SAVOX

IMP C4I SYSTEM
User Guide

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ELECTRICAL SAFETY

The IMP Universal Power Port (UPP) and the IMP Communications Hub (IMP-CH) can provide large DC currents at 10 to 36V DC. Modules and system cables should not be connected or disconnected when the system is powered up. Always switch off power from the entire system to change modules and system cables.

Exceptions:
Headset and bailout cables (introduced on Page 8) may be connected and disconnected from the User Equipment while the system is powered up.

The system must be fused correctly at the platform power supply, with fuse sizes matching the system's modular configuration. See the IMP Installation and Maintenance Manual for instructions.

GLOSSARY OF ABBREVIATIONS

Abbreviation	Meaning
ANR	Active Noise Reduction: Electronic noise reduction system
BIT	Built-in-Test
C4I	Command, Control, Communications, Computers and Intelligence
EMC	Electromagnetic Compatibility
FCU	Fixed Communications Unit: Fix mounted IMP user interface unit with removable audio bailout cable
PCU	Personal Communications Unit: Wearable IMP user interface unit with clothing clip
SCU	Speaker Communications Unit: An IMP ancillary module with powered speaker and user interface
PTT	Push-to-Talk
VOX	Voice Operated Switch: Provides the option of hands-free operation of the headset microphone and utilizes a noise tracking algorithm to minimize noise breaking the VOX.
IMP	Savox C4I platform communications system
IMP-CH	IMP communications hub: A single box IMP system with 9 ports (user / radio combination) and internal universal power port (UPP)
IP	Internet Protocol
LAN	Local Area Network
UPP	Universal Power Port: An IMP main module providing system and ANR power
UIP	Universal Interface Port: An IMP main module with 3 user ports
URP	Universal Radio Port: An IMP main module with 1 user port and 2 radio ports
UEP	Universal Ethernet Port: An IMP ancillary module to expand IMP system and allow data access
RIU	Radio Isolator Unit: Ensures high voice quality between the intercom and long-range radios
WIM	Wireless Interface Module: Base station for wireless team communication units
TRICS T10	Personal Communications Unit. Wearable and battery powered. Can be used as wired or wirelessly via WIM
RCT	Remote Configuration Tool: Software tool for configuring the IMP
RUT	Remote Upgrade Tool: Software tool that allows the firmware upgrade of UIPs and URPs

CONTENTS

1. IMP C4I SYSTEM

1.1. System Overview

The Savox IMP intercom system is a modern fully digital platform command and control system that meets military standards for the harsh environmental and EMC conditions required for worldwide use. User access to IMP is provided through the Personal Communications Unit (PCU), the Fixed Communications Unit (FCU), or the Speaker Communications Unit (SCU). With the ability to tailor individual user functions by denying, restricting, or simplifying user options, IMP provides a highly capable and flexible system. It can be tailored to individual platforms and operational requirements while maintaining Ease-of-Use and simplified end-user training.

Audio prompts accompany all user menu selection options to minimize stress and ensure accuracy of selection regardless of physical conditions and location of modules.

Continuous voice prompted Built-In-Test (BIT) provides users with an up-to-date status of the system allowing them to carry out operations with confidence that their communications system will function when they need it.

1.2. Operational Concept

All voice traffic is passed around the system over the Ethernet Highway that interlinks Universal Modules. This off-the-shelf technology allows the IMP System to be connected to conventional hubs/switches for installation or allowing users to access other data services over the IMP Ethernet Highway. IMP can utilize any existing fixed local area network (LAN) to make inter-connections between modules and can utilize higher speed Ethernet, Fiber Optic bearers, or data capable radios. This flexibility of the IMP System is unique amongst its class of intercom systems and provides a C4I capability.

There is no centralized control module (Master) or any centralized functions within an IMP System. This unique feature of IMP improves reliability and enables graceful degradation due to battle damage. The Universal Interface Port (UIP) and Universal Radio Port (URP) provide user and radio access and are fully independent intercom systems. Systems are automatically created by adding additional radio or user modules to meet operational requirements. With no master unit and no complicated IP setup, modules can easily be added to IMP System for expansion.

1.3. Software Defined

With a software defined architecture and no fixed hardware dependencies, the Savox IMP System will provide a long in-service life with high reliability and availability.

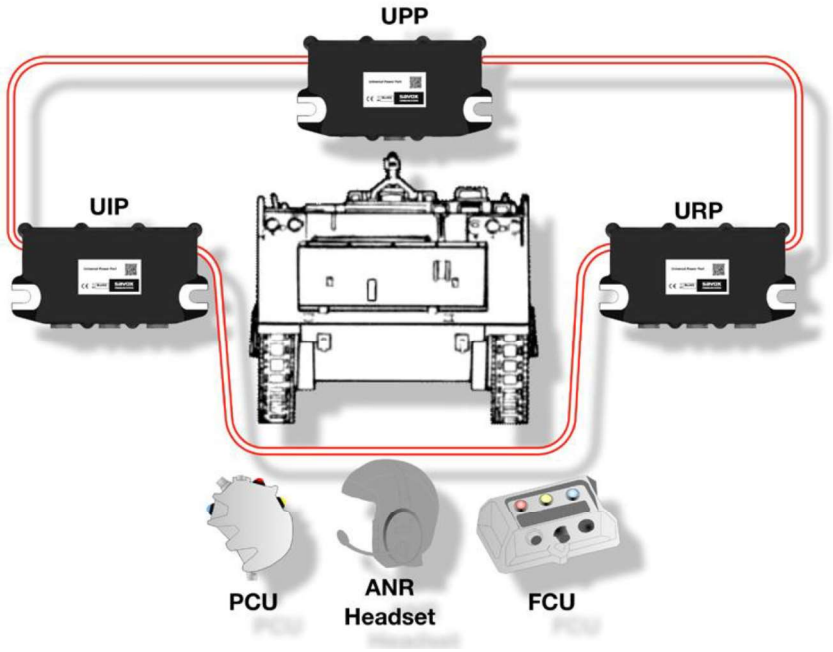


Figure 1: A typical IMP system includes 4 crew members and 2 radios

2. IMP CORE COMPONENTS

UNIVERSAL INTERFACE PORT (UIP)

Provides 2 x Ethernet Ports and 3 x User Data Ports

UNIVERSAL RADIO PORT (URP)

Provides 2 x Ethernet Ports, 1 x User Data Port and 2 x Analogue Radio Ports. A Radio Isolator Unit (RIU) is used to connect Radios to the URP.

IMP COMMUNICATIONS HUB (IMP-CH)

Provides a single unit system comprising of any 3 main modules and a UPP module. Universal Modules can be mixed and matched to suit requirements within the IMP-CH.

FIXED COMMUNICATIONS UNIT (FCU)

Provides fixed access to the system for the user and allows full control over their communications environment. Includes 2 x Radio PTTs and 1 x Intercom PTT. Fitted with the capability of Remote PTTS (Dual PTT Unit).

PERSONAL COMMUNICATIONS UNIT (PCU)

Provides wearable access to the system for the user and allows full control over their communications environment. Includes 2 x Radio PTTs, 1 x Intercom PTT, and a volume knob.

SPEAKER COMMUNICATIONS UNIT (SCU)

Provides an internal speaker and a socket for a second external speaker. Full control of audio feed to the speakers via the same menu functions as incorporated into the PCU and FCU. An external handset can also be fitted to allow user communications. Powered from 12 or 24 Volts.

UNIVERSAL POWER PORT (UPP)

Provides 2 x Ethernet Ports and 1 x Power Input Port (10 to 36V).

UNIVERSAL ETHERNET PORT (UEP)

Ethernet Switch with system and ANR power provided to all 5 x Ethernet ports. Data access into and out of the system. The ability to combine Ring and Star configurations.

DUAL BUTTON REMOTE PTT

The Dual Button Remote PTT can be connected to FCUs. It provides the user with 2 PTT Buttons that can be configured, when ordered, to any combination of Red, Yellow or Blue PTTs.

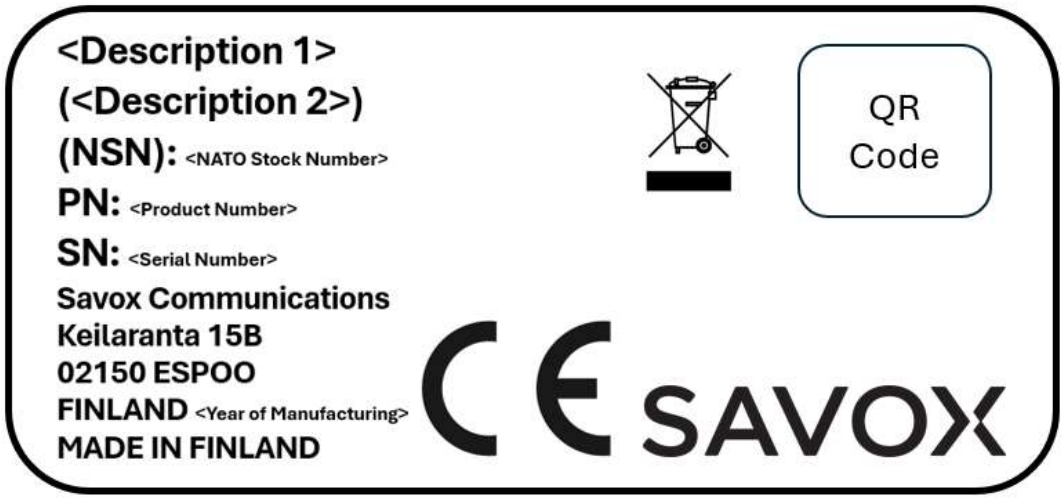
WIRELESS INTERFACE MODULE (WIM)

Provides base station for ten concurrent wireless TRICS T10 users who can access to IMP System's intercom or radio channel simultaneously.

