TELEX
RADIO DISPATCH PRODUCTS

Application Guide

Kenwood Viking VM5x30 Interface for IP-224

VOIProven

TELEX
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OpenSSL Project

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/). This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes cryptographic software written by Tim Hudson (tjh@cryptsoft.com).

Table of Contents

1.0 Introduction

The Kenwood Viking VM5x30 radio interface is designed as an add-on option in the Telex Radio Dispatch system. This application guide describes the Telex Radio Dispatch Kenwood Viking VM5x30 feature set and how to configure the interface for the IP-224 and C-Soft.

NOTE: For more information, see the IP-224 Technical Manuals (P/N F.01U.218.562), the C-Soft Software Console Administrator's Guide (P/N F.01U.218.561), and the radio manufacturer's technical documentation.

2.0 Hardware Requirements

- IP-224 Ethernet Adapter Panel (P/N F.01U.306.547)
- IP-224 Cable- Kenwood TK-X150/X180, 5X10, and NXDN radios (P/N F.01U.165.540)
- Kenwood Viking VM5x30 Radio

NOTE: See the IP-224 firmware release notes for the radio firmware revision tested.

3.0 Software Requirements

- C-Soft version 6.500 or later
- IP-224 version 2.500 or later
- IP-224 Advanced Interface Option (Export) or Advanced Interface Option (North American) Access Key)
- Telex System Manager (TSM) 2.500 or later
- Windows 7 (32-bit or 64-bit)
- Windows 8.1
- Windows 10
- Kenwood Armada Fleet Management Software
- EFJ 3rd Party Interface option for radio

4.0 Supported Features

Kenwood Viking VM5x30 Supported Features					
Feature	**Analog Support**	**Digital Support**	**Feature**	**Analog Support**	**Digital Support**
Channel/Talkgroup Change	Yes	Yes	GPS Read	No	No
Zone Change	No	No	GPS Trigger On/Off	No	No
Group Call	No	No	Monitor On/Off	Yes	Yes
Private Call	No	No	Radio Call Alert	No	No
ANI Decode	Yes	Yes	Radio Check	No	No
Call Alert Decode	No	No	Radio Select Call	No	No
Emergency Decode	Yes	Yes	Radio Remote Monitor	No	No
Status Message Decode	No	No	Radio Send Text Message	No	No
Text Message Decode	No	No	Radio Status (Send Status Message)	No	No
Query Encryption	Yes	Yes	Radio Status Request	No	No
Query Monitor	Yes	Yes	Scan Add/Delete	No	No
Query Scan	Yes	Yes	Scan On/Off	Yes	Yes
Query Talk Around	Yes	Yes	Talk Around On/Off	Yes	Yes
Emergency Acknowledgement	No	No			
Encryption On/Off	Yes	Yes			

5.0 Cable Diagram

The IP-224 Cable - Kenwood TK-X150/X180, 5X10, and NXDN radios allow the IP-224 to serially control a Kenwood Viking VM5x30 radio.

