Low Battery Alert Tone

The beltpack sends an audio alert tone to the headset if battery life reaches 10%. The 1 kHz tone is heard for 0.5 seconds, every 30 seconds. The tone is only heard and set at the beltpack.

To **set the low battery alert tone**, do the following:

1. Press **SET** at the battery percentage screen.
   A screen appears displaying `Lbt oFF`.
   The low battery tone option also flashes

2. Using the UP/DOWN arrow buttons, turn the **low battery tone option** on or off.
3. Press **SET** to accept the change.
   The screen now displays with AL or ni flashing.

4. Using the UP/DOWN arrow buttons, select **AL or ni** for Alkaline/NiMH battery gauge calibration.
5. Press **SET** to return to the battery gauge screen.

Transmit Power

The **Transmit Power** screen displays the current setting of the beltpack transmitter's output power level. There are four (4) settings.

Transmit Power Settings

Auto (Default)	The beltpack's transmitter adjusts its output level according to information sent to the beltpack from the base station. It adjusts between two levels: 10 mW or 50 mW.
10	The beltpack transmits at 10 mW
50	The transmitter is at 50 mW

When the unit is set to auto, base station information tells the beltpack the appropriate power settings to use based upon the received signal strength level at the base station. By reducing the transmit power when possible, the battery life of the beltpack can be slightly extended and intermodulation products can be reduced.

Changing the Transmit Power Setting

To **change the transmit power setting**, do the following:

1. Push SET at the transmit power screen.
2. Using the UP/DOWN arrow buttons, select the power setting.
3. Push SET to place the unit at the indicated setting.

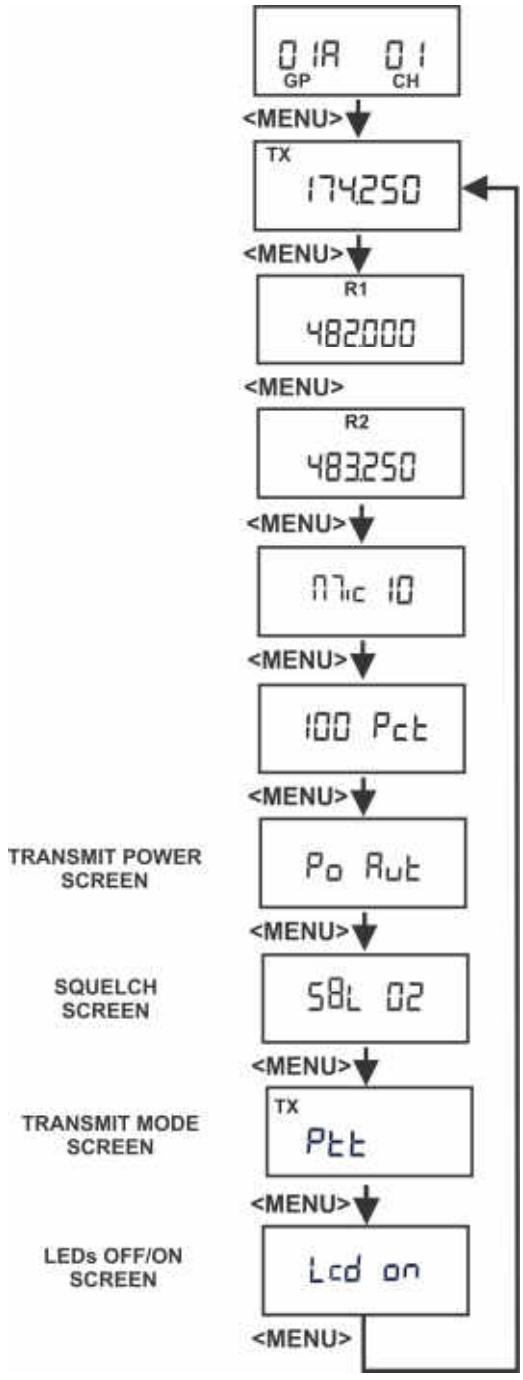


FIGURE 75.
Transmit Power, Squelch,
Push-to-Talk/Push-to-Transmit Screen

Squelch Screen

The **Squelch** screen allows the user to adjust the beltpack squelch level.

To **select the beltpack squelch level**, do the following:

1. Push **SET** at the squelch screen.
   The squelch setting flashes.
2. Using the UP/DOWN arrow buttons**,** select the **squelch setting**.
   A setting of 00 holds the squelch open for testing.

WARNING: Do not set the squelch to 00 while wearing headphones with the volume turned up. White noise with no signal can be uncomfortably loud.

*3. Push **SET** to save the new squelch setting.*

Squelch Lvl	Approx. SINAD	Notes
00	NA	Open
01	12	
02	20	Default
03	24	
04	NA	RSSI Lvl Squelch

NOTE: The beltpack employs two (2) different types of squelches. A fast acting noise-type squelch and a slower data squelch. For audio to be received by the beltpack, both a good signal-to-noise audio signal (with a noise threshold set via the user squelch settings above) and a valid data stream must be detected.

Transmit Mode Screen

The **Transmit Mode** screen is used to select the following modes:

Transmit Mode	Description
Stt	Push-to-Talk. The transmitter is always on. Pressing the TALK button un-mutes the audio. The beltpack responds to the base audio mute commands. When a user disables the beltpack Portable Station Connect button, the beltpack TALK button turns off.
St tu	Push-to-Transmit. The transmitter is off and audio muted until the TALK button is on. The beltpack will ignore lockout or shutdown commands from the base.
St tuo	Push-to-Transmit Lockout Enabled. The transmitter is off and audio muted until the TALK button is on. The beltpack will respond to lockout commands from the base, such as First-On-Latch Out and Portable Station Connect disable.
St tuq	Push-to-Transmit Lockout Enabled but no busy tone. This mode is the same as Pt trL but no “busy” tone heard in beltpack if channel is occupied.

To **change the transmit mode setting**, do the following:

1. Push **SET** at the transmit mode screen.
   The screen flashes.
2. Using the UP/DOWN arrow buttons, select the **transmit mode**.
3. Push **SET** to save the mode change.

LEDs Off/On

The LED off/on screen is used to disable all LEDs. This function is useful for users who do not wish to show LEDs in the dark.

To **turn LEDs on or off**, do the following:

1. Push **SET** at the LED off/on screen.
2. Using the UP/DOWN arrow buttons, select the **desired mode**.
3. Push **SET** to save the mode change.

Software Version/Band

The software revision and frequency band of the beltpack may be displayed from any of the main beltpack screens.

To **view the software revision and frequency band**, do the following:

> In any of the beltpack main screens, press and hold **DOWN** for two (2) seconds.

- The first screen indicates the frequency band of the beltpack.
- The second screen indicates the software revision.

After displaying the information, the screen reverts back to the main screen.

The screens below indicate an A10 band beltpack with 303004 version software.

ClearScan™

ClearScan™ helps you find clear RF frequencies in your area. The beltpack's receiver scans all the factory-defined groups and any set user-defined groups. The result is a list of beltpack receive groups, clear of interference.

To **enter ClearScan™** do the following:

1. Press and hold **MENU** + **SET** for two (2) seconds to start ClearScan™.
   The beltpack display changes to ClrScn and the GP icon flashes. After about 12 seconds, the beltpack displays the first clear group. The group number flashes.
2. Using the UP/DOWN buttons, display **clear groups**.
3. Press **SET** to select a group.
4. Press **MENU** to bail out without selecting a group.

Clear groups are displayed first. They are in group order. You can scroll down through groups using the DOWN button. The left-half of the screen gives you an indication of interference levels as you scroll through the groups.

User-defined groups without a defined frequency for one of the receive channels display a u to indicate undefined.

The degree of interference found for R1 and R2 displays on the far-right two (2) positions on the screen.

Interference Level	Right Half of LCD Display
None	Blank
Weak	Single Bar
Moderate	Double Bar
Strong	Triple Bar

Lock Out

This function allows the user to lock the top panel and menu options. The top panel buttons still work, but the TALK button options cannot be changed. Likewise, values on the LCD screen in the beltpack can be viewed but not changed.

To **enable/disable Lock Out**, do the following:

1. Press and hold the **UP and DOWN buttons** for two (2) seconds.
   The words `Loc oq` *appear on the screen when lock out is active.*
2. Press and hold the **UP and DOWN buttons** for two (2) seconds again to disable lock out.
   The words `Loc off` *appear.*

First Use Default

This function sets the beltpack to Group 1A, channel 1 and leaves any user-programmed groups in memory. It sets units to factory-defined menu settings. It also sets the TALK buttons to their default modes.

To **activate the First Use Default**, do the following:

> Press and hold **MENU** while powering-up the beltpack.

Factory Reset

This function sets the beltpack to Group 1A, channel 1 and **ERASES** any user-defined groups in memory. It sets a unit to factory settings. It also sets the TALK buttons to their default modes.

To **activate factory reset**, do the following:

> Press and hold **MENU** + **SET** + **UP** + **DOWN** for three (3) seconds.

RF Monitor Screen

The RF monitor screen displays beltpack RF status.

To **display the beltpack RF status**, do the following:

1. Press and hold **MENU** for two (2) seconds to display beltpack RF status.
    - If the channel button is set to 1, then signal strength displays for R1 frequency.
    - If the channel button is set to 2, then signal strength displays for R2 frequency.

TX Power	Signal Strength
Lo = 10mW	0= NO
hi = 50mW	1= Very Weak
	2= Weak
	3= Moderate
	4= Strong
	5= Very Strong

2. Press **MENU** again to exit RF Monitor Screen.

Setting Beltpack ID

Several functions require the beltpack to know which base and channel it is associated with.

