

# TP8115/TP8120 Conventional Portable Radios **User's Guide**

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# Directive 2014/53/EU Declaration of Conformity

## **da**      **Dansk**

Undertegnede Tait Limited erklærer herved, at følgende udstyr TPCB1A, TPCH5A & TPCH6A overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EF. Se endvidere: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **de**      **Deutsch**

Hiermit erklärt Tait Limited die Übereinstimmung der Geräte TPCB1A, TPCH5A & TPCH6A mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 2014/53/EG. Siehe auch: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **el**      **Ελληνικά**

Η Tait Limited δηλώνει ότι το TPCB1A, TPCH5A & TPCH6A συμμορφώνεται προς τις ουσιαστικές απαιτήσεις και τις λοιπές σχετικές διατάξεις της Οδηγίας 2014/53/ΕΚ. Βλέπε επίσης: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **en**      **English**

Tait Limited declares that this TPCB1A, TPCH5A & TPCH6A complies with the essential requirements and other relevant provisions of Directive 2014/53/EC. See also: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **es**      **Español**

Por medio de la presente Tait Limited declara que el TPCB1A, TPCH5A & TPCH6A cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/CE. Vea también: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **fi**      **Suomi**

Tait Limited vakuuttaa täten että TPCB1A, TPCH5A & TPCH6A tyypin laite on direktiivin 2014/53/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen. Katso: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **fr**      **Français**

Par la présente, Tait Limited déclare que l'appareil TPCB1A, TPCH5A & TPCH6A est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/CE. Voir aussi: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **it**      **Italiano**

Con la presente Tait Limited dichiara che questo TPCB1A, TPCH5A & TPCH6A è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/CE. Vedi anche: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **nl**      **Nederlands**

Hierbij verklaart Tait Limited dat het toestel TPCB1A, TPCH5A & TPCH6A in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EG. Zie ook: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **pt**      **Português**

Tait Limited declara que este TPCB1A, TPCH5A & TPCH6A está conforme com os requisitos essenciais e outras provisões da Directiva 2014/53/CE. Veja também: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

## **sv**      **Svensk**

Härmed intygar Tait Limited att denna TPCB1A, TPCH5A & TPCH6A står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EG. Se även: [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc)

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## **Enquiries and comments**

If you have any enquiries regarding this document, or any comments, suggestions and notifications of errors, please contact your regional Tait office.

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In the interests of improving the performance, reliability or servicing of the equipment, Tait International Limited reserves the right to update the equipment or this document or both without prior notice.

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## Environmental responsibilities

Tait International Limited is an environmentally responsible company which supports waste minimization, material recovery and restrictions in the use of hazardous materials.



The European Union's Waste Electrical and Electronic Equipment (WEEE) Directive requires that this product be disposed of separately from the general waste stream when its service life is over. For more information about how to dispose of your unwanted Tait product, visit the Tait WEEE website at [www.taitradio.com/weee](http://www.taitradio.com/weee). Please be environmentally responsible and dispose through the original supplier, or contact Tait International Limited.



Tait International Limited also complies with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive in the European Union.

In China, we comply with the Measures for Administration of the Pollution Control of Electronic Information Products. We will comply with environmental requirements in other markets as they are introduced.

# For your safety

Before using the radio, please read the important safety and compliance information in the following sections. Before using an intrinsically safe (IS) radio, see also "[Intrinsically Safe radios](#)" on page 16.

## Safety warnings used in this guide

Please follow exactly any instruction that appears in the text as an 'alert'. An alert provides necessary safety information as well as instruction in the proper use of the product. This user's guide uses the following types of alert:



**Warning** This alert is used when there is a hazardous situation which, if not avoided, could result in death or serious injury.



**Caution** This alert is used when there is a hazardous situation which, if not avoided, could result in minor or moderate injury.

**Notice** This alert is used to highlight information that is required to ensure procedures are performed correctly. Incorrectly performed procedures could result in equipment damage or malfunction.



This icon is used to draw your attention to information that may improve your understanding of the equipment or procedure.

## Radio frequency exposure information

For your own safety and to ensure you comply with the Federal Communication Commission's (FCC) radio frequency (RF) exposure guidelines, please read the following information before using this radio.

### Using this radio

You should use this radio only for work-related purposes (it is not authorized for any other use) and if you are fully aware of, and can exercise control over, your exposure to RF energy. To prevent

exceeding FCC RF exposure limits, you must control the amount and duration of RF that you and other people are exposed to.

It is also important that you:

- Do not remove the RF Exposure label from the radio.
- Ensure this RF exposure information accompanies the radio when it is transferred to other users.
- Do not use the radio if you do not adhere to the guidelines on controlling your exposure to RF.

## **Controlling your exposure to RF energy**

This radio emits radio frequency (RF) energy or radio waves primarily when calls are made. RF is a form of electromagnetic energy (as is sunlight), and there are recommended levels of maximum RF exposure.

To control your exposure to RF and comply with the maximum exposure limits for occupational/controlled environments, follow these guidelines:

- Do not talk (transmit) on the radio more than the rated transmit duty cycle. This is important because the radio radiates more energy when it is transmitting than when it is receiving.
- When listening and talking on the radio, hold it upright in front of your face so that it is at least one inch (2.5cm) away from any part of your face. Keeping the radio at the recommended distance is important because exposure to RF decreases rapidly the further away the antenna is from your body.
- Keep the antenna at least one inch (2.5cm) from your face at all times.
- If you wear your radio, you must always put it in a carrying accessory that has been specifically approved by Tait for this radio. Using non-approved body-worn accessories may mean you expose yourself to higher levels of RF than recommended

by the FCC's occupational/controlled environment RF exposure limits.

- Ensure you only use Tait-approved antennas, batteries, and accessories.

For more information on what RF energy is and how to control your exposure to it, visit the FCC website at

[www.fcc.gov/oet/rfsafety/rf-faqs.html](http://www.fcc.gov/oet/rfsafety/rf-faqs.html).

## **Compliance with RF energy exposure standards**

This two-way radio complies with these RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR §§ 1.1307, 1.1310, and 2.1093.
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95.1-1992.
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition.

This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk to 50% listen.

## **Radio frequency emissions limits in the USA**

Part 15 of the FCC Rules imposes RF emission limits on receivers. This radio complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

## **Radio frequency emissions limits in Canada**

This device complies with Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

## Frequency band reserved for distress beacons

Frequency band 406 to 406.1 MHz is reserved for use by distress beacons. Transmissions should not be made within this frequency band.

## Australia and New Zealand citizens band (476.4 to 477.4MHz)

AS/NZS 4365 deals with the use of frequencies in the 476.425 to 477.400 MHz band. Products capable of operating in this band have been approved for operation in the UHF Citizens Band Radio Service which is licensed in Australia by the ACMA Radiocommunications (Citizens Band Radio Stations) Class Licence and in New Zealand by the MED General User Radio Licence for Citizens Band Radio. Operation is subject to conditions contained within those licences.

Repeaters operate by receiving a transmission on one channel and re-transmitting it on another. Operators are required to avoid using local repeater input channels, which will be in the range of 31 to 38, unless it is intended to use the repeater facility, and to avoid using local repeater output channels, which will be in the range 1 to 8, at any time.

No voice transmissions are permitted on data channels 22 and 23. Equipment meeting this standard will inhibit voice operation on channels 22 and 23.

In Australia:

- Except in an emergency, a CB transmitter must not be operated on UHF channels 5 and 35.
- Channel 11 is the customary calling channel for establishing communications.
- Channel 40 is the customary road vehicle channel.

## **Health, safety and electromagnetic compatibility in Europe**

In the European Community, radio and telecommunications equipment is regulated by Directive 1999/5/EC, also known as the Radio and Telecommunications Terminal Equipment (R&TTE) directive. The requirements of this directive include protection of health and safety of users, as well as electromagnetic compatibility.

### **Intended purpose of product**

This product is an FM radio transceiver. It is intended for radiocommunication in the Private Mobile Radio (PMR) or Public Access Mobile Radio (PAMR) services, to be used in all member states of the European Union (EU) and states within the European Economic Area (EEA).

### **Restrictions**

This product can be programmed to transmit on frequencies that are not harmonized throughout the EU/EEA, and will require a licence to operate in each member state.

This product can be programmed for frequencies or emissions that may make its use illegal. Where applicable, a license must be obtained before this product is used. All license requirements must be observed. Limitations may apply to transmitter power, operating frequency, channel spacing, and emission.

### **Declaration of conformity**

Brief Declarations of Conformity appear on [on page 3](#) of this document. To download the formal declaration of conformity, go to [www.taitradio.com/eudoc](http://www.taitradio.com/eudoc).

## Interference with electronic devices



**Warning** Some electronic devices may be prone to malfunction due to the lack of protection from RF energy that is present when your radio is transmitting.

Examples of electronic devices that may be affected by RF energy are:

- aircraft electronic systems
- vehicular electronic systems such as fuel injection, anti-skid brakes, and cruise control
- medical devices such as pacemakers and hearing aids
- medical equipment in hospitals or health care facilities.

Switch off the radio before boarding an aircraft. Using your radio while in the air is not permitted.

Consult the manufacturer (or its representative) of any such electronic devices to determine whether electronic circuits in those devices will perform normally when the radio is transmitting.



**Warning** If you have a pacemaker:

- immediately turn off the radio if you suspect it is interfering with the pacemaker
- keep the radio at least 6 inches (15cm) from the pacemaker while the radio is on
- use the radio on your right side to minimize interference
- never carry the radio in a breast pocket.

If there is interference between your hearing aid and the radio, please discuss an alternative solution with the hearing aid manufacturer.

## Potentially explosive atmospheres and blasting areas



**Warning** Unless the radio is specifically certified for use in a potentially explosive atmosphere, turn off the radio before entering such an atmosphere. An explosion could cause serious injury or death. Examples of potentially explosive atmospheres include filling stations, and any environment where there are flammable liquids, gases, or dusts.






**Warning** Turn off the radio before approaching blasting caps, a blasting area, or any area where you are instructed to turn off a two-way radio. Obey all signs and instructions. Interference with blasting operations could cause serious injury or death.

## Intrinsically Safe radios

Intrinsically Safe (IS) radios are certified by a third party to be safe to use in particular hazardous locations.

One or more of the following marks identifies a TP8100 portable as an IS radio:

- an IS circle logo on the radio's front panel 
- a label on the radio, showing IS information and the FM diamond logo 
- a label on the radio battery, showing IS information and the FM diamond logo .

An IS radio must be serviced only by an agency certified by both the approval authority and by Tait Limited. Any unauthorized repair or substitution of parts invalidates the intrinsic safety rating and the third party IS approval. To have an IS radio serviced, return it to an authorized Tait branch or subsidiary.

Intrinsically safe TP8100 radios and accessories are approved by Factory Mutual Corporation (FM) to the following ratings:

- IS / I, II, III / 1 / CDEFG / T4, Ta=40°C; IP67
- NI / 1 / 2 / ABCD / T4, Ta=40°C
- S / II, III / EFG; IP67.