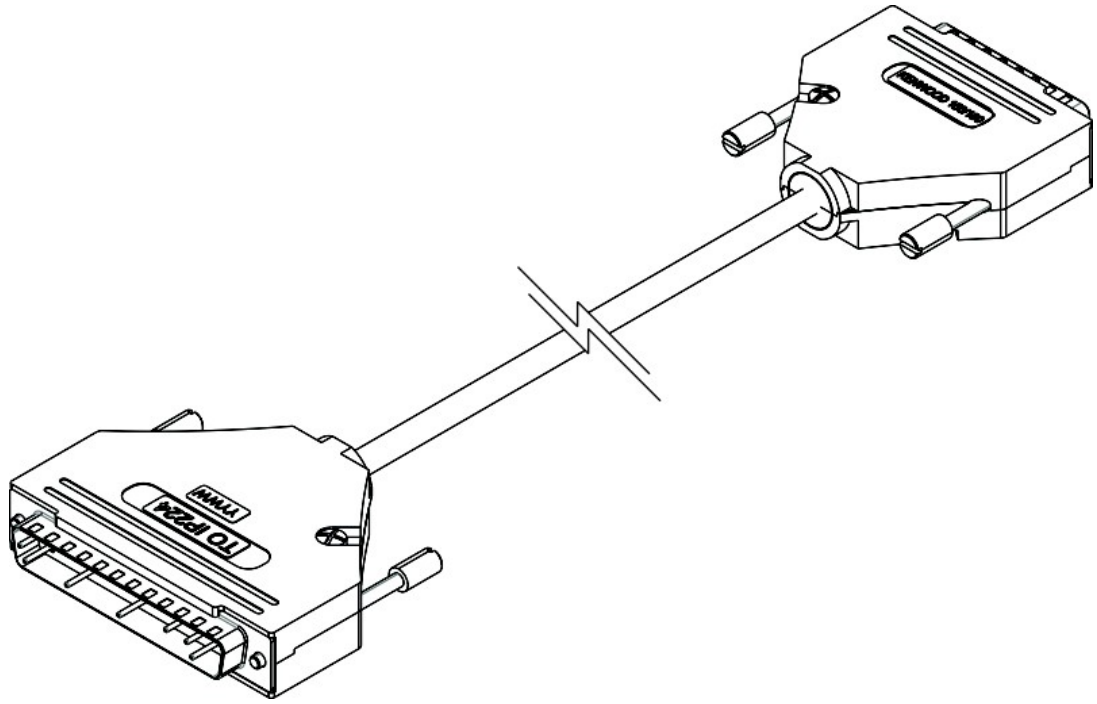


FIGURE 1. Kenwood Interface Cable

Cable diagram for Kenwood Viking VM5x30 Radio and IP-224 Interface			
Function	**Kenwood Viking VM5x30**	**IP-224**	**Function**
RXD2	PIN 2	PIN 17	RS-232/TTL TXD
TXD2	PIN 3	PIN 36	RS-232/TTL RXD
GND	PIN 7	PIN 29	GROUND
GND	PIN 7	PIN 5	PTT RELAY
Ext. MIC Input	PIN 6	PIN 1	TX+ AUDIO
RX Output	PIN 17	PIN 20	RX+ AUDIO
AUX Input	PIN 12	PIN 24	PTT RELAY N.O. CONTACT
AUX Output	PIN 20	PIN15	COR INPUT

