DAB+ DIGITAL RADIO WITH TOUCH CONTROL

BUSH

The Gold Technical Support Line: 1902 215 259

Personal Product Support

(Charges will apply at $2.95 per minute)

BR20DAB

www.bushaustralia.com.au

Introduction

Thank you for buying this Bush product, which is designed to give you many years of trouble-free service.

You may already be familiar with using a similar unit, but please take the time to read these instructions. They are designed to familiarise you with the unit's many features and to ensure you get the very best from your purchase.

Safety is important
Your safety and the safety of others is important.
Please therefore, ensure you read the "Safety Instructions" **before** you operate this unit.

Warranty
In the unlikely event that your product fails to work normally, please call the below free phone number to discuss the problem with one of our qualified service engineers.

Australia.
Bush Warranty: 1800 509 394

New Zealand
Bush Warranty: 0800 450 259

Safety Instructions

Ensure that you read all of the safety instructions before using this unit.

Safety Considerations

■ Position the power cable and other connected cables so that they are not likely to be walked on, pinched or where items can be placed on or against them.

■ Do not use the unit in humid or damp conditions.

■ Do not allow the unit to get wet.

■ Never allow children to insert foreign objects into the holes or slots on the unit.

■ The ventilation should not be impeded by covering the openings with items such as newspapers, tablecloths, curtains, etc. This may cause overheating.

■ No naked flame sources, such as lit candles, should be placed on the unit.

■ Do not expose the unit to dripping or splashing, and no objects filled with liquid, such as vases, should be placed on or near the apparatus.

■ Do not place the unit inside a closed bookcase or cabinet without proper ventilation.

Cleaning

■ Disconnect the unit from the mains power supply before cleaning.

■ Do not use any liquids or aerosol cleaners, as this may damage the unit. Use a soft, dust free cloth.

Servicing

■ There are no user serviceable parts in the unit. When servicing, refer to qualified service personnel.

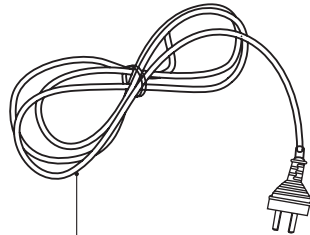■ Consult your retailer if you are ever in doubt about the installation / operation / safety of the product.

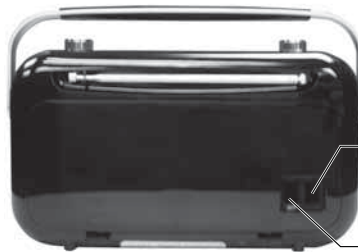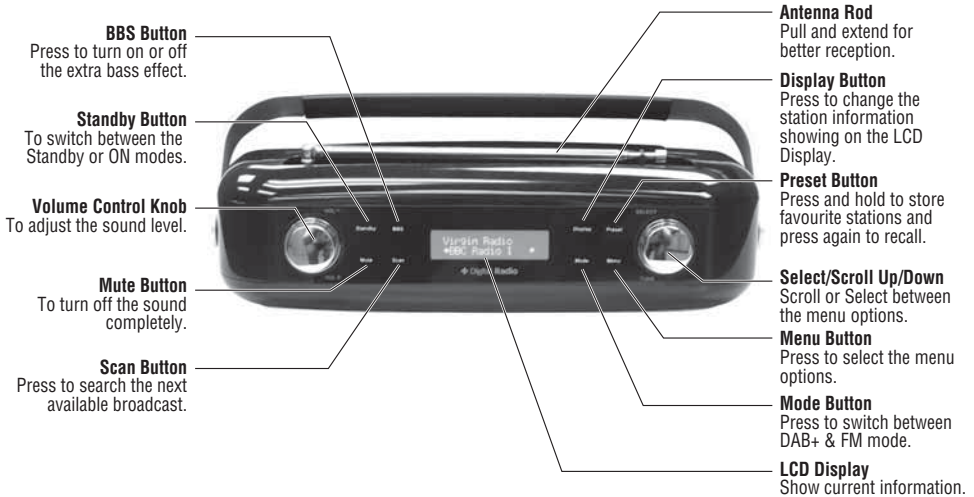# What's in the box?