- Auto Power Setting: The beltpack reduces its TX power when close to the base. Beltpack transmit power must be set to Auto.
- Portable Station Deselect: The base can disable the TALK button of a beltpack. This shuts off the mic in PTT mode and turns off the transmitter in PT TR mode.
- First-On-Latch-Out: This locks a base receive channel so only one beltpack can transmit on the frequency at a time. A beltpack user attempting to talk on top of another beltpack on the same frequency hears a double beep in their headset.

A beltpack tries to establish its ID automatically when its group/channel changes. The base must be on for this to work.

To **check or set beltpack ID manually**, do the following:

1. Press and hold **UP** for two (2) seconds.
   The LCD displays ID Base# - Receiver#.

For example: ID 1-3 means Base 1, Receiver 3.

If the LCD displays ID--- or does not match the base and receiver, the beltpack is assigned to, Auto Power, Portable Station Deselect, and First-On-Latch Out will not work correctly.

2. If the beltpack ID is correct, press **MENU** to exit.
3. If the beltpack ID is not correct, press **SET**.
   The ID numbers flash.
4. Using the UP/DOWN buttons, select a **new ID**.
5. Press **SET** to apply the new ID.

Bases with transmitters enabled are always base #1. A second base using the first base transmitters instead of its own, and properly connected to the first base through CAN bus link cables becomes base #2, etc.

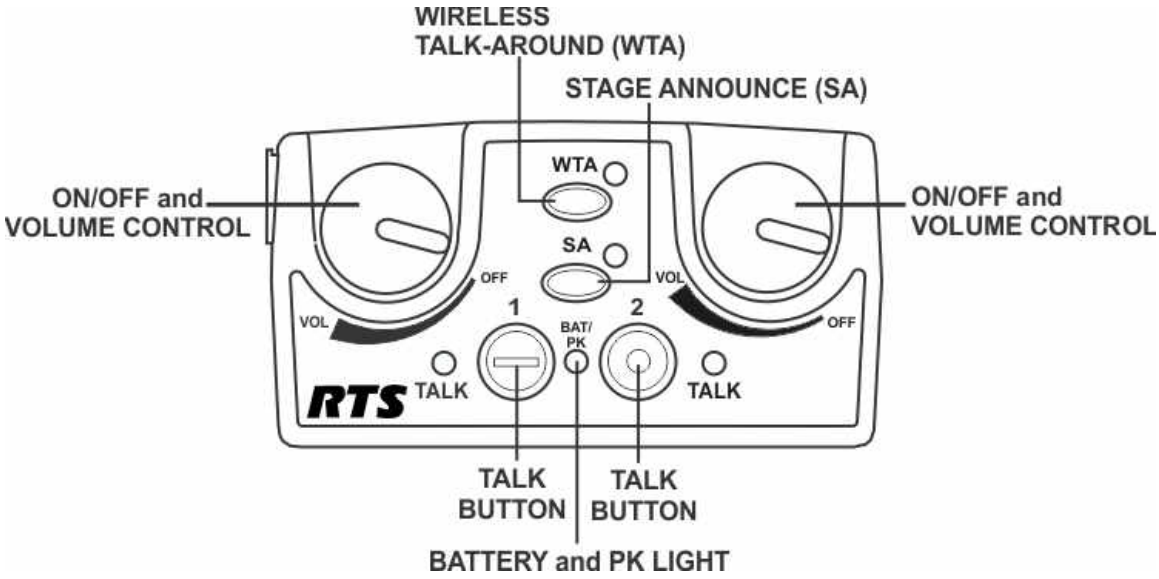


FIGURE 76. TR-32N Top Panel Controls

On/Off and Volume Control

To **turn the beltpack power on**, do the following:

> Rotate the **On/Off Volume Control knob**(s) CW.

To **adjust the volume to the headset**, do the following:

> Rotate the **On/Off Volume Control knob** as required for a comfortable listening volume.
> Left control = channel one (1)
> Right control = channel tow (2)

TALK Button

To **enable the audio path from the headset microphone**, do the following:

> Press the **TALK button**.
> *The talk light activates when the TALK button is active.The TALK button has three (3) software selectable modes that can be seen via the LCD display of the beltpack.*

To **select the TALK button mode**, do the following:

1. Press and hold **SET** while pressing the **TALK button**.
   The current mode of the TALK button displays the first time the TALK button is hit. Pressing the TALK button a second time changes the mode of the button.
2. Release **SET** to accept the currently displayed setting.

Selectable Modes: TALK		
	1 or 2 off	TALK disabled
	1 or 2 on	Push-to-talk
	1 or 2 Lon	Push-to-latch

Battery/Peak Light

The battery/peak lights indicate battery condition and audio modulation status.

Battery	Light flashes on power up	= Battery OK
	Light on continuously	= Battery Low
	Light does not flash or come on	= Battery Dead
Over modulation	Light flashes on some speech	= Gain OK
	Light flashes on all speech	= Gain too High
	Light never flashes on speech	= Gain too Low

Stage Announce (SA)

To **route audio from the beltpack to the stage announce connector**, do the following:

> Press the **SA button**.
> *The base station's SA relay closes. The beltpack sidetone is lost as an indication that stage announce is activated. The other beltpacks and wired users do not hear this beltpack's audio when SA is pressed. The button is non-latching and activates the nearby red LED when pressed.*

To **enable or disable Stage Announce**, do the following:

1. Press and hold **SET** while pressing the **SA button**.
   The current mode of the SA button displays.
2. Still holding **SET**, press the **SA button** again to turn SA on or off.
3. Release **SET** to accept the displayed setting.

Wireless Talk-Around (WTA)

To **disconnect the beltpack audio from the wired intercom, auxiliary input/output, and the base station's local headset,** do the following:

> Press the **WTA button**.
Other beltpack users on that audio channel can hear the user as normal. The WTA button activates the nearby red LED as well as the appropriate talk LED when pressed.

To **enable or disable Wireless Talk-Around options**, do the following:

1. Press and hold **SET** while pressing the **WTA butto**n.
The current WTA mode displays. Pressing WTA a second time changes modes. Options followed by an L = latch.
2. Release **SET** to accept the displayed setting.

tA Pb	WTA of currently selected talk button
tA 1L	WTA Channel 1 only-Latching
tA 2L	WTA Channel 2 only-Latching
tA 12L	WTA Channel 1 & 2-Latching
tA PbL	WTA of currently selected talk button-Latching
tA off	WTA Disabled
tA1	WTA Channel 1
tA2	WTA Channel 2
tA12	WTA Channel 1 & 2

Groups and Channels

The first LCD screen the beltpack displays is the Group/ Channel screen. This screen shows the currently selected receive group followed by the beltpack transmit channels.

To **edit groups and channels**, do the following:

1. Push **SET** to edit the transmit channel.
   The channel number flashes.
2. Using the UP/DOWN arrow buttons, select the **desired transmit channel**.
3. Push **SET** to accept the channel.
   The receive group flashes.
4. Using the UP/DOWN arrow buttons, select the **desired receive group**.
5. Push **SET** to accept the receive group.
   The new group containing the selected channel is now set.

NOTE:

- To escape out of the editing without any changes, Press MENU.
- Factory group frequencies cannot be changed. User group frequencies (Group 19u to 30u) can be changed.

Transmit Frequency

The **Transmit Frequency** screen displays the beltpack transmitter frequency in MHz. The frequency is not changeable in factory-determined groups, but it is changeable in user-defined groups.

To **edit the TX frequency (User Groups Only)**, do the following:

1. Set **the unit** to the desired user-defined group and channels.
   See Groups and Channels Instructions. The menu structure in Figure 77 indicates how to get to the transmit frequency screen.
2. Push **SET** to edit the TX frequency.
   The frequency flashes.
3. Using the UP/DOWN arrow buttons, select the **desired frequency**.
   The frequency can be changed in 25 kHz steps.
4. Push **SET** to place the unit on the new transmit frequency.

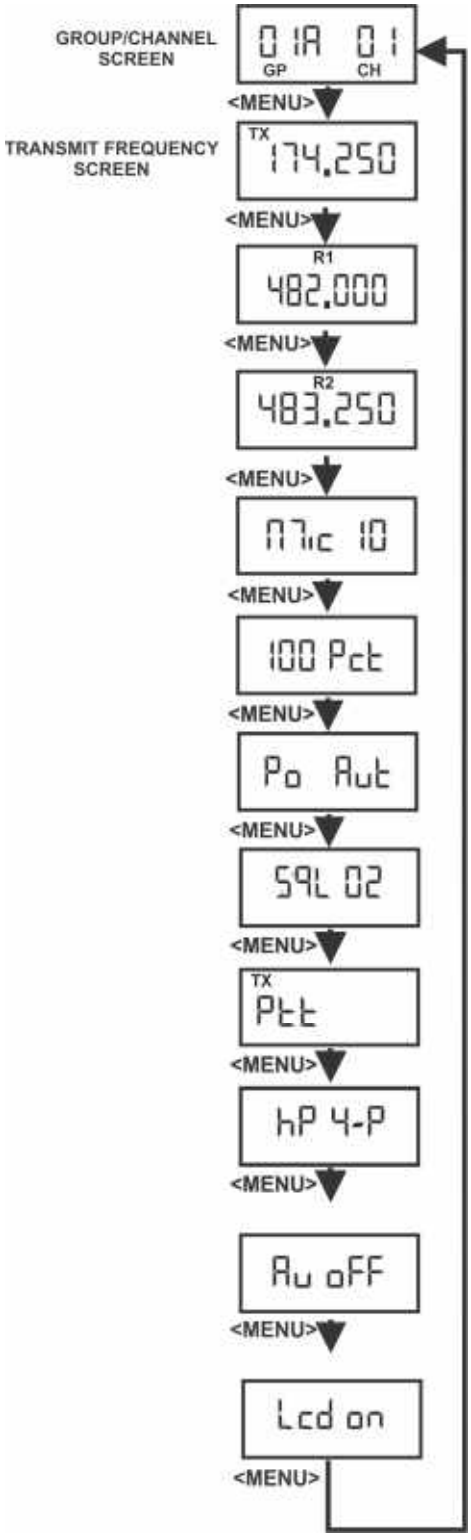


FIGURE 77. Group/Channel and Transmit Screen

Receive Frequency

The Receive Frequency screen displays the beltpack receiver frequency in MHz. The frequency cannot be changed in factory-defined groups, but can be changed in user-defined groups.

