Manual

DMS800

DIGITAL WIRELESS MICROPHONE SYSTEM

Contents

Publishing information

Publisher	AKG Acoustics GmbH Laxenburger Straße 254 1230 Wien Austria Tel: +43 (0)1 86654-0 Fax: +43 (0)1 86654-8800 sales@akg.com
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Updates	This manual may be modified without prior notice and does not represent any obligation on the part of AKG Acoustics GmbH.
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1 General

1.1 Purpose of the manual

This manual is intended to enable you to:

- operate the equipment safely
- use the equipment correctly.

1.2 Retention of the manual

Keep this manual carefully and in an easily accessible location.

Pass this manual on to subsequent owners.

This manual is an important part of the equipment.

1.3 Liability

Liability

AKG Acoustics GmbH accepts no liability if:

- The equipment is used for purposes other than those described under correct usage.
- Damage is incurred due to incorrect operation
- Unauthorised or non-permitted modifications having been carried out.
- Damage due to out of date documentation.

1.4 Warranty

Warranty

AKG Acoustics GmbH accepts no liability for damage arising from

- incorrect operation.
- Unauthorised or non-permitted modifications having been carried out.
- Damage due to out of date documentation.

2 Package content

Check that the package contains all the parts given below. If anything is missing, please contact your AKG dealer.

DSR800

DSR800

- 1 x DSR800 receiver
- 2 x BNC UHF antennae
- 2 x antenna cables for front mounting 0110E01890
- 1 x mains cable conforming to EU standard
- 1 x mains cable conforming to US standard

DPT800

DPT800

- 1 x DPT800 bodypack transmitter
- 2 x LR6 batteries (size AA)
- 1 x MKG L instrument cable

DHT800

DHT800

- 1 x DHT800 handheld transmitter
- 2 x LR6 batteries (size AA)
- 1 x stand connector
- 1 x W3004 – wind screen for D5 WL1, D7 WL1 and C5 WL1
- 1 x charging adapter for CU700 and CU800
- Colour marking tapes

OPTIONAL ACCESSORIES

Optional accessories

- CU800 — changing unit for DPT800 and DHT800
- RMS4000 — external MUTE switch
- Microphone heads D5 WL1, D7 WL1 and C5 WL1

ANTENNAE ACCESSORIES

Antenna

- SRA2 W or SRA2 EW — passive directional antenna
- SRA2 B/W or SRA2 B/EW — active directional antenna
- RA4000 W or RA4000 EW — passive allround antenna
- RA4000 B/W or RA4000 B/EW — active allround antenna
- PS4000 W or APS4 — active antenna splitter
- AB4000 or AB4000 EW — antenna booster
- MK PS — antenna cable, 60 cm
- MKA5 — antenna cable, 5 m
- MKA20 — antenna cable, 20 m
- 0110E01890 — antenna cable for front mounting

Other options and antenna accessories are available in the current AKG catalogue as a download from www.akg.com. Your dealer will be happy to advise.

3 Safety and environment

3.1 Safety

Safety

- Protect the equipment against
  - direct sunlight
  - the impact of significant dust and humidity
  - rain
  - vibrations or knocks.
- Do not spill any liquids on the equipment and do not allow any other objects to drop through the ventilation slits into the equipment.
- Do not place any containers filled with liquid on the equipment.
- The equipment must only be used in dry rooms.
- The equipment must only be opened, serviced and repaired by authorised personnel. The equipment contains no user-serviceable parts.
- Before connecting the equipment to power, check that the AC mains voltage stated on the integrated power adapter (DSR800) is identical to the AC mains voltage available where the equipment will be used.
- Only operate the equipment on a mains voltage between the 90 and 240 V AC. Using adapters with different output voltage or current types may cause serious damage to the equipment.
- If any solid or liquid should get into the equipment, shut down the system immediately. Disconnect the power cable (DSR800) from the power outlet at once and have the equipment checked by our customer service department.
- If the equipment is not going to be used for a longer time, disconnect the mains cable (DSR800) from the power outlet. Please note that if you switch the equipment off while leaving the mains cable (DSR800) plugged in, it is not fully isolated from the power network.
- Do not place the equipment near heat sources such as radiators, heating ducts, amplifiers, etc. and do not expose it to direct sunlight, excessive dust, moisture, rain, mechanical vibrations, or shock.

- To avoid hum or interference, route all audio lines, particularly those connected to the microphone inputs, away from power lines of any type. If you use cable ducts, be sure to use separate ducts for the audio lines.
- Clean the equipment with a moistened (not wet) cloth only. Be sure to disconnect the power adapter (DSR800) from the power outlet before cleaning the equipment. Never use caustic or scouring cleaners or cleaning products containing alcohol or solvents since these may damage the enamel and plastic parts.
- Only use the equipment for the applications described in this manual. AKG cannot accept any liability for damages resulting from improper handling or misuse.

3.2 Explanation of the symbols used

	Describes useful information and application notes for efficient operation of the equipment.
	Provides reference to more in-depth information and downloads online.
	Describes information on the correct disposal of the components described.

3.3 Correct use

The digital wireless system **DMS800** has been designed exclusively for the wireless transmission of audio signals from the handheld transmitter **DHT800** and from the bodypack transmitter **DPT800** to the receiver **DSR800**.

3.4 Incorrect use

Any use not given under correct use is regarded as incorrect.

Disposal

3.5 Environment

- Always dispose of empty batteries in accordance with the relevant disposal regulations. Never throw batteries into naked flame (risk of explosion) or into the household waste under any circumstances.
- The packaging is recyclable. Dispose of the packaging in an appropriate recycling collection system.

- In case of scrapping the equipment, separate the housing, electronics and cables and dispose of all the components in accordance with the appropriate waste disposal regulations.

4 Declaration of Conformity

This product conforms to the standards listed in the Declaration of Conformity. You can download the Declaration of Conformity at http://www.akg.com or request it by email from sales@akg.com.

5 Equipment description

5.1 General description

Description

The **DMS800** consists of the following parts:

- DSR800 digital stationary true diversity transmitter
- DHT800 handheld transmitter and/or DPT800 bodypack transmitter

There is the choice of AKG microphone heads with the handheld transmitter:

- D5 WL1
- D7 WL1
- C5 WL1

Both the receiver and the transmitter operate in a switching bandwidth of up to 150 MHz in the corresponding frequency set within a UHF band of 548 to 832 MHz.

This means you can select the receiver frequency from the preprogrammed frequency groups and subchannels of your receiver or set them directly in 25-Hz increments.

Both the handheld and the bodypack transmitters are programmed to the parameters set on the receiver via infrared transmission.

5.2 Functions of the external MUTE switch (optional)

MUTE switch

The optional, external MUTE switch RMS4000 allows the bodypack transmitter to be switched to mute even if the transmitter is fitted in a way that makes the integrated MUTE switch hard to access

5.3 Technical data

System data

Carrier frequency range	Band 1: 548.1 - 697.9 MHz (country-dependent) Band 2: 710.1 – 831.9 MHz (country-dependent)
Switching bandwidth	≤ 150 MHz (country-dependent)
Audio bandwidth	25 Hz - 20 kHz (±3 dB)

System data

THD	≤ 0.02 %
Signal-to-noise ratio (A-evaluated)	analogue: XLR symmetrical, typ. 115 dB(A) digital: AES-EBU, typ. 120 dB(A) digital: DANTE Net. Interface, typ. 120 dB (A)
Audio sampling rate	24 Bit / 44.1 kHz
Modulation	digital
Bit rate	< 200 kbps
Compressor	AKG Premium Audio Compressor/dbx® technology
Latency time	3.5 ms
Encryption	32-Bit, 512-Bit, switchable (no additional latency time)

Digital True Diversity receiver DSR800

Carrier frequency range	Band 1: 548.1 - 697.9 MHz Band 2: 710.1 – 831.9 MHz
Switching bandwidth	≤ 150 MHz (country-dependent)
Channels	2 (dual receiver)
Sensitivity	10 dBµV / -97 dBm
Image frequency and spurious attenuation	≥ 95 dB
Receiver design	Super-Heterodyne
Diversity system	Digital True Diversity
Antenna inputs	2 x 50-ohm BNC sockets
Audio outputs	2 x analogue: XLR symmetrical 2 x analogue: 6.3 mm jack, unbalanced 1 x digital: AES-EBU XLR (48 kHz) with BNC Wordclock input 1 x digital: DANTE (Ethernet) (48 kHz)
Audio output level	XLR bal.: +15 dBu (max.); 6.3 mm jack, unbalanced: +9 dBu

