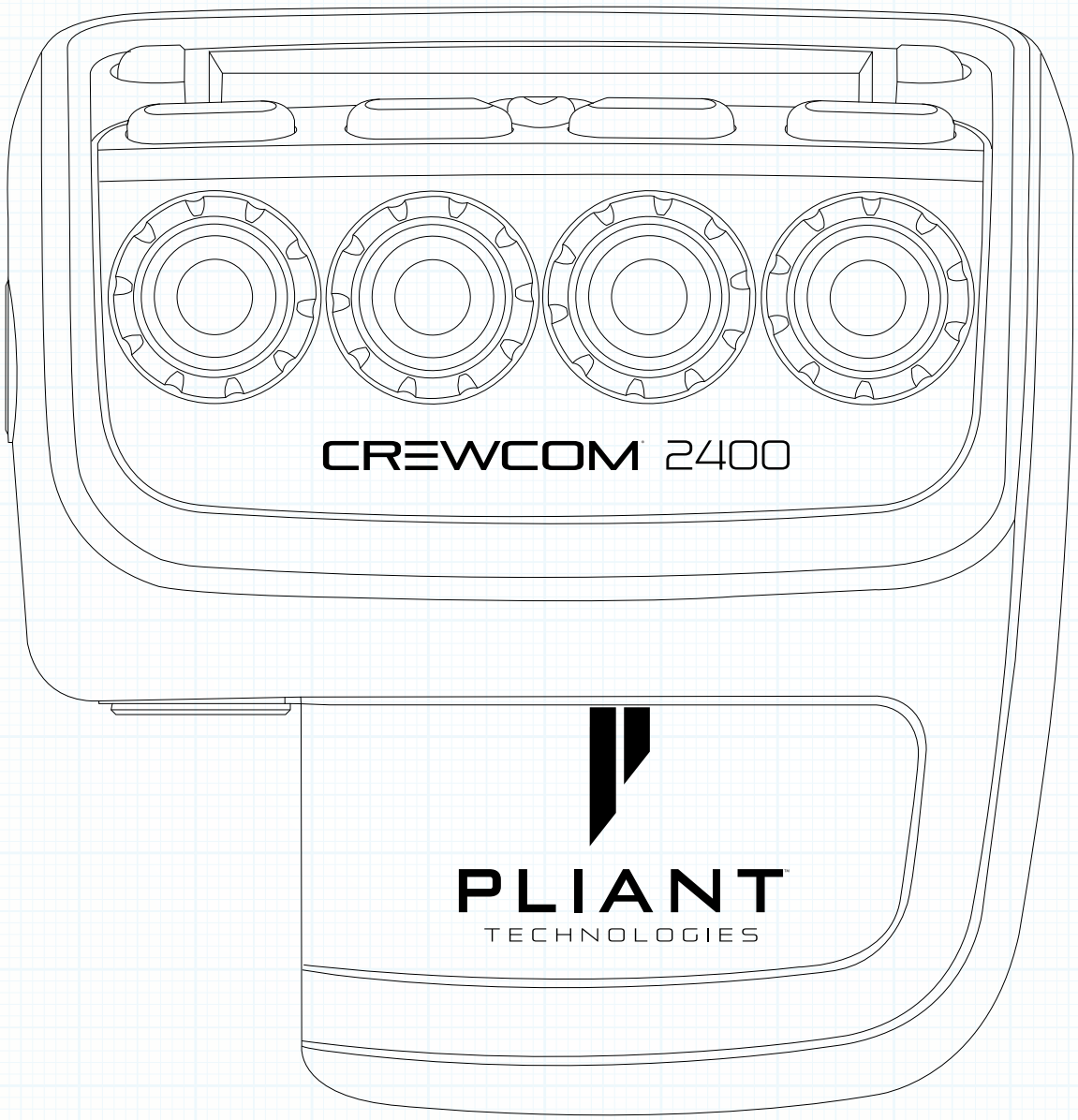
Radio Pack

CREWCOM BY PLIANT

OPERATING MANUAL



Thank You

We at Pliant® Technologies want to thank you for purchasing CrewCom®. Pliant brings our experience, expertise, and commitment to quality technology with the new CrewCom System. In order to get the most out of your new CrewCom product, please take a few moments to read this manual completely so that you better understand the operation of this product. For questions not addressed in this manual, feel free to review the additional support documentation provided on our website or to contact Pliant's Customer Support Department:

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Model Information

This document applies to models CRP-44-900, CRP-44-900AN, CRP-22-900, CRP-22-900AN, CRP-44-2400, CRP-44-2400CE, CRP-22-2400, and CRP-22-2400CE.

CRP-22-900 and CRP-44-900 models are only available in North America and operate within the 902–928 MHz frequency range.
CRP-22-900AN and CRP-44-900AN (Oceania) models are approved for use in Australia and New Zealand and operate within the 915–928 MHz frequency range.
CRP-44-2400CE and CRP-22-2400CE models meet the same specifications as the CRP-44-2400 and CRP-22-2400 models, and they comply with ETSI standards (300.328 v1.8.1). Non-CE models are non-compliant with some ETSI standards.

Document Reference: 2019.01 D0000215_C

Table of Contents

Safety Information

The following section details important safety information related to the ownership and operation of the CrewCom Radio Pack.

WARNING: *Indicates a situation, which, when not avoided, has the potential to result in death or severe injury.*

CAUTION: *Indicates a situation, which, when not avoided, results or has the potential to result in minor injury or product failure or damage.*

1. Read these instructions.
2. Follow all instructions.
3. Heed all warnings.

Safe Operation and Service

- Clean only with a dry cloth. Do not spray household cleaners or water onto the cloth. Never spray household cleaners or water onto any part the unit.
- Use only attachments/accessories that are specifically made for or certified by Pliant Technologies with the Radio Pack.
- Unplug the Radio Pack charger during periods of inclement weather and after use.
- Do not charge the Radio Pack outdoors. The charger is designed for indoor use only.
- **Refer all Radio Pack service to qualified Pliant Technologies personnel.** There are no user-serviceable parts inside the CrewCom Radio Pack. Opening the unit may expose dangerous electrical components, which will result in product failure. Any attempt to self-service or self-repair the unit will void the product warranty.
- Service is required if the Radio Pack receives any type of damage to any of its parts or if it does not operate normally. For example, if water or any other type of liquid has been spilled on the Radio Pack or if it has been exposed to rain or moisture, then service is necessary. Service is also required if debris or other objects have fallen into the unit or if it has been dropped.

Battery Safety

WARNING: ***DANGER! EXPLOSIVE GASES RISK***

- Battery explosion is possible if incorrect type is used. Use only batteries approved for use with CrewCom Radio Packs.
- Do not leave the battery unattended while charging. Immediately unplug unit if battery begins to swell or emit smoke while charging. If battery bursts or chemicals begin to leak out of battery housing, the chemicals will react with the air and cause a fire.
- Pliant Technologies recommends keeping a Class-D fire extinguisher available when charging lithium-polymer batteries. The chemicals inside lithium-polymer batteries are highly flammable.
- Do not allow batteries to overheat (reach temperatures of above140 degrees Fahrenheit (60 degrees Celsius)).
- Batteries that appear swollen, deformed or damaged, or that do not fit properly should never be used. Properly dispose of any batteries in this condition in accordance with the instructions provided by your local authorities. For more information and local drop-off sites, visit http://www.call2recycle.org/.

Introduction

What's in the box?

- Radio Pack
- Lithium-Polymer Rechargeable Battery
- USB A to Micro B Cable
- Multi Blade Worldwide Battery Charger/Power Supply
- Product Overview Guide
- Warranty Registration Card

Note: *A one-year product warranty is standard with CrewCom products. Follow the product registration instructions on the Warranty Extension Registration Card and visit www.plianttechnologies.com/customer/account/login to extend your product warranty to two years at no charge. See page 26 for more information about Pliant warranties.*

Additional Items Required

In addition to your Radio Pack, at least one of each of the devices listed below is required to complete your CrewCom System (sold separately with included components):

- Control Unit
- Radio Transceiver
- Headset

Firmware Release Notes

Find the latest CrewCom firmware release notes on the Pliant Technologies website at www.plianttechnologies.com/media/resources/releasenotes/crewcom_release_notes.pdf

Download the latest firmware release from www.plianttechnologies.com/downloads.

CrewCom Overview

CrewCom is a versatile yet straightforward communications solution built on an intelligent wireless and wired network-based distributed system architecture. Innovative technologies have been specifically developed to facilitate intercom system growth and effortless adaptation, along with unparalleled digital wireless reliability for consistent operation, even in the most demanding production environments.

Decentralized Network Architecture

The CrewCom system utilizes a proprietary network backbone, known as CrewNet™, to coordinate and transport all system timing, audio, signaling, and controls. This efficient, decentralized resource network delivers increased flexibility over that of traditional technologies, using a distributed network-to-device intelligence within a modular building block structure. System components can easily be placed where they are needed or scaled to facilitate system growth, reconfiguration, and effortless adaptation to changing environments. For increased infrastructure flexibility, the CrewNet network is capable of operating over standard Cat 5e (or greater) and/or Single Mode Fiber (SMF) lines.

Flexible RF Platform

CrewCom's RF platform is vast and flexible to meet the needs of virtually any wireless communication challenge facing production and entertainment professionals worldwide. Each CrewCom wireless product is available in the 2.4GHz and 900MHz (North America, Australia, and New Zealand only) ISM bands and any combination of these frequency ranges may be simultaneously used on the same CrewCom system. CrewCom makes it easy to operate in challenging RF environments by combining support for multiple simultaneous frequency bands, while also allowing for simple system setup without the need for an RF engineer.

