CODAN

NGT Transceiver
SRx

H F R A D I O C O M M U N I C A T I O N S
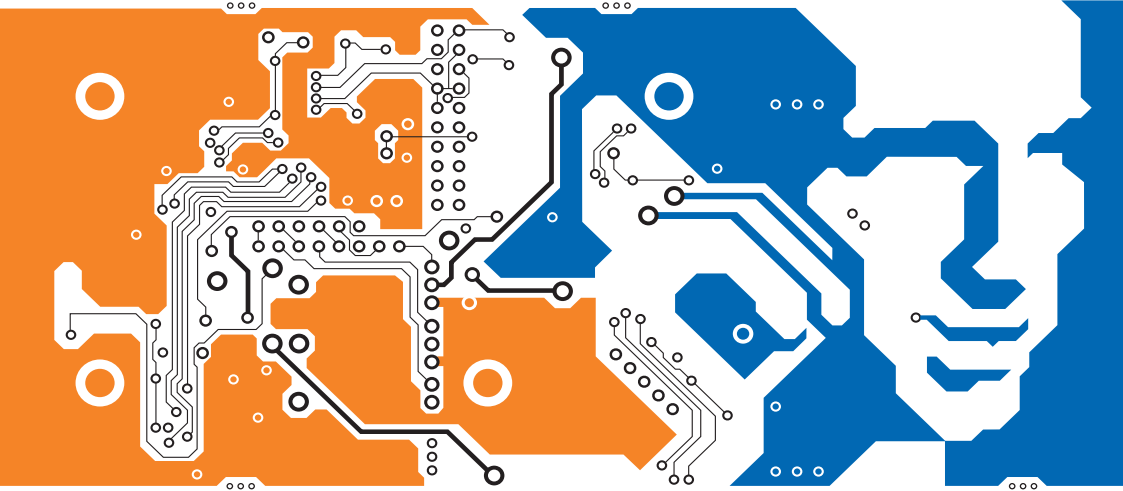
G E T T I N G   S T A R T E D   G U I D E

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Introduction

Thank you for purchasing a Codan NGT *SRx* Transceiver. With this great product and Codan's supreme after-sales support, you can look forward to many years of clear and reliable HF communication. Please read this guide thoroughly and retain it for future reference. There is an index at the end of this guide to assist you in finding information.

Overview of this guide

This guide provides instructions on how to connect up your NGT *SRx* Transceiver, and how to perform basic setup and operating tasks. It assumes that you have limited knowledge of HF communication and of using an HF radio.

Detailed information for setting up a particular system and extensive reference material are provided on the CD at the back of this guide.

This guide contains the following sections:

Accessing the CD

To access the CD:

❑ Place the CD in the CD drive of your computer.

The CD will automatically launch the NGT *SRx* Transceiver Reference Manual as a fully text-searchable HTML help file.

1 NGT transceiver compliance

This section contains the following topics:

Introduction

This section describes how to ensure the NGT transceiver complies with the European Electromagnetic Compatibility Directive 89/336/EEC and the European Low Voltage Directive 73/23/EEC as called up in the European Radio and Telecommunications Terminal Equipment Directive 1999/5/EC.

The CE Declaration of Conformity and Expert Letter of Opinion for the product is listed on page 65, *Associated documents*. This document can be made available upon request to Codan or a Codan-authorised supplier.

This section also contains the requirements for C-tick.

European Radio and Telecommunications Terminal Equipment Directive

The NGT transceiver has been tested and complies with the following standards and requirements (articles of the R&TTE Directive):

- Article 3.1b: ETSI EN 301 489-1

- Article 3.1b: ETSI EN 301 489-15

- Article 3.2: Australian type approval according to AZ/NZS 4770:2003

- Article 3.1a: assessed against ICNIRP requirements

- Article 3.1a: EN 60950

Product marking and labelling

Any equipment supplied by Codan that satisfies these requirements is identified by the CE0191⊙, CE0191 or CE markings on the model label of the product.

Declaration of Conformity and Expert Letter of Opinion

The CE Declaration of Conformity and Expert Letter of Opinion for this product is listed on page 65, *Associated documents*. This document can be made available upon request to Codan or a Codan-authorised supplier.

Protection of the radio spectrum

CAUTION   Most countries restrict the use of HF radio communications equipment to certain frequency bands and/or require such equipment to be licensed. It is the user's responsibility to check the specific requirements with the appropriate communications authorities. If necessary, contact Codan for more information.

Electromagnetic compatibility and safety notices

Radiation safety

To ensure optimal transceiver performance and to avoid exposure to excessive electromagnetic fields, the antenna system must be installed according to the instructions provided.

WARNING	High voltages exist on the antenna during transmission and tuning. Do not touch the antenna during these activities. RF burns may result.
WARNING	Install the grounding system or counterpoise as directed to prevent RF burns from any metal part of the transceiver.
WARNING	You should not transmit from your transceiver or tune the antenna unless people are beyond the safe working distance of: • 1.5 m (5 ft) of any part of a mobile antenna • 2 m (7 ft) of any part of a fixed antenna in a data installation with < 125 W output • 5 m (17 ft) of any part of a fixed antenna in a data installation with < 1 kW output

Safe working distance is based on continuous exposure to CW type transmissions, as set out in the ICNIRP Exposure Guidelines 1998 for occupational exposure. Safe working distance can be reduced with normal voice communication.

Electromagnetic compatibility

To ensure compliance with the EMC Directive is maintained, you must:

❑ Use standard shielded cables supplied from Codan (where applicable).

❑ Ensure the covers for the equipment are fitted correctly.

> CAUTION   If it is necessary to remove the covers at any stage, they must be refitted correctly before using the equipment.

❑ Cover unused connectors on the RF unit with the protective caps supplied to prevent electrostatic discharge passing through your transceiver.

Electrical safety

To ensure compliance with the European Low Voltage Directive is maintained, you must install and use the NGT transceiver in accordance with the instructions in the *NGT SRx Transceiver Getting Started Guide* and the *NGT SRx Transceiver Reference Manual*.

When using equipment that is connected directly to the AC mains these precautions must be followed and checked before applying AC power to the unit:

❑ Use the standard AC mains cable supplied.

❑ Ensure the covers for the equipment are fitted correctly.

> CAUTION   If it is necessary for a qualified electronics technician to remove the covers during servicing, they must be refitted correctly before using the equipment.

| WARNING | A protective earth connection must be included in the mains wiring to the 3020 Transceiver Supply (see below, *Earth symbols*).

The protective cover must always be fitted when the 3020 Transceiver Supply is connected to the AC mains. |

Earth symbols

Chassis earth connection points are provided on the NGT transceiver and 3020 Transceiver Supply. A protective earth is provided in the AC mains wiring of the 3020 Transceiver Supply. This protective earth needs to be connected at the AC mains supply outlet. The symbols shown in Table 1 are used to identify the earths on the equipment.