To **edit the RX frequency (User Groups Only)**, do the following:

1. Set the **unit** to the desired user-defined group and channels. *See Groups and Channels Instructions. The menu structure in Figure 78 indicates how to get to the receive frequency screen.*
2. Push **SET** to edit the RX frequency. *The frequency flashes.*
3. Using the UP/DOWN arrow buttons, select the **desired frequency**. T*he frequency can be changed in 25 kHz steps.*
4. Push **SET** to place the unit on the new receive frequency.

Microphone Gain

The **Microphone Gain** screen displays the beltpack microphone gain setting. There are 16 possible settings. The number zero (0) indicates minimum microphone gain, the number 15 is maximum. Each step is about three (3) dB.

To **adjust the microphone gain**, do the following:

1. Push **SET** at the microphone gain screen. *The number flashes.*
2. Using the UP/DOWN arrow buttons, to select the **desired gain**.
3. Push **SET** to place the unit at the indicated microphone gain.

Battery Display

The **Battery Display** screen indicates the current percentage of battery remaining.

Battery Percentages

100 Pct. = Fresh Battery
75 Pct. = 75% Life Left
50 Pct. = 50% Life Left
25 Pct. = 25% Life Left
10 Pct. = 10% Life Left. Low Battery Light.
0 Pct. = Battery Dead. Unit will lose communication at any time.

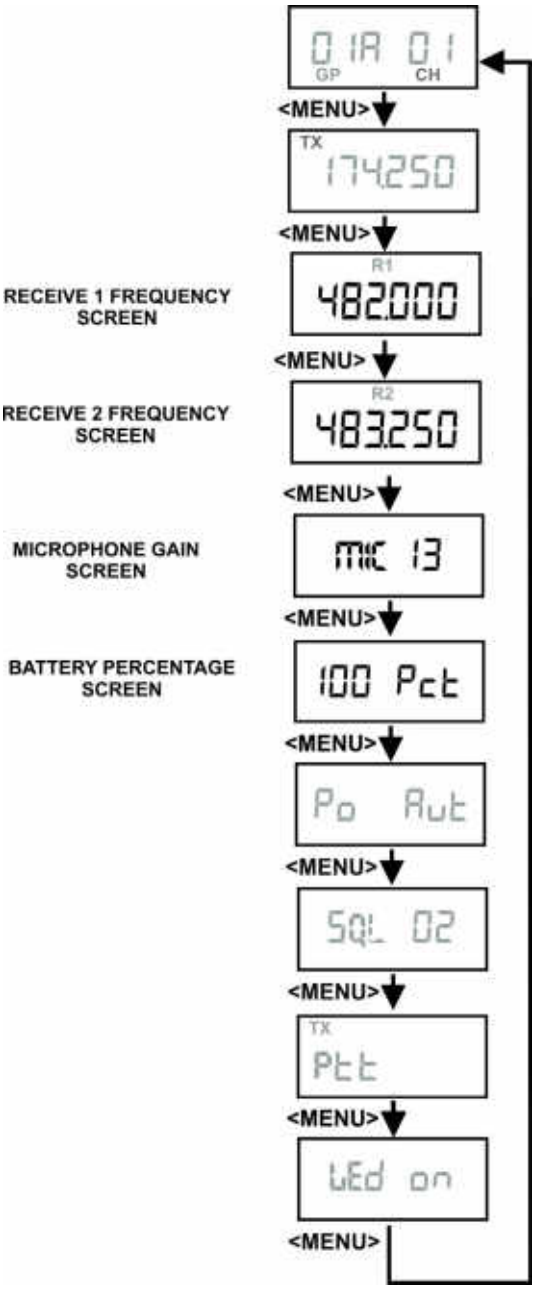


FIGURE 78.
Receive frequencies/Microphone Gain Battery Percentage Screen

Low Battery Alert Tone

The beltpack sends an audio alert tone to the headset if battery life reaches 10%. The 1 kHz tone is heard for 0.5 seconds, every 30 seconds. The tone is only heard and set at the beltpack.

To **set the low battery alert tone**, do the following:

1. Press **SET** at the battery percentage screen.
   A screen appears displaying `Lbt oFF`.
   The low battery tone option also flashes

2. Using the UP/DOWN arrow buttons, turn the **low battery tone option** on or off.
3. Press **SET** to accept the change.
   The screen now displays with AL or ni flashing.

4. Using the UP/DOWN arrow buttons, select **AL or ni** for Alkaline/NiMH battery gauge calibration.
5. Press **SET** to return to the battery gauge screen.

Transmit Power

The **Transmit Power** screen displays the current setting of the beltpack transmitter's output power level. There are four (4) settings.

Transmit Power Settings

Auto (Default)	The beltpack's transmitter adjusts its output level according to information sent to the beltpack from the base station. It adjusts between two (2) levels: 10mW or 50 mW.
10	The beltpack transmits at 10 mW
50	The transmitter is at 50 mW

When the unit is set to auto, base station information tells the beltpack the appropriate power settings to use based upon the received signal strength level at the base station. By reducing the transmit power when possible, the battery life of the beltpack can be slightly extended and intermodulation products can be reduced.

To **change the transmit power setting**, do the following:

1. Push **SET** at the transmit power screen.
2. Using the UP/DOWN arrow buttons, select the **power setting**.
3. Push **SET** to place the unit at the indicated setting.

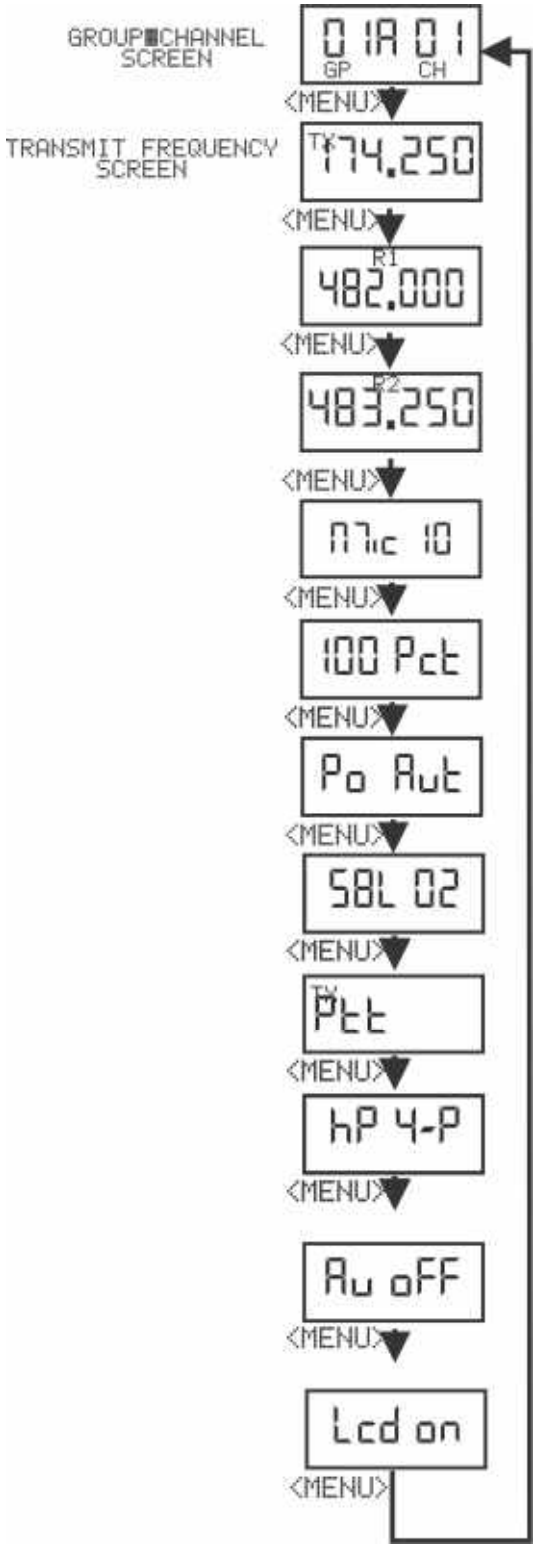


FIGURE 79.
Transmit Power/Squelch Screen

Squelch Screen

The **Squelch** screen allows the user to adjust the beltpack squelch level.

To **adjust the squelch level**, do the following:

1. Push **SET** at the squelch screen.
   The squelch setting flashes.
2. Using the UP/DOWN arrow buttons, select the **squelch setting**.
   A setting of 00 holds the squelch open for testing.

WARNING: Do not set the squelch to 00 while wearing headphones with the volume turned up. White noise with no signal can be uncomfortably loud.

*3. Push **SET** to save the new squelch setting.*

Squelch Lvl	Approx. SINAD	Notes
00	NA	Open
01	12	
02	20	Default
03	24	
04	NA	RSSI Lvl Squelch

NOTE: The beltpack employs two (2) different types of squelches. A fast acting noise-type squelch and a slower data squelch. For audio to be received by the beltpack, both a good signal-to-noise audio signal (with a noise threshold set via the user squelch settings above) and a valid data stream must be detected.

Headphone Options:

- If the TR-32N has a 4-pin headset connector, the headphone should be set to **hP 4-P** (4-pin).
- When supplied with a 5-pin (stereo) headset connector, the settings **hP Add** should be used for Mono or **hP SEP** for channel 1 in left earpiece and channel 2 in right earpiece.
- A 5-pin single-sided headset should be set to **hP 4-P**.

