

# ***RF-7800I VEHICULAR INTERCOM SYSTEM***

## ***REFERENCE GUIDE***

**assuredcommunications™**





## **LIMITED ONE YEAR WARRANTY HARRIS CORPORATION (RF COMMUNICATIONS DIVISION)**

**FROM HARRIS TO YOU** - This warranty is extended to the original buyer and applies to all Harris Corporation, RF Communications Division equipment purchased and employed for the service normally intended, except those products specifically excluded.

**NOTE:** Terms and conditions of the standard warranty may be superseded by the terms and conditions of your contract.

**WHAT WE WILL DO** - If your Harris Corporation, RF Communications Division equipment purchased from us fails in normal use because of a defect in workmanship or materials within one year from the date of shipment, we will repair or replace (at our option) the equipment or part with new, reconditioned, or remanufactured equipment or parts without charge to you, at our authorized repair center or factory.

**WHAT YOU MUST DO** - You must notify us promptly of a defect within one year from date of shipment. Assuming that Harris concurs that the complaint is valid, and is unable to correct the problem without having the equipment shipped to Harris:

- Customers with equipment purchased for use outside the United States must obtain a Return Material Authorization (RMA) Number for the return of the defective equipment or part to our factory in Rochester, NY, U.S.A., for repair or replacement. You must prepay all transportation, insurance, duty and customs charges. We will pay for return to you of the repaired/ replaced equipment or part, C.I.F. destination; you must pay any duty, taxes or customs charges.
- Customers with equipment purchased for use in the United States must obtain an RMA number, properly pack, insure, prepay the shipping charges and ship the defective equipment or part to our factory or to the Authorized Warranty Repair Center indicated by us.
  - ◆ RMA may be obtained using our Premier Website <https://premier.harris.com/rfcomm>
  - ◆ Shipping instructions will be provided with the RMA confirmation.
  - ◆ Harris Product Service: Phone (585) 242-3561, Toll-free (866) 264-8040, Fax: 585-242-4483

Harris will repair or replace the defective equipment or part and pay for its return to you, provided the repair or replacement is due to a cause covered by this warranty.

**WHAT IS NOT COVERED** - We regret that we cannot be responsible for:

- Defects or failures caused by buyer or user abuse or misuse.
  - ◆ Units that have been misused, neglected, or damaged by accident.
- Defects or failures caused by unauthorized attempts to repair or alter the equipment in any way by persons other than Harris/ RF Communications Corporation.
  - ◆ Includes units that have been disassembled
- Damage caused by leaking batteries
- Consequential damages incurred by a buyer or user from any cause whatsoever, including, but not limited to improper packaging, transportation, non-Harris repair or service costs, downtime costs, costs for substituting equipment or loss of anticipated profits or revenue.
- The performance of the equipment when used in combination with equipment not purchased from Harris.
- HARRIS MAKES NO OTHER WARRANTIES BEYOND THE EXPRESS WARRANTY AS CONTAINED HEREIN. ALL EXPRESS OR IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY ARE EXCLUDED.

**SERVICE WARRANTY** - Any repair service performed by Harris under this limited warranty is warranted to be free from defects in material or workmanship for sixty days from date of repair. All terms and exclusions of this limited warranty apply to the service warranty.

**IMPORTANT** - Customers who purchased equipment must obtain an RMA before shipping the defective equipment to us. Failure to obtain an RMA before shipment may result in a delay in the repair/replacement and return of your equipment.

**IF YOU HAVE ANY QUESTIONS** - Concerning this warranty, please refer to Harris RF Communications Division Terms & Conditions of Repair at <http://www.rfcomm.harris.com/frequentlyrequesteditems.asp>.



# **RF-7800I**

## **VEHICULAR INTERCOM SYSTEM**

### **REFERENCE GUIDE**

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## **SAFETY SUMMARY**

### **1. INTRODUCTION**

All operators and maintenance personnel must observe the following safety precautions during operation and maintenance of this equipment. Specific warnings and cautions are provided in the document and at the end of this Safety Summary. Warnings, Cautions, and Notes appear before various steps in the document and will be used as follows:

- **WARNING** Used when there is a possibility of injury or death to personnel and damage to the equipment.
- **CAUTION** Used when there is a possibility of damage to equipment
- **NOTE** Used to alert personnel to a condition that requires emphasis

### **2. PERSONNEL AND EQUIPMENT SAFETY**

Basic safety precautions must be taken to protect personnel from injury or death. Electrical, mechanical, thermal, electromagnetic radiation (EMR), material, or chemical hazards are the most common types of hazards found in electronic equipment. The following are types of hazards that may exist:

<b>ELECTRICAL</b>	Hazardous voltage and current levels may exist throughout the equipment. Contact with these hazards could cause electrocution, electrical shock, burns, or injury due to involuntary reflexes of the body.
<b>MECHANICAL</b>	Mechanical hazards are created when heavy assemblies and components must be removed and replaced. Moving parts (such as fan blades) and hot surfaces are potential mechanical hazards.
<b>THERMAL</b>	Burn hazards may exist in the equipment that could cause personal injuries and/or serious equipment damage. Internal surfaces of the equipment may be in excess of 65 °C, point at which personnel could be burned. Extreme caution should be used when working with any hot assemblies (for example, power supply or power amplifier assemblies). Physical injury or damage may result to personnel and/or equipment as a result of a reflex action to a burn.
<b>CHEMICAL</b>	Chemicals or materials used for servicing the equipment may present potential hazards. Many chemical agents, such as cleaners and solvents, may be toxic, volatile, or flammable. If used incorrectly, these agents can cause injury or death.
<b>EMR</b>	Overexposure to electromagnetic radiation results from amplified radio frequencies that may produce a health hazard. Factors that constitute overexposure are frequency, power and time.

### **3. OPERATIONAL AND MAINTENANCE SAFETY GUIDELINES**

Good safety discipline is critical to prevent injury to personnel. All other safety measures are useless if personnel do not observe the safety precautions and do not follow safety disciplines. Once aware of a hazard, personnel should ensure that all others are aware of the hazard. The following basic safety disciplines are stressed:

- a. Read a procedure entirely before performing it, then step through the process carefully observing safety guidelines.

- b. Prior to applying equipment power after maintenance, personnel must ensure that all unsecured hand tools and test equipment are disconnected from the serviced/maintained equipment and properly stored.
- c. Power to the equipment must be removed before a piece of equipment is removed.
- d. Extreme care must be used when adjusting or working on operating equipment. Voltages in excess of 70 V or current sources in excess of 25 A are covered with barriers. Barriers include warning information about the hazard encountered upon barrier removal.
- e. Personnel must react when someone is being electrically shocked. Perform the following steps:
  - 1. Shut off power.
  - 2. Call for help.
  - 3. Administer first aid if qualified.

Under no circumstances should a person come directly in contact with the body unless the power has been removed. When immediate removal of the power is not possible, personnel must use a non-conductive material to try to jolt or pry the body away from the point of shock.

- f. Personnel should work with one hand whenever possible to prevent electrical current from passing through vital organs of the body.
- g. Lifting can cause injury. Items weighing more than 37 pounds must be lifted by two or more people.
- h. Some electrolytic capacitors contain aluminum oxide or tantalum. If connected incorrectly, the capacitor will explode when power is applied. Extreme care must be used when replacing and connecting these capacitors. The capacitor terminals must always be connected using the correct polarity: positive to positive and negative to negative.

The next section contains general safety precautions not directly related to specific procedures or equipment. These precautions are oriented toward the maintenance technician. However, all personnel must understand and apply these precautions during the many phases of operation and maintenance of the equipment. The following precautions must be observed:

### ***DO NOT SERVICE EQUIPMENT ALONE***

Never work on electrical equipment unless another person familiar with the operation and hazards of the equipment is near. When the maintenance technician is aided by operators, ensure that operators are aware of the hazards.

### ***GROUNDING***

Always ensure that all equipment and assemblies are properly grounded when operating or servicing.

### ***TURN OFF POWER AND GROUND CAPACITORS***

Whenever possible, power to equipment should be turned off before beginning work on the equipment. Be sure to ground all capacitors that are potentially dangerous.

### ***KEEP AWAY FROM LIVE CIRCUITS***

Operators and maintainers must observe all safety regulations at all times. Do not change components or make adjustments inside equipment with a high voltage supply on unless required by the procedure. Under certain conditions, dangerous potentials may exist in circuits with power controls off, due to charges retained by capacitors.

***DO NOT BYPASS INTERLOCKS***

Do not bypass any interlocks unnecessarily. If it is necessary to employ an interlock bypass for equipment servicing, use extreme care not to come in contact with hazardous voltages.

***USE CARE HANDLING HEAVY EQUIPMENT***

Never attempt to lift large assemblies or equipment without knowing their weight. Use enough personnel or a mechanical lifting device to properly handle the item without causing personal injury.

***HEED WARNINGS AND CAUTIONS***

Specific warnings and cautions are provided to ensure the safety and protection of personnel and equipment. Be familiar with and strictly follow all warnings and cautions on the equipment and in technical manuals.

***PROTECTIVE EYEWEAR***

All personnel must wear protective eyewear when servicing or maintaining equipment. Protective eyewear must be worn at all times when using tools.

**4. PROTECTION OF STATIC-SENSITIVE DEVICES**

The above symbol denotes a static sensitive device. This protection is designed to guard against adverse electrical conditions such as electrostatic discharge. Although most static-sensitive devices contain protective circuitry, several precautionary steps should be taken to avoid the application of potentially damaging voltages to the inputs of the device. The following precautions should be observed.

- a. Keep all static-sensitive devices in their protective packaging until needed. This packaging is conductive and should provide adequate protection for the device. Storing or transporting these devices in conventional plastic containers could be destructive to the device.
- b. Disconnect power prior to insertion or extraction of these devices. This also applies to Printed Wiring Boards (PWBs) containing such devices.
- c. Double check test equipment voltages and polarities prior to conducting any tests.
- d. Avoid contact with the leads of the device. The component should always be handled carefully by the ends or side opposite the leads.
- e. Avoid contact between PWB circuits or component leads and synthetic clothing.
- f. Use only soldering irons and tools that are properly grounded. Ungrounded soldering tips or tools can destroy these devices. SOLDERING GUNS MUST NEVER BE USED.
- g. Make sure proper static protection equipment such as wrist straps and mats are used.

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## CHAPTER 1

### GENERAL INFORMATION

#### 1.1 INTRODUCTION

The purpose of this document is to provide information to support administration, basic wiring and cabling, and Harris Level I Maintenance on the RF-7800I Vehicular Intercom System (for simplification also referred to as RF-7800I).

RF-7800I is a modular and configurable voice and data vehicular communications system. The RF-7800I provides voice and data interoperability and connectivity among vehicle crew stations while simultaneously providing control of all vehicular communications. The RF-7800I operates with Harris Falcon® II and III radios as well as other military, government and commercial devices. Radio connectivity allows crew stations to communicate with dismounted personnel and other vehicles or command centers through HF, VHF, UHF, and Broadband Global Area Network (BGAN) satellite communications technology.

All RF-7800I systems are built around a Central Unit (CU) connected to a customized combination of Crew Stations and additional components distributed throughout a vehicular configuration. The Central Unit is pre-programmed prior to deployment/installation to specific mission parameters using the RF-7800I Digital Intercom System Control Center (DISCC) software. This application can be reprogrammed as required.

For warranty information, refer to the front cover of this document. For a list of acronyms used, refer to [Appendix B](#). Refer to [Appendix C](#) for Harris Level I Maintenance information.

#### 1.2 RELATED MANUALS

[Table 1-1](#) lists the related Falcon® II and III radio operation manuals that can be used with the RF-7800I Vehicular Intercom System.