TP8100 radios with the product code "T03-20x" have FM IS approval.

The following communication accessories can be used with an Intrinsically Safe TP8100 radio, but are suitable for IS / I / 1 / CD and NI / I / 2 / CD applications only.

- TPK-AA-101 heavy-duty speaker microphone (MIL-STD) with volume control and programmable button
- T952-051 in-ear earphone



**Warning** Use only an IS-approved battery with an IS radio, and do not charge the battery in a hazardous location. An explosion could cause serious injury or death.

Use only IS-approved accessories with IS radios. For an up-to-date list of FM-approved accessories, go to the Tait website or contact your nearest Tait office.



**Warning** IS certification applies only while the product is used in accordance with these instructions.

## Radio installation and operation in vehicles



**Warning** Keep the radio away from airbags and airbag deployment areas. Do not install, charge, or place a radio near such areas. An activated airbag can propel a portable radio with sufficient force to cause serious injury to vehicle occupants. An airbag may not perform to specification if obstructed by a radio.



**Warning** To avoid damage to existing wiring, airbags, fuel tanks, fuel and brake lines, or battery cables, refer to the installation guide for the radio, and to the vehicle manufacturer's manual, before installing electronic equipment in the vehicle.

Using a handheld microphone or a radio while driving a vehicle may violate the laws and legislation that apply in your country or state. Please check the vehicle regulations in your area.

## Vehicle charger installation and operation

For detailed instructions necessary to the safe installation and operation of the vehicle charger, please refer to the documentation supplied with the vehicle charger.

## Electromagnetic compatibility in European vehicles

In the European Community, radio equipment fitted to automotive vehicles is regulated by Directive 72/245/EEC and its amendments. The requirements of this directive cover the electromagnetic compatibility of electrical or electronic equipment fitted to automotive vehicles.

## Unapproved modifications or changes to radio

The radio is designed to satisfy the applicable compliance regulations. Do not make modifications or changes to the radio that are not expressly approved by Tait Limited. Failure to do so could invalidate compliance requirements and void the user's authority to operate the radio.

## Attaching of labels



**Warning** Do not obstruct the vent hole on the battery or the vent hole on the radio chassis label. If the vent on the battery is obstructed the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

**Notice** Tait Limited recommends that you do not affix additional labels to the surfaces between the radio chassis and the battery. The fit between these surfaces is intentionally firm and any added thickness will damage the points of attachment between radio and battery. If you must attach a customized label, use only a thin gummed paper label applied to the bottom 25% of the radio chassis label and/or to the top 25% of the battery label. Do not obstruct the vent holes (see Warning above). Do not allow the

paper label to extend beyond the recessed label area or to conceal relevant product information.

## Use of lithium-ion batteries



**Warning** A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage. To prevent personal injury and/or damage to property, read the important safety information supplied with the battery.

## Short-circuiting battery contacts



**Caution** Do not short-circuit the battery contacts, neither intentionally nor accidentally, e.g. by placing the battery with conductive materials such as keys or jewelry inside a pocket or container. Short-circuiting the battery contacts can heat up the conductive material and cause personal injury and/or damage to property.

## Multicharger safety information



**Warning** English (en): This equipment must be connected to an earthed mains socket-outlet.

Norsk (no): Apparatet må tilkoples jordet stikkontakt.

Suomi (fi): Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

Svenska (sv): Apparaten skall anslutas till jordat uttag.

## Charger compliance information

### United States

This battery charger has been tested and found to comply with the limits for a Class B digital device, in accordance with part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This battery charger generates, and can radiate, radio frequency energy. If it is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur. If this charger does cause harmful interference to radio or television reception (which can be determined by turning the charger off and on), try to correct the interference by:

- Reorienting or relocating the receiving antenna.
- Increasing the separation between the equipment and receiver.
- Connecting the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consulting the dealer or an experienced radio or television technician for help.

### Canada

This Class B digital apparatus complies with Canadian ICES-003.  
Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.

# Menu map

Some or the menus shown below may not be available for your radio. Menu text may be customized when the radio is programmed.

## Main Menu

- Queued Calls
- Select Channel
- Select Zone
- Send Selcall
  - Dial Selcall (TP8120 only)
  - Select Status
- Send DTMF
- Address Book
- Send SDM [Short Data Message]
- User Settings
  - Low Pwr
  - Keylock
  - DTMF (TP8120 only)
  - Economy
  - Monitor
  - Sq Ovr [Squelch Override]
- Security Settings
  - Scrambler
  - Encrypt
  - Select code
- Alert Settings
  - Tones
  - Level
  - Keytone
- Display Settings
  - Night
  - RSSI
  - Adjust Contrast
- Advanced Settings
  - Program Group
  - Program Signal
  - Program BSCN GRP  
[background scan]
  - Version Info
    - FW Ver
    - HW Ver
    - Main DB
    - Cal DB

# Custom radio settings

## Top key

short press: \_\_\_\_\_

long press: \_\_\_\_\_

## Function key 1

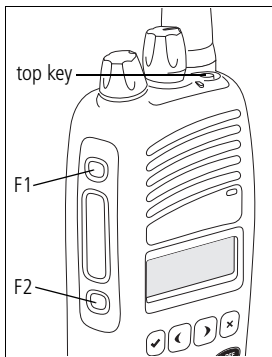
short press: \_\_\_\_\_

long press: \_\_\_\_\_

## Function key 2

short press: \_\_\_\_\_

long press: \_\_\_\_\_



## Shortcut menus

top \_\_\_\_\_

F1 \_\_\_\_\_

F2 \_\_\_\_\_

## Commonly used channels/groups

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

# About this guide

This user's guide provides information about the TP8115 and TP8120 portable radios.

The radio behavior described in this guide applies to radios with firmware version 1.07 or higher. If your radio does not operate as you expect, contact your radio provider for assistance.

## Related documentation

The following documentation is also available for your Tait radio, which you can access from the Tait Technical Support website (<http://support.taitradio.com>):

- Safety and Compliance Information—supplied with each radio. (The same information is included in this user's guide.)
- Li-ion Battery Safety Information—supplied with each Li-ion battery.
- Battery Charging Guide—supplied with each charger. (The same information is in the section "[Charging and caring for batteries](#)" on page 92.)

## Before using your radio

Once you have unpacked your radio, there are a few tasks you must do before you can use it. The most important of these is to charge your battery for the first time—allow 2.5 hours for this.



**Warning** Fit only an IS-approved battery and IS-approved accessories to an intrinsically safe (IS) radio. Fitting a battery or accessory that is not IS-approved exposes the customer to a risk of explosion which could cause serious injury or death. For detailed information about IS radios and how to identify them, see ["Intrinsically Safe radios" on page 16.](#)

### **This section covers:**

- [For your safety—battery warning](#)
- [Attaching labels to the radio or battery](#)
- [Charging the battery before first use](#)
- [Attaching the battery](#)
- [Removing the battery](#)
- [Attaching the antenna](#)
- [Attaching a belt clip](#)
- [Removing a belt clip](#)
- [Installing an accessory](#)



## For your safety—battery warning



**Warning** This radio uses a Lithium-ion battery. If the battery is damaged or handled in an unsafe manner, it can cause personal injury and/or damage to property. Read the important safety information included with your battery.

## Attaching labels to the radio or battery

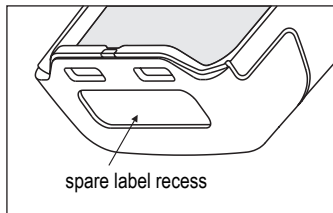


**Warning** Do not cover the battery vent hole or the vent hole on the radio chassis. If the vent on the battery is obstructed, the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

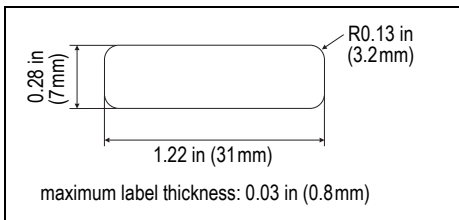
**Notice** Tait recommends that you do not affix additional labels to the surfaces between the radio chassis and the battery. The fit between these surfaces is intentionally firm and any added thickness will damage the points of attachment between radio and battery.

## Attaching a label to the front panel

If a customer requires an additional label, attach the label in the spare label recess in the bottom edge of the radio front panel. In this position, the label is still visible while the battery is attached to the radio.



The diagram below shows the specified dimensions of the label.



## Charging the battery before first use

Before using your battery for the first time, you must charge it. Follow the instructions included with your Tait charger.

- i** For best charging performance, switch off the radio before placing it in the charger.

## Attaching the battery

**Notice** Fit the bottom edge of the battery to the radio, then the top edge. Attempting to fit the top edge first may damage the contacts.

- 1 Rotate the power/volume control switch counterclockwise to turn off the radio.
- i** If the battery has been attached while the radio is turned on, turn the radio off and then on again before use.
- 2 Holding the radio firmly, align the back of the battery with the back of the chassis.
  - 3 Place the two lugs at the bottom edge of the battery into the two slots in the bottom of the front panel.
  - 4 Lightly press the top of the battery towards the radio until the battery catch clicks.
  - 5 Make sure that the battery is firmly in position.

## Removing the battery

The battery is secured to the radio by a battery catch in the radio's rear panel.

To remove the battery from the radio, so that the battery can be charged or replaced:

- 1 Slide the battery catch up.
- 2 From the sides, pull the battery away from the radio.

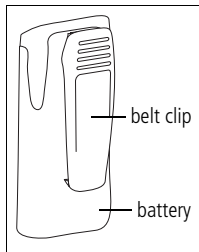
## Attaching the antenna

Before using the radio, screw the antenna clockwise into the antenna connector. The antenna should be screwed sufficiently tight so that it doesn't unscrew easily.

## Attaching a belt clip

To attach a belt clip to the radio:

- 1 Slide the belt clip into the two grooves at the top of the battery.
- 2 Press down on the belt clip until it snaps into place.



## Removing a belt clip

The belt clip has been designed to prevent accidental removal, but you can take it off, if required.

To remove a belt clip from a battery:

- 1 Insert a flat screwdriver blade or similar flat object under the lip of the release lock (that is, between it and the metal slider).
- 2 Lift the release lock up (away from the metal slider) and hold it in position.
- 3 Slide the belt clip out.

## Installing an accessory



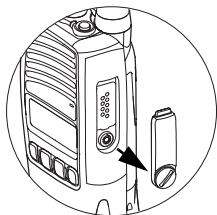
**Warning** Use only IS-approved accessories with IS radios. For an up-to-date list of FM-approved accessories, go to the Tait website or contact your nearest Tait office. For detailed information about IS radios and how to identify them, see "[Intrinsically Safe radios](#)" on page 16.

Accessories plug into the radio's accessory connector. The accessory connector is protected by a cover, which needs to be removed before an accessory can be installed.

**Notice** The accessory cover protects the accessory connector from electrostatic discharge. Keep the cover in place unless the connector is in use.