DAB+ Radio

User Guide

AC Power Cord

Contents

Your DAB+ Radio

BBS Button
Press to turn on or off
the extra bass effect.

Standby Button
To switch between the
Standby or ON modes.

Volume Control Knob
To adjust the sound level.

Mute Button
To turn off the sound
completely.

Scan Button
Press to search the next
available broadcast.

Antenna Rod
Pull and extend for
better reception.

Display Button
Press to change the
station information
showing on the LCD
Display.

Preset Button
Press and hold to store
favourite stations and
press again to recall.

Select/Scroll Up/Down
Scroll or Select between
the menu options.

Menu Button
Press to select the menu
options.

Mode Button
Press to switch between
DAB+ & FM mode.

LCD Display
Show current information.

AC Power Socket
To connect to AC Power Cable.

ON/OFF Switch
To turn the main unit power
ON or OFF.

AUX In Socket
To connect your MP3 device
or iPod.

Headphone Jack
To connect your Headphones.

What is DAB+

DAB+ was developed in **Europe** by a consortium of broadcasters and manufacturers **DAB+** uses digital compression techniques to transform the source material, i.e. music and speech, into better quality audio.

Interference free reception

Analogue systems suffer from an effect called "multipath distortion". This is caused because waves do not behave in an orderly fashion, but bounce and reflect off buildings etc. DAB+ sees this as an advantage and uses the direct and reflected signals to actually reinforce the end result, allowing for better service more of the time.

No need to re-tune

A single DAB+ frequency can be used to cover the whole of the **Australia**, so solving many of the problems experienced with the earlier analogue system **DAB+** scan automatically tune-in all of the available stations in your area.

Scolling text

Broadcasters can transmit text to your radio. This way you can read the name of the DJ, artist, song title or any other information they choose.

DAB+ coverage

Check you local coverage at www.digitalradioplus.com.au

Get going

1 Connect the mains power cord to the AC Input (at the rear of the unit), then connect the power cord to your desired wall outlet.

2 Turn the wall outlet power on, then press the power switch at the rear of the unit to the ON position.

3 ## Using Headphones

To listen to this radio via the Headphones Jack, a pair of headphones (not supplied) with a 3.5mm diameter stereo plug and 8-32 ohm impedance is required. Plug the headphones into the Headphone Jack on the side of the **DAB+** Radio.

When the headphones are connected, the speaker sound is automatically turned off.

4 ## Using the DAB+ Radio with Batteries

The **DAB+** Radio can be powered by 6 "C" types batteries. This allows the **DAB+** Radio to be used outside or away from your wall power outlets.

To remove the Battery Compartment Cover, press the 2 retaining clips firmly and pull away from the **DAB+** Radio.

Insert 6 "C" type batteries into the battery compartment, following the polarity diagram on the inside.

Then replace the Battery Compartment Cover. Make sure it clicks into place.
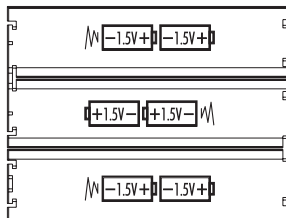
5 ## Using AUX IN

To listen to your iPod or MP3 player, connect an audio cable (not supplied) to the AUX IN Socket located on the side of the **DAB+** Radio. Then connect the other end of the cable to your auxiliary device, i.e. iPod or MP3 player. You will now be able to listen to your favourite songs on your iPod or MP3 Player.

Daily Use DAB+

Switching On

❶ To turn on the **DAB+** Radio, ensure the power switch on the rear of the unit is set to the **ON** position.

❷ Press the **STANDBY** button on the touch panel.

❸ To turn the **DAB+** Radio off, press the **STANDBY** button again.

Adjusting the Volume

❶ To increase the volume, turn the volume control knob clockwise.

❷ To decrease the volume, turn the volume control knob anti-clockwise.

❸ You can also press the **MUTE** button to turn the sound off. To turn the sound back on, press the **MUTE** button again.

BBS (Bass boost System) function

The bass sounds can be enhanced by selecting the bass boost system.