**Table 1-1. Related Manuals**

Part Number	Description
10515-0319-4200	AN/PRC-117G Manpack (MP) Operation Manual
10515-0283-4200	AN/PRC-152(C) Handheld (HH) Operation Manual
10515-0109-4100	AN/PRC-117F Operation Manual
10515-0103-4100	AN/PRC-150(C) Operation Manual
10515-0345-4200	RF-7800S Operation Manual
10515-0365-4200	RF-7800B BGAN Operation Manual
10515-0334-4200	RF-7800M-MP Operation Manual
10515-0363-4200	RF-7800V-HH Operation Manual
10515-0117-4200	RF-5800H-MP Operation Manual
10515-0087-4200	RF-5800V-MP Operation Manual
10515-0300-4200	RF-5800V-HH Operation Manual
10515-0167-4200	RF-5800M-MP Operation Manual
10515-0234-4200	RF-5800M-HH Operation Manual
10515-0407-4200	RF-7800I Digital Intercom System Control Center Software Manual
10515-0407-4100	RF-7800I SKA for Android and Windows OS Operation Manual

## **1.3 FEATURES**

The RF-7800I Vehicular Intercom System has the following features:

- Tightest integration with Harris's world class radio products including integrated radio remote control
- Integrated SIP call manager supporting operation with Asterisk, Cisco Call Manager and Cisco Call Manager Express
- Central units are extensible through a multicast IP link to support larger system requirements and inter-vehicle conference and control
- Remote crew station and radio control to an entire Intercom System is supported with the Soft Keypad Application (SKA) over any IP link
- Point-to-Point Protocol (PPP) routing between Harris radios and to IP link connection
- Intercom systems customized per vehicle configuration and mission requirements
- Software configurable and upgradeable in the field
- Voice communications through speech recognition and noise elimination
- Supports up to four radio transceivers simultaneously with retransmission capability
- Voice over Internet Protocol (VoIP) support
- Integration with vehicle alarm systems
- Small size and weight with minimal power consumption
- Remote system operation for Crew Stations up to 1.2 km using standard military field wire
- Two port Ethernet switch supporting multiple advanced routing protocols

## **1.4 CONFIGURATIONS**

The RF-7800I Vehicular Intercom System provides vehicular voice and voice/data communications. The number of possible vehicular configurations is extensive and is mission defined. This document does not attempt to cover all scenarios. Instead, [Appendix A](#) provides application examples of four typical configurations. These configuration examples serve as a baseline guide to assist users in getting started with Vehicular Intercom Systems.

For specific hardware configuration options, refer to the applicable section:

- For RF-7800I-CU Central Unit configuration options, refer to [Table 3-1](#).
- For RF-7800I-KD Keypad Display Unit configuration options, refer to [Table 4-1](#).
- For RF-7800I-RD Rotary Dial Unit configuration options, refer to [Table 4-7](#).
- For RF-7800I-BU Basic Unit configuration options, refer to [Table 4-13](#).
- For RF-7800I-TA Telephone Alarm Unit configuration options, refer to [Table 4-19](#).
- For RF-7800I-SA Speaker Unit configuration options, refer to [Table 4-24](#).

## CHAPTER 2

### SYSTEM SETUP

#### 2.1 RF-7800I-CU (STANDARD AND LIGHT) BASIC SETUP

Table 2-1 provides a list of basic items used to setup a baseline RF-7800I Vehicular Intercom System.

**Table 2-1. Recommended Items to Setup RF-7800I-CU (Standard/Light)**

Part Number	Description
RF-7800I-CUXXX	Central Unit (available in Standard or Light configurations)
12109-6410-01	Shock Mount, VIS, CU/CU Light
12106-5200-XX	Power Disconnect Assembly
12106-1354-A006	Cable Assembly, Central Unit to one Ethernet RJ45
10515-0382-4200	RF-7800I Vehicular Intercom System Reference Guide

#### 2.2 POWER REQUIREMENTS

Power requirements will vary depending upon configuration. RF-7800I Central Units requires minimal power to operate from vehicular battery/alternator DC power sources. The RF-7800I operates from a DC power source between 18 and 32 VDC nominal. When used in a vehicle with a 12 VDC power system, a 12 to 24 VDC converter should be used. The addition of speakers, Crew Station units, and headsets will increase the power consumption.

##### 2.2.1 Vehicular Grounding

Inadequate grounding will degrade system operation and performance. When using any radio, RF voltages may be present on the chassis. These voltages could cause faults or equipment damage and present a serious personnel hazard due to RF burns or shocks.



Inadequate or defective grounding presents a personnel hazard that could damage the equipment or result in serious injury or death.

Vehicle chassis ground straps should be as short as possible, ideally less than 12 inches (30 cm). Paint, grease, rust, etc. must be scraped away so that only bare metal is visible at grounding points. Use the chassis frame or a welded steel body panel for the grounding point. Never ground to trim or hinged panels (door, hood, etc.) or to surfaces which can be removed from the chassis such as dashboard or seats. Ground straps should be fabricated from tinned, braided copper of the correct length. For better grounding of any radio that connects to the RF-7800I, a wider ground strap is preferred. Position the ground strap so the action of the shock mount is not inhibited.

##### 2.2.2 Tools and Materials

Because the RF-7800I Vehicular Intercom System is intended for installation into customer furnished vehicular applications, some installation hardware may need to be installer furnished. Tools and installation materials will vary for each installation. This document does not cover installation procedures.

## **2.3 UNPACKING AND REPACKING**

Equipment is packed in corrugated boxes. The boxes and packing materials should be retained in case the equipment is reshipped.

### **2.3.1 Unpacking**

Perform the following procedure to unpack the equipment:

- a. Inspect the exterior of the box for signs of damage during shipment. Note any problems and report them to the proper authority. An external sticker on the shipping box provides additional instructions concerning inspection of the package.
- b. Move the boxed equipment to the general location where it is to be installed.
- c. After removing the equipment, check the contents against the packing slip to see that the shipment is complete. Report discrepancies to Harris/RF Communications Product Service Department (telephone: 585-244-5830, toll free: 866-264-8040, web: <https://premier.harris.com/rfcomm>).

### **2.3.2 Repacking**

Perform the following procedure to repack the equipment:

- a. Use the original box, if it was retained. If not, use a box that allows three inches of clearance on all sides of the equipment.
- b. Use the original packing material, if it was retained. If not, use foam packing material to fill the space between the equipment and the box. Surround the entire unit with three inches of foam packing material.
- c. Use a good quality packing tape (or straps) to seal the box after closing.

## CHAPTER 3

### RF-7800I-CU CENTRAL UNIT

#### 3.1 RF-7800I-CU CENTRAL UNIT

The main component of the RF-7800I Vehicular Intercom System is the Central Unit (CU). The CU performs voice channel switching and digital data packet routing between up to eight Crew Stations and additional components, while also providing control for up to four radio transceivers. The Central Unit also monitors vehicle system status, station controls and indicators. In addition to the Central Unit Standard, a Central Unit Light is also available for voice-only applications. See [Figure 3-1](#) and [Figure 3-2](#).

The RF-7800I system uses a 2-wire interface. Cable connections to the Crew Stations have four wires total. Two wires are for Integrated Services Digital Network (ISDN) lines which provide power to the Crew Stations. The other two wires provide power for Active Noise Reduction (ANR) headsets. However, the RF-7800I system only requires two wires to function.

The communication between the Central Units and the Crew Stations and additional components provides:

- Power to the Crew Stations and additional components. (Central Unit Standard and Light) Headset power supplied over two-wire connection to Central Unit.
- Programming and real-time configuration capabilities. (Central Unit Standard and Light)
- Duplex stream of 64 kbit digitized Pulse Code Modulation (PCM) voice channels. (Central Unit Standard and Light)
- Duplex stream of digital asynchronous communication carrying data and control signals with a maximum data rate of 57.6 kbps. (Central Unit Standard only)
- Two external Ethernet connections (10/100 Mbps) over a single, switchable Transmission Communication Protocol/Internet Protocol (TCP/IP) support. (Central Unit Standard and Light)

The Central Unit (Standard) is also equipped with:

- Four general-purpose serial COM ports
- Speaker port
- Two Universal Serial Bus (USB) connections

Refer to [Table 3-1](#) for configuration information.

**Table 3-1. RF-7800I-CU Configurations**

Part Number	Description
RF-7800I-CU1XX	Central Unit (Standard) for Voice and Data
RF-7800I-CU2XX	Central Unit (Light) for Voice only

XX denotes Central Unit color.

3.1.1 RF-7800I-CU Specifications

Table 3-2 provides specifications for the RF-7800I-CU.

Table 3-2. RF-7800I-CU Specifications

Function	Specification
GENERAL	
Power Input Voltage Range	18-32 VDC nominal
Maximum Current Efficiency	300 mA (+ each connected unit) does not include headsets
ENVIRONMENTAL	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
MECHANICAL	
Dimensions	25.60 L x 15.29 W x 8.46 H cm (10.07 L x 6.01 W x 3.33 H inches)
Weight	2.18 kg (4.8 lbs) Standard and 1.73 kg (3.8 lbs) Light (both without cables)

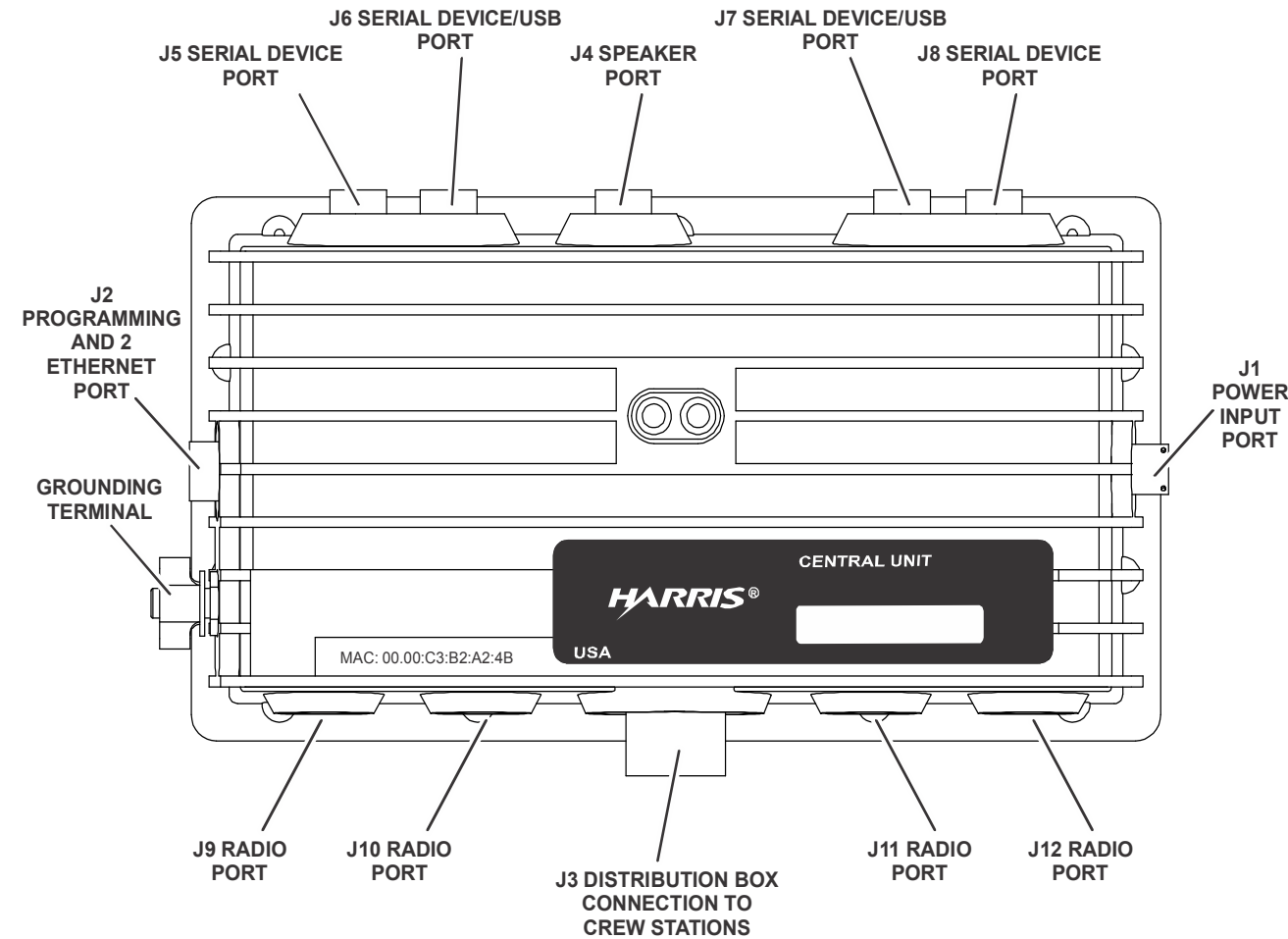
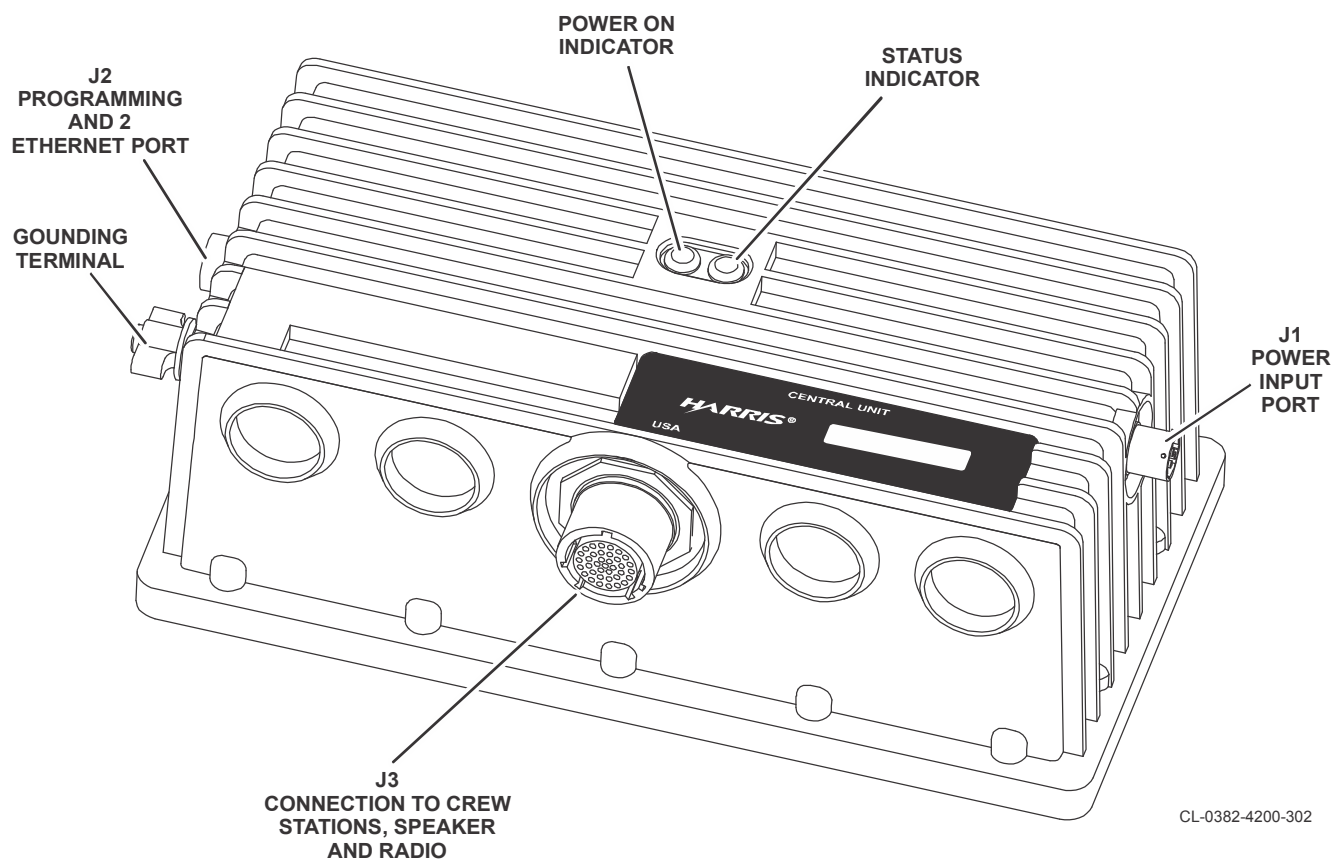