Table 1:   Earth symbols

Symbol	Meaning
	Chassis earth
	Protective earth

C-tick approval

The NGT *SRx* Transceiver meets the requirements of the Australian Communications Authority Radiocommunications (MF and HF Radiotelephone equipment—Land Mobile Services) Standard 2003 (AS/NZS 4770).

2   Installation

This section contains the following topics:

NGT *SRx* mobile stations

An NGT *SRx* mobile station typically consists of:

- a handset and cradle

- a speaker

- an RF unit and vehicle mounting cradle (includes DC power cable)

- a 12 V DC power supply (battery)

- an automatic tuning antenna

shows a typical NGT *SRx* mobile station.

Figure 1:   Typical NGT *SRx* mobile station
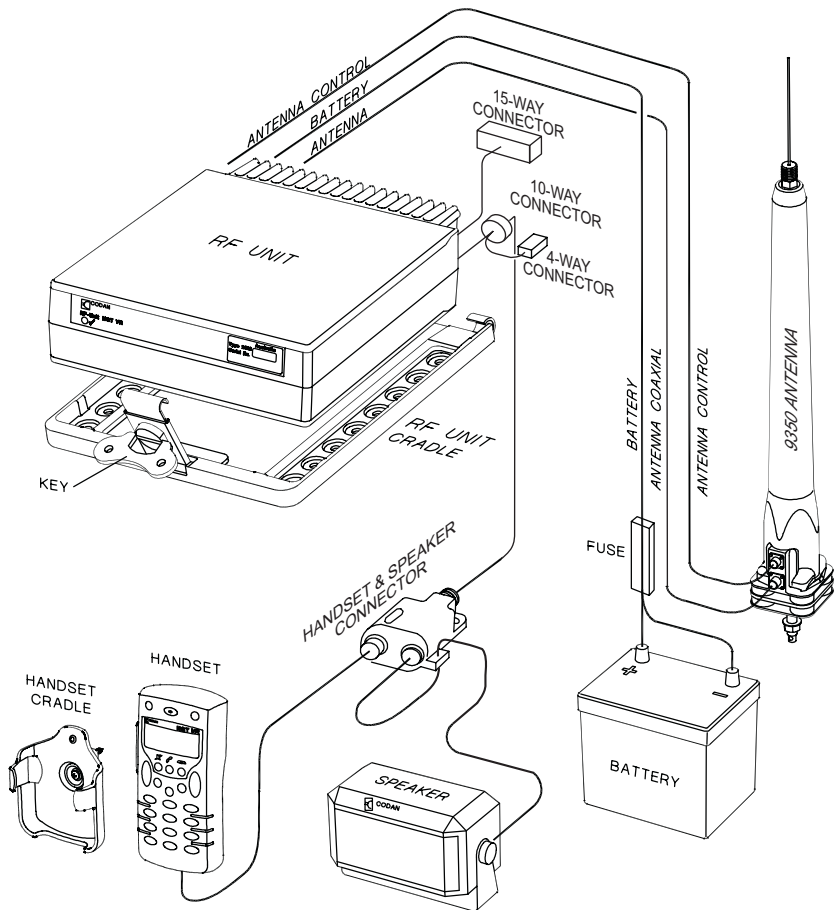
Cables

Table 2:   Cables for a typical NGT *SRx* mobile station

Cable	Symbol	Part number
Handset and speaker connector cable for *SRx*		08-06022-001
Coaxial cable between RF unit and antenna	Y	08-05103-006
Control cable between RF unit and antenna	⚡	08-05627-006
DC power supply cable		08-03255

Mounting an NGT *SRx* mobile station

Most components of an NGT *SRx* mobile station are provided with their own mounting cradles. For general guidance on suitable locations for equipment and installing these stations see the reference material on the enclosed CD.

Mounting the handset cradle

To mount the handset cradle:

❑   Mount the handset according to the fitting instructions (Codan part number 15-00129-001) provided with the handset cradle.

Mounting the speaker

To mount the speaker:

❑   Secure the mounting cradle to the surface with at least two screws.

Ensure there is sufficient space at the rear for the cable.

❑   Attach the speaker to the cradle with the two screws and rubber washers.

Mounting the handset and speaker connector

To mount the handset and speaker connector:

❑ Use cable ties or screws to secure the handset and speaker connector in a suitable location.

Mounting the RF unit

WARNING

If you are transferring a fixed station to a mobile station and you have installed rubber feet to the bottom of the RF unit, you must remove the rubber feet before installing it into the mounting cradle.

The cradle can be mounted in any position that allows the RF unit to be inserted into the cradle.

To mount the RF unit:

❑ Secure the mounting cradle to the surface with at least four screws, one in each corner of the cradle.

NOTE

Ensure there is sufficient space at the rear of the cradle to clear the RF unit heatsink.

❑ If the key is locked to the base of the cradle, flip the key away from the base until it can be rotated (see Figure 1 on page 11), then rotate the key in a counterclockwise direction.

❑ Place the RF unit into the cradle and push it under the tabs at the rear of the cradle, then hold the clamp against the front of the RF unit.

❑ Rotate the key clockwise, then push the key toward the base of the cradle to lock the RF unit into position.

Connecting an NGT *SRx* mobile station

Connecting an NGT *SRx* station

To connect an NGT *SRx* station:

❑ Connect the ⬚ socket at the end of the handset and speaker connector cable to the 10-way plug on the cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the plug of the handset cable to the ⬚ socket on the handset and speaker connector, then secure the locking ring tightly into position.

❑ Connect the plug at the end of the speaker cable to the ◁ socket on the handset and speaker connector, then secure the cable by pushing it into the slot on the side of the connector (see Figure 1 on page 11).

❑ Connect the plug at the end of the Y cable to the socket at the end of the Y cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the plug at the opposite end of the Y cable to the socket located at the base of the antenna, then secure the locking ring tightly into position.

Connecting the control cable to an automatic tuning antenna

To connect the control cable:

❑ Connect the socket at the end of the ⅄ cable into the plug at the base of the antenna, then secure the locking ring tightly into position.

❑ Fit the plug at the opposite end of the ⅄ cable into the socket at the end of the ⅄ lead from the RF unit.

Connecting the power supply

To connect the transceiver to the battery power supply:

❑ Connect the power supply cable (Codan part number 08-03255) to the plug at the end of the 12 V cable lead from the RF unit.

❑ Route the power supply cable according to the instructions supplied with the Vehicle Installation Kit (Codan part number 15-00112).

❑ Insert the 32 A fuse and holder in the power supply cable at a convenient location, as close as possible to the battery terminals.

❑ Connect the power supply cable to the battery terminals, black to negative, red to positive.

Connecting ancillary equipment

The NGT *SRx* Transceiver system may be connected to a range of ancillary equipment using the 4-way and 15-way connectors at the rear of the RF unit.

NGT *SRx* fixed stations

An NGT *SRx* fixed station typically consists of:

- a handset and cradle

- a speaker

- an RF unit

- an AC transceiver supply

- a suitable fixed antenna (see the reference material on the enclosed CD)

Figure 2 shows a typical NGT *SRx* fixed station.