Digital True Diversity receiver DSR800

Bass roll off	10 – 300 Hz
Equalizer	3-Band (parameters: low, mid and high enhancement
Compressor	dbx® (parameters: amplification, response threshold, ratio, attack, release)
Limiter	dbx® (parameter: usage threshold)
Transmitter battery indicator	7-part
PC interface	Ethernet via HUB 4000 Q Ethernet via DANTE (100 Mbit/s) Software HiQnet Audio Architect
Power supply	90 - 240 VAC, 50 - 60 Hz, 0.4 A
Dimensions	Standard housing for rack mounting, 1 HU 480(W) x 45(H) x 230(D) mm
Net weight	2.38 kg

Digital bodypack transmitter DPT800

Carrier frequency range	Band 1: 548.1 - 697.9 MHz (country-dependent) Band 2: 710.1 – 831.9 MHz (country-dependent)
Switching bandwidth	≤ 150 MHz (country-dependent)
Transmission power	10, 20, 30, 50 mW (ERP max.), can be set via menu (country-dependent)
Scatter	≤ -70 dBc
Antenna	λ/4 antenna
Audio input	TB3M / 3-pol. Mini-XLR jack (2.5 Vrms max.)
Audio input level	0 dB, +10 dB, +20 dB switchable
Operating time	≥ 8 hours (2 x 1.5-V LR6 AA batteries) ≥ 8 hours (2 x 1.2-V AA NiMH rechargeable batteries >2100 mAh)
Dimensions	65(W) x 28(H) x 82(D) mm
Net weight	88 g without batteries

Digital handheld transmitter DHT800

Carrier frequency range	Band 1: 548.1 - 697.9 MHz (country-dependent) Band 2: 710.1 – 831.9 MHz (country-dependent)
Switching bandwidth	≤ 150 MHz (country-dependent)
Transmission power	10, 20, 30, 50 mW (ERP max.), can be set via menu (country-dependent)
Scatter	≤ -70 dBc
Antenna	Integrated helix antenna
Optional microphone heads	D5 WL1: dynamic (supercardoid) D7 WL1: dynamisch (supercardoid) C5 WL1: Capacitor (cardoid)
Max. sound pressure level	DHT800 with D5 WL1 (0 dB gain): ≤ 144 dB SPL DHT800 with D7 WL1 (0 dB gain): ≤ 140 dB SPL DHT800 with C5 WL1 (0 db gain): ≤ 144 dB SPL
Audio input level	0 dB, +10 dB switchable
Operating time	≥ 8 hours (2 x 1.5-V LR6 AA batteries) ≥ 8 hours (2 x 1.2-V AA NiMH rechargeable batteries >2100 mAh)
Dimensions	37(ø) x 170(L) mm (without WL1 head)
Net weight	129 g (without WL1 head, no batteries)

5.4 DSR800: Description of the controls

DSR800 controls

The following table describes the controls of the **DSR800** (figure from page 53):

No.	Description
1	POWER: On/off switch
2	DSP button
3	Display
4	BACK button
5	SELECT wheel (turn left/right, press)

No.	Description
6	Headphone buttons (CH1, CH2)
7	Headphone output: 6.3 mm jack socket
8	Infrared receiver window for data synchronisation
9	HF level indicator
10	Channel selector button for channel CH1
11	Light ring for status display for channel CH1 and CH2 (red = warning, green = OK)
12	Channel selector button for channel CH2
13	Opening for antenna front mounting
14	Antenna input A: BNC socket
15	Antenna input B: BNC socket
16	GROUND LIFT switch for XLR output from channel CH1
17	Balanced analogue audio output, channel CH1, on XLR jack (male)
18	Unbalanced analogue audio output, channel CH1, on 6.3 mm jack socket
19	GROUND LIFT switch for XLR output from channel CH2
20	Balanced analogue audio output, channel CH2, on XLR socket (male)
21	Unbalanced analogue audio output, channel CH2, on 6.3 mm jack socket
22	Data interface: RJ10 socket for connecting the receiver to a computer via HUB 4000 Q
23	DANTE output: Ethernet socket
24	AES-EBU WORDCLOCK IN (48 kHz): BNC socket
25	Digital AES-EBU audio output, CH 1 and CH 2 (48 kHz), to XLR socket (male)
26	Mains power connection (90 - 240 V AC)

5.5 DSR800: Description of the display elements

DSR800 display

The following table describes the display elements of the **DSR800** (figure on page 53):

Letter	Description
A	Alphanumeric name display
B	Current group and channel number
C	7-part status display of the transmitter battery
D	Symbol for LOCK mode (button lock)
E	Audio level indicator
F	MUTE symbol
G	Current frequency
H	Antenna currently active

5.6 DPT800: Description of the controls

DPT800 controls

The following table describes the controls of the **DPT800** (figure on page 54):

No.	Description
1	Display
2	MUTE switch
3	λ/4 antenna
4	Infrared receiver diode for transmitter synchronisation
5	Status LED (red = warning, green = OK)
6	On/off switch
7	Battery compartment cover
8	Audio input for microphone or instrument: 3-pole

No.	Description
9	Battery compartment for 2 LR6 (AA) 1.5 V batteries or 1.2 V NiMH rechargeable batteries, size AA (>2100 mAh)
10	2.5 mm jack socket for external MUTE switch
11	Charging contacts
12	Locking button for battery compartment cover

5.7 DPT800: Description of the display elements

DPT800 display

The following table describes the display elements of the **DPT800** (figure on page 54):

Letter	Description
A	Alphanumeric name display
B	Current group and channel number
C	7-part status display of the transmitter battery
D	Country code or HF level
E	Symbol for active encryption
F	Symbol for activated muting

5.8 DHT800: Description of the controls

DHT800 controls

The following table describes the controls of the **DHT800** (figure on page 54):

No.	Description
1	Display
2	MUTE switch
3	Charging contacts, helical antenna
4	Infrared receiver diode for transmitter synchronisation
5	Status LED (red = warning, green = OK)

No.	Description
6	On/off switch
7	Battery compartment cover
8	Microphone heads D5 WL1, D7 WL1 or C5 WL1
9	Battery compartment for 2 LR6 (AA) 1.5 V batteries or 1.2 V NiMH rechargeable batteries, size AA (>2100 mAh)

5.9 DHT800: Description of the display elements

DHT800 display

The following table describes the display elements of the **DHT800** (figure on page 54):

Letter	Description
A	Alphanumeric name display
B	Current group and channel number
C	7-part status display of the transmitter battery
D	Country code or HF level
E	Symbol for active encryption
F	Symbol for activated muting

6 Commissioning

Before commissioning your **DMS800**, check that the transmitter and receiver are set to the same frequency.

To commission the **DMS800**, proceed as follows:

1. Insert batteries into the transmitter
2. Connect the antenna
3. Position the receiver
4. Connect the receiver to the mixing console/amplifier
5. Reposition the GROUND LIFT switch (optional)
6. Connect the receiver to the power network

6.1 Insert batteries into the transmitter

Step	Description
1	Open the battery compartment cover (9)
2	Insert batteries into the battery compartment. When inserting the batteries, note the symbols in the battery compartment to ensure the power supply.
3	Close the battery compartment cover (9)

6.2 Connecting the antennae

The following antennae can be mounted on the receiver:

- **λ/4 antennae** (included as standard)
  For all applications where there is a line of sight between the transmitter and receiver antennae.
- **Remote antennae**
  For applications where the reception conditions are not optimal at the receiver position.

To mount the **λ/4 antennae** , proceed as follows:

Step	Description
1	Mount λ/4 antennae onto the front panel (13); use BNC front mounting cable (AKG part no. 0110E01890) to do this.

To mount the **remote antennae**, proceed as follows:

Step	Description
1	Connect remote antennae with BNC sockets (14) and (15) to the rear of the receiver; use a RG58 cable to do this

More information on antennae, accessories and help on frequency planning can be found on our website at www.akg.com.

6.3 Position the receiver

Reflections of the transmitter signal on metal parts, walls, ceilings, etc. or shadows from human bodies can weaken or wipe out the direct transmitter signal.

For this reason, observe the following points when setting up the receiver or the remote antennae:

- Always position the receiver/antennae close to the action area (stage), ensuring a minimum distance between the transmitter and receiver/antennae of 3 m to an optimal 5 m
- Avoid shadows of the transmitter signal from persons or objects as these can interrupt the radio link.
  The requirement for optimal reception is the line of sight between the transmitter and receiver/antennae
- Position the receiver/antennae at a distance greater than 1.5 m away from large metal objects, walls, platform structures, ceilings, etc.

The receiver can be set up either freestanding or in a 19" rack.

When installing one or more receivers in a 19" rack, the antennae supplied are mounted onto the receiver front panel or remote antennae are used. This is the only way to guarantee optimal reception quality.

6.4 Connecting the receiver to the mixing console/ amplifier

The **DSR800** receiver has the following outputs

- Analogue outputs
- Digital outputs

6.4.1 Analogue outputs

Both analogue XLR outputs (17, 20) and both analogue 6.3 mm jack outputs can be connected at any time. The output level can be set accordingly in the AUDIO menu.