In addition, a more robust RF link enhances RF range and reliability through a newly developed dual carrier double-send transmission scheme that minimizes the adverse effects of inter-symbol interference. This innovation allows increased useful RF range and improved performance, especially in large, reflective environments.

Intuitive User Experience

CrewCom's family of products is designed around a system architecture that offers a high density of users with a more manageable infrastructure and lower cost per user than typically found in large-scale wireless installations. The CrewCom system not only consists of a range of wired and wireless hardware products but also incorporates an intuitive software application, known as CrewWare, working together with the system hardware to enhance the experience of system administrators, designers, integrators, and users. Each device's user interface allows a quick learning curve with high functionality, and its ease of use is consistent across all frequency bands, types of users, and applications.

CrewCom Devices

The following is a list of available CrewCom devices. For more information on each of these products and their configuration capabilities, visit our website at: www.plianttechnologies.com

- **Control Unit (CU)** – the 1RU foundational element of the CrewCom system that establishes the CrewNet-based infrastructure while also providing external connections to common established intercom systems. Unlike traditional BaseStations, the CU contains no radio and is frequency agnostic, which sets the groundwork for a multi-frequency capable system. For maximum flexibility, any CU can access, control, and monitor any active device across CrewNet. The CU is available in a "CCU-22" or "CCU-44" model, which simultaneously support up to (2) 2-Wire and (2) 4-Wire or (4) 2-Wire and (4) 4-Wire intercom connections, respectively.
- **Radio Transceiver (RT)** – a CrewCom radio device that houses a radio (2.4GHz or 900MHz) and its corresponding antennas, enabling RF communications to CrewCom Radio Packs. Using the CrewNet network as the system's backbone, RTs can be positioned throughout a wide coverage area by being linked back to a Control Unit either directly or through a Hub(s). Connectivity is accomplished using either Cat 5e (or greater) or Single Mode Fiber (SMF).
- **Radio Pack (RP)** – the direct portable wireless communication device connecting individual CrewCom users to the CrewCom system. Each RP provides full duplex audio communications and, through customized function buttons, GPO control and event logging. The RP requires a connected headset and access to a Radio Transceiver on the CrewCom system. Devices are available in 2.4GHz and 900MHz bands as well as two and four volume/talk button configurations.
- **Copper Hub** – a CrewNet-based device with eight ports to allow extended interconnection for a variety of CrewCom hardware. Ports one through seven are copper (RJ-45, Cat 5e, or greater); port eight can be either an additional copper port or a duplex LC Single Mode Fiber port, but only one may be used at a time. The Hub provides for extensive system expansion and flexibility.
- **Fiber Hub** – a CrewNet-based device with eight ports to allow extended interconnection for a variety of CrewCom hardware. Ports two through eight are duplex LC single-mode fiber ports; port one can be either an additional fiber port or a copper port (RJ-45, Cat 5e, or greater), but only one may be used at a time. The Hub provides for extensive system expansion and flexibility.

CrewCom Configuration File Overview

The CrewCom system operates using a CrewCom Configuration File (CCF) to coordinate the processes and data that make up the system's operation. A default CCF is available for your CrewCom system out of the box to provide your initial settings. You can use CrewWare to customize your configuration to meet your specific needs beyond the default settings. The CCF stores the settings for your Conferences and Profiles, intercom settings, and connection information for your 2-Wire, 4-Wire, and CrewCom devices.

Conferences and Profiles work together to create channels of communication between CrewCom users. They are defined for each user, stored in the CCF, and available each time you set up. For more information about Conferences and Profiles, continue reading the following sections for their definition.

About Conferences

A CrewCom Conference is an administrator-defined grouping of audio entities (inputs such as Radio Packs, wired intercom ports, etc.). Audio outputs are then created dynamically by mixing one or more audio entities and routing them to Conference subscribers accordingly. This method of subscription-based audio using Conferences is very powerful. Point-to-point associations may also be easily constructed using this method. Each association requires a separate, unique Conference. Conferences in CrewCom are full duplex (i.e. bidirectional) and there can be a maximum of 1,024.

Default Conferences are included as part of a system's default configuration. New Conferences can be created using CrewWare.

About Profiles

Each Radio Pack has a Profile that contains a variety of system settings that are defined as either global profile settings or user settings. A Radio Pack Profile assigns functionality to an RP's local controls, knobs, and buttons (including Conference assignments), and allows customization for user preferences and roaming

- **Global Profile Settings** - These settings are part of the CrewCom Configuration File and are usually assigned by a system administrator through customization in CrewWare during setup. Find a full list of the global profile settings available for each Radio Pack in the CrewWare Operating Manual or the Radio Pack Operating Manual.
- **User Settings** - A user setting is one that is classified as being adjustable by the Radio Pack user and is limited to local device settings that do not alter the CrewCom Configuration File. The Profile can be used to determine these settings, but they can also be customized directly from a Radio Pack after a Profile is loaded.

RP Profile Settings

A profile is part of the CrewCom Configuration File and contains a variety of system settings that are defined as either system level settings or user adjustable settings. A system setting is one that assigns specific operational functions to a Pack's volume knobs, talk buttons, and function buttons, along with relay assignments and roaming options. A user setting is one that is classified as being adjustable by the device user and is limited to local device settings that will not alter the CrewCom Configuration File. These settings can be set in the profile and/or adjusted separately at the Pack, via the Control Unit's menu, or via CrewWare. A list of the specific functions within each setting type is provided in Table 1.

Table 1: Profile Management Settings	
Global Profile Settings	**Description**
Profile Name	Name assigned to the Profile
Radio Transceiver Scan List	Which Radio Transceiver each Radio Pack can log into and function with
Conference Assignments	Which Conferences are assigned to Volume knobs and corresponding Talk buttons
ISO	Enables selection of specific Profiles to include in a Conference ISO. This function is either Enabled or Disabled. (ISO must also be enabled for the Conference.)
Function Buttons	Functions such as Stage Announce, Call, GPO, or IFB Send are assigned to the Pack's F1 or F2 button
Button Mode	Determines the talk button behavior as either "Latch," "Momentary," "Disabled," or "Always On."
User Settings	**Description**
Sidetone	Level adjustments
Mic Gain	Level adjustments
Noise Gate	Level adjustments
Volume Limit	Level adjustments
Talk Tones	Enabled or Disabled

CrewCom Configuration File Defaults

Your system may be preconfigured at the factory. Consult the documentation provided with your system for your specific configuration details. Be sure to follow the hardware connections in your configuration; failure to do so may result in system errors.

Product Overview

The CrewCom Radio Pack is available in a 4Vol (CRP-44) and a 2Vol (CRP-22) model and can be used with the CrewCom system in highly-varying applications and environments. Each of these models are identical, other than the number of controls and their related profiles.

The following sections provide overviews of the different Radio Pack models' controls and characteristics:

CRP-44 Model

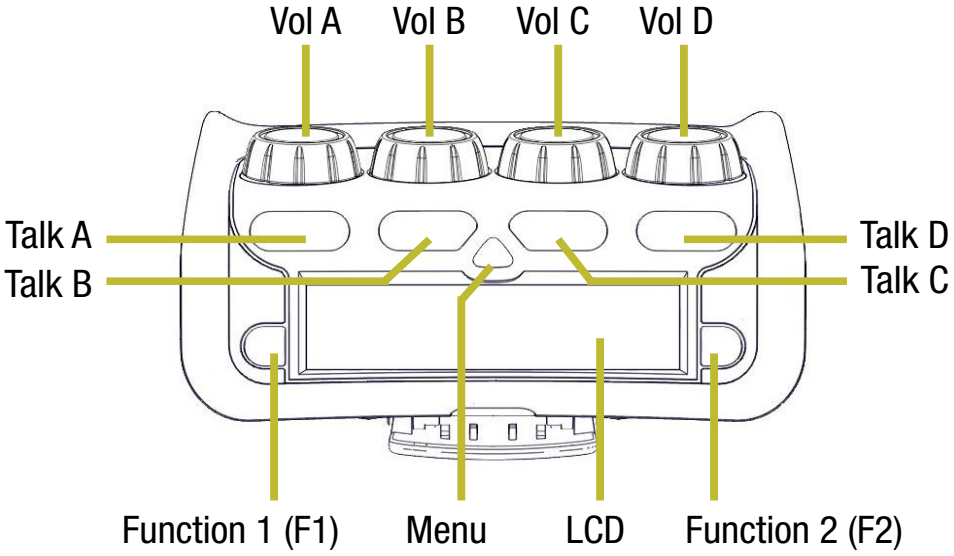


Figure 1: CRP-44 Top View

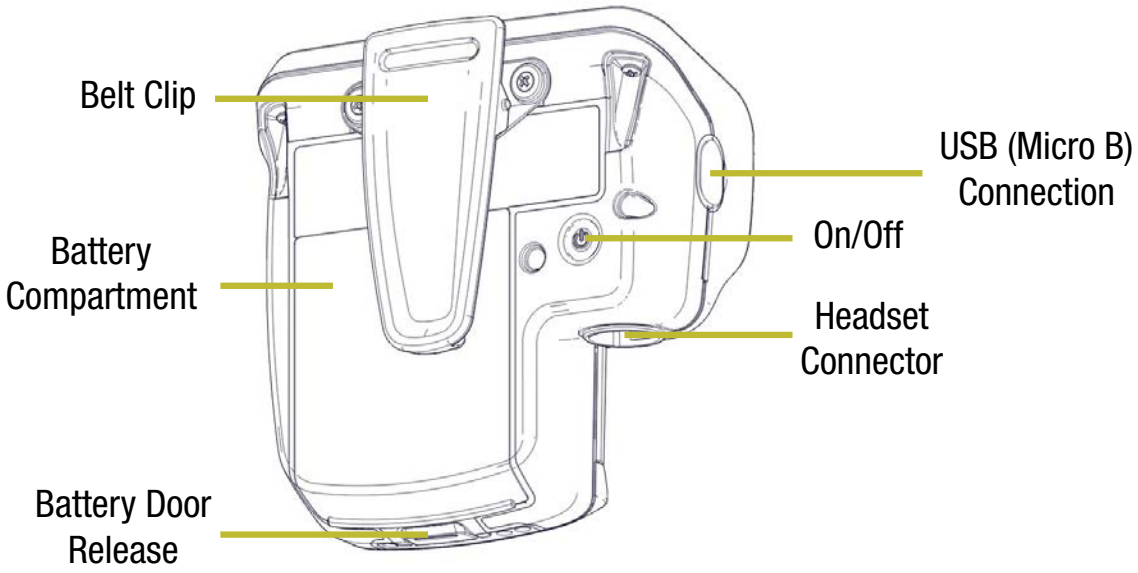


Figure 2: Radio Pack Rear View (All RP models have identical rear views.)

Volume Knobs/ISO Buttons

The volume controls adjust the listening volume of the connected headset for each of their respective assigned conferences. Turning the volume control clockwise increases the audio level, while turning the control counter-clockwise decreases the level.

When pressed, the volume knobs also serve as ISO buttons to allow selective talk around. ISO means that selected users can have an isolated conversation with other ISO-enabled users. While an ISO conversation occurs, the main conference audio can still be heard. ISO must be separately enabled on both the Conference and each desired Profile from CrewWare.

Four volume knobs are available on the CRP-44 Radio Pack, and in CrewWare, they are named A, B, C, and D from left to right with the knobs facing away from you.

Talk Buttons

The talk buttons enable or disable the microphone for each of their respective assigned conferences. Talk buttons can be set (from the RP's Profile) to function with a "Latch" or a "Momentary" press or they can be "Always On" or "Disabled." When set to "Disabled," the Talk button has no function and allows for a listen-only conference on that pack.

In addition, CrewCom uses an intelligent latching method for talk buttons. When set to "Latch," one short press will latch the talk on; however, pressing and holding the talk button will cause the button to act as a momentary switch.

Four talk buttons are available on the CRP-44 Radio Pack, and in CrewWare, they are named A, B, C, and D from left to right with the knobs facing away from you.

Function Buttons (F1/F2)

The left (F1) and right (F2) function buttons can be programmed to assign a variety of functions such as Call, Stage Announce, and GPO Relays. Each function button's operation is set in the Radio Pack's profile, which can be customized via CrewWare. Every Radio Pack model has two function buttons. While in the menu, one short press of F1 returns you to the previous menu without saving any changes.

Menu Button

The Menu button provides multiple functions such as access to menu options or toggling between the home operating screen and the secondary operating screen.

- Short Press – Cycles the Radio Pack LCD from the Home Operating screen to the Secondary Operating screen and vice versa.
- Long Press – Accesses the menu options of the Radio Pack to view Pack/System Information and make setting adjustments. (The user may also continue to hold the button after the menu appears to display the ***Tech Info*** menu.)
- Escape – While in the menu, one short press returns you to the previous menu without saving any changes.

LCD

Display for viewing real-time status of the Radio Pack, navigating menu options, and making subsequent setting adjustments.

Belt Clip

Secure and sturdy belt clip enables Radio Pack wearing via belt or lanyard.

Battery Compartment Door

Secures and protects the Radio Pack's Lithium-Polymer battery or 3 AA batteries. When the Battery Door Release is pressed, the battery door will release and detach from the Radio Pack.

Battery Door Release

Pressing the release opens the Radio Pack's battery compartment door.

USB (Micro B) Connection

This USB connection is for connecting a Radio Pack to a Control Unit for pairing. The Radio Pack may also be connected to a PC for firmware updates via CrewWare. See the CrewWare Manual for more information on updating firmware.

On/Off Button

The On/Off button powers the Radio Pack on and off when pressed for 3 seconds.

4-Pin Male XLR Headset Connector

Headset connector is a 4-PIN male XLR connection. A compatible headset must be provided by the user. See page 21 for connection pinout and headset wiring information.

CRP-22 Model

The CRP-22 model has the same controls and functions as the CRP-44, with two exceptions: the talk buttons and volume knobs.

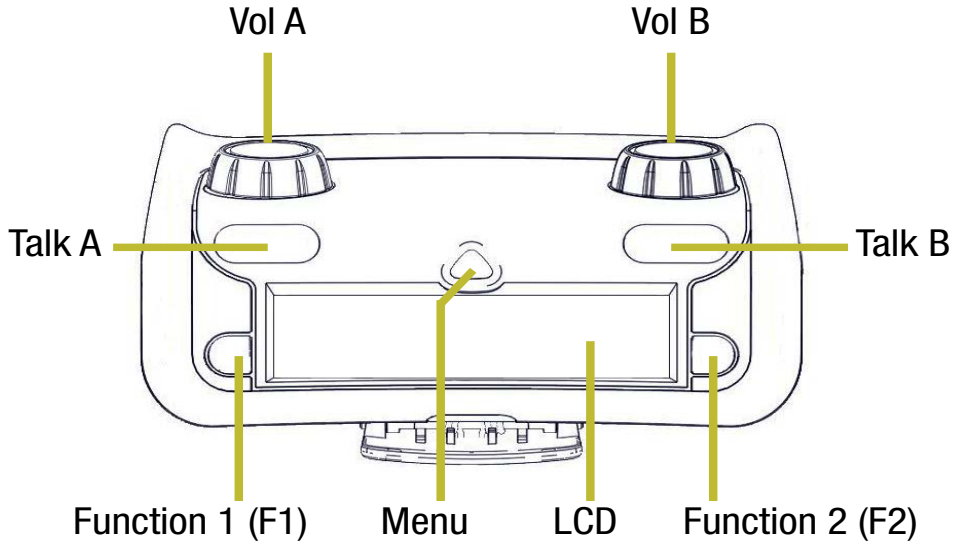


Figure 3: CRP-22 Top View

Volume Knobs/ISO Buttons

Two volume knobs are available on the CRP-22 Radio Pack, and they are named A and B from left to right in CrewWare.

Talk Buttons

Two talk buttons are available on the CRP-22 Radio Pack, and they are named A and B from left to right in CrewWare.

Radio Pack LCD Display

Home Operating Screen

Serves as the main operating screen to the user and displays the status of the Radio Pack as well as talk, volume, and function assignments.

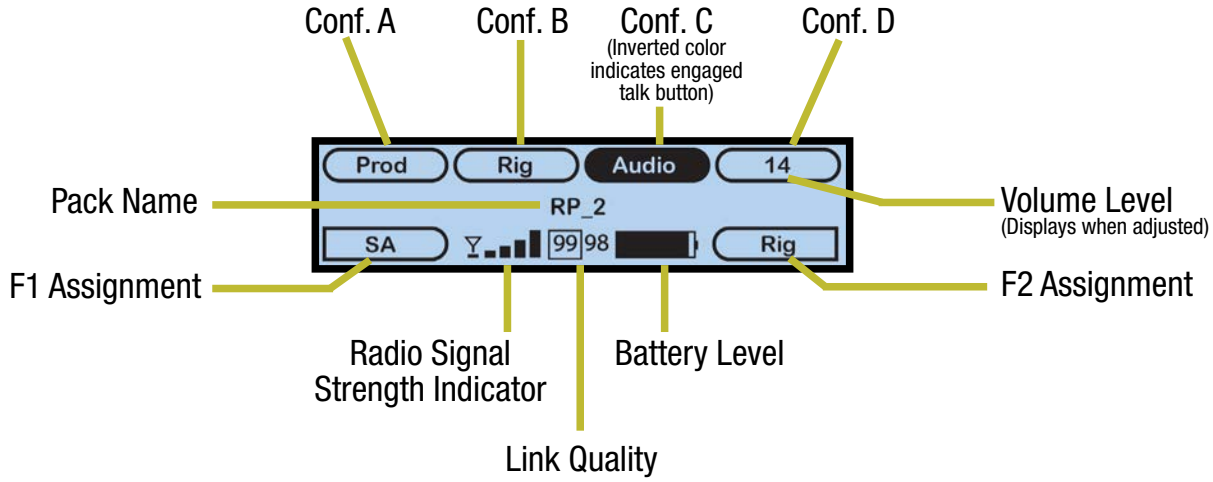


Figure 4: RP Home Operating Screen Overview

Note: *The Link Quality Indicator (LQ) provides a diagnostic measurement of actual packet transmission from Radio Pack to RT and vice versa. The outlined LQ represents the Radio Transceiver's LQ. For more information on LQ, see "Understanding Link Quality" on page 13.*

For more information on RSSI, see "Understanding RSSI" on page 13.

Secondary Operating Screen

Serves as a secondary operating screen to the user and displays additional information about the status of the Radio Pack. Short press the Menu button once to toggle between the Home and Secondary screens. After 60 seconds, the screen will timeout and revert back to the Home screen.