Figure 2: Typical NGT *SRx* fixed station
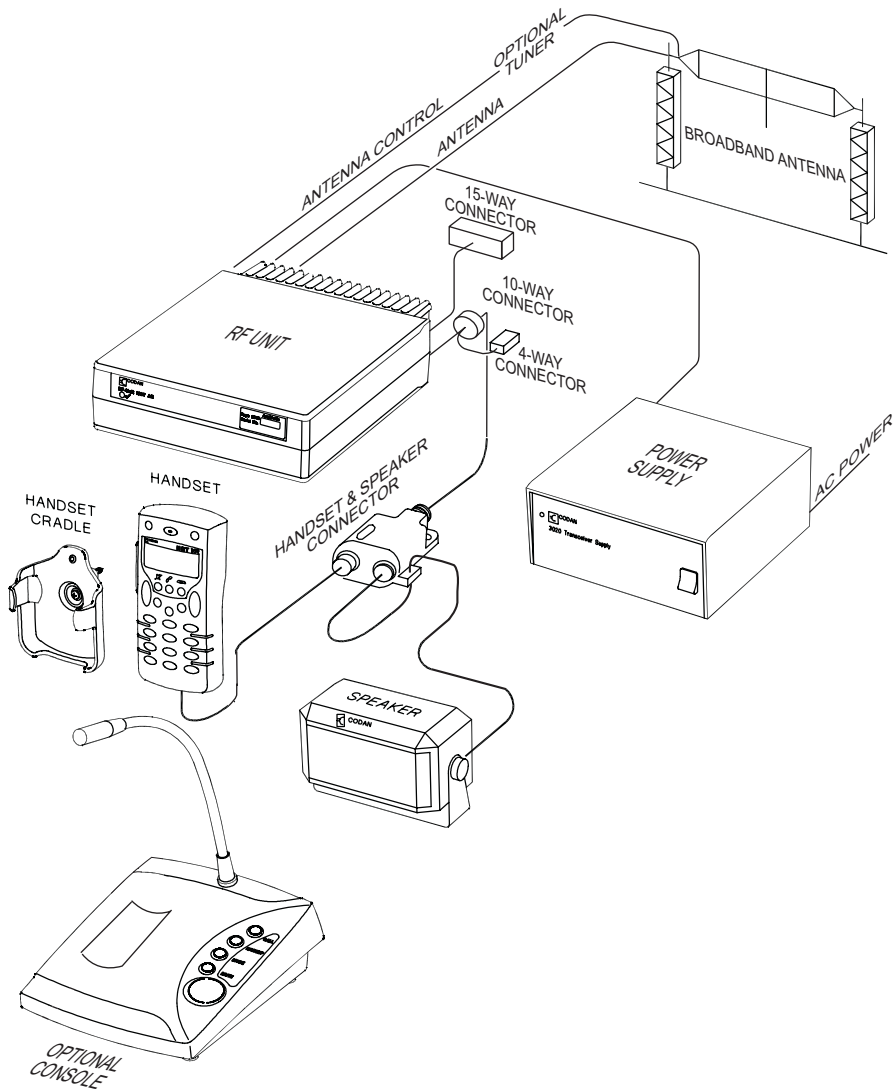
Cables

Table 3:   Cables for a typical NGT *SRx* fixed station

Cable	Symbol	Part number
Handset and speaker connector cable for *SRx*		08-06022-001
Cable between RF unit and optional Code 766 Desk Console		08-06332-001
Coaxial cable between RF unit and antenna[a]	Y	08-05103-030

a.   The part number for this cable corresponds to a 30 m coaxial cable. The cable is also available in a number of shorter lengths.

Mounting an NGT *SRx* fixed station

An NGT *SRx* fixed station may be mounted using a desk console (Codan part number 15-00766). For general guidance on suitable locations for equipment and installing the fixed station see the reference material on the enclosed CD.

Desk console

The pre-assembled desk console combines a goose-neck microphone, an in-built speaker, and a headphone jack (see Figure 2 on page 17). The handset connects to the rear of the console. The console cradles the handset.

RF unit and transceiver supply

The RF unit and the transceiver supply are self-contained and are usually stacked loosely. If you want to mount the RF unit and/or the transceiver supply, contact your Codan representative to obtain a rack-mounting unit or the appropriate mounting cradles.

Rack-mounting unit

A rack-mounting unit consists of a 19 inch rack tray. It can be used in conjunction with the handset and cradle to mount your fixed station.

Mounting cradles

WARNING	If you are mounting an RF unit in a cradle, do not fit rubber feet to the bottom of the RF unit.
NOTE	If you are transferring a mobile station to a fixed station, and you are not mounting the RF unit in a cradle, rubber feet can be fitted to the bottom of the RF unit. The rubber feet are available from Codan (Codan part number 30-11208-000).

If you want to mount components of your fixed station separately, customised mounting cradles exist for each component (see the reference material on the enclosed CD).

Connecting an NGT *SRx* fixed station

To connect an NGT *SRx* fixed station:

❑ Connect the lead from the handset and speaker connector or desk console to the 10-way plug on the cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the plug of the handset cable to the ⌸ socket on the handset and speaker connector or on the rear of the desk console, then secure the locking ring tightly into position.

❑ If you are using the handset and speaker connector and cable, connect the plug at the end of the speaker cable to the ◁ socket on the handset and speaker connector, then secure the cable by pushing it into the slot on the side of the connector (see Figure 2 on page 17).

❑ Connect the plug at the end of the Y cable to the socket at the end of the Y cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the plug at the opposite end of the Y cable to the socket located at the base of the antenna, then secure the locking ring tightly into position.

Connecting an automatic tuner to the RF unit and antenna (optional)

NOTE   You may need to install a tuner to improve the efficiency of the antenna in your fixed station (see the reference material on the enclosed CD).

NOTE   The tuner used in most applications has connectors at the end of the cables attached to the tuner, as described below. However, you may have a tuner that has sockets on the connector panel of the tuner.

To connect the tuner to the RF unit:

> NOTE
> If the connectors at the end of the control cables from the RF unit and tuner are incompatible, you may require an NGT adaptor cable (Codan part number 08-05655-001) to connect the tuner to the RF unit.

❑ Connect the plug at the end of the coaxial cable from the tuner to the socket at the end of the ⅄ cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the plug at the end of the control cable from the tuner to the socket at the end of the ⅄ cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the antenna to the antenna connector on the tuner, then secure it tightly into position.

Connecting an antenna selector (optional)

To connect an antenna selector (Codan part number 08-06260-001):

❑ Connect the cable from the primary antenna to the **ANT1** connector on the antenna selector, then secure the locking ring tightly into position.

❑ Connect the cable from the secondary antenna to the **ANT2** connector on the antenna selector, then secure the locking ring tightly into position.

❑ Connect the plug at the end of the ⅄ cable lead from the RF unit to the **TCVR** connector on the antenna selector, then secure the locking ring tightly into position.

