

ProDAB-1 Plus & ProDAB-2 Dual User Guide



Audio & Design

Rev 4.3

Firmware 1.82/1.83

Table of Contents

| | | |
|------|--|----|
| 1. | Initial Configuration | 3 |
| 1.1 | Getting Started | 3 |
| 1.2 | OLED DAB Display screens | 5 |
| 1.3 | Other OLED display ICONs | 5 |
| 2. | Network set-up | 6 |
| 2.1 | Login details for MP3 upload: | 7 |
| 3. | DAB Scan | 8 |
| 4. | Manual DAB Tune | 9 |
| 5. | System Menu | 10 |
| 6. | Change Over | 13 |
| 7. | Carousel Mode | 16 |
| 8. | MP3 menu | 19 |
| 9. | Engineering menu | 20 |
| 9.1 | GPIO Outputs | 23 |
| 9.2 | GPIO Output options available | 23 |
| 9.3 | GPIO Output Pin out | 24 |
| 9.4 | GPIO Inputs | 24 |
| 9.5 | GPIO Inputs options available | 24 |
| 9.6 | GPIO Input Pin out | 25 |
| 9.7 | SNMP Configuration | 26 |
| 10. | Signal Quality troubleshooting | 28 |
| 10.1 | OLED Technical Information Screens | 28 |
| 10.2 | How ProDAB Tunes to a DAB signal | 29 |
| 10.3 | DAB scan | 30 |
| 11. | AES67 Support | 31 |
| 12. | System Block Diagrams | 34 |
| 13. | Rear Panel | 35 |
| 13.1 | Inputs | 35 |
| 13.2 | Outputs | 35 |
| 13.3 | Common Grounds | 35 |
| 13.4 | +5V Current Limited supply | 35 |
| 14. | Firmware Upgrade | 37 |
| 15. | Web Interface | 38 |
| 15.1 | Default Username & Password | 38 |
| 16. | Spectrum Analyser Utility (Front Panel Menu) | 57 |
| | WARRANTY: | 60 |

Audio & Design

51 Paddick Drive, Lower Earley, Reading
Berkshire, RG6 4HF. UK **Tel:** +44 118 324 0046 **Info:** sales@adrl.co.uk **Web:** www.adrl.co.uk

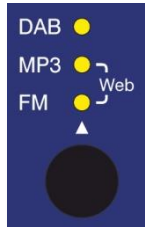
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1. Initial Configuration

1.1 Getting Started



ProDAB takes approximately 35 seconds to boot up, during this time the power LED will flash.



Press to select:
DAB/DAB+
MP3
Web (Internet Radio)
FM



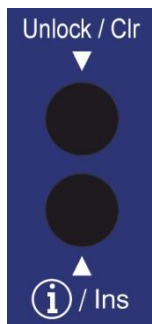
When the OLED display is not in screen saver mode (Pressing any of the “Nav” keys will bring the unit out of screen saver)

DAB Mode: ◀▶ display the available DAB services **OK**, will select the currently displayed service.

MP3 Mode: ◀▶ display the MP3 files available **OK**, will play the currently displayed file.

Web Mode: ◀▶ display available web links **OK**, will select the currently displayed link.

FM Mode: ◀▶ tune FM receiver in 100KHz steps **OK**, will tune to the currently displayed frequency.



Unlocked



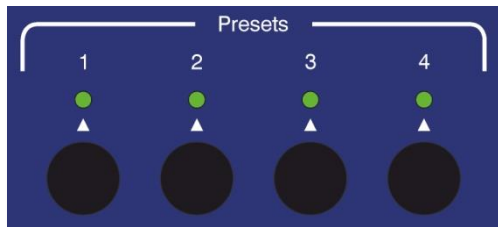
Locked

To Unlock front panel press and hold Unlock button until padlock symbol changes to Unlocked. This button will also jump out of Screen Saver or Main Menu to service display.

When displaying currently selected service, station or track press **i** to change displayed information.


When ProDAB is shipped from the factory it will require a “DAB Scan” to find your local multiplexers. You will see a message “No Stream Selected – Press OK for Menu” Press the **OK** button then select DAB Scan use the ▲ ▼ button to select the type of scan you require and ▶ to start scanning. ProDAB will then select the first service alphabetically that it finds. Press ◀▶ to view all other found services & **OK** to select.

ProDAB User Guide



Press and hold Preset button to save currently selected service, station, MP3 track or Web link.



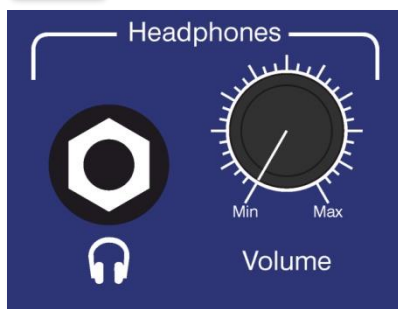
Pressing  whilst the preset directory is shown will cycle through the available presets, including those not available by direct access buttons – i.e. Presets 5 to 15



Presets also store mode, so can be used as a quick way to switch between DAB, FM, MP3 & Web.



Mono/Stereo selection will change the audio output in all modes, including IP stream output.



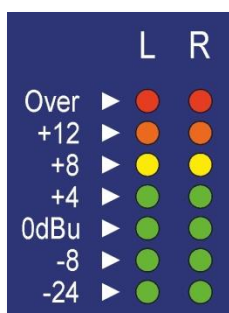
The headphone output is suitable to drive headphones with a minimum impedance of 16Ω



Tuner selection button selects which output is currently being monitored by the headphone output and controlled by the front panel buttons

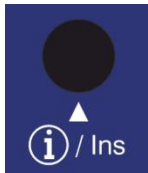


Press and hold Tuner button to change unit mode between Diversity or Independent modes



LED Meters - Over = 1dB below fsd.
0dBu = -18dB below fsd.

1.2 OLED DAB Display screens



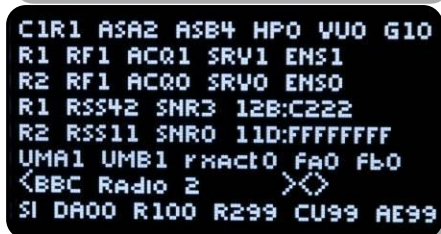
Press Info button to cycle through available display screens



Basic screen with Service Name, program information, bit rate & mode



Information about selected MUX, audio algorithm, CID & SID, allocated Consumers Units



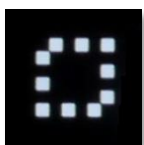
Technical information for both tuners



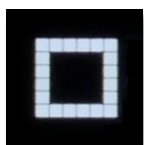
Oscilloscope display to help with setting change over parameters

See Change Over section for more details

1.3 Other OLED display ICONS



Change Over
Disabled



Change Over
Enabled



Change Over
Active



Change Over
Mode
Changing



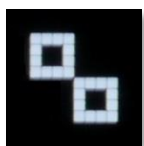
Streaming
port 5000
active



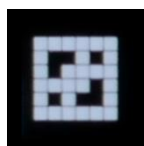
Carousel
Mode
Enabled



LAN
Connected



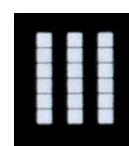
LAN
Disconnected



LAN &
Streaming
Connected



LAN &
Streaming
Web Radio
Mode



AES67 or
Multicast
active

2. Network set-up



Press **OK** then select SYSTEM with ▲▼ then ▶. Set IP address mask & default gateway.



Select NETWORK MENU with ▲ or ▼ then ▶



Choose between Static & DHCP using ◀▶ keys



If Static press ▶ to edit IP address/net mask. Then use ◀▶ to select & ▲▼ to change items then **OK** to save
Note: net mask of 255.255.255.0 is shown as /24 i.e. 24 bits



To edit use ◀▶ to select & ▲▼ to change items then **OK** to save



To edit use ◀▶ to select & ▲▼ to change items then **OK** to save



Note: The embedded web server can be accessed via the set IP address port 80.

ProDAB User Guide



▶ To save STATIC settings



Or if DHCP has been selected ▶ to save



Then ▶ to reboot unit

Units are shipped with the network set to STATIC:

IP address - 192.168.0.7

Net Mask – 255.255.255.0

Default Gateway – 192.168.0.254

DNS – 8.8.8.8 (Google)

To upload MP3 files use a SFTP client such as Filezilla, but, note that we use non-standard port for SSH & SFTP of **43222** See MP3 Menu section below on how to upload files using a USB stick.

2.1 Login details for MP3 upload:

Username - mp3

Password - 2033740

Filezilla download - <https://filezilla-project.org/>



When displaying menus pressing ▲ or ▼ takes you to the next or previous menu item. **OK** is for selecting/accepting the desired action or parameter.

▶ Will take you into sub-menu or editing function.

3. DAB Scan



Press **OK** then select DAB Scan with ▲▼ then ▶



Choose between Tuner 1 & 2 using ◀▶ keys Then ▼ to go to next menu option



Choose between NEW SCAN which will clear current station list or RE-SCAN to append to current list using ◀▶ Then ▼ to go to next menu option



NORMAL SCAN or SLOW SCAN



Press **OK** to start Scan or ◀▶ to change scan starting MUX or ▲▼ to change scan ending MUX.

4. Manual DAB Tune



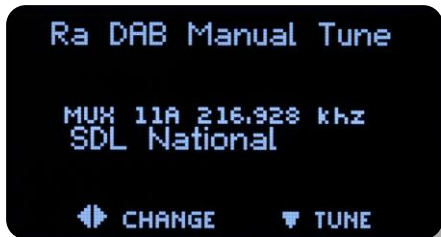
Press **OK** then select Manual DAB Tune with ▲▼ then ►



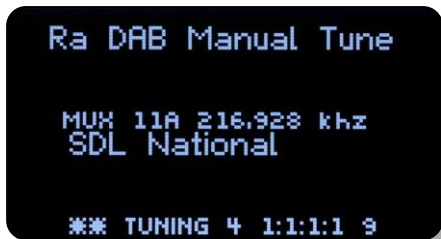
Choose between Radio section A or B using ◀▶ keys
Then ▼ to go to next menu option



Choose between KEEP STATION LIST or CLEAR LIST FIRST
which will clear current station list ◀▶ Then ▼ to go to
next menu option



Select MUX with ◀▶ and ▼ to tune to selected MUX



The unit will attempt to tune to selected MUX.
1:1:1:1 are discovery flags for:
Acquired : Ensemble : Service List : Service Audio



Select service with ◀▶ and **OK** to jump out of menu



If the unit has been used in a different location then it's recommended that you
CLEAR LIST FIRST.
This will ensure that there are no conflicts with previously tuned services SID & CID

5. System Menu



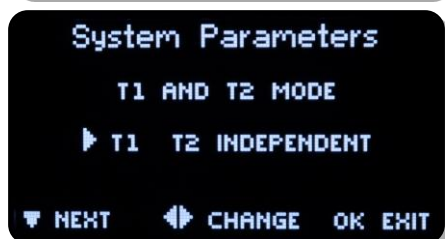
▶ Then ▼ to go to next menu option



▶ to access, option time before unit will automatically lockout front panel keys. Press and hold Unlock/Clr key to unlock.



▶ to access sub-menu, this sets the MUX range for DAB Scan options:
UK Range 10B to 13A
EU Range 05A to 13F



▶ to access sub-menu, this sets Tuner 1 & 2 as fully independent or diversity mode.



▶ to access sub-menu options:
100KHZ
50KHZ



▶ to access sub-menu options:
OFF
AUTO BLEND – Audio will automatically be mixed to Mono as RSSI decreases.

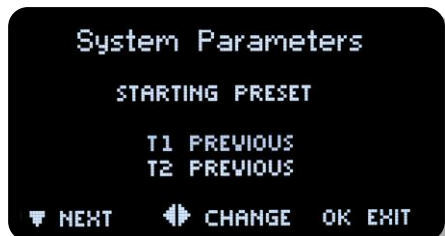


▶ to access sub-menu options:
DISABLED
ENABLED

ProDAB User Guide



▶ to access sub-menu
options:
DISABLED
ENABLED



▶ to access sub-menu
options:
NONE (Disabled) Unit will return to previous setting when powered up
Select Preset which should be used on power up.



▶ to access sub-menu



▶ to access sub-menu



◀▶ to edit



◀▶ to edit



▶ to access Engineering sub-menu



▶ to access Network sub-menu, see Network setup section on previous pages

ProDAB User Guide



▶ to access sub-menu



▶ to access sub-menu, manage copy/delete stored MP3 files

6. Change Over

ProDAB can automatically play out a stored MP3 or switch to Internet radio when audio silence is detected or when RF signal level drops below a set threshold. From version 160/160 Change Over is implemented as a separate software module that is “hard coded” to use Preset 1 as the main program selected and Preset 2 as the “fail over” preset. Once “Armed” front panel controls are locked out. To disable Change Over mode, press and hold the Unlock/Clr front panel button. On ProDAB Dual only Tuner 1 can be set to Change Over mode, Tuner 2 still functions but cannot be changed. Also, from version 160/160 Change Over can be “Armed” and parameters changed via the web GUI.