To connect the **analogue outputs**, proceed as follows:

Step	Description
1	BALANCED socket (XLR) - microphone input: Move the output level switch to the "-30 dB" position
2	BALANCED socket (XLR) - line input: Move the output level switch to the "0 dB" position
3	Connect the UNBALANCED socket (6.3 mm jack) - unbalanced microphone or line input to the 6.3 mm jack socket

6.4.2 Digital output: Dante™

The **Dante**™ technology represents a digital audio network technology developed by Audinate that can mean up to 256 channels via standard IP-based components, such as Ethernet cables.

The **Dante**™ interface of the **DSR800** has a data transfer speed of 100 Mbit/s.

The **Dante**™ Controller Software can be used to configure and manage all devices compatible with the **Dante**™ network.

The **Dante**™ Controller Software can be downloaded free of charge from www.audinate.com.

The **DANTE**™ Controller Software automatically connects to the **DANTE**™ network in the default setting.

CAUTION: If you set the IP address of the **DANTE™** network manually via the software, it is essential that you note down the IP address set.

Alternatively, before removing the device from the network, set the IP address to "Automatic" using the software so that the device is detected in a new network by the **DANTE™** Controller Software.

6.4.3 Digital output: AES-EBU

To connect the **digital outputs**, proceed as follows:

Step	Description
1	Connect the balanced AES-EBU digital output on the XLR socket (25) to the required AES-EBU digital input

The integrated Wordclock Generator supports a sampling rate of 48 kHz. To synchronise all digital signals on the system, an external 48 kHz clock generator can be connected to the BNC socket Wordclock IN (24).

The receiver detects the external 48kHz clock signal automatically and uses the external clock signal from this time. The current clock status can be checked in the channel window.

6.5 Reposition the GROUND LIFT switch (optional)

The **GROUND LIFT** switch (16, 19) is used to isolate the housing mass connection: This allows hum caused by earth loops to be removed.

To isolate the housing mass connection, proceed as follows:

Step	Description
1	Move the GROUND LIFT switch (16, 19) in the LIFT position The switch position is displayed in the channel window.

6.6 Connecting the receiver to the power network

Check that the mains voltage on the rear of the receiver matches the mains voltage at the place of use to avoid damage to the equipment.

To connect the receiver to the power network, proceed as follows:

Step	Description
1	Connect the mains cable to the AC IN socket (26) on the rear of the receiver and plug into a suitable mains socket

7 QUICK SETUP

The QUICK SETUP function allows intermodulation and interference-free carrier frequencies to be found for all channels quickly and easily.

To carry out a QUICK SETUP, proceed as follows:

Step	Description
1	Switch on the receiver by pressing the ON/OFF switch
2	Select the START SETUP menu by pressing the SELECT wheel three times
3	Confirm the number of channels by pressing the SELECT wheel once
4	Make frequency ranges unlimited by pressing the SELECT wheel once
5	Start the search by pressing the SELECT wheel once The entry SCANNING appears on the display. The search can take up to one minute. After the search is complete, the channel list appears.
6	Assign channel 1 by pressing CH1 On the display, the question is shown as to whether or not to assign the channel.
7	Confirm the channel assignment by pressing the SELECT wheel once
8	Prepare the transmitter by inserting batteries and switching on
9	Synchronise the receiver with the transmitter by pressing the SELECT wheel once
10	Keep the transmitter's infrared sensor at a distance of approx. 10 cm of the receiver's infrared sensor The receiver display shows a message confirming the successful synchronisation.
11	Return to the channel list by pressing the BACK wheel once
12	Select channel 2 by turning the SELECT wheel to the right On the display, the question is shown as to whether or not to assign the channel.
13	Assign channel 2 by pressing CH2
14	Repeat steps 7 to 9

8 Operating instructions

8.1 Setting the carrier frequency

The following steps are required to set the carrier frequency:

Carrier frequency

7. Set the transmitter to SILENT mode (recommendation)
8. Unlock the receiver

8.1.1 Setting the transmitter to SILENT mode

We recommend setting the carrier frequency in SILENT mode (no HF radiation). This is the only way to avoid "going to transmit" on an unauthorised frequency and potentially disrupt other radio services or wireless microphones.

SILENT mode

To set the transmitter to SILENT mode, proceed as follows:

Step	Description
1	When switching on the ON/OFF switch (6), press with the MUTE switch (2) held down at the same time The entry RF-OFF is shown on the display.

8.1.2 Unlocking the receiver

The receiver is electronically locked to avoid any settings being changed accidentally. The receiver switches to LOCK mode after approx. 4 minutes with no button being pressed.

The "LOCK" symbol (D) lights up on the display.

Unlocking the receiver

The automatic lock function can be deactivated in the AUTOLOCK submenu.

To unlock the receiver, proceed as follows:

Step	Description
1	Press SELECT wheel (5) for approx. 2 seconds The "**LOCK**" symbol disappears from the display. The receiver is in SETUP mode.

8.2 Switch on MUTE LOCK

MUTE LOCK

To avoid the MUTE switch on the transmitter being switched on accidentally, it can be locked via the receiver.

To lock the MUTE switch, proceed as follows:

Step	Description
1	Switch on the receiver
2	Select the CHANNEL menu; to do this, turn the SELECT wheel to the right
3	Press SELECT
4	Select the MUTE LOCK menu; to do this, turn the SELECT wheel to the right
5	Press SELECT The MUTE LOCK menu is opened. MUTE LOCK is on OFF.
6	Press SELECT MUTE LOCK is on ON and is activated.

8.3 Programming the transmitter to the receiver settings

Programming the transmitter to the receiver

During synchronisation, the receiver monitors all previously selected transmitter settings (group/channel, frequency, name, input level of the bodypack transmitter, transmitter output, encryption and MUTE LOCK).

To program the transmitter to the receiver settings, follow the QUICK SETUP steps up to point 10.

8.4 Carrying out a sound check

To carry out a sound check, proceed as follows:

Step	Description
1	Switch on the receiver
2	Select the REHEARSAL menu; to do this, turn the SELECT wheel to the right
3	Switch on synchronised transmitter
4	Start REHEARSAL; to do this, press SELECT twice The display shows the receive signal level and the time advance in graphic form.
5	Exit the action area with transmitter Note that the receive level should never drop below -85 dBm. Reception can be improved by changing the position of the receiver antenna.
6	Mark individual positions; to do this, press the MUTE button on the transmitter The corresponding marks will appear on the receiver display.
7	Move the curve to the left or right by turning the SELECT wheel Enlarge the curve by pressing the SELECT wheel

Sound check

8.5 Selecting the country

Use the frequencies of the sets preprogrammed for your country. However, ensure that you have the licence for the transmission frequencies of the country, if required.

To select the country, proceed as follows:

Selecting the country

Step	Description
1	Switch on the receiver
2	Select the UTILITY menu; to do this, press the SELECT wheel and turn to the right
3	Select the COUNTRY menu; to do this, press the SELECT wheel and turn to the right
4	Press the SELECT wheel Select the country-specific frequency set. If your country is not listed, select the SD (standard) setting.

8.6 Listening to the audio signal

To listen to the audio signal, proceed as follows:

Listening to the audio signal

Step	Description
1	Plug headphones with 6.3 mm stereo jack plug into the headphones output (7)
2	Activate the audio signal; to do this, tap the Headphones CH1 or CH2 (6) button
3	Deactivate the audio signal; to do this, press the Headphones CH1 or CH2 (6) button for at least one second

9 Controls on the DSR800 receiver

The functions of the individual controls on the receiver vary depending on the receiver mode.

The following modes are possible:

- LOCK mode: Receiver is locked, no setting options
- SETUP mode: Receiver is unlocked, setting options available

9.1 Functions of the SELECT wheel (5)

9.1.1 Functions in LOCK mode

SELECT wheel

Long press	Unlock the receiver (switch to SETUP mode)
Tap	Confirm status and warning messages
Turn to the left or right	No function

9.1.2 Functions in SETUP mode

Long press	Lock the receiver (switch to LOCK mode)
Tap	Open the selected menu or confirm selected setting
Turn to the left or right	Select a menu or change the selected setting

9.1.3 Possible functions in the main window

Main window

QUICK SETUP menu	Directly select and synchronise every free channel in the list of channels
CHANNEL menu	Open the submenu (Frequency, Group/Channel, Name...) with the required channel Select another channel in the channel submenu
AUDIO menu	Select the receiver channel CH1 or CH2 in the submenus GAIN, DSP and ATTENUATION PAD.
REHEARSAL menu	Scroll through the HF level

9.2 Functions of the CH1, CH2 (10, 12) buttons

9.2.1 Functions in LOCK mode

In the main window	Channel window for parameter overview, no changes possible

9.2.2 Functions in SETUP mode

In the main window	Channel window for parameter setting, no changes possible

9.3 Functions of the BACK button (4)

BACK-Taste

Tap	Close current menu All unconfirmed values are deleted
Long press	Close all menus All unconfirmed values are deleted The main window is displayed

9.4 Functions of the DSP button (2)

The factory settings of the DSP button can be found in section “16.1 DSP profiles: Factory settings” on page 52.