❑ Connect the plug at the end of the ⅄ control cable from the RF unit to the corresponding socket on the antenna selector, then secure the locking ring tightly into position.

❑ If you are using a 9103 Antenna Tuner, connect the plug at the end of the control cable from the tuner to the corresponding socket on the antenna selector.

Connecting the transceiver supply

To connect the transceiver to the transceiver supply:

❑ Connect the DC output from the transceiver supply to the plug at the end of the 12 V cable lead from the RF unit.

❑ Connect the transceiver supply to the AC mains supply.

3   The handset

Figure 3:   The handset

microphone

PTT button

NGT

MUTE   CALL   SCAN

1 TUNE QZ   2 CLAR ABC   3 MODE DEF

4 GHI   5 HELP JKL   6 MNO

7 V/S PRS   8 SEC TUV   9 WXY

* EASI TALK   0 VIEW   # CALL LOGS
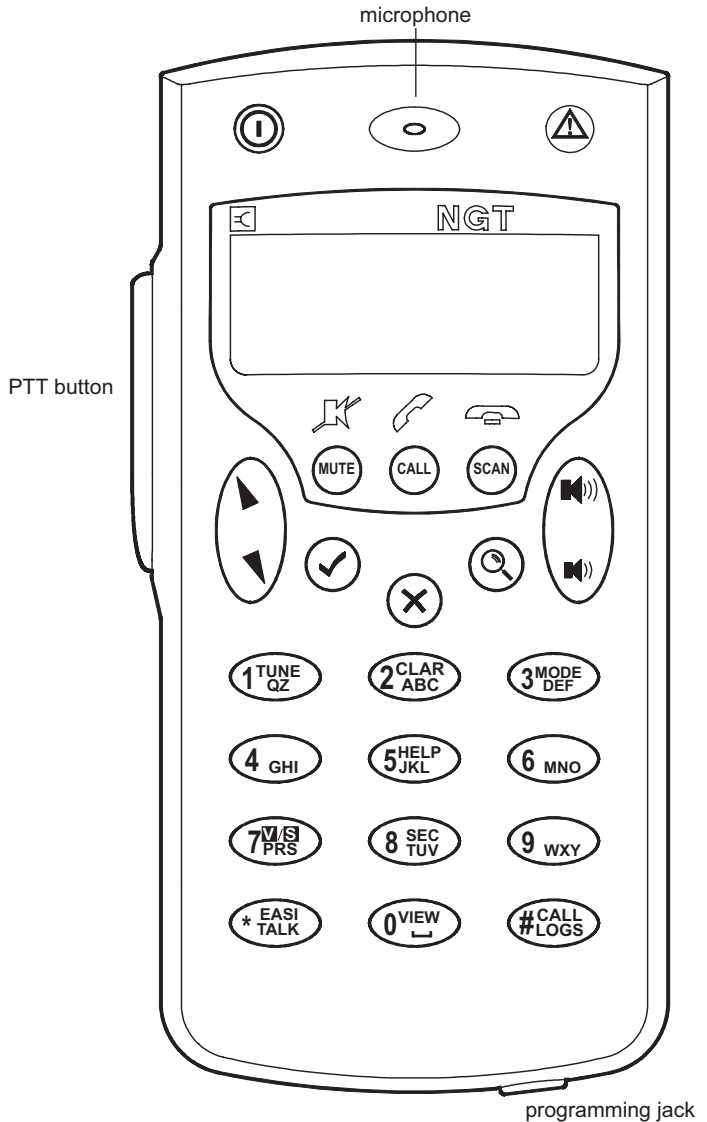
programming jack

The handset comprises:

- an LCD
- navigation keys (◗, ◥, ✓, ✗, ⚲)
- volume controls (🔊⁾, 🔊⁾⁾)
- **MUTE**, **CALL** and **SCAN** hot keys
- alphanumeric keys (**0**–**9**, **✳**, **#**)
- emergency key (⚠)
- power key (⓿)
- microphone
- PTT button
- programming jack

There are two ways to use the keys on the handset. You can:

- press a key, briefly
- *hold* a key for 2 seconds

The ✓ and ✗ keys

Press ✓ to:

- select the item on the active line in the list
- save changes
- answer 'yes' to prompts

Hold ✓ to edit settings.

Press ✗ to:

- navigate up from settings to entries
- backspace over text
- remove messages on the screen
- cancel changes
- answer 'no' to prompts

Hold ✖ to go from any location to the home screen. If you have entered text into a setting and want to discard the changes you made, *hold* ✖.

The scroll keys

The ❭ and ❮ keys are the scroll keys. Use these keys to scroll up or down through any list, to scroll left or right over text, and to increase or decrease a value.

Hot keys

Hot keys enable you to perform a task quickly. The transceiver comes with some standard hot keys programmed; the keys are labelled with the corresponding task performed. You can also create your own hot keys (see the reference material on the enclosed CD).

Table 4:   Standard hot keys

Hot key	Function
MUTE	Pressing **MUTE** toggles mute on or off.
CALL	Pressing **CALL** starts a call.
SCAN	Pressing **SCAN** switches off scanning, or if you were in a call, ends the call and switches scanning on.
TUNE	Pressing **TUNE** displays the **PTT to tune** screen so you can manually tune the antenna.
CLAR	Pressing **CLAR** enables you to adjust the receive frequency to compensate for any frequency offset between your transceiver and the remote transceiver.
MODE	Pressing **MODE** selects the next allowable mode programmed for the channel, usually USB or LSB. If you are using an antenna selector, pressing **MODE** will enable you to select the secondary antenna, if the mode is allowed for the channel.
HELP	Pressing **HELP** toggles Help Mode on or off.
6 MNO	Pressing **6 MNO** toggles the output power between a high and a low value.
V/S	Pressing **V/S** toggles the mute type between Voice mute and Selcall mute.
SEC	Pressing or *holding* **SEC** enters Secure mode, if the hardware option is fitted, and special firmware is programmed into the transceiver and enabled.
EASITALK	Pressing **EASITALK** toggles the DSP noise reduction algorithm on or off.

Table 4:   Standard hot keys (cont.)

Hot key	Function
VIEW	Pressing **VIEW** toggles between the channel screen and the Address List.
CALL LOGS	Pressing **CALL LOGS** repeatedly steps through a number of call logs: Calls Out, Calls In, then back to the screen from which you began. In these logs, you can view the details of the calls.
⚠ (Emergency)	*Holding* ⚠ begins an automatic Emergency call transmission using call information contained in the Emergency entries in the Address List.
⏻ + **9**	Pressing ⏻ + **9** enables you to change the default setting for the screen contrast.
⏻ + **0**	Pressing ⏻ + **0** enables you to change the default setting for the screen and keypad backlighting.

The channel screen

The channel screen is displayed when you press ✖ or **VIEW**.