Change Over modes

| | Preset 1 | Preset 2 |
|---|----------|------------------|
| ✓ | DAB | MP3 or Web |
| ✓ | FM | MP3 or Web |
| ✓ | Web | MP3 or DAB or FM |
| ✗ | FM | DAB |
| ✗ | DAB | FM |



Press **OK** then select SYSTEM with ▲▼ then ►



Then select CH/MENU with ▲▼ then ►



Change over options are: Disabled, ON AF THRESHOLD (Audio level) or ON RSSI THRESHOLD (Received Signal Strength)

ProDAB User Guide

```
Ch/Over Parameters
CH/OVER SET DEFAULT VALUES
  ▶ CUSTOM
AF THR:000 ATT:001 DEC:001
DELAY FRWD:000 BACK:000
▼ NEXT ◀ CHANGE OK EXIT
```

Change over parameters can be optimized for audio threshold/rf RSSI along with delay, attack and decay times. Other options – SMOOTH MUSIC, POP MUSIC, SPEECH, CLASSIC MUSIC & RSSI LEVEL

```
Ch/Over Parameters
AF LEVEL THRESHOLD
  FSD
  ▶ -48dBFS (1/256)
▼ NEXT ◀ CHANGE OK EXIT
```

Change Over, Disabled or detection on audio silence or low RSSI

```
Ch/Over Parameters
PEAK CALC ATTACK RATE
  1/sec
  ▶ 1.00SEC (1/1)
▼ NEXT ◀ CHANGE OK EXIT
```

```
Ch/Over Parameters
TIME LAG - BEFORE GATE
  (SECS)
  ▶ 0
▼ NEXT ◀ CHANGE OK EXIT
```

```
Ch/Over Parameters
TIME LAG - RETURN FROM GATE
  (SECS)
  ▶ 0
▼ NEXT ◀ CHANGE OK EXIT
```

```
Ch/Over Parameters
MP3 REPEAT
  ▶ STOP AT END
▼ NEXT ◀ CHANGE OK EXIT
```

MP3 Repeat options:

STOP AT END – Play once then stop

REPEAT SAME – Play single selected MP3 then repeat.

NEXT IN LIST – Play all MP3 once, then stop

```
BBC Radio 2
DAB C1 AF:071 PK:039 TH:000
AF: _____
PK: _____
GT: _____
EG: _____
SI: _____
```

Oscilloscope display, see notes below for how to use this tool.

ProDAB User Guide

AF is the instant L+R (mixed) volume level for the selected source (i.e channel 1 as "C1") This is shown as a number (0..255) and also as a time plot.

PK is the peak value of the above, and modified by the attack and decay constants settable by the change over menu, "pk" is shown as a number (0..255) and as a time plot.

GT is the raw gate logic level generated by the value **PK** threshold by constant value **TH** which is also settable from the changeover menu and displayed as a number (0..255)

EG Is the extended (smoothed) gate version of **GT** by adding extra lead and lag times to avoid glitches.

Lead and lag are settable from the changeover menu. The **EG** gate is the one that defines the changeover state.

The general procedure is to set the **GT** threshold, attack and decay so that it more or less follows the audio, then adjust the lead and lag times for **EG** so that short glitches are minimised or removed.

SI is the silence gate for the same source, (obtained by a different calculation) and shown here for comparison.

7. Carousel Mode

When enabled ProDAB can cycle through a range of Presets monitoring each one for a set sampling window. If a failure is detected then a SNMP trap is generated for that Preset. The range of Presets is from 1 to 14 and can be set to monitor any range of Presets within these limits. Thresholds for various parameters can be set as detailed below:

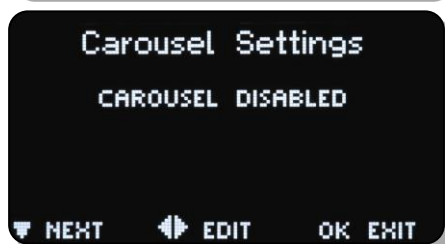
Carousel mode is enable through the System | Engineering | Carousel Menu



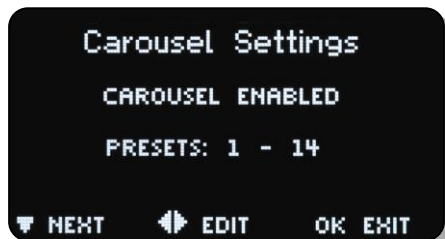
Press **OK** then select SYSTEM with ▲▼ then ►



Then select Carousel Menu with ▲▼ then ►



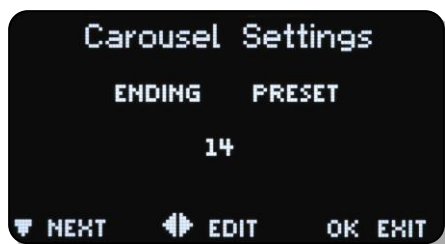
◀ or ▶ to Enable



This icon shows on the main OLED screen when Carousel mode is enabled.



Carousel mode supports Presets 1 through to 14. The first Preset in the range is set here. Note: ProDAB will skip over any Presets in the defined range that have not been defined.



Last Preset in Carousel scan range is set here. Use ◀ or ▶ to change

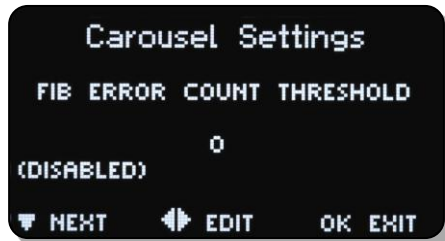
ProDAB User Guide



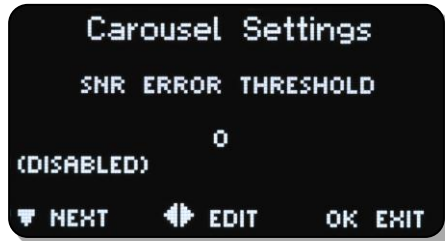
This is the “sampling window” for each Preset.
Range: Disabled, 10 to 60 seconds to 10 second steps.
Use ◀ or ▶ to change.



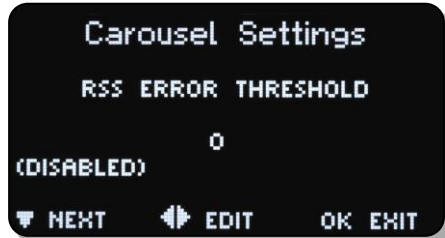
Use ◀ or ▶ to change. Options Tuner 1, Tuner 2
(ProDAB-2 Dual)



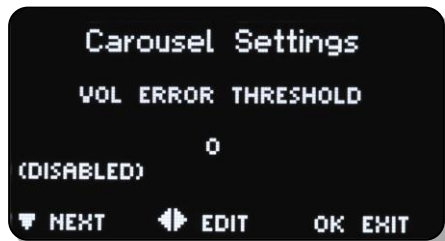
FIB (Fast Information Block) errors in each sampling window.
Range: Disabled, 10 to 250 in steps of 10.
Use ◀ or ▶ to change.



Signal to Noise detector.
Range: Disabled, 1 to 20 in steps of 1dB.
Use ◀ or ▶ to change.



Receiver Signal Strength detector.
Range: Disabled, 1 to 60 in steps of 1dB.
Use ◀ or ▶ to change.



Audio silence detector.
Range: Disabled, 1 to 255 in steps of 1.
Use ◀ or ▶ to change.



Use ◀ or ▶ to enable/disable



Sets how often an SNMP Trap is sent once the set threshold FIB | SNR | RSS or Audio silence is triggered
Range: Disabled, 1 to 15 seconds in 1 second steps
Use ◀ or ▶ to change.

ProDAB User Guide

Front panel indication of the current Preset that is being sampled is shown by the LED/LEDs above the 4 front panel Preset buttons flashing.

Note: As there are only 4 front panel presets the indication of which Preset is currently being sampled is shown as a “binary” count on the front panel LEDs.

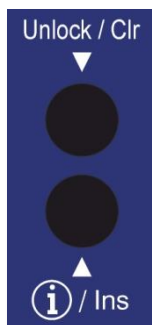
| Preset | <div>Presets</div> <div>1234</div> | | | |
|--------|------------------------------------|---|---|---|
| 1 | ● | ● | ● | ● |
| 2 | ● | ● | ● | ● |
| 3 | ● | ● | ● | ● |
| 4 | ● | ● | ● | ● |
| 5 | ● | ● | ● | ● |
| 6 | ● | ● | ● | ● |
| 7 | ● | ● | ● | ● |
| 8 | ● | ● | ● | ● |
| 9 | ● | ● | ● | ● |
| 10 | ● | ● | ● | ● |
| 11 | ● | ● | ● | ● |
| 12 | ● | ● | ● | ● |
| 13 | ● | ● | ● | ● |
| 14 | ● | ● | ● | ● |

8. MP3 menu

ProDAB can store internally up to 12GB of MP3 files. To upload MP3 files to the unit, copy your files to the root of a USB stick formatted as FAT32 and insert in to any of the USB sockets on the rear of the unit.

File names for MP3 files **MUST NOT** contain spaces.

If you are in MP3 mode whilst uploading files, then you need to change mode and back to MP3 in order to update the file list.



Delete files

With MP3 file operations press info/Ins key to upload files and Unlock/Clr key to delete files

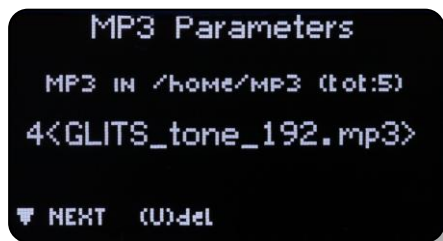
Upload files



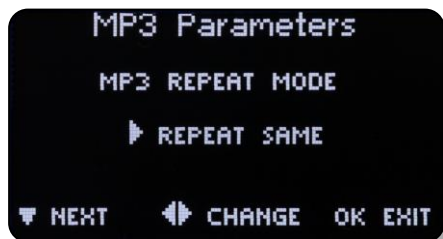
MP3 file can be selected on your local PC and uploaded via the web interface.



First option in MP3 menu allows you to copy or Delete files on the USB stick. Choose file using keys press **Ins** key to upload to ProDAB or **Unlock** key to delete. key takes you to next menu



MP3 files on the ProDAB are stored in /home/mp3 this menu allows you select () and delete stored files.



MP3 playback options press to change: Repeat current track



9. Engineering menu



▶ key takes you to next menu level



▶ key takes you to next menu level



▶ key takes you to simplified Tone Generator menu options

▼ key takes you to next menu



▶ key takes you to Tone Generator menu options

▼ key takes you to next menu



▶ key takes you to AES3 menu options

▼ key takes you to next menu

Set AES 3 parameters such as sampling frequency.



Press ◀▶ to edit, then ▲▼ to change

▼ key takes you to next menu



Press ◀▶ to edit, then ▲▼ to change

▼ key takes you to next menu

ProDAB User Guide



Press ◀▶ to edit, then ▲▼ to change
▼ key takes you to next menu

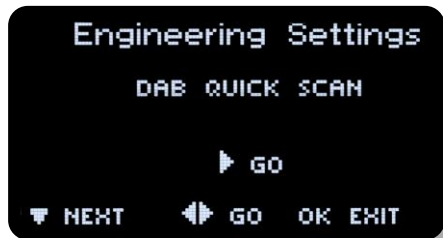


Warning ▶ key will reboot system



Full or partial spectrum scan of FM band

▶ key takes you to FM Scan menu options
▼ key takes you to next menu



Full or partial spectrum scan of DAB MUX/Services

▶ key takes you to DAB Quick Scan menu options
▼ key takes you to next menu



Application software and FPGA versions

▼ key takes you to next menu



DAB (and FM, select FM mode first) chipset firmware versions

DAB - 6.04

FM - 4.0C

▼ key takes you to next menu



Select source for Icecast compatible IP stream output.
Either follows the selected "Tuner" (Front panel or web GUI), or fixed to the output of Tuner 1

◀▶ keys selects menu options
▼ key takes you to next menu

ProDAB User Guide



Allows additional calibration of DAB RSSI level
Press ◀▶ to edit, then ▲▼ to change
▼ key takes you to next menu



Allows additional calibration of FM RSSI level
Press ◀▶ to edit, then ▲▼ to change
▼ key takes you to next menu



Default map settings for GPIO Outputs.
(compatible with ProDAB-1)
▶ key takes you to next menu options
▼ key takes you to next menu



Default map settings for GPIO Inputs.
(compatible with ProDAB-1)
▶ key takes you to menu options
▼ key takes you to next menu



▶ key takes you to SNMP menu options
▼ key takes you to next menu



▶ key takes you to AES67 menu options
▼ key takes you to next menu

9.1 GPIO Outputs



◀▶ & ▲▼ to change
Press Mono button to toggle
active High (+)
or active Low (-)

Default GPIO Output mapping and pin out

| | |
|----------------|---|
| GPO-0 (pin 23) | Low = In changeover to MP3, Tuner 1 |
| GPO-1 (pin 22) | Low = RDS TA Traffic Flag active, Tuner 1 |
| GPO-2 (pin 21) | Low = Mono, Tuner 1 |
| GPO-3 (pin 20) | Low = Audio silence detect, Tuner 1 |
| GPO-4 (pin 19) | Low = RSSI below threshold, Tuner 1 |
| GPO-5 (pin 10) | Low = Audio silence detect, Tuner 2 |
| GPO-6 (pin 9) | Low = Network Fail |

9.2 GPIO Output options available

OLED Display

| | |
|-------------------|---|
| Changeover | Changeover Active |
| Power detect wav | Output toggles at 1.5Hz |
| Power detect '1' | Output low whilst unit is operational |
| Carousel Trap | Carousel Trap Active |
| Stream Active | Streaming output has active connection/s |
| Ra AF Silence | Silence detected on Tuner 1 (internal) |
| CPU AF Silence | Silence detected on Streaming Output (internal) |
| SNR Low Ra | Signal to Noise low on Tuner 1 |
| Diversity | Unit in Diversity mode |
| Mono Flag on DACb | Output 2 set to mono (DAB, FM, MP3 or Web) |
| Network Fail | No network connection |
| Silence on DACb | Silence detected on Output 2 (internal) |
| RSS Low Ra | Received Signal Strength Low Tuner 1 |
| Silence on DACa | Silence detected on Output 1 (internal) |
| Mono Flag on DACa | Output 1 set to mono (DAB, FM, MP3 or Web) |
| FM TA Flag | FM TA Flag active Tuner 1 |

Default GPIO allocation version 1.72/1.75 firmware onwards

9.3 GPIO Output Pin out:

| | |
|----------------|---|
| GPO-0 (pin 23) | Low = In changeover to MP3, Tuner 1 |
| GPO-1 (pin 22) | Low = RDS TA Traffic Flag active, Tuner 1 |
| GPO-2 (pin 21) | Low = Mono, Tuner 1 |
| GPO-3 (pin 20) | Low = Audio silence detect, Tuner 1 |
| GPO-4 (pin 19) | Low = RSSI below threshold, Tuner 1 |
| GPO-5 (pin 10) | Low = Audio silence detect, Tuner 2 |
| GPO-6 (pin 9) | Low = Network Fail |
| GPO-7 (pin 8) | Low = Not Defined |