Software Tools:	
Remote Upgrade Tool:	**Remote Configuration Tool:**
Allows the Field Upgrade of individual Universal Modules and/or Systems, maintaining all operational parameters. *Windows or Linux Based.*	Allows the configuration of Systems including User Access and Radio Ports. Assists in Training and Fault Finding. Allows the saving and loading of System Parameters to and from File. *Windows or Linux Based.*

3. MODULE IDENTIFICATION TYPE PLATE

The Module Identification Type Plate is attached as a sticker on all modules delivered with the IMP C4I system.



Description 1: Module Abbreviation, Type, and Version Number
(Description 2): Additional Module Details
(NSN): Module NATO Stock Number
PN: Module Part Number
SN: Module Serial Number
QR Code
Compliance
Contact Information
Year of Manufacturing
Country of Origin

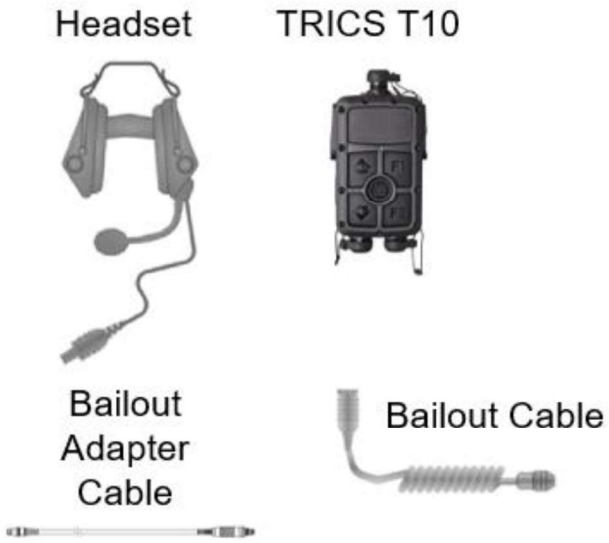
NOTE: THE CONTENTS OF THE TYPE PLATE AND THE LAYOUT MIGHT DIFFER SLIGHTLY DEPENDING ON THE DELIVERY AND THE TYPE OF MODULE.

4. BASIC USER EQUIPMENT

4.1. Fixed Communications Unit (FCU)
(Fixed unit: Mounted on a bulkhead or similar surface)

4.2. Personal Communications Unit (PCU)
(Wearable unit: Attached to clothing with an adjustable clip)

4.3. TRICS T10
(Wearable, battery powered unit: Can be used as wired or wirelessly via WIM)



5. AUDIO PROMPTS

5.1. System Audio Prompts

The IMP system provides several audio prompts to inform the user of the following:

- The operational status of the system when switching on or when connecting a PCU or when switching on an FCU or an SCU.
- Notification of Menu Selection when the user is changing functions.
- Notification of a fault within the system (BIT).
- Warning Tones and Prompts when items selected are not available or have been restricted in system setup.

5.2. Operational Status of the System

When the system is powered up, and either PCUs, FCUs, SCUs are connected to Headsets, the user will hear one of the following:

- **'System Operational'** tells the users that the module they are connected to can see all the other modules that are on the system. This not only proves modules are working, but it also checks the Ethernet paths between modules.
- **'IP Failure'** tells the user that one or more modules have not been seen by the local module they are connected to. Indicates that the system may have a problem, and the condition of the module (its serial number announced) should be checked.
  This status message will also occur when a module is not detected during the power up cycle.
- **'Cable Break'** tells the user that one or more Ethernet Highway cables have failed. Check the condition of the cables announced (device serial numbers either side of the cable break announced).

NOTE: UNPLUGGING AND PLUGGING IN AGAIN WITH A PCU (OR SWITCHING AN FCU OFF AND ON AGAIN) WILL ALLOW THE USER TO HEAR A REPEAT OF ANY ERROR MESSAGES.

5.3. User Menu Voice Prompts

IMP provides the user with voice prompted guidance when selecting or changing functions on their PCU, FCU, or SCU. The menu structure and prompts are introduced under sections 6 and 7.

5.4. Notification of Fault Conditions (BIT)

The Built-In-Test (BIT) runs continuously in the background and checks system configuration on power up or after power failure. The BIT provides information to users by continually monitoring UIP and URP Modules:

- Failure of a Module (**'IP failure unit 'xxxx'**) where **'xxxx'** is the Device Serial Number.
- Failure of an Ethernet Highway cable (**'Cable Break between 'xxxx' and 'yyyy'**) where **'xxxx'** and 'yyyy' are the Device Serial Numbers either side of the cable break.

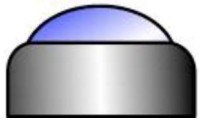
5.5. Warning Tones and Announcements.

Several Warning Tones are provided within the IMP system to help the user and make operation clear and simple:

- **Constant Tone:** The selected item is not available, or in the case of Radio Silence, circumstances prevent its use.
- **Intermittent Tone**: Provided when the user tries to access the intercom when it is switched to monitor only.
- **Announcements:** When Breaking Radio Silence or selecting Priority (to talk to all users on the intercom regardless of channel or use of radios) announcements warn the user of the intended action as it is selected.
  - **'Break In'** when breaking radio silence.
  - 'Audio Priority' when selecting override to break into all intercom users.

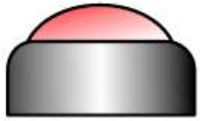
6. USER CONTROLS

Both the PCU and FCU provide the user with 3 x PTT buttons and a Menu button. The FCU also has an additional On/Off button. The functions of the buttons are as follows:



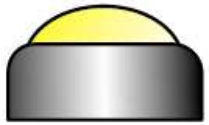
6.1. Blue PTT

The Blue PTT provides access to the Intercom. Changing access from Blue PTT to VOX is done in the Main Menu '**Intercom Access**'.



6.2. Red PTT

The Red PTT is normally used to access the Primary Radio. Access Setting are changed in the Main Menu under '**Red PTT**'.



6.3. Yellow PTT

This is the quick-change PTT. By pressing the menu button, the allocation of Radio to the Yellow PTT can be quickly changed.

6.4. FCU On/Off Button

The black button switches the FCU On and Off. This allows the FCU to be switched Off when not in use.

6.5 Menu Button

The Menu Button provides several key functions. See section 7.

7. MENU BUTTON FUNCTIONS

7.1. Turning the button

Turning the Menu Button has several functions. In normal operational mode, it is a volume control. In the Main Menu, it moves the user between the Main Menu Options.

7.2. Pressing the button

Pressing the Menu Button in normal operational mode changes the Radio Allocation to the Yellow PTT. When in the Main Menu, it steps the user through the options available for selection. Releasing the Button, during any selection process, selects the option.

7.3. Pressing and holding the button for 3 seconds

Pressing the Menu Button and holding it down for 3 seconds puts the user into the Main Menu. A voice prompt '**Intercom Access**' will be heard after the 3 seconds. This is the first Main Menu Option and pressing the Button will allow quick selection of VOX or Blue PTT.

8. MAIN MENU

8.1. Accessing the Main Menu

The Main Menu is accessed by holding down the Menu Button for 3 seconds. At this point the user will hear the voice prompt announce **'Intercom Access'**. Intercom Access is the first Main Menu option available to the user and has been placed in this position to allow the user to quickly change between Blue PTT and VOX for accessing the Intercom

NOTE: ENTRY POINT MAY VARY WITH SYSTEM CONFIGURATION

To access any of the other Main Menu options, rotate the Menu Button either clockwise or anticlockwise. The options are cyclic and continually turning the Button will go around the Menu structure.

Selecting a function under the Main Menu options is done by pressing the Menu Button to step through the available functions.

8.2. Main Menu Options Available

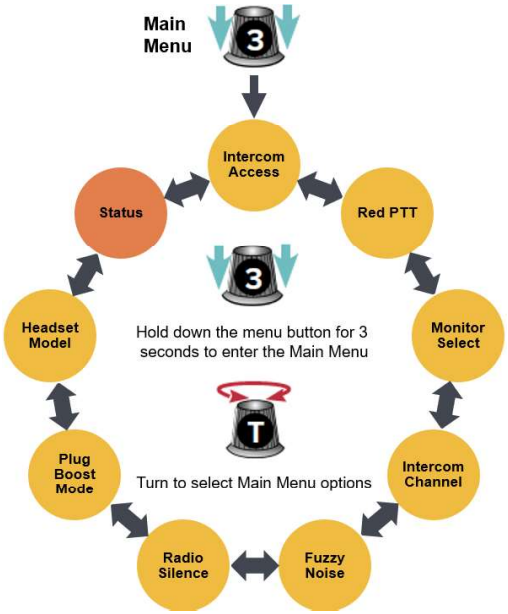
Main Menu Options available to the user may differ from those shown in the diagram as Menus can be hidden or restricted via configuration.