Auxiliary Input:

The TR-32N has a 3.5 mm mono auxiliary input jack. Audio from this jack is heard only in the beltpack headset.

To **set the Auxiliary mode**, do the following:

1. Press **SET**.
2. Using the UP/DOWN arrow buttons, select the **AUX mode setting**.

Setting	Auxiliary Input Function
Off	Aux input disabled
1	Aux heard with Ch 1
2	Aux heard with Ch 2
12	Aux heard with Ch 1 & 2

3. Press **SET** to accept the screen setting.
   If Aux is not Off, the next screen displays Au NN *where NN is a two (2) digit number between 0 and 15. This is the volume level setting for the aux input.*
4. Press **SET**.
   The two (2) digits will flash.
5. Using the UP/DOWN arrow buttons, select the **AUX volume**.
6. Press **SET** to accept the gain setting.

Transmit Mode Screen

The **Transmit Mode** screen is used to select the following modes:

Transmit Mode	Description
Stt	Push-to-Talk. The transmitter is always on. Pressing the TALK button un-mutes the audio. The beltpack responds to the base audio mute commands. When a user disables the beltpack Portable Station Connect button, the beltpack TALK button turns off.
St tu	Push-to-Transmit. The transmitter is off and audio muted until the TALK button is on. The beltpack will ignore lockout or shutdown commands from the base.
St tuo	Push-to-Transmit Lockout Enabled. The transmitter is off and audio muted until the TALK button is on. The beltpack will respond to lockout commands from the base, such as First-On-Latch Out and Portable Station Connect disable.
St tuq	Push-to-Transmit Lockout Enabled but no busy tone. This mode is the same as Pt trL but no "busy" tone heard in beltpack if channel is occupied.

To **change the transmit mode setting**, do the following:

1. Push **SET** at the transmit mode screen.
   The screen flashes.
2. Using the UP/DOWN arrow buttons, select the **transmit mode**.
3. Push **SET** to save the mode change.

LEDs Off/On

The **LED Off/On** screen is used to disable all LEDs. This function is useful for users who do not wish to show LEDs in the dark.

To **turn LEDs on or off**, do the following:

1. Push **SET** at the LED off/on screen.
2. Using the UP/DOWN arrow buttons, select the **desired mode**.

Software Version/Band

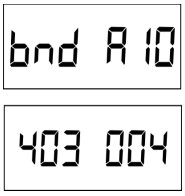
The **Software Revision** and **Frequency Band** of the beltpack may be displayed from any of the main beltpack screens.

To **view the software revision and frequency band**, do the following:

> In any of the beltpack main screens, press and hold **DOWN** for two (2) seconds.
  - The first screen indicates the frequency band of the beltpack.
  - The second screen indicates the software revision.

After displaying the information, the screen reverts back to the main screen.

The screens below indicate an E5 band beltpack with 80E052 version software.



ClearScan™

ClearScan™ helps you find clear RF frequencies in your area. The beltpack's receiver scans all the factory-defined groups and any set user-defined groups. The result is a list of beltpack receive groups, clear of interference.

To **enter ClearScan™,** do the following:

1. Press and hold **MENU** + **SET** for two (2) seconds to start ClearScan™.
   The beltpack display changes to ClrScn and the GP icon flashes. After about 12 seconds, the beltpack displays the first clear group. The group number flashes.
2. Using the UP/DOWN arrow buttons, display the **clear groups**.
3. Press **SET** to select a group.
4. Press **MENU** to bail out without selecting a group.

Clear groups are displayed first. They are in group order. You can scroll down through groups using the DOWN button. The left-half of the screen gives you an indication of interference levels as you scroll through the groups.

User-defined groups without a defined frequency for one of the receive channels display a u to indicate undefined.

The degree of interference found for R1 and R2 displays on the far-right two (2) positions on the screen.

Interference Level	Right Half of LCD Display
None	Blank
Weak	Single Bar
Moderate	Double Bar
Strong	Triple Bar

Lock Out

Lock Out allows the user to lock the top panel and menu options. The top panel buttons still work, but the TALK button options cannot be changed. Likewise, values on the LCD screen in the beltpack can be viewed but not changed.

To **enable/disable Lock Out**, do the following:

1. Press and hold the **UP and DOWN buttons** for two (2) seconds.
   The words `Loc oq` *appear on the screen when lock out is active.*
2. Press and hold the **UP and DOWN buttons** for two (2) seconds again to disable lock out.
   The words `Loc off` *appear.*

First Use Default

First Use Default sets the beltpack to Group 1A, channel 1 and leaves any user-programmed groups in memory. It sets units to factory-defined menu settings. It also sets the TALK buttons to their default modes.

To **activate the 1st Use Default**, do the following:

> Press and hold **MENU** while powering-up the beltpack.

Factory Reset

Factory Reset sets the beltpack to Group 1A, channel 1 and ERASES any user-defined groups in memory. It sets a unit to factory settings. It also sets the TALK buttons to their default modes.

To **activate factory reset**, do the following:

> Press and hold **MENU** + **SET** + **UP** + **DOWN** for two (2) seconds.

RF Monitor Screen

The **RF Monitor Screen** displays beltpack RF status.

To **display the beltpack RF status**, do the following:

1. Press and hold **MENU** for two (2) seconds to display beltpack RF status.
   - If the channel button is set to 1, then signal strength displays for R1 frequency.
   - If the channel button is set to 2, then signal strength displays for R2 frequency.

TX Power	Signal Strength
Lo = 10mW	0= NO
hi = 50mW	1= Very Weak
	2= Weak
	3= Moderate
	4= Strong
	5= Very Strong

2. Press **MENU** again to exit RF Monitor Screen.

Setting Beltpack ID

Several functions require the beltpack to know which base and channel it is associated with.

1. Auto Power Setting: The beltpack reduces its TX power when close to the base. Beltpack transmit power must be set to Auto.
2. Portable Station Deselect: The base can disable the TALK button of a beltpack. This shuts off the mic in PTT mode and turns off the transmitter in PT TR mode.
3. First-On-Latch-Out: This locks a base receive channel so only one beltpack can transmit on the frequency at a time. A beltpack user attempting to talk on top of another beltpack on the same frequency hears a double beep in their headset.

A beltpack tries to establish its ID automatically when its group/channel changes. The base must be on for this to work.

To **check or set beltpack ID manually**, do the following:

1. Press and hold **UP** for two (2) seconds.
   The LCD displays ID Base# - Receiver#.

For example: ID 1-3 means Base 1, Receiver 3.

If the LCD displays ID--- or does not match the base and receiver, the beltpack is assigned to, Auto Power, Portable Station Deselect, and First-On-Latch Out will not work correctly.

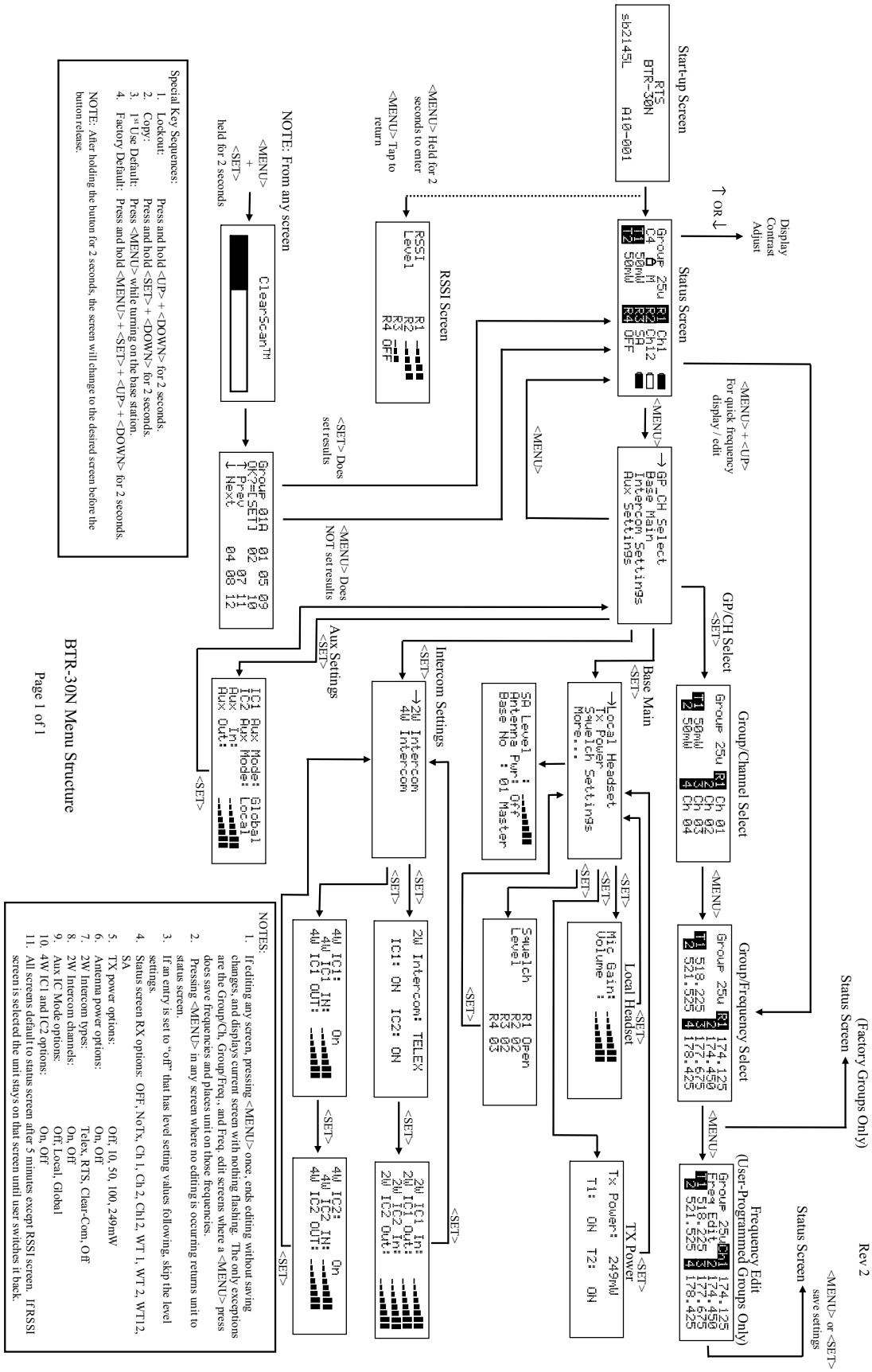
2. If the beltpack ID is correct, press **MENU** to exit.
3. If the beltpack ID is not correct, press **SET**.
   The ID numbers flash.
4. Using the UP/DOWN buttons, select a **new ID**.
5. Press **SET** to apply the new ID.