Figure 3-1. RF-7800I-CU Central Unit Standard

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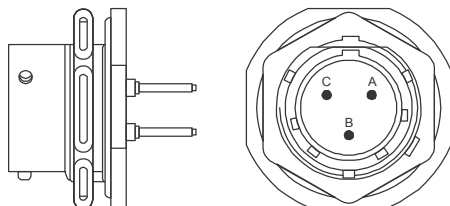




**Figure 3-2. RF-7800I-CU Central Unit Light**

### 3.1.2 RF-7800I-CU Connector Data

Table 3-3 through Table 3-10 and Figure 3-3 through Figure 3-10 provide pinout data for the connectors on the RF-7800I-CU. Differences between the Standard and Light are noted where applicable.

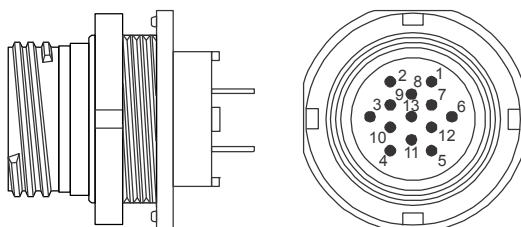


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**Figure 3-3. RF-7800I-CU J1 Power Connector**

**Table 3-3. RF-7800I-CU J1 Power Pinout Data**

Pin	Direction	Signal Name	Description
A	-	-	-
B	I	0 V	Ground
C	I	+24 V	+24 Volt DC Power



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**Figure 3-4. RF-7800I-CU J2 Programming/Ethernet Connector**

**Table 3-4. RF-7800I-CU J2 Programming/Ethernet Pinout Data**

Pin	Direction	Signal Name	Description
1	I	ETH1_RX-	Ethernet receive
2	I	ETH2_RX-	Ethernet receive
3	O	ETH2_TX-	Ethernet transmit
4	O	TXD	Transmit (Console)
5	-	GND	RS-232 Ground
6	O	ETH1_TX-	Ethernet transmit
7	I	ETH1_RX+	Ethernet receive

**Table 3-4. RF-7800I-CU J2 Programming/Ethernet Pinout Data (Continued)**

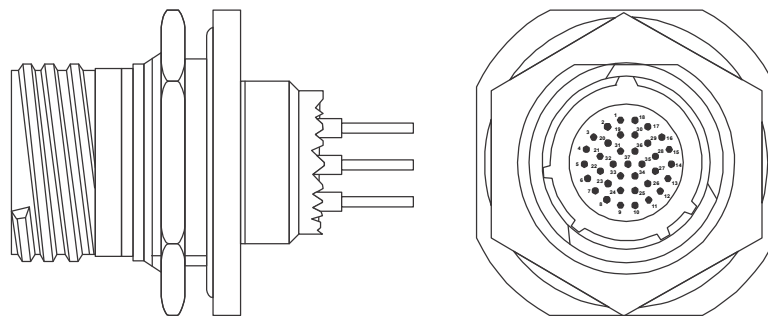
Pin	Direction	Signal Name	Description
8	-	SHIELD	Ethernet port 1 Shield
9	I	ETH2_RX+	Ethernet receive
10	O	ETH2_TX+	Ethernet transmit
11	I	RXD	Receive (Console)
12	O	ETH1_TX+	Ethernet transmit
13	-	SHIELD	Ethernet port 2 Shield

The Central Unit J2 connector is further defined by three function groups that are associated with specific pins.

- Function Group 1 - Ethernet 1 is associated with Pins: 12, 6, 7, 1, 8.
- Function Group 2 - Ethernet 2 is associated with Pins: 10, 3, 9, 2, 13.
- Function Group 3 - RS-232 is associated with Pins: 4, 11, 5.

**NOTE**

The J3 connectors on both the Central Unit Light and Central Unit Standard are multi-purpose. Refer to the information that follows each J3 pinout data table for specific function group definitions.



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**Figure 3-5. RF-7800I-CU2XX J3 Light Connector**

**Table 3-5. RF-7800I-CU2XX J3 Light Pinout Data**

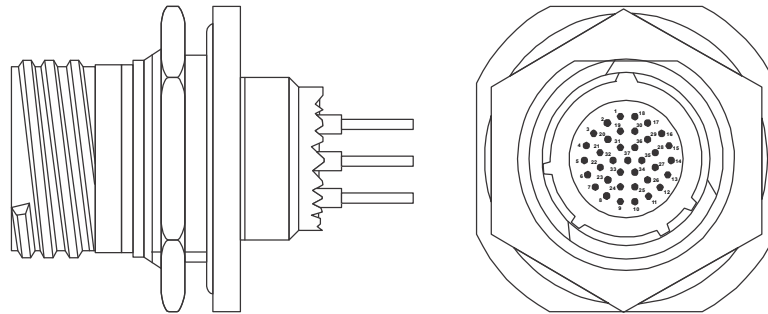
Pin	Input/Output	Signal Name	Description
1	O	AUDIO_SPKR_OUT_1	Audio Speaker Out
2	I	AUDIO1_IN_1	Audio in
3	I	AUDIO2_IN_1	Audio in
4	I	AUDIO2_IN_2	Audio in
5	O	AUDIO1_OUT_1	Audio out
6	O	AUDIO2_OUT_1	Audio out
7	Input/Output (I/O)	PTT1	Push-to-Talk radio 1
8	I/O	PTT2	Push-to-Talk radio 2
9	O	+5V/0.5 A	Power
10	O	PWR_SPKR +/-0.5A	Speaker Power
11	O	PWR4+/0.5 A	Power
12	O	PWR1+/0.5 A	Power
13	O	PWR3+/0.5 A	Power
14	O	PWR2+/0.5 A	Power
15	I/O	L2A (M)	Line 2 A
16	I/O	L2B (M)	Line 2 B
17	I/O	L1A (M/S)	Line 1 A
18	I/O	L4A (M)	Line 4 A
19	O	AUDIO_SPKR_OUT_2	Audio Speaker Out
20	I	AUDIO1_IN_2	Audio in
21	O	TxD 232	RS-232 transmit
22	O	AUDIO1_OUT_2	Audio out
23	-	GND1	Radio Ground 1

**Table 3-5. RF-7800I-CU2XX J3 Light Pinout Data (Continued)**

Pin	Input/Output	Signal Name	Description
24	-	GND2	Radio Ground 2
25	O	PWR_SPKR-	Speaker power
26	O	PWR4-	Power
27	O	PWR3-	Power
28	I/O	L3A (M)	Line 3 A
29	I/O	L1B (M/S)	Line 1 B
30	I/O	L4B (M)	Line 4 B
31	I	RxD 232	RS-232 receive
32	O	AUDIO2_OUT_2	Audio out
33	-	GND	Ground
34	O	PWR1-	Power
35	O	PWR2-	Power
36	I/O	L3B (M)	Line 3 B
37	-	GND-SPKR	Speaker ground

The Central Unit Light J3 connector is further defined by eight function groups that are associated with specific pins.

- Function Group 1 - Line 1 is associated with Pins: 12, 34, 17, 29.
- Function Group 2 - Line 2 is associated with Pins: 14, 35, 15, 16.
- Function Group 3 - Line 3 is associated with Pins: 13, 27, 28, 36.
- Function Group 4 - Line 4 is associated with Pins: 11, 26, 18, 30.
- Function Group 5 - Speaker associated with Pins: 10, 25, 1, 19, 37.
- Function Group 6 - Radio 1 is associated with Pins: 5, 22, 2, 20, 7, 23.
- Function Group 7 - Radio 2 is associated with Pins: 6, 32, 3, 4, 8, 24.
- Function Group 8 - RS-232 is associated with Pins: 9, 33, 21, 31.



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**Figure 3-6. RF-7800I-CU1XX J3 Standard Connector**

**Table 3-6. RF-7800I-CU1XX J3 Standard Pinout Data**

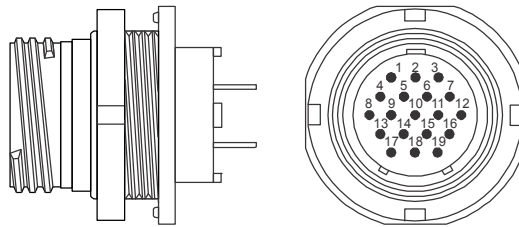
Pin	Input/Output	Signal Name	Description
1	I/O	L5A (M)	Line 5 A
2	I/O	L6A (M)	Line 6 A
3	I/O	L7A (M)	Line 7 A
4	I/O	L7B (M)	Line 7 B
5	O	PWR6+/0.5 A	Power
6	O	PWR7+/0.5 A	Power
7	-	-	-
8	-	-	-
9	O	PWR8+/0.5 A	Power
10	O	PWR5+/0.5 A	Power
11	O	PWR4+/0.5 A	Power
12	O	PWR1+/0.5 A	Power
13	O	PWR3+/0.5 A	Power
14	O	PWR2+/0.5 A	Power
15	I/O	L2A (M)	Line 2 A
16	I/O	L2B (M)	Line 2 B
17	I/O	L1A (M/S)	Line 1 A
18	I/O	L4A (M)	Line 4 A
19	I/O	L5B (M)	Line 5 B
20	I/O	L6B (M)	Line 6 B
21	I/O	L8A (M)	Line 8 A
22	O	PWR6-	Power

**Table 3-6. RF-7800I-CU1XX J3 Standard Pinout Data (Continued)**

Pin	Input/Output	Signal Name	Description
23	-	-	-
24	-	-	-
25	O	PWR5-	Power
26	O	PWR4-	Power
27	O	PWR3-	Power
28	I/O	L3A (M)	Line 3 A
29	I/O	L1B (M/S)	Line 1 B
30	I/O	L4B (M)	Line 4 B
31	I/O	L8B (M)	Line 8 B
32	O	PWR7-	Power
33	O	PWR8-	Power
34	O	PWR1-	Power
35	O	PWR2-	Power
36	I/O	L3B (M)	Line 3 B
37	-	-	-

The Central Unit Standard J3 connector is further defined by eight function groups that are associated with specific pins.