Common Grounds: pins 2, 3, 4, 11, 12 & 13

+5V Current Limited: pins 24 & 25

9.4 GPIO Inputs



◀ & ▶ to change

9.5 GPIO Inputs options available

| Option | Activate (Closing contact to GND) | Release (Open) |
|--------|-----------------------------------|----------------------------|
| 0 | No action | No action |
| 1 | Preset 1 Tuner 1 | No Action |
| 2 | Preset 2 Tuner 1 | No Action |
| 3 | Preset 3 Tuner 1 | No Action |
| 4 | Preset 4 Tuner 1 | No Action |
| 5 | Preset 1 Tuner 2 | No Action |
| 6 | Preset 2 Tuner 2 | No Action |
| 7 | Preset 3 Tuner 2 | No Action |
| 8 | Preset 4 Tuner 2 | No Action |
| 9 | Preset 2 Tuner 1 | Return to Preset 1 Tuner 1 |
| 10 | Preset 3 Tuner 1 | Return to Preset 1 Tuner 1 |
| 11 | Preset 4 Tuner 1 | Return to Preset 1 Tuner 1 |
| 12 | Preset 1 Tuner 1 | Return to Silence |
| 13 | Preset 2 Tuner 1 | Return to Silence |
| 14 | Preset 3 Tuner 1 | Return to Silence |
| 15 | Preset 4 Tuner 1 | Return to Silence |

Default GPIO allocation version 1.30 firmware onwards

9.6 GPIO Input Pin out:

| | |
|-----------------|---------------------------------|
| GPIO-0 (pin 18) | Gnd to select preset 1, Tuner 1 |
| GPIO-1 (pin 17) | Gnd to select preset 2, Tuner 1 |
| GPIO-2 (pin 16) | Gnd to select preset 3, Tuner 1 |
| GPIO-3 (pin 15) | Gnd to select preset 4, Tuner 1 |
| GPIO-4 (pin 14) | Gnd to select preset 1, Tuner 2 |
| GPIO-5 (pin 1) | Gnd to select preset 2, Tuner 2 |

Common Grounds: pins 2, 3, 4, 11, 12 & 13

+5V Current Limited: pins 24 & 25

9.7 SNMP Configuration:



- ▶ key takes you to SNMP menu options
- ▼ key takes you to next menu



- ◀ & ▶ to change
- ▼ key takes you to next menu



- ◀ & ▶ to change
- ▼ key takes you to next menu



- ◀ & ▶ to change
- ▼ key takes you to next menu



- ◀ & ▶ to change
- ▼ key takes you to next menu



- ◀ to change, 0 to Disable
- ▼ key takes you to next menu



- ◀ to change
- Full list of options below:

ProDAB User Guide

SNMP Traps:

| Trap | Description | Typical Octet String |
|----------|---|--|
| FM TA | FM Traffic Flag | Ra FM TA flag ON 97000KHz Rb FM TA flag ON 92500KHz |
| RSS | Received Signal strength | Ra RSS Dropped low Ra RSS Recovered Hi Rb RSS Dropped low Rb RSS Recovered Hi |
| DAC | Audio silence detect at audio outputs | Da Silence Started Da Silence Ends Db Silence Started Db Silence Ends |
| RA | Audio silence detect at DAB/FM chip set outputs | Ra Silence Started Ra Silence Ends Rb Silence Started Rb Silence Ends |
| Chover | Change Over state | Change over Started ON Change over Ended OFF |
| Carousel | | Carousel(trap) preset:2 <BBC Radio 4 > rss:0(<10) |
| Summary | Use for Debugging only | Da sil:00 DAB <BBC Radio 2 > rs:38 sn:04 |

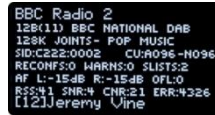
Note: Ra/Da = Tuner 1, Rb/Db = Tuner2

10. Signal Quality troubleshooting

10.1 OLED Technical Information Screens



Press to cycle through screens



MUX, SID (Number of Services on current MUX & MUX ID)

SID:CID, CU Start Address & Number of Cus allocated

Number of Re-configs, Re-config warnings & new Service Lists since tuned to this MUX

Received Signal Strength
Signal to Noise ratio
Carrier to Noise ratio
Errors since tuned to this MUX

```

Absolute Rad 80s
11A-C1CE(18)SDL NATIONAL
80K MONO - POP MUSIC
SID:C8D8:0008 CU:A386-N058
RECONF:0 WARNS:0 SLISTS:2
AF L:-06dB R:-06dB OFL:0
RSS:41 SNR:15 CNR:20 ERR:8
    
```

Service Name

MUX & MUX ID

RS = Received Signal Strength
SN = Signal to noise
CN = Carrier to Noise Ratio
ER = Error count since tuned to this MUX
QU = Data signal quality

```

Absolute Rad 80s
11A SDL National
C8D8:0008 80KB (M) POP MUSIC
RS:41 SN:15 CR:16 ER:8 QU:100
* 02/18 TALKSPORT 2
* C1D8:0002 64KB
* CU A:048 N:048 P:3 M:0
    
```

Service Name

* Rolling information of all services on this MUX
A = CU Start Address
N = Number of CU allocated
P = Protection Level
M = Mode DAB, DAB+, Data Etc.

Service Discovery Flags

Tuner 1 (Radio A)

RF = Radio Tuned
AQ = Acquired (Data Locked)
RS = RSSI
EN = Ensemble
SL = Service List
SV = Service Audio

HP0 = Headphone output Tuner 1
Vu0 = VU Monitoring Tuner1
G20 = Current GPIO Output

RS = Received Signal Strength
SN = Signal to noise
DC = Signal Quality 0-10
CN = Carrier to Noise Ratio
Current MUX - 11A

Current MUX, SID & Service Name for Radio A

Silence detectors

```

DATA 1A1 1B3 HP0 VU0 G20
A:RF1 AQ1 RS1 EN1 SL1 SV1
b: FM 0
A:RS41 SN15 DC08 CN20 11A
b: FM RS00 SNO
VA1 UB1 SPA1 SPB3 MA0 Mb0
A:11A:C8D8 <Absolute Rad 80s
DA00 RA00 RB99 CU99 AA99
    
```

10.2 How ProDAB Tunes to a DAB signal

When tuned to a new RF DAB channel (as shown by the RF flag), ProDAB will first attempt to obtain low level data sync with the received digital stream. The AQ (acquisition) flag will be set when this is stable. At this point, a rough measure of signal level is also recorded (RSSI level). ProDAB will then attempt to obtain ensemble information (EN flag), and then wait for, and download, the service list (SL flag), which contains the list of services with their SID and CID numbers. Finally, ProDAB will lock onto the desired audio service (SV flag) and audio enabled.

If no multiplexer is present, or the signal too low or bad, the AQ flag will not be set, even though RSS may show some positive value (background noise or other carriers) With a good clean DAB signal (i.e. RSS greater than 30), the AQ flag should be set within 2-3 seconds. The Ensemble flag (EN) should follow within a second or so, and the Service list (SL) after a few more seconds. If the "wanted" SID/CID services are not present in the service list, the audio will not be enabled. Note that ProDAB will accept a CID value of FFFF as a wildcard, and will lock to the first SID, whatever its CID value present in the service list.

The above tuning status flags are shown on the LDC display in the fourth information display page in real time form (second line from top). (enter (I) four times) This can be used to show how ProDAB is tuning and how long it is taking to sync to the various data blocks.

The seventh line of the second information display page (enter (I) once) shows the current RSSI, SNR (Signal to noise ratio) CNR (carrier to noise ratio) and the accumulated number of block errors to date. Observing the latter over a short period (e.g. a minute) can give a good indication on how good the received stream is.

The flags are also shown when in DAB manual tune mode (bottom row) the message format being:

("nn" and "mm" are count up timers)

** TUNING nn RF:AQ:RS:EN:SL mm **

To help visualise the number of DAB multiplexers in the band, a "quick DAB scan" function is available under the engineering menu (/SYSTEM/ENGINEERING/QUICK DAB SCAN) This shows a continuous scan of the relevant band together with their RSSI and SNR levels. This can be left running continuously to visualise a snapshot of all multiplexers present.

Note: See page 9 for more information about how to manually DAB tune.

10.3 DAB scan



▶ key takes you to next menu level



Press ◀▶ to change

Options:

Radio A

Radio B

▼ key takes you to next menu



Press ◀▶ to change

Options:

RESCAN (Keep Station List)

NEW SCAN (Clear List)

▼ key takes you to next menu



Press ◀▶ to change

Options:

THOROUGH SCAN (Takes Longer)

NORMAL SCAN (Faster)

▼ key takes you to next menu



Press OK to start scan



The unit will scan all DAB MUX frequencies and display any MUXes it finds along with RSSI & SNR. This will run continuously until stopped by pressing the OK button

11. AES67 Support

From firmware version 171/170 ProDAB supports basic AES67 connectivity with audio algorithms for G.711 & PCM 24bit as well as multicast streaming output.



Select Main Menu | SYSTEM | Engineering Menu | AES67 Menu ▶



This is the Public IP address, set this if you are using NAT or Public IP address is different from LAN IP Address

To edit IP address use ◀▶ to select & ▲▼ to change items then **OK** to save.

Press ▼ Next Menu



To edit Port use ◀▶ to select & ▲▼ to change items then **OK** to save. Note traditional SIP port is 5060

Press ▼ Next Menu



Leave as 000.000.000.000 if you wish SIP to negotiate Remote IP address otherwise, to edit IP address use ◀▶ to select & ▲▼ to change items then **OK** to save.

Press ▼ Next Menu



Leave as 00000 if you wish SIP to negotiate Remote Port address otherwise, to edit Port use ◀▶ to select & ▲▼ to change items then **OK** to save.

Press ▼ Next Menu



With Timeout set to zero, ProDAB will continuously send UDP audio packets until it receives a "BYE" command via SIP.

To change Timeout use ◀▶ to select & ▲▼ to change items then **OK** to save.

Press ▼ Next Menu

ProDAB User Guide



By default ProDAB will answer any calls made to SIP:xxx@ProDAB.IP.Address. Calling SIP:255@ProDAB.IP.Address will access built-in 1kHz tone generator.

To edit number use ◀▶ to select & ▲▼ to change items then **OK** to save.

Press ▼ Next Menu



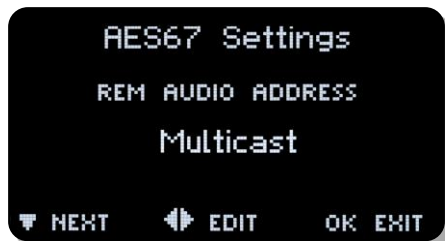
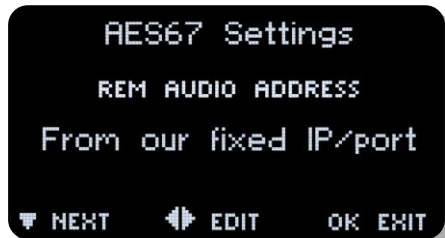
ProDAB supports G.711 & PCM24bit (48,000 kHz Stereo) audio modes. To edit mode use ◀▶ to select & ▲▼ to change items then **OK** to save.

Press ▼ Next Menu



ProDAB can determine the IP address of units trying to connect using the following methods:

- From UDP source address (default)
- From Contact Field
- From fixed IP/port – set in earlier menus.
- Multicast



When Multicast is selected ProDAB will immediately start sending Multicast packets.

Typical values for Axia X-node using multicast

IP Address 239.192.x.x

Port 5004



Multicast Address of unit

ProDAB User Guide



Multicast Port



Not needed for multicast

To set ProDAB for multicast transmit:

- Go to AES67 menu
- Enter multicast address under "rem audio ip addr e.g. 239.192.006.001
- Enter multicast port under "rem audio port" e.g. 5004
- Enter multicast protocol (96) under "audio protocol"
- Enter "000" under "audio timeout" (unless time limited multicast is wanted)
- Select multicast under "rem audio address"

This will start multicast immediately on the given port

To turn off multicast (from AES67 menu):

- Select other than multicast under "rem audio address"

To select MULTICAST reception on an Axia xNode:

- Log into the axia web interface
- Select "destinations"
- Under line # enter "239.192.6.1:5004" then apply