❶ Press the **BBS** button to enhance the bass frequencies

❷ To turn off the bass boost system, press the **BBS** button again.

Listening to the DAB+ Radio

❶ Press the **STANDBY** button to turn the **DAB+** Radio on.

❷ The following screen will be displayed. A bar graph indicates the progress of the initial search - the number of stations found increases as the scan progresses.

Scanning...   12 — Number of stations found

Progress bar ▬▬▬▬
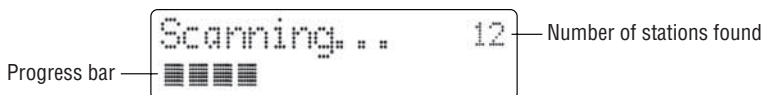
❸ When the scan is complete, the **DAB+ Radio** will then select the first available station. Stations are listed in numerical then alphabetic order. The station list is retained in memory so the next time you switch the **DAB+ Radio** on, the station search does not take place. If there are no stations found, check that you have adequate **DAB+** coverage in your area. You can find this out by visiting www.digitalradio.com.au and using their online post code checker.
Please note: You should also run a full scan to make sure all stations are stored.

Daily Use DAB+

Using the Menu
Press the **MENU** button to enter the menu. Rotate the **SELECT** button to scroll through the options described below.

Full Scan
❶ Press the **MENU** button to access the menu.
❷ Rotate the **SELECT** button until **"Full scan"** is displayed.
   Push the **SELECT** button to activate a full scan for all available **DAB+** stations.

Manual Tune
It is possible to manually tune your radio to a specific channel/frequency and add this to the station list. This function can be used to obtain the optimum reception for a specific channel/frequency.
❶ Press the **MENU** button to access the menu.
❷ Rotate the **SELECT** button until **"Manual tune"** is displayed.
   Press the **SELECT** button to confirm.
❸ Rotate the **SELECT** button to select the desired channel/frequency.
❹ Press the **SELECT** button, a rectangle will be displayed on the second line of the display.
   The position of this rectangle indicates the signal strength (the further towards the right, the greater the signal strength)

```
7A      188.928MHz
        ▯
```
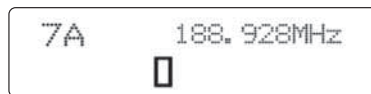
❺ Adjust the position of the antenna to obtain the optimum signal strength.
❻ Push the **SELECT** button to confirm.

Daily Use DAB+

Changing DAB+ Stations

❶ Rotate the **Scroll Up/Down** knob to scroll through the stations in the station list.
❷ Press the **Scroll Up/Down** button to select a new station from the list.
Press the **SELECT** button to confirm. The radio will tune to the new station.

DON'T FORGET!
If no new station is selected the **DAB+** Radio will display the currently playing station after 15 seconds.
From time to time new **DAB+** stations may be added to the **DAB+** station list.
If you wish to see if any new stations have been added, press the **SCAN** button to activate a full scan.

Storing DAB+ Presets
You can preset up to 10 **DAB+** stations for easy access as follows:

❶ Tune to the station you wish to preset (see 'Changing **DAB+** Stations').
❷ Press and hold the **PRESET** button, preset position 1 will show on the display.
❸ Rotate the **SELECT/Scroll Up/Down** button to select the required preset memory position.
❹ Press the **SELECT** button to save the current station into the specified preset location.

Selecting a Preset Station

❶ Press the **PRESET** button briefly, preset position 1 will show on the display.
❷ Rotate the **SELECT/Scroll Up/Down** button to select the desired preset.
❸ Push the **SELECT** button to confirm.

DON'T FORGET!
If you select a preset location that has not been programmed with a station, "Preset empty" will be displayed.
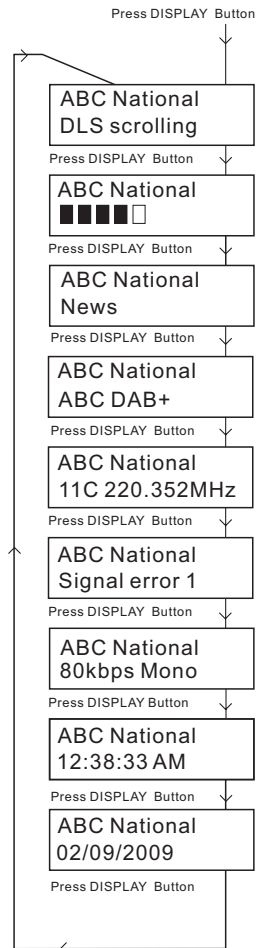The **DAB+** Radio will return to the previously selected station after a few seconds.