- **Intercom Access:** Intercom Access controls how the user accesses the Intercom. Main options are VOX, Blue PTT, Monitor and Off.
- **Red PTT:** Red PTT allocates one of the radios (available to the user) to the Red PTT. Allocation is done via the alphabet and current possibilities range from Alpha to November (depending on the configuration).
- **Monitor Select:** Monitor select allows a user to select a radio to monitor in addition to the two allocated to the Red and Yellow PTTs. Select All is also an option that allows a user to monitor all the radios they have been allocated when the system was configured.
- **Intercom Channel:** There are 3 intercom channels available to help split the workload on a system (like having different radio nets). Channels can be selected via this menu.
- **Fuzzy Noise:** Fuzzy Noise puts a confidence 'white noise' on the system to let the users know it is working.
- **Radio Silence:** Radio Silence prevents users unintentionally transmitting over any radio. They can still receive and monitor as normal.
- **Plug Boost Mode:** Plug Boost Mode allows higher volume when the user is wearing earplugs under their headset.
- **Headset Model:** Allows users to select the specific headset model they are using from predefined options in the configuration. Ensures that the IMP optimizes audio settings and performance based on the selected headset for clear and effective communication.
- **Status:** Status allows a user to go through all the settings for their PCU or FCU, so they know how the unit is configured. This is done via voice prompts in the user headset.

8.3. Exiting the Main Menu

To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.

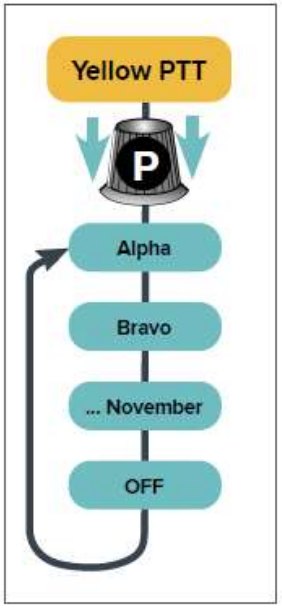
When going through the functions under the Main Menu options, pause on a function to select it. To Exit without selecting, turn the Menu Button to move to the next Main Menu option and wait 2 seconds.



9. USER CONTROLS AND MENU FUNCTIONS

9.1. Yellow PTT

The Yellow PTT is the 'Quick Change PTT'.



The function is provided to allow a user to move between different radios quickly and simply by pressing the Menu Button.

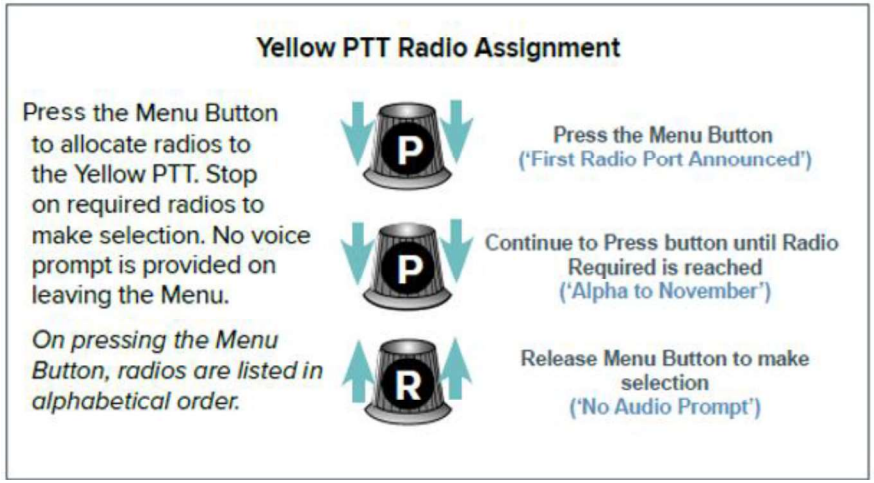
To change the Radio allocated to the Yellow PTT press the Menu Button to step through the radios assigned to the user. To select a particular radio, for example Bravo, press the Menu Button until a voice prompt will be heard saying **'Bravo'.** Pausing on the selection required makes the selection and the Radio is then allocated to the Yellow PTT.

The Yellow PTT has a special relationship with Monitored Radios. If a monitored radio is selected, then the Yellow PTT original radio will automatically swap position with the Monitored radio. This means that communications will not be dropped from the original radio allocated to the Yellow PTT. If the user, after making a call, goes back to the original setting on Yellow PTT it will again swap with the Monitored Radio so that no communications are dropped. See section 9.4. for further information.

All IMP Menus are cyclic. If a required radio is passed when pressing the Meu Button, keep pressing and it will go around the selection again.

9.2. Yellow PTT Selection Process

The following figure shows the procedure for changing radio allocation to the Yellow PTT:



9.3. Volume Control

To change the volume in the headset simply turn the Menu Button clockwise to increase and anticlockwise to decrease volume. Turning the Button is accompanied by a falling or rising tone to inform of the change.

9.4. Automatic Swapping of Yellow PTT and Monitor

The Yellow PTT has a special relationship with Monitored Radios. If a monitored radio is selected, then the Yellow PTT original radio will automatically swap position with the Monitored radio. The table below shows how the manual user change of the Yellow PTT radio assignment causes automatic adjustments to the monitored radio, ensuring that the user does not lose access to important communications from the monitored radios at any point.

		Yellow PTT	Monitored Radios	Action
1	Alpha	Bravo	Charlie	Change Yellow PTT to Charlie
2	Alpha	Charlie	Bravo	Bravo and Charlie swap location automatically
3	Alpha	Bravo	Charlie	Change Yellow PTT to Delta
4	Alpha	Delta	Charlie	Bravo radio is dropped

1. The user assigns Yellow PTT to Charlie (the monitored radio), causing Bravo to be swapped to be monitored
2. Radio assignments after the automatic swap has occurred.
3. The user assigns Yellow PTT to Delta causing Bravo to be dropped and Charlie to remain as the monitored radio
4. Radio assignments after the user changed their Yellow PTT to Delta

9.5. Main Menu Selection Process

Practice with the Menus will familiarize the user with the System and allow them to move through the Menus changing functions simply and easily.

All options in the Main Menu and lower levels are Voice Prompted to guide the user through the selection process without error.

How to access and select functions in the Main Menu:

Hold rotary switch down for 3 sections (‘Menu Announced’)

Turn the Rotary Switch to select other Top-Level Menus (‘Menu Announced’)

Press to step through the available Menu Options (‘Option Announced’)

Release the Menu Button and wait to make selection (‘Back to intercom’)

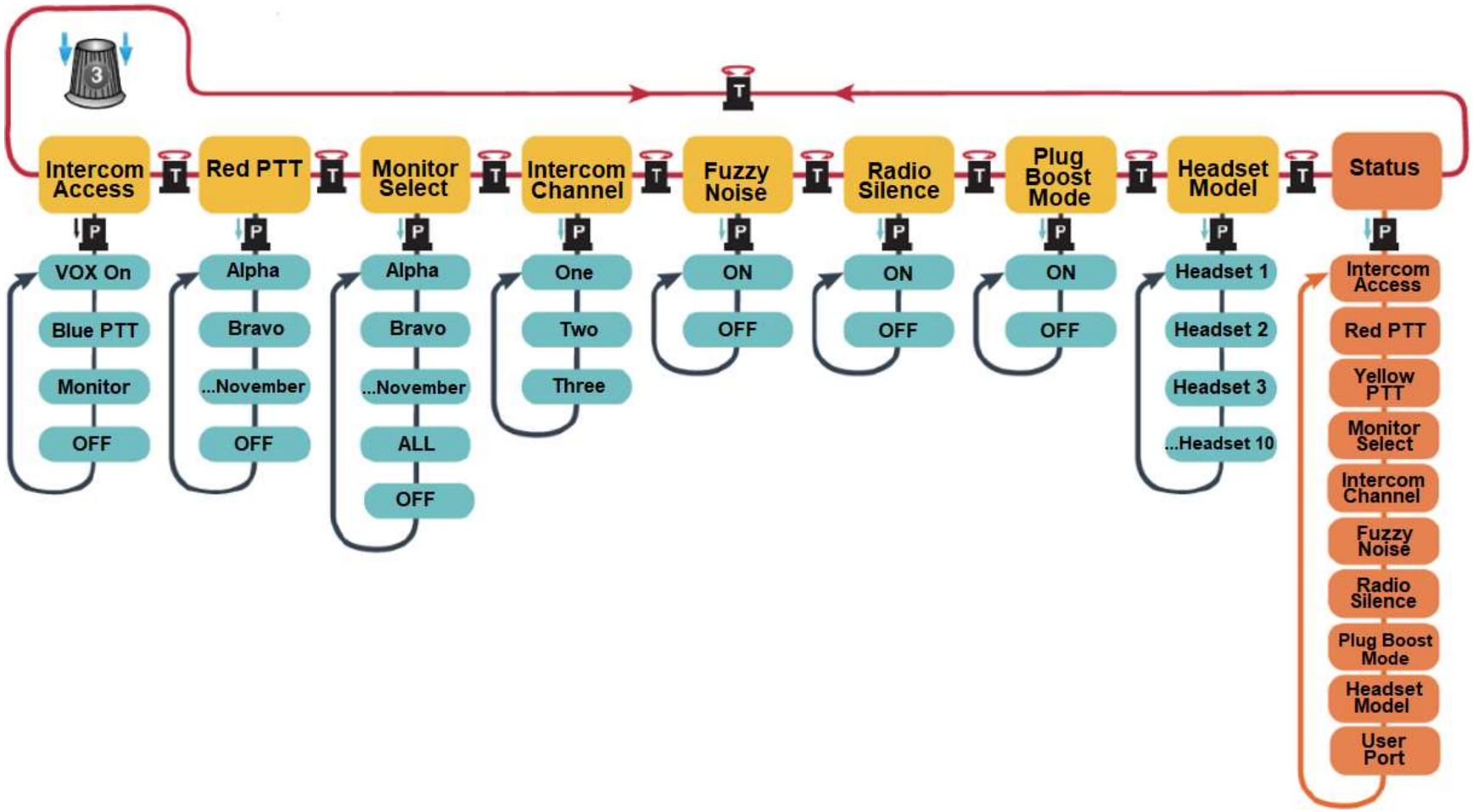
After holding the Rotary Switch down for 3 seconds, ‘Intercom Access’ will normally be heard. This is the Entry Menu and Allows Quick Change from VOX to Blue PTT.