To remove the accessory cover and install an accessory:

- 1 Use a coin or other blunt object to loosen the screw that secures the accessory cover to the radio.
- 2 Remove the accessory cover and store it in a safe place.
- 3 Plug the accessory into the accessory connector.
- 4 Tighten the screw.



# Getting started

This section provides a brief description of your radio's controls and indicators and explains how to use the radio's menus.

## **This section covers:**

- [About the radio controls](#)
- [Understanding the radio display](#)
- [Understanding the radio indicators](#)
- [Navigating the radio's menus](#)
- [Accessing frequently used menus](#)
- [Turning the radio on and off](#)
- [Entering your PIN](#)
- [Adjusting the volume](#)
- [Preventing accidental calls](#)

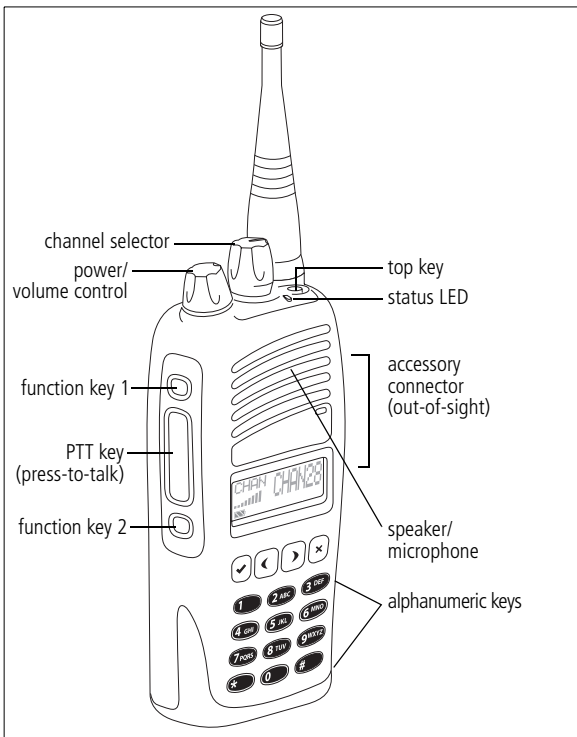
## About the radio controls

The radio controls are the PTT key, power/volume control, channel selector, top key, function keys and keypad keys.

Some keys may have functions assigned to both short and long key presses:

- a short key press is less than one second, and
- a long key press is more than one second.

The radio controls and their functions are described in the following sections.



<b>Symbol</b>	<b>Name</b>	<b>Function</b>
	PTT key	Press and hold to transmit and release to listen
	Power/volume control	Rotate to turn on the radio and change the speaker volume
	Channel selector	Select and change channels
✓	Enter/menu	Short: select a menu item, turn a function on/off (menu mode); send a short data message Long: enter/exit a mode or menu
◀ ▶	Scroll keys	Scroll through a list of menu options or messages
✕	Clear	Short: cancel or back (menu mode); delete a single character (SDM or DTMF mode) Long: keypad lock off
	Top key	Usually programmed as the emergency key or for a frequently used option or menu
	Function keys 1 and 2	Programmed for frequently used options or menus
	Alphanumeric keys	Used to enter letters and numbers

## Understanding the radio display

The messages and symbols you see on your radio display depend on the mode in which your radio is operating and the way it is programmed. The following diagram shows a typical display and explains some of the information that may be available.



### Operating modes

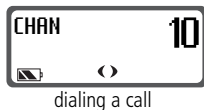
Your radio has a number of operating modes, such as **CHAN** (channel) and **MENU**. The active mode appears in the left-hand side of the display. The lower left-hand corner gives additional information on the current status of the radio.

Display Mode	Display Mode	Display Mode	Display Mode
<b>ADDR</b>	address book	<b>MENU</b>	select menu
<b>BSCN</b>	background scan	<b>QUE</b>	call queue
<b>CALL</b>	preset call	<b>RTA</b>	repeater talkaround
<b>CHAN</b>	select channel	<b>SDM</b>	short data message
<b>CODE</b>	select code	<b>STAT</b>	select status
<b>DTMF</b>	DTMF	<b>ZONE</b>	select zone

### Current operation

The panel on the right-hand side shows data for the current radio operation. In the example above, GROUP37 is the name of the currently selected channel.















When you use the keypad to dial a channel number or enter a text message, the information appears in the current operation panel.






## Radio display symbols

The bottom line of the display shows a series of symbols that give additional information on the state of the radio. The following table shows some of symbols you may see on your display.













Symbol	Meaning
	Received signal strength indicator (RSSI): the more bars, the stronger the signal being received by your radio
	Encryption status indicator: the radio's transmissions are encrypted. In this example, code <b>2</b> is active.
	Encryption status indicator: the radio's transmissions are not encrypted. In this example, code <b>2</b> is active.
	Flashing: recharge the battery
	The battery is fully charged
	The radio is in DTMF dialing mode
	Monitor or squelch override is active
	Scrolling is permitted
	Steady: the radio is scanning a group of channels for activity Flashing: activity has been found on a channel in the scan group
	There are calls in the call queue
	Steady: scramble is turned on Flashing: encryption is available
	The radio is transmitting
	Steady: low power transmit mode is active Flashing: the radio is transmitting at low power
	Flashing: lone worker is active





## Understanding the radio indicators

The status LED and the radio's audible tones—together with the radio display—all combine to give you information about the state of your radio. The most common way the indicators work is described in the following sections.

-  The way these indicators behave may be affected by the way your radio is programmed.

### Status LED indicator

Color	Flash rate	Meaning
red	 steady	Transmitting
red	 slow	Battery low. Recharge or replace as soon as possible.
red	 medium	Transmitting at low power
red	 fast	Radio is stunned. Radio also emits high-pitched beeps. Contact your dispatcher.
red	 two fast flashes	The power-up sequence is complete. Radio also emits two medium-pitched beeps.
red	 repeating fast flashes	Lone worker is now active
green	 steady	Channel busy
green	 slow	Economy mode is active
green	 medium	Monitor or squelch override is active
green	 repeating fast flashes	Lone worker is now inactive
orange	 steady	Radio is scanning or voting a group of channels for activity or greatest signal strength
orange	 slow	Repeater talkaround is active

Color	Flash rate	Meaning
orange	 medium	Activity detected on one of a group of channels being scanned
orange	 fast	A call with special signaling has been received
red/green	 fast 	Radio programmed incorrectly or faulty. Contact your radio provider.

## Audible tones

The radio uses a variety of beeps and tones to supplement the information provided by the status LED and the radio display.

Your radio may also have been programmed so that whenever you press a key, the radio beeps to indicate whether or not the action is permitted:


- permitted: short, medium-pitched beep
- not permitted: long, low-pitched beep



Audible tones may have been disabled when your radio was programmed, and a function key assigned to turn audible tones on and off.

## Navigating the radio's menus

Your radio has a number of menus available, each containing lists or submenus. The menus available will depend on the way your radio is programmed. The table below summarizes the possible options that can be accessed either through the main menu or by using programmed shortcut keys.

-  The menu text on your radio display may differ from that described in this section. Menu text may be customized when the radio is programmed.

<b>Display</b>	<b>Operation</b>
QUEUED CALLS	View and return missed calls
SELECT CHANNEL	Select a channel
SELECT ZONE	Select a zone
SEND SELCALL	Select a status message for a call
SEND DTMF	Make a call using the telephone network
ADDRESS BOOK	Make a call from a programmed list
SEND SDM	Enter and send a short data message
USER SETTINGS	Personalize settings for a range of features
SECURITY SETTINGS	Make communications private using scramble or encryption
ALERT SETTINGS	Disable or adjust the level of warning beeps and tones
DISPLAY SETTINGS	Turn night operation on/off, adjust the contrast display or turn the received signal strength indicator on/off
ADVANCED SETTINGS	Modify the make-up of scanning, voting and background scan groups; change subaudible channel settings or check radio version information

## Using the main menu

To enter menu mode and access the main menu:

- Long press ✓.

The radio displays **MENU**, together with the last selected menu or submenu item:



If necessary, press ✕ to exit the submenu, then use ◀ and ▶ to move through the list of menus:



Press and hold ◀ and ▶ to scroll through the menu options quickly.

When the menu you want appears, short press ✓ to open the menu you have chosen:



- To exit a menu or submenu option, press ✕.
- To exit menu mode, long press ✓ or short press ✕.

## Changing settings

To switch between available settings (such as high and low, or on and off):

- 1 Short press ✓ to change the setting.
- 2 Long press ✓ or short press ✕ twice to exit menu mode.

## Accessing frequently used menus



The top key and the function keys provide quick access to features or menus you use most often. These features are assigned to these keys when the radio is programmed.

See "[Function key options](#)" on page 105 for a list of features that may have been assigned to the top and function keys.


### Using the shortcut menu

The top key and function keys may be programmed to provide a shortcut for menu options. Press the key once to access the last selected option, and press again for the next option, moving in a continuous loop.

## Turning the radio on and off

-  The radio may not turn on if your battery is very low. Rotate the power/volume control switch clockwise to turn the radio on. Rotate the switch counterclockwise to turn the radio off.
-  After an IS radio is turned on, it takes about two seconds longer to power-up than a non-IS radio.

## Entering your PIN

-  This feature is only available for radios with an alphanumeric keypad.


You may need to enter a personal identification number (PIN) before you can use your radio. If the message **ENTER CODE:** appears, enter your assigned PIN and press ✓.

**ENTER CODE:**

Once you have entered your PIN correctly, the radio sounds two short beeps and normal operation is now possible.


If you do not know your PIN, consult your radio provider or system administrator.

## Adjusting the volume



- Rotate the power/volume control clockwise to increase the speaker volume and counter-clockwise to decrease the volume.
-  The power/volume control also changes the volume of the radio's audible indicators.

## Preventing accidental calls

The keypad lock feature prevents you from pressing a key accidentally. The number of keys that are locked depends on the way your radio is programmed.

-  If you receive a call while the keypad is locked, press any key to answer.

### Using the main menu

- 1 Long press  to enter menu mode.
- 2 Select **USER SETTINGS > KEYSLOCK**.
- 3 Short press  to lock the keypad.




If a locked key is pressed, the radio gives a long, low-pitched beep and the message **KEYPAD LOCKED** appears on the display.



### Using a function key

- Press the assigned function key to turn keypad lock on.

### Turning keypad lock off

- Long press  to turn keypad lock off.

# Basic operation

## **This section covers:**

- Selecting a channel or group
- About zones
- Checking that a channel is clear
- Communicating directly with other radios
- Activating the repeater before a call
- Making a call
- Receiving a call
- Using voice inversion scrambling
- Using encryption
- Hearing faint and noisy signals
- Using the radio in different repeater areas
- Scanning a group of channels
- Editing scanning and voting groups



## Selecting a channel or group

In order to make and receive calls, you first need to select a channel or group. A group is a collection of channels that are grouped together for either scanning or voting. On the display, the group is shown as a single channel item, for example, GROUP37 or SCAN1.