DSP button

In the main window	Deactivate the LOW CUT, EQ, COMPRESSOR and LIMITER functions for the corresponding channel
In the AUDIO submenu	Set the parameters of the digital signal processor

9.5 Functions of the headphones buttons CH1, CH2 (6)

CH1
CH2

Tap	Put the audio signal on the headphones output The volume can be set by turning the SELECT wheel.

10 Display of the DSR800 receiver

10.1 Main window

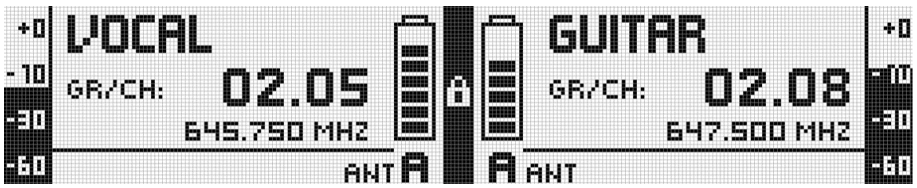
Main window

After the **DSR800** receiver is switched on, the main window is displayed.

The main window displays all parameters required for operation:

- Name
- Current frequency
- Current frequency group
- Current channel
- Audio level
- Active antenna
- Remaining operating time of the transmitter battery

With critical operating conditions (low reception level, battery almost empty, audio clipping), a warning message appears.



10.2 Battery indicator

Battery indicator

The battery indicator on transmitter (C) and receiver (C) allow the remaining capacity of the transmitter battery to be checked.

Each segment corresponds to approx. 1 hour remaining playback time. If no battery voltage is measured or the information is invalid, there is no indicator on the display. Around 1 hour before the battery is empty, the warning message "LOW BATT" and the light ring on the SELECT wheel turns red.

10.2.1 Audio level indicator (E)

Audio level

The audio level indicator (E) displays the audio level indicator of the receiver.

To modify the output level of the receiver to the connected mixing console, the output level can be adjusted in the GAIN submenu in the AUDIO menu.

10.2.2 MUTE indicator

MUTE indicator

The audio output is muted. The light ring (11) lights up red.

As the power supply and the HF section remain switched on, no interference is audible.

10.2.3 Antenna indicator

Antenna indicator

The **DSR800** receiver is a specially developed, digital True Diversity receiver with integrated antenna splitter. The antenna field (H) displays the antenna currently active.

10.3 Status and warning messages

Messages

This function draws attention to critical operating conditions of the system using optical warning messages.

Which warning messages are displayed can be set in the UTILITY → STATUS menu. If one of the selected operating conditions occurs, the light ring on the receiver changes from green to red and a corresponding status display is shown on the display. The warning messages appear in order of urgency.

Depending on the type of warning, the top field of the display continuously displays a large warning for at least 5 seconds. A small warning remains in the bottom display line until the warning is confirmed. The selected warning functions are active in LOCK mode and in SETUP mode.

The corresponding warning messages can be cleared by tapping the SELECT wheel.

10.3.1 Status and warning displays by urgency

Display	Symbol	Meaning
LOW BATT		The capacity of the transmitter battery will soon be depleted. The light ring changes to red and the display shows a large warning continuously.
AF CLIP	 	The audio signal overrides the A/D converter of the transmitter. The light ring changes to red and the display shows a large warning for the duration of the error status, but for at least 5 seconds. A small warning remains in the main window until the warning is confirmed.
LOW RF	 	The field strength of the reception signal is so low that the receiver is automatically muted to avoid interference noise. The light ring changes to red and the display shows a large warning for the duration of the error status, but for at least 5 seconds. A small warning remains in the main window until the warning is confirmed.
ANT ERROR	 	The same antenna has already been active for more than two minutes. The light ring changes to red and the display shows a large warning for the duration of the error status, but for at least 5 seconds. A small warning remains in the main window until the warning is confirmed.
INTERFERE	 	Interference signals from other radio microphones, TV, broadcasting equipment, radio transceivers or harmful electrical equipment or electrical installations have been received.

Display	Symbol	Meaning
ENCRYPTION		The encryption is not set correctly.

10.4 Channel window

Channel window

The channel window offers a rapid overview of the following tuning parameters:

- Group/channel
- Frequency
- Name
- Country
- Audio input level of the handheld or bodypack transmitter
- Padding (PAD)
- Transmission power
- Encryption
- MUTE LOCK

All parameters can be changed and sent to the transmitter.

A gain of +0 dB or +10 dB can be set on the **DHT800** handheld transmitter.

The **DPT800** bodypack transmitter supports a gain of the audio input signal by +0 dB, +10 dB or +20 dB. The GROUNDLIFT and WORDCLOCK fields display the corresponding current operating condition.

10.4.1 Opening the channel window

To open the channel window, proceed as follows:

Step	Description
1	In the main window, press the CH1 (10) or CH2 (12) buttons for the required channel

11 Display of the DHT800/DPT800 transmitter

11.1 Battery indicator

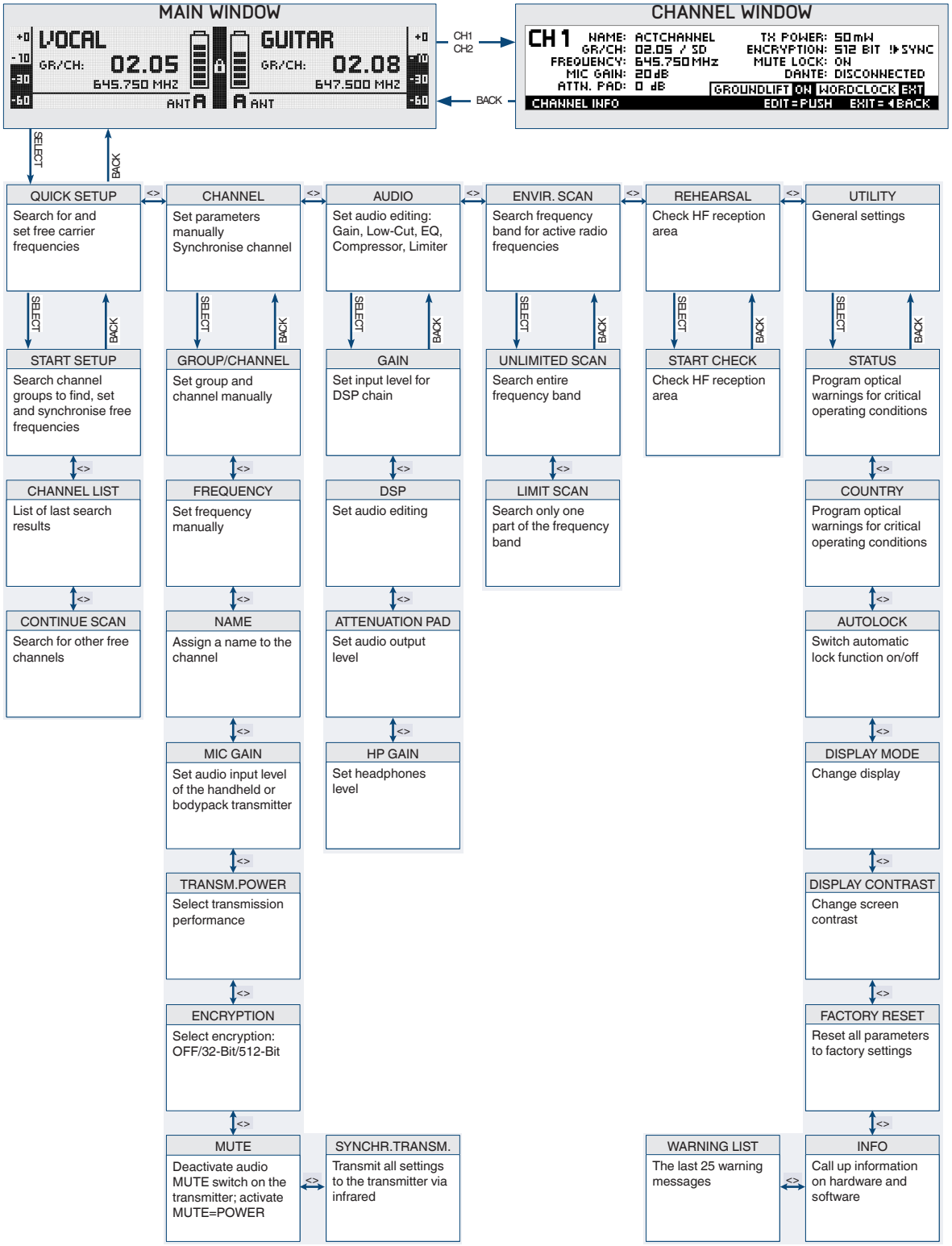
Transmitter display

The battery indicator on transmitter (C) and receiver (C) allow the remaining capacity of the transmitter battery to be checked at a glance.