- Function Group 1 - Line 1 is associated with Pins: 12, 34, 17, 29.
- Function Group 2 - Line 2 is associated with Pins: 14, 35, 15, 16.
- Function Group 3 - Line 3 is associated with Pins: 13, 27, 28, 36.
- Function Group 4 - Line 4 is associated with Pins: 11, 26, 18, 30.
- Function Group 5 - Line 5 associated with Pins: 10, 25, 1, 19.
- Function Group 6 - Line 6 is associated with Pins: 5, 22, 2, 20, 7.
- Function Group 7 - Line 7 is associated with Pins: 6, 32, 3, 4, 8.
- Function Group 8 - Line 8 is associated with Pins: 9, 33, 21, 31.



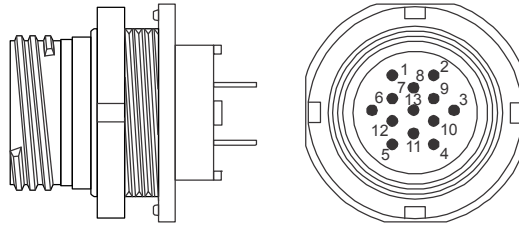
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**Figure 3-7. RF-7800I-CU J4 Speaker Connector**

**Table 3-7. RF-7800I-CU J4 Speaker Pinout Data**

Pin	Input/Output	Signal Name	Description
1	O	SPKR_PWR+/0.5 A	Speaker power
2	-	-	-
3	I/O	PTT2	Push-to-Talk radio 2
4	I	IOB-A	not used
5	-	-	-
6	-	-	-
7	I	IOB-B	not used
8	O	SPKR_PWR-	Speaker power
9	-	-	-
10	-	-	-
11	-	-	-
12	-	GND	Ground
13	I/O	PTT1	Push-to-Talk radio 1
14	I	AUDIO_IN_2	Audio in
15	-	GNDA	Analog Ground
16	O	AUDIO_OUT_1	Audio out
17	-	-	-
18	I	AUDIO_IN_1	Audio in
19	O	AUDIO_OUT_2	Audio out





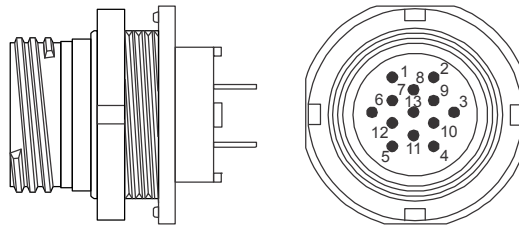
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**Figure 3-8. RF-7800I-CU J5, J8 COM Port Connector**
**Table 3-8. RF-7800I-CU J5, J8 COM Port Pinout Data**

Pin	Input/Output	Signal Name	Description
1	O	+5 V/0.5 A	Power
2	-	-	-
3	O	RTS	Request to Send
4	-	GND	Ground
5	O	DTR	Data Terminal Ready
6	I	DCD	Data Carrier Detect
7	I	RXD	Receive Data
8	I	RI	Ring Indicator
9	-	-	-
10	I	CTS	Clear to Send
11	I	DSR	Data Set Ready
12	O	TXD	Transmit Data
13	-	GND	Ground

**NOTE**

Connectors J6 and J7 are COM ports that accept Universal Serial Bus (USB) data.



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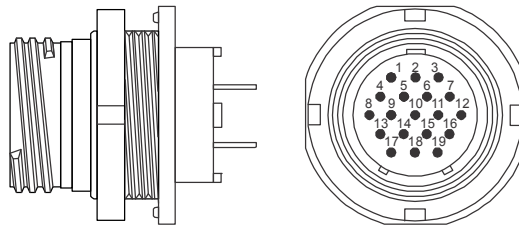
**Figure 3-9. RF-7800I-CU J6, J7 COM Port Connector**

**Table 3-9. RF-7800I-CU J6, J7 COM Port Pinout Data**

Pin	Input/Output	Signal Name	Description
1	O	+5 V/0.5 A	Power
2	-	USB_DATA+	Universal Serial Bus (USB) data
3	O	RTS	Request to Send
4	-	GND	Ground
5	O	DTR	Data Terminal Ready
6	I	DCD	Data Carrier Detect
7	I	RXD	Receive Data
8	I	RI	Ring Indicator
9	-	USB_DATA-	USB data
10	I	CTS	Clear to Send
11	I	DSR	Data Set Ready
12	O	TXD	Transmit Data
13	-	GND	Ground

The Central Unit J6 and J7 connectors are further defined by two function groups that are associated with specific pins.

- Function Group 1 (COM, RS-232) - is associated with Pins: 12, 7, 10, 3, 5, 11, 8, 6, 4.
- Function Group 2 (USB) - is associated with Pins: 2, 9, 1, 13.



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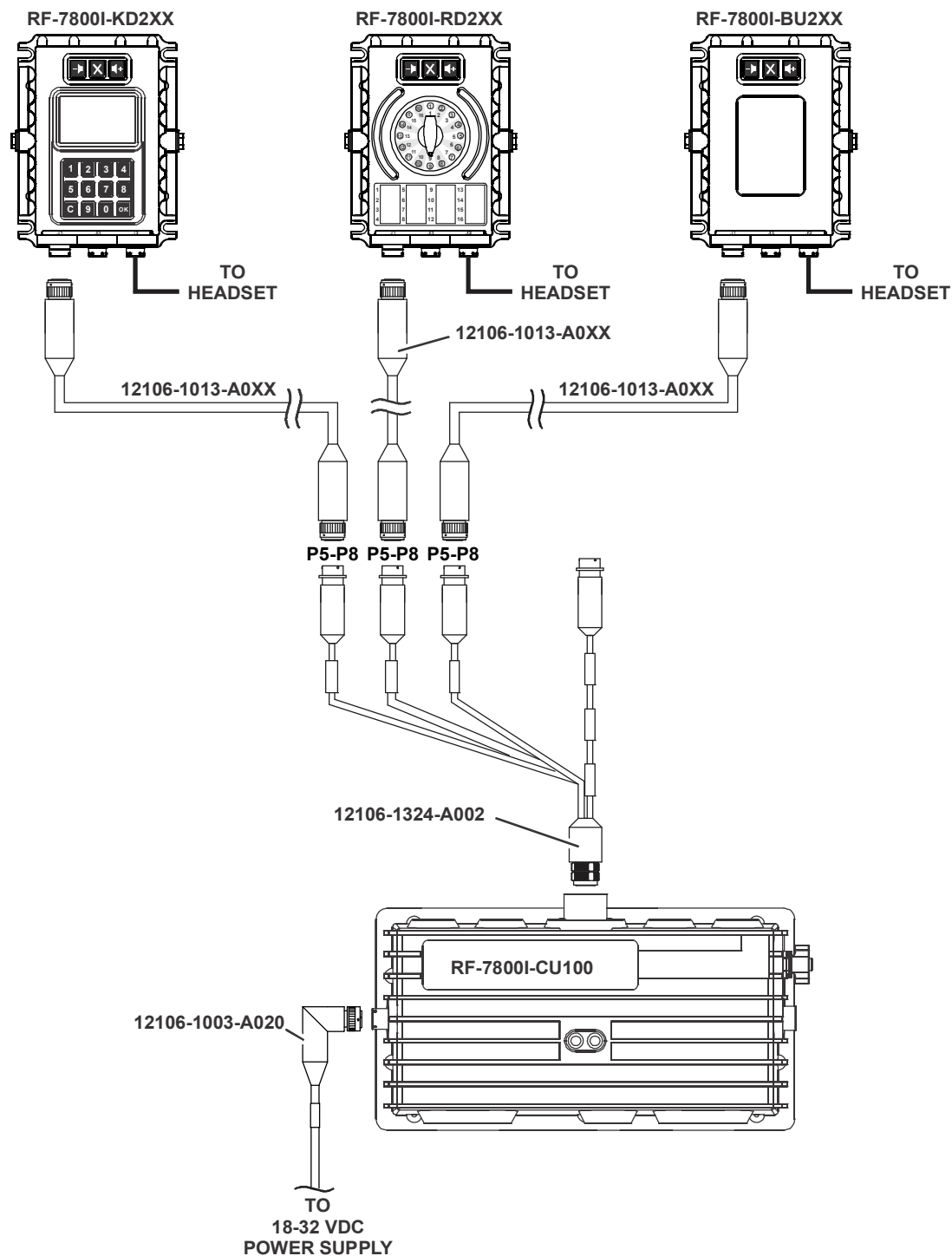
**Figure 3-10. RF-7800I-CU J9-J12 Radio Connector**
**Table 3-10. RF-7800I-CU J9-J12 Radio Pinout Data**

Pin	Input/Output	Signal Name	Description
1	O	TXD-D 232	Transmit Data
2	I	RXD-R 232	Receive Data (Remote)
3	I/O	PTT2	Push-to-Talk radio 2
4	I/O	IOCD	not used
5	I	DSR-D 232	Data Set Ready
6	I	RXD-D 232	Receive Data
7	I	RXC-D 232	Receive Clock
8	O	DTR-D 232	Data Terminal Ready
9	I	CTS-D 232	Clear to Send
10	O	TXD-R 232	Transmit Data (Remote)
11	I	DCD-D 232	Data Carrier Detect
12	-	GND	Ground
13	I/O	PTT1	Push-to-Talk radio 1
14	I	AUDIO_IN_2	Audio in -
15	-	GNDA	Ground A
16	O	AUDIO_OUT_1	Audio out +
17	O	RTS-D 232	Request to Send
18	I	AUDIO_IN_1	Audio in +
19	O	AUDIO_OUT_2	Audio out -

### 3.2 DISTRIBUTION CABLES

See [Figure 3-11](#) for an example using a 12106-1324-A002 cable. Refer to [Table 3-11](#) for a list of all crew station cables.

Distribution cables provide the functionality of the distribution box options in a cable form factor. There are several versions that support different numbers of crew stations. The cables listed in [Table 3-11](#) are modular cables that provide a 2 foot extension out of the J3 connector on the RF-7800I-CU (either version). The end of the distribution cable is connected to the crew station via a 12106-1013-A0XX cable of the appropriate length for the vehicle. For the RF-7800I-CU Central Unit Light, the 12106-1364-A010 speaker cable as well as the radio cables will still be required to complete all the connections.



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Figure 3-11. Example Using 12106-1324-A002 Distribution Cable

**Table 3-11. Central Unit Cables**

<b>Cable Number</b>	<b>Description</b>	<b>Additional Cables Required</b>
12106-1322-A002	Cable Assembly, Central Unit to 2 Crew, Extension	12106-1013-A0XX
12106-1323-A002	Cable Assembly, Central Unit to 3 Crew, Extension	12106-1013-A0XX
12106-1324-A002	Cable Assembly, Central Unit to 4 Crew, Extension	12106-1013-A0XX
12106-1325-A002	Cable Assembly, Central Unit to 5 Crew, Extension	12106-1013-A0XX
12106-1326-A002	Cable Assembly, Central Unit to 6 Crew, Extension	12106-1013-A0XX
12106-1327-A002	Cable Assembly, Central Unit to 7 Crew, Extension	12102-1013-A0XX
12106-1328-A002	Cable Assembly, Central Unit to 8 Crew, Extension	12102-1013-A0XX
12106-1347-A002	Cable Assembly, Central Unit Light to 2 Crew, Spkr, 2 Rad, Ext	12106-1013-A0XX, 12106-1364-A010, Radio Cables
12106-1348-A002	Cable Assembly, Central Unit Light to 4 Crew, Spkr, 2 Rad, Ext	12106-1013-A0XX, 12106-1364-A010, Radio Cables
12106-1349-A002	Cable Assembly, Central Unit Light to 3 Crew, Spkr, 2 Rad, Ext	12106-1013-A0XX, 12106-1364-A010, Radio Cables