Bases with transmitters enabled are always base #1. A second base using the first base transmitters instead of its own, and properly connected to the first base through CAN bus link cables becomes base #2, etc.

APPENDIX A

Additional Resources

BTR-30N Menu Structure



Special Key Sequences:

1. Lockout: Press and hold <UP> + <DOWN> for 2 seconds.
2. Copy: Press and hold <SET> + <DOWN> for 2 seconds.
3. 1st Use Default: Press <MENU> while turning on the base station.
4. Factory Default: Press and hold <MENU> + <SET> + <UP> + <DOWN> for 2 seconds.

NOTE: After holding the button for 2 seconds, the screen will change to the desired screen before the button release.

NOTES:

1. If editing any screen, pressing <MENU> once, ends editing without saving changes, and displays current screen with nothing flashing. The only exceptions are the Group/Ch, Group/Freq., and Freq. edit screens where a <MENU> press does save frequencies and places unit on those frequencies.
2. Pressing <MENU> in any screen where no editing is occurring returns unit to status screen.
3. If an entry is set to "off" that has level setting values following, skip the level settings.
4. Status screen RX options: OFF, NoTx, Ch 1, Ch 2, Ch12, WT 1, WT 2, WT12, SA
5. TX power options: Off, 10, 50, 100, 249mW
6. Antenna power options: On, Off
7. 2W Intercom types: Telex, RTS, Clear-Com, Off
8. 2W Intercom channels: On, Off
9. Aux IC Mode options: Off, Local, Global
10. 4W IC1 and IC2 options: On, Off
11. All screens default to status screen after 5 minutes except RSSI screen. If RSSI screen is selected the unit stays on that screen until user switches it back.

BTR-30N Menu Structure

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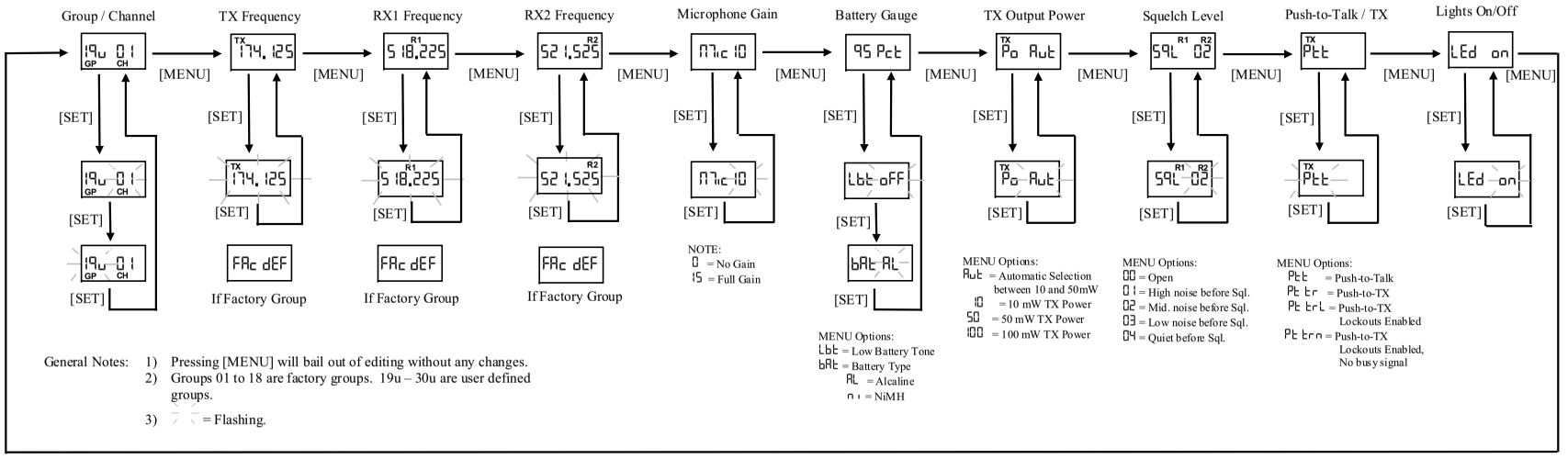
05/07/20
Rev 2

11/05/2019
Rev1

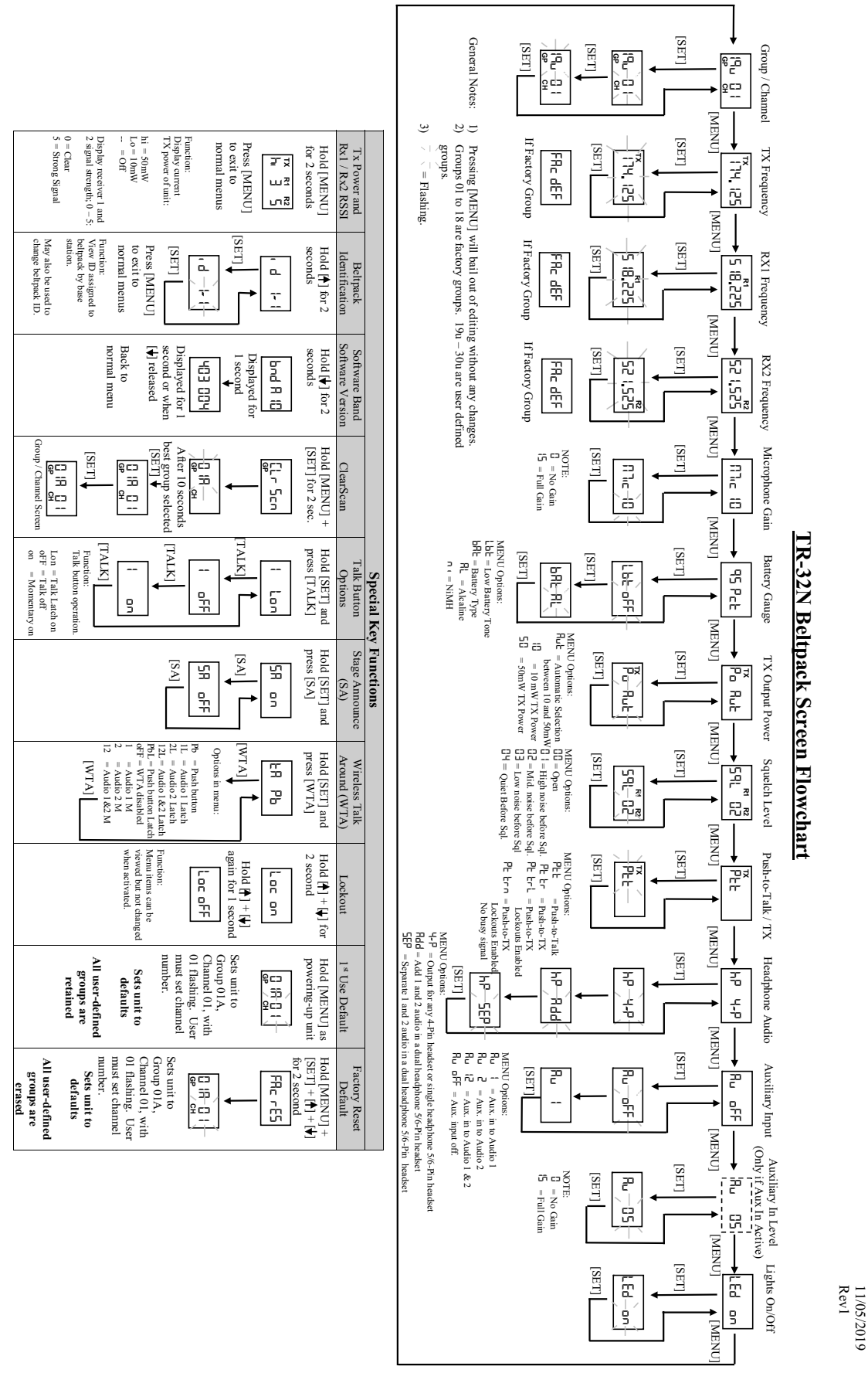
TR-30N Beltpack Screen Flowchart



General Notes:
1) Pressing [MENU] will bail out of editing without any changes.
2) Groups 01 to 18 are factory groups. 19u – 30u are user defined groups.
3) = Flashing.