To select a channel or group you may be able to either:

- use the channel selector,
- use the Select Channel menu,
- use a programmed function key, or
- dial the channel or group number.

### Using the channel selector

For channels or groups numbered 1 to 16, rotate the channel selector to the channel or group you want. For all other channels or groups, use the main menu.

### Using the main menu

 If **CHAN** appears in the display then you are already operating in channel mode. Use ◀ and ▶ to scroll through the channel list and select the channel or group you want.

- 1 Long press ✓ to enter menu mode.
- 2 Scroll through the main menu options using ◀ and ▶ until **SELECT CHANNEL** is displayed.



- 3 Short press ✓ to enter channel mode, then scroll through the list of channels until the channel you want appears.




- 4 Long press ✓ to exit channel mode.

### Using a function key

- Press the assigned function key to select the required channel or group.

### Using the keypad

 This method is only available for radios with an alphanumeric keypad.

- 1 In channel mode, enter the desired channel or group number using the keypad.



- 2 Short press ✓.

The channel or group name associated with that number appears.



## About zones

A zone is a collection of channels and groups. When you select a zone, only the channels and groups assigned to that zone are available.

To select a zone you may be able to either:

- use the Select Zone menu, or
- use the channel selector

### Selecting a zone using the Select Zone menu

When the radio is configured in this way, there may be up to 32 zones available. Each zone has a maximum of 16 channels or groups.

To select the channels or groups within each zone, you may be able to either:

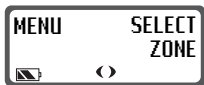
- use the channel selector,
- use ◀ and ▶, or
- dial the channel or group number.

The following table describes the way the zones, channels and groups are organized.

<b>Zone</b>	<b>Channel/group number</b>
1	1–16
2	17–32
3	33–48
...	...
up to 32	497–509

In the following example, you want to select a group in zone 3 that is assigned to channel number 37.

- 1 Long press ✓ to enter menu mode.
- 2 Scroll through the main menu options using ◀ and ▶ until **SELECT ZONE** is displayed.



- 3 Short press ✓ to enter zone mode, then scroll through the list of zones until the zone you want appears.



ⓘ If your radio has a keypad, you can enter the zone number and short press ✓ to exit zone mode.

- 4 Short press ✓ to exit zone mode.



If the channel selector is in position 1, then the channel name associated with channel number 33 appears.

- 5 Use the channel selector, ◀ and ▶ or the keypad to select the channel number 37.



## Selecting a zone using the channel selector

When the radio is configured in this way, there may be up to 16 zones available. Each zone has a maximum of 32 channels or groups.

To select the channels or groups within each zone, you may be able to either:

- use ◀ and ▶, or
- dial the channel or group number.

The following table describes the way the zones, channels and groups are organized.

Zone	Channel/group number
1	1–32
2	33–64
3	65–96
...	...
up to 16	481–509

In the following example, you want to select a group in zone 2 that is assigned to channel number 37:

- 1 Rotate the channel selector to position 2.



The channel name associated with channel number 33 appears. The channels available in this zone are numbered 33 to 64.

- 2 Use ◀ and ▶ or the keypad to select channel number 37.



## Checking that a channel is clear

You or your user group may be segregated from other user groups by special signaling. If an incoming call carries the special signaling tones specific to you or your user group, your radio's signaling mute opens and you can hear the call. These tones may not be audible.

The monitor function allows you to override any special signaling on a channel, so that you can check that the channel is clear before you make a call.

To activate monitor, you may be able to either:

- use the main menu, or
- use a programmed function key

### Activating monitor by using the menu

- 1 Long press ✓ to enter menu mode.
- 2 Select **USER SETTINGS > MONITOR**.
- 3 Short press ✓ to turn monitor on.
- 4 Short press ✕ twice to exit menu mode.

While monitor is on, the LED slowly flashes green and ◀ appears in the display.



### Activating monitor by using a function key

- 1 Press the monitor function key to activate monitor and hear any traffic on the channel.

While monitor is on, the LED slowly flashes green and ◀ appears in the display.

- 2 Press the monitor function key again to turn monitor off.



Your radio may be programmed so that monitor turns off automatically after a short time.

## Communicating directly with other radios

You can bypass the radio repeater and communicate directly with another radio. This feature is known as repeater talkaround. You can do this, for example, when you are out of range of the repeater.



Repeater talkaround is not accessible through the main menu.

To activate repeater talkaround:

- Press the repeater talkaround function key to turn repeater talkaround on.

While repeater talkaround is on, the LED slowly flashes orange and **RTA** appears in the display.



To turn repeater talkaround off:

- Press the function key again or change to another channel.

## Activating the repeater before a call

A repeater access tone can be sent to activate the repeater before a call is made, so that the start of the call is not lost.

To send a repeater access tone:

- Press the repeater access tone function key, and the repeater access tone for the current channel is sent.

## Making a call

To make a call to another radio or group of radios:

- 1 Select the required zone, if your radio is configured with zones (see "[About zones](#)" on page 43).
- 2 Select the required channel group (see "[Selecting a channel or group](#)" on page 41).
- 3 Check that the channel is clear. If the LED is glowing green, then the channel is busy and you may not be able to transmit.
- 4 Once the channel is clear (the LED no longer glows), hold the radio so that the microphone is about one inch (2.5 cm) from your mouth.
- 5 Press and hold the PTT key to transmit.
- 6 Speak clearly into the microphone.

While you are transmitting, the LED glows red and  appears in the display.



- 7 Release the PTT key when you have finished talking.

### Limiting call time

Your radio may have a transmit timer that limits the amount of time you can transmit continuously. When the transmit timer is about to expire, the LED flashes red and the radio gives three beeps. If the transmit timer has timed out, you must release the PTT before you can transmit again.

### Ending a call

You may be able to use the 'disable monitor' function to end your current call. When disable monitor is activated, monitor is turned off, and you can no longer hear the call.

To deactivate monitor and end a call:

- Press the assigned function key.





## Receiving a call

When there is valid activity on your radio's currently selected channel or group, the radio unmutes and you can hear the call.

If the incoming call contains special signaling that matches the signaling programmed for your radio, your radio may give a ringing tone.

## Using voice inversion scrambling

Your radio may be programmed so you can turn on voice inversion scramble. While scramble is on, transmissions are unintelligible to any radio or equipment not correctly set to decipher the transmission.

-  Both the transmitting and receiving radios must have scramble activated in order to correctly decipher transmissions. While scramble is turned on,  appears in the display.




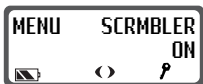
### Turning scrambling on and off



To turn scramble on and off, you may be able to either:

- use the main menu, or
- use a programmed function key.

#### Using the main menu

- 1 Long press  to enter menu mode.
- 2 Select **SECURITY SETTINGS > SCRAMBLER**.



- 3 Short press  to turn scramble off or on.
- 4 Long press  to exit menu mode.

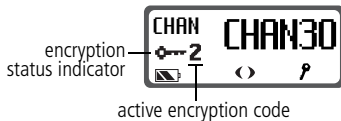
#### Using a function key

- Press the assigned function key to turn scramble off or on.

## Using encryption

To make communications with other users on your system completely private, your radio may be able to encrypt outgoing calls, using a confidential encryption code. The radio receiving your call must have the same active encryption code before it can decipher your encrypted call.

If encryption is available on your radio, **P** flashes, and the encryption status indicator may appear in the display, along with the active encryption code.



### Encrypting calls

You may be able to turn call encryption on and off on your radio. While encryption is on, all outgoing calls are encrypted using the active encryption code.

- i** Once you change the call encryption setting on a channel (on or off), the setting on all other channels where call encryption is selectable also changes.

To turn encryption on and off, you may be able to either:

- use the main menu, or
- use a programmed function key.

### Using the main menu

- 1 Long press **✓** to enter menu mode.
- 2 Select **SECURITY SETTINGS > ENCRYPT**.



- 3 Short press **✓** to turn call encryption off or on.
- 4 Long press **✓** to exit menu mode.

## Using a function key


- Press the assigned function key to turn call encryption on or off.

## Receiving an encrypted call

When you receive an encrypted call, your radio unmutes and you can hear clear speech, so long as the code required to decrypt the call is the radio's active encryption code.

If the code required is not currently active, then the call remains unintelligible.



-  Call encryption does not need to be turned on for the radio to decrypt a call.


## Changing the radio's encryption code

You may be able to change the active encryption code on your radio. Changing the active code on a channel automatically changes the active code for every channel, even channels where call encryption is not selectable.

To change your radio's active encryption code, you may be able to either:

- use the main menu, or
- use a programmed function key.

## Using the main menu

- 1 Long press  to enter menu mode.
- 2 Select **SECURITY SETTINGS > SELECT CODE**.



- 3 Use ◀ and ▶ to scroll through the list of encryption codes and short press ✓ to select the code you want.



- 4 Long press ✓ to exit code selection mode.

### Using a function key

- 1 Press the assigned function key enter code selection mode.
- 2 Use ◀ and ▶ to scroll through the list of encryption codes and short press ✓ to select the code you want.



- 3 Long press ✓ to exit code selection mode.

## Hearing faint and noisy signals

Your radio's squelch mute (known as 'squelch') prevents you from hearing faint or noisy calls on a channel. On occasions when you want to hear everything that is being said on a channel, even if it is hard to understand, you can use the squelch override function to force the mute open.

While squelch override is on, the LED slowly flashes green and ◀ appears in the display.



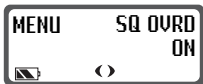
- ❗ Squelch override cannot be activated when a group is selected, and automatically turns off when you select a group or activate background scan.

To activate squelch override, you may be able to either:

- use the main menu, or
- use a programmed function key

### Using the main menu

- 1 Long press ✓ to enter menu mode.
- 2 Select **USER SETTINGS > SQ OVRD.**



- 3 Short press ✓ to turn squelch override on.
- 4 Long press ✓ to exit menu mode.


### Using a function key

- Press the assigned function key to turn squelch override off or on.

## Using the radio in different repeater areas

Your radio may have a group of channels programmed as a voting group. The channels in the voting group all carry the same traffic, but from different repeaters. As your radio moves in and out of different repeater coverage areas, the best communication channel is automatically selected for you to use, until a better communications channel is selected. Some channels, known as 'priority' channels, are checked more often than other channels in the group.


A voting group is selected in the same way as a channel. See ["Selecting a channel or group" on page 41](#) or ["About zones" on page 43](#).

While voting is active, the group name is shown in the display, the LED glows orange and  appears in the display.



## Scanning a group of channels

The scan function is used to monitor a group of channels for activity. When there is activity on a channel in the group, the radio stops on that channel. The radio then unmutes and you can hear the call. Scanning resumes when the channel is no longer busy. Some channels, known as 'priority' channels, are scanned more often than other channels in the group.

While the radio is scanning for activity, the LED glows orange and  appears in the display.

The two types of scanning that may be available on your radio are:

- standard scanning, and
- background scanning.