### 3.3 REMOTE DISTRIBUTION BOX

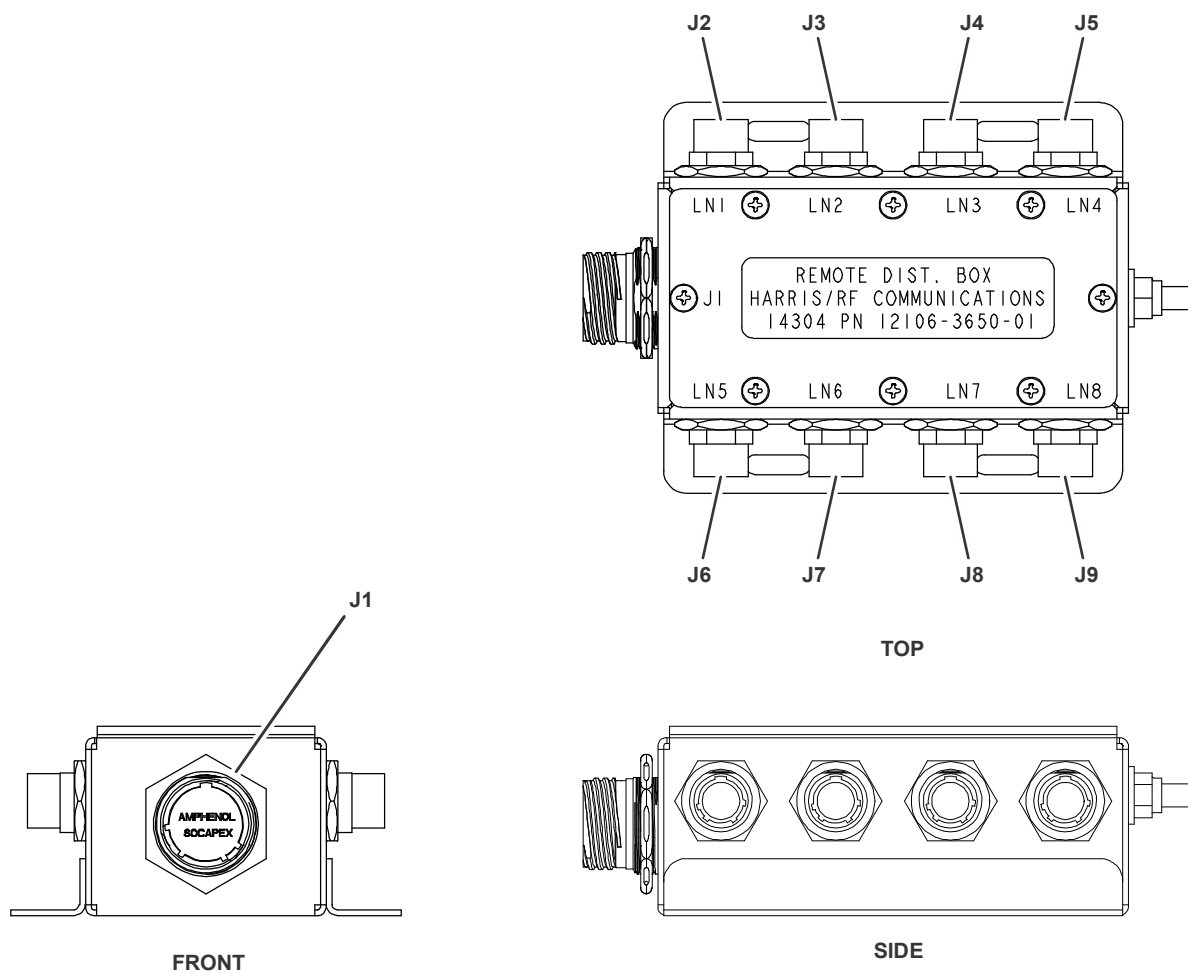
The Remote Distribution Box (12106-3650-XX) is an alternative to the distribution cables or the RF-7800I-ADXXX Distribution Box. For some installations, intercom cabling is simplified by having the Distribution Box located away from the RF-7800I Central Unit. Three versions of the Remote Distribution Box can support four, six, or eight Crew Stations. See [Figure 3-12](#) through [Figure 3-14](#) for the Remote Distribution Box options.

#### 3.3.1 Remote Distribution Box Specifications

[Table 3-12](#) provides specifications for the 12106-3650-XX Remote Distribution Box.

**Table 3-12. Remote Distribution Box (12106-3650-XX) Specifications**

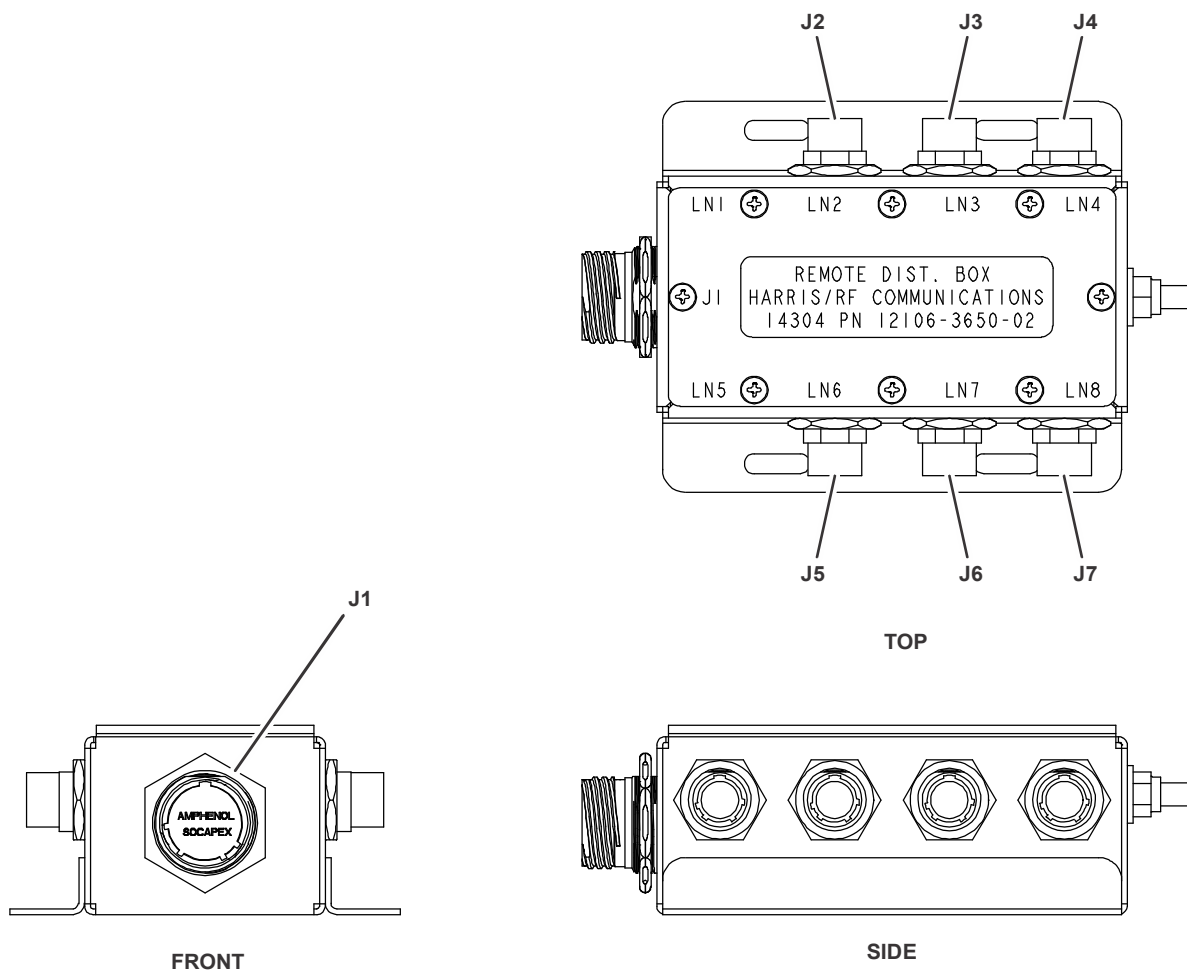
Function	Specification
<b>ENVIRONMENTAL</b>	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
<b>MECHANICAL</b>	
Dimensions	13 L x 6.65 W x 4.92 H cm (5.12 L x 2.62 W x 1.94 H inches)
Weight	.9 kg (2 lbs)



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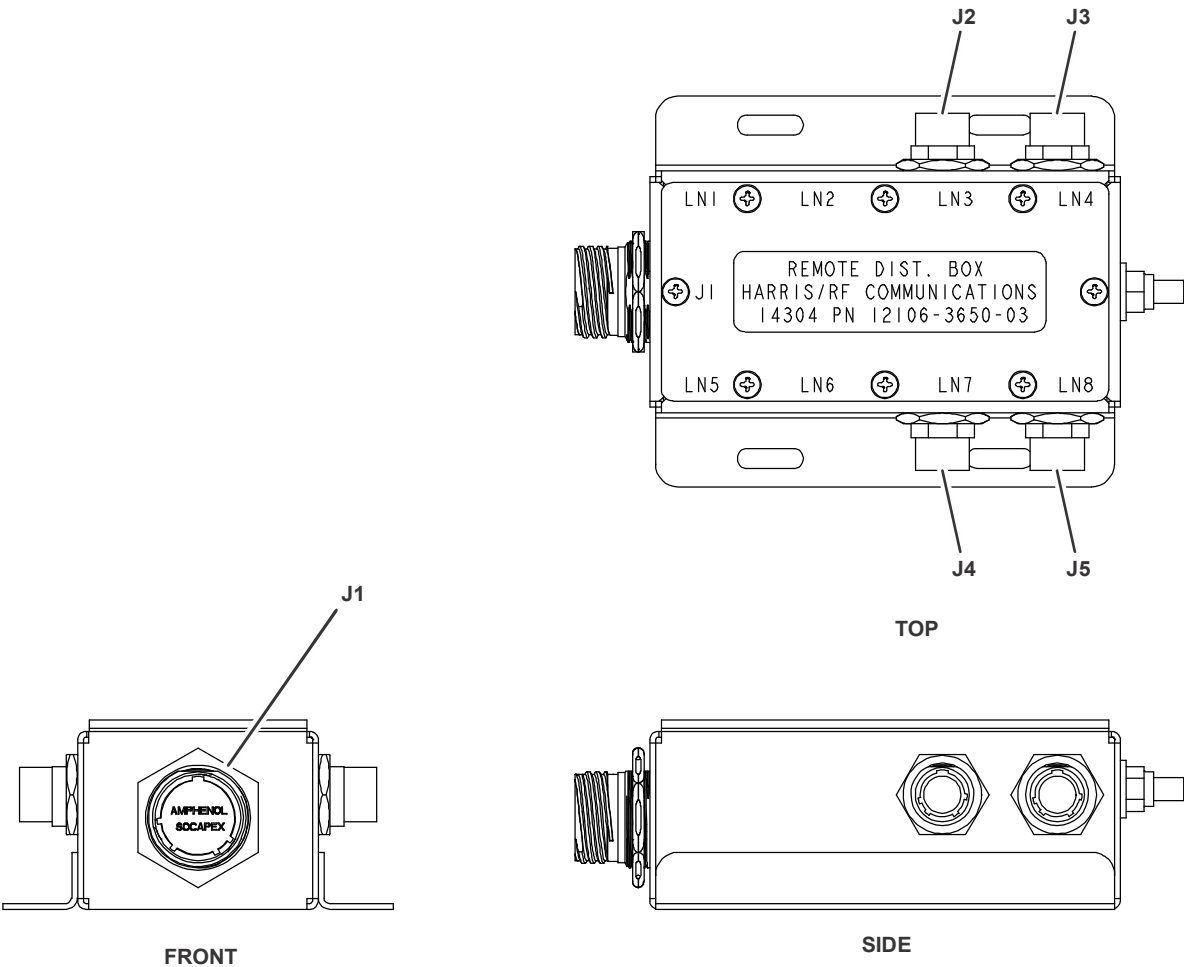
**Figure 3-12. Remote Distribution Box - 8 Port (12106-3650-01)**





CL-0382-4200-342

**Figure 3-13. Remote Distribution Box - 6 Port (12106-3650-02)**



CL-0382-4200-343

**Figure 3-14. Remote Distribution Box - 4 Port (12106-3650-03)**

## 3.4 POWER DISCONNECT ASSEMBLY

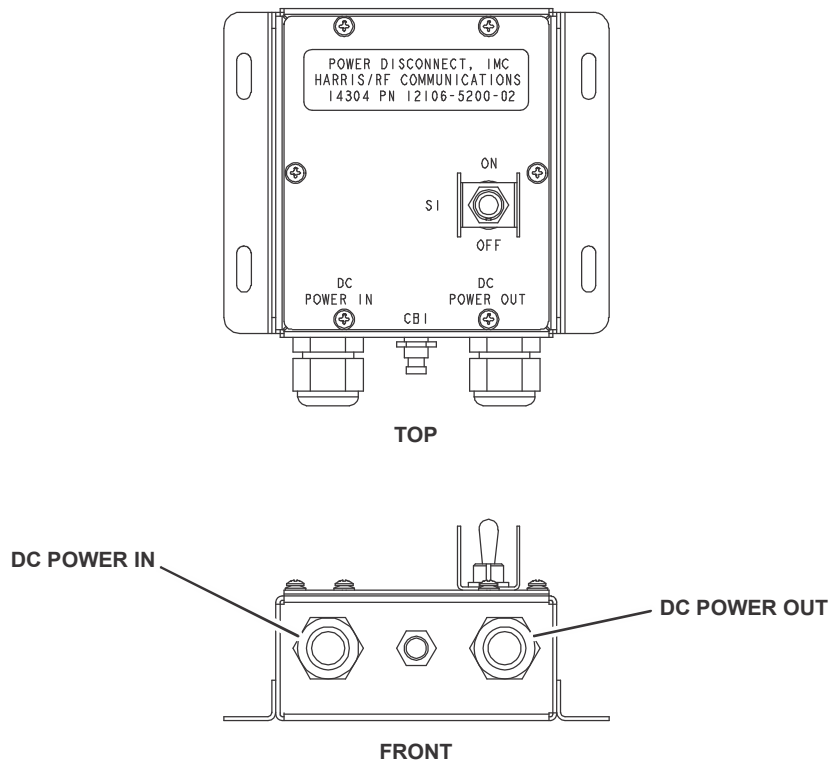
The Power Disconnect Assembly (12106-5200-02) allows the user to manually control power for the system. See [Figure 3-15](#) for the Power Disconnect Assembly.