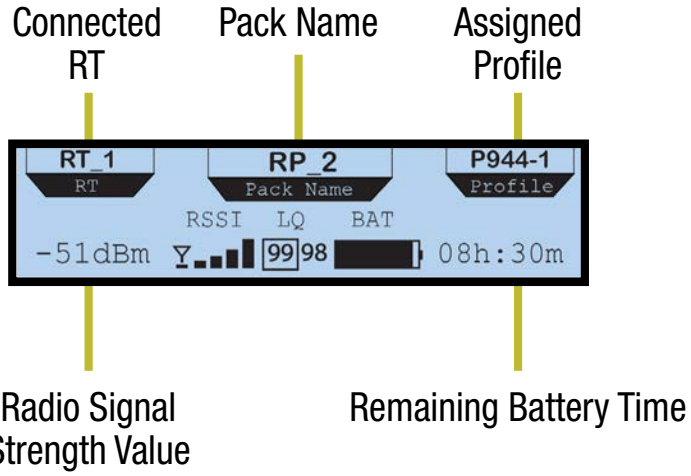


Figure 5: RP Secondary Operating Screen Overview

Note: *Radio Signal Strength Indicator (RSSI) Value displays the actual value of the RSSI in dBm.*

Radio Pack Battery System

Radio Packs are powered with (1) Lithium-Polymer rechargeable battery for greater than 10 hours (2.4GHz) or 9 hours (900MHz), or they may be powered with (3) AA batteries for approximately 5 hours (2.4GHz) or 4.5 hours (900MHz).

The batteries can be charged either inside the Radio Pack with an external power supply or by using the 5-bay battery charger. The batteries require approximately 3 hours to charge from empty. Take care to insert the battery with the contacts facing down into the Radio Pack and oriented such that the contacts on the battery will line-up with the contacts inside the Radio Pack battery compartment. See page 11 for more information about installing RP batteries. See page 11 for more information about charging RP batteries.

Figure 6: 5-Bay Battery Charger

The Radio Pack may also be powered by three (3) AA batteries. Pliant recommends that only major brand, standard batteries should be used for maximum reliability and effectiveness. The user should expect approximately 5 hours (2.4GHz) or 4.5 hours (900MHz) of operation using new AA batteries.

There are several considerations the user should take into account when using AA batteries. The RP's battery level and remaining battery time indicators only reflect battery life for lithium-polymer batteries; therefore, those screen options will not be used when AA batteries are in use. In cold weather, AA batteries do not release their stored energy completely, so the result is a dramatic reduction in operation time. It would not be uncommon to have an AA battery only last 50% of its original life when used in very cold situations.

CAUTION: *If using AA batteries instead of lithium-polymer batteries, remove the AA batteries from the Radio Pack when not in use to avoid potential damage from leaking battery acid that can sometimes occur in these types of batteries.*

Setup and Installation

Installing a Radio Pack Battery

Before powering on an RP, install its battery by doing the following:

1. Hold the RP at about a 45 degree angle, pointing the bottom end down. Then, depress the RP's belt clip and hold it.
2. Press the battery-release button on the bottom of the RP and pry open the battery door. Remove the door.
3. While still holding the RP at an angle and depressing the belt clip, install a fully charged Lithium-Polymer rechargeable battery or three AA batteries in the RP.
4. Place the battery door back on the RP, making sure to align its tab and secure the door by pressing until it clicks.
5. Turn on the RP by pressing and holding the Power button on the back for three seconds.

Note: *The RP will not communicate unless it has been paired to a Control Unit; if it has not been paired it will indicate* ***"No Pairing Information Available"*** *on its display. In addition, the RP will not communicate if its CU and RTs are not yet online. Pliant recommends powering on CUs and RTs first before powering on RPs.*

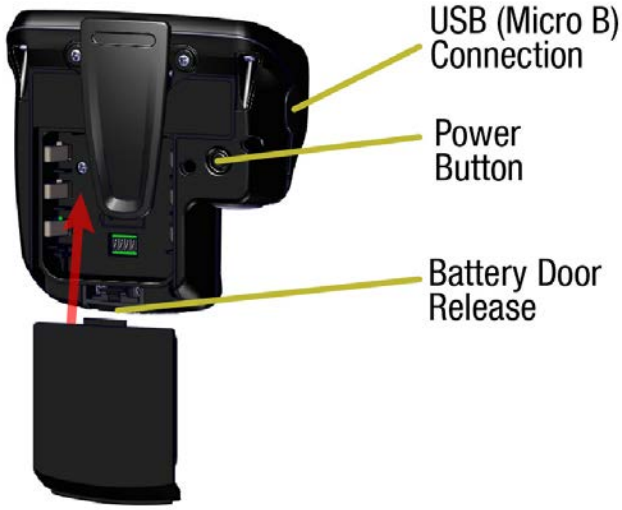


Figure 7: RP Battery Compartment Door

Figure 8: RP Battery Removal/Insertion

Charging a Radio Pack

To charge the Radio Pack (RP), connect the plug-in battery charger (included with the RP) to a standard wall outlet and to the Micro-USB connector on the RP. The connector is located under the rubberized access cover on the side of the RP. The battery may also be charged inside the RP via the USB port of a computer.

Pliant also offers a 5-bay battery charger (PBT-5BAY-01) for charging up to five (5) Pliant lithium-polymer batteries.

CAUTION: *If charger(s) overheat, they need to be moved to a cooler area to charge batteries properly. As a lithium-polymer battery safety mechanism, the battery chargers include a safety circuit, which prevents charging of batteries if the ambient temperature is too hot.*

Pairing a Radio Pack (to a Control Unit)

CrewCom Radio Packs (RP) must be paired to a Control Unit (CU) before they can operate on any CrewCom system. Once RPs are paired to a CU, this process does not need to be done again unless the RP is being paired to a new or different CU (for example, after a replacement is made for repairs). A maximum of 255 RPs can be paired to a single CU; however only 18 of those RPs can be active at one time. If having more active RPs is applicable, you will need another CU. The limit for active communicating RPs is 72 on four CUs.

A Radio Pack (RP) may be paired without installing a battery, if applicable. The CU will provide power to the RP during the setup process. If no battery is installed, the RP will shut off as soon as it is disconnected from the CU. During the pairing process, do not disconnect the RP until you are instructed to do so. To pair your RP, use the following steps:

1. Connect an RT to the selected CU. Power on the CU.
2. Wait about two minutes for the configuration file to load on the system. The CU will display a "CCF Loaded" message and a configuration file summary during the load process--wait until this message has cleared from the bottom CU screen before taking further action. Once the message times out, the home screen will display on the front of the CU.
3. Ensure the selected RP is powered OFF.
4. Connect a USB-to-Micro-USB cable from the CU to the device (micro end goes into the RP's USB port beneath its rubber port cover). The RP will power on by itself.
5. Follow the prompts that display on the RP LCD.
    a. Your RP must match the system firmware version. The system will check that the RP firmware matches. If it does not, disconnect the RP from the CU and connect it to your PC to update firmware from CrewWare. For more information on this procedure, see the *CrewWare Manual*.
    b. If the firmware matches, the pairing process will automatically begin and should take about 30 seconds. Do not disconnect during this process.
6. Once pairing is initiated, you will be prompted via the RP's LCD to select a Profile to apply to your RP (only Profiles compatible with the RP model will be available); use the RP function button and volume knobs to navigate and select your choice from the list of available options.
7. Wait for the Profile to load. The RP LCD will display a "Pairing Complete" message when the profile is finished loading.
8. Disconnect the USB cable from the device. The RP will power off automatically when disconnected.
9. Power on the RP and wait for it to log in to the system. The initial login may take up to 90 seconds. When an RP is logged in, its RSSI indicator will display on its primary screen.
10. Verify that the RP paired correctly and is displayed on the CU LCD and CrewWare (if connected).

    Note: *When in Live mode, you should see the RPs appear in CrewWare's real-time pack display as they are paired. Offline mode will not display newly paired RPs until the system is "Live."*

11. The RP is ready for use. Repeat steps 3–10 until every RP is paired.

    Note: *Remember that only 18 RPs can be actively used per CU. Additional RPs can be paired to a CU, but only 18 may be active at a time.*

Operation

Much of a Radio Pack's functionality is driven by the assigned Profile. However, there are certain device and user settings that can be configured depending on a user's access rights given to them by the system administrator. The following instructions will help you operate and customize your device.

Many of the following instructions apply to the Radio Pack's menu options. Access to certain menus and setting adjustments are determined by the system's access rights; see the *Control Unit Operating Manual* or the *CrewWare Operating Manual* for more information about access rights.

Understanding Link Quality

The Link Quality (LQ) is a numeric value that provides a real-time metric on the quality of communication between the Radio Transceiver and the Radio Pack. The LQ serves as a diagnostic tool for proper system operation and troubleshooting Radio Packs.

- The LQ value represents the number of successful audio packets of the last 100 transmissions—99 being the most, 0 being the least.
- With CrewCom, the receiving LQ signal is reported for both the Radio Transceiver and Radio Pack. The Radio Pack's on-screen LQ indicator with the box around it is the Transceiver's LQ from the RP. If this LQ is lower than you typically experience in normal operation, then it is an indication that you may have an issue related to interference, the transceiver, or a cable connection. If only the RP's LQ is low, it could be an indication that you may have an issue related to interference or the Radio Pack.