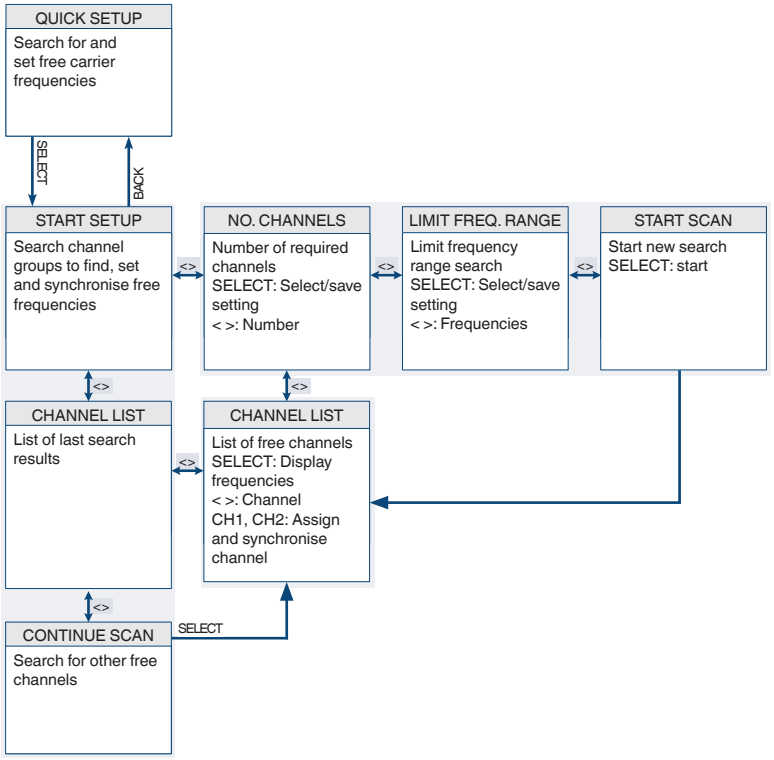
Each segment corresponds to approx. 1 hour remaining playback time. If no battery voltage is measured or the information is invalid, there is no indicator on the display.

Around 1 hour before the battery is empty, the warning message "LOW BATT" appears on the receiver and the light ring on the receiver turns red.

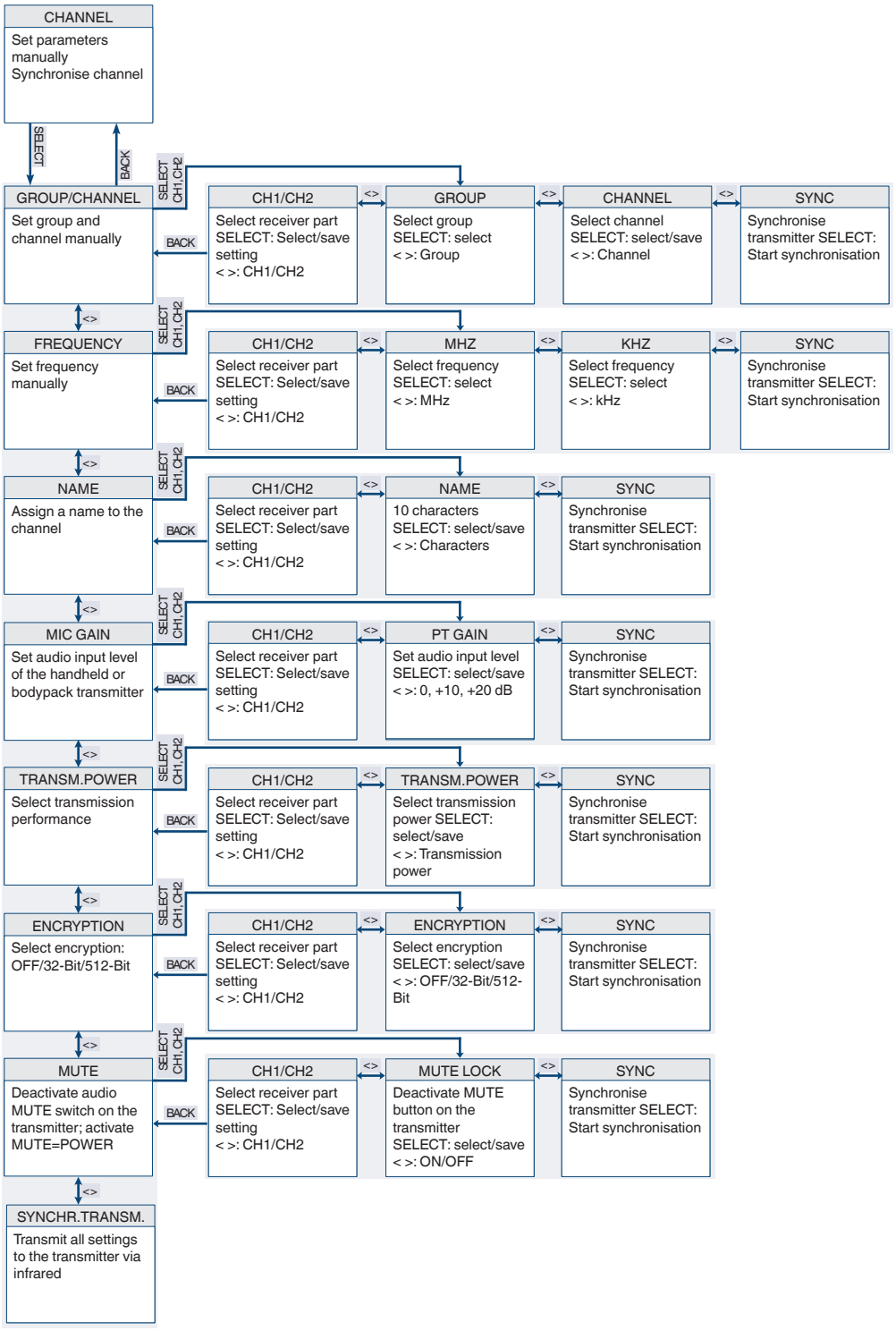
12 Menu structure of the DSR800 receiver