### 3.4.1 Power Disconnect Assembly Specifications

[Table 3-13](#) provides specifications for the 12106-5200-02 Power Disconnect Assembly.

**Table 3-13. Power Disconnect Assembly (12106-5200-02) Specifications**

Function	Specification
<b>GENERAL</b>	
Power Input Range	18-32 VDC nominal
<b>ENVIRONMENTAL</b>	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
<b>MECHANICAL</b>	
Dimensions	15.1 L x 14.5 W x 7.5 H cm (5.94 L x 5.70 W x 2.95 H inches)
Weight	1 kg (2.2 lbs) without cables



CL-0382-4200-333

**Figure 3-15. Power Disconnect Assembly**

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## CHAPTER 4

### RF-7800I CREW STATIONS

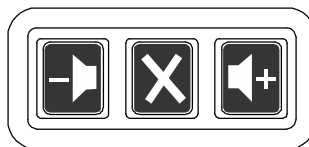
#### 4.1 RF-7800I VEHICULAR INTERCOM CREW STATIONS

The RF-7800I Central Unit interfaces to a variety of Crew Station types to provide customized vehicular communications for a wide range of applications. The specific intercom architecture and selection of Crew Stations is dependent on the individual vehicle configuration and/or mission requirements. The three main types of Crew Stations, each with distinct user-interface capabilities and features, include:

- RF-7800I Keypad Display (KD) Unit - Refer to [Paragraph 4.2](#).
- RF-7800I Rotary Dial (RD) Unit - Refer to [Paragraph 4.3](#).
- RF-7800I Basic (BU) Unit - Refer to [Paragraph 4.4](#).

Crew Stations allow operators to monitor selected channels, conference with selected intercom users, monitor and transmit via radio transceivers, or access external connections such as telephone lines. All Crew Stations provide voice communications using digital signal processing and background noise elimination.

The Crew Stations have a three-button (two green and one red) interface. The buttons are located on top of each unit and their operation is identical. The Center (RED) Button is a multi-purpose button. Its main functionality is as a Settings Menu button for the Crew Station. It can be software configured to allow certain settings for each individual user. Some menu parameters include selecting radio silence mode enable/disable, and Radio Voice Activated (VOX) on/off. See [Figure 4-1](#).



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**Figure 4-1. Crew Station Volume/Menu Buttons**

Additional options for the RF-7800I-KD, such as Language preference, Headset selection, and Display brightness and contrast controls, are available. The settings menu uses audio prompts on units without a graphical user interface. It is also an indicator to incoming alarm events. The red light will flash when an alarm is detected.

4.2 RF-7800I-KD Keypad Display Unit

The most advanced Crew Station, the RF-7800I-KD Keypad Display Unit, provides operators with real-time command and control of the intercom’s communication modes. The Keypad Display Unit combines voice station functionality with an icon driven keypad interface, allowing the input of numeric information and control codes while displaying options, messages and commands on the high-resolution Organic Light-Emitting Diode (OLED) screen. Single key strokes access the intercom and radio channels while programmable soft keys enable a wide range of customizable, advanced features. Ordering options include the choice of a second headset port or a data port to support a personal computer (PC) or other data.

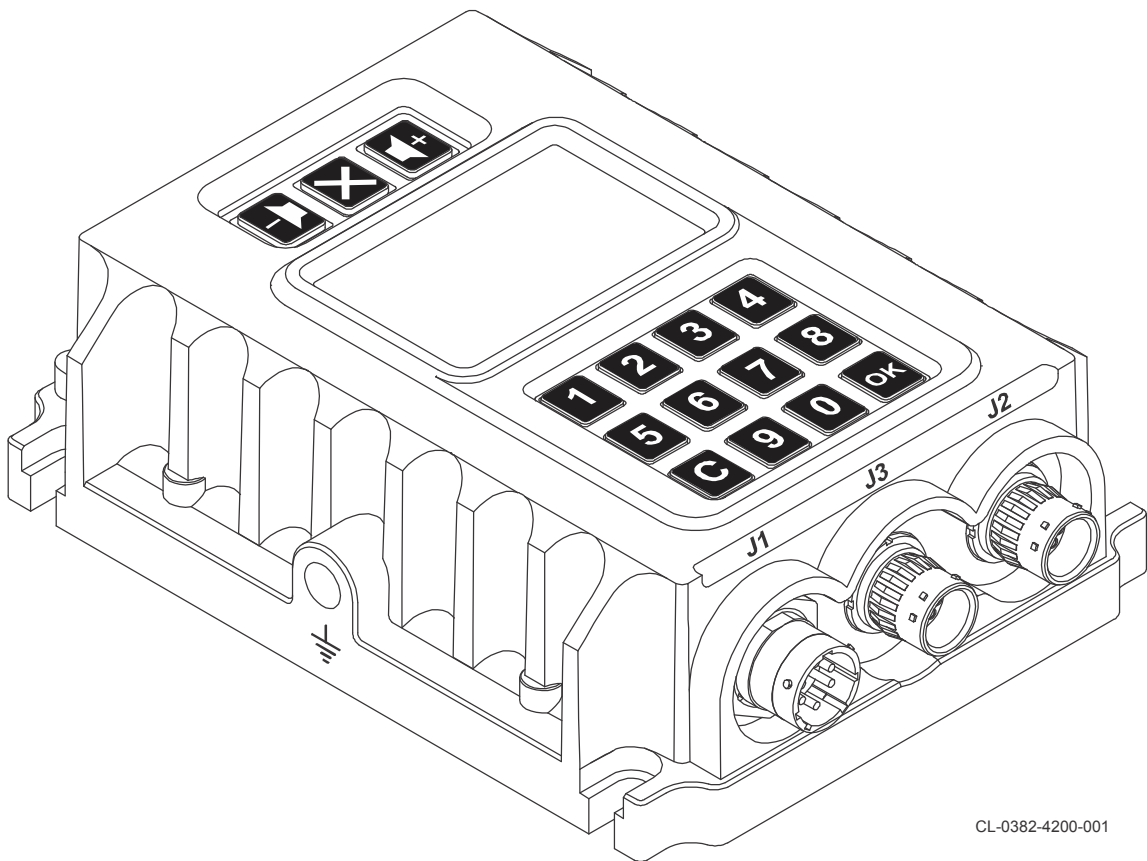
Refer to [Table 4-1](#) for configuration information.

Table 4-1. RF-7800I-KD Configurations

Part Number	Description
RF-7800I-KD2XX	Keypad Display Unit with two Headset ports
RF-7800I-KD4XX	Keypad Display Unit with one Headset port and one RS-232 port

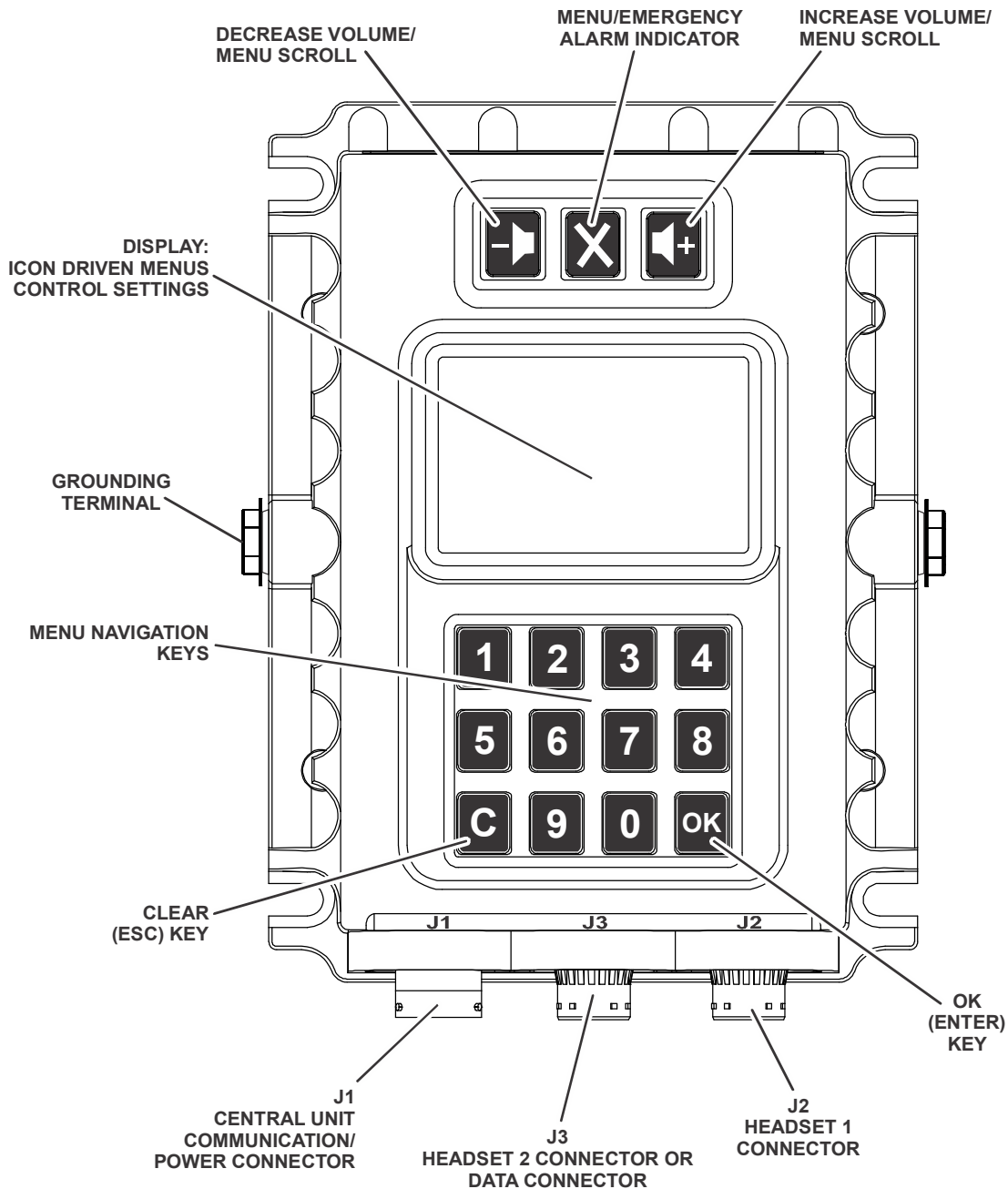
XX denotes color.

See [Figure 4-2](#) and [Figure 4-3](#) for connector information.



CL-0382-4200-001

Figure 4-2. RF-7800I-KD Keypad Display Unit (KD2XX Shown)



CL-0382-4200-101

**Figure 4-3. RF-7800I-KD Keypad Display Unit Front View**

#### 4.2.1 RF-7800I-KD Specifications

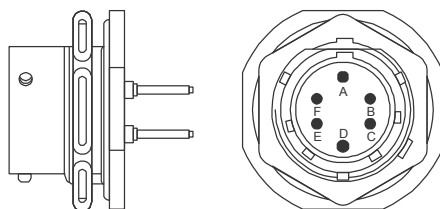
Table 4-2 provides specifications for the RF-7800I-KDXXX.

**Table 4-2. RF-7800I-KD Specifications**

Function	Specification
<b>GENERAL</b>	
Power Input Voltage Range	18-32 VDC nominal (or Central Unit)
Maximum Current Efficiency	80 mA
<b>ENVIRONMENTAL</b>	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
<b>MECHANICAL</b>	
Dimensions	17.20 L x 12.60 W x 5.28 H cm (6.77 L x 4.96 W x 2.07 H inches)
Weight	1 kg (2.2 lbs) without cables

#### 4.2.2 RF-7800I-KD PIN Connector Data

Table 4-3 through Table 4-6 and Figure 4-4 through Figure 4-7 provide pinout data for the connectors on the RF-7800I-KD.