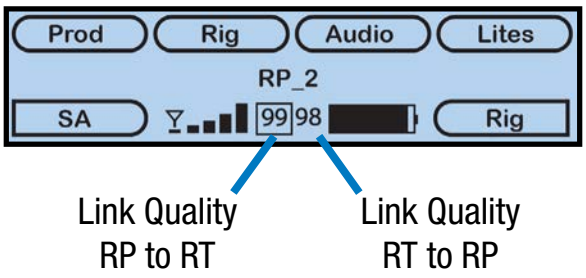


Figure 9: RP Primary Screen LQ Indicator

- What should the LQ value be during operation? — The LQ will not remain at an exact value during system operation. Depending on what degree of outside interference or attenuation (blocking) is present, the LQ will fluctuate during normal operation. Fluctuations in LQ can and will span a wide range of values. The lower the LQ, the poorer the audio quality will be during operation. During start-up, within adequate range and no outside influences present, the LQ should display "99" which is the highest LQ value a Radio Pack or Radio Transceiver can have.
- What if the LQ on a single Radio Pack is below "99" at start-up? — This depends on where the Radio Pack is located at start-up, but if the other Radio Packs on the same Radio Transceiver are at "99" this is a good indication that an isolated radio issue exists within that Radio Pack. If the LQ value has dropped considerably lower or if that unit is experiencing poor audio quality, it may require service.

Understanding RSSI

The Radio Signal Strength Indicator (RSSI) reflects the measurement of the RF power present in a received radio signal. The RSSI on the RP indicates the signal strength received at the RP. The RP's secondary operating screen displays the actual value of the RSSI in dBm. For more information about how RSSI is displayed on the RP, see "Radio Pack LCD Display" on page 9.

On the RP LCD, the RSSI indicator contains an antenna symbol and signal strength bars when the RP is logged in. The antenna symbol is replaced with an "R" when the RP is roaming. It is replaced with a "J" to indicate a "join requested" status, when the RP has requested to join the system and is awaiting response from the RT.

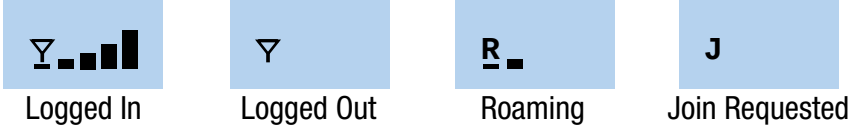


Figure 10: Possible RSSI Statuses

Pack Information

For a quick snapshot of the Radio Pack's device and user settings, Press the RP Menu button for 2 seconds and use the far-right volume knob to scroll and select ***Pack Info*** from the Main Menu. From this screen, users can use the F2 button or far-right volume knob to page through the following information:

- Radio Pack Model Number
- Profile Name
- Mic Type
- Mic Gain
- Noise Gate
- Sidetone
- Talk Tones
- Radio Pack Serial Number
- Radio Pack Firmware Version
- RT Name (if currently logged in)
- LCD Backlight Contrast
- LCD Backlight Brightness
- LCD Backlight Timeout
- Volume Minimum
- Volume Maximum

Device Settings

The following settings and processes can be found in the Radio Pack's menu under ***Device Settings***. These settings can also be managed via the Control Unit menu or by using CrewWare; refer to the CrewWare Operating Manual for more information.

Selecting Radio Pack Profile

Each time a Radio Pack is paired to a CrewCom Control Unit, you will be prompted to select a Profile to assign to that Pack. Radio Pack Profiles must match the type of Radio Pack, and thus only Profiles specific to the Radio Pack model being paired or used will appear in the available list. In addition, only default profiles will be available until new (custom) profiles have been created using CrewWare. Default profile settings are detailed in "CrewCom Configuration File Defaults" on page 5 of this manual. For more information on creating custom profiles, see the *CrewWare Operating Manual*.

A Radio Pack stores only the profile currently assigned to it. To change a Radio Pack's assigned profile from the RP, use the following steps:

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***Device Settings***. Press F2 (***ENT***).
2. Scroll and select ***Pack Profiles***. Press F2 (***ENT***) to view a list of available profiles.

Figure 11: Profile Selection Screen

3. Scroll to the desired profile.
4. Press F2 (***SAVE***). A prompt will display, asking you to confirm your selection to overwrite user-level settings with profile settings. Upon saving the new profile, the RP will be updated with its most up-to-date profile settings. The RP will be operational with its new profile and settings when connected to a live system.

NOTE: *You can also change an RP's assigned Profile from CrewWare and from the CU menu. See those manuals for more information.*

Editing Radio Pack Name

Radio Packs can be given a 16-character long name and an 8-character short name using the following steps:

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***Device Settings***. Press F2 (***ENT***).
2. Scroll and select ***Pack Name***. Press F2 (***ENT***) to view a list of name options.
3. Scroll to select either ***Short Name*** or ***Long Name*** and press F2 (***ENT***) to enter edit mode.
4. Use the far left and far right talk buttons to navigate left or right through the characters of the name. Use the far-right volume knob to navigate up and down to change each character value.

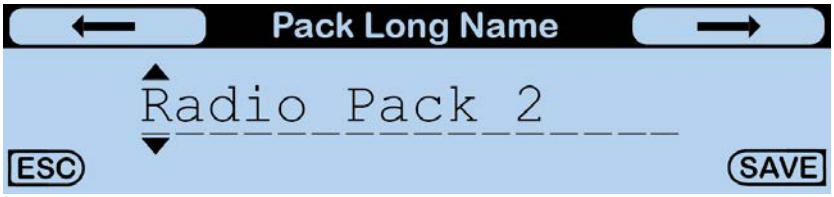


Figure 12: Pack Name Edit Mode

5. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Customizing Battery Alert

This sub-menu allows you to adjust the type of battery alert the Pack will give when reporting low lithium-polymer battery life. An audible alert sounds a tone in the connected headset when the battery life is low. A vibrate alert briefly vibrates the RP. In addition to this alert, the RP battery icon indicates low battery (less than one hour remaining time) in the following increments: 01:00, 00:45, 00:30, and LOW (once the time is 15 minutes or less).

To change your battery alert, do the following:

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***Device Settings***. Press F2 (***ENT***).
2. Scroll and select ***Battery Alert***. The current alert selection will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available alert options.

Figure 13: Customizing Battery Alert

3. Scroll and select from the following: ***Audible***, ***Vibrate***, ***Both***, or ***Off***.
4. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Note: *The RP Battery Alert only reflects battery life for lithium-polymer batteries; therefore, this alert will not be used when AA batteries are in use.*

Adjusting LCD Display Settings

The Radio Pack's LCD has adjustable settings such as Contrast, Brightness, and Backlight Time Out. The following settings can be found in the Radio Pack's menu under ***Device Settings*** then ***Display Options***.

Figure 14: RP Display Options

- Contrast – Allows adjustment to the LCD's contrast; use the volume knobs to increase or decrease the level of contrast. Select an option in the range from ***0–10.***
- Backlight Brightness – Allows adjustment to the LCD's brightness; select from ***High***, ***Med***, ***Low***, or ***Off*** for brightness level.
- Backlight Time Out – Enables users to set the amount of time the LCD's backlight will stay lit after engaging the Radio Pack's interface. Select from ***Disabled***, ***3***, ***10***, or ***30*** seconds.

User Settings

The following settings and processes can be found in the Radio Pack's menu under ***User Settings***. These settings can also be managed via the Control Unit's menu or by using CrewWare; refer to the CrewWare Operating Manual for more information.

Selecting Headset Mic Type

Select from ***Auto-Detect***, ***Dynamic***, or ***Electret*** mic type. If selecting ***Auto-Detect***, you must first have a headset connected to the RP for a microphone to be detected. If you select a mic type that does not match the detected type of the connected mic, you will be prompted to accept the exception.

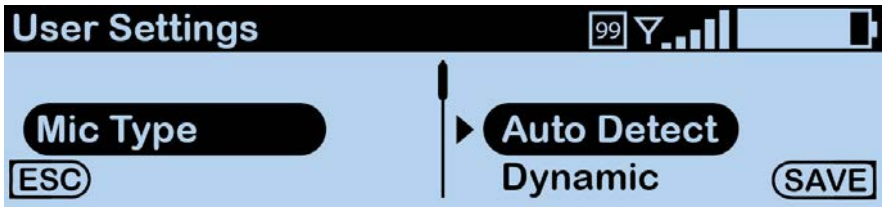


Figure 15: Selecting Mic Type

Adjusting Mic Gain

When the Mic Gain is set too high, it is possible to induce feedback or echo. When set too low, words can be clipped by the low level noise gate, or may sound too quiet to other listeners. Different models of headsets will require widely varying mic gain settings.

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***User Settings***. Press F2 (***ENT***).
2. Scroll and select ***Mic Gain***. Press F2 (***ENT***).
3. Scroll and select either ***Dynamic Gain*** or ***Electret Gain***. The current mic gain setting will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available setting options.

Figure 16: Adjusting Mic Gain

4. Use the far-right volume knob to increase or decrease the Mic Gain level. For dynamic microphones, select from within a range of +6 to +35 dB. For electret microphones, select from within a range of -12 to +17 dB.
5. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Adjusting Noise Gate

The noise gate is used to set the minimum audio threshold necessary to allow audio to pass from the headset microphone through to the rest of the system. When the audio level from the microphone is below this threshold, the gate is closed and the audio is muted. When the audio level from the microphone is above this threshold, the gate is open and audio passes. Setting the noise gate threshold too high can cause the beginning of words to be cut off or make the audio sound choppy, so Pliant recommends setting the noise gate as low as possible.