Special Key Functions									
Tx Power and Receiver RSSI	**Beltpack Identification**	**Software Band Software Version**	**ClearScan**	**Talk Button Options**	**Stage Announce (SA)**	**Wireless Talk Around (WTA)**	**Lockout**	**1st Use Default**	**Factory Reset Default**
Hold [MENU] for 2 seconds Press [MENU] to exit to normal menus Function: Display current TX power of unit: hi = 50mW Lo = 10mW -- = Off Display receiver strength; 0 – 5: 0 = Clear 5 = Strong Signal	Hold [▲] for 2 seconds Press [MENU] to exit to normal menus Function: View ID assigned to beltpack by base station. May also be used to change beltpack ID.	Hold [▼] for 2 seconds Displayed for 1 second Displayed for 1 second or when [▼] released Back to normal menu	Hold [MENU] + [SET] for 2 sec. After 10 seconds best group selected [SET] [SET] Group / Channel Screen	Hold [SET] and press [TALK] [TALK] [TALK] Function: Talk button operation. LAt = Talk latch on oFF = Talk disabled PtE = Momentary	Hold [SET] and press [SA] [SA] [SA]	Hold [SET] and press [WTA] [WTA] Options in menu: on = Momentary Lon = Latch oFF = WTA disabled [WTA]	Hold [▲] + [▼] for 2 seconds Hold [▲] + [▼] again for 1 second Function: Menu items can be viewed but not changed when activated.	Hold [MENU] as powering-up unit Sets unit to Group 01A, Channel 01, with 01 flashing. User must set channel number. **Sets unit to defaults** **All user-defined groups are retained**	Hold [MENU] + [SET] + [▲] + [▼] for 2 seconds Sets unit to Group 01A, Channel 01, with 01 flashing. User must set channel number. **Sets unit to defaults** **All user-defined groups are erased**

TR-32N Beltpack Screen Flowchart



Special Key Functions

	Tx Power and Rx1 / Rx2 RSSI	Beltpack Identification	Software Band Software Version	ClearScan	Talk Button Options	Stage Announce (SA)	Wireless Talk Around (WTA)	Lockout	1st Use Default	Factory Reset Default
Function	Display current TX power of unit: hi = 50mW Lo = 10mW -- = Off Display receiver 1 and 2 signal strength, 0 – 5: 0 = Clear 5 = Strong Signal	Function: View ID assigned to beltpack by base station. May also be used to change beltpack ID.			Function: Talk button operation. Lon = Talk Latch on oFF = Talk off on = Momentary on		Options in menu: Pb = Push button 1L = Audio 1 Latch 2L = Audio 2 Latch 12L = Audio 1&2 Latch PbL = Push button Latch oFF = WTA disabled 1 = Audio 1 M 2 = Audio 2 M 12 = Audio 1&2 M	Function: Menu items can be viewed but not changed when activated.		
Hold	Hold [MENU] for 2 seconds	Hold (▼) for 2 seconds	Hold (▼) for 2 seconds	Hold [MENU] + [SET] for 2 sec.	Hold [SET] and press [TALK]	Hold [SET] and press [SA]	Hold [SET] and press [WTA]	Hold (▲) + (▼) for 2 second	Hold [MENU] as powering-up unit	Hold [MENU] + [SET] + (▲) + (▼) for 2 second
	Press [MENU] to exit to normal menus	[SET] Press [MENU] to exit to normal menus	Displayed for 1 second Displayed for 1 second or when (▼) released Back to normal menu	After 10 seconds best group selected [SET]	[TALK]	[SA]	[WTA]	Hold (▲) + (▼) again for 1 second	Sets unit to Group 01A, Channel 01, with 01 flashing. User must set channel number. **Sets unit to defaults** **All user-defined groups are retained**	**All user-defined groups are erased**

Frequency Bands

The BTR-30N system operates over the following frequency ranges:

- Base TX: 482-572 MHz
- Base RX: 174-216 MHz

The bands, US TV channels, and frequencies are shown in Figure 80.The UHF bands are 18 MHz wide. The VHF bands are 24 MHz wide.

Bands F to C are always base transmit bands (beltpack receive bands). Bands 10-13 are always base receive bands (beltpack transmit bands). An F10 base station is comprised of an F band transmitter and a 10 band receiver.

Band Pairing for Systems

Table 3 show the available band pairings.

Base TX Bands	Base RX Bands
F	10,13
H	10,13
A	10,13
B	10,13
C	10,13

TABLE 3. Available band pairings

FIGURE 80. Band Names Frequencies and US TV Channels

Band	US TV	Freq. Start	Freq. End	US TV
10	7	174	180	7
	8	180	186	8
	9	186	192	9
10/13	10	192	198	10
13	11	198	204	11
	12	204	210	12
	13	210	216	13
F	16	482	488	16
	17	488	494	17
	18	494	500	18
H	19	500	506	19
	20	506	512	20
	21	512	518	21
A	22	518	524	22
	23	524	530	23
	24	560	536	24
B	25	536	542	25
	26	542	548	26
	27	548	554	27
C	28	554	560	28
	29	560	566	29
	30	566	572	30

Frequency Plan

There are 48 groups in a BTR-30N system. The 48 groups are divided up into 36 factory-defined groups and 12 user-defined groups. A group referenced to a base station is comprised of two TX channels and up to 12 RX channels.

User-defined groups are blank initially and allow the user to enter their own frequencies.

Factory-defined groups are composed of frequencies that cannot be modified by the user. The 36 groups are composed of the following:

Nine (9) Triplet Groups

- Groups 1a to 9c

Nine (9) Single Groups

- Groups 10-18

The factory groups are organized in different ways to provide flexibility to the user on selecting frequencies. A groups is composed of intermodulation free frequencies. The triplet groups may be used together for up to three (3) systems that are intermodulation coordinated. For example, three intermodulation coordinated systems may be set up by using the following groups and channels:

- System A = Group 1a, channels: 1, 2, 3, 4
- System B = Groups 1b, channels: 5, 6, 7, 8
- System C = Group 1c, channels: 9, 10, 11, 12

A group also contains frequencies within different combinations of the TV channels. The user can select a group clear of broadcast Tv channels in the area by selecting a group(s) not using those channels.

Figure 81 indicates how the factory-defined groups used the three (3) TV channels for TX and three (3) TV channels for receive. These plans are based upon US broadcast TV channels. A darkened TV channel indicates the group has frequencies in the channel. The white TV channel indicates the group has no frequencies in the channel. For example, Group 1A uses at least one (1) frequency from each of the three (3) TV channels for RX and only the 1st TV channel for TX. However, group 18 uses only the 3rd TV channel for TX and RX.

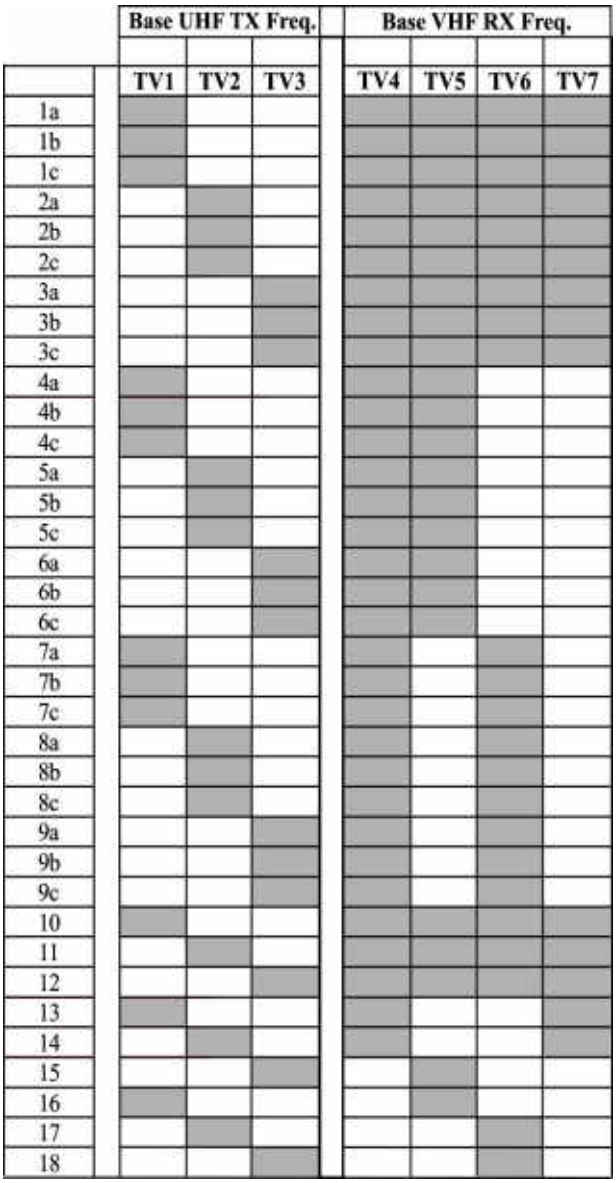


FIGURE 81.
Groups and Tv Channels Used

Dark = TV used
Light = TV not used

Troubleshooting

PROBLEM	SOLUTION
DISTORTION - System's audio quality seems distorted at medium to high input levels	Reduce microphone gain by adjusting microphone gain control in software.
HISS - System seems to produce a hiss which is undesirable.	Check the gain setting on all beltpacks and the base. They may be too low or too high. Check to make sure you are still well within range of the base station.
LOW OUTPUT - System produces a low output level.	Check the gain setting on both the beltpacks and the base. They may be too low.
FEEDBACK - Moving around are of use produces squeal or howl in various locations using the ext. speakers.	Reduce the gain settings on both the beltpacks and the base. They may be too high. If in 2-wire mode, the intercom channel you are on may be unloaded.
DROPUOUTS - When moving around the area of use there seem to be locations where the signal swooshes or completely disappears.	Make sure both antennas on the base and beltpack are connected and follow the location suggestions. Change the location of the base unit and antennas or avoid the bad areas with the remote beltpacks.
INTERFERENCE - System picks up signals other than wireless intercoms.	Make sure the beltpack(s) are on. If there are any unused receivers at the base, turn the audio off from those receivers by deselecting the appropriate Portable Station Connect button. If problems persist with the beltpack on, you will probably need to change the group. Make sure the base and beltpack match after any Group/Channel change.
NO AUDIO - from base of beltpack headsets.	Check transmitter setting on base and beltpack. Check talk LED to ensure it is on. Make sure beltpack batteries are OK.
BASE and BELTPACK'S Frequencies Don't Match - In the display frequencies screen of the base and the menu of the beltpack the frequencies don't match.	Ensure the units are on the correct Group and Channels.