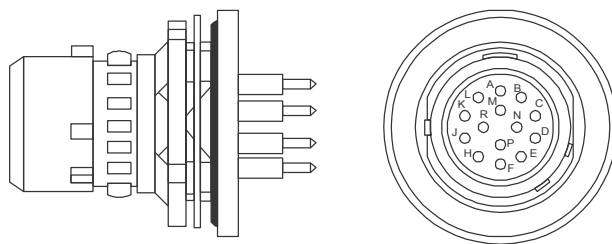
CL-0382-4200-121

**Figure 4-4. RF-7800I-KD J1 Power Connector**

**Table 4-3. RF-7800I-KD J1 Power Pinout Data**

Pin	Input/Output	Signal Name	Description
A	I/O	LIN-B	Line B power
B	I	0V	Ground
C	I	+24 V	+24 Volts
D	I/O	LIN-A	Line A power
E	-	-	-
F	-	-	-





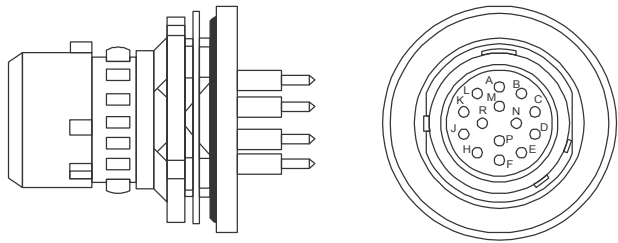
CL-0382-4200-122

**Figure 4-5. RF-7800I-KD J2 Headset Connector**
**Table 4-4. RF-7800I-KD J2 Headset Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	-	A-GND	Ground
C	I	MIC2-B	Microphone
D	-	-	-
E	I	MIC2-A	Microphone
F	I/O	PTT	Push-to-Talk (PTT) switch; short to GND A
H	-	-	-
J	-	-	-
K	O	+24 V/0.5 A	Power
L	O	AUDIO OUT 1	Master Audio Output
M	-	-	-
P	O	-	not used
R	-	-	-

**NOTE**

The J3 connector location can be customized to use one of two connector options which include: A Second Headset or an RS-232 Data Port.

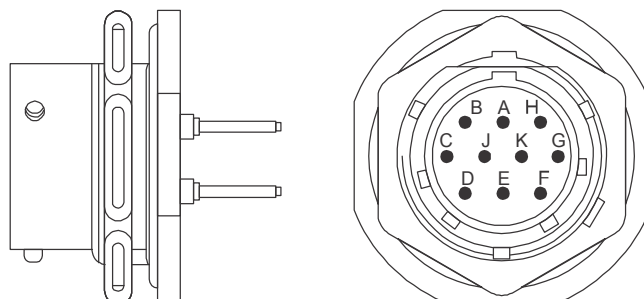


CL-0382-4200-123

**Figure 4-6. RF-7800I-KD J3 Second Headset Connector**

**Table 4-5. RF-7800I-KD J3 Second Headset Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	-	A-GND	Ground
C	I	MIC1-B	Microphone
D	-	-	-
E	I	MIC1-A	Microphone
F	I/O	PTT	Push-to-Talk (PTT) switch; short to GND A
H	-	-	-
J	-	-	-
K	O	+24 V/0.5 A	Power
L	O	AUDIO OUT 2	Slave Audio Output
M	-	-	-
P	-	-	-
R	-	-	-



CL-0382-4200-124

**Figure 4-7. RF-7800I-KD J3 RS-232 Connector (KD4XX Only)**
**Table 4-6. RF-7800I-KD J3 RS-232 Pinout Data**

PIN	Input/Output	Signal Name	Description
A	O	DCD	Data Carrier Detect
B	I	TxD	Transmit Data
C	O	RxD	Receive Data
D	O	CTS	Clear to Send
E	I	RTS	Request to Send
F	O	DSR	Data Set Ready
G	-	GND	Ground
H	I	DTR	Data Terminal Ready
J	O	RI	Ring Indicator
K	O	+3.1 V/0.5 A	+ 3 VDC Output

4.3 RF-7800I-RD ROTARY DIAL UNIT

The RF-7800I-RD Rotary Dial Unit provides operators with access to 16 programmable modes of operation through a one-knob switch interface. Options for the Rotary Dial Unit include use of a second headset port or a RS-232 data port to support a PC or other data.

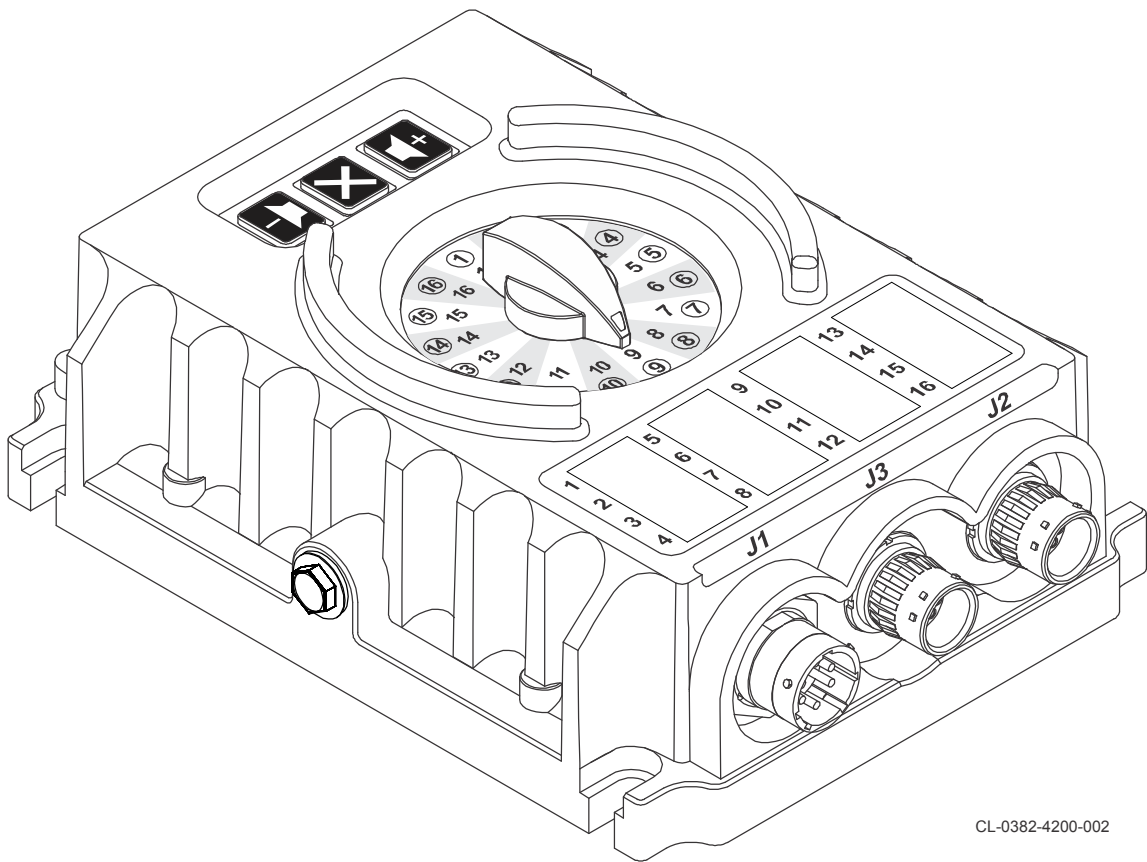
Refer to [Table 4-7](#) for configuration information.

Table 4-7. RF-7800I-RD Configurations

Part Number	Description
RF-7800I-RD2XX	Rotary Dial Unit with two Headset ports
RF-7800I-RD4XX	Rotary Dial Unit with one Headset port and one RS-232 port

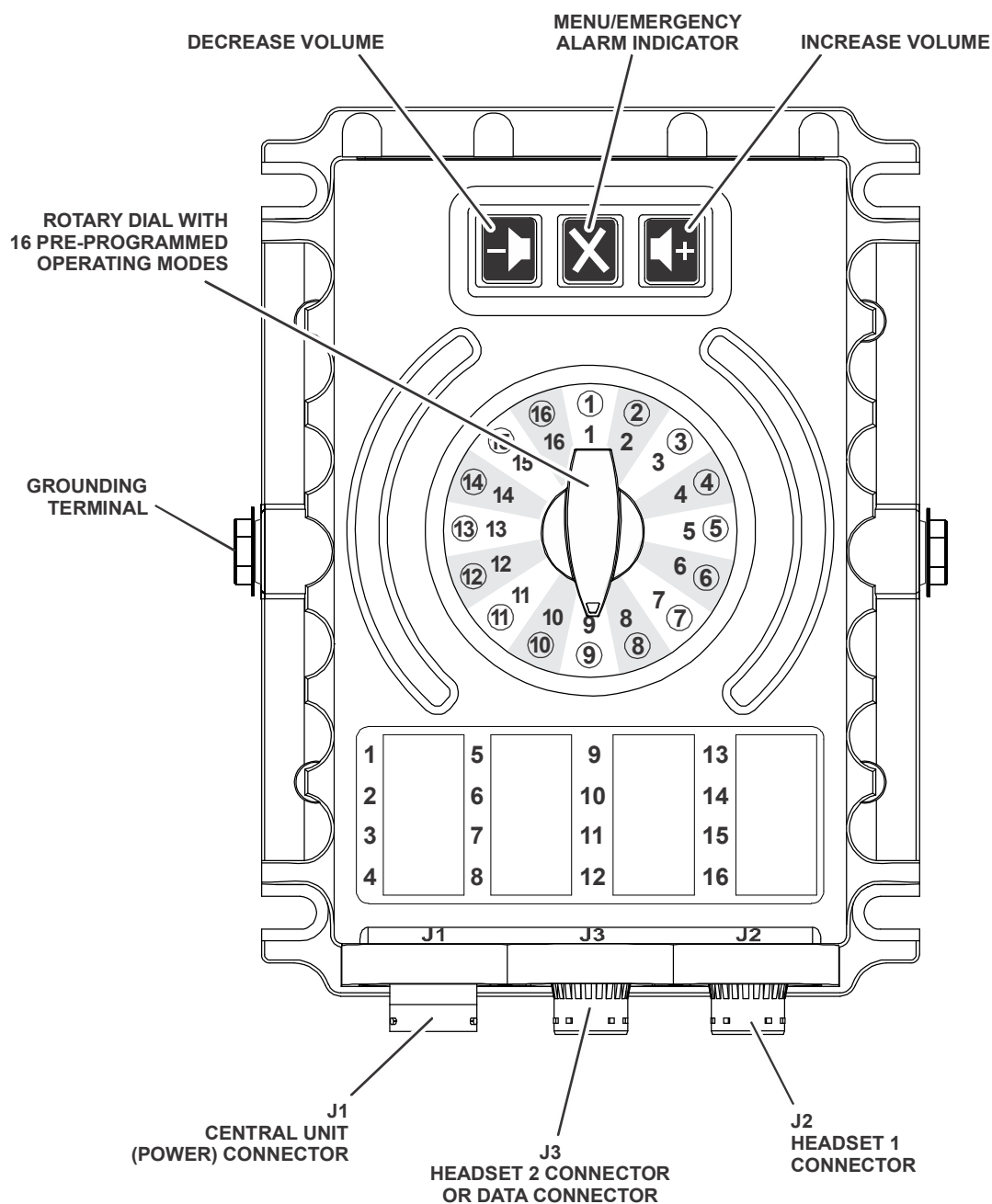
XX denotes color.

See [Figure 4-8](#) and [Figure 4-9](#) for connector information.



CL-0382-4200-002

Figure 4-8. RF-7800I-RD Rotary Dial Unit (RD2XX Shown)



CL-0382-4200-202

**Figure 4-9. RF-7800I-RD Rotary Dial Unit Front View**

### 4.3.1 RF-7800I-RD Specifications

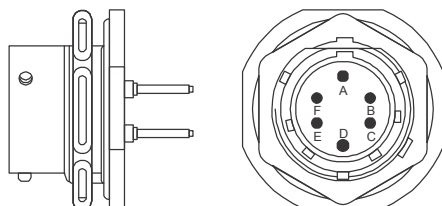
Table 4-8 provides specifications for the RF-7800I-RD.

**Table 4-8. RF-7800I-RD Specifications**

Function	Specification
<b>GENERAL</b>	
Power Input Voltage Range	18-32 VDC nominal (or Central Unit)
Maximum Current Efficiency	40 mA
<b>ENVIRONMENTAL</b>	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
<b>MECHANICAL</b>	
Dimensions	17.2 L x 12.6 W x 6.0 H cm (6.77 L x 4.96 W x 2.36 H inches)
Weight	.9 kg (2.0 lbs) without cables

### 4.3.2 RF-7800I-RD PIN Connector Data

Table 4-9 through Table 4-12 and Figure 4-10 through Figure 4-13 provide pinout data for the connectors on the RF-7800I-RD.