Daily Use DAB+

Changing the DAB+ Station Information

It is possible to change the information displayed on the second line of the display when listening to a **DAB+** station. There are nine types of information available as listed below with examples to the right.

❶ **Dynamic Label Segment (DLS) -** This is scrolling text information supplied by the **DAB+** station. It may comprise information on music titles or details of the programme.

❷ **Signal Bar -** Shows the transmission signal level.

❸ **Program Type (PTY) -** This is a description of the type of programme provided by the **DAB+** station.

❹ **Multiplex Name -** This will show the multiplex that is broadcasting the programme you are listening to.

❺ **Channel and Frequency -** This displays the channel number and the transmission frequency.

❻ **Signal Error Rate -** If the transmission signal contains any errors, the system will apply corrections. The amount of signal corrections can be displayed as a numerical value between 0 and 99. As the value increases, you will hear the signal degrade. To improve reception, try adjusting the position of the antenna. Please note a signal error rate of 30 or more will make the station inaudible.

❼ **Signal Information -** This shows the digital bit-rate and the signal mode.

❽ **Time -** This shows the current time provided by the broadcaster.

❾ **Date -** This displays the date provided by the broadcaster.

Press DISPLAY Button

ABC National
DLS scrolling

Press DISPLAY Button

ABC National
■■■■□

Press DISPLAY Button

ABC National
News

Press DISPLAY Button

ABC National
ABC DAB+

Press DISPLAY Button

ABC National
11C 220.352MHz

Press DISPLAY Button

ABC National
Signal error 1

Press DISPLAY Button

ABC National
80kbps Mono

Press DISPLAY Button

ABC National
12:38:33 AM

Press DISPLAY Button

ABC National
02/09/2009

Press DISPLAY Button

Daily Use DAB+

Using the MENU Control (DAB+ mode)

The **MENU** control allows you to change some of the system options on your **DAB+** Radio. These options are arranged in a menu structure as shown below.

```
┌─────────────────┐
│ ABC National    │
│ RadioText       │
└─────────────────┘
   Press MENU Button.

┌─────────────────┐        ┌─────────────────┐
│ DAB             │  Press │ Scanning      0 │
│ <Full scan    > │ SELECT └─────────────────┘
└─────────────────┘ Button.
  Rotate the "SELECT"
  Button clockwise.

┌─────────────────┐        ┌─────────────────┐
│ DAB             │  Press │ Manual tune     │
│ <Manual tune  > │ SELECT │ <5A 174.928MHz> │
└─────────────────┘ Button.└─────────────────┘
  Rotate the "SELECT"      Rotate the "SELECT" Button to
  Button clockwise.        choose radio frequency, press
                           SELECT Button to confirm.

┌─────────────────┐        ┌─────────────────┐
│ DAB             │  Press │ DAB             │
│ <DRC          > │ SELECT │ <DRC off      > │
└─────────────────┘ Button.└─────────────────┘
  Rotate the "SELECT"      Rotate the "SELECT" Button to
  Button clockwise.        choose "DRC" off / high /low,
                           press select Button to confirm.

┌─────────────────┐        ┌─────────────────┐
│ DAB             │  Press │ Prune?          │
│ <Prune        > │ SELECT │ <No>  Yes       │
└─────────────────┘ Button.└─────────────────┘
  Rotate the "SELECT"      Rotate the "SELECT" Button to
  Button clockwise.        choose "Prune"  No/Yes, press
                           select Button to confirm.

┌─────────────────┐        ┌─────────────────┐
│ DAB             │  Press │ System          │
│ <System       > │ SELECT │ <Time         > │
└─────────────────┘ Button.└─────────────────┘
  Rotate the "SELECT"      Rotate the "SELECT" Button to
  Button clockwise.        choose "System" Time / Backlight /
                           factory reset / SW version, press
                           SELECT Button to confirm.
```