Adjust your Radio Pack noise gate threshold using these steps:

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***User Settings***. Press F2 (***ENT***).
2. Scroll and select ***Noise Gate***. The current noise gate setting will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available setting options.

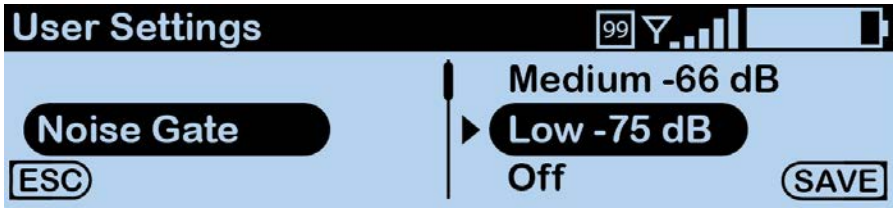


Figure 17: Adjusting Noise Gate

3. Scroll to select from the range of options: ***Very High -48***, ***High -57***, ***Medium -66***, ***Low -75***, and ***Off***. These options correspond to a range of levels from -48 dB (very high) to -∞ (off).
4. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Adjusting Sidetone

Speak into the headset microphone at a typical speaking level and adjust the sound of your own voice in your headset. Adjust your Radio Pack sidetone using these steps:

> ***Note:*** *It is important to set this sidetone as low as comfortable for the user to insure best performance. Setting the sidetone too high will cause the user to speak softly and cause poor audio performance.*

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***User Settings***. Press F2 (***ENT***).
2. Scroll and select ***Sidetone***. The current sidetone setting will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available setting options.

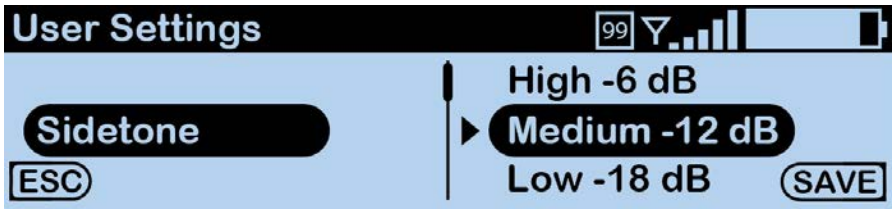


Figure 18: Adjusting Sidetone

3. Scroll to select from the range of options: ***Very High 0***, ***High -6***, ***Medium -12***, ***Low -18***, and ***Very Low -24***. These options correspond to a range of levels from 0 dB to -24 dB.
4. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Adjusting Volume Limit

The Radio Pack is capable of adjusting a minimum and maximum volume limit for each conference assignment. Adjust your Radio Pack volume limit using these steps:

Figure 19: Adjusting Volume Limits

Minimum Volume

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***User Settings***. Press F2 (***ENT***).
2. Scroll and select ***Min Volume***. The current minimum settings for each volume knob will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available setting options.
3. Turn each corresponding volume knob to increase or decrease the volume level to your desired limit within a range of 0 to 19 with 0 being OFF. This range corresponds to a range from OFF (-57 dB) to +3 dB.
4. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Maximum Volume

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***User Settings***. Press F2 (***ENT***).
2. Scroll and select ***Max Volume***. The current minimum settings for each volume knob will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available setting options.
3. Turn each corresponding volume knob to increase or decrease the volume level to your desired limit within a range of 1 to 20. This range corresponds to a range from -53 dB to +6 dB.
4. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Adjusting Talk Tones

Enabling Talk Tones gives the user audible feedback when a talk button is pressed to talk on a conference. Adjust your Radio Pack talk tones using these steps:

1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***User Settings***. Press F2 (***ENT***).
2. Scroll and select ***Talk Tones***. The talk tones setting will be displayed on the right-hand side. Press F2 (***ENT***) to view a list of available setting options.

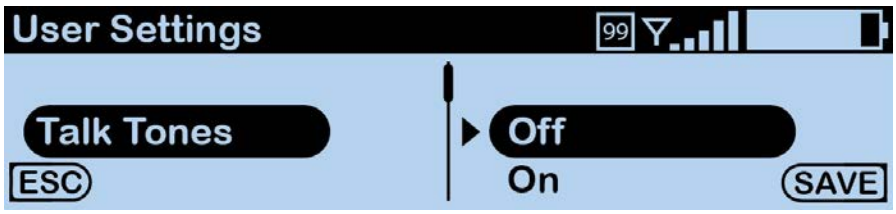


Figure 20: Adjusting Talk Tones

3. Scroll to select either ***On*** or ***Off***.
4. Press F2 (***SAVE***). Once saved, the screen will return to the previous menu.

Tech Menu

The Tech Menu is typically for use by system administrators to review or monitor system level security settings or diagnostics. The following settings and processes can be found in the Radio Pack's menu under ***Tech Menu***.

Restoring Factory Defaults

Users can choose to restore factory defaults from the device or system:

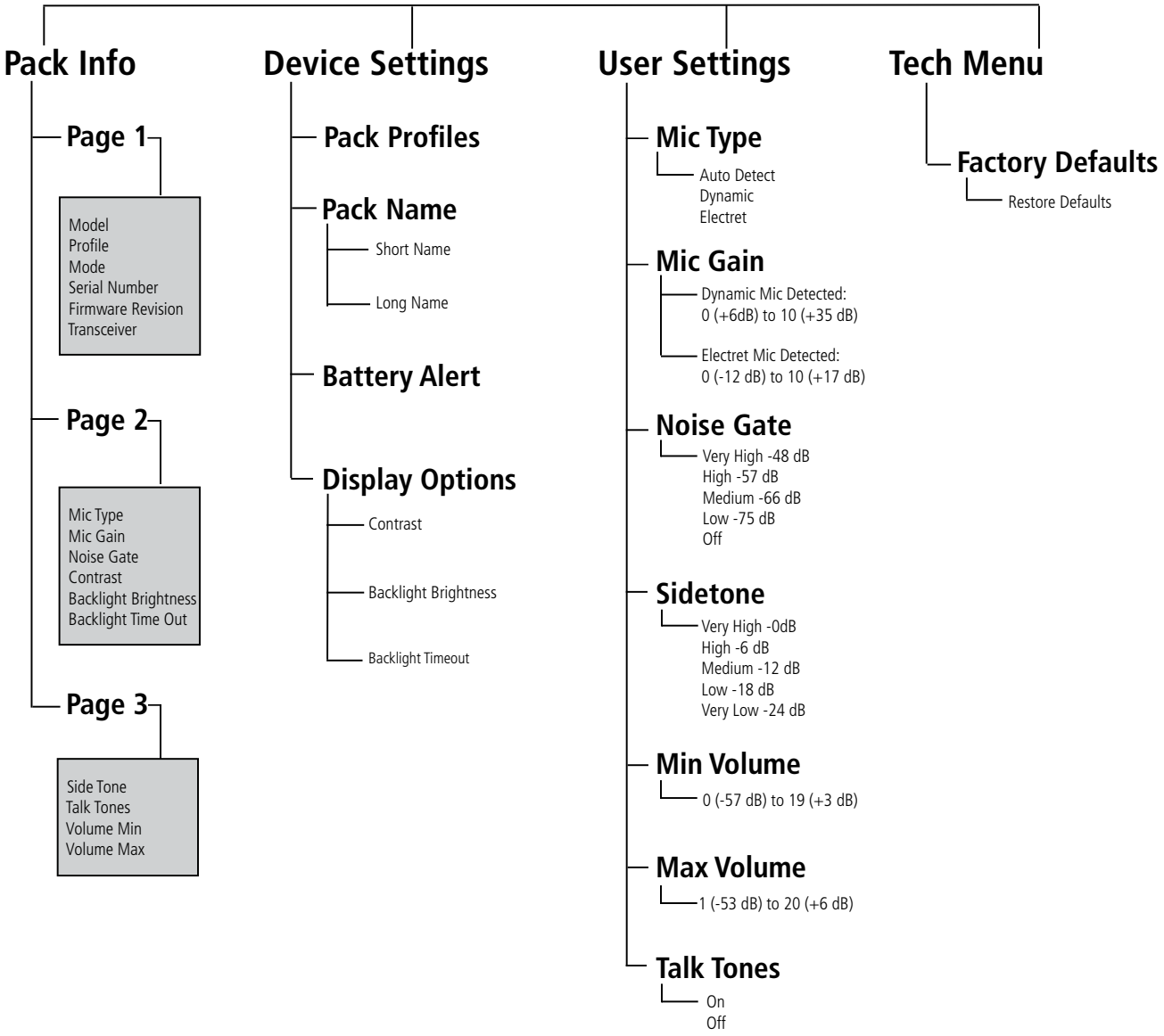
1. Press and hold the RP Menu button for 2 seconds; then, use the far-right volume knob to scroll and select ***Tech Menu***. Press F2 (***ENT***).
2. Scroll and select ***Factory Defaults*** press F2 (***ENT***) to enter view reset options.
3. Scroll and select ***Restore Defaults*** and press F2 (***ENT***).
4. Confirm your selection by selecting either ***Yes*** or ***No***.

Table 3 lists the settings that are affected when restoring RP factory defaults.