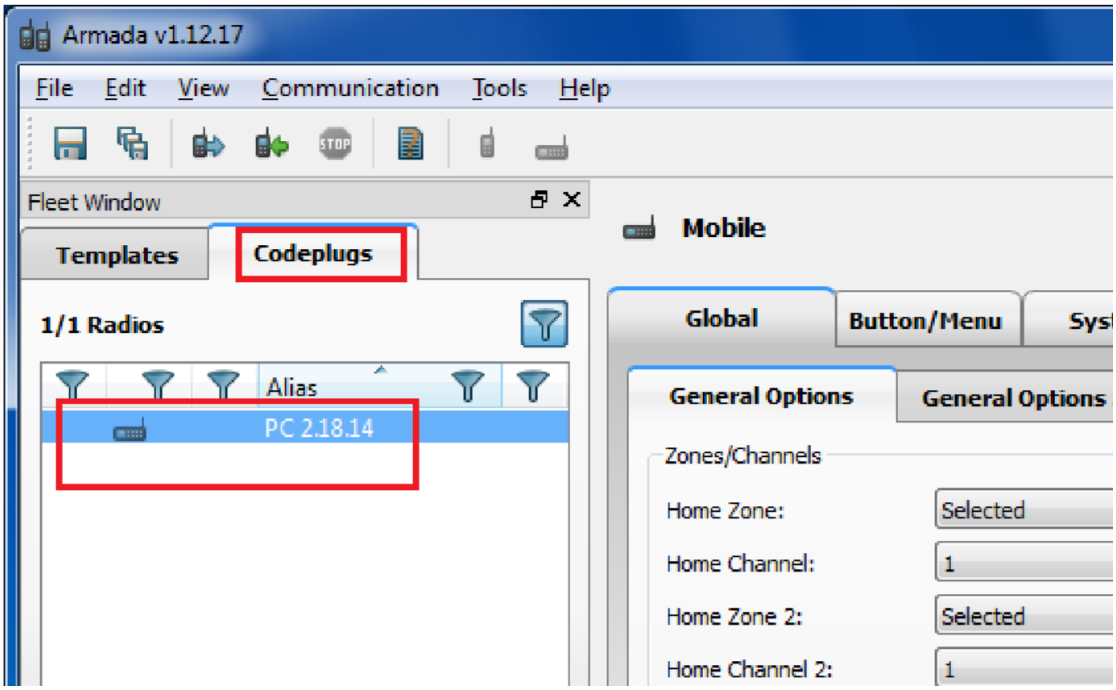
6.0 Radio Programming Application Setup

The Armada Fleet Management Software is used to configure the Kenwood Viking VM5x30 radio to interface properly with the IP-224.

6.1 Serial Communication

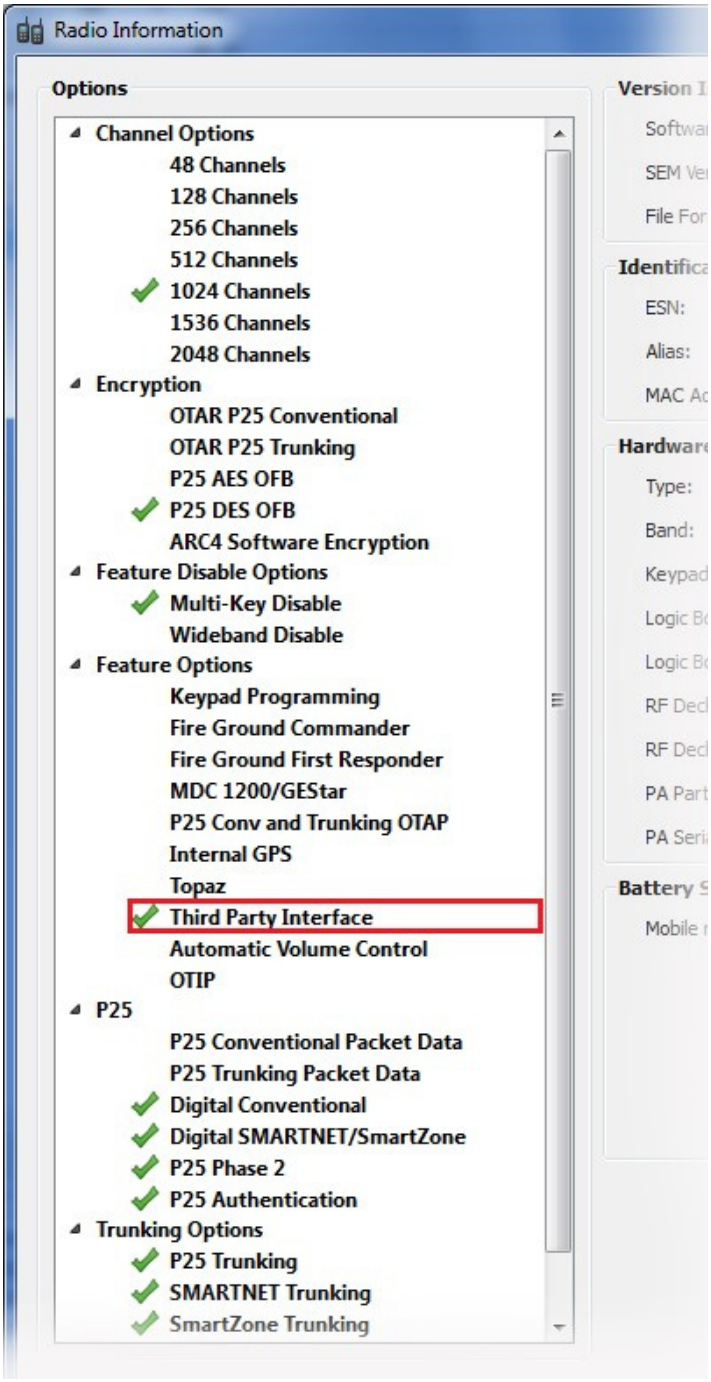
To **verify Serial Communications are enabled**, do the following:

1. Open the **Armada Fleet Management Software**.
2. Click the **Codeplugs tab**.
   The Codeplugs page appears.



3. Right-click the **Codeplug icon**.
   A drop down menu appears.

4. From the drop down menu, select **Properties**.
   The Radio Information window appears.

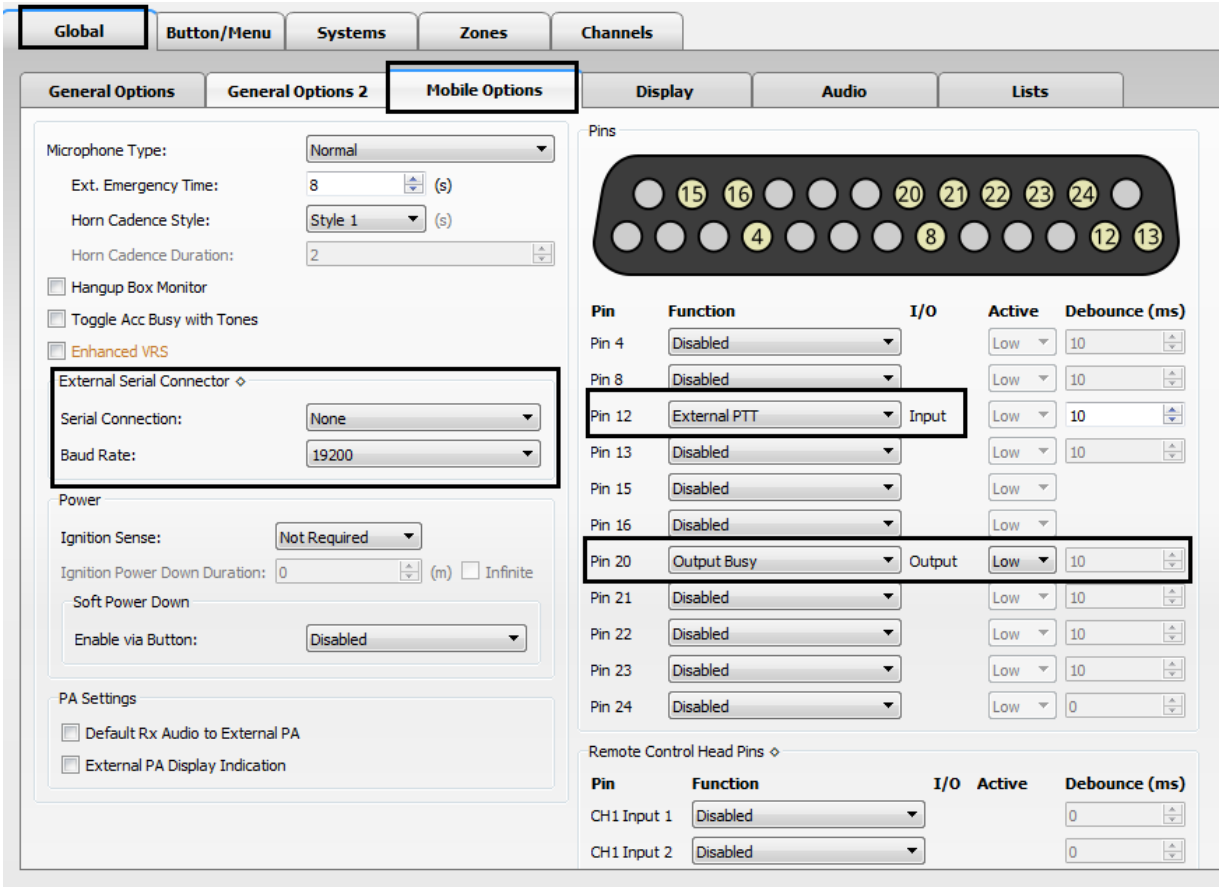


5. Under Feature Options, verify the **Third Party Interface option has a check mark**.
   If yes, continue
   OR
   If no, contact an EFJohnson representative for instructions.

6.2 Serial Communications Setup

To **configure the Serial Communications**, do the following:

1. From the top navigation, select **Global | Mobile Options**.