Return to Station list

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Dynamic Range Control (DRC)
DRC adds or removes a degree of compression to compensate for the differences in the dynamic range between radio stations. For example, a station broadcasting popular music may have a high level of compression applied since the emphasis is on a constant high listening level. Where as a station broadcasting classical music will have little or no compression as the listener requires all of the highs and lows in the music to define the detail.
There are three levels of compression:
• **DRC off =** No compression applied
• **DRC high =** Maximum compression applied (this is the default)
• **DRC low =** Low compression applied
The best way to determine which of these settings suits you best is to experiment with them on a variety of source material.
❶ Press the **MENU** Button to access the menu.
❷ Rotate the **SELECT** Button until **"DRC"** is displayed.
❸ Press the **SELECT** Button to confirm.
❹ Rotate the **SELECT** Button to select between the three **DRC** values. The available options appear on line 2 of the display. When the required **DRC** value is displayed press the **SELECT** Button to confirm.
❺ You should be able to hear the difference in compression immediately.

Station Prune
The Station Prune function allows you to remove stations from the station list that are not active or cannot be received. These stations usually appear in the display with a "?".
❶ Press the **MENU** Button to access the menu.
❷ Rotate the **SELECT** Button until "Prune" is displayed.
❸ Press the **SELECT** Button to confirm.
❹ Rotate the **SELECT** Button to highlight either No or Yes
❺ Press the **SELECT** Button. If you have chosen to prune the station list, the unwanted stations will be deleted.

System Settings
To make adjustments to the settings on the **DAB+** Radio:
❶ Press the **MENU** Button to access the menu.
❷ Rotate the **SELECT** Button until "System" is displayed.
❸ Press the **SELECT** Button. The following options: Time, Backlight, Factory Reset and Software (SW) version are available.

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Time - Allows you to set the time and date manually or update automatically from the **DAB+** or **FM** radio broadcast.

Backlight - Allows you to set the backlight time-out from 10, 15, 30, or 60 seconds, or keep the backlight on.

Factory Reset - this will reset all preset values and begin a full scan for **DAB+** stations.

Software Version - This displays information about the current software installed in the **DAB+** Radio.

Using the FM Radio
❶ If the **DAB+ Radio** is in **DAB+** mode, press the **MODE** Button to select **FM** mode.

DON'T FORGET!
You may hear background noise as no station may have been tuned yet. The display will show the frequency of the **FM** station.

Automatic Tuning
❶ Press the **SCAN** Button to automatically search for the next available station.
❷ If the reception is poor, try Manual Tuning (see 'Manual Tuning below') to fine-tune the stations.

DON'T FORGET!
If the reception does not improve, try altering the position of the antenna. If the reception is still poor, scan again to determine whether a stronger signal exists for the desired frequency.

Manual Tuning
❶ Rotate the **SELECT** Button to manually tune through the frequency band.
❷ The frequency will increase or decrease in steps of 0.05 MHz for each turn of the **SELECT** Button.
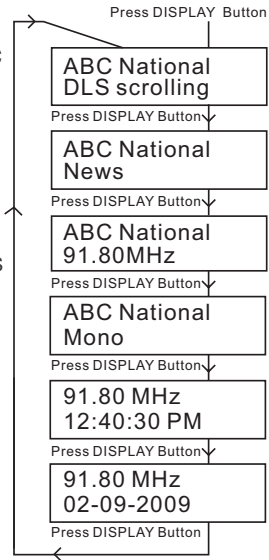
Storing FM Presets
You can preset up to 10 FM stations. The procedure for storing and recalling FM presets is the same as described on page 10.