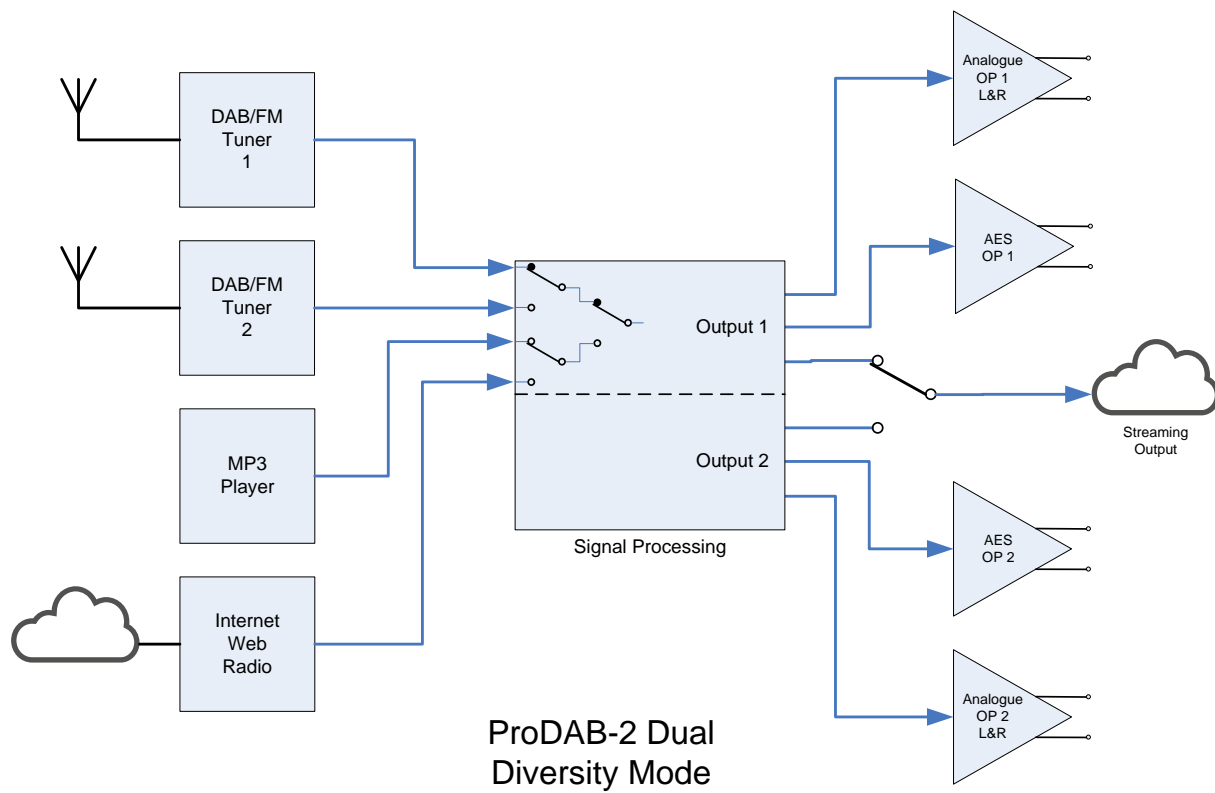
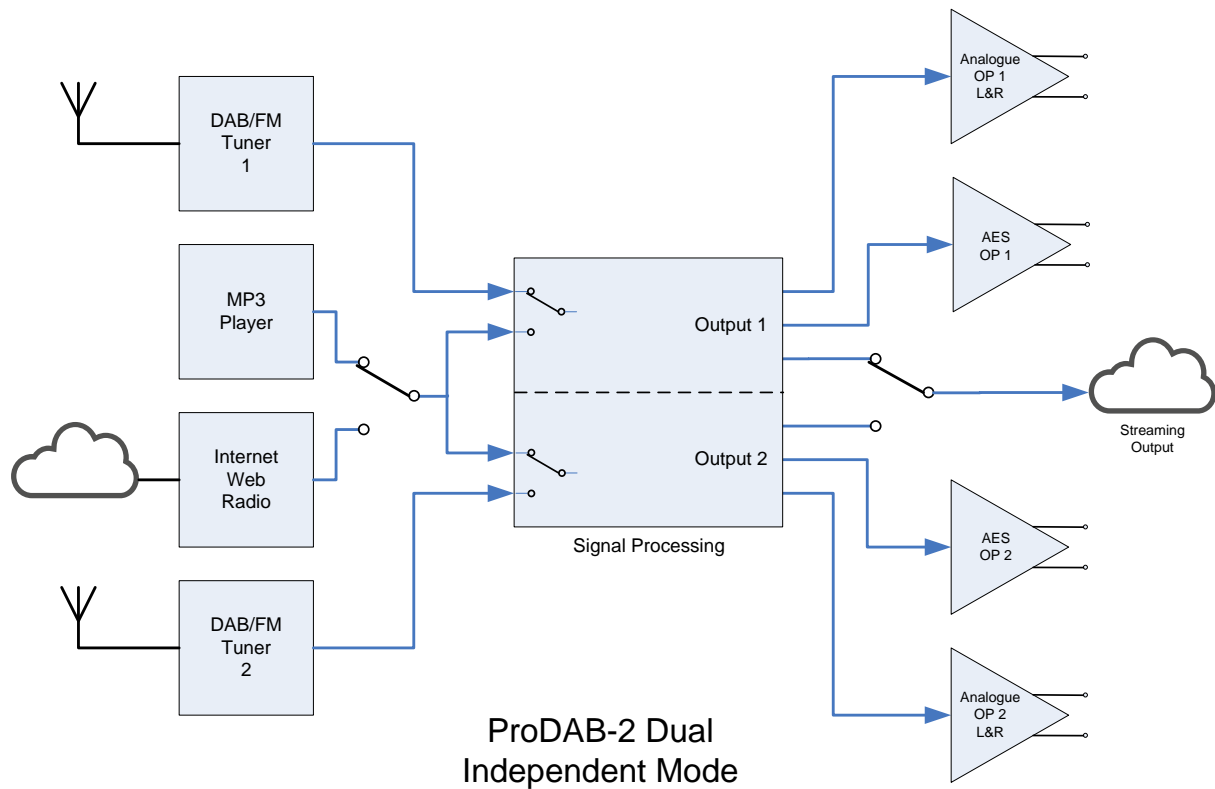
xNode will start receiving immediately, note the displayed entry may change

Note: Axia xNode supports multicast addresses by default in the range 239.192.x.x

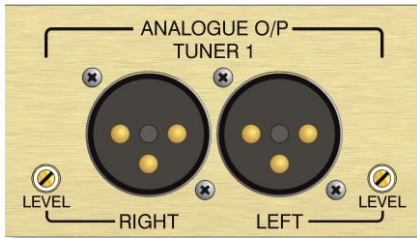
To select UNICAST reception on the xNode:

- Log into the xNode web interface
- Select "destinations"
- Under line # enter "sip:1@239.192.6.1:5004" then apply

12. System Block Diagrams



13. Rear Panel



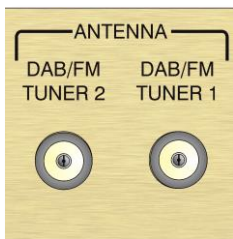
Analogue balanced audio outputs, gain adjustable from 0dBu to +20dBu.

Pin 1 = GND
Pin 2 = + output
Pin 3 = - output



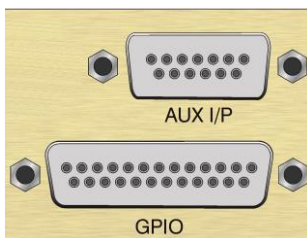
AES3 digital output, sampling rate adjustable via menu to 48Kbps or 96Kbps

Pin 1 = GND
Pin 2 = + output
Pin 3 = - output



Antenna input for DAB & FM

F-Type female connector fitted to unit.



Default GPIO allocation version 1.30 firmware onwards

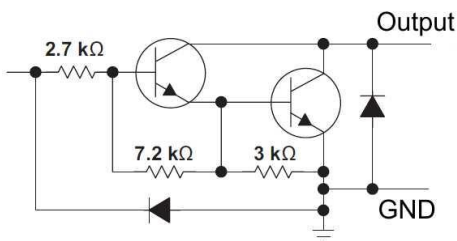
13.1 Inputs:

| | |
|-----------------|---------------------------------|
| GPIO-0 (pin 18) | Gnd to select preset 1, Tuner 1 |
| GPIO-1 (pin 17) | Gnd to select preset 2, Tuner 1 |
| GPIO-2 (pin 16) | Gnd to select preset 3, Tuner 1 |
| GPIO-3 (pin 15) | Gnd to select preset 4, Tuner 1 |
| GPIO-4 (pin 14) | Gnd to select preset 1, Tuner 2 |
| GPIO-5 (pin 1) | Gnd to select preset 2, Tuner 2 |

13.2 Outputs:

| | |
|----------------|---|
| GPO-0 (pin 23) | Low = In changeover to MP3, Tuner 1 |
| GPO-1 (pin 22) | Low = RDS TA Traffic Flag active, Tuner 1 |
| GPO-2 (pin 21) | Low = Mono, Tuner 1 |
| GPO-3 (pin 20) | Low = Audio silence detect, Tuner 1 |
| GPO-4 (pin 19) | Low = RSSI below threshold, Tuner 1 |
| GPO-5 (pin 10) | Low = Audio silence detect, Tuner 2 |
| GPO-6 (pin 9) | Low = Network Fail |
| GPO-7 (pin 8) | Low = Not Defined |

Darlington (Open Collector) Output



13.3 Common Grounds: pins 2, 3, 4, 11, 12 & 13

13.4 +5V Current Limited supply: pins 24 & 25

ProDAB User Guide

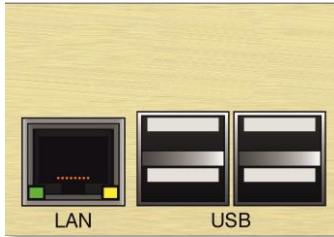


RS232 I/O – ProDAB Production units allows access to operating system console at 115k baud.

Pin 2 = Tx data

Pin 3 = Rx data

Pin 5 = GND



RJ45 LAN connector 10/100 auto negotiation MDX

USB Can be used for additional MP3 storage.



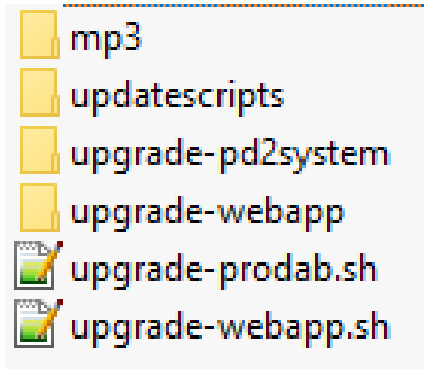
IEC Mains inlet – Fuse T3.15A 90/240VAC

Provision for IEC retaining clip and M4 Earth tag

14. Firmware Upgrade

Firmware upgrades will be supplied as a package of files in ZIP format.

This can either be applied directly from the web GUI (Version xxx onwards) by browsing to the ZIP file or by unzipping files to the root of a USB flash drive formatted FAT32



Root of USB flash drive should look like above.

Insert the flash drive into one of the USB sockets on the rear on the unit.

After a few minutes the ProDAB will re-start using the new firmware.

From version 160/160 there is new DAB front-end firmware available (version 6.0.4) please contact sales@adrl.co.uk if you wish to apply this upgrade.

15. Web Interface

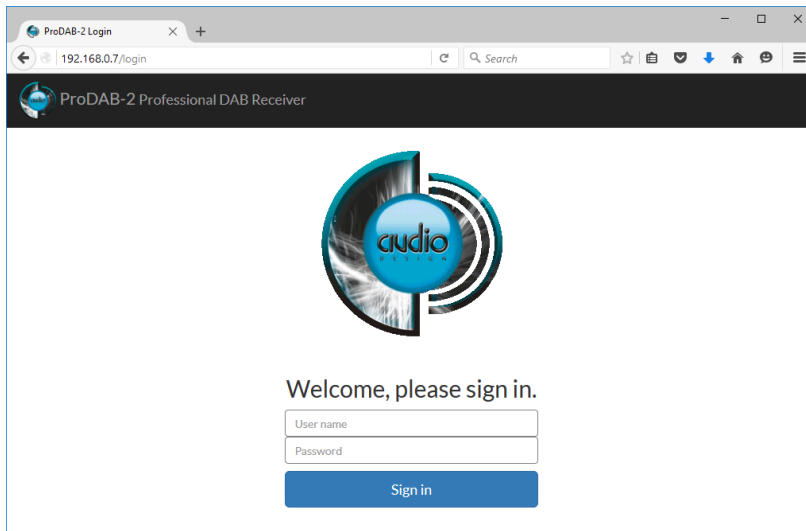
Using a web browser navigate to the IP address of the ProDAB (default 192.168.0.7)

15.1 Default Username & Password:

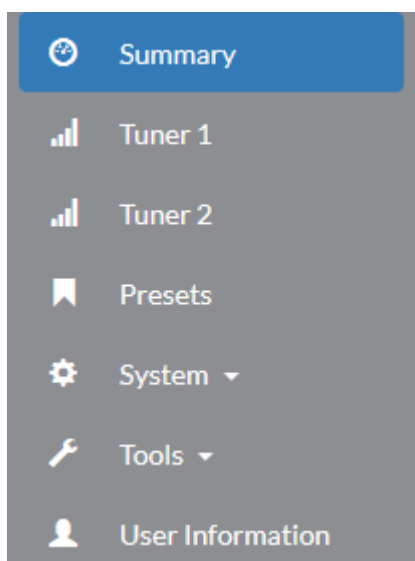
Sign in as:

Username – admin

Password – 1234

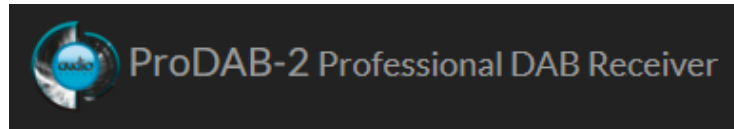


Note that the web interface has been tested with the following browsers: Firefox, Chrome & Internet Explorer version 10 onwards



System information & User Information is only available when you sign In as Admin. Users can only be added or changed when you sign in as Admin.

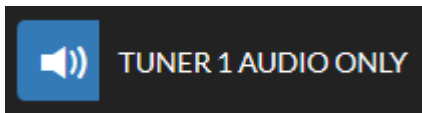
ProDAB User Guide



Info Bar ICONs



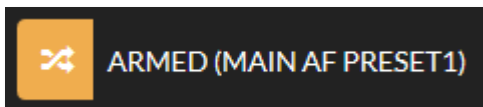
Click here to play audio for currently selected tuner. Note: that when option “STREAMER SOURCE” is set to “Tuner 1 Only” in Engineering menu you can only listen to Tuner 1.



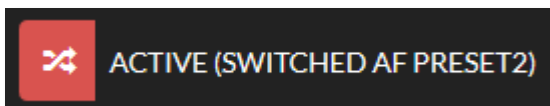
Click here to turn off audio monitor stream.



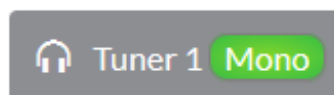
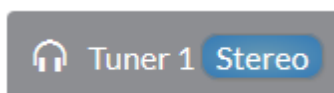
Change Over mode disabled



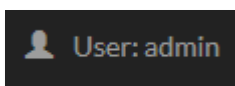
Change Over “Armed” Set to AF Threshold mode, Preset 1 currently selected



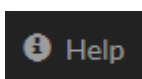
Change Over “Active” Set to AF Threshold mode, Preset 2 currently selected



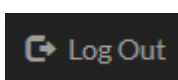
Click on Mono or Stereo indicator to change hardware output mode of ProDAB. This is independent of received service or station. Tuner 1 or 2 can be set separately.