Figure 4: The channel screen in the Channel List
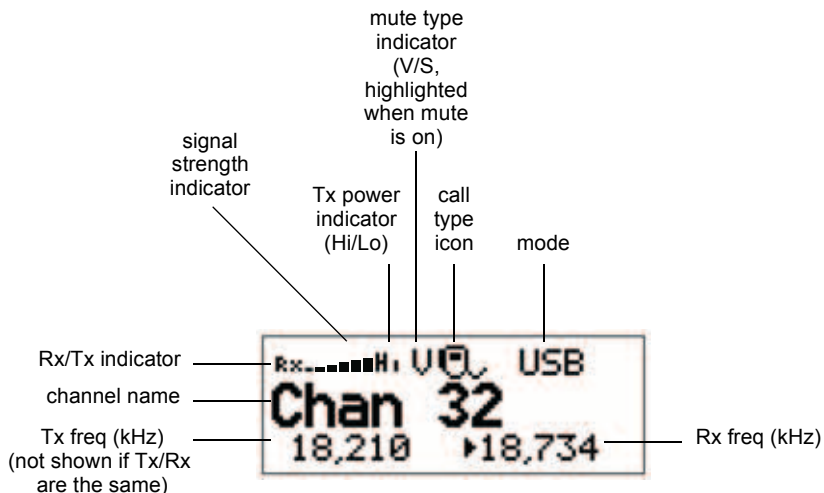
When the transceiver is scanning, the call type icon is replaced by the scanning icon ['T'] and the channel information is replaced by **Scanning**.

4 Getting started

This section contains the following topics:

WARNING

You should not transmit from your transceiver or tune the antenna unless people are beyond the safe working distance of:

- 1.5 m (5 ft) of any part of a mobile antenna
- 2 m (7 ft) of any part of a fixed antenna in a data installation with < 125 W output
- 5 m (17 ft) of any part of a fixed antenna in a data installation with < 1 kW output

Switching on the transceiver

To switch on the transceiver:

❑ Press ①.

If you are prompted to enter a password, enter your user or administrator password, then press ✔.

If you enter an incorrect password it is automatically erased. If you enter an incorrect password three times the transceiver automatically switches off.

When the transceiver is switched on, it runs a self-test that checks the memory, hardware, LCD and keys.

Switching off the transceiver

To switch off the transceiver:

❑ *Hold* ①.

The transceiver is switched off.

Setting up basics

NOTE

Basic information for the transceiver, such as channels, self addresses, time and date, and enabling channels for scanning, should be set up by your system administrator using the NGT System Programmer. If Quick Start is enabled you can enter some of this information (see page 43, *Using Quick Start*).

Selecting a channel

To select a channel:

❑ Press **VIEW** until the channel screen is displayed.

If scanning is on, press **SCAN** to switch it off.

❑ Scroll through the channels in the list. Stop scrolling when the channel you want is displayed.

The channel is selected.

❑ If you want to change the sideband or IF filter settings, press **MODE**.

If you have an antenna selector fitted and select a mode that uses the secondary antenna, the mode will be highlighted on the channel screen.

If the mode does not change there is only one mode for the channel.

NOTE
: If you have an automatic antenna fitted, press PTT to tune the antenna to the currently selected channel.

Making a basic voice call

To make a basic voice call:

❑ Select the channel that you want to use (see page 32, *Selecting a channel*).

❑ *Hold down* PTT then speak, releasing PTT when you have finished speaking.

Muting the transceiver

If you do not want to listen to on-air noise, you can mute the transceiver so that you will only hear voice traffic on the channel.

To switch mute on or off:

❑ Press **MUTE**.

When the channel screen is displayed, the mute status is indicated by a V (Voice) or S (Selcall) at the top centre of the screen. If the letter is highlighted, mute is on. If the letter is not highlighted, mute is off.

❑ Press **V/S** until V is displayed on the channel screen.

The transceiver will remain muted until it detects voice traffic on the channel.

Making a Selective call

NOTE   The call types available will depend on the options installed in your transceiver.

To make a Selective call:

❑   Press **CALL**.

❑   Enter the address of the station you want to call, scroll to the type of call you want to make, then press **CALL**.

Call type	Icon	Used for...
Channel Test	📟?	Testing the audible quality of a channel in a Codan Selcall or Open Selcall network.
Emergency	⚠	Sending an emergency alert tone with a call.
Get Position	⚡?	Requesting the location of a remote transceiver with a GPS receiver connected and enabled.
Get Status	💻	Requesting diagnostic or configuration information from a remote transceiver.
Message	✉	Sending a message to a remote transceiver.
Phone	☎	Sending a call to a radio/telephone interconnect unit, which connects the call to the public telephone network.
Selective	📞	Sending a selective call to a remote transceiver.
Send Position	⚡	Sending your GPS position to a remote transceiver. A GPS receiver must be connected to and enabled in your transceiver.

❑   If you are prompted for details about the call, use the information in the following table to enter them, then press **CALL**.

If this prompt is displayed...	Do this...
Select network	• select the network in which you want to make the call
My address?	• select or enter the self address from which you want to send the call
Select chan/mode	**In an ALE/CALM network:** • select **<auto>** if you want the transceiver to select the best channel/mode for the call, starting with the channel on which the most recent successful link was established, or • select the channel/mode you want to use to make the call **In a Codan Selcall or Open Selcall network:** • select the channel/mode you want to use to make the call and check that it is clear of voice and data traffic

> NOTE To abort the call before a connection to the other station is made, press PTT.

❑ If you made the call in:

  • an ALE/CALM network, wait until a message informs you that the call has been successful (this means your call has been automatically answered by the other station)

  • a Codan Selcall or Open Selcall network, wait until a message informs you that the call has been sent and listen for audible beeps transmitted from the other station

❑ *Hold down* PTT then speak.

  Release PTT when you have finished speaking.

❑ To end the call, press **SCAN**.

  If the transceiver was scanning prior to the call it resumes scanning.

Scanning channels

Before you can switch scanning on, you need to allocate some channels to be scanned. If you have Quick Start enabled, you can create a scan list from channels programmed into the transceiver (see). If this feature is disabled, your system administrator will allocate some channels to a network, then enable scanning of this network.

Switching scanning on or off

To switch scanning on or off:

❑ Press **SCAN**.

Scanning is toggled on or off.

NOTE	**SCAN** is also used to end a call.
	If the transceiver was scanning before the call was sent or received, it resumes scanning. If the transceiver was not scanning before the call, press **SCAN** to switch scanning on.

When scanning is switched on, mute is also switched on.

You cannot use PTT while the transceiver is scanning.

Pausing scanning

To pause scanning:

❑ Do one of the following:

- to pause scanning on the current channel/mode, press ✓
- to pause scanning and scroll to another channel/mode, press ◣ or ◥

The channel/modes through which you can scroll are those in the networks that were being scanned. They are not listed alphabetically but in the order in which they were being scanned.

If you do not press a key within 30 seconds the transceiver automatically resumes scanning.

❑ While scanning is paused, do one or more of the following:

• to converse, *hold down* PTT

• to resume scanning immediately, press ✓

This page has been left blank intentionally.