Pausing anywhere in the Menu for 2 seconds will return the user to Intercom Mode.

9.6. Storage of User Settings

Settings for users are stored in the Module (UIP or URP) they are connected to. They are not stored in the PCU or FCU. When a PCU is plugged into a position, it takes on the setting previously set at that position.

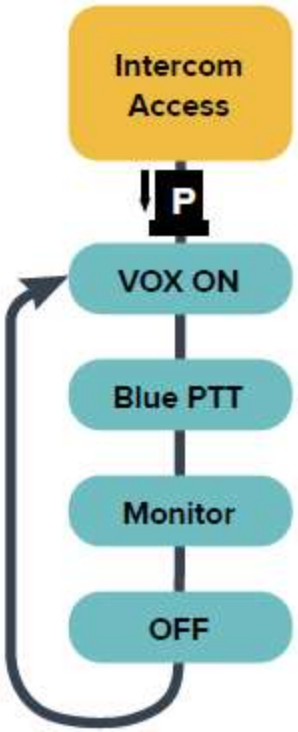
10. MAIN MENU SELECTION AND STRUCTURE



NOTE: THE MENU OPTIONS SHOWN MAY NOT ALL BE AVAILABLE TO THE USER. DEPENDING ON SYSTEM CONFIGURATION, THE ENTRY POINT MAY ALSO VARY.

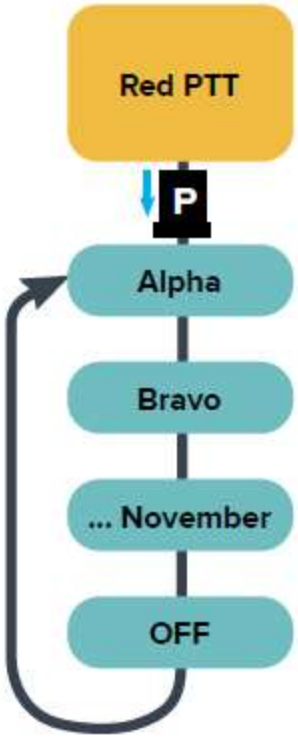
11. SELECTING MENU FUNCTIONS

11.1. Intercom Access

Intercom Access	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. **'INTERCOM ACCESS'** will be announced. Intercom Access is normally the entry point to the Menu System as it is the most used function. Intercom Access allows the user to change the access method to the Intercom. Press the Menu Button to step through the options.	Intercom Access
		VOX (Voice Operated Switch) Provides hands free operation of the headset microphone and utilizes a noise tracking algorithm to minimize noise breaking the VOX. To select, pause on the function and wait until the system exits back to intercom.	VOX On
		Blue PTT provides user access to the intercom via the Blue PTT. VOX is switched off. To select, pause on the function and wait until the system exits back to intercom.	Blue PTT
		Monitor is selected when a user wishes to just listen to the intercom. No transmission is permitted. If the user attempts to transmit an intermittent tone will be heard as a warning. To select, pause on the function and wait until the system exits back to intercom.	Monitor
		Off prevents the user transmitting or receiving on the intercom. If the user attempts to transmit then a constant tone is heard as a warning. To select, pause on the function and wait until the system exits back to Intercom.	Off
		To Exit the Menu, select a function and pause on it. To Exit without selecting, turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

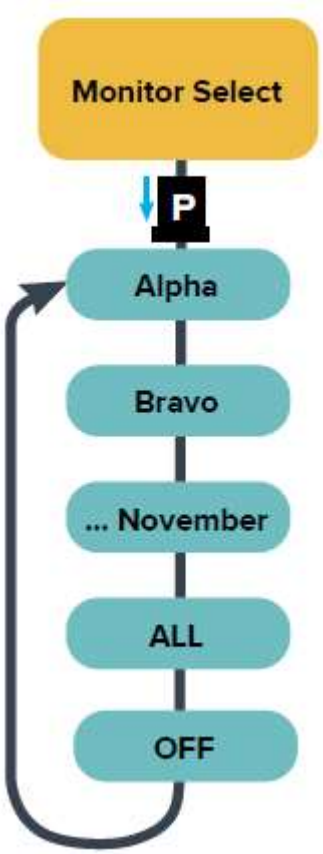
NOTE: MENU ITEMS MAY BE HIDDEN OR RESTRICTED DEPENDING ON THE CONFIGURATION.

11.2. Red PTT

Red PTT	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'RED PTT'** is announced. Red PTT allows a user to assign a radio to the Red PTT.	Red PTT
		Each press of the Menu Button will step through the available Radios that can be allocated to the Red PTT. Each radio is announced to the user as a letter (Alpha to November) associated with the port the radio is connected to. To select, pause on the appropriate option and wait until the system exits back to Intercom. *NOTE: NOT ALL THE RADIOS WILL BE AVAILABLE TO THE USER THROUGH CONFIGURATION AND TAILORING OF THE SYSTEM. TO MEET OPERATIONAL REQUIREMENTS. INDIVIDUAL CHOICES CAN BE REMOVED OR THE WHOLE MENU DENIED TO THE USER.*	Alpha to November
		If not required, the Red PTT can be switched off. No radio will be allocated to the Red PTT, and if pressed a constant alarm tone will be heard as a warning to the user. To select, pause on the function and wait until the system exits back to Intercom.	OFF
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

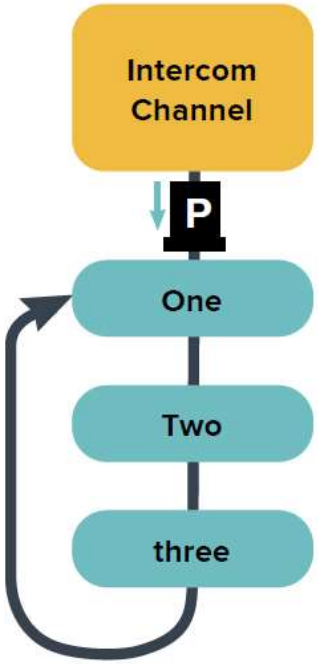
NOTE: MENU ITEMS MAY BE HIDDEN OR RESTRICTED DEPENDING ON THE CONFIGURATION.

11.3. Monitor Select

Monitor Select	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'MONITOR SELECT'** is announced. Monitor Select allows the user to select individual Radios to Monitor in addition to working Radios on the Red and Yellow PTTs.	Monitor Select
		Each press of the Menu Button will step through the available radios that can be monitored. Each Radio is announced to the user as a letter (Alpha to November) associated with the port the radio is connected to. To select, pause on the appropriate option and wait until the system exits back to intercom. This allows the user to monitor a single radio from those allocated.	Alpha to November
		This allows the user to monitor all the radios allocated to their position. If there is simultaneous traffic on multiple radios at the same time, the IMP system will mix the audios together. To select, pause on the function and wait until the system exits back to intercom.	All
		Off prevents the monitoring of Radios. The Red and Yellow PTT working radios are not affected by this setting. To select, pause on the function and wait until the system exits back to Intercom	Off
		To Exit the Menu, select a function and pause on it. To Exit without selecting, turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

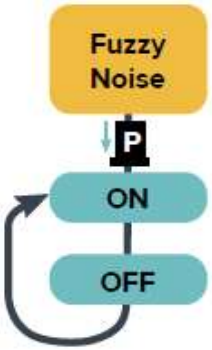
NOTE: MENU ITEMS MAY BE HIDDEN OR RESTRICTED DEPENDING ON THE CONFIGURATION.