This is the user you are currently signed in as.

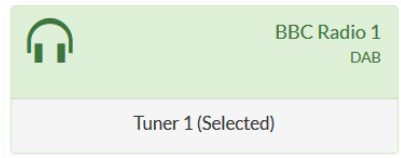


Click here to access or download an “embedded” copy of the User Guide as a PDF.



Click here to Sign Out.

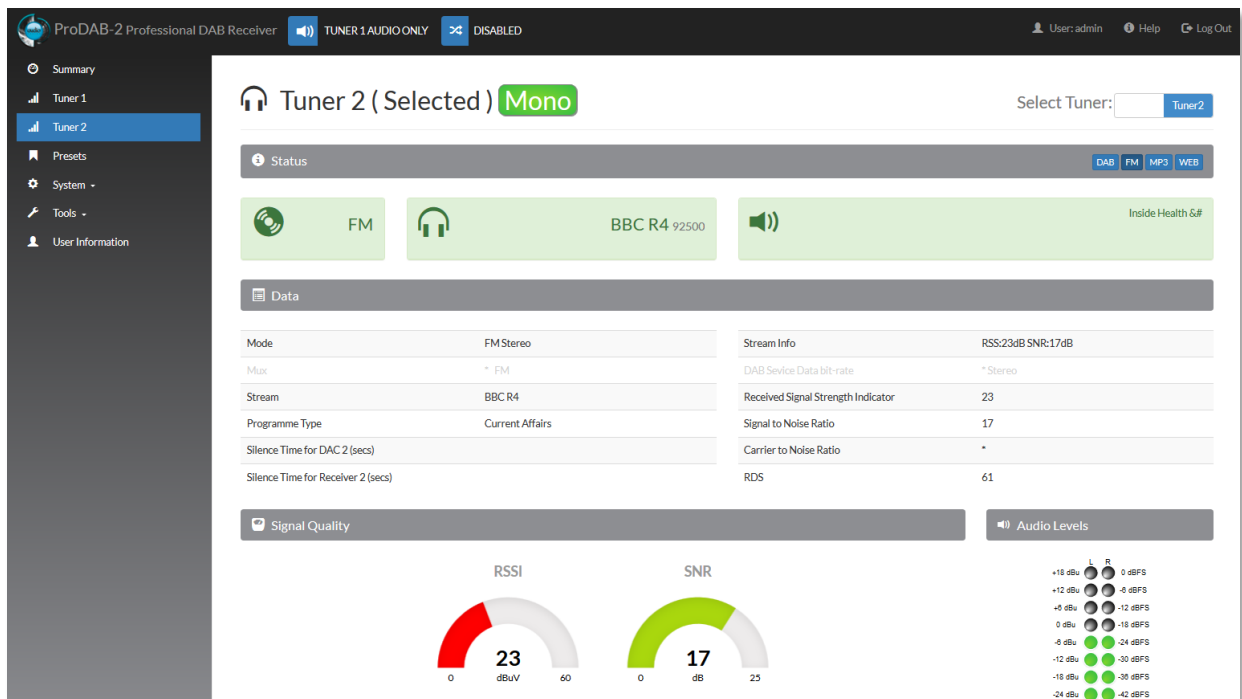
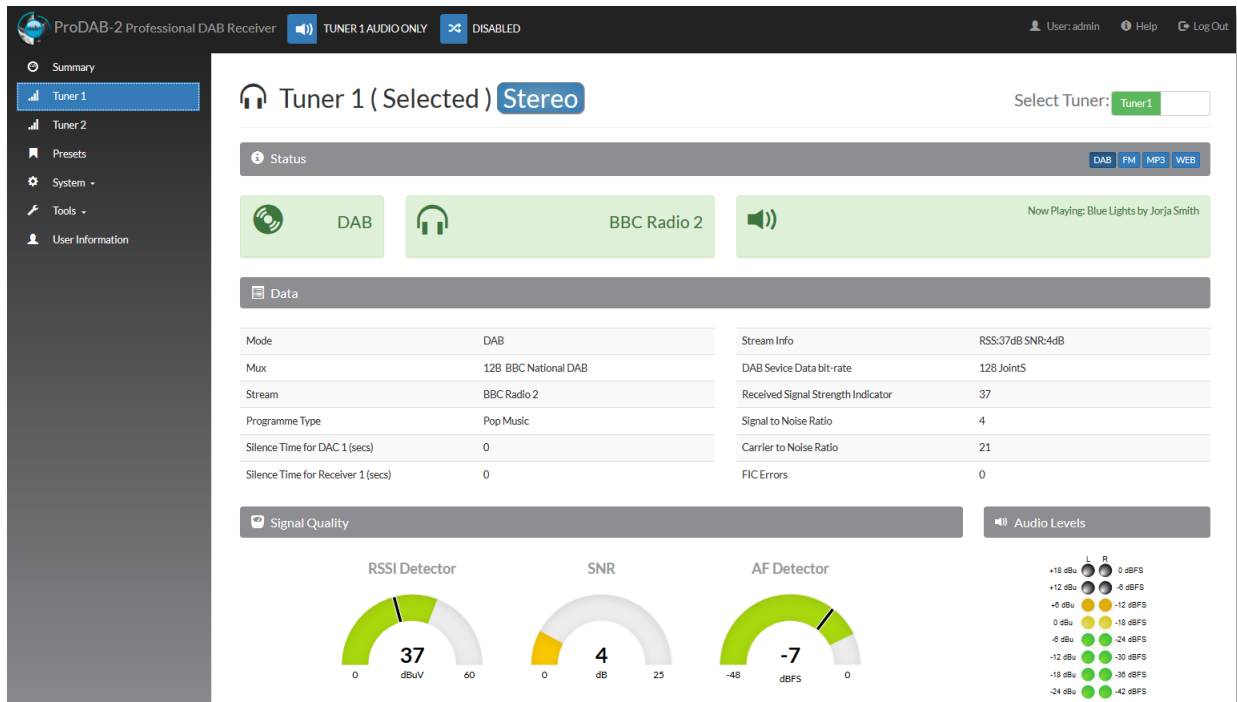
ProDAB User Guide



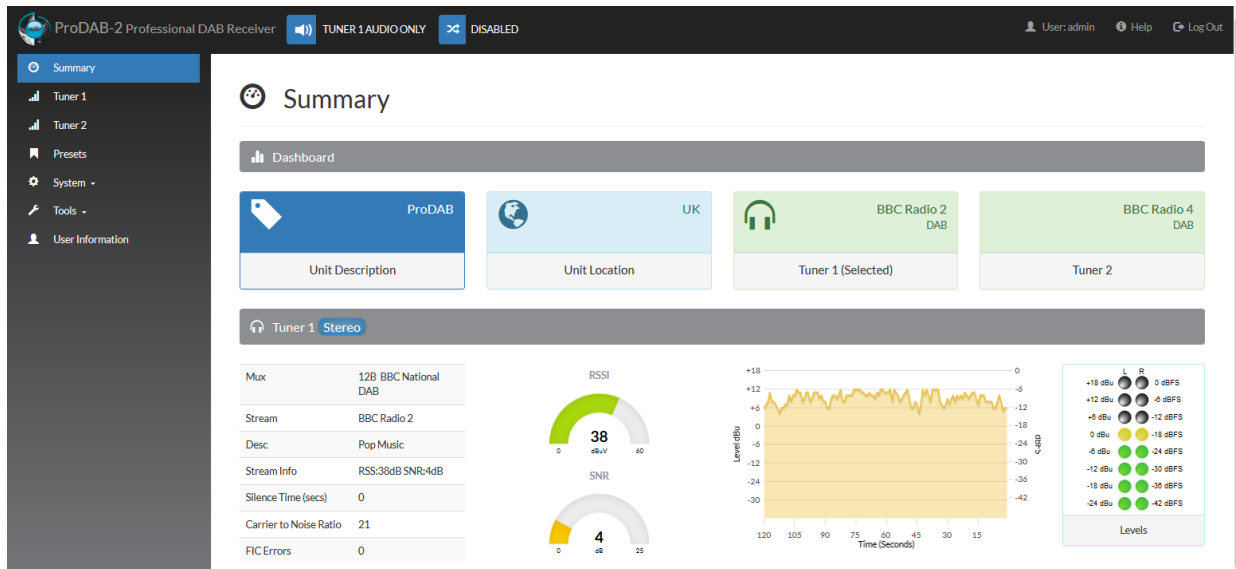
In order to control a Tuner using the web interface, it has to be selected in the individual Tuner Info page.

Select Tuner: Tuner1

Select here



ProDAB User Guide



The Summary screen shows information about both tuners on Dual units and Tuner 1 on ProDAB-1 Plus.

ProDAB User Guide

DAB Mode Info

| | |
|---------------------|------------------|
| Mux | BBC National DAB |
| Stream | BBC Radio 1 |
| Desc | Pop Music |
| Stream Quality Info | RSS:42dB SNR:4dB |
| Signal Credibility | 8 |
| AF Peak | AF pk:92 |
| Silence Time (secs) | * |

MP3 Mode Info

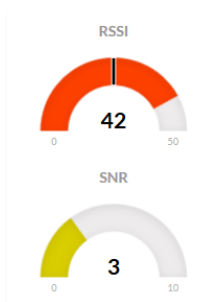
| | |
|---------------------|--------------------|
| Mux | MP3 |
| Stream | GLITS_tone_192.mp3 |
| Desc | MP3 |
| Stream Quality Info | 199 of 480 kB |
| Signal Credibility | 0 |
| AF Peak | AF pk:118 |
| Silence Time (secs) | * |

FM Mode Info

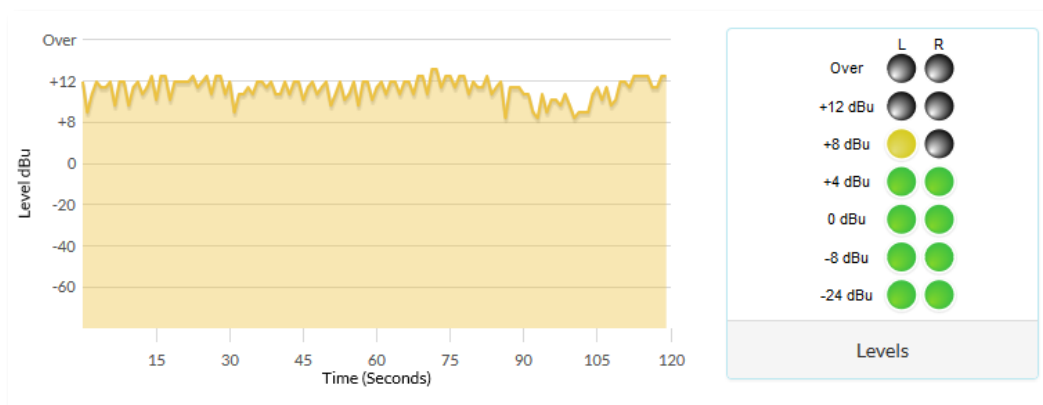
| | |
|---------------------|-------------------|
| Mux | FM |
| Stream | BBC R3&# |
| Desc | Classical Music |
| Stream Quality Info | RSS:38dB SNR:12dB |
| Signal Credibility | * |
| AF Peak | AF pk:44 |
| Silence Time (secs) | * |

Web Radio Mode Info

| | |
|---------------------|--------------------------|
| Mux | WEB |
| Stream | ADR-ProDAB-Test-2 |
| Desc | http://92.27.244.13:5000 |
| Stream Quality Info | 222 kb total |
| Signal Credibility | 0 |
| AF Peak | AF pk:26 |
| Silence Time (secs) | * |

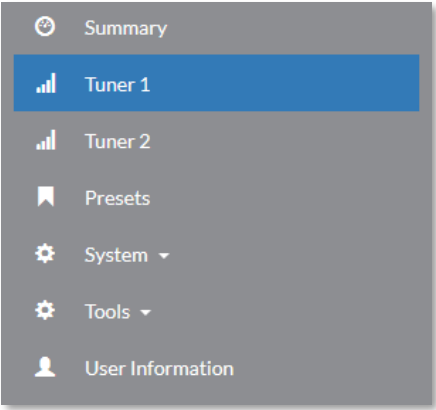


RSSI (Received Signal Strength Indicator) and SNR (Signal to Noise Ratio) for DAB reception. Note: Black bar on RSSI gauge is the threshold for change over set in the Change Over menu.

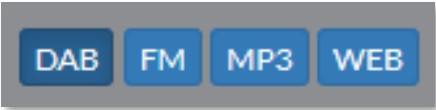


Real time audio level indicators. LED meter 0dBu audio output is factory set to 18dB below FSD (Full Scale Digits)

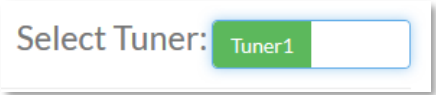
ProDAB User Guide



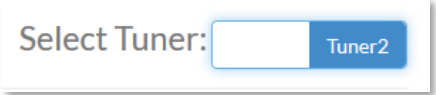
Select for more detailed information to be displayed.



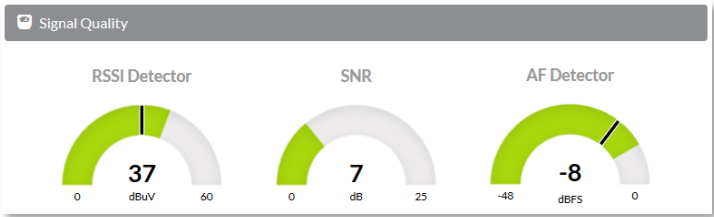
Current mode selected.
Note: only one tuner at a time can be set to Web or MP3 mode.



Click here to take control of a tuner.