Appendix A—Entering and editing text

Editing a screen

To gain access to an editable screen:

❑ *Hold* ✔ *.*

> A question mark is displayed at the end of the heading to show that you can now enter and/or edit text in the setting.
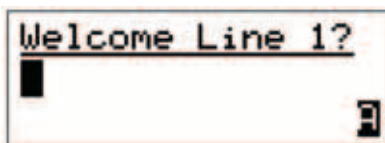
NOTE If text has already been entered on the line it is highlighted.

❑ Do one of the following:

• To use the text displayed, press ✔.

• To enter new text, start typing. When you have entered the text, press ✔.

• To edit the text displayed, press ✖. The cursor is placed at the end of the line so you can backspace over characters and/or enter new text. When the text is correct, press ✔.

Entering text

To enter text in an editable screen:

❑ To enter one of the letters on a key, press the key repeatedly until the letter is displayed.

```
Welcome Line 1?
▯
                        ⧩
```
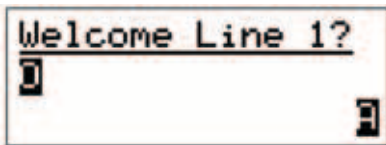
NOTE You can also *hold* the key until the letter you want is displayed, then release the key.

❑ To enter another letter on the same key, wait until the cursor moves to the next space...

```
Welcome Line 1?
O█
                        ⧩
```
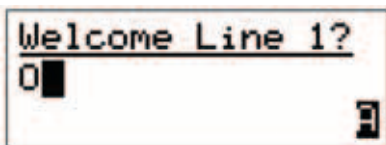
...then press the key repeatedly until the letter you want is displayed.

```
Welcome Line 1?
ON█
                        ⧩
```
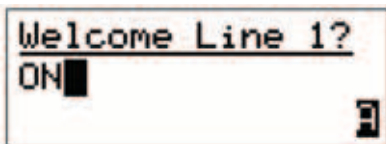
❑ To enter a letter on another key, press the key for the letter.

You do not need to wait until the cursor moves to the next space.

```
Welcome Line 1?
ONE█
                        ⧩
```
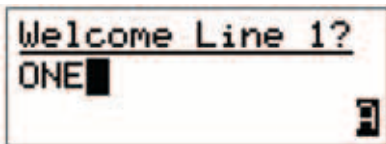
Changing between alpha and numerical characters

To change between upper-case and lower-case letters and numbers in an editable screen:

❑ Press **#** to change the character/case indicator at the bottom right of the screen from **A** (upper-case) to **a** (lower-case) to **#** (numbers).

> NOTE
>
> When you are prompted to enter a call address, the characters that you can enter are determined by the call systems installed in the transceiver.

Moving the cursor

To move the cursor across the text:

❑ Use ◣ and ◥ to move the cursor left and right respectively.

Inserting text

To insert text:

❑ Use ◣ and ◥ to move the cursor to the point where you want to insert text (or a space), then press the required character key.

> NOTE
>
> If you want to insert a space, make sure that **A** or **a** is displayed at the bottom right of the screen before you press **0** otherwise you will enter a zero.

> NOTE
>
> You can enter a special character using **✱**, or ◿ with ◣ and ◥.

Deleting text

To delete text:

❑ Use ◣ and ◤ to move the cursor one position to the right of the character that you want to delete, then press ✖.

Saving text changes

To save the changes you have made:

❑ Press ✔.

The question mark is removed from the heading.

If you do not want to save the text, *hold* ✖ to discard the changes.

Appendix B—Using Quick Start

Quick Start provides simple methods to configure your transceiver to a basic operating state.

Quick Start will be available if your transceiver contains only one station self address and network names from this default list:

• *Voice

• *Selcall

• *CALM

• !Default

> When you *hold* 🔍, you should see the Quick Start entries, for example, **Add/Edit channel**, **Set scan list** etc. If these entries are not displayed, then Quick Start is not available to you.

NOTE   Quick Start is only available in countries that permit programming of transmit frequencies using the handset.

> For detailed information on programming your transceiver without Quick Start see the reference material on the enclosed CD.

Opening and closing Quick Start

To open Quick Start:

❑   *Hold* 🔍.

To close Quick Start:

❑   Press or *hold* ✖.

Adding/Editing a channel

To add or edit a channel:

❑ Open Quick Start.

❑ Scroll to **Add/Edit channel**, then press ✓.

❑ Enter the name of the channel that you want to use, then press ✓.

> NOTE   For help with entering text see page 39, *Entering and editing text*.

If you want to use an existing channel, scroll to the channel, then press ✓.

❑ Enter the receive frequency in kilohertz, then press ✓.

> NOTE   You can enter the frequency to three decimal places. Press ✱ to enter a decimal point, then continue with entering the frequency.

❑ Enter the transmit frequency in kilohertz, then press ✓.

❑ Scroll to the mode combination you want to use, then press ✓.

The transceiver returns to Quick Start.

❑ If you want to add more channels to your transceiver, scroll to **Add/Edit channel** and repeat this process.

❑ Close Quick Start, if required.

> NOTE   If you want to make or receive calls on this new channel, you must add it to your scan list.

Setting up a scan list

To set up a scan list:

❑ Open Quick Start.

❑ Scroll to **Set scan list**, then press ✔.

The first channel in the transceiver is displayed.

❑ If you want to add this channel to the scan list, press ✔.

If you do not want to add this channel to the scan list, press ✖.

When all the channels have been viewed or you have added 15 channels to your scan list, the transceiver returns to Quick Start.

If you do not want to scroll through all the channels in your scan list, *hold* ✔ to return to Quick Start.

❑ Close Quick Start, if required.

CAUTION   Each time you enter **Set scan list**, the resulting scan list overwrites the existing scan list.

Setting the time and date

To set the time and date:

❑ Open Quick Start.

❑ Scroll to **Set time/date**, then press ✔.

The display appears with a line under the day of the month.

❑ Use ◣ or ◢ to change the current setting to the correct value, then press ✔.

The line appears under the month.

❑ Repeat the previous step until you have made all of the changes to the time and date.

When all the changes have been made, the transceiver returns to Quick Start.

❑ Close Quick Start, if required.

Setting your station self address

NOTE

When Quick Start is available, any self address that you enter using this method replaces the previous self address. If you want to enter more than one self address, and hence disable the Quick Start features, see the reference material on the enclosed CD.

To set your station self address:

❑ Open Quick Start.

❑ Scroll to **Set my address**, then press ✓.

❑ Enter your station self address (maximum of 6 numeric digits for Codan Selcall or Open Selcall networks, or 15 upper-case/numeric digits for ALE/CALM networks), then press ✓.

NOTE

For help with entering text see page 39, *Entering and editing text*.

❑ Close Quick Start, if required.

Adding/Editing an entry in the Address List or Call Book

To add or edit an address that you call frequently:

❑ Open Quick Start.

❑ Scroll to **Address/CallBk**, then press ✔.