11.4. Intercom Channel

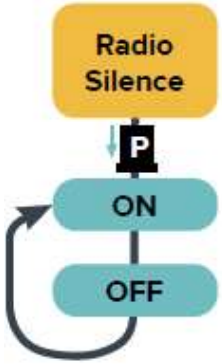
Intercom Channel	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'INTERCOM CHANNEL'** is announced. Intercom Channel allows users of the intercom to be split across 3 separate audio channels to help loading or to split operational functions.	Intercom Channel
		Each press on the Menu Button will step through the available Intercom Channels (1 to 3). Radio Selection across the Intercom channels is universal. A user on Radio Alpha on Intercom Channel 1 will be heard, when using the radio, by a user on Intercom Channel 3 who has selected the same radio. Intercom users on different Intercom Channels are completely separated and cannot hear each other. To select, pause on the appropriate option and wait until the system exits back to Intercom. *NOTE: AUDIO PRIORITY IS AVAILABLE TO TALK ACROSS ALL INTERCOM CHANNELS.*	One to Three
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

NOTE: MENU ITEMS MAY BE HIDDEN OR RESTRICTED DEPENDING ON THE CONFIGURATION.

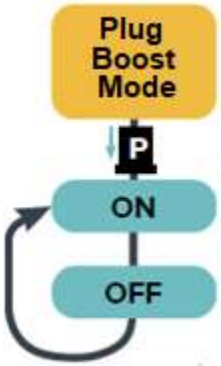
11.5. Fuzzy Noise

Fuzzy Noise	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'FUZZY NOISE'** is announced. Fuzzy Noise adds artificial white noise to the audio system, so users are aware the system is working. Without it, when there is no audio traffic, headsets are silent.	Fuzzy Noise
		Fuzzy Noise can be switched On or Off. To select, pause on the function and wait until the system exits back to Intercom.	On or Off
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

11.6. Radio Silence

Radio Silence	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'RADIO SILENCE'** is announced. Radio Silence prevents any radio on the system transmitting if the Red or Yellow PTTS are pressed. All radios can still be monitored by the users. A 'Break In' facility is available for Breaking Radio Silence.	Radio Silence
		Radio Silence can be switched On or Off. To select, pause on the function and wait until the system exits back to Intercom. Setting Radio Silence to On or Off affects every user on the system.	On or Off
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

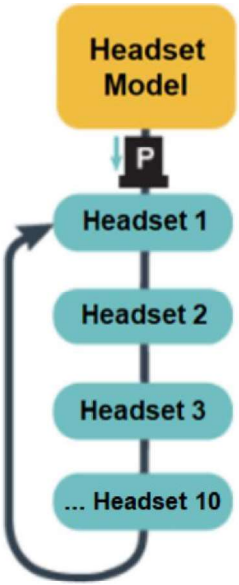
11.7. Plug Boost Mode

Plug Boost Mode	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'PLUG BOOST MODE'** is announced. Plug Boost Mode allows higher volume when the user is wearing earplugs under their headset.	Plug Boost Mode
		Plug Boost mode can be switched On or Off. To select, pause on the function and wait until the system exits back to Intercom. If the user selects the Plug boost mode ON, the volume mask is extended to allow a higher setting and simultaneously volume is increased by three steps (eg 9dB). Volume mask minimum level is also increased by the same amount.	On or off
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

NOTE: THE PLUG BOOST MODE RESETS TO **OFF** WHEN A HEADSET IS REMOVED FROM A PCU OR AN FCU. IT WILL ALSO RESET TO **OFF** WHEN A UIP/URP DEVICE IS POWERED ON.

THE PLUG BOOST MODE IS ONLY AVAILABLE FOR SELECTED HEADSET TYPES.

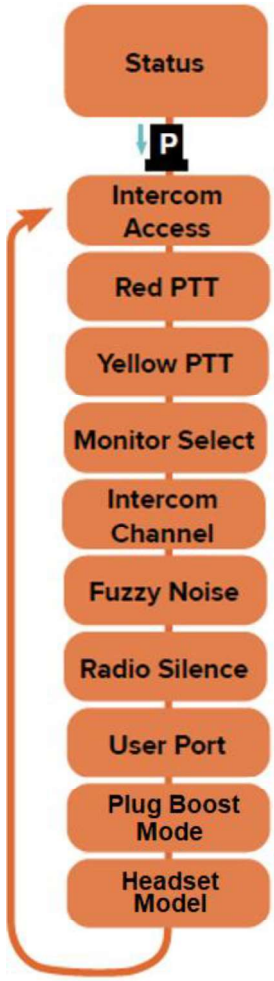
11.8. Headset Model

Headset Model	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'HEADSET MODEL'** (Configured Headset Model / Type Name) is announced. NOTE: IT'S UP TO THE USER TO SELECT THE APPROPRIATE HEADSET MODEL TO ENSURE SAFE VOLUME LEVELS	Headset Model
		Each press on the Menu Button will step through the available Headset Models. Allows users to select the specific headset model they are using from predefined options in the configuration. Ensures that the IMP optimizes audio settings and performance based on the selected headset for clear and effective communication. To select, pause on the appropriate option and wait until the system exits back to Intercom.	Headset Model Name
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option selected. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

NOTE: THE HEADSET MODELS AVAILABLE FOR SELECTION ARE UNIQUELY CONFIGURED DEPENDING ON EACH DELIVERED SYSTEM.

NOTE: THIS SETTING WILL RESET TO A DEFAULT HEADSET WHEN THE SYSTEM IS POWERED UP, AN FCU OR PCU IS CONNECTED TO THE SYSTEM, OR WHEN A USER CONNECTS THEIR HEADSET TO THE SYSTEM. DEFAULT HEADSET CAN BE CONFIGURED FOR EACH USER PORT SEPARATELY VIA THE RCT.

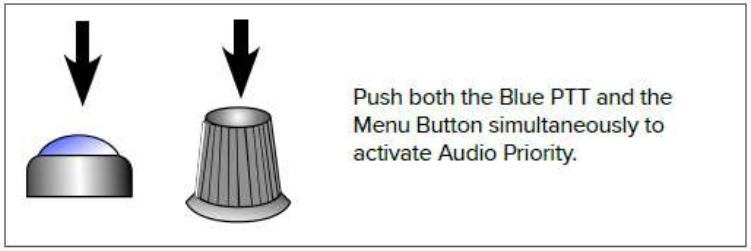
11.9. Status

Status	Action	Function	Voice Prompt
		Enter the Main Menu by holding down the Menu Button for 3 seconds. Turn the Menu Button until **'STATUS'** is announced. Status allows the user to hear their current setting of the PCU/FCU/SCU.	Status
		Each press of the Menu Button will step through the available settings. To listen to each setting, pause on the setting and wait for it to be announced. To move on, press the Menu Button again. To Exit, pause on the function and wait until the system exits back to Intercom.	Main Menu option and (after a short pause) current setting
		To Exit the Menu, select a function and pause on it. To Exit without selecting turn the Menu Button and the voice prompt will announce the next Main Menu option. To Exit the Main Menu, pause for 2 seconds without turning or pressing the Menu Button.	Back to Intercom

12. SPECIAL FUNCTIONS

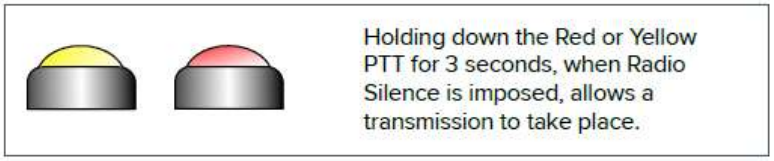
12.1. Audio Priority

Audio Priority allows the user to speak to all users on the system even if they are on another intercom channel or talking on an external radio. It is achieved by pressing the Blue PTT, and at the same time, holding down the Menu Button until **'AUDIO PRIORITY'** is announced in the headset. At this point the Menu Button can be released and continuing to hold down the Blue PTT allows the user to speak across the intercom channels and to radio users.



12.2. Radio Silence: Break-in

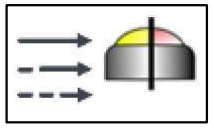
When on Radio Silence an emergency call (Break Radio Silence) can be carried out by holding down any of the related PTT for 3 Seconds. After 3 seconds an announcement **'BREAK IN'** is heard before the radio selected goes to transmit. After the transmission Radio Silence is re-imposed automatically.



12.3. Talk Simultaneously to Two Radio Channels

There are two methods to talk simultaneously to two different radio channels. One is using a single radio with support of Dual-PTT feature and the second one uses two separate radios without the need to support Dual-PTT mode.

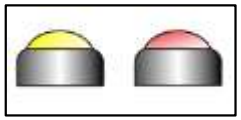
Using one radio, supporting Dual-PTT



Assuming Red (or Yellow) PTT is configured to Radio Alpha and Dual-PTT Mode via RCT:

1. Single press and hold Red (or Yellow) PTT to talk to Radio Alpha's first channel only (PTT1).
2. Double press and hold Red (or Yellow) PTT to talk to Radio Alpha's second channel only (PTT2).
3. Triple press and hold Red (or Yellow) PTT to talk to Radio Alpha's both channels simultaneously (PTT1 & PTT2).