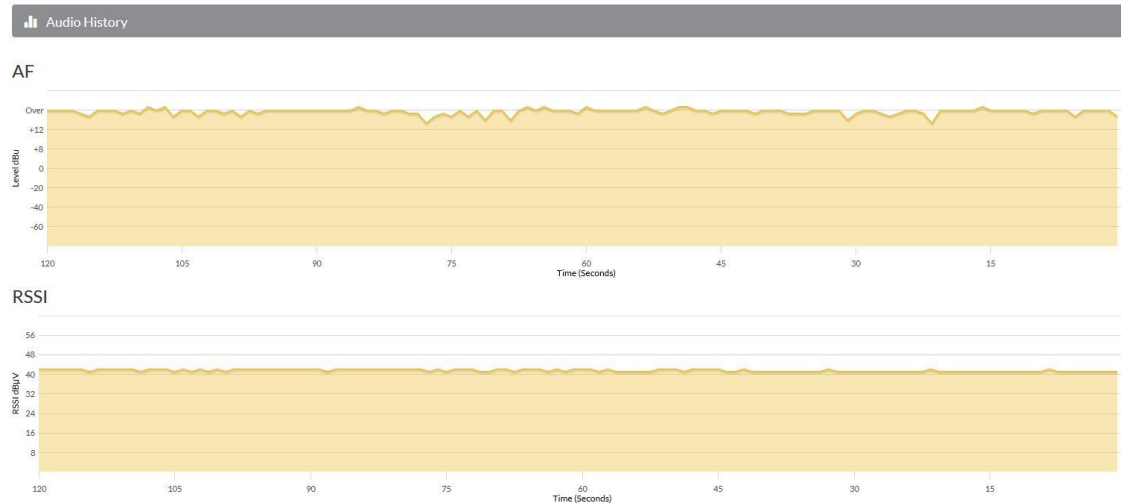


| Data | | | |
|------------------------------------|----------------------|------------------------------------|------------------|
| Mode | DAB | Stream Info | RSS:38dB SNR:4dB |
| Mux | 12B BBC National DAB | DAB Service Data bit-rate | 128 JointS |
| Stream | BBC Radio 2 | Received Signal Strength Indicator | 38 |
| Programme Type | Pop Music | Signal to Noise Ratio | 4 |
| Silence Time for DAC 1 (secs) | 0 | Carrier to Noise Ratio | 21 |
| Silence Time for Receiver 1 (secs) | 0 | FIC Errors | 0 |



Black markers indicate set threshold for change over for either RSSI or Audio level (silence) set in Change Over menu.

ProDAB User Guide



Real time history display of Audio level and RSSI

Service List (Mux: 12B - BBC National DAB)

Refresh Select Preset Change Mux

Show 10 entries Search:

| # | Service | Programme | Mode | Type | Sec | SID | CID | Bit Rate | Prot | CUs | CU Addr |
|---|------------------|-------------|------|----------|-----|------|------|----------|------|-----|---------|
| 0 | BBC Guide | ---- | EPG | 003C0130 | 0 | 9E5E | C001 | 32 | 8 | 24 | 832 |
| 1 | BBC Radio 3 | Arts | DAB | 07000100 | 0 | C223 | 0003 | 192 | 3 | 140 | 192 |
| 2 | BBC Radio 4 | Talk | DAB | 09000100 | 0 | C224 | 0004 | 80 | 3 | 58 | 332 |
| 3 | BBC Radio 6Music | Rock Music | DAB | 0B000100 | 0 | C22B | 000B | 128 | 3 | 96 | 678 |
| 4 | BBC Radio 4Extra | Talk | DAB | 09000100 | 0 | C22C | 000C | 80 | 3 | 58 | 774 |
| 5 | BBC Radio 1Xtra | Other Music | DAB | 0F000100 | 0 | C22A | 000A | 128 | 3 | 96 | 582 |
| 6 | BBC AsianNetwork | Talk | DAB | 09000100 | 0 | C236 | 0007 | 64 | 3 | 48 | 438 |
| 7 | BBC WorldService | Talk | DAB | 09000100 | 0 | C238 | 0009 | 64 | 3 | 48 | 534 |
| 8 | BBC R5LiveSportX | Sport | DAB | 04000100 | 0 | C228 | 0008 | 64 | 3 | 48 | 486 |
| 9 | BBC Radio 1 | Pop Music | DAB | 0A000100 | 0 | C221 | 0001 | 128 | 3 | 96 | 0 |

Showing 1 to 10 of 13 entries

Previous 1 2 Next

Service list for MUX that tuner is currently tuned to.

The table columns can be sorted by clicking in the heading cell of each column.

Using “Change Mux” button you can select a specific MUX from the displayed table. ProDAB will attempt to turn to the selected MUX and if it is available will then display the Service List.

Note that Services will then also be added to the Station list.

Select Mux

| | | |
|-----------------------------------|-----------------------------------|-----------------------------------|
| <input type="radio"/> 5A 174.928 | <input type="radio"/> 6A 181.936 | <input type="radio"/> 7A 188.928 |
| <input type="radio"/> 5B 176.640 | <input type="radio"/> 6B 183.648 | <input type="radio"/> 7B 190.640 |
| <input type="radio"/> 5C 178.352 | <input type="radio"/> 6C 185.360 | <input type="radio"/> 7C 192.352 |
| <input type="radio"/> 5D 180.064 | <input type="radio"/> 6D 187.072 | <input type="radio"/> 7D 194.064 |
| <input type="radio"/> 8A 195.936 | <input type="radio"/> 9A 202.928 | <input type="radio"/> 10A 209.936 |
| <input type="radio"/> 8B 197.648 | <input type="radio"/> 9B 204.640 | <input type="radio"/> 10B 211.648 |
| <input type="radio"/> 8C 199.360 | <input type="radio"/> 9C 206.352 | <input type="radio"/> 10C 213.360 |
| <input type="radio"/> 8D 201.072 | <input type="radio"/> 9D 208.064 | <input type="radio"/> 10D 215.072 |
| <input type="radio"/> 11A 216.928 | <input type="radio"/> 12A 223.936 | <input type="radio"/> 13A 230.784 |
| <input type="radio"/> 11B 218.640 | <input type="radio"/> 12B 225.648 | <input type="radio"/> 13B 232.496 |
| <input type="radio"/> 11C 220.352 | <input type="radio"/> 12C 227.360 | <input type="radio"/> 13C 234.208 |
| <input type="radio"/> 11D 222.064 | <input type="radio"/> 12D 229.072 | <input type="radio"/> 13D 235.776 |
| <input type="radio"/> 11N 217.088 | <input type="radio"/> 12N 224.096 | <input type="radio"/> 13E 237.488 |
| | | <input type="radio"/> 13F 239.200 |

Select Close

ProDAB User Guide

Stations List

Refresh

Select

Preset

Show 10 entries

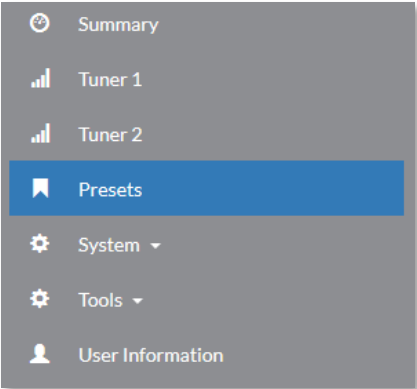
Search:

| # | Service | Mux | Ensemble | EID | SID | CID |
|---|------------------|-----|------------------|------|----------|------|
| 0 | Absolute R 80s | 11D | D1 National | C181 | C4C1 | 000E |
| 1 | Absolute R 80s | 11A | SDL National | C1CE | C8D8 | 0008 |
| 2 | Absolute Rad 70s | 12A | London 2 | C186 | C1C2 | 000E |
| 3 | Absolute Rad 90s | 12C | London 1 | C185 | CAC2 | 0007 |
| 4 | Absolute Radio | 12C | London 1 | C185 | C4B4 | 0003 |
| 5 | Absolute Radio | 11D | D1 National | C181 | C1C0 | 0003 |
| 6 | Awesome Radio | 11A | SDL National | C1CE | CAD8 | 000A |
| 7 | BBC AsianNetwork | 12B | BBC National DAB | CE15 | C236 | 0007 |
| 8 | BBC Guide | 12B | BBC National DAB | CE15 | E1C79E5E | C001 |
| 9 | BBC R5LiveSportX | 12B | BBC National DAB | CE15 | C228 | 0008 |

Showing 1 to 10 of 92 entries

Previous12345...10Next

Stored Stations list obtained by DAB SCAN or added via “Change MUX” button.



Click here to set or recall presets.
Presets can be any combination of DAB, FM, MP3 or Web. Up to 12 presets can be defined.

Preset Information

Select Tuner: Tuner 1

Tuner 1

1

Description *

Mode -

Selects -

Details Edit

2

Description *

Mode -

Selects -

Details Edit

3

Description *

Mode -

Selects -

Details Edit

4

Description *

Mode -

Selects -

Details Edit

5

Description *

Mode -

Selects -

Details Edit

6

Description *

Mode -

Selects -

Details Edit

1

Description Absolute R 80s

Mode DAB

Selects Absolute R 80s

Details Edit

Click the Number to recall a preset.

ProDAB User Guide

Preset Details

Preset Details for preset 1.

| | |
|-------------|----------------|
| Description | Absolute R 80s |
| Selects | Absolute R 80s |
| Mode | DAB |
| MUX | 11D |
| SID | C4C1 |
| CID | 000E |
| FM Frq | - |
| MP3 | - |
| WEB | - |

Close

Preset Details

Change Preset

Editing Preset 1.

Description:

BBC Radio 2

Tuner:

Tuner 1

Mode:

DAB

Output:

Absolute 80s new (mux:11A; SID:C8D8; CID:0008)

Change

Clear

Close

Preset Edit Screen

System

MP3 Management

Web Management

GPIO Settings

SNMP Settings

System & Change Over

Carousel Settings

System Information

System Log

Upgrade System

Backup & Restore

System information is only available when you sign In as Admin.

MP3 Management

MP3 Directory List

Refresh

Add

Remove

Show 10 entries

Search:

| Index | Name |
|----------------------------|------|
| No data available in table | |

Showing 0 to 0 of 0 entries

Previous

Next

Note: Maximum file size for upload via Web GUI is 110MB

Audio & Design

46

ProDAB User Guide



Web Management

Web Radio Stations

[Refresh](#)[+ Add](#)[- Remove](#)Show entriesSearch:

| Index | Station | URL |
|-------|-------------------|---|
| 0 | ADR-ProDAB-Test-1 | http://81.174.235.245:5000 |
| 1 | BBC WS | http://bbcws.sc.ic.llnwd.net/stream/bbcws_sc_mp1_ws-eieuk |

Showing 1 to 2 of 2 entries

[Previous](#) [1](#) [Next](#)

GPIO Settings

GPIO Inputs

| | |
|--------|---|
| GPIO 0 | <input type="text" value="Preset 1 Tuner 1"/> |
| GPIO 1 | <input type="text" value="Preset 2 Tuner 1"/> |
| GPIO 2 | <input type="text" value="Preset 3 Tuner 1"/> |
| GPIO 3 | <input type="text" value="Preset 4 Tuner 1"/> |
| GPIO 4 | <input type="text" value="No Action"/> |
| GPIO 5 | <input type="text" value="Preset 2 Tuner 1"/> |
| GPIO 6 | <input type="text" value="Preset 3 Tuner 1"/> |

[Update](#)[Refresh](#)

GPIO Options available

- No Action
- Preset 1 Tuner 1**
- Preset 2 Tuner 1
- Preset 3 Tuner 1
- Preset 4 Tuner 1
- Preset 1 Tuner 2
- Preset 2 Tuner 2
- Preset 3 Tuner 2
- Preset 4 Tuner 2
- p2 hold ret p1
- p3 hold ret p1
- p3 hold ret p1
- p1 hold ret sil
- p2 hold ret sil
- p3 hold ret sil
- p4 hold ret sil

GPIO Outputs

| | | |
|--------|--|--|
| GPIO 0 | <input type="text" value="Changeover - Changeover Active"/> | <input checked="" type="radio"/> Active Lo <input type="radio"/> Active Hi |
| GPIO 1 | <input type="text" value="Power detect wav - Outputs a square wave (toggles at ab"/> | <input checked="" type="radio"/> Active Lo <input type="radio"/> Active Hi |
| GPIO 2 | <input type="text" value="Mono Flag on DACa - Output 1 set to Mono (DAB, FM, M"/> | <input type="radio"/> Active Lo <input checked="" type="radio"/> Active Hi |
| GPIO 3 | <input type="text" value="Silence on DACa - Silence detected on Output 1 (internal)"/> | <input checked="" type="radio"/> Active Lo <input type="radio"/> Active Hi |
| GPIO 4 | <input type="text" value="RSS Low Ra - Received Signal Strength Low Tuner 1"/> | <input type="radio"/> Active Lo <input checked="" type="radio"/> Active Hi |
| GPIO 5 | <input type="text" value="Silence on DACb - Silence detected on Output 2 (internal)"/> | <input checked="" type="radio"/> Active Lo <input type="radio"/> Active Hi |
| GPIO 6 | <input type="text" value="Network Fail - No network connection"/> | <input checked="" type="radio"/> Active Lo <input type="radio"/> Active Hi |

[Update](#)[Refresh](#)

- 0 Changeover Active**
- 1 FM TA Flag active Tuner 1
- 2 Output 1 set to Mono (DAB, FM, MP3 or Web)
- 3 Silence detected on Output 1 (internal)
- 4 Received Signal Strength Low Tuner 1
- 5 Silence detected on Output 2 (internal)
- 6 No network connection
- 7 Output 2 set to Mono (DAB, FM, MP3 or Web)
- 8 Unit in Diversity mode
- 9 Signal to Noise low on Tuner 1
- F Silence detected on Tuner 2 AES Output
- E Silence detected on Tuner 2 (internal)
- D Silence detected on Tuner 1 AES Output
- C Streaming output has active connection/s
- B Silence detected on Tuner 1 (internal)
- A Silence detected on Streaming Output (internal)

ProDAB User Guide

SNMP Configuration

Settings

Trap IP Address

Enter a valid IPv4 address formatted 0.0.0.0 (no spaces).