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Changing the FM Station Information

It is possible to change the information that is displayed on the second line of the display when listening to a **FM** station. There are six types of information available as listed below with examples to the right.
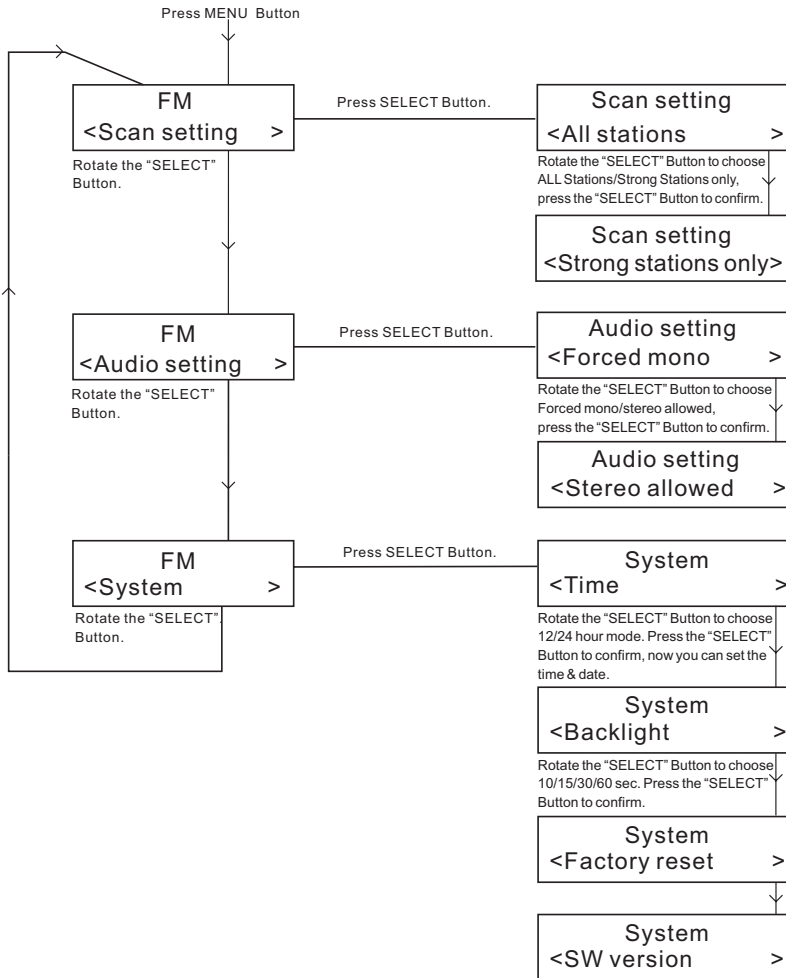
❶ **Radio text -** This is scrolling text information supplied by the **FM** station. It may include information on music titles or details of the programmes.

❷ **Program Type (PTY) -** This is a description of the type of programme provided by the **FM** station.

❸ **Station name -** This is information of the station name / frequency of the current **FM** station.

❹ **Mono or Stereo -** This indicates if the current station is broadcast in stereo or mono.

❺ **Time -** This displays the current time provided by the broadcaster.

❻ **Date -** This displays the date provided by the broadcaster.

Press DISPLAY Button

ABC National
DLS scrolling

Press DISPLAY Button

ABC National
News

Press DISPLAY Button

ABC National
91.80MHz

Press DISPLAY Button

ABC National
Mono

Press DISPLAY Button

91.80 MHz
12:40:30 PM

Press DISPLAY Button

91.80 MHz
02-09-2009

Press DISPLAY Button

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Using the MENU Control (FM mode)

The **MENU** control allows you to change some of the system options on your radio. These options are arranged in a menu structure as shown below.

Press MENU Button

FM
<Scan setting   >

Press SELECT Button.

Scan setting
<All stations   >

Rotate the "SELECT" Button.

Rotate the "SELECT" Button to choose ALL Stations/Strong Stations only, press the "SELECT" Button to confirm.

Scan setting
<Strong stations only>

FM
<Audio setting   >

Press SELECT Button.

Audio setting
<Forced mono   >

Rotate the "SELECT" Button.

Rotate the "SELECT" Button to choose Forced mono/stereo allowed, press the "SELECT" Button to confirm.

Audio setting
<Stereo allowed   >

FM
<System   >

Press SELECT Button.

System
<Time   >

Rotate the "SELECT" Button.