Using two radios, no need for Dual-PTT support



Assuming Red PTT is configured to Radio Alpha and Yellow PTT is configured to Radio Bravo via RCT:

1. Press and hold Red PTT to talk to Radio Alpha.
2. Press and hold Yellow PTT to talk to Radio Bravo.
3. Press and hold Red and Yellow PTT to simultaneously talk to Radio Alpha and Radio Bravo.

12.3.1. Talk to Three Radio Channels

It is also possible to combine these two methods to talk to three radio channels simultaneously. The first radio is required to support Dual-PTT:

1. Start with the radio supporting Dual-PTT and triple press to open both Radio Alpha's channels.
2. Press and hold both second radio's PTTs.

Talk is now transmitted to three radio channels simultaneously.

NOTE: TALK TO FOUR RADIO CHANNELS SIMULTANEOUSLY IS NOT SUPPORTED.

12.4. Intercom Channel 1 Special Function: Radio Port Integration

Configuration via the RCT software allows you to link Intercom Channel 1 directly to a radio port enabling clear, two-way communication between the intercom system and the configured radio. This integration allows team members on Intercom Channel 1 to communicate directly with radio users and vice versa, without needing to switch channels or devices.

13. REMOTE PTT AND CABLES

Remote PTTS:
A remote PTT, with two buttons can be attached to FCUs in the system.

The remote PTT dual button unit can be configured in any combination of the Red, Yellow and Blue PTTs as required by the user.

Cables:
The following are the main cables used in an IMP System:

- **Highway Cable:** Interconnects Modules and carries Data and System/ANR power.
- **User Extension Cable:** Connects the User Equipment (PCU, FCU, or the SCU) to the User Port of the UIP and URP. Carries Data and System/ANR Power.
- **Bailout Cables:** There are two Bailout Cables:
    - PCU Bailout Cable (carries User Data and Power).
    - FCU Bailout Cable (carries Audio and Power).
- **Radio Cable:** Connects audio signals from the URP Radio Ports to the attached Radio via an Isolation Unit.
- **Power Cable:** DC Power Cable that connects to the Universal Power Port.
- Miscellaneous Cables: Cables used for other purposes are normally based on the standard User Cable or Radio Cable construction.

14. USER MAINTENANCE

IMP is a relatively simple system to maintain, with no technical adjustments required by the user.

User Maintenance consists of several simple, but important, processes to ensure a long and trouble-free in-service life. Unless a fault occurs, and technical assistance is required, all routine maintenance is a user function and consists of the following:

- Pre-deployment
- Deployment
- Post-deployment
- Monthly

14.1. Pre-Deployment Check

Serial	Task
PR1	Cables should be checked for any physical or environmental damage. Damaged cables should be replaced prior to deployment. Check panel mounted connection sockets used for PCU connection. Ensure they are clean, and the cover is intact.
PR2	PCUs and FCUs should be checked for any physical or environmental damage, especially plugs, sockets and the Menu Button. Check the Menu Button rotates and presses down correctly with a slight ‘click’. Any damaged or faulty units should be replaced prior to deployment.
PR3	Headsets should be checked for any physical or environmental damage. After use, they should be cleaned and dried. Any damaged headsets should be replaced prior to deployment. If applicable, check windsocks for damage and replace if necessary.
PR4	Connect all PCUs, switch on all FCUs and connect their associated cables and headsets. Power on the

	system and ensure that 'System Operational' is reported on each headset. This message can be listened to again by unplugging a PCU and plugging it back in again or switching off an FCU and switching it back on again (pause in the unplugged or off position for 5 seconds). If any unit produces any error message in the headset, this must be rectified prior to deployment. Check intercom between users and, possible check all radio access to connected radios. Any failure to communicate on the intercom or to radios needs to be rectified prior to deployment.

14.2. Deployment

During deployment and use of IMP, there are no specific checks or maintenance to carry out, however, proper equipment care is necessary to minimize the possibility of inadvertent damage to PCUs, cables and headsets. The following is provided as a 'good practice' guide:

Serial	Task
D1	If a user leaves their position and removes the PCU OR FCU headset then items should be clipped to a stowage clip and the headset hooked around the PCU or placed in its stowage position, if provided. This is to prevent accidental damage, which could occur if the units are left on the deck of the platform.
D2	If the user leaves their position and the PCU and headset are disconnected from the Bailout cable, then the Bailout cable should be stowed correctly to prevent accidental damage, which could occur if left on the floor of the platform. In a marine environment, caps must always be placed on sockets and Bailout Cables when not mated to prevent the ingress of salt water.
D3	As a 'good rule', the PCU and Bailout Cable should always be mated as this provides IP67 sealing and prevents both salt and physical damage to the conducting elements of the connectors.
D4	Any issues or faults found during operations should be noted and reported as soon as possible for rectification.

14.3. Post-Deployment

Serial	Task
PD1	The Bailout cables should be checked for damage. Ensure they are clean, dry, and free from salt contamination. Wash in clean water, if necessary, and dry.
PD2	Check the PCU and FCU for any damage, especially plugs, sockets and any Bulkhead/Console Connection points. Remove the PCU and Bailout Cables from the platform or store them safely to avoid damage. In a marine environment prevent exposure to the elements when not in use. Remove all water and salt contamination from the PCU/FCU with a damp cloth, especially round the base of the menu button. There are only four areas to be maintained on the PCU/FCU: • The Cable Connectors • The Rotary Menu Button • The Body of the PCU/FCU • Bulkhead/console sockets for connecting the PCU to the system
PD3	The SCU should be treated in same way as the PCU/FCU for cleaning and maintenance.
PD4	Check all Headsets for any damage. In harsh environment remove the headsets for cleaning. If applicable, remove ear cups and internal pads and wipe ear cups with a damp cloth. Wash the pads and the inside of the headset in fresh

	water to remove dirt and any salt buildup. Allow to dry before re-assembly.
PD5	Report any system issues that occurred during deployment.
PD6	It is important to ensure the platform equipment is looked after correctly.

14.4. Monthly Maintenance

Serial	Task
M1	A full Pre-deployment system inspection and test, in accordance with PR1 to PR4. Any faults should be rectified or reported to the appropriate body for rectification.
M2	**Check Wiring and Connectors.** Ensure all cables and connectors are clean and dry within the installation (internal and external). IMP system cables and connectors should be visually checked for any form of physical or environmental damage. Any damage to cables or connectors must be rectified or reported to the appropriate body for rectification prior to deployment. This check also includes extension cables which connect user Bailout Cables to the IMP system.
M3	**Check Radio Cables for Damage.** Clean and dry all Radio Cables and connectors. Radio cables, isolators and connectors should be visually checked for any form of physical or environmental damage. In a marine environment, Inhibitor should then be applied to all mated connectors in accordance with task M5.
M4	**Earth Bonding:** Check of Earth Bonding and Mounting Nuts/ Bolts. Good earth bonding is important to the system to eliminate noise. IMP earth bonding is through the feet of each module on the system. This may have an Earth/Ground cable connected to it or may be bonded directly through the mounting bolt to the platform chassis. Ensure all bonding points are clean and tight. If a bonding point is loose, it will require undoing and cleaning prior to tightening to remove any contamination. In a marine environment, Inhibitor should then be applied to all joints after they are tightened according to the monthly maintenance task M5.
M5	**Application of Inhibitor on Marine Platforms:** Inhibitor should be applied to all cable joints where metal connectors are used. It is important to only apply inhibitor when the joints are mated, and they have been cleaned to remove any contamination. Inhibitor is an insulator and must not be put onto electrical contacts. Inhibitor can be applied with a soft, lint-free, cloth or, in the case with the SAVOX inhibitor, with the finger directly to the connectors. A reasonable amount of inhibitor should be used to ensure that connectors are fully coated. There is no penalty in applying too much inhibitor, if it does not enter contacts or earth connection points, screw threads on IMP connectors and bayonet joints on military radio connectors. SAVOX recommends 'Corrosion Block' as an inhibitor, a silicon free product.
M6	On marine platforms, if IMP components can be exposed to sea water, check that no sea water has leaked to the inside. In the long-term and the lack of ventilation, vapored salt water may cause corrosion.

15. ANCILLARY EQUIPMENT

15.1. Speaker Communications Unit (SCU)

Overview

The Speaker Communications Unit (SCU) is a fully waterproof and flexible module capable of providing amplified speech through its own internal speaker and an additional external speaker, if provided.

Incorporating the full control capability of a PCU/FCU, the SCU allows users to select individual or groups of radios (that are on the system) via the same Menu Button and Voice Prompted structure as provided in the PCU and FCU.

Controls

The SCU has the following Controls:

- **Menu Button**: The Menu Button has the exact same functions as that of the User Interfaces (PCU and FCU). However, in the case of the SCU it is normally inhibited in a number of functions such as Volume Control as this is used to set a maximum volume level for the platform.
- **Internal Volume Control**: This is used to set the volume level of the internal speaker.
- **External Volume Control**: This is used to set the volume level of the external speaker (if installed).
- **On/Off and Blue/Yellow PTTs**: This switches the unit On/Off and allocates the Blue or Yellow PTT lines to the external handset to enable a user to talk on the Intercom or a radio via the handset.