Trap Flags

- ☐ FM TA Flag Active
- ☐ RSS (Received Signal Strength)
- ☐ DAC Silence
- ☐ Radio A Silence
- ☐ In Change Over
- ☐ Carousel
- ☐ Summary

Trap Interval (Seconds)

System Information


Unit Status

| | |
|---------------------|---|
| ProDAB System | hwr:0176 mp3:0170 rad:0180 FPGA:4321E1C4 |
| Version Information | |
| Network IP | 192.168.0.7 |
| Netmask | 255.255.255.0 |
| Network Gateway | 192.168.0.254 |
| DNSS | 8.8.8.8 |
| Date & Time (UTC) | <input type="button" value="Update"/> 13:04:01 01-02-2019 |
| Disk Space (Used) | 91.90% |
| Tuner Configuration | |
| Selected Tuner | 1 |
| Monitored Stream | DAB |

Web Application

Software Version v6.201901314-P7S

ProDAB User Guide

 System Software

ProDAB reports the following system component installed:

```
Linux ProDAB 4.14.74-v7+ #1149 SMP Mon Oct 8 17:39:42 BST 2018  
pd-stream V:0172  
pd-hwr V:0176  
pd-radio V:0180  
pd-mpd V:0170  
pd-chover V:0173  
pd-cgi V:0175  
pd-snmp V:0188  
pd-aes67 V:0174
```


Current DAB/FM Chipset Loaded :


Tuner 1



```
TunerA(DAB) 00 00 00 00 4C 12 00 00 06 00 04 00 A5 2
```

Tuner 2

```
TunerB(DAB) 00 00 00 00 4C 12 00 00 05 00 02 00 D0 1
```


 System Log


 Events

 Refresh  Clear Log

Total Events (30)

```
i:29 Feb 16 11:20:03 co40:Ra Ch/Over OFF  
i:28 Feb 16 11:20:02 co40:Ra Ch/Over  
i:27 Feb 16 11:20:01 co40:Ra Ch/Over  
i:26 Feb 16 11:20:00 co40:Ra Ch/Over  
i:25 Feb 16 11:19:59 co40:Ra Ch/Over  
i:24 Feb 16 11:19:58 co40:Ra Ch/Over  
i:23 Feb 16 11:19:57 co40:Ra Ch/Over  
i:22 Feb 16 11:19:56 co40:Ra Ch/Over  
i:21 Feb 16 11:19:56 co33:GP output (0000)  
i:20 Feb 16 11:19:55 co40:Ra Ch/Over  
i:19 Feb 16 11:19:54 co40:Ra Ch/Over  
i:18 Feb 16 11:19:53 co40:Ra Ch/Over  
i:17 Feb 16 11:19:52 co40:Ra Ch/Over  
i:16 Feb 16 11:19:51 co40:Ra Ch/Over  
i:15 Feb 16 11:19:50 co40:Ra Ch/Over  
i:14 Feb 16 11:19:49 co40:Ra Ch/Over  
i:13 Feb 16 11:19:49 co38:Ra Silence End
```

 Upgrade System

 Upgrade

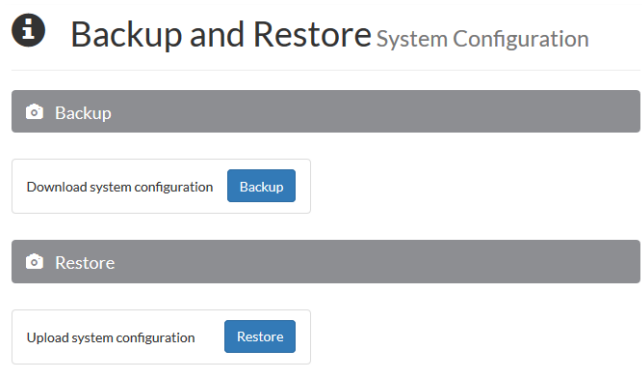
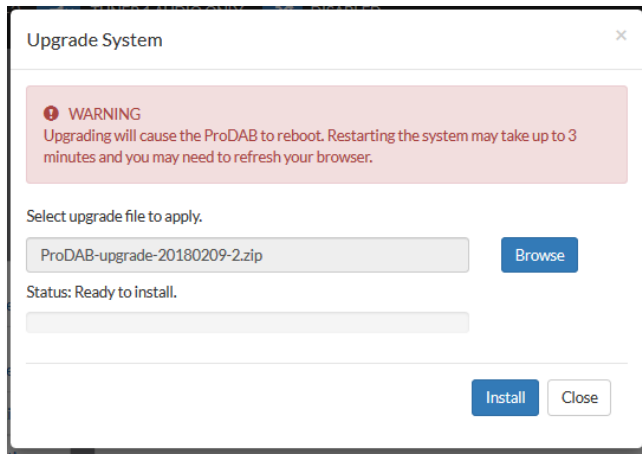
Upgrade system

Upgrade

Press “Upgrade” then browse to upgrade file, the “Install” – The upgrade process takes about 3 minutes and you will need to refresh the browse page.

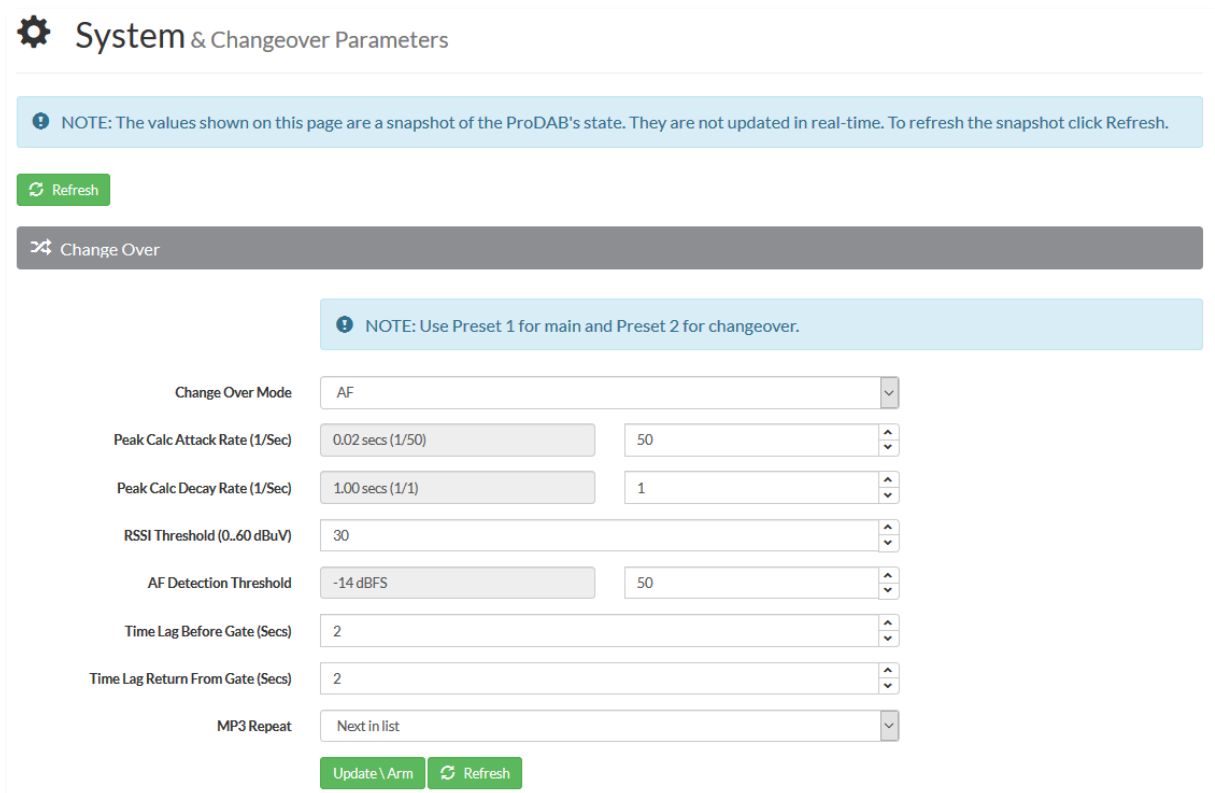
Note: System configuration files and USB upload script are downloaded as a single zip file.

ProDAB User Guide



To restore, either unzip all files to the root of a blank USB stick formatted FAT32 or Upload via the “Restore” button using the web application.

System & Changeover



ProDAB User Guide

MP3

MP3 folder

Sound

IP Streaming

Gain Trim

⚠ CAUTION: Adding gain may cause audio output to clip.

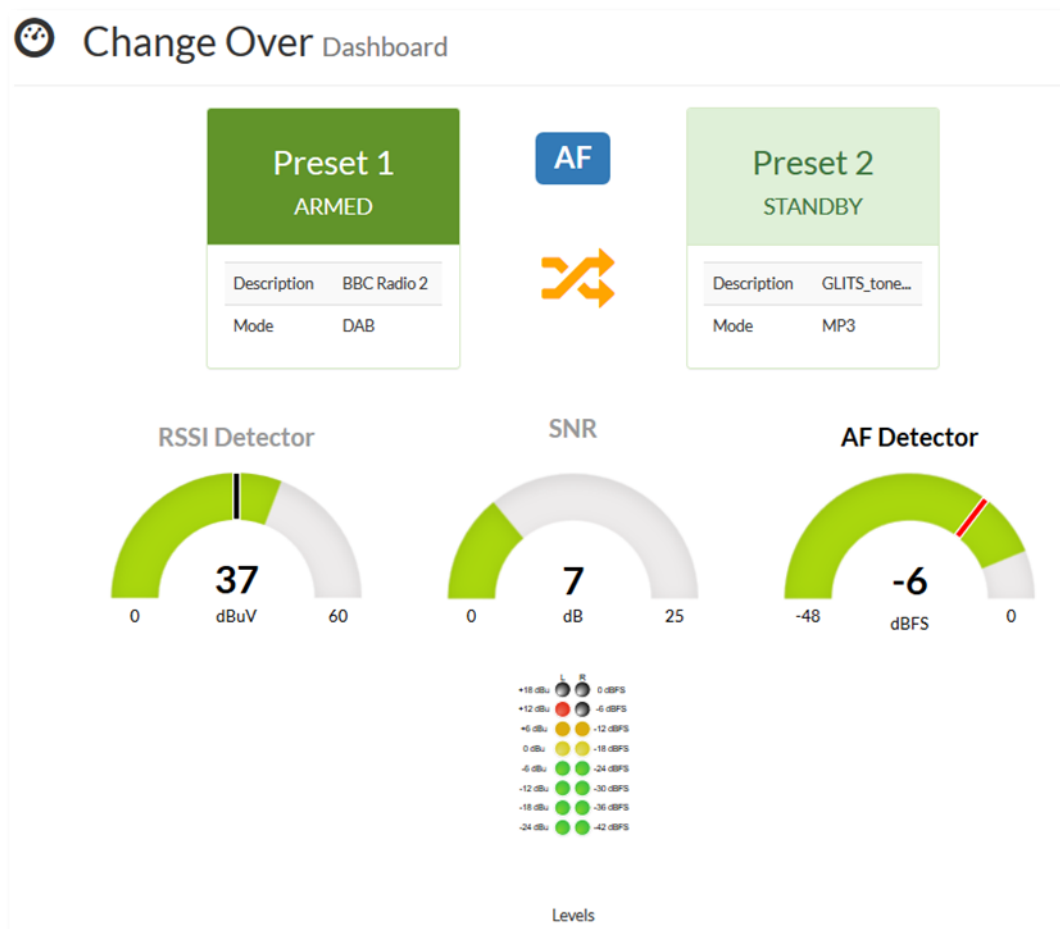
Tuner 1

Tuner 2

WEB

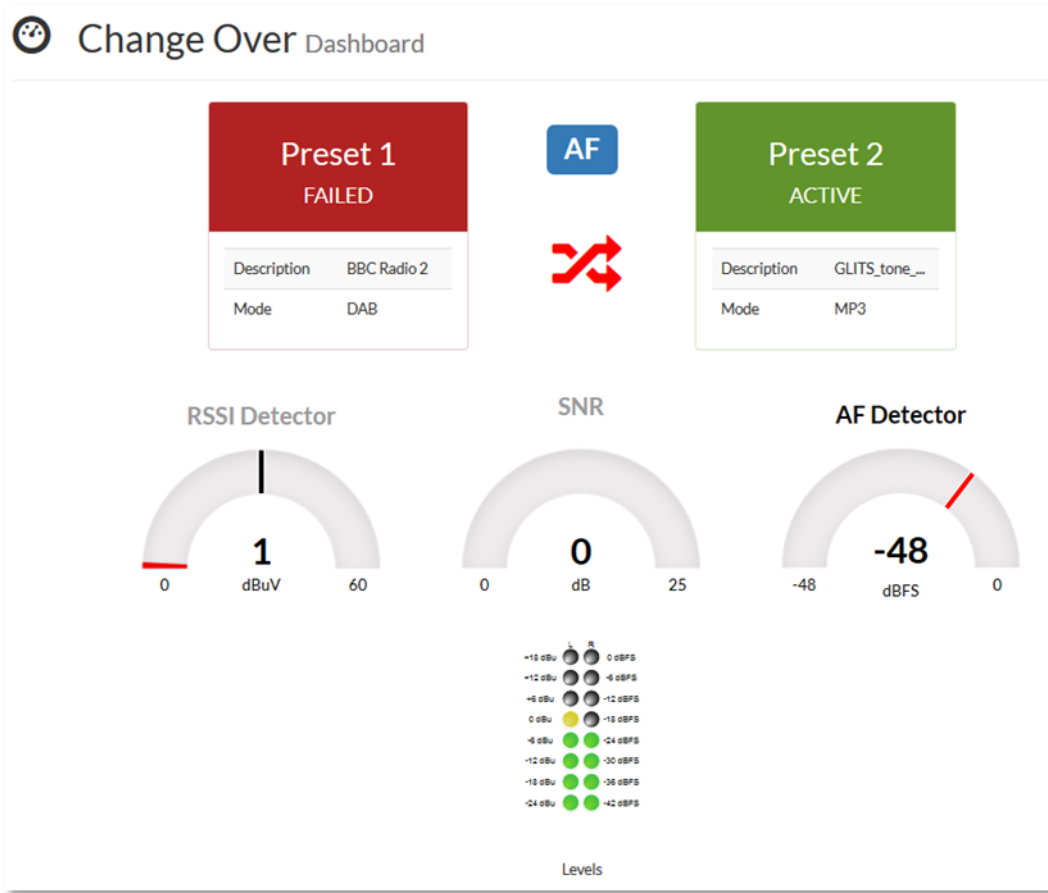
Web folder

Change Over Armed:



ProDAB User Guide

Change Over Active:



















Carousel Mode

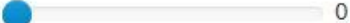
Carousel

NOTE: The values shown on this page are a snapshot of the ProDAB's state. They are not updated in real-time. To refresh the snapshot click Refresh.