Table 3: Radio Pack Factory Default Settings		
Radio Pack Setting	**Radio Pack Default**	**Reset by "Restore Defaults"**
Pack Name (Long)	ESN#	
Pack Name (Short)	ESN#	
Battery Alert	Both	
Contrast	7	
Backlight Brightness	High	
Backlight Time Out	30 seconds	
Mic Type	Auto Detect	X
Mic Gain (Dynamic)	6 (+23 dB)	X
Mic Gain (Electret)	3 (-4 dB)	X
Noise Gate	Low (-75 dB)	X
Sidetone	Med (-12 dB)	X
Minimum Volume (all knobs)	0 (off)	X
Maximum Volume (all knobs)	20 (+6 dB)	X
Talk Tones	Off	X
User Rights	Admin	

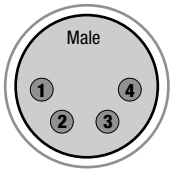
Radio Pack Menu

The following menu tree displays all of the Radio Pack's menu options and settings.



Headset Connector Pinout and Wiring

Table 4: Local Headset Connection Wiring	
XLR Pin #	**Description**
Pin 1	Mic –
Pin 2	Mic +
Pin 3	Speaker –
Pin 4	Speaker +



See the SmartBoom PRO and SmartBoom LITE datasheets for the pin wiring information for Pliant's SmartBoom headsets.

Product Specifications

Table 5: Radio Pack Specifications*				
Specification	CRP-22-900/ CRP-22-900AN**	CRP-44-900/ CRP-44-900AN**	CRP-22-2400/ CRP-22-2400CE***	CRP-44-2400/ CRP-44-2400CE***
RF Frequency (MHz)	902–928 MHz (915–928 MHz)**		2400–2483 MHz	
RF Scheme	FHSS with TDMA			
Effective Radiated Power	400 mW (+26 dBm)		100 mW (+20 dBm)	
Receiver Sensitivity	-100 dBm at 10^{-5} BER			
Radio Certification	FFCCID: HSW-CCT900 and IC: 4492A-CCT900		FFCCID: HSW-CCT24 and IC: 4492A-CCT24	
Transmission Range	200 m (approx. 650 ft.) under typical conditions; 600 m (approx. 1950 ft.) line of sight (Note: Functional range depends on many variables, including RF signal absorption, reflection, and external interference.)		150 m (approx. 500 ft.) under typical conditions; 450 m (approx. 1500 ft.) line of sight (Note: Functional range depends on many variables, including RF signal absorption, reflection, and external interference.)	
Audio Dynamic Range	Greater than 90 dB			
Audio Frequency Response	150 Hz–7 kHz			
Conferences	2	4	2	4
Simultaneous Listen Paths	True Dual Listen	True Quad Listen	True Dual Listen	True Quad Listen
Volume Knobs	2	4	2	4
Talk Buttons	2	4	2	4
Headset Connector	4-pin male XLR			
Microphone Type	Auto-Detect or Manual Select; Dynamic or Electret			
LCD Display	280 × 64 resolution			
Antenna	(2) 2dBi Dipole			
Battery Life, Rechargeable Lithium-Polymer	Greater than 9 hours		Greater than 10 hours	
Charging Power Supply	Micro USB; 6W AC wall adapter			
Charge Time for Lithium-Polymer Battery	Under 3 hours			
Optional Power	3 Standard AA batteries			
Battery Life, AA Batteries	Approximately 4.5 hours		Approximately 5 hours	
Dimensions (L x W x H)	11.43 cm × 11.61 cm × 5.87 cm (4.50 in. × 4.57 in. × 2.31 in.)			
Weight (with Lithium-Polymer battery)	369 g (13 oz.)			
Material	Polycarbonate substrate with thermoplastic elastomer overmold			
Operating Environment	-20° to 50° C (-4° to 122° F); 10% to 90% Humidity. RP Power Supply is 0 to 40° C (32° to 104° F).			
Maximum Altitude	2,000 m (6,562 ft.)			
RoHS Compliant	Yes			
IP Rating	IP-65			

*Notice About Specifications: While Pliant makes every attempt to maintain the accuracy of the information contained in this manual, this information is subject to change without notice, and published device/system functions and features are subject to firmware version. Please check our website for the latest system specifications and certifications. 900MHz products only available in North America, Australia, and New Zealand.

**CRP-22-900AN and CRP-44-900AN (Oceania) models are approved for use in Australia and New Zealand and operate within the 915–928 MHz frequency range.

CE ***CRP-44-2400CE and CRP-22-2400CE models meet the same specifications and comply with ETSI standards (300.328 v1.8.1). Non-CE models are non-compliant with some ETSI standards.

Product Support

Pliant offers technical support via phone and email from 07:00 to 19:00 Central Time (UTC–06:00), seven days per week.

1.844.475.4268 or +1.334.321.1160
technical.support@plianttechnologies.com

Visit www.plianttechnologies.com for product support, documentation, and live chat for help. (Live chat available 08:00 to 17:00 Central Time (UTC–06:00), Monday–Friday.)

Returning Equipment for Repair or Maintenance

All questions and/or requests for a Return Authorization Number should be directed to the Customer Service department (customer.service@plianttechnologies.com). Do not return any equipment directly to the factory without first obtaining a Return Material Authorization (RMA) Number. Obtaining a Return Material Authorization Number will ensure that your equipment is handled promptly.

All shipments of Pliant products should be made via UPS, or the best available shipper, prepaid and insured. The equipment should be shipped in the original packing carton; if that is not available, use any suitable container that is rigid and of adequate size to surround the equipment with at least four inches of shock-absorbing material. All shipments should be sent to the following address and must include a Return Material Authorization Number:

Pliant Technologies Customer Service Department
Attn: Return Material Authorization #
205 Technology Parkway
Auburn, AL 36830-0500

Maintenance and Storage

Cleaning

Generally, the CrewCom hardware should be cleaned only with a dry cloth. A soft cloth with rubbing alcohol may be used to wipe the devices if needed, but you should avoid using rubbing alcohol on plastic components. Never spray solvents or chemicals onto the devices.

All electronic devices can be susceptible to particulate contamination. If yours are exposed to an extremely dusty environment, contact Pliant's Customer Service for internal cleaning.

Temperature and Humidity

CrewCom components are designed to be very durable and can tolerate a wide range of environmental conditions; however, you should take all necessary precautions to keep your system devices safe, dry, and out of extreme conditions.

The Radio Transceiver is weather-resistant, including gaskets intended to prevent moisture entry from the top and sides. The Cat 5e cable connection on the bottom is not water tight. If it is to be used in an outdoor environment, protect the RT with a protective enclosure that will not interfere with the radio signals.

The Radio Packs are designed to work wherever people work. While the Radio Pack design is weather-resistant, Radio Packs should not be submerged in liquids unnecessarily. Protect the battery compartment from water when changing batteries. The battery compartment offers a route to the electronic circuitry.

Storage of your Lithium-Polymer Batteries

When stored, a battery gradually loses its overall charge time due to internal self-discharge, which may reduce its overall power. If storing batteries for two or more weeks, Pliant Technologies highly recommends storing them at a 40-50% charge level, which generally minimizes any permanent power capacity loss.

Unused lithium-polymer batteries may enter into a deep discharge state due to internal self-discharge. Once a battery has gone into deep discharge, its onboard circuit protections inhibit the charger from initiating the charge cycle. If a battery does not accept a charge and the LED displays red in the charger, the battery may be in deep discharge. An attempt to revive the battery can be made by repeatedly inserting and removing it several times from the 5-Bay Charger (PBT-5BAY-01).

Ambient temperature affects the rate at which lithium-polymer batteries degrade. Batteries also degrade and lose overall power capacity if stored (or used) at higher temperatures.

Proper Disposal of Old Lithium-Polymer Batteries

Batteries that appear swollen, deformed, or damaged, or that do not fit properly should never be used. Properly dispose of any batteries in this condition in accordance with the instructions provided by your local authorities. For more information and local drop-off sites, visit http://www.call2recycle.org/.

Battery Shipping Regulations

Rechargeable lithium-polymer batteries are subject to special U.S. and International regulations, particularly regarding transportation. The guidelines detailed in Pliant's Lithium-Polymer Battery Shipping Guidelines document comply with updated International Air Transport Association (IATA), International Civil Aviation Organization (ICAO), and U.S. Department of Transportation (DOT) Dangerous and Hazardous Goods regulations.

When shipping equipment to Pliant that includes batteries, it is the shipper's responsibility to ensure that batteries are properly packaged, labeled, and shipped according to local and international guidelines. "Shipper" is defined as the person or entity placing the equipment in the package and offering it to the carrier.

License Information

Warning: Changes or modifications to this device not expressly approved by Pliant could void the user's authority to operate the equipment.

1. FCC Notices

   1.1. 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 that may cause undesired operation.

   1.2. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2. Canada, Industry Canada (IC) Notices

   2.1. This Class A digital apparatus complies with Canadian ICES-003.

   Cet appareil numerique de la classe A est conforme a la norme NMB-003 du Canada.

   2.2. Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

   Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

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

   Le présent appareil est conforme aux CNR d'Industrie 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 radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF-Exposure Statement

CrewCom Radio Packs have been designed to be worn and used in close proximity to the human body—what the FCC calls a "portable" use.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment is in direct contact with the body of the user under normal operating conditions. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CrewCom Compliance Numbers

Table 6: Radio Pack Compliance Model Numbers	
Model Numbers	**Compliance Model No.**
CRP-22-2400	RP2500
CRP-22-2400CE	RP2500
CRP-22-900	RP2500
CRP-22-900AN	RP2500
CRP-44-2400	RP2500
CRP-44-2400CE	RP2500
CRP-44-900	RP2500
CRP-44-900AN	RP2500

Warranty Information

Limited Warranty

CrewCom products are warranted to be free from defects in materials and workmanship for a period of two years from the date of sale to the end user, under the following conditions:

- First year of warranty included with purchase.
- Second year of warranty requires product registration on the Pliant website.