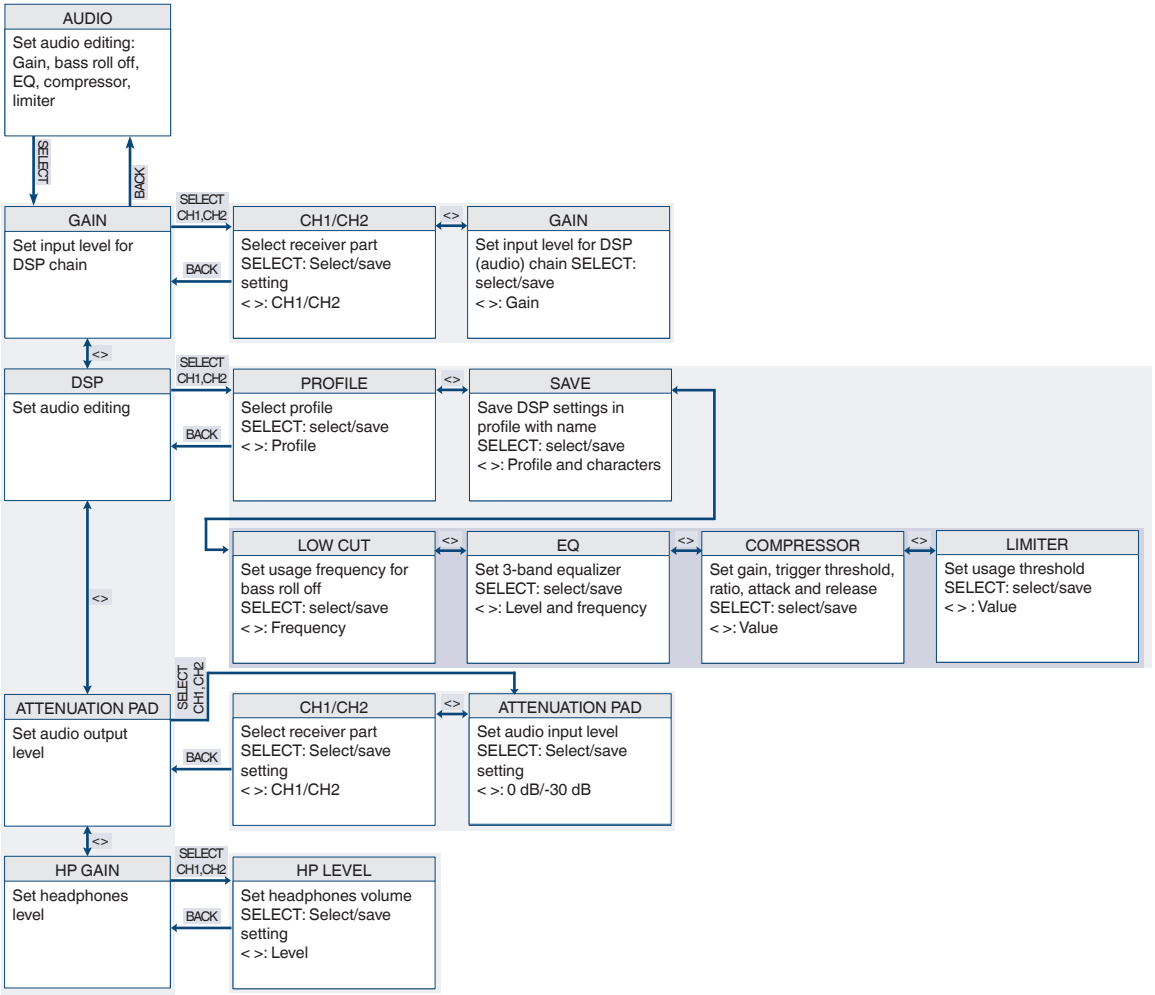
12.1 QUICK SETUP menu



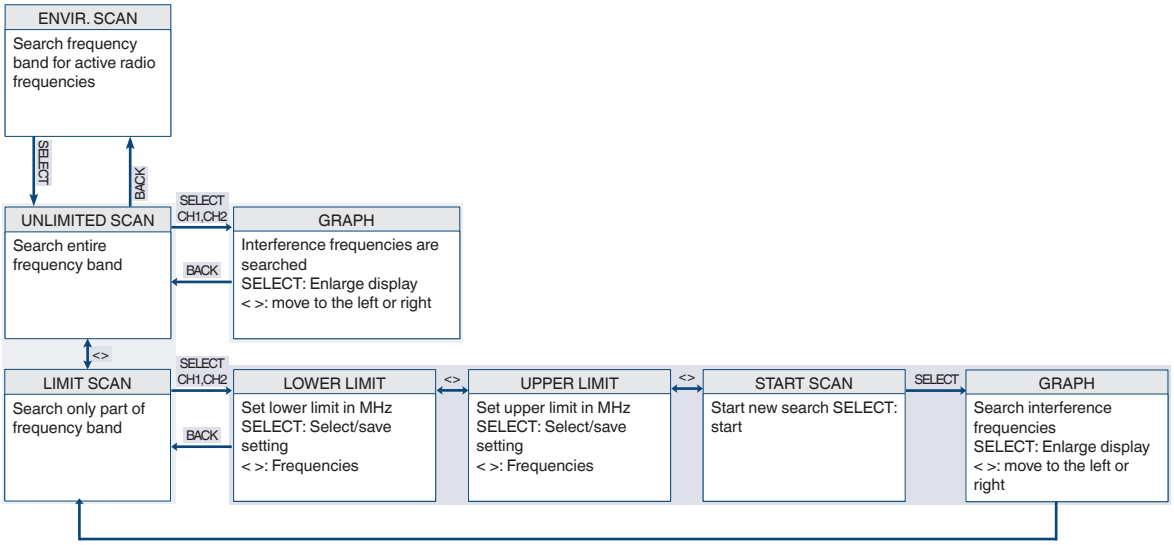
12.2 CHANNEL menu



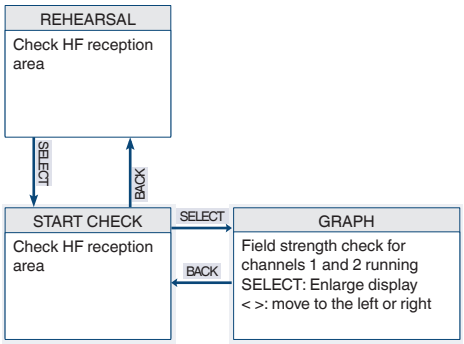
12.3 AUDIO menu



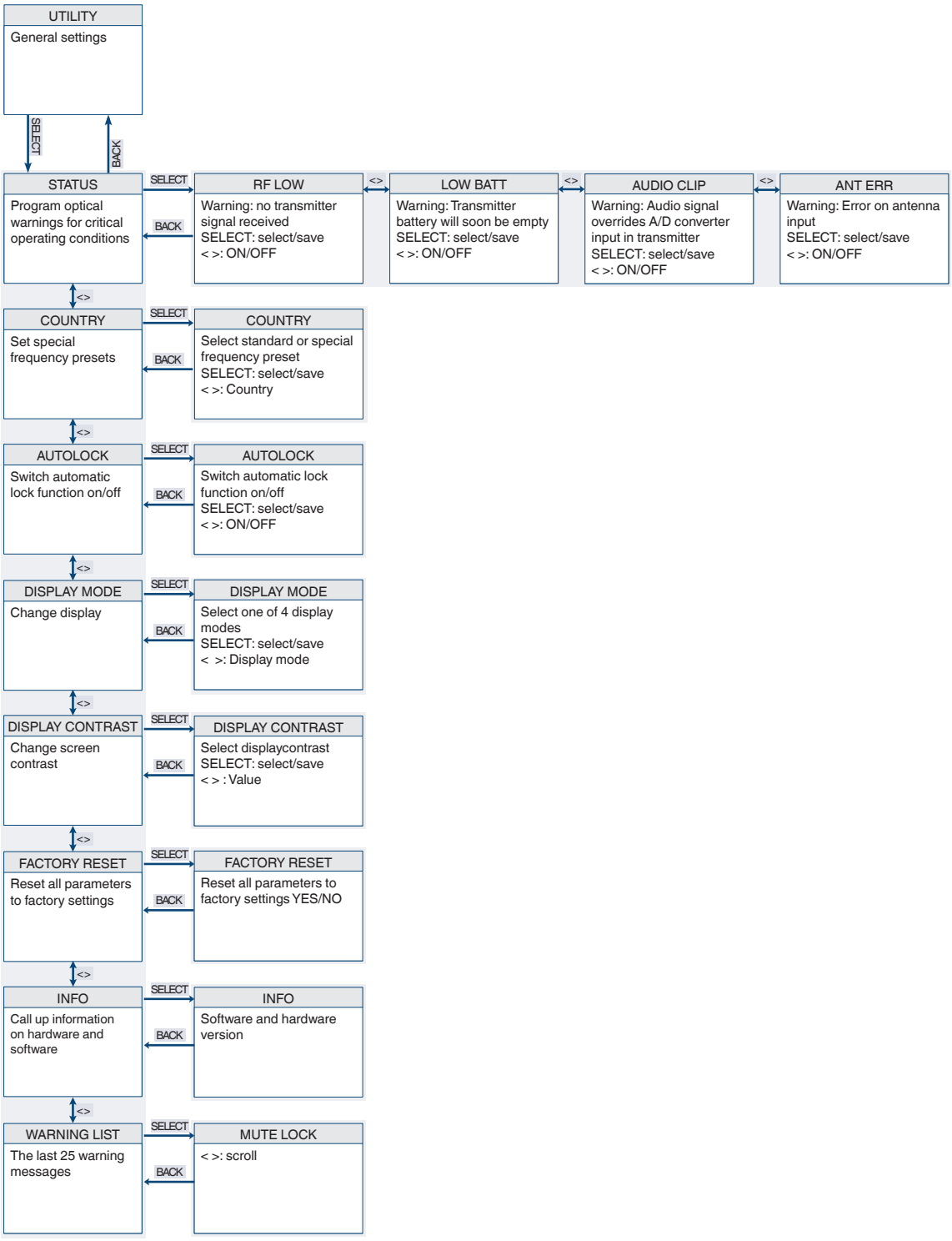
12.4 ENVIR. menu SCAN



12.5 REHEARSAL menu



12.6 UTILITY menu



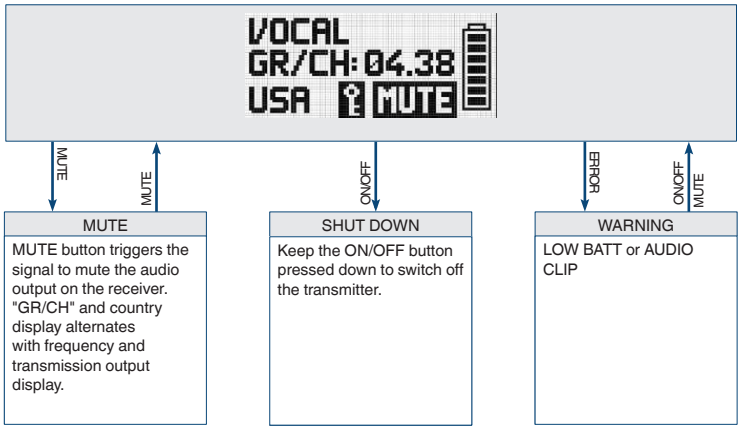
13 Menu structure of the transmitter

To switch on the transmitter, proceed as follows:

Step	Description
1	Press the ON/OFF button for 2 seconds

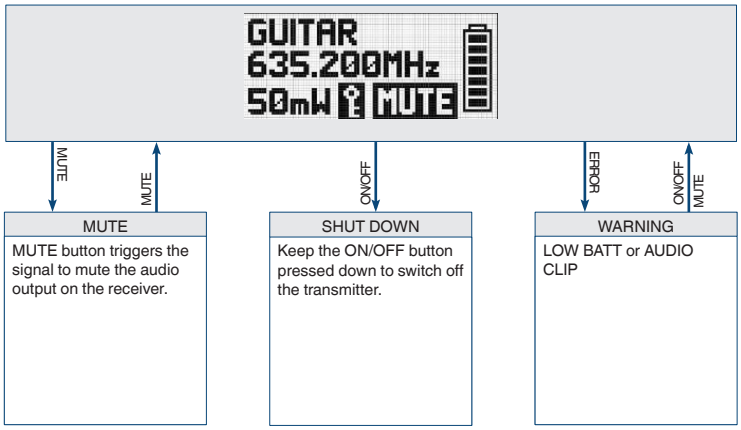
13.1 Preset mode

After synchronisation of a group and a channel, the group (GR), channel (CH) and country appear on the display.



13.2 Frequency mode

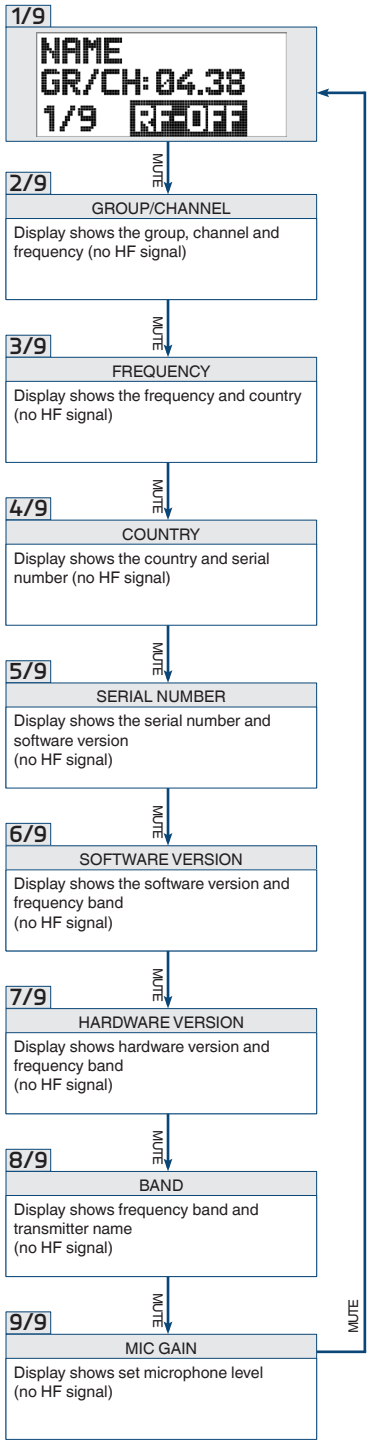
After synchronisation of a manually set frequency, the frequency and transmitter output appear on the display



13.3 Silent mode

To switch on the transmitter in silent mode, proceed as follows:

Step	Description
1	When switching on the ON/OFF switch (6), press with the MUTE switch (2) held down at the same time The entry RF-OFF is shown on the display.



14 Functional description

The DSR800 has been developed for operation in large multi-channel systems.

14.1 CHANNEL menu

This menu can be used to manually set all parameters relevant for a channel such as group/channel, frequency, name, input level of the bodypack transmitter, encryption and MUTE LOCK.

The DSR800 receiver provides frequency groups with specially calculated frequencies. The required channel (frequency) can be manually set and synchronised in this menu.

Ensure that all channels are selected from the same group within the same presets. To search for free channels, we recommend the QUICK SETUP function

The following table describes the functions of the submenus in the CHANNEL menu.

Submenu	Function
FREQUENCY	Set the frequency directly in 25 kHz increments
NAME	Assign any name for each channel (name of a musician, instrument, or similar)
MIC GAIN	Adjust the audio input level of the DPT800 bodypack transmitter to the connected microphone
TRANSM. POWER	Set the transmission power of the synchronised transmitter

Submenu	Function
ENCRYPTION	Activate the encryption function When the encryption function is activated, the receiver calculates a one-off key every time a transmitter is synchronised. This key is sent to the transmitter during the synchronisation process. The key is not displayed and it is not possible to send the same key to two transmitters. **Note:** • For transmitters with firmware versions lower than 2.0, choose the 32-Bit encryption. (These transmitters do not function with 512 Bit encryption.) • For transmitters with firmware version 2.0 or higher you can achieve the highest possible security with 512 Bit encryption. • If you use a replacement transmitter for a channel, the encryption must be deactivated.
MUTE	The MUTE LOCK function deactivates the MUTE switch on the transmitter The transmitter synchronised with the receiver cannot be muted with the MUTE button. The MUTE=POWER function allows the MUTE button of the transmitter to be used as the on/off switch as well.
SYNCHR. TRANSMITTER	Programming the transmitter to the receiver settings
GAIN	Set input level of the DSP chain

Submenu	Function
DSP	Edit audio signal directly on the receiver Settings can be stored in one of the nine DPS profiles in a freely selectable name. The digital signal processor offers the following dynamic editing functions: • Low Cut (frequency: 10 - 300 Hz) • 3-band equalizer (low: ±20 dB, 80 Hz shelving; parametric mid: ±20 dB, 100 Hz to 10 kHz, Q = 2; high: ±20 dB, 8 kHz shelving) • dbx® compressor (threshold: -60 - +9 dBV, ratio: 1:1 - 1:10, gain: 0 - 20 dB, attack: 1 - 100 ms, release: 1 - 2000 ms) • dbx® limiter (threshold: -20 - +9 dBV) Changes to a profile always affect both channels. All previous settings of a profile are overwritten.
ATTENUATION PAD	Modify the level of the balanced audio output to the input sensitivity of the connected equipment With microphone inputs, the setting 0 dB can result in overloads. If the receiver is connected to a microphone input, it is recommended to select -30 dB. The unbalanced line output cannot be controlled.
ENVIRONMENT SCAN	This function works in a similar way to a spectrum analyser. • UNLIMITED SCAN: the entire frequency band of the receiver is searched for active radio frequencies • LIMIT SCAN: only a part of the frequency band is searched for active radio frequencies During the search process, the audio output remains muted and the display shows the result graphically. Turn the SELECT wheel: Move the curve to the left or right Press SELECT: Enlarge curve

<table>
<tr><th>Submenu</th><th>Function</th></tr>
<tr><td>REHEARSAL</td><td>Sound check

Check HF level of the transmitter in the action area

The maximum recording time is four minutes</td></tr>
<tr><td>UTILITY STATUS</td><td>Activate optical warning function for specific critical operating conditions

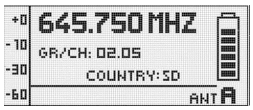
If one of these operating conditions occurs, the light ring around the SELECT wheel on the receiver changes from green to red and a corresponding status display is shown on the display.

The light ring changes to red and the display shows a large warning for 5 seconds. A small warning remains on the display until the warning is cleared by pressing the SELECT wheel.

The warning messages appear in order of urgency.

The selected warning functions are active in LOCK mode and in ACTIVE mode.</td></tr>
<tr><td>COUNTRY</td><td>Selecting the country

A country must be selected when switching on the receiver for the first time.</td></tr>
<tr><td rowspan="3">DISPLAY MODE</td><td colspan="2">Change the appearance of the display

The following display modes are available</td></tr>
<tr><td>MAIN
 
</td><td>FREQUENCY
 
</td></tr>
<tr><td>NAME
 
</td><td>GROUP/CHANNEL
 
</td></tr>
<tr><td>DISPLAY CONTRAST</td><td colspan="2">Modify the contrast of the display to the current lighting conditions</td></tr>
<tr><td>FACTORY RESET</td><td colspan="2">Reset parameters to factory settings</td></tr>
</table>

Submenu	Function
INFO	Call up information on the receiver software and the transmitters synchronised with it
WARNING LIST	Calling up warning messages This function saves the last 25 warning messages.