External Connections (Ports)

The SCU has the following external Ports:

- **DC Power Port**: 12/24V
- **User Data Port**: Connects the SCU to the IMP System
- **External Speaker Port**: Connects an external 8-ohm speaker to the amplifier of the SCU. The speaker repeats the audio played by the Internal Speaker.
- **Audio Ancillary**: The SCU is configured to accept external audio handsets, or similar devices, utilizing a GS329 plug. By selecting intercom (Blue Dot) or Radio (Yellow Dot), the user can speak on the intercom or on the associated radio.

15.2. Wireless Interface Module (WIM)

Overview

Wireless Interface Module (WIM) is base station for Wireless Team Communication Units (Savox TRICS T10) to extend Savox IMP System's intercom- and radio channels for dismounted users near the system.

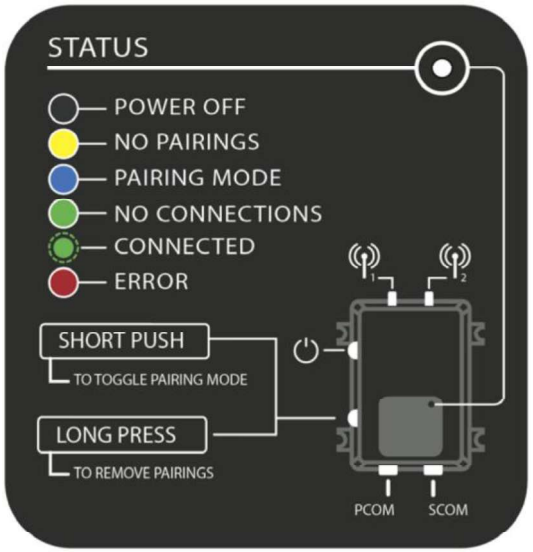
One WIM can hold total of 80 paired wireless units, while ten of them can be connected at the time. WIM shares one intercom channel and one radio channel to all connected wireless units while radio channel can be rapidly changed from the wireless units by radio channel change button. WIM allows simultaneously intercom and radio communication without affecting each other. Wireless user's access to IMP's radio channel can be granted separately. Savox IMP System can hold multiple Wireless Interface Modules.

Control and Status

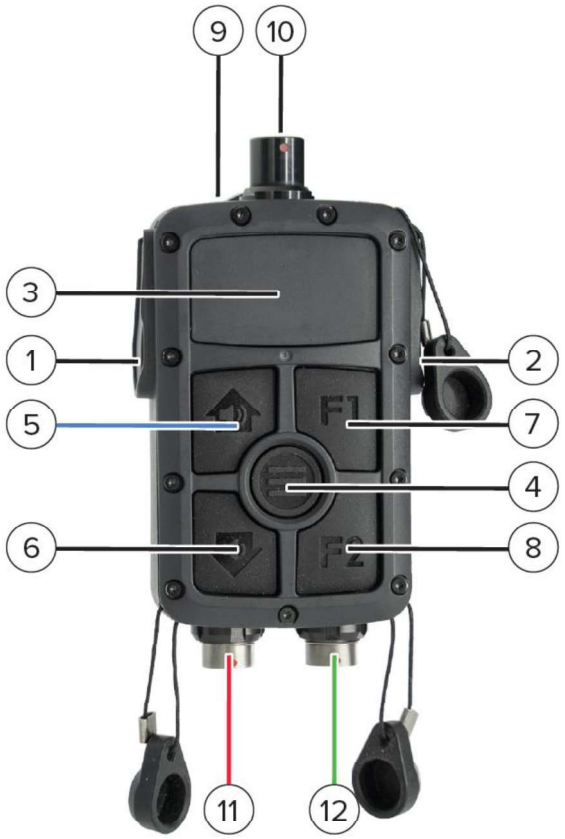
Wireless Interface Module has power switch to turn it ON and OFF. For operation, WIM has status LED and one operating button. Operating button allows to activate/deactivate pairing mode and clearing all the pairings. LED indicates status of WIM.

To activate pairing mode, press the operation button shortly and LED turns to BLUE to indicate pairing mode. Pairing mode is turned off automatically after 15 minutes or it can be deactivated by pressing the operating button shortly again. To clear all the pairings, press operating button and keep it pressed for 20 seconds.

WIM has instruction sticker with legends of status LED.



15.3. TRICS T10



Overview

TRICS T10 is a wearable, battery powered unit that can be used as wired or wirelessly via WIM. The TRICS T10 enables full duplex, low latency communication to IMP Intercom & Communication over radios connected to IMP Intercom System

Controls

No.	Description	Function 1	Function 2	Function 3
1	PTT1 (Red)	Primary radio		
2	PTT2 (Yellow)	Quick-change radio		
3	PTT3 (Blue)	Intercom PTT	Simplex / Duplex Control	
4	Menu button	Power On/Off	Menu: Enter / Select	
5	Scroll up button	Volume Up	Menu: Scroll	
6	Scroll down button	Volume Down	Menu: Scroll	
7	F1 button	Base Station Status Check	Base Station Change	Long Press Activates PTT for Radio 1
8	F2 button	Intercom Radio Select for PTT2	Base Station Change	Long Press Activates PTT for Radio 2
9	Led indicator			
10	Headset port			
11	COM port			
12	Intercom port			

LED Indicator

LED Color	Constantly lit	Blinking / Breathing
Green	Paired, No Wireless Connection	Paired, Wireless Connection
Red	Powering Off	Error Status
Blue	Pairing Mode	
Yellow	Unpaired	Charging

Operation

Wired Intercom Use:

1. Power On by pressing the Menu button for 3s.
2. Connect the Intercom cable. (Ready for communication).
3. Use the PTT3 button to activate microphone for Intercom. (Double clicking PTT3 toggles between simplex (Half-Duplex/PTT-mode) and duplex communication).
4. Use the F2 button to select a radio. This radio is available to talk when PTT 2 is pressed.
5. Use the F1-button to operate selected radio of IMP Intercom.
6. Use the PTT1 -button to operate Primary radio of IMP Intercom.

A wirelessly paired Trics T10 IMP can be connected via cable to the intercom and operation will be wired. If the wired connection is removed, Trics T10 IMP will automatically change to wireless operation.

NOTE: WIRELESS OPERATION MAY DIFFER FROM THE WIRED OPERATION, DEPENDING ON SETTINGS USED FOR WIRELESS PROFILE.

Wireless Intercom Use:

NOTE: BEFORE WIRELESS USE, TRICS T10 MUST BE PAIRED WITH THE WIRELESS INTERFACE MODULE (WIM) CONNECTED TO IMP.

When in wireless use, user cannot speak to the Primary Radio by pressing PTT1. Only Quick-Change radio is available in wireless use.

Pairing TRICS T10 with IMP

1. Set WIM to Pairing Mode with a short press of the operation button.
2. Enter “Activate pairing” in the Wireless section of Trics T10 IMP menu
3. Choose what base station slot is used for paired base station. User can choose between “auto” or numbered slots from 1 till 12.
    a. Auto: Device selects automatically next available slot
    b. 1-12: Assign base station to specific slot when paired.
4. Trics T10 IMP announces “Pairing successful, base station X connected” when wireless connection is established. LED changes from blue to green.
    a. User can switch between paired base stations (connects if in range) by pressing Activation button and then F1 or F2 to start scrolling trough saved base station slots.

If pairing time has run out and no pairing has happened pairing mode will automatically turn off and voice prompt “Pairing deactivated” is heard.

- Pairing mode also deactivates after timeout.

To turn off pairing mode manually, select “deactivate pairing” in the Wireless section of the menu.

To clear all paired base stations, select “clear pairing” in the Wireless section of the menu. User can choose to clear:

- All: Clear all pairings
- 1-12: Clear only selected pairing slot (only paired slots available)

Intercom Use

Both wireless and wired methods to join to IMP Intercom allows TRICS T10 to access one Intercom channel. IMP configuration defines which channel is used for wireless and wired.