   The Mobile Options window appears.



2. In the Serial Connection field, select **None**.
3. In the Baud Rate field, select **19200**.

6.3 External PTT and COR Setup

To **configure the External PTT and COR**, do the following:

1. From the top navigation, select **Global | Mobile Options**.
   The Mobile Options window appears.
2. In the Pin 12 field, select **External PTT**.
3. In the Pin 20 field, select **Output Busy**.
4. In the Active field of Pin 20, select **Low**.

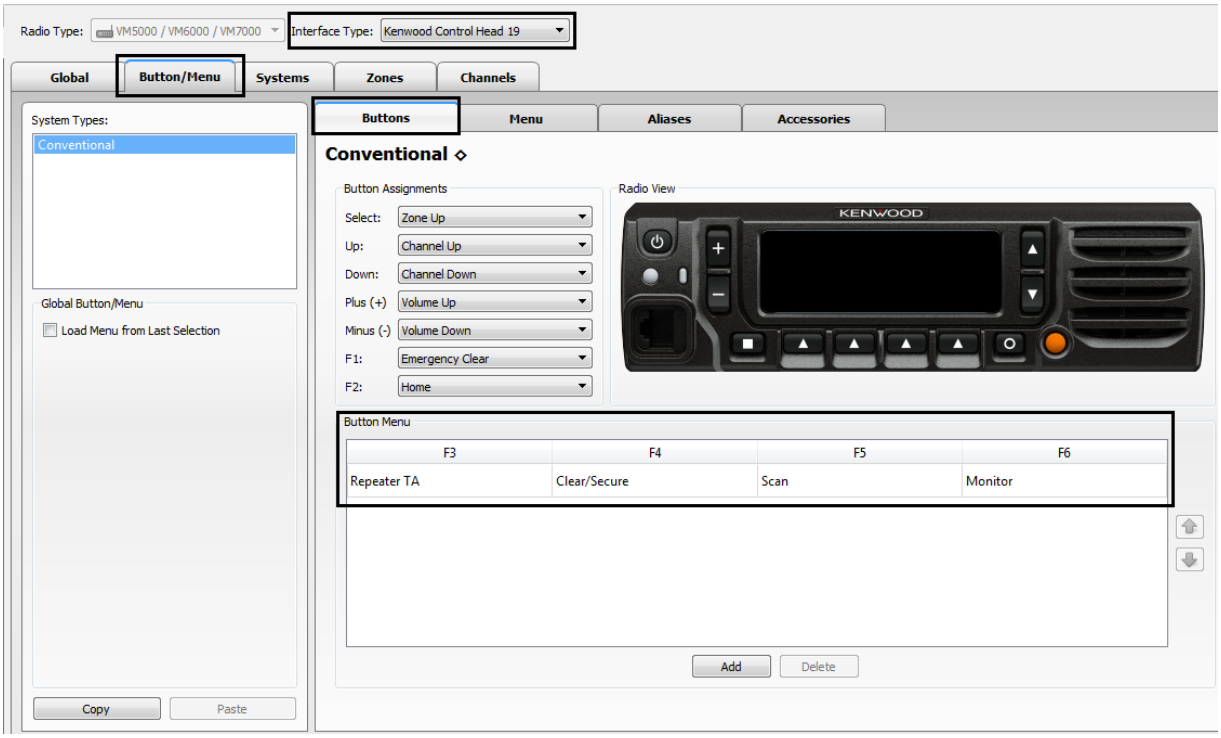
6.4 Radio Buttons Setup

To **configure the Radio Buttons**, do the following:

1. Open the **Armada Fleet Management Software**.
2. Click the **Button/Menu tab**.
   The Button/Menu page appears.
3. In the Interface Type field, select **Kenwood Control Head 19**.
4. From the System Types, select the **desired system**.

Under Button Assignments

5. From the F1 drop down menu, select **Emergency Clear**.
6. from the F3 drop down menu, select **Repeater TA**.
7. From the F4 drop down menu, select **Clear/Secure**.
8. From the F5 drop down menu, select **Scan**.
9. From the F6 drop down menu, select **Monitor**.
10. Repeat **steps 2-9** to configure additional systems.



7.0 IP-224 Access Key Installation

The Kenwood Viking VM5x30 radio interface requires an additional Advanced Interface Option (Export) or Advanced Interface Option (North American) on the IP-224.

NOTE:

- The Advanced Interface Option (Export) or Advanced Interface Option (North American) Access Key must be purchased before you can activate the Kenwood VM5x30 Serial Type. The Advanced Interface Option (Export) or Advanced Interface Option (North American) requires an access key to be generated specifically for each IP-224
- If the Advanced Interface Option (Export) or Advanced Interface Option (North American) Access Key was purchased as a factory installation [(F.01U.347.906) IP-224 Radio Gateway Advanced Options Export or (F.01U.347.907) IP-224 Radio Gateway Advanced Options NA (factory installed)], the access key was activated by the factory prior to shipping.
- Activating the Advanced Interface Option (Export) or Advanced Interface Option (North American) via the IP-224 web interface is only required if this is a field installation [(F.01U.343.868) IP-224 Field Code Advanced Options Export or (F.01U.343.869) IP-224 Field Code Advanced Option NA (customer purchased option)].

To **activate the Advanced Interface Option (Export) or Advanced Interface Option (North American) Access Key**, do the following:

1. Open the **IP-224 webpage**.
2. From the left navigation, select **Advanced Features**.
   The Additional Features page appears.
3. In the Access Key field, enter the **32-character access key**.
4. Click the **Submit button**.
   The changes are sent to the IP-224 in temporary storage.

5. From the left navigation, select **Save Parameters**.
   The Save Parameters page appears.
6. Click the **Save Parameters button**.
   Changes are now permanently saved to the IP-224 console.