### Selecting a standard scan group

A scan group is selected in the same way as a channel. See ["Selecting a channel or group" on page 41](#) or ["About zones" on page 43](#).

### Activating background scanning

Background scan is turned on using a programmed function key. When the function key activates background scan, the currently selected channel automatically becomes a member of the background scan group.

To activate background scan:

- Press the background scan function key to turn on background scan.

While background scan is active, **BSCN** appears in the display.





## **Making a call while scanning**

If you want to make a call while your radio is scanning:

- 1** Press the PTT key to transmit.

If standard scan is active, your radio calls either the currently selected channel or a programmed 'home' channel.

If background scan is active, your radio calls the channel that was selected before background scan was activated, or the channel on which it last received a call.

- 2** When the called party responds, proceed with your conversation.

## **Suspending a channel from a scan group**

If a channel is busy for a long time and you do not wish to hear the conversation, you may be able to temporarily delete the channel from the scan group.

To temporarily delete a channel from a scan group:

- Press the 'nuisance delete' function key.

When the scan group is next selected, the deleted channel is again part of the scan group.

## Editing scanning and voting groups

You may be to add or delete channels in a scanning or voting group, and change the way the group operates. The changes made are permanent, and remain after restarting the radio.

### About group membership

The following diagram and table explain how the radio shows the group membership status of a channel when the radio is in group programming mode.

There are two options in group programming mode:

- **GPGM**: edit a standard scan group or a voting group, or
- **BPGM**: edit a background scan group.



Channel status	Meaning
Y	Channel is a member of the group
N	Channel does not belong to the group
P1	Channel is the first priority channel
P2	Channel is the second priority channel
S	Channel is a member of a background scan group
NS	Channel is not a member of a background scan group
T	Channel is the default transmit channel for the group

## Editing a scanning or voting group

- 1 Long press **✓** to enter menu mode.
- 2 Select **ADV SETTINGS > PROGRAM GROUP** to edit a standard scan group or a voting group.  
Alternatively, select **ADV SETTINGS > PROGRAM BSCN GRP** to edit a background scan group.



- 3 Short press **✓** to enter group programming mode.



In group programming mode, the last selected group appears in the display.

**i** If you are editing a background scan group, there is only one scan group possible, so the name of the first channel programmed for the radio appears.

- 4 Use **◀** and **▶** to scroll through the list of groups and short press **✓** to select the group you want to edit.

The name of the first channel programmed for the radio appears and the channel's group membership status is shown.



standard scan group



background scan group

See "[About group membership](#)" on page 58 for an explanation of the group membership status codes.

- 5 Use **◀** and **▶** to scroll through the channel list until the channel you want to change appears.

- 6 Short press ✓ to move between the available channel status options, then use ◀ and ▶ to move to the next channel you want to change.



**i** You may receive a radio message if the change you want to make is not permitted. See "[About group membership rules](#)".

- 7 Long press ✓ to save the changes to the scan group and exit group programming mode.

## About group membership rules

When changing the channel status of a group member, some choices are not permitted. The following table explains some of the messages you may receive.

Message	Meaning
<b>CANNOT DELETE</b>	Your action will leave the scan group with only one member channel. A scan group must have a minimum of two channels.
<b>GROUP FULL</b>	You have reached the maximum number of channels allowed in a group. Delete an existing channel before adding the channel you want.
<b>CANNOT CHANGE</b>	You are attempting to change the channel status of a <b>P1</b> or <b>P2</b> channel. To assign a new priority channel, scroll to the new channel and set its channel status to <b>P1</b> or <b>P2</b> . The previous priority channel will then revert to <b>Y</b> .
<b>CANNOT CHANGE</b>	You are attempting to change the default transmit channel. To assign a new default transmit channel, scroll to the new channel and set its channel status to <b>T</b> . The previous default transmit channel will then revert to <b>Y</b> .

# Making and receiving different types of calls

The types of calls available to your radio depend on the way in which it is programmed and the way the radio system operates.

## **This section covers:**

- Making an individual or group call
- Making a call using your address book
- Resending calls automatically
- Receiving an individual or group call
- Receiving a two-tone call
- Responding to missed calls
- Informing other radio users of your status
- Calling a telephone or a remote device
- Making an emergency call
- Using the lone worker emergency features
- Sending and receiving short data messages

## Making an individual or group call

You may be able to use your radio to make calls to an individual or a specific group.

There are two ways to make an individual or group call:

- making a preset call, and
- dialing a call

### Making a preset individual or group call

A maximum of two preset individual or group calls can be assigned to each channel. The preset calls are each assigned to a function key.

To make a preset call:

- 1 Change to the desired channel.
- 2 Press the assigned function key.

### One-touch preset call

A single one-touch preset call may also be assigned to one of the function keys. In this case, it is not necessary to change channels. See "[Making a call using your address book](#)" on page 64.

To make a one-touch preset call:

- Press the assigned function key.

### Dialing individual or group calls

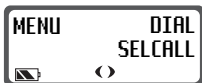


This feature is only available for radios with an alphanumeric keypad.

To call a group or individual using dialing:

- 1 Change to the desired channel.
- 2 Long press ✓ to enter menu mode.

- 3 Select **SEND SELCALL>DIAL SELCALL**.



- 4 Short press ✓ to enter call mode.  
In call mode, the last number dialled appears in the display.



- 5 Short press ✓ to call the last number dialled, or dial the number you want, using the keypad and short press ✓.  
When the called party receives your call, the message **ACK RECEIVED** may appear in the display.

## Making a call using your address book

Your Address Book menu has a programmed list of calls, which can be made from any channel or zone. Address book calls may also be used to send status information, such as 'at lunch' or 'onsite'.

To make a call using your address book:

- 1 Long press ✓ to enter menu mode.
- 2 Scroll through the main menu options using ◀ and ▶ until **ADDRESS BOOK** is displayed.



- 3 Short press ✓ to enter address book mode.  
In address book mode, the last call selected appears in the display.



- 4 Scroll through the list of address book calls using ◀ and ▶ until the call you want appears.



- 5 Short press ✓ to make the call.
- 6 Short press ✕ to exit address book mode.



## Using the keypad to search for an address book call



This method is only available for radios with an alphanumeric keypad.

Address book mode also has a search function that you can use to select an address book call. This provides a shortcut, without using ◀ and ▶.

To find an address book call using the keypad:

- 1 Long press ✓ to enter menu mode.
- 2 Scroll through the main menu options using ◀ and ▶ until **ADDRESS BOOK** is displayed.



- 3 Short press ✓ to enter address book mode.

In address book mode, the last call selected appears in the display.



- 4 Use the keypad to enter the address book name associated with the call you want to make. When you have entered enough characters for the radio to recognize the name, the name is displayed in full.



- 5 Short press ✓ to make the call.

**6** Short press **X** to exit address book mode.

In the following example, you want to call BASE. The sequence of keystrokes and the characters that appear in the display are shown in the table.

<b>Key press</b>	<b>Display</b>	<b>Meaning</b>
	<b>BANK</b>	The radio cannot determine a unique name, so displays the first address book entry beginning with a 7, A, B, or C.
	<b>BANK</b>	'A' is the second letter of both BANK and BASE.
	<b>BASE</b>	The name has been identified.
	<b>BASE</b>	The call is made to BASE.

## Resending calls automatically

Your radio may have been programmed to resend individual and group calls when they are not answered.

Your radio has two automatic callback features:

- deferred calling, and
- no acknowledgement retries

### Deferred calling

When you attempt to make a call on a channel that is busy, the radio can store and send the call once the channel is free. The radio will give a low-pitched beep if the channel is busy, and will then give two long, medium-pitched beeps at regular intervals until the channel is free, and the call can be resent.

To cancel a deferred call:

- Press any key.

### No acknowledgement retries

When you send a call and there is no reply, **NO ACKNOWLEDGE** is displayed, and the call may be resent.

To cancel a call that is being resent:

- Press any key.

## Receiving an individual or group call

When a call is received that contains your radio's identity, **CALL** flashes in the display and the radio gives a ringing tone.

To accept a call:

- Press the PTT key and begin speaking. If the call is a group call, there is usually no need to respond.

The caller's identity and status may also be displayed:



The caller's identity can be a name or a number, depending on how your radio was programmed.

The caller's status is displayed below the caller's identity. It can also be a name or number.

## Receiving a two-tone call

Two-tone signaling is used to call either individual or groups of radios. When your radio receives a two-tone call that it can decode, it beeps, indicating which type of two-tone call has been received.

- One long beep: a two-tone individual call has been received.
- Two medium beeps: a two-tone group call has been received.
- Three short beeps: a two-tone super group call has been received. A super-group call is addressed to all radios in the fleet.

To accept the call, press the PTT key and begin speaking.

### Overriding two-tone signaling

The two-tone override function allows you to override two-tone signaling on your current channel. When you activate two-tone override, the radio's mute opens and you can hear all two-tone calls on the channel.

To turn two-tone override on or off:

- Press the assigned function key.  
While two-tone override is on, the LED slowly flashes green.

## Responding to missed calls

Your radio may be programmed with two features to help you manage missed individual and group calls:

- immediate callback, and
- call queuing


### Re-establishing a call

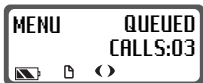
When you miss a call, the 'immediate callback' feature can be used if the caller's identity is displayed.

To call back the missed caller:

- Short press ✓.

### Checking missed calls


If you have missed an incoming call, it may be stored in the call queue, so that you can return the call later. If a call has been missed, the radio automatically enters the Call Queue menu and  appears in the display.

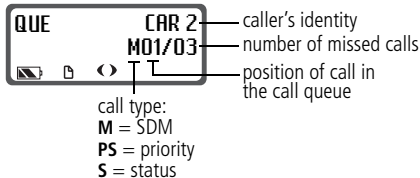


To access a missed call:

- 1 Short press ✓ to enter the call queue.

The first call in the queue is displayed, along with information about the type of call and its position in the queue.

 A standard voice call has no call-type information.



- 2 Scroll through the calls in the call queue using ◀ and ▶ until the call you want appears.

The options available depend on the type of call it is.

- Voice call: short press ✓ to return the call, or short press ✕ to delete the call.
  - Priority call: short press ✓ to return the call, or short press ✕ to delete the call.
  - Status call or short data message (SDM): use ◀ and ▶ to scroll through the message and short press ✕ to delete it.
- 3 Short press ✕ to exit the call queue once all the calls have been either deleted or answered.

## Informing other radio users of your status

You may be able to inform other radio users of your current status by sending them a status update, for example, 'On site'. If the radio receiving your message has been programmed with the same status messages, it will decode and display your message. If you receive a status message, the message is automatically queued, since a response is not expected.

### Assigning a status message

To assign a status message to a call:

- 1 Long press ✓ to enter menu mode.
- 2 Select **SEND SELCALL>SELECT STATUS**.
- 3 Use ◀ and ▶ to scroll through the list of status messages and short press ✓ to select the message you want.

Alternatively, enter the number of the status message using the keypad.



- 4 Long press ✓ to exit status mode.