IMPORTANT: Reread the sections of this manual to make sure you completed system set-up properly.
If you are unable to solve the problem, contact the dealer from whom you purchased the system for assistance

Battery Information

Improper battery selection, use, installation, and care are the cause of numerous wireless systems failures.

Alkaline Batteries: Alkaline batteries such as Eveready's ENERGIZER and ENERGIZER INDUSTRIAL provide the most reliable operation in wireless transceivers.

The use of low cost carbon-zinc batteries is NOT recommended.

Nickel-Metal Hydride Batteries: These batteries can save you money in the long run, as they can be recharged. Typical battery life is a little less than the length of time alkaline batteries last.

Battery Warnings

- Do not place alkaline battery packs in any battery charger. Severe charger and battery pack damage may occur!
- Batteries that have been dropped, or otherwise damaged, should not be used and should be discarded properly. Dropping batteries can crack the internal casing causing leakage or rupture resulting in personal injury or property damage!
- Insert batteries properly, with the plus (+) and minus (-) terminals aligned correctly!
- Do not mix old and new batteries, batteries of different types, or batteries of different brands. This can cause leakage or rupture, resulting in personal injury or property damage!
- Immediately remove exhausted batteries from the battery pack and dispose of properly.
- Replace all used batteries in your device at the same time.
- Do not put batteries or battery-powered devices in very warm places. Extreme temperatures reduce battery performance and may also lead to leakage.
- Use only high quality AA sized alkaline batteries in the battery packs.
- When not in use, disconnect battery pack, remove and store batteries in a cool, dry place at normal room temperature until ready to use.
- Keep battery contact surfaces clean by gently rubbing with a clean pencil eraser or cloth.

Battery Life

TR-30N

Alkaline, 11-13 hours typical

Nickel-Metal Hybrid, 10-12 hours typical

TR-32N

Alkaline, 8-10 hours typical

Nickel-Metal Hybrid, 7-9 hours typical

Energizer® is a registered trademark of Union Carbide Corporation

Cold Temperatures and Batteries

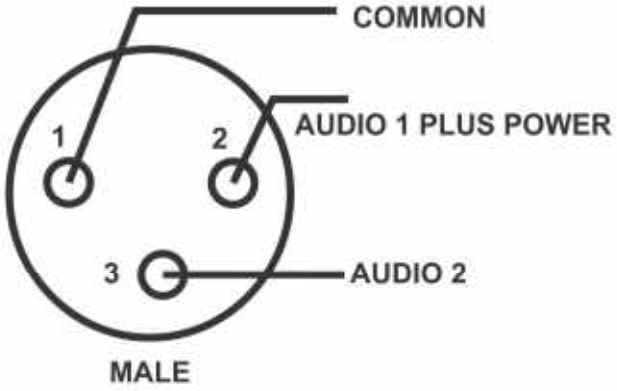
The battery life times listed in this section are at room temperature. Alkaline and Nickel-Metal Hydride battery service hours fall off significantly at low temperature due to battery chemistry. Alkaline batteries typically have less than half their room temperature service life if used at freezing 32° F (0° C). If you use Alkaline and Nickel-Metal Hybrid batteries at low temperatures, you need to change them more often.

Another solution is using Lithium AA cells if beltpacks are to be used in very cold temperatures. Lithium batteries, like the Energizer ultimate Lithium AA cells, are excellent batteries for cold temperatures. At 15° F (-9° C), Lithium AA cells will last about seven (7) times longer than Alkaline batteries. This equates to two (2) hours for Alkaline vs. 14 hours for Lithium. However, the trade off is Lithium batteries cost more and are less environmentally-friendly than Alkaline batteries.

2-Wire Systems Specification

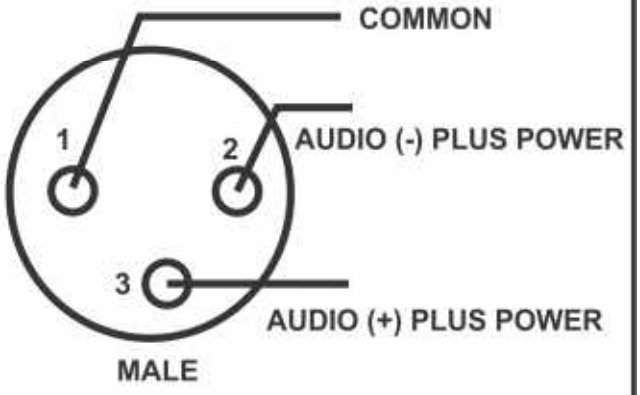
RTS

Input Impedance: 200 Ω
Output Level: 0.775 Vrms nominal
Bridging Impedance: >10kW
Call Signaling:
Send: 20kHz ±100 Hz, 240 mVrms
Receive: 20kHz ±800 Hz, 100 mVrms
Power Voltage: 28.0 VDC nominal



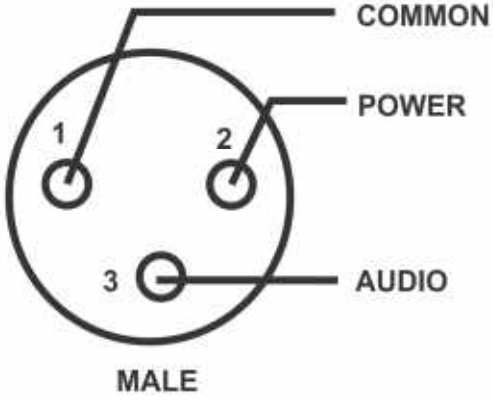
Telex/ AudioCom

Input Impedance: 300 Ω
Output Level: 1.0 Vrms nominal
Bridging Impedance: >10kW
Call Signaling:
Send: 20kHz ±100 Hz, 0.5 mVrms
Receive: 20kHz ±800 Hz, 100 mVrms
Power Voltage: 24.0 VDC nominal



ClearCom

Input Impedance: 200 Ω
Output Level: 1.0 Vrms nominal
Bridging Impedance: >10kW
Call Signaling:
Send: 12 ±3 VDC
Receive: 4 VDC Minimum
Power Voltage: 30.0 VDC nominal



Certificate Information

FCC

The RTS BTR-30N, TR-30N, and TR-32N Transmitter/receiver are type accepted under United States (FCC) Federal Communications Commission Part 74 and Part 15B, Licensing of this equipment is the user's responsibility and licensibility depends on the user's classification, user's application, and frequency selected. RTS strongly urges the user to contact the appropriate telecommunications authority for any clarification.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This wireless microphone system can be configured for both FCC Part 15C (unlicensed) and FCC Part 74 (licensed) operation. When shipped from the factory, this wireless microphone system is configured for unlicensed operation, and will operate at a power level not to exceed 50 milliwatts, which meets FCC Part 15C requirements. If unlicensed users operate this device in excess of 50 milliwatts, harmful interference may result and the unlicensed user will be subject to substantial monetary forfeitures and other FCC sanctions. The wireless microphone system may be operated by holders of a valid FCC license in the Low Power Auxiliary Radio Service under Part 74 of FCC Rules, at power levels between 50 milliwatts and 250 milliwatts.

CAUTION: Changes or modification of equipment made by the user could void the user's authority to operate this equipment.

The beltpack is intended to be worn on the belt of the user with both antennas vertical for best operating range and performance.

The user should maintain a separation of at least 10 mm (0.4 inches) from the beltpack's VHF antenna.

Placing the beltpack in other locations on the body may reduce performance and void the user's authority by the FCC to operate the equipment.

Mandatory Safety Instructions to Base Station Installers and Users.

1. Use only a manufacturer or dealer-supplied antenna. Antenna minimum safe distance, for a base station, as set by the FCC is 20cm. Antenna gain: zero (0) dBd referenced to a dipole.
2. The FCC has adopted a safety standard for human exposure to RF (Radio Frequency) energy, which is below the OSHA (Occupational Safety and Health Act) limits.
3. To comply with current FCC RF Exposure limits, the antenna must be installed at or exceeding the minimum safe distance (20cm) and in accordance with the requirements of the antenna manufacturer or supplier.
4. Antenna substitution: do Not substitute any antenna for the one supplied by or recommended by the manufacturer or radio dealer. You might expose people to harmful radio frequency radiation. You can contact your radio dealer or manufacturer for further information.

WARNING: Maintain a separation distance from the antenna to person(s) of at least 20cm.

You, as the qualified end-user of this radio device, must ensure the minimum separation distance of 20cm between the antenna and nearby people to satisfy RF Exposure compliance.The operation of the transmitter must satisfy the requirements of the General Population/Uncontrolled Exposure Environment for work-related use. Transmit only when people are at least the minimum distance from the properly installed, externally mounted antenna.

Canada Radio Certification

The BTR-30N, TR-30N, and TR-32N transmitter/receiver are certified to Canada RSS-210 rules.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(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.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

This radio transmitter 1321A-BTR30N (BTR-30N), 1321A-TR30N (TR-30N) and 1321A-TR32N (TR-32N) has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

BTR-30N: Antenna Type: 1/2-wave, Gain: 0 dBi, Impedance: 50 Ohms
TR-30N & TR-32N: Antenna Type: Helical Rubber Duck, Gain -3 dBi, Impedance: 50 Ohms

NOTE: Only antennas supplied by RTS are approved for this product.

Le présent émetteur radio 1321A-BTR30N (BTR-30N), 1321A-TR30N (TR-30N) et 1321A-TR32N (TR-32N) a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type f igurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.
BTR-30N: Type d'antenne: 1/2-wave, Gain: 0 dBi, Impédance: 50 Ohms
TR-30N & TR-32N: Type d'antenne: Antenne hélicoïdale, Gain -3 dBi, Impédance: 50 Ohms

REMARQUE: seules les antennes fournies par RTS sont approuvées pour ce produit.