Carousel Settings

| | | |
|--|--|--|
| Carousel Mode | <input type="text" value="Enabled"/> |  |
| Starting Preset | <input type="text" value="1"/> |   |
| Ending Preset | <input type="text" value="5"/> |   |
| Scan Time (Secs) | <input type="text" value="20"/> |   |
| Tuner to Use | <input type="text" value="Tuner 1"/> |  |
| FIB Error Count Threshold | <input type="text" value="0"/> |   |
| SNR Error Threshold | <input type="text" value="0"/> |   |
| RSS Error Threshold | <input type="text" value="20"/> |   |
| AF Silence Detection Threshold | <input type="text" value="Disabled"/> <input type="text" value="0"/> |   |
| <input type="button" value="Update"/> <input type="button" value="Refresh"/> | | |





















SNMP Settings

| | |
|--|---|
| Trap IP Address | <input type="text" value="0.0.0.0"/> |
| Enter a valid IPv4 address formatted 0.0.0.0 (no spaces). | |
| Trap Interval (Seconds) |  0 |
| <input type="button" value="Update"/> <input type="button" value="Refresh"/> | |

ProDAB User Guide

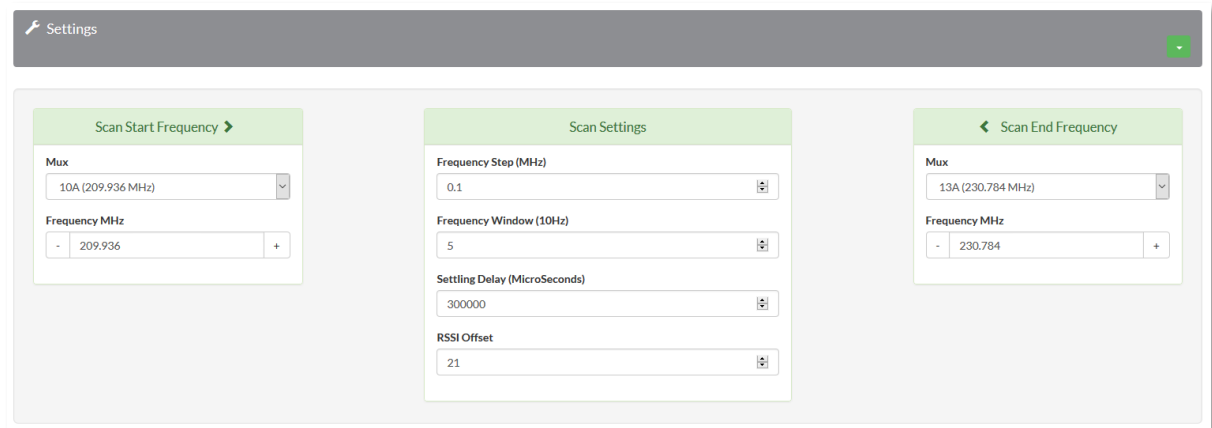
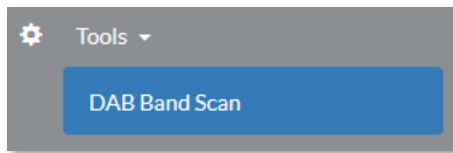
Carousel Dashboard

Carousel Enabled: **Enabled** Carousel Tuner: **Tuner 1** Scan Time (Secs): **20**

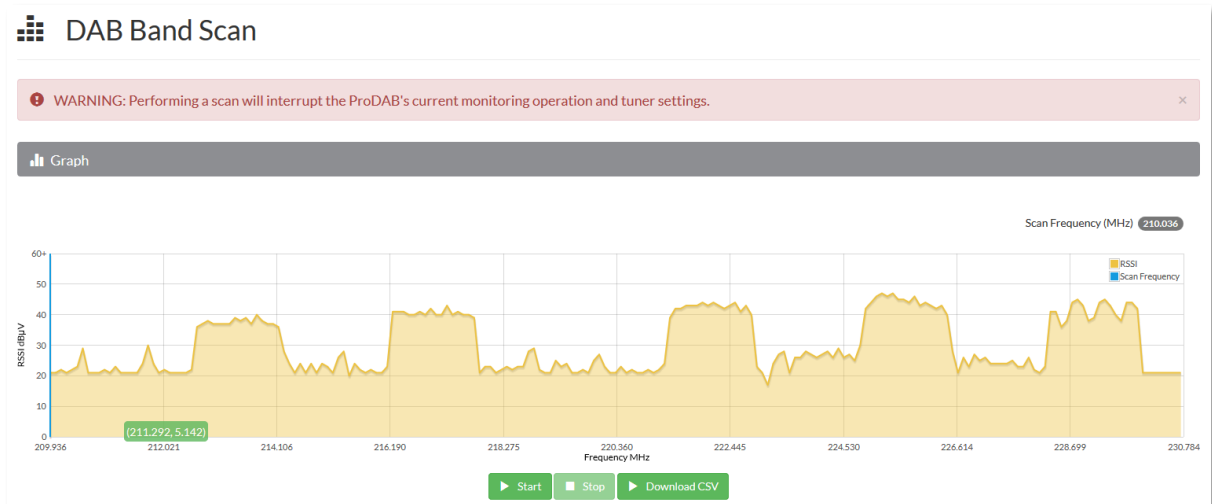
| Preset | Description | Source | Mode | Mux\Freq | Audio dBFS | SNR dB | RSS dBuV | FIB Errors |
|--------|--------------|---|------|----------|---|--|---|--|
| 1 | BBC Radio 1 | bbc radio 1 (mux:12b; sid:c221; cid:0001) | DAB | 12B |  -9/Disabled |  4/Disabled |  37/20 |  0/Disabled |
| 2 | BBC Radio 2 | bbc radio 2 (mux:12b; sid:c222; cid:0002) | DAB | 12B |  -12/Disabled |  4/Disabled |  37/20 |  0/Disabled |
| 3 | BBC Radio 3 | bbc radio 3 (mux:12b; sid:c223; cid:0003) | DAB | 12B |  -25/Disabled |  4/Disabled |  36/20 |  0/Disabled |
| 4 | BBC Radio 4 | bbc radio 4 (mux:12b; sid:c224; cid:0004) | DAB | 12B |  -12/Disabled |  4/Disabled |  36/20 |  0/Disabled |
| 5 | BBC WS (Web) | | WEB | |  -17/Disabled |  |  |  |

Blue bar shows the Preset being scanned


ProDAB User Guide





DAB Band Scan, Select Start & End Frequency either by MUX or frequency. Scan setting have been optimised for the ProDAB but can be changed if needed.





ProDAB User Guide


 Summary


 Tuner 1


 Tuner 2


 Presets

 System ▾

 Tools ▾


 User Information

 User Information

 User Profile

Logged in as

admin


 User Metrics

Maximum Users allowed

3

Number of Users logged on

1

 User Information

Create User

Change Password

Logoff User

Show

10

▼

entries

| Username | IP | Access Level | Logged In |
|----------|---------------|--------------|------------|
| admin | 192.168.52.19 | Admin | Logged On |
| user1 | | User | Logged Off |

Showing 1 to 2 of 2 entries

Previous

1

Next

16. Spectrum Analyser Utility (Front Panel Menu)

The ProDAB has a built-in simple spectrum analyser, which can be accessed as detailed below. All scans are run using the FM mode of the chip set (DAB mode only “looks” for multiplexers). Typical setting as below:

Note: That when in this mode the current tuner is dedicated to this function.



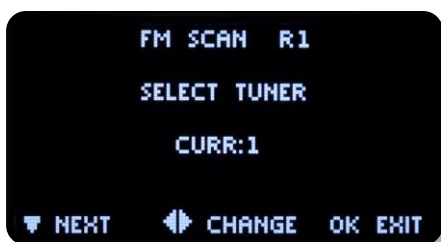
Press **OK** then select SYSTEM with **▲▼** then **▶**



Use **▲▼** to navigate to ENGINEERING MENU then **▶**



Use **▲▼** to navigate to FM SCAN MENU then **▶**



Select Tuner with **◀▶** then **▼** to go to next option



Select either DAB or FM band with **◀▶** then **▼** to go to next option

ProDAB User Guide

```
FM SCAN R1
CURRENT FREQ KHZ
220000 (22dB)
▼ NEXT ◀ CHANGE OK EXIT
```

▼ to go to next option, or change with ◀▶

```
FM SCAN R1
CURRENT FREQ KHZ
220000 (22dB)
▼ NEXT ◀ CHANGE OK EXIT
```

▼ to go to next option, or change with ◀▶

```
FM SCAN R1
END FREQ KHZ
232000
▼ NEXT ◀ CHANGE OK EXIT
```

▼ to go to next option, or change with ◀▶

```
FM SCAN R1
STEP FREQ (KHZ)
50
▼ NEXT ◀ CHANGE OK EXIT
```

Set frequency step, either 50kHz or 100kHz with ◀▶ then ▼ to go to next option

```
FM SCAN R1
SETTLING DELAY (MS)
400
▼ NEXT ◀ CHANGE OK EXIT
```

Set settling delay (time system waits after frequency has been set) with ◀▶ then ▼ to go to next option

```
FM SCAN R1
GAIN <1.50>
20
▼ NEXT ◀ CHANGE OK EXIT
```

Set display “gain” in order to optimize display with ◀▶ then ▼ to go to next option

```
FM SCAN R1
SETTLING DELAY (MS)
400
▼ NEXT ◀ CHANGE OK EXIT
```

Test type:
FM Scan (also covers DAB frequency band)
DAB Scan for Muxes
Set with ◀▶ then ▼ to go to next option

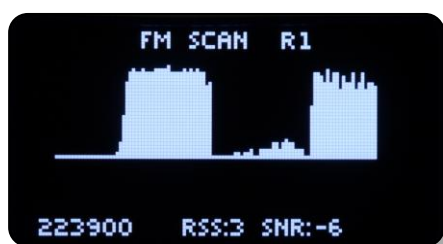
ProDAB User Guide



▶ To continuously run scan, Unlock/Clr to stop



Example “zooming” in to a specific MUX



Mux 12A very low level between 11D & 12B

11D – RSSI = 42dBuV
12A – RSSI = 22dBuV
12B – RSSI = 41dBuV

ProDAB User Guide

Audio & Design Reading Ltd. Hereby confirm that the ProDAB-2 conforms to the requirements of EN50081-1 & EN60950 provided it is used as described in this manual and in the sections below:

To comply with the EMC Directive EN50081-1 (generic), it is recommended that all-digital input and output cabling be of Belden type 1696A or its exact equivalent. All input/output connectors must be of good quality and be constructed with RF protected covers. All interconnections via cables must carry a full earth shield, which should be connected to the RF shielded covers at all times. Input/output cables must be terminated to comply with the AES/EBU and IEC958 digital audio standards protocol.

This unit is wired so that a technical earth is connected to the chassis via the mains input socket. It is recommended that this connection be made to the mains earth system at all times to minimise the effects of radiated and conducted RF emissions.

Low Voltage Directive EN60950:

There are no serviceable parts within the unit. All repair work must be referred to a qualified electronic engineer or returned to the factory. In the case where the unit contains plug in modules, always switch off the unit before removing or replacing any module.

Audio & Design Reading Ltd does not accept responsibility for non-compliance if the above criteria are not met in full.

WARRANTY:

All Audio & Design products are of the highest quality and designed to give long, trouble free service. Nevertheless they are fully guaranteed for one year from the date of purchase. Provided any faulty equipment is returned, post paid, to Audio & Design or its established Agent by the original purchaser during the relevant period we will repair, or at our opinion replace, entirely free of charge all breakdowns due to faulty workmanship or materials. In keeping with normal practice, breakdowns due to fair wear and tear, misuse, neglect or faulty adjustment by the user, are outside the scope of this warranty.

Warning: Warranty repairs are subject to serial number checking. We reserve the right not to service any equipment whose serial number has in any way, been defaced or altered.

WEEE Directive: The end user must exercise due care when disposing of this product at the time it is deemed as waste material.

ProDAB User Guide

RoHS: The current status of Audio & Design products can be obtained from www.adrl.co.uk/Rohs.htm

Audio & Design Reading Ltd practices lead-free manufacturing processes. Lead free solder is used on the surface-mount PCB manufacturing processes and for hand soldering. Printed circuit boards used are immersion tin plated, and as such use no lead.

The manufacturing processes include the assembly of purchased components from various sources. Our products are offered as RoHS compliant, or lead free, only after sufficient evidence is received from the component manufacturers that their components are RoHS compliant. Audio & Design Reading Ltd relies solely on the distributor, or manufacturer of the components for identification of RoHS compliance. Whilst every effort is made to ensure compliance, Audio & Design Reading Ltd makes no warranty, or certification, or declaration of compliance concerning said components.

Audio & Design Reading Ltd defines “Lead Free” as pertaining to any product, which has been manufactured by Audio & Design Reading Ltd using components which have been declared by the manufacturers as “Lead Free”. All statements by Audio & Design Reading Ltd of RoHS compliance are based on component manufacturer documentation

ProDAB-2 Dual User Guide



Audio & Design

51 Paddick Drive

Lower Earley

Reading

Berkshire RG6 4HF

UK

Tel.: +44 118 324 0046

Info: sales@adrl.co.uk

Web: www.adrl.co.uk

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