When you next make a call, a status message may be attached, depending on the type of call it is.



## Calling a telephone or a remote device

DTMF is the tone-based system of the world's telephone networks. If your radio system has access to a network that makes use of DTMF tones, your radio can make a call to a telephone or send control codes to a remote device.

There are two ways to make a DTMF call:

- making a preset DTMF call, or
- dialing a number

### Making a preset DTMF call

A preset DTMF call is assigned to one of the function keys.

To make a call:

- 1 Change to the channel you want.
- 2 Press the assigned function key.

Different preset calls may be available on different channels.

### One-touch preset call

A single one-touch call may also be assigned to one of the function keys.

To make a one-touch preset call:

- Press the assigned function key.

### Dialing a DTMF call



This feature is only available for radios with an alphanumeric keypad.

DTMF call strings can use numbers 0 to 9, letters A to D, and the \* and # keys.

### Entering tones A to D

To dial tones A to D, your radio must be programmed so that you can use the PTT key as a 'shift' key in conjunction with the numeric keys as follows:

- PTT + **2** ABC = A
- PTT + **5** JKL = B
- PTT + **8** TUV = C
- PTT + **0** = D

To enter the tone A, for example:

- Press and hold the PTT key, then press the **2** ABC on the keypad.

### Entering a pause

To enter a pause:

- Press and hold the PTT key, then press the **1** key. A hyphen (pause) will be entered in the display.

### Dialing a DTMF number

To dial a number:

- 1 Long press ✓ to enter menu mode.
- 2 Scroll through the main menu options using ◀ and ▶ until **SEND DTMF** is displayed.



- 3 Short press ✓ to enter DTMF dialing mode. In DTMF dialing mode, the last number dialled appears in the display.




- 4 Short press ✓ to send the last number dialled, or use the keypad to enter the number you want.
- 5 Short press ✕ to exit DTMF dialing mode.

## Making an emergency call

You may be able to activate emergency mode by using an assigned function key. The emergency function key may be programmed for either a short key press or long key press.

- 1 Press the assigned function key and an emergency call is sent to your dispatcher, or some other predetermined location.

The radio then enters emergency mode. While emergency mode is active, your radio may cycle between receive and transmit, so that your dispatcher can hear any activity near the radio. For your safety, the radio displays no signs that an emergency call has been made.

-  When the radio is in emergency cycling mode, the transmitted audio is always from the radio's internal microphone, regardless of whether an external speaker-microphone is installed.

- 2 **Reset the radio to normal operation at any time by turning the radio off and then on.**

Alternatively, emergency mode may be programmed to end after a fixed period of time, or your dispatcher may reset your radio to normal operation.

### Using a double key press

To avoid accidental use of the emergency function, the emergency call may have been programmed with a 'double key press activation' option. The double key press activation option is programmed to be used with either a short or long press.

To make an emergency call using a double **short press**:

- Short press the assigned function key twice within three seconds.

To make an emergency call using a double **long press**:

- Long press the assigned function key twice within five seconds.


## Using the lone worker emergency features

Your radio may be programmed with 'lone worker' emergency features, designed for people who work alone in potentially hazardous areas. If you become incapacitated, the radio automatically sends an emergency call to alert other users to your situation, and then enters emergency mode.

While emergency mode is active, the radio may sound a series of 'search alert' beeps at the radio's maximum volume. This gives searchers an audible indication of your location. Once activated, the search alert beeps continue until the radio is turned off and then on again.

A lone worker emergency can be activated in one or more of the following situations:

- Key press: the radio has requested a response from the user at a predetermined interval and the user has not responded.
- Tilt: the radio is tilted more than a programmed angle, (a 'man down' alarm).
- Motion: the radio has not moved for a predetermined period of time (a 'no movement' alarm).

While lone worker is active,  appears in the display.



## Activating lone worker

To turn the lone worker feature on and off:

- Press the assigned function key.



Your radio may be programmed so that lone worker is active as soon as your radio is turned on.

## Key press monitoring

Once lone worker is activated, the radio prompts you for a response at regular intervals, by sounding a series of loud warning beeps. Typically, this will happen every hour.

When you hear the warning beeps:

- Press any key.

If you are unable to respond, the radio sends an emergency call and activates emergency mode.

## Man down monitoring



**Warning** The radio uses an accelerometer to accurately detect motion. The accelerometer is calibrated when the radio is first programmed, and must be tested at regular intervals to ensure correct operation. Consult with your radio provider or system administrator about a regular testing regime.

The man down alarm activates when the radio is tilted more than a programmed angle, for example when you have been attacked and are lying on the ground. If the radio remains in this position for longer than a minute, it sounds a series of loud warning beeps.

When you hear the warning beeps:

- Return the radio to an upright position.

If you are unable to do this, the radio sends an emergency call and activates emergency mode.

## No movement monitoring

The no movement alarm activates when the radio has been stationary for a specified length of time. When this time elapses and there has been no movement, the radio sounds a series of loud warning beeps.

When you hear the warning beeps:

- Move the radio.

If you are unable to do this, the radio sends an emergency call and activates emergency mode.

## Sending and receiving short data messages


Your radio may be able to send and receive short data messages (SDMs).

### Using the alphanumeric keypad to enter text

When the keypad is used to enter text, the keys have special functions. Use the alphanumeric keys to enter letters, numbers and punctuation.

- Key **1**: character 1.
- Keys **2 ABC** to **9 WXYZ**: press a key once to enter the first letter on that key. Repeat the process to enter the other letters and the number.
- Key **0**: press once to enter a space. Further key presses enter the following characters:  
**0 # \* . , ! ? ' : ; " @ ( ) \_ - + = / \$ & %**
- To delete a character: use **◀** and **▶** to select the character and press **✕** to delete it.

### Sending a short data message

 This feature is only available for radios with an alphanumeric keypad.

To send an SDM:

- 1 Long press **✓** to enter menu mode.
- 2 Select **SEND SDM > ENTER SDM**.

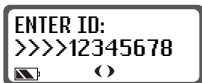
The last sent message appears in the display.




- 3 Short press ✓ to send this message.

Alternatively, enter a new message using the keypad (see "Using the alphanumeric keypad to enter text" on page 79) and short press ✓.

The message **ENTER ID:** appears on the display, along with the ID of the called party for the last SDM transmission.



- 4 Short press ✓ to send the message using the existing ID. Alternatively, enter a new ID using the keypad (the receiver's identity must be eight characters long), then and short press ✓ to send.

 Once the message has been sent, the radio will return to the message entry mode in preparation for sending another message.

- 5 Short press ✕ to exit SDM mode.

## Reading short data messages

When your radio receives a message, **SDM** flashes in the display.

- 1 Long press ✓ to read a message. The message appears across both rows of the display.
- 2 Scroll through the message using ◀ and ▶.
- 3 To display a message from the start, hold down the PTT key and press the left arrow key ◀.
- 4 To display a message from the end, hold down PTT and press the right arrow key ▶.





## Exiting short data message mode

When you have finished reading a message:

- long press ✓ to exit, or
- press ✕ to delete the message (the radio reverts to the mode it was in before you viewed the message).

# Customizing your radio

Your radio's audible indicators, radio functions and display settings can be changed to meet your requirements in the Alert Settings, Display Settings and User Settings menus.

## **This section covers:**

- [Changing the audible tone settings](#)
- [Activating backlighting](#)
- [Adjusting the display contrast](#)
- [Displaying the received signal strength](#)
- [Extending battery life](#)
- [Choosing a dialing mode](#)
- [Changing the signaling used on a channel](#)

## Changing the audible tone settings

Your radio has two features for controlling which audible tones you hear:

- **Keypress tones:** This feature controls the tones you hear when you press a function key, or a key on the keypad. Keypress tones can be turned on and off.
- **Audible tones:** This feature provides overall control for all audible tones, including keypress tones, received-call tones and warning tones. Audible tones can be turned on and off. If the audible tones are turned off, keypress tones are also off.

### Turning keypress tones on and off

To turn keypress tones on and off:

- 1 Long press ✓ to enter menu mode.
- 2 Select **ALERT SETTINGS > KEYTONE**.
- 3 Short press ✓ to turn keypress tones off or on.
- 4 Short press ✕ twice to exit menu mode.

### Turning audible tones on and off

To turn audible tones on and off you may be able to either:

- use the main menu, or
- use a programmed function key

#### Using the main menu

- 1 Long press ✓ to enter menu mode.
- 2 Select **ALERT SETTINGS > TONES**.



- 3 Short press ✓ to turn audible tones off or on.
- 4 Short press ✕ twice to exit menu mode.

## Using a function key

- Press the assigned function key to turn audible tones either on or off.

## Adjusting the level of audible tones

To change between the high and low setting:

- 1 Long press ✓ to enter menu mode.
- 2 Select **ALERT SETTINGS > LEVEL**.



- 3 Short press ✓ to change the level of audible tones to either high or low.
- 4 Short press ✕ twice to exit menu mode.

## Activating backlighting

The radio's display and keypad light up when backlighting is on. This normally only happens when a key is pressed or a call is received.

To turn backlighting on and off you may be able to either:

- use the main menu, or
- use a programmed function key

### Using the main menu

- 1 Long press ✓ to enter menu mode.
- 2 Select **DISPLAY SETTINGS > NIGHT**.



- 3 Short press ✓ to turn backlighting off or on.
- 4 Short press ✕ twice to exit menu mode.

### Using a function key

- Press the assigned function key to turn backlighting either on or off.



## Adjusting the display contrast

You may be able to change the contrast of your radio's display to suit the lighting conditions in which you are working. After making the adjustment, the radio will automatically return to its previous mode of operation after a few seconds of inactivity.




To adjust the display contrast, you may be able to either:

- use the main menu, or
- use a programmed function key

### Using the main menu

- 1 Long press  to enter menu mode.
- 2 Select **DISPLAY SETTINGS > ADJUST CONTRAST**.
- 3 Short press , the radio enters contrast adjustment mode and the RSSI symbol appears in the display.



- 4 Use  and  to adjust the contrast to the desired level.
- 5 Short press  twice to exit menu mode.

### Using a function key

- 1 Press the assigned function key.

The radio enters contrast adjustment mode and the RSSI symbol appears in the display.



- 2 Use  and  to adjust the contrast to the desired level.

## Resetting contrast to the default setting

You can reset the contrast to the factory's default setting by using function key 2.

To reset the contrast to the radio's default setting:

- Press and hold function key 2 while turning the radio off then on again.

## Displaying the received signal strength

When this option is turned on, the strength of a received signal is displayed in the display.



To turn RSSI on and off:

- 1 Long press ✓ to enter menu mode.
- 2 Select **DISPLAY SETTINGS** > **RSSI**.
- 3 Short press ✓ to turn RSSI off or on.
- 4 Short press ✕ twice to exit menu mode.

## Extending battery life

Your radio may have two features that allow you to extend the shift life of the radio battery:

- economy mode, and
- low power transmit mode

### Economy mode

Economy mode can be used when there is little or no activity on the radio. When in economy mode, the radio cycles between the receive state and a stand-by state, once there has been no activity for a preset period. Receiving or sending a call returns the radio to the fully active state.