This device operates on a no-interference, no-protection basis. Should the user seek to obtain protection from other radio services operating in the same TV bands, a radio license is required. For further details, consult Innovation, Science and Economic Development Canada's Client Procedures Circular CPC-2-1-28, Voluntary Licensing of Licence-Exempt Wireless Microphones in the TV Band

Ce dispositif fonctionne selon un régime de non-brouillage et de non-protection. Si l'utilisateur devait chercher à obtenir une certaine protection contre d'autres services radio fonctionnant dans les mêmes bandes de télévision, une licence radio serait requise. Pour en savoir plus, veuillez consulter la Circulaire des procédures concernant les clients CPC-2-1-28, Délivrance de licences sur une base volontaire pour les microphones sans fil exempts de licence exploités dans les bandes de télévision d'Innovation, Sciences et Développement économique Canada.

CAUTION: To comply with FCC and ISED requirements, RF exposure over a separation distance of at least 20 cm (7.9 inches) must be maintained between the antennas of the BTR-30N base stations and all persons.
A user should also maintain a separation of 10 mm (0.4 inches) from the beltpack's VHF antenna.

ATTENTION: Pour se conformer aux exigences FCC et Industrie Canada l'exposition aux RF sur une distance de séparation d'au moins 20 cm (7,9 pouces) doit être maintenue entre les antennes de la station de base BTR-30N et toutes les personnes.
L'utilisateur doit également maintenir une distance de 10 mm (0,4 pouces) de l'antenne VHF du sac de ceinture.

CAUTION: Any changes or modifications to the equipment could void the user's authority to operate the equipment.

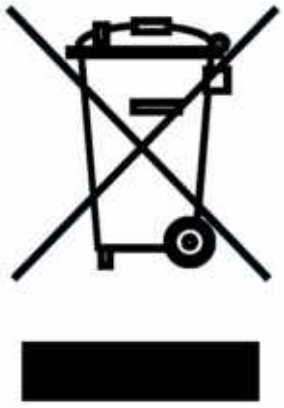
ATTENTION: Tout changement ou modification non expressément approuvée par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement.

Europe

This equipment is in compliance with the following directives:

2011/65/EU RoHS Directive with 2015/863 Amendment
2012/19/EU WEEE Directive
2014/53/EU RED Directive

Please dispose of the base station and beltpacks at the end of their operational life by taking them to your closest collection point or recycling center.
DO NOT throw in the trash.



This equipment is intended for use in professional audio intercom applications.

Some countries in the EEA (European Economic Area) have restrictions placed on this equipment. Listed below are these restrictions:

This equipment is not allowed in the following countries due to VHF band not available: DK, NO.

The equipment requires a license in the following countries: AT, BE, BG, HR, CZ, EE, DE, IE, LV, LT, MT, PL, SK, UK.

The BTR-30N requires a license only if operated above 50 mW ERP, in the following countries: FI, EL, HU, IT, PT.

The BTR-30N normally must be set to meet the 50 mW ERP maximum output power in the following countries unless a license for higher power is (as noted above) available in the country: AT, BE, BG, HR, CY, CZ, EE, FI, FR, DE, EL, HU, IS, IE, IT, LV, LI, LT, LU, MT, NL, PL, PT, RO, SK, SI, ES, SE, CH, UK.

There are geographical restrictions due to primary services, e.g. broadcasting, security services, that are inuse within the following countries: AT, CZ, FI, FR, DE, EL, IS, MT, RO, SK, SI, ES, UK.

France (FR): The use of the equipment requires a license if not a professional user.

Spain (ES): The TR-30N and TR-32N may only use the following frequencies 174.100, 174.300, 175.500, 176.300, 179.300.

United Kingdom (UK): The TR-30N and TR-32N may only use the following frequency range: 174-175 MHz.

Netherlands (NL): The TR-30N and TR-32N may only be used in the following frequency range: 195-202 MHz..

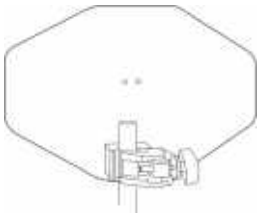
Netherlands (NL): The BTR-30N may only be used in the following frequency ranges: 470 - 556, 558 - 564, 566 - 572 MHz

Always consult your national authority before placing equipment into operation as requirements and spectrum usage can change.

The full EC Declaration of Conformity for the BTR-30N, TR-30N and TR-32N products may be found at the following website: www.rtsintercoms.com.

Accessories and Replacement Parts

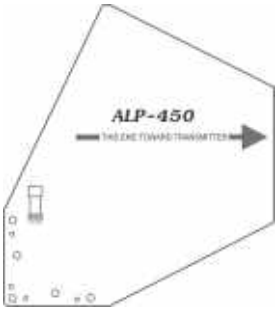
ALP-700



450-760 MHz Bi-directional
Log Periodic Antenna

Model (CTN) No. ALP-700

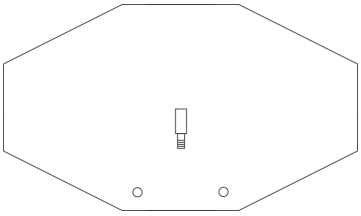
ALP-450



450-900 MHz Log Periodic Antenna
Includes mounting hardware and 10 feet
(3 meters) coaxial cable with TNC connectors

Model (CTN) No. ALP-450

ALP-600



520-760 MHz Bi-directional Log Periodic Antenna
Includes mounting hardware and 10 feet (3 meters)
coaxial cable with TNC connectors

Model (CTN) No. ALP-600

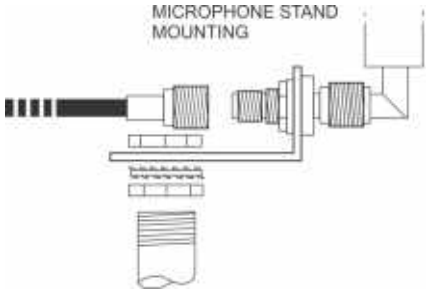
Antenna Cables
Special low loss antenna
cables with TNC Connectors

Model No.	Length
CXU-10	10 ft. (3 m)
CXU-25	25 ft. (7.6 m)
CXU-50	50 ft. (15 m)
CXU-75	75 ft. (23 m)
CXU-100	100 ft.(30 m)

APS1 COMB_SPLT

Model (CTN) No. APS1 COMB_SPLT

AB-2



Bracket for 1/2 wave antenna with 10 ft. of coax

Model (CTN) No. AB-2

BTR Power Cords

North America	Model (CTN) No. PC-USA
U.K.	Model (CTN) No. PC-UK
European	Model (CTN) No. PC-EURO

BTR Intercom Dummy Load

Telex type	Model (CTN) No. TP-3
RTS type	Model (CTN) No. TP-3R

2TX80N Dual transmit connector kit for BTR-30N	Model (CTN) No. 2TX80N-KIT
SA Relay plug adapter	CONN, PCB 2-PIN 2MM, BLK, Printed 1-2 2862046
DC-LP Locking D.C. plug	Plug D.C. 5.5 X 2.5 650102
BLC, BTR-30N Link Cable	Model (CTN) No. BLC
CTC, BTR-30N CAN BUS Termination Cable	Model (CTN) No. CTC
CTC, BTR-30N CAN BUS 120 Ω Termination	Model (CTN) No. CAN-T
BP-700 TR Battery pack, alkaline (batteries not included)	Model (CTN) No. BP-700
BP-800NM Rechargeable 2200mAhr Nickel-Metal hydride battery pack	Model (CTN) No. BP800NM

BC-800 NM4 4-Slot Smart Charger with four (4) BP-800NM battery packs

North America	Model (CTN) No. BC800NM4
Euro	Model (CTN) No. BC800NM4E

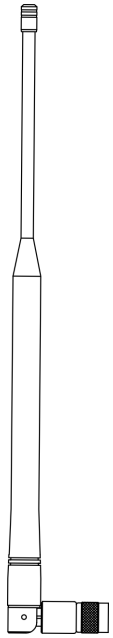
BC-800NM Single-slot Smart Charger with BP-800NM battery pack

North America	Model (CTN) No. BC800NM
Euro	Model (CTN) No. BC800NME

Beltpack: 1/4 - Wave UHF Antenna

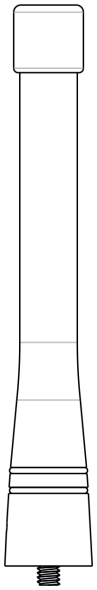
Model (CTN) No.	Band Color	Frequency Coverage of Antenna	Frequency Band Designators				
			F	H	A	B	C
BPA-2	Black	485.0 - 553.9 MHz	X	X	X	X	
BPA-3	Yellow	554.0 - 635.9 MHz					X

Base Station: Flexible Ground Independent UHF Dipole Antenna



Model (CTN) No.	Band Color	Frequency Coverage of Antenna	Frequency Band Designators				
			F	H	A	B	C
FA-RW-RS	Red/White	470 - 550 MHz	X	X	X		
FA-YW-RS	Yellow/White	525 - 610 MHz				X	X

Beltpack: Rubber duck VHF antenna



Model No.	Band Color	Frequency Coverage of Antenna	Frequency Band Designators	
			10	13
TR-30N/32N VHF Low Band	Brown	174-198 MHz	X	
TR-30N/32N VHF High Band	Orange	192-216 MHz		X

Base Station: End-fed 1/2-wave VHF antenna

Model No.	Band Color	Frequency Coverage of Antenna	Frequency Band Designators	
			10	13
BTR-30N VHF Low Band	Brown/White	174-198 MHz	X	
BTR-30N VHF High Band	Orange/White	192-216 MHz		X

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