15 Maintenance and cleaning

15.1 Maintenance

The equipment must only be opened, serviced and repaired by authorised personnel. The equipment contains no user-serviceable parts.

15.2 Cleaning

Caution: Unplug the DSR800 receiver mains cable from the socket!

Clean the surface of the equipment with a soft cloth moistened with water.

Never use caustic or scouring cleaners or cleaning products containing alcohol or solvents since these may damage the enamel and plastic parts.

16 Troubleshooting

Error	Possible cause	Correction
No sound	Errors due to other wireless systems, TV, radio, wireless devices or harmful electrical equipment or installations.	Switch off other wireless systems
	Transmitter set to a frequency different from the receiver.	Set transmitter to the frequency
	Transmitter switch or MUTE switch on "MUTE".	Switch on transmitter or press the MUTE switch
	Mains cable is not plugged into the receiver and/or mains socket.	Plug mains cable into the receiver and/or mains socket
	Receiver is switched off.	Switch on the receiver
	Receiver is not connected to the PA system.	Connect receiver to the PA system
	Microphone or instrument is not connected to the bodypack transmitter.	Connect microphone or instrument to the bodypack transmitter
	Batteries incorrectly inserted in the transmitter.	Check the insertion direction of the batteries in the transmitter
	Transmitter batteries or rechargeable batteries empty.	Replace transmitter batteries or rechargeable batteries
	Transmitter is too far away from the receiver.	Move the transmitter to the receiver
	Barriers between the transmitter and receiver are creating shadows on the transmitter signal.	Remove the barriers between the transmitter and receiver
	No line of sight between the transmitter and receiver.	Ensure a clear line of sight between the transmitter and receiver
	Receiver too close to metallic objects.	Remove receiver from metallic objects
	Software on the transmitter and receiver does not match.	Check the software
Distortions	GAIN set too high or too low.	
	Suboptimal DSP settings.	Check the DSP settings
Brief dropouts at some points of the action area.	Receiver or antennae incorrectly positioned	Reposition receiver or remote antennae. If dropouts remain, mark and avoid critical points.
	Transmitter is too far away from the receiver.	Move the transmitter to the receiver

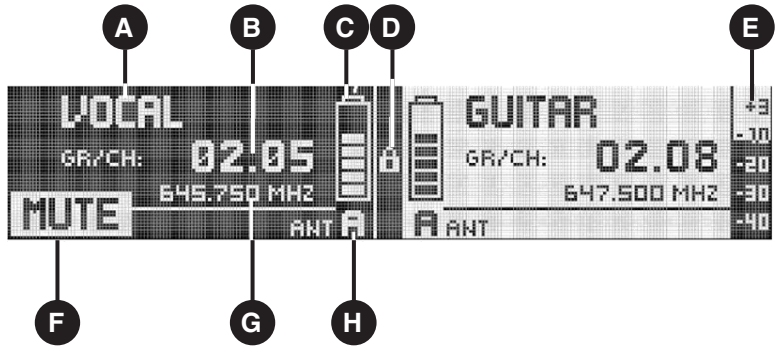
Error	Possible cause	Correction
RF LOW	The field strength of the reception signal is so low that the receiver is automatically muted to avoid interference noise.	Reposition receiver or use remote antennae.
AF CLIP	The audio signal overrides the A/D converter of the transmitter.	Reduce audio input level.
ANT ERROR	The same antenna has already been active for more than two minutes.	Check if the antenna cable is faulty or incorrectly connected.
LOW BATT	The capacity of the transmitter battery will soon be depleted.	Insert new batteries.
SYSTEM ERROR	Internal error.	Switch off receiver and switch back on after approx. 10 seconds. If the error occurs again, contact your AKG service centre.
RF ERROR, PLL ERROR	Receiver cannot be synchronised to the set frequency.	Tap the SELECT wheel to confirm errors and set another frequency. If the error occurs again, contact your AKG service centre.
UPDATE FIRMWARE	System is ready for software updates.	Switch off receiver and switch back on after approx. 10 seconds. If the error occurs again, contact your AKG service centre.
INTERFERE ERROR	Errors due to other wireless systems, TV, radio, wireless devices or harmful electrical equipment or installations.	Change frequency or switch off device creating the interference.
ENCRYPTION!	Encryption not set correctly.	Synchronise transmitter.
	Errors due to other DMS800 transmitters.	Change carrier frequency (resynchronise)
WRONG DEVICE	Transmitter and receiver work in different frequency bands	Ensure that the transmitter and receiver are working on the same frequency band
ERROR DEVICE	Transmitter data contains errors.	If the error occurs frequently, contact your AKG service centre.
TIMEOUT	No infrared data detected.	Align the IR window of the transmitter and receiver with one another and resynchronise.

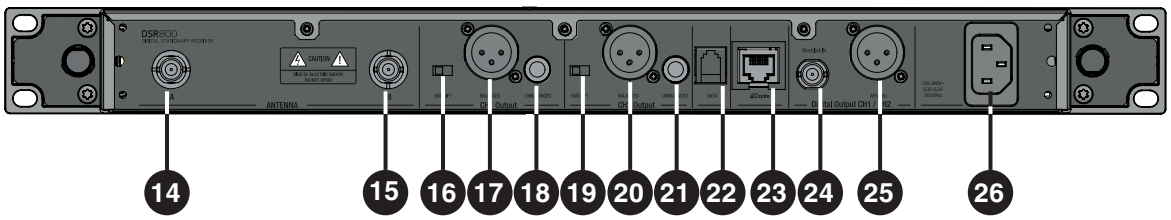
16.1 DSP profiles: Factory settings

					LOW CUT	EQ				COMPRESSOR					LIMITER
No.		Profile	Name	Application	Freq. [Hz]	Low [dB]	Mid [dB]	Mid Freq [kHz]	High [dB]	Threshold [dB]	Ratio	Gain [dB]	Attack [ms]	Release [ms]	Threshold [dB]
1	Presenter	Handheld transmitter	Present HT	Beginners, MS Powerpoint, churches, presenters	77	0	0	1.0	3.0	-30	2.1:1	3	1	71	0
2		Headset	Present PT		40	OFF				-25	1.5:1	5	6	207	
3	Music	Handheld transmitter	Music HT	Experienced users, vocalists, rock bands, karaoke, musical	40	OFF				OFF					9
4		Headset	Music PT												
5	Instrument	Instrument microphone with bodypack transmitter	Instru PT	Beginners and experts, trumpet, tuba, drums	OFF	OFF				OFF					9
6		Guitar with bodypack transmitter	Guitar PT	Electric guitar, electric bass, active acoustic guitar											
7-9	'	User	User 1-3	-											

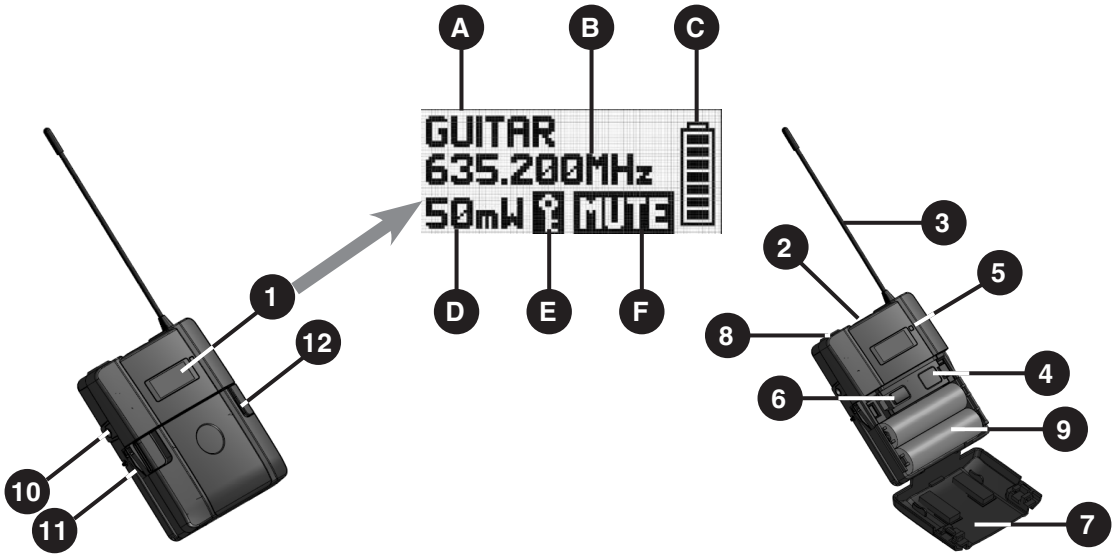
17 DMS800: Controls

17.1 DSR800





17.2 DPT800



17.3 DHT800