8.0 IP-224 Setup

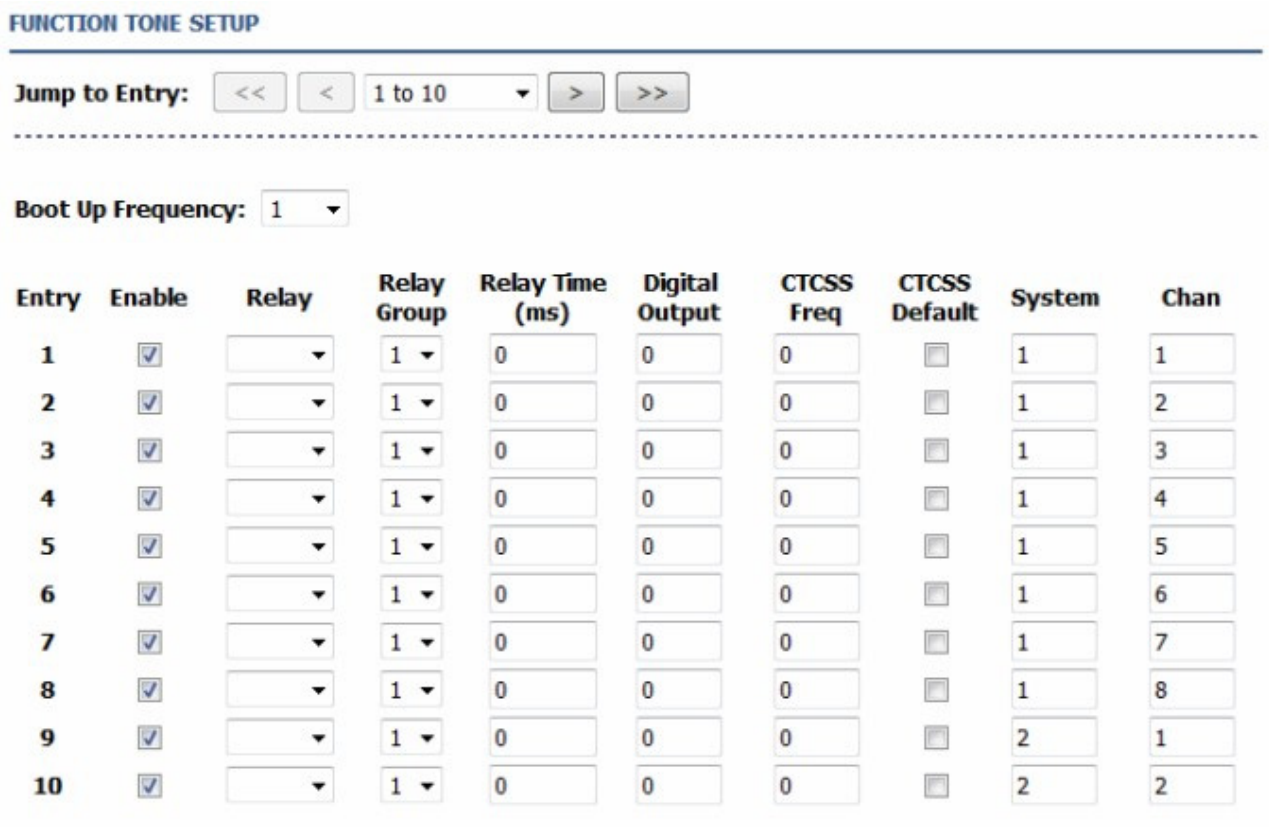
To configure the IP-224, do the following:

1. Open the **IP-224 web application**.
   The IP-224 web page appears.
2. From the left navigation, select **Multicast Setup**.
3. Select the **Auto Configuration check box**.

Under LINE SETUP

4. From the Serial Type drop down menu, select **Kenwood VM5x30** on the desired lines.
5. In the RX Mcast field, enter **Receive Multicast IP Address**.
6. In the RX Port field, enter the **Receive Multicast Port number**.
7. In the TX Mcast field, enter the **Transmit Multicast IP Address**.
8. In the TX Port field, enter the **Transmit Multicast Port number**.

9. Click the **Submit button**.
   The changes are sent to the IP-224 in temporary storage.
10. From the left navigation, select **Per Line Setup**.
    The Per Line Setup window appears.