To turn economy mode on and off, you may be able to:

- use the main menu, or
- use a programmed function key

### Using the main menu

- 1 Long press ✓ to enter menu mode.
- 2 Select **USER SETTINGS > ECONOMY**.
- 3 Short press ✓ to turn economy mode off or on.
- 4 Short press ✕ twice to exit menu mode.

### Using a function key

- Press the assigned function key to turn economy mode on and off.



## Low power transmit

If you are using your radio in conditions where signal strength is high, you can extend the shift life of your battery by transmitting at low power. While low power transmit is active, transmissions are made at low power rather than at the preset power level and **f** appears in the display.



Some channels may be programmed to always transmit at low power.

To override the power settings of the current channel, you may be able to:

- use the main menu, or
- use a programmed function key


### Using the main menu

- 1 Long press **✓** to enter menu mode.
- 2 Select **USER SETTINGS > LOW PWR.**
- 3 Short press **✓** to turn low power transmit off or on.
- 4 Short press **✕** twice to exit menu mode.

### Using a function key

- Press the assigned function key to turn low power on and off.



## Choosing a dialing mode

-  This feature is only available for radios with an alphanumeric keypad.

The DTMF dialing mode can be either 'normal' or 'buffered'.

- **Normal:** Each character in DTMF string is transmitted as the key is pressed.
- **Buffered:** The DTMF string is transmitted after all the characters in the string have been entered.

To select normal or buffered dialing:

- 1 Long press  to enter menu mode.
- 2 Select **USER SETTINGS > DTMF**.
- 3 Short press  to change to either buffered or normal dialing.



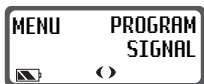
- 4 Short press  twice to exit menu mode.

## Changing the signaling used on a channel

You may be able to change the signaling used on a channel. This enables you to communicate with a different group of users on the same channel. The change may be permanent or may be reset after you restart the radio.

To change the signaling used on a channel:

- 1 Long press  to enter menu mode.
- 2 Select **ADV SETTINGS > PROGRAM SIGNAL**.



- 3 Short press ✓ to enter signal programming mode.  
In signal programming mode, the first channel programmed for the radio appears in the display.



- 4 Use ◀ and ▶ to scroll through the list of channels and short press ✓ to select the channel you want to edit.  
The name of the first signaling preset available for that channel appears in the display.



- 5 Use ◀ and ▶ to scroll through the list of signaling presets and short press ✓ to select the preset you want to assign to the channel.  
The next channel programmed for your radio appears.



- 6 Repeat step 5 for all channels whose signaling you want to change.
- 7 Short press ✕ twice to exit menu mode.

# Charging and caring for batteries

This section describes how to charge your Tait radio battery as well as care for it, to ensure safe operation, maximum performance and prolonged battery life.

## **This section covers:**

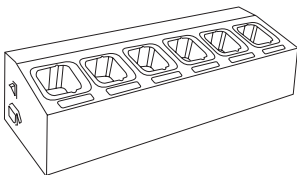
- [About the chargers](#)
- [Special conditions when using IS radios](#)
- [Before using the charger](#)
- [Charging the battery](#)
- [Maintaining battery life and performance](#)
- [Storing batteries](#)
- [Disposing of batteries](#)

## About the chargers

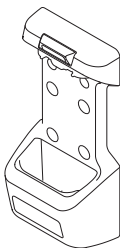
Unless otherwise indicated, the charging advice and instructions apply to all chargers.

There are three types of charger available for your Tait radio battery:

- Desktop charger: Small enough to fit on a desk, it charges one battery at a time.
- Multicharger: Charges up to six batteries. It can be mounted on a desk, on a wall, or in an equipment rack.



- Vehicle charger: Charges one battery at a time while installed in a vehicle.



### Multicharger safety information



**Warning** This device must be connected to an earthed mains socket-outlet.

## Special conditions when using IS radios



**Warning** Fit only an IS-approved battery to an IS radio. Fitting a battery or accessory that is not IS-approved exposes the customer to a risk of explosion which could cause serious injury or death.

For detailed information about identifying IS radios, see "[Intrinsically Safe radios](#)" on page 16.

## Before using the charger

### Handle the battery safely



**Warning** Handle the battery safely. Failure to observe the following handling recommendations could result in personal injury and/or equipment damage.

- Before using a Li-ion battery, please read the Li-ion Battery Safety Information (MPC-00006-xx) included with your battery, and follow the instructions it provides. Incorrect use of a Li-ion battery can cause explosion or fire.
- Do not short-circuit the battery contacts, neither intentionally nor accidentally, e.g. by placing the battery with conductive materials such as keys or jewelry inside a pocket or container. Short-circuiting the battery contacts can heat up the conductive material.

### Attaching of labels



**Warning** Do not obstruct the vent hole on the battery or the vent hole on the radio chassis label. If the vent on the battery is obstructed the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

For detailed information about attaching labels safely, see "[Attaching labels to the radio or battery](#)" on page 25.

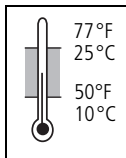
## Charging temperatures

**Notice** Do not expose a battery to very high or very low temperatures for extended periods of time. Doing so will shorten the usable life ('service life') of the battery.

To achieve the best results when charging your battery:

- Before you begin to charge your battery, make sure that the battery temperature is close to the room temperature in which the battery is to be charged.
- If possible, charge the battery in temperatures between 50°F and 77°F (between 10°C and 25°C). This temperature range is the optimal charging range.

Charging only starts when the battery is between 32°F to 104°F (0°C to 40°C).



### Temperature indications

- ○ ● When the battery temperature is outside the normal charging range, the orange LED on the charger is lit. Charging will start or resume once the temperature is within normal limits, and no action is required by you.

### Leaving the battery on charge

You can leave a battery/radio in the charger once charging is complete. Leaving a battery in the charger will not overcharge or damage it.

You can remove a battery/radio from the charger at any time without harming the battery, the radio, or the charger. When you return the battery/radio to the charger, charging is automatically resumed.

## **Vehicle charger only**

It is safe to switch off the ignition while there is still a battery in the charger. But if the vehicle will not be used again for some time, check whether charging will continue while the ignition is off, and consider what effect this might have on the vehicle battery.

To check, place the battery in the charger and switch off the vehicle ignition:

- If no charger LED stays lit, the charger will resume charging only when the ignition is switched on again. Minimal charger standby power will be drawn from the vehicle battery until then.
- If a charger LED stays lit, the charger will continue to charge the radio battery even while the ignition is off, and will continue to draw power from the vehicle battery. Once the battery is charged, the charger draws minimal current and has little effect on a healthy vehicle battery.

## **Receiving and making calls while charging (desktop charger and multicharger only)**

**Notice** For best charging performance, switch off the radio before placing it in the charger.

You can receive or make a call while the radio is in the charger, but your radio performance may be degraded. If you do remove the radio from the charger to answer a call, the call will not be disrupted.

Removing the radio from the charger to make or receive a call ends the charging process. Charging safely recommences when the radio is reinserted into the charger.

If a radio was turned on while being charged, the battery indicator may not be accurate when the radio is initially removed from the charger. After a few seconds, the battery indicator is updated to display the amount of charge available in the battery.



## Low battery warning

**Notice** Do not allow a radio battery to fully discharge every time you use it, or you will shorten the service life of the battery.

When the battery is low, your radio warns you in the following ways:

- The battery symbol on the radio display looks empty.
- The status LED on the radio slowly flashes red.
- A high-pitched beep sounds.

You should recharge or replace the battery as soon as possible.

When the battery is completely empty, the message **Battery is flat** appears on the display. The radio emits a long, low-pitched beep and then stops working. Turn off the radio.

## Charging the battery

### Charging a battery for the first time

Fully charge a battery before using it for the first time. This will take up to 2.5 hours.

- ● ○ The red LED stays lit while the battery charges.

### Charging a battery

**Notice** For best charging performance, switch off the radio before placing it in the charger (desktop charger or multicharger only).

- 1 Desktop charger: Connect the charger to the correct Tait power adaptor.  
Multicharger and vehicle charger: Power on the charger.
- ● ● Initially, all three LEDs are lit for two seconds.
- 2 Place just a battery in the charger, or a radio with a battery attached (desktop charger or multicharger only). There is no need to remove a belt clip, antenna, or any accessory that is attached to the accessory connector.

- ● ○ The red LED lights up, and stays lit while the battery charges. For a battery that is almost completely discharged, allow two hours.
- ○ ○ When charging is complete, the green LED stays lit.

### LED behavior

If there is a battery in the charger when power is supplied to the charger, the LEDs behave as follows:

LED	Meaning
● ● ● briefly	The charger has been connected to a power supply.
○ ● ○ steady	The battery is charging.
● ○ ○ steady	Charging complete. Remove the battery, or leave it in the charger.
○ ○ ● steady	The battery temperature is outside the normal charging range. Charging will start or resume once the temperature is within normal limits. No action is required by you. There is a fault. Contact your local regional Tait office.

If the charger does not behave as expected:

- Make sure the radio or battery is seated properly in the charger.
- Check that the charger is properly plugged in.
- Check that the battery and charger contacts are clean. To clean, wipe the contacts with a dry lint-free cloth to remove any dirt, oil or grease.

## Removing the battery from the charger

- Desktop charger and multicharger: Lift the battery/radio out of the charger.
- Vehicle charger: Pull up the top clip of the vehicle charger, and then lift out the battery.

You can remove a battery/radio from the charger at any time without harming the battery, the radio, or the charger. When you return the battery/radio to the charger, charging is automatically resumed. You can also leave a battery/radio in the charger once charging is complete.

## Maintaining battery life and performance

With proper care and maintenance you will maintain the performance and life of the battery. It is recommended that you:

- Use only Tait chargers and batteries.
- Do not expose a battery to very high or very low temperatures for extended periods of time. Doing so will shorten the service life of the battery.  
Very high: above 140°F (60°C)  
Very low: less than -22°F (-30°C)
- Charge the battery at a room temperature of between 50°F and 77°F (between 10°C and 25°C). This temperature range is the optimal charging range.
- Store batteries properly when not in use. See "[Storing batteries](#)" on page 100.

## Cleaning the contacts of the battery

**Notice** Do not scratch or scrape the contacts of the battery. If necessary, wipe the contacts of the battery with a dry, lint-free cloth to remove any dirt, oil or grease.

## Storing batteries

When not in use for a month or more, batteries should be stored correctly to prolong their life.

- Remove the battery from the radio before storage.
- Fully charge the battery if storing for less than one month.
- Charge the battery to about 30% if storing for longer than one month.
- Store the battery in a cool dry place.

## Using batteries after storage

Batteries that have been stored for any length of time must be charged before being used. See "[Charging the battery](#)" on [page 97](#).