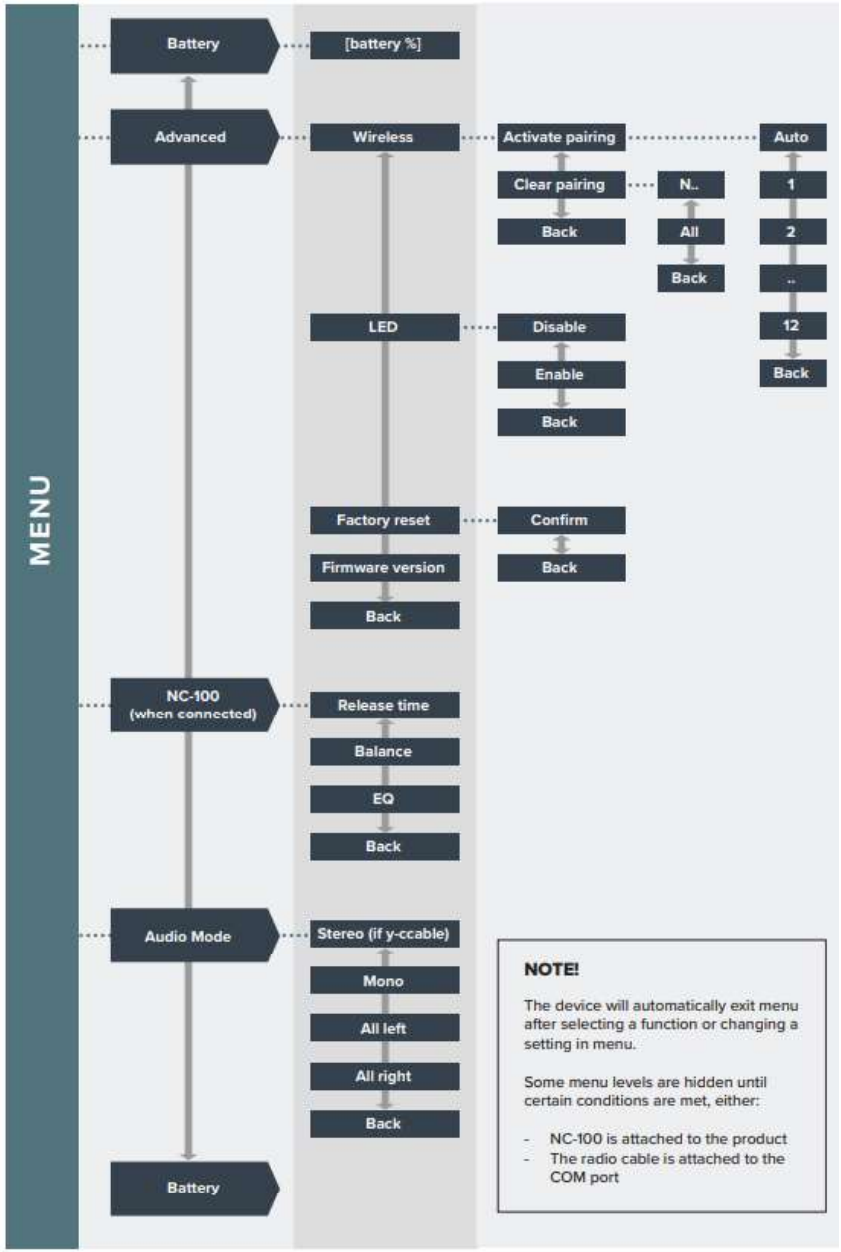
Basic principle of use of IMP radios is that users can monitor multiple radios, then select a one where to talk. This principle is also implemented on TRICS T10 for wireless and wired operation modes. IMP configuration defines privileges and available radios for each WIM which inherits same configuration for its wireless settings. In wired mode, configuration can be unique for each user position. IMP can have multiple WIMs for different wireless user groups.

Wireless Use

In Wireless mode, user can:

- Activate/deactivate wireless pairing mode.
- Auto: Device selects automatically next available slot.
- 1-12: Assign base station to specific slot when paired.
    - Only free slots available for selection.
- Pairing mode deactivates also after timeout if no new base stations are found.
    - Clear pairings All: Clear all pairings.
    - 1-12: Clear only selected pairing slot (only paired slots available).

TRICS T10 Menu



Radio Use

- IMP Intercom radio where to talk, can be selected with the F2.
- Each short press of F2 changes the radio (Alpha, Bravo, etc...). A voice prompt will be heard indicating the selected radio.
- IMP Intercom radio can be activated for talk by keeping PTT 2 pressed.
- IMP Intercom Primary Radio can be activated for talk by keeping PTT 1 pressed. Primary radio is defined through IMP Intercom settings.

Notes:

All TRICS T10s connected wirelessly to the same WIN share the same IMP configuration and privileges. For example, monitored radios are all the same and selected radio for talk is the same for all these users. IMP systems can have multiple WIMs for different wireless user groups.

When TRICS T10 is connected to IMP by cable, user position-based configuration is used, allowing more unique configurations and privileges.

Personal radios:

Use can activate PTTs of radios that are connected to TRICS T10 by long pressing “F1” or “F2”. If only one personal radio is connected to the device, user can activate radio PTT by pressing “F1” and if two radios are connected then “F1” controls one on the right side (from user point of view) and “F2” controls left one.

Battery

TRICS T10 has a replaceable 2600mAH, 3,65V rechargeable and replaceable battery. The battery is charged when connected to IMP via cable and the Intercom is powered on.

TRICS T10 is charged with a separate USB charging cable (K600730) connected to COM port.

Storage

Make sure the battery level is between 15-50% during longer storage time.

Battery status check

Double press Activation button. Battery level is announced in %.

MAINTENANCE

- Unit can be gently washed with a sponge with lukewarm water and diluted dish washing detergent. Dry carefully before use.
- Check the connector ports and cable connectors, remove any dirt
- Check dust caps (M005836) for damage and replace, if necessary, before operation. Always use dust caps for connectors which are not in use.
- Cables and connectors should be checked for damage. Ensure they are clean, dry and free from contamination. Wash in fresh water, if necessary, and dry before use. If the connector is hard to connect or has a bad connection, please use small amount of lubricant meant for electronics. Damaged cable or connector shall always be replaced.
- Do not sink the device in water or other liquid.
- Do not expose the device to high temperatures for long periods of time. High temperatures can shorten the lifetime of electronic devices, damage the battery and melt certain plastics.
- Do not expose the device to sharp objects as this can cause scratches and damage.
- Do not put anything inside the device as this may damage internal components.

- Do not dismantle the device as it does not contain serviceable parts. Disassembling the device may expose dangerous voltage levels or other hazards.
- Do not expose the device to low temperatures for long periods of time. After returning to normal temperatures, moisture can form inside the device and damage the electronic circuitry.
- Do not drop, knock or shake the device. Rough handling can break internal circuit boards and delicate mechanical parts.
- Do not use harsh chemicals, cleaning agents or strong detergents, when cleaning the device.
- Make sure the battery level is between 15-50% during longer storage time (more than 3 months)
- Please contact Your distributor or savox@savox.com if your device need repairing.

Health and Safety Information

WARNING: Failure to follow these safety instructions could result in fire, electric shock or other injuries or damage to your device or other property. Read all safety information below before using this device.

Damage: The device is made of metal and plastics, which could break if it is dropped or if it receives significant impact. Do not use the device if the device's casing is broken or cracked as this could result in injury.

Responsible Listening: Damage to hearing occurs when a person is exposed to loud sounds over time. Hearing loss may increase as sound is played at louder volumes and for longer durations. Individual susceptibility to sound-inflicted hearing loss and hearing problems may vary. In addition, the volume of sound produced by this device may depend on the nature of the sound, the device to which it is connected, the device settings and other external factors. There is no single volume setting that is appropriate for you or for every combination of sound, setting and equipment. Please use your personal judgment and common sense when adjusting the volume of the device.

Modification

Any changes or modifications to this device not expressly approved in this document could void your warranty and void your authorization to operate this equipment. Use only approved batteries. The use of any unauthorized accessories may be dangerous and may void the device's warranty if said accessories cause damage or defect to the device.

RF Exposure Notice

This product emits radio frequency energy, but the radiated output power of this device is below FCC and IC radio frequency exposure limits. This equipment complies with FCC RF and IC radiation exposure limits forth for an uncontrolled environment. Nevertheless, the device should be used in such a manner that the potential for human contact with the antenna during normal operation is minimized.

15.4. WIM Regulatory Notices

US FCC

FCC ID: TUFWIM

This device complies with part 2 and 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 device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 2 and 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 is 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20cm between the radiator and your body.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user´s authority to operate the equipment.

Canada ISED

IC: 6574A-WIM

This Category I radio apparatus complies with Canadian RSS-102 and RSS-213.

Operation in 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.

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 chosen so that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Radiation Exposure Statement:

This device complies with ISED radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with greater than 20 cm between the radiator and your body.

CAN ICES-003(B)/NMB-003(B)

This radio transmitter 6574A-WIM 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:

Antenna	Antenna	Gain (dBi)
TRA6927M3NBN-001	TRA6927M3NWN-001	2.9
TRA6927M3PBN-001	TRA6927M3PWN-001	2.9
FTRA6971M6PBN-001	FRA6971M6PWN-001	2.9

Cet appareil radio de catégorie 1 est conforme aux norms canadiennes RSS-102 et RSS-213.

L´utilisation de ce dispositive est autorisée seulement aux conditions suivantes:

(1) il ne doit pas produire de brouillage et

(2) l´utilisateur du dispositive doit être prêt á accepter tout brouillage radioélectrique recu, mêmesi ce brouillage ist susceptible de compromettre le fonctionnement du disposotif.

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 radio électrique 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.

Déclaration d’exposition aux radiations:

Cet équipement est conforme aux limites d’exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20 cm entre le radiateur et votre corps.

CAN ICES-003(B)/NMB-003(B)

SAVOX

Cet émetteur radio 6574A-WIM a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antennes énumérés ci-dessous, avec le gain maximal autorisé indiqué. Les types d'antennes non inclus dans cette liste qui ont un gain supérieur au gain maximal indiqué pour tout type répertorié sont strictement interdits pour une utilisation avec cet appareil:

Antenna	Antenna	Gain (dBi)
TRA6927M3NBN-001	TRA6927M3NWN-001	2.9
TRA6927M3PBN-001	TRA6927M3PWN-001	2.9
FTRA6971M6PBN-001	FRA6971M6PWN-001	2.9