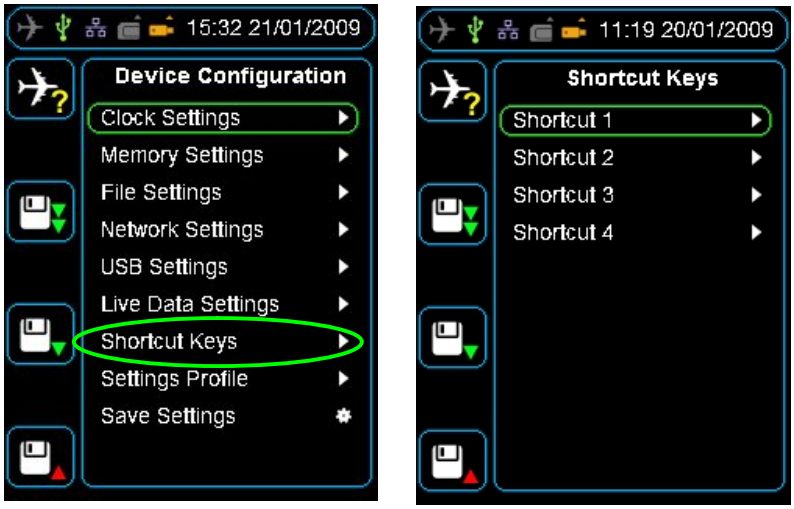

Figure 8.16 - Shortcut Options

2. Scroll through the list of available shortcuts until you find the most common operation tasks to be used.

3. Once you select a shortcut of choice for **"Shortcut 1"** repeat the process if you wish to change the remaining shortcuts 2, 3 & 4.

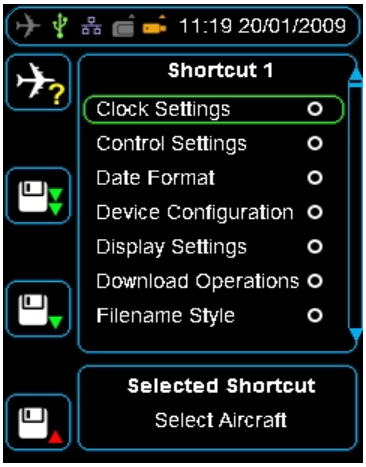

Figure 8.17 - Shortcut Choices

8.9 Settings Profile

The **"Settings Profile"** option in **"Device Configuration"** offers the function to load certain settings based on the PI/2 configuration using a specific file extension. The configuration settings are saved as a backup file with a configuration backup extension, and **"Reset Configuration"** takes the PI/2 back to default factory settings.

"Load Aircraft" provides the option to Load Aircraft names, models and tail numbers to the select aircraft list. The option to **"Save Aircraft"** creates a backup copy of the loaded aircraft file in case the file is lost, removed by accident or becomes corrupt.

Figure 8.18 - Settings Profile

NOTE: Refer to Section 2.0 on how to Load Aircraft Manufacturer, Model and Tail Number.

9.0 Uploading Files via FTP (Active Ethernet connection required)

The PI/2 has the function to send files stored from its internal memory or one of its secondary storage devices connected, to a nominated FTP server. This makes way for a more automated setup and central location to backup and store all downloads and work performed at the aircraft ready for analyzing and reporting.

9.1 Connecting the PI/2 to the Network

Connect the USB cable to the Power Adapter and to the PI/2 provided in the kit. Connect the Ethernet cable that is active to the PI/2. Power adapter used to power the PI/2 has several electrical prong adapters which are interchangeable depending on the the electrical current of the local area.

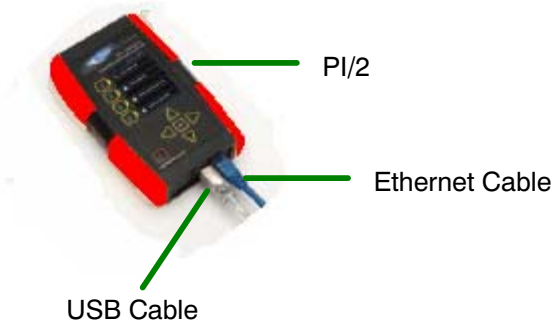

Figure 9.1 - Ethernet Connections

NOTE: Do not attempt to connect PI/2 with an External SD card inserted on start up. The Internal SD memory will clash with the External SD card. It can only be used after the program has loaded and ready to begin storing data files.

The PI/2 has its own unique MAC address preconfigured on the unit to assist in providing basic network and file transfer operations. Firstly the IP Address for the PI/2 needs to be renewed. From the **"Main Menu"** select **"Network Operations"** then press the **"Renew lease (DHCP)"**option. This function will refresh the lease of the PI/2 and create a new IP Address (if required) listed as shown below:

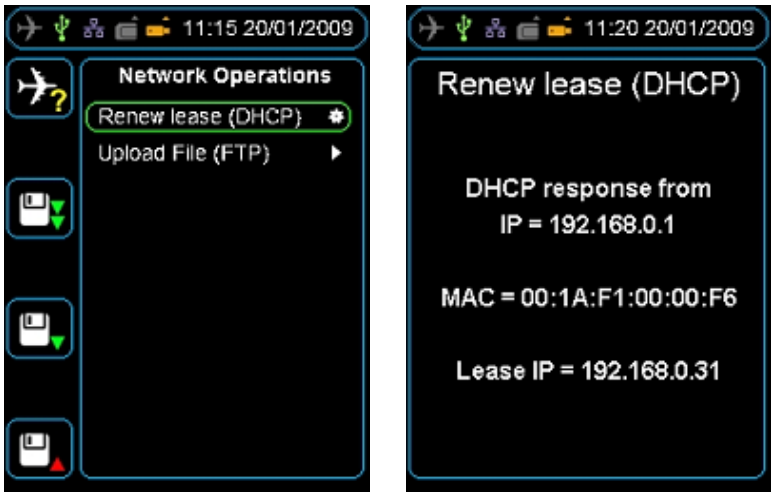

Figure 9.2 - Renew Lease options for IP Address

Manually assigning an IP Address:

1. In case the renew lease function fails to create an auto IP Address you need to create a specific IP Address. Go into **"Network Settings"** and select **"Auto Configure (DHCP)"**. This will create a drop down option "Manual Configure".

2. Select **"Manual Configure"** then enter the required **"IP Address"** (a free IP Address not in use on your network), **"Netmask"** (subnet default), and Network **"Gateway"** using up and down arrows to set up numbers from **"0 - 9"**. Press **"OK"** once each network configuration setting is complete.

3. Should you have any issues getting information on the network, seek assistance from your IT Administrator or contact L-3AR Product Support.

Figure 9.3 - Manually Assign an IP Address

9.2 FTP Setup

Before any downloaded files can be uploaded via an FTP connection to a related server, the FTP client settings must be set up correctly on the PI/2.

1. Go into "**"Device Configuration"**" from the **"Main Menu"** and then into **"Network Settings"**.

2. Select "**FTP client"** and press **"OK"**.

3. Ensure that "**FTP IP Address"** settings are all correct by confirming your company FTP server IP address. Adjust the numbers using up and down scroll buttons and left & right cursors for each number used. Once the IP address is complete press **"OK"**.

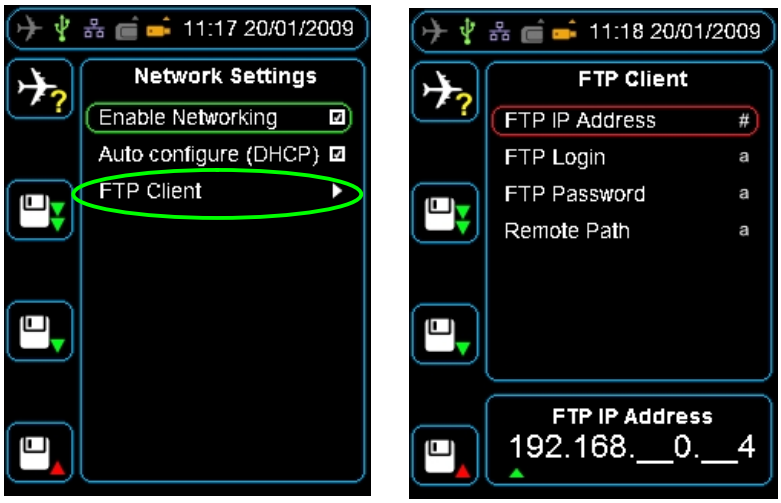

Figure 9.4 - FTP Setup

4. Scroll to **"FTP Login"** and **"FTP Password"** to generate the required FTP username and password using the up and down scroll keys to create each word. Once complete press **"OK"**.

5. Scroll down to **"Remote Path"** and create a folder to which all downloaded data should be stored on the FTP server.

Figure 9.5 - FTP Login and Password

9.3 Upload files to FTP Server

1. Go back into **"Network Operations"** or **"Upload File"** shortcut (if available) and select the files you wish to upload to the FTP server.

2. Once the file/s has been selected navigate back to **"Upload File (FTP)"** screen and select **"Send Files"**.

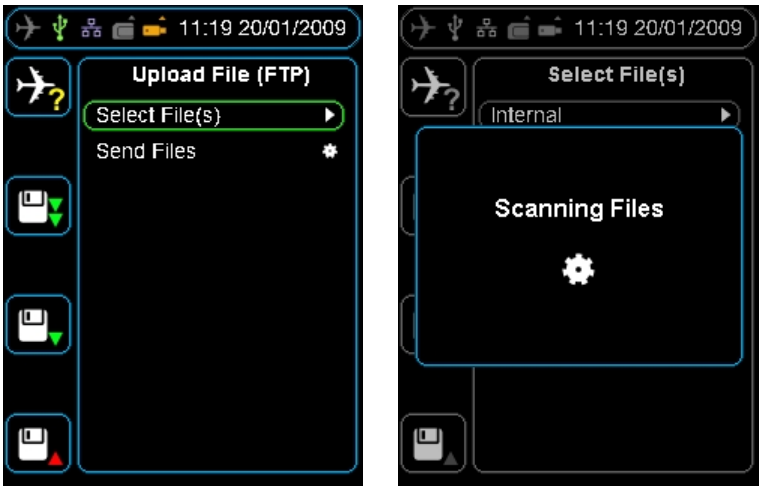

Figure 9.6 - FTP Server File Upload

3. Once the download has completed the PI/2 will display the download as complete or failed which means the FTP settings were incorrect and login failed. Press **"OK"** to exit the screen.

4. Check your nominated remote path of where the files should have been sent to clarify the upload worked correctly.

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