## Disposing of batteries



Run the battery flat before disposing of it. When disposing of the battery, be sure to do so in an environmentally sensitive manner. Please contact your radio provider for information on recycling programs in your area. See "[Environmental responsibilities](#)" on [page 8](#) for more information.

# Troubleshooting

If you are experiencing difficulty operating your radio, you may find the following sections helpful. Consult your radio provider for assistance, if necessary.



**Warning** TP8100 portable radios with the product code "T03–20\*" have FM IS approval. An IS portable radio must be serviced only by an agency certified by both the approval authority and by Tait Limited. Any unauthorized repair or substitution of parts invalidates the intrinsic safety rating and the third party IS approval. To have an IS radio serviced, return it to an authorized Tait branch or subsidiary.

For detailed information about IS radios and how to identify them, see ["Intrinsically Safe radios" on page 16](#).

## **This section covers:**

- [When your radio won't turn on](#)
- [Checking the version of your radio](#)
- [Troubleshooting your charger](#)
- [General care](#)
- [Cleaning the radio](#)

## When your radio won't turn on

If the red LED on the radio does not light up when the radio is turned on, it is probable that power is not reaching the radio. Check the following:




- Is the battery firmly attached to the radio?
- Is the battery sufficiently charged?
- Is the battery charger working properly?

If all appears to be in order, but your radio still fails to operate properly, contact your radio provider for further assistance.

## Checking the version of your radio

Your radio provider may ask you for the hardware and firmware version of your radio, for troubleshooting purposes.

To check the version of your radio:

- 1 Long press  to enter menu mode.
- 2 Select **ADV SETTINGS > VERSION INFO**.
- 3 In the Version Information menu, use  and  to scroll through the list of version information available.



The information that may be available is:

- firmware version (**FW VER**)
- hardware version (**HW VER**)
- main database (**MAIN DB**)
- calibration database (**CAL DB**).

## Troubleshooting your charger

### Charger LEDs do not light up

- ○ ○ Possible reason(s) and solution(s) include:
- The power adaptor is not connected, or not turned on. Remove power adaptor plug and refit.
  - The battery has not been detected. Check that the battery contacts are clean and battery is seated correctly.
  - The charger contacts are stuck. Check that the charger contacts move freely.

### ○ ○ ● Charger orange LED lights up

The table below describes what to do if the orange LED on the battery charger is glowing.

Meaning	Possible reason(s) and solution
Fault	<ul style="list-style-type: none"><li>■ The battery is not compatible with the charger. Use only Tait chargers and batteries.</li><li>■ There is insufficient voltage to the charger. Check you are using the correct power adaptor.</li><li>■ The battery may be deeply discharged (less than 3V). Disconnect the battery from the radio and charge the battery.</li><li>■ The battery may be faulty. Consult your radio provider for advice.</li></ul>
Charging suspended	The battery is either too hot or too cold. Charging will start or resume once the temperature is within normal limits. No action required.

## General care

Your radio requires no regular maintenance other than ensuring that the battery has sufficient charge and that no damage has occurred to the antenna or the battery.

**Notice** To prevent permanent damage to the radio case, do not allow the radio to come into contact with detergents, alcohol, aerosol sprays, or petroleum-based products.

For battery care, see "[Maintaining battery life and performance](#)" on page 99.

### **Cleaning the contacts of the battery**

**Notice** Do not scratch or scrape the contacts of the battery.


If necessary, wipe the contacts of the battery with a dry, lint-free cloth to remove any dirt, oil or grease.

### **Cleaning the radio**

If you need to clean the radio case, use a cloth dampened with clean water.

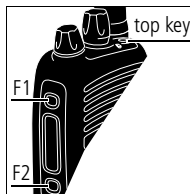


# Function key options

 Some functions are not permitted in some countries.

The features below can be assigned to the top key and the function keys when the radio is programmed. If you do not know which features have been programmed for your radio, contact your radio provider or system administrator.

For information on function keys, see ["Accessing frequently used menu" on page 38.](#)



## Common functions

Function	Description
audible tones	Turns audible indicators on and off. See <a href="#">"Changing the audible tone settings" on page 83.</a>
background scan	Turns background scan on and off. See <a href="#">"Activating background scanning" on page 56.</a>
backlighting	Turns backlighting on. Backlighting will turn off after a programmed period. See <a href="#">"Activating backlighting" on page 85.</a>
contrast adjustment	Allows you to adjust the display contrast. See <a href="#">"Adjusting the display contrast" on page 86.</a>
DTMF preset	Sends the DTMF preset call assigned to the currently selected channel. See <a href="#">"Calling a telephone or a remote device" on page 73.</a>
disable monitor	Disables the monitor facility, if it is active. See <a href="#">"Ending a call" on page 48.</a>
economy mode	Turns economy mode on and off. See <a href="#">"Economy mode" on page 88.</a>
emergency mode	Sends an emergency call and activates emergency mode. See <a href="#">"Making an emergency call" on page 75.</a>

<b>Function</b>	<b>Description</b>
encryption	Turns call encryption on and off. See <a href="#">"Encrypting calls" on page 51</a> .
encryption code select	Changes the radio's active encryption code. See <a href="#">"Changing the radio's encryption code" on page 52</a> .
keypad lock	Locks the keypad so the keys cannot be activated accidentally. Long press <b>X</b> to disable keypad lock. See <a href="#">"Preventing accidental calls" on page 39</a> .
lone worker	Monitors radio activity so that an emergency call can be sent if a worker becomes incapacitated. See <a href="#">"Using the lone worker emergency features" on page 76</a> .
low power transmit	Overrides the radio's programmed transmit power setting. See <a href="#">"Low power transmit" on page 89</a> .
monitor	Turns monitor on and off, so that the user can hear all traffic on a channel. See <a href="#">"Hearing faint and noisy signals" on page 54</a> .
night use	Turns night operation mode on and off. See <a href="#">"Activating backlighting" on page 85</a> .
nuisance delete	Temporarily deletes the current channel from the scanning regime. See <a href="#">"Suspending a channel from a scan group" on page 57</a> .
one touch call	Sends a preset individual or group call, or selects a channel. See <a href="#">"One-touch preset call" on page 62</a> .
preset call	Sends the preset call programmed for the current channel. See <a href="#">"Making a preset individual or group call" on page 62</a> and <a href="#">"Making a preset DTMF call" on page 73</a> .
preset channel	Selects a programmed channel or group. See <a href="#">"Selecting a channel or group" on page 41</a> .
program background scan	Allows you to edit the background scan group See <a href="#">"Editing scanning and voting groups" on page 58</a> .

<b>Function</b>	<b>Description</b>
repeater access tone	Sends a repeater access tone to activate the repeater before a call is made. See " <a href="#">Activating the repeater before a call</a> " on page 47.
repeater talkaround	Allows you to bypass normal repeater operation and communicate directly with another radio. See " <a href="#">Using the radio in different repeater areas</a> " on page 55.
scrambler	Turns the scrambler on and off, so the user can scramble transmissions and decipher scrambled incoming calls. See " <a href="#">Using voice inversion scrambling</a> " on page 50.
shortcut menu	Acts as a shortcut to the radio menu. See " <a href="#">Using the shortcut menu</a> " on page 38.
squelch override	Turns squelch override on and off, so the user can hear all activity on a channel, including noise. See " <a href="#">Hearing faint and noisy signals</a> " on page 54.
two-tone override	Turns two-tone signaling on and off, so the user can hear traffic on the channel that would normally be muted. See " <a href="#">Receiving a two-tone call</a> " on page 69.

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10.2. Licensee's sole remedy against Tait will be limited to breach of contract and Tait sole and total liability for any such claim shall be limited at the option of Tait to the repair or replacement of the Software or the refund of the purchase price of the Software.

#### **Section 11 GENERAL**

11.1. COPYRIGHT NOTICES. The existence of a copyright notice on the Software will not be construed as an admission or presumption of publication of the Software or public disclosure of any trade secrets associated with the Software.

11.2. COMPLIANCE WITH LAWS. Licensee acknowledges that the Software may be subject to the laws and regulations of the jurisdiction covering the supply of the Designated Products and will comply with all applicable laws and regulations, including export laws and regulations, of that country.



11.3. ASSIGNMENTS AND SUBCONTRACTING. Tait may assign its rights or subcontract its obligations under this Agreement, or encumber or sell its rights in any Software, without prior notice to, or consent of, Licensee.

11.4. GOVERNING LAW. This Agreement shall be subject to and construed in accordance with New Zealand law and disputes between the parties concerning the provisions hereof shall be determined by the New Zealand Courts of Law. Provided however Tait may at its election bring proceedings for breach of the terms hereof or for the enforcement of any judgment in relation to a breach of the terms hereof in any jurisdiction Tait considers fit for the purpose of ensuring compliance with the terms hereof or obtaining relief for breach of the terms hereof.

11.5. THIRD-PARTY BENEFICIARIES. This Agreement is entered into solely for the benefit of Tait and Licensee. No third party has the right to make any claim or assert any right under this Agreement, and no third party is deemed a beneficiary of this Agreement. Notwithstanding the foregoing, any licensor or supplier of third-party software included in the Software will be a direct and intended third-party beneficiary of this Agreement.

11.6. SURVIVAL. Sections 4, 5, 6.3, 7, 8, 9, 10, and 11 survive the termination of this Agreement.

11.7. ORDER OF PRECEDENCE. In the event of inconsistencies between this Agreement and any other Agreement between the parties, the parties agree that, with respect to the specific subject matter of this Agreement, this Agreement prevails.

11.8 SECURITY. Tait uses reasonable means in the design and writing of its own Software and the acquisition of third-party Software in order to limit Security Vulnerabilities. While no software can be guaranteed to be free from Security Vulnerabilities, if a Security Vulnerability is discovered, Tait will take the

steps specified in Section 6 of this Agreement.

11.9 EXPORT. Licensee will not transfer, directly or indirectly, any Designated Product, Documentation or Software furnished hereunder or the direct product of such Documentation or Software to any country for which New Zealand or any other applicable country requires an export license or other governmental approval without first obtaining such license or approval.

11.10 SEVERABILITY. In the event that any part or parts of this Agreement shall be held illegal or null and void by any court or administrative body of competent jurisdiction, such determination shall not affect the remaining terms which shall remain in full force and effect as if such part or parts held to be illegal or void had not been included in this Agreement. Tait may replace the invalid or unenforceable provision with a valid and enforceable provision that achieves the original intent and economic effect of this Agreement.

11.11 CONSUMER GUARANTEES. Licensee acknowledges that the licenses supplied in terms of this agreement are granted to Licensee in business, and that the guarantees and other provisions of prevailing consumer protection legislation shall not apply.

11.12 WHOLE AGREEMENT. Licensee acknowledges that it has read this Agreement, understands it and agrees to be bound by its terms and conditions. Licensee also agrees that, subject only to the express terms of any other agreement between Tait and Licensee to the contrary, this is the complete and exclusive statement of the Agreement between it and Tait in relation to the Software. This Agreement supersedes any proposal or prior agreement, oral or written, and any other communications between Licensee and Tait relating to the Software and the Designated Products.