❑ Enter the name of the station or person that you want to add to the list, or use ❭ and ❮ to select an existing entry, then press ✔.

> NOTE   For help with entering text see page 39, *Entering and editing text*.

❑ Scroll to the type of call that you want to make, enter the station address that you want to call, then press ✔.

❑ If you selected **Message?** or **No call type**, enter the message, then press ✔.

If you do not want to select a message, press ✔.

❑ Scroll to the call system that you want to use to make the call, then press ✔.

❑ If you selected **Phone?** or **No call type**, select **<blank>** for the phone link that you want to use, then press ✔.

When all the changes have been made to the call address, the transceiver returns to Quick Start.

❑ If you want to add more call addresses to your Address List or Call Book, scroll to **Address/CallBk** and repeat this process.

❑ Close Quick Start, if required.

Deleting an entry

To delete addresses, channels or phone links:

❑ Open Quick Start.

❑ Scroll to **Delete...**, then press ✔.

❑ Scroll to the list from which you want to delete an item, then press ✔.

❑ Scroll to the item you want to delete, then press ✔.

> NOTE   If you delete a channel from the Channel List, it is deleted automatically from the scan list.

❑ Close Quick Start, if required.

Appendix C—Transceiver specifications

Table 5:   NGT *SRx* Transceiver specifications

Item	Specification	
Frequency range	Transmit:	1.6 to 30 MHz
	Receive:	250 kHz to 30 MHz
Channel capacity	400 channels	
Operating modes	Single sideband (J3E) USB and LSB or switched USB/LSB, AM H3E (optional)	
Sensitivity	Frequency: 0.25 to 30 MHz	RF amp off: 1.25 μV PD, –105 dBm
	Frequency: 1.6 to 30 MHz	RF amp on: 0.12 μV PD, –125 dBm
	For 10 dB SINAD with greater than 50 mW audio output	
Power output	125 W PEP ±0.5 dB (high power) 50 W PEP ±0.5 dB (low power)	
Environment	Ambient temperature: –30 to 60°C	
	Relative humidity: 95% non-condensing	
	Derate upper ambient temperature by 1°C per 330 m (360 yd) above sea level	

Table 5:   NGT *SRx* Transceiver specifications

Item	Specification	
Size	2012 RF Unit: (excluding vehicle mounting frame)	210 mm W × 270 mm D × 65 mm H (8.4 in W × 10.8 in D × 2.6 in H)
	2020 Handset:	65 mm W × 35 mm D × 130 mm H (2.6 in W × 1.4 in D × 5.2 in H)
	Handset and speaker connector:	42 mm W × 55 mm D × 22 mm H (1.7 in W × 2.2 in D × 0.9 in H)
Weight	2012 RF Unit: (excluding vehicle mounting frame)	3.3 kg (7.3 lb)
	2020 Handset:	0.3 kg (0.7 lb)
Sealing	All units:	IP41

Appendix D—HF radio transmission

The HF band is the range of frequencies between 3 and 30 MHz. HF transceivers usually cover a frequency range of 1.6 to 30 MHz.

Codan HF transceivers transmit on single sidebands. This reduces the power required to send HF signals and increases the number of channels available within the HF spectrum.

HF transceivers are primarily used for long-range communication where distances of 3 000 km (1 800 mi) and more are possible. Obstructions such as buildings and mountains have little effect on long-range communication. HF radio can cover such large distances because of the way the transmitted radio signal propagates.

HF radio waves propagate in three ways simultaneously:

• ground wave

• direct wave

• sky wave

Ground wave

The ground wave travels near the ground for short distances, typically up to 100 km (60 mi) over land and 300 km (190 mi) over sea. The distance covered depends upon the operating frequency, transmission power, and type of terrain.

Direct wave

The direct wave travels in a direct line-of-sight from the transmitter to the receiver.

Sky wave

The sky wave is the most important form of HF propagation. The radio wave is transmitted toward the sky and is reflected by the ionosphere to a distant receiver on earth.

The reflective properties of the ionosphere change throughout the day, from season to season, and yearly.

Figure 5:   The reflective properties of the ionosphere
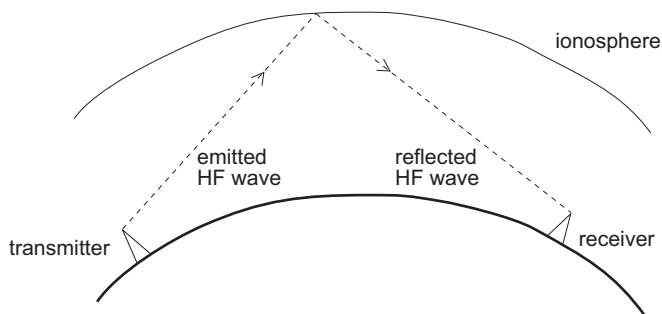
Frequency, distance and time of day

The extent to which a radio wave is reflected depends on the frequency that is used. If the frequency is too low, the signal is absorbed by the ionosphere. If the frequency is too high, the signal passes straight through the ionosphere. Within the HF band, low frequencies are generally considered to be in the range of 2 to 10 MHz. High frequencies are above 10 MHz.

A frequency chosen for daytime transmission may not necessarily be suitable for night-time use. During the day, the layers of the ionosphere are thick. The layers absorb lower frequencies and reflect higher frequencies. At night, the ionosphere becomes very thin. The low frequencies that were absorbed during the day are reflected, and the high frequencies that were reflected during the day pass straight through.

Summer HF communications usually operate on higher frequencies than those used in winter over the same distance.

Solar activity varies over an 11 year cycle. Higher frequencies need to be used during periods of peak activity.

It is important to remember that you may need to change the frequency you are using to achieve the best communication. The general rules of thumb for HF communication are:

• the higher the sun, the higher the frequency

• the further the distance, the higher the frequency

Channels and modes

A channel is a name that is given to a frequency or a pair of frequencies, e.g. 'Channel 1', '4500' and 'Headquarters'. The frequencies may be any frequencies within the HF range.

Each channel has one or more modes associated with it. Each mode indicates a sideband that can be used with the channel, such as USB or LSB. When you make a call you need to specify the channel *and* the mode you want to use.

Table 6 shows examples of channels and the information associated with them.

Table 6:   Examples of channels and modes

Channel	Receive frequency (kHz)	Transmit frequency (kHz)	Modes
Channel 1	10600	10600	LSB, USB
4500	4500	–	AM
Headquarters	22758	23000	USB

Networks and scanning

A network is two or more stations that use the same frequencies and call system to communicate. The frequencies are allocated by a government authority and enable the network to maintain HF communication throughout the day and night.

The call system is the method the network uses to make and receive calls. For example, in networks that use the Codan Selcall or Open Selcall call system to make calls, the user enters the address of the station they want to call, then selects the channel/mode on which to make the call. In networks that use the ALE/CALM call system, the transceiver selects the best channel/mode for the call.

The transceiver can be set to scan the channel/modes used by your network to detect incoming calls. It is recommended that when you are not using the transceiver to communicate you switch scanning on. This ensures that you can receive calls from stations in your network.