Rotate the "SELECT" Button to choose 12/24 hour mode. Press the "SELECT" Button to confirm, now you can set the time & date.

System
<Backlight   >

Rotate the "SELECT" Button to choose 10/15/30/60 sec. Press the "SELECT" Button to confirm.

System
<Factory reset   >

System
<SW version   >

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Using the Menu

Press the **MENU** Button to enter the menu. Rotate the **SELECT** Button to scroll through the options described below.

Scan

❶ Press the **MENU** Button to access the menu.

❷ Rotate the **SELECT** Button until "Scan setting" is displayed.

❸ Press the **SELECT** Button to confirm.

❹ Rotate the **SELECT** Button to select **"All stations"** or **"Strong stations"**.

❺ Press the **SELECT** Button to confirm.

DON'T FORGET!

All subsequent scans will be made according to the setting chosen.

A * will show next to the current scan setting.

Audio setting

❶ Press the **MENU** Button to access the menu.

❷ Rotate the **SELECT** Button until **"Audio setting"** is displayed.

❸ Press the **SELECT** Button to confirm.

❹ Rotate the **SELECT** Button to select **"Stereo or allowed"** or **"Forced mono"**.

❺ Press the **SELECT** Button to confirm.

DON'T FORGET!

Forced mono will present all **FM** stations in mono.

System Settings

To make adjustments to the settings in **FM** mode:

❶ Press the **MENU** Button to access the menu.

❷ Rotate the **SELECT** Button until "System" is displayed.

❸ Press the **SELECT** Button. The following options: Time, Backlight, Factory Reset and Software (SW) version will be available.

Further information on these settings can be found in the **DAB+** mode section of this User Guide.

Troubleshooting / Technical Specification

Troubleshooting

If a fault occurs, first check the points listed below before taking the set for repair.

If you are unable to remedy a problem by following these hints, consult you retailer or service center.

WARNING: Under no circumstances should you try to repair the set yourself, as this would invalidate the guarantee.

PROBLEM	CAUSE	SOLUTION
No sound	• Volume not adjusted. • Headphones are connected. • Main power cord is not connected correctly.	• Turn up the Volume. • Disconnect the headphones. • Connect the mains power cord firmly into the AC/DC socket of wall outlet.
Button functions are not responding	• Electrostatic discharge.	• Turn off the unit, disconnect the mains power cord, reconnect after a few seconds and turn the unit on again.
Poor radio reception	• Weak radio aerial signal. This may be caused by electrical interference from electrical equipment like TVs, video recorders, computer, etc.	• Re-position the radio & aerial for best reception. • Extend the antenna rod to full length. • Move the unit away from other electrical equipment.

Technical Specification

Power requirement . . . . AC Input 230 V 50Hz

DC 9V, "C" (UM-2) X 6 battery

Max Power Consumption 13W

Speaker Power Output 1.2W

10% THD Power Output 1W

DAB+ section . . . . 174 MHz to 240 MHz

FM section . . . . 87.5 MHz to 108 MHz

Warranty

Please keep your receipt as proof of purchase. This product is warranted for any defect in the materials or workmanship for one year after the original date of purchase. This product is for normal domestic and office use only. This warranty does not cover damage from misuse or neglect, accidental damage, vermin infestation, excessive voltages such as lightning or power surges or any alteration that affects the performance or reliability of the product.

In the unlikely event that your product fails to work normally, please contact the **Bush Warranty on 1800 509 394 (Australia) or 0800 450 259 (New Zealand)** and have your receipt of purchase on hand.

This warranty is subject to the following provisions:

- It is only valid within the boundaries of the country of purchase

- The product must be correctly assembled and operated in accordance with the instructions contained in this user manual

- This product must be used solely for domestic and office purposes

- The warranty does not cover accidental damage

- The warranty will be rendered invalid if the product is resold or has been damaged by inexpert repair

- The manufacturer disclaims any liability for incidental or consequential damaged

This warranty is in addition to, and does not diminish, your statutory or legal rights.

PO BOX 6287
Silverwater NSW 1811

Bush Warranty: 1800 509 394 Australia
Bush Warranty: 0800 450 259 New Zealand

www.bushaustralia.com.au