Tempest professional products will carry a two-year product warranty.

All accessories carry a one-year warranty.

The sole obligation of Pliant Technologies, LLC during the warranty period is to provide, without charge, parts and labor necessary to remedy covered defects appearing in products returned prepaid to Pliant Technologies, LLC. This warranty does not cover any defect, malfunction, or failure caused by circumstances beyond the control of Pliant Technologies, LLC, including but not limited to negligent operation, abuse, accident, failure to follow instructions in the Operating Manual, defective or improper associated equipment, attempts at modification and/or repair not authorized by Pliant Technologies, LLC, and shipping damage. Products with their serial numbers removed or effaced are not covered by this warranty.

Pliant device IP ratings are dependent upon device design and assembly; therefore, unauthorized disassembly or device modifications may impair or negate the IP rating for the device, and therefore any associated damage or malfunction is not covered under this warranty.

This limited warranty is the sole and exclusive express warranty given with respect to Pliant Technologies, LLC products. It is the responsibility of the user to determine before purchase that this product is suitable for the user's intended purpose. ANY AND ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE DURATION OF THIS EXPRESS LIMITED WARRANTY. NEITHER PLIANT TECHNOLOGIES, LLC NOR ANY AUTHORIZED RESELLER WHO SELLS PLIANT PROFESSIONAL INTERCOM PRODUCTS IS LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

Parts Limited Warranty

Replacement parts for Pliant Technologies, LLC products are warranted to be free from defects in materials and workmanship for 120 days from the date of sale to the end user.

This warranty does not cover any defect, malfunction, or failure caused by circumstances beyond the control of Pliant Technologies, LLC, including but not limited to negligent operation, abuse, accident, failure to follow instructions in the Operating Manual, defective or improper associated equipment, attempts at modification and/or repair not authorized by Pliant Technologies, LLC, and shipping damage. Any damage done to a replacement part during its installation voids the warranty of the replacement part.

This limited warranty is the sole and exclusive express warranty given with respect to Pliant Technologies, LLC products. It is the responsibility of the user to determine before purchase that this product is suitable for the user's intended purpose. ANY AND ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE DURATION OF THIS EXPRESS LIMITED WARRANTY. NEITHER PLIANT TECHNOLOGIES, LLC NOR ANY AUTHORIZED RESELLER WHO SELLS PLIANT PROFESSIONAL INTERCOM PRODUCTS IS LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

Glossary

Audio Output: Outputs are created by mixing one or more audio entities. This could be for use at any headset connection or for output to a wired connection.

Auto Detect: The CrewCom Radio Pack (RP) has the ability to automatically detect the type of microphone (dynamic or electret) that is plugged into its headset connector. The Auto Detect setting is an option in the RP menu along with the manual selection of dynamic or electret microphones.

Call Functions: Call signals may be initiated by entities across CrewNet. Each 2-Wire intercom port may be individually set to send and receive a CrewCom-generated call signal to or from a connected wired intercom system by selecting ON to enable the Call function. Turning the Call function off prevents the signal from leaving CrewCom via the respective port.

- **Call**: An RP Function button option. When enabled for wireless devices, the user can elect to send a call signal to the RPs of each conference whose Talk button is currently active on that individual RP, or the user can elect to send a call signal to the RPs of a single assigned conference (regardless of the associated Talk button's status). When enabled for external hardwired intercom devices, a signal will be sent to any connected 2-wire devices associated with a conference whose Talk button is currently active on that individual RP (as long as outbound call is enabled for the CU port associated to the conference) or a signal will be sent to any connected 2-wire devices associated with that conference (as long as outbound call is enabled for the associated CU port). Call can be enabled for both wireless and hardwired devices or limited to only one type.
- **Call on Talk:** An RP Talk button function. When enabled, a call signal will remain active while the Talk button is active. This function is commonly used in applications where a two-way radio interface is connected.

Conference: A grouping of audio entities. Wireless Radio Packs (or other CrewCom I/O) may be subscribed to one or more of 1024 available Conferences.

Control Unit (CCU-22 and CCU-44): A CrewCom device that is used to establish a CrewNet system and provides initial system audio I/O. It is compatible with all levels of wireless Radio Packs.

CrewCom Configuration File (CCF): A file that stores all of the device setup and configuration parameters for a CrewCom system. These files can be created, edited, saved, and recalled both online and offline.

CrewNet: The digital proprietary network used to move audio and to control data, timing, and other functional signals used in CrewCom.

CrewWare: Software tool developed to incorporate all the necessary mechanisms for facilitating graphically based system construction and full system control, monitoring, and diagnosis.

Dynamic: A type of headset microphone used in professional headsets that do not require any type of external power for operation. In general, dynamic microphones have a lower output than Electret microphones.

Electret: A type of headset microphone used in professional headsets that requires an external power source, such as from a CrewCom Radio Pack. In general, electret microphones have a higher output than dynamic microphones.

Firmware: (As it relates to CrewCom.) The embedded code that exists in any CrewCom device. All of this embedded code, including radio code, is upgradeable easily by the end user. It is required that all CrewCom devices operate on the same version of firmware.

Frequency Band: The RF spectrum area that a device operates. For CrewCom, this is 900MHz (900–928 MHz) and 2.4GHz (2400–2483 MHz).

GPO Relay: General Purpose Output. Electromechanical switches, which create a simple contact closures, used to trigger an event or automation outside of the CrewCom system.

Hub: A device that provides routing and expansion capabilities to a CrewNet infrastructure allowing the connection of multiple CrewCom devices.

ISM Bands: Industrial, Scientific, and Medical Bands. A part of the radio spectrum that can be used for any purpose without a license in most countries.

ISO: Selected users can have an isolated conversation with other ISO-enabled users on a conference. While an ISO conversation occurs, the main conference audio can still be heard. ISO must be separately enabled on both the Conference and each desired Profile. From the Radio Pack, ISO is used by pressing and holding the corresponding Volume Knob.

Latch: A function (when enabled from the Radio Pack [RP] Profile) where one short press of the RP Talk button enables or disables the microphone for each respective assigned conference until the button is pressed again. When in this mode, the Talk button has an intelligent latching function: one short press will latch the talk on; however, pressing and holding the talk button will cause the button to act as a momentary switch.

Link Quality: The percentage of successful audio packets sent/received (two different LQ numbers) between a wireless Radio Pack and the Radio Transceiver.

Mic Gain: Determines the headset microphone audio level being sent from the microphone pre amp. The user may experience feedback or echo on their headset if the Mic Gain is set too high. If set too low, the noise gate may clip words or other listeners may not hear the mic audio. Different models of headsets and different individual preferences require different Mic Gain settings.

Mic Kill: Each wired intercom port (2-Wire only) is capable of receiving a Mic Kill signal from a connected wired intercom system. Each port is capable of sending a mic kill signal to connected RTS and AudioCom systems. The Mic Kill signal is passed through to any Conference associated with the intercom port where the signal came through. Turning the Mic Kill signal off prevents external Mic Kill signals from entering or leaving CrewCom via the respective port; however, Mic Kill signals may continue to be generated and transmitted by entities across CrewNet. CrewCom does not send Mic Kill signals to Clear-Com 2-Wire systems.

Momentary: A function (when enabled from the Radio Pack [RP] Profile) where holding the RP Talk button down enables the microphone for each respective assigned conference until the switch is released.

Noise Gate: Used to set the minimum audio threshold necessary to allow audio to pass from the headset microphone through the rest of the system.

Operating Mode: Defines the relationship and operating parameters for Radio Packs (RPs) and Radio Transceivers (RTs). A selection can be made from either Normal mode or High Density mode.

Profile: A Radio Pack (RP) Profile assigns functionality to a RP's local controls, knobs, and buttons as well as what Conferences it subscribes to.

Radio Pack: The direct portable wireless communication device connecting individual CrewCom users to the CrewCom system. Sometimes commonly referred to as a BeltPack.

Radio Signal Strength Indicator (RSSI): A measurement of the RF power present in a received radio signal. The RSSI indication on the Radio Pack (RP) indicates the signal strength received at the RP.

Radio Transceiver: A device used to remotely locate a radio and its corresponding antenna to provide an expanded coverage area.

RP-22: A two-volume, two-talk-button, wireless CrewCom Radio Pack.

RP-44: A four-volume, four-talk-button, wireless CrewCom Radio Pack.

Sidetone: The sound effect picked up by the headset microphone and instantly introduced at a low signal level into the ear piece of the headset.

Stage Announce: An audio output that allows a line level audio signal, typically a Radio Pack's microphone signal, to be sent to a dedicated external audio output for connection to an external device.

Subscriber: A member of a Conference who can hear all Conference audio and can serve as an audio input to a Conference.

Subscription: CrewCom utilizes Subscription-Based audio mixing and routing based on user-defined Conferences. A Conference is a grouping of associated audio entities. Wireless Radio Packs (or other CrewCom users) may subscribe to one or more Conferences.

System Administrator: A CrewCom top-level user who has configuration knowledge and capabilities. Certain system changes should be performed by the administrator.

User Settings: Customizable settings that can be set and used for each individual Radio Pack user. These settings include: Headset Mic Type, Mic Gain, Noise Gate, Side Tone, Volume Limit, and Talk Tones.

Wired Intercom: Any hard wired duplex audio port for getting audio in or out of a system.

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