Under Function Tone Setup

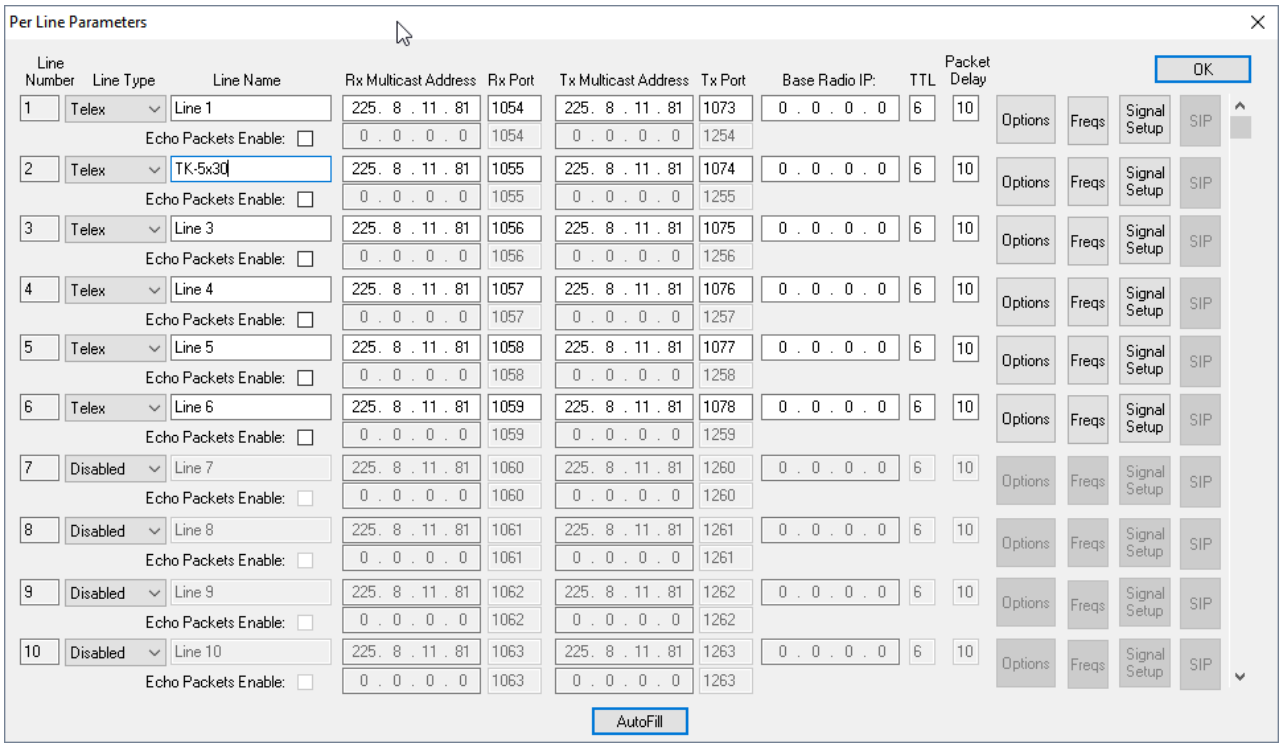
11. In the System Column field, enter the **desired radio system/zone**.
12. In the Chan Column field, enter the **desired radio channel**.
13. Click the **Submit button**.
    The changes are sent to the IP-224 in temporary storage.
14. From the left navigation, select **Save Parameters**.
    The Save Parameters page appears.
15. Click the Save Parameters button.
    Changes are now permanently saved to the IP-224 console.

9.0 C-Soft Designer Setup

The Per Line Parameters window is used to configure C-Soft to IP-224 communications.

To **configure the Per Line Parameters**, do the following:

1. Open **C-Soft Designer**.
2. From the Edit menu, select **Setup Per Line Parameters**.
   The Per Line Parameters window appears.



3. In the Rx Multicast Address field, enter the **Receive Multicast IP Address** of the connected IP-224.
4. In the Rx Port field, enter the **Receive Multicast Port number** of the connected IP-224.
5. In the Tx Mulicast Address field, enter the **Transmit Multicast IP Address** of the connected IP-224.
6. In the Tx Port field, enter the **Transmit Multicast Port number** of the connected IP-224.
7. In the Base Radio IP field, enter the **IP Address** of the connected IP-224.
8. Click the **Close button**.

NOTE: The Multicast settings of IP-224 and C-Soft must match for the interface to function properly. Verify the RX and TX Multicast Addresses match, as well as the RX and TX ports.

NOTES

Suggestions or comments:
Contact technical support with suggestions or comments concerning this application note.

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