Etiquette for the use of HF radio

There is a standard procedure for communicating over HF radio. Before you begin transmitting, switch off scanning, select a channel, then press PTT on the handset to initiate tuning of the antenna. Listen to the channel that you are going to use and ensure that there is no voice or data communication taking place. You may need to wait until the channel is clear or select another channel.

When you first establish communication with another station it is customary to state their call sign and then your own using the phonetic alphabet (see Table 7 on page 55). For example:

'Alpha Bravo One, this is Alpha Bravo Two. Do you receive me? Over.'

In this example your call sign is AB2 and you are calling a station with the call sign AB1. A call sign is a group of letters and numbers issued by a government authority to identify a station. The phonetic alphabet is used to ensure that your call sign is understood.

The word 'over' is used to signify the end of your transmission. The transceiver may be set up to transmit a short beep when you release the PTT button on the handset. When your conversation with the other party is finished, the party that speaks last should say 'out'.

Swearing or foul language should not be used—heavy penalties can apply.

Keep communication as short as possible.

Table 7:   The phonetic alphabet

Letter	Word	Letter	Word
A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

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Appendix E—Definitions

Standards and icons

The following standards and icons are used in this guide:

This typeface	Means...
Italic	a cross-reference or text requiring emphasis
Bold	a connector name

This icon	Means...
❑	a step within a task
NOTE	the text provided next to this icon may be of interest to you
CAUTION	proceed with caution as your actions may lead to loss of data, privacy or signal quality
WARNING	your actions may cause harm to yourself or the equipment

Acronyms and abbreviations

This term	Means...
ALE	automatic link establishment
AM	amplitude modulation
BER	bit error rate
CALM	Codan automated link management
CW	carrier wave
DC	direct current
DSP	digital signal processor
ETSI	European Telecommunications Standards Institute
GPIO	general purpose input/output
GPS	global positioning system
HF	high frequency
ID	identification
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IF	intermediate frequency
LBT	listen before transmit
LCD	liquid crystal display
LED	light emitting diode
LSB	lower sideband
LQA	link quality analysis
NSP	NGT system programmer
PA	power amplifier

This term	Means...
PC	personal computer
PTT	press-to-talk
RF	radio frequency
R&TTE	radio and telecommunications terminal equipment
Rx	receive
SB	sideband
SINAD	(signal + noise + distortion)-to-(noise + distortion) ratio
tcvr	transceiver
Tx	transmit
USB	upper sideband
V	firmware/software version

Glossary

This term	Means...
active line	The line below the title of a list on the handset screen. Items in the active line are selected by pressing ✔.
address	The HF transceiver equivalent of a telephone number. Your station self address is used by other stations to call you, and it is sent when you make calls to identify you as the caller. It is sometimes referred to as an ID, a station ID, or a self ID.
automatic tuning antenna	An antenna designed for use with multichannel transceivers. It uses a microcontrolled stepper motor to give continuous tuning over the operating frequency range of the antenna.
call detect time	The length of time during scanning that the transceiver pauses on each channel in order to detect an incoming call. It is the inverse of the scan rate.
channel	Frequencies programmed in the transceiver to transmit and receive signals on air.
Channel Test call	A call that enables you to test the quality of a channel in a Codan Selcall or Open Selcall network.
control cable	A cable connecting two items of equipment that allows control information to be passed between the equipment.
Emergency call	A call that enables you to trigger an emergency alarm at a specific station then speak to an operator there.

This term	Means...
fixed base station	A transceiver that is permanently installed and cannot be moved without significant effort. It consists of a transceiver, a transceiver supply, an antenna, control and accessory devices, ancillary equipment, and appropriate connecting cables.
frequency	The number of cycles per second of a radio wave, usually expressed in kilohertz.
Get Position call	A call that gets the GPS position of a specific station.
Get Status call	A call that gets diagnostic or configuration information about the transceiver at a specific station.
handset	A hand-held device that is used to control the functions of a transceiver. It consists of a microphone, PTT button, display and keypad.
hot key	A key on the handset or desk console that is pre-programmed with a macro that enables you to perform a task quickly.
listen before transmit	If enabled, the automatic process that the transceiver uses to detect whether or not there is traffic on a channel and, when necessary, select another channel or inform the user that the channel is busy.
macro	A short set of instructions to automate a task you perform with the transceiver. When a macro is assigned to a key, the key becomes a hot key.
Message call	A call that enables you to send a message to a specific station.

This term	Means...
mobile station	A station that is usually mounted in a vehicle or is portable and easily transportable. It consists of a transceiver, a power supply, an antenna, control and accessory devices, ancillary equipment, and appropriate connecting cables.
mode	A type of reception or transmission you can use with a channel, comprising a sideband and an IF filter.
network	Two or more stations that use the same frequencies and call system to communicate.
Phone call	A call that enables you to connect to a public telephone network.
PTT button	Press-to-talk button, located on the left side of the handset. This button enables you to communicate during voice calls, switch mute off, cancel voice calls prior to the point where voice can be transmitted, cancel calls where data is being transmitted, and exit out of editable screens without saving changes.
revertive	A signal sent by a station in response to a call.
RF unit	The device in a transceiver that modulates audio signals onto radio frequencies that can be transmitted on air, and that demodulates the radio frequencies it receives into audio signals.
Selective call	A call that enables you to contact a specific station then speak to an operator.
Send Position call	A call that sends your GPS position to a specific station.

This term	Means...
sideband	A band of frequencies that is above or below a modulated carrier frequency.
station	A point of communication consisting of a transceiver, a power supply, an antenna, ancillary equipment, and appropriate connecting cables.
transceiver	An RF unit, handset, speaker, and appropriate connecting cables.

Units

NOTE	Imperial dimensions are in United States Customary Units.	

Measurement	Unit	Abbreviation
Length	metre (inch/feet/yard/ mile)	m (in/ft/yd/mi)
Frequency	hertz	Hz
Time	second	s
	hour	h
Voltage	volt	V
Weight	gram (pound)	g (lb)

Unit multipliers

NOTE	Units are expressed in accordance with ISO 1000:1992 'SI units and recommendations for the use of their multiples and of certain other units'.

Unit	Name	Multiplier
M	mega	1 000 000
k	kilo	1 000
m	milli	0.001

About this issue

This is the second issue of the NGT *SRx* Transceiver Getting Started Guide.

Associated documents

This guide is one of a series of documents associated with the NGT *SRx* Transceiver. The other documents are:

- NGT *SRx* Transceiver Reference Manual (Codan part number 15-04141-EN) supplied on the CD inside the back cover of this guide

- NGT Transceiver System Technical Service Manual (Codan part number 15-02063-EN)

- Declaration of Conformity for the NGT *SRx* transceiver (Codan part number 19-40192)

- Declaration of Conformity for the 3020 Transceiver Supply (Codan part number 19-40127)

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CERTIFIED QUALITY
MANAGEMENT SYSTEM
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