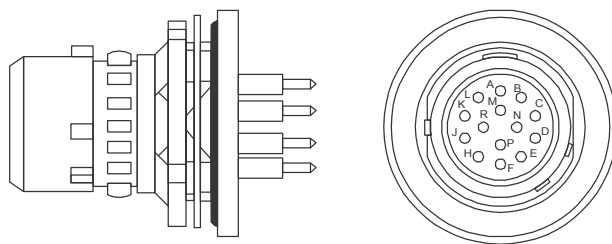


CL-0382-4200-131

**Figure 4-10. RF-7800I-RD J1 Power Connector**

**Table 4-9. RF-7800I-RD J1 Power Pinout Data**

PIN	Input/Output	Signal Name	Description
A	I/O	LIN-B	Line B power
B	I	0 V	Ground
C	I	+24 V	Power
D	I/O	LIN-A	Line A power
E	-	-	-
F	-	-	-



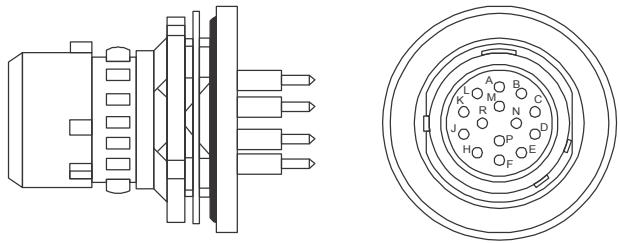
CL-0382-4200-132

**Figure 4-11. RF-7800I-RD J2 Headset Connector**
**Table 4-10. RF-7800I-RD J2 Headset Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	-	A-GND	Ground
C	I	MIC2-B	Microphone
D	-	-	-
E	I	MIC2-A	Microphone
F	I/O	PTT	Push-to-Talk (PTT) switch; short to GND A
H	-	-	-
J	-	-	-
K	O	+24 V/0.5 A	Power
L	O	AUDIO OUT 1	Master Audio Output
M	-	-	-
P	O	-	not used
R	-	-	-

**NOTE**

The J3 connector location can be customized to use one of two connector options which include: A Second Headset or an RS-232 Data Port.



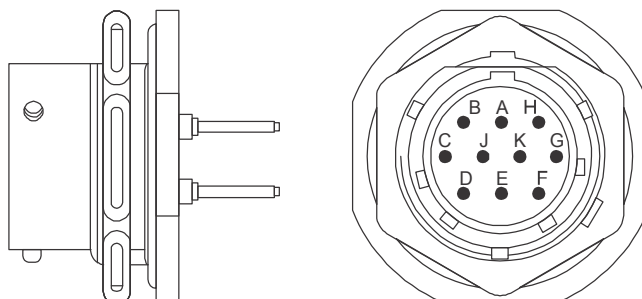
CL-0382-4200-133

**Figure 4-12. RF-7800I-RD J3 Second Headset Connector**

**Table 4-11. RF-7800I-RD J3 Second Headset Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	-	A-GND	Ground
C	I	MIC1-B	Microphone
D	-	-	-
E	I	MIC1-A	Microphone
F	I/O	PTT	Push-to-Talk (PTT) switch; short to GND A
H	-	-	-
J	-	-	-
K	O	+24 V/0.5 A	Power
L	O	AUDIO OUT 2	Slave Audio Output
M	-	-	-
P	-	-	-
R	-	-	-





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**Figure 4-13. RF-7800I-RD J3 RS-232 Connector (RD4XX Only)**
**Table 4-12. RF-7800I-RD J3 RS-232 Pinout Data**

PIN	Input/Output	Signal Name	Description
A	O	DCD	Data Carrier Detect
B	I	TxD	Transmit Data
C	O	RxD	Receive Data
D	O	CTS	Clear to Send
E	I	RTS	Request to Send
F	O	DSR	Data Set Ready
G	-	GND	Ground
H	I	DTR	Data Terminal Ready
J	O	RI	Ring Indicator
K	O	+3.1 V/0.5 A	+ 3 VDC Output

4.4 RF-7800I-BU BASIC UNIT

The RF-7800I-BU Basic Unit provides operators with access to a single pre-programmed mode of operation and a hands-free user-interface. Basic Unit options include the use of a second headset port or a RS-232 data port to support a PC or other data.

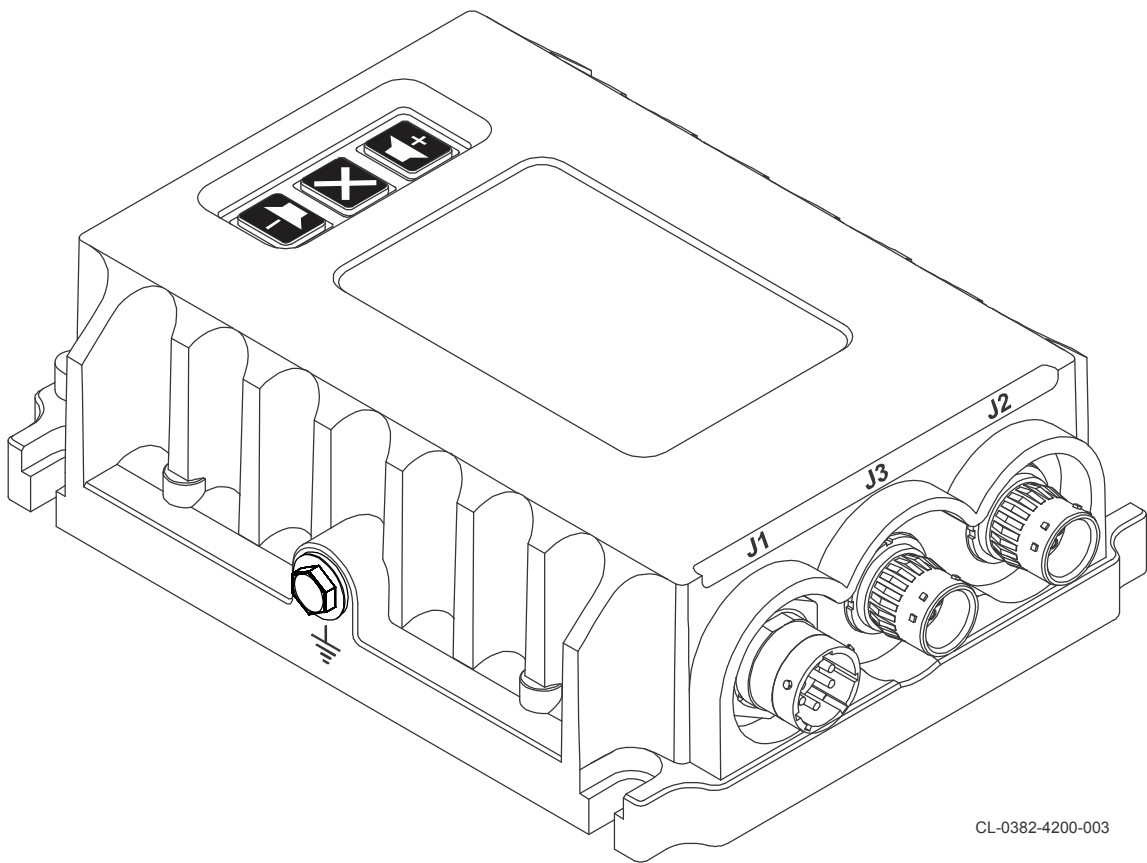
Refer to [Table 4-13](#) for configuration information.

Table 4-13. RF-7800I-BU Configurations

Part Number	Description
RF-7800I-BU2XX	Basic Unit with two Headset ports
RF-7800I-BU4XX	Basic Unit with one Headset port and one RS-232 port

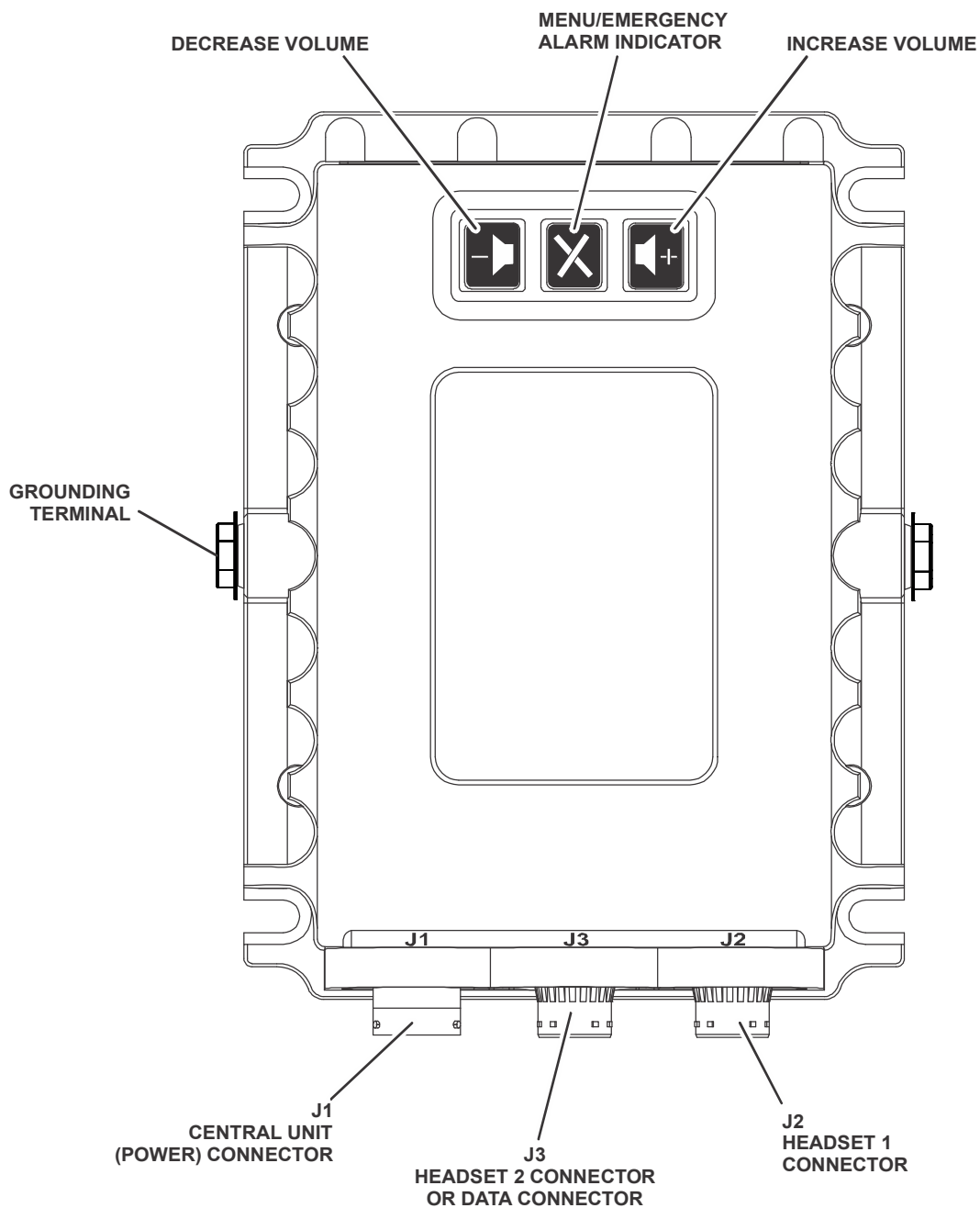
XX denotes color.

See [Figure 4-14](#) and [Figure 4-15](#) for connector information.



CL-0382-4200-003

Figure 4-14. RF-7800I-BU Basic Unit (BU2XX Shown)



CL-0382-4200-303

**Figure 4-15. RF-7800I-BU Basic Unit Front View**

4.4.1 RF-7800I-BU Specifications

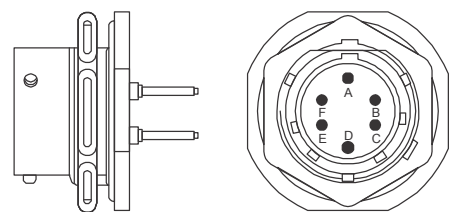
Table 4-14 provides specifications for the RF-7800I-BU.

Table 4-14. RF-7800I-BU Specifications

Function	Specification
GENERAL	
Power Input Voltage Range	18-32 VDC nominal (or Central Unit
Maximum Current Efficiency	40 mA
ENVIRONMENTAL	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
MECHANICAL	
Dimensions	17.20 L x 12.6 W x 5.0 H cm (6.77 L x 4.96 W x 1.96 H inches)
Weight	.82 kg (1.8 lbs) without cables

4.4.2 RF-7800I-BU PIN Connector Data

Table 4-15 through Table 4-18 and Figure 4-16 through Figure 4-19 provide pinout data for the connectors on the RF-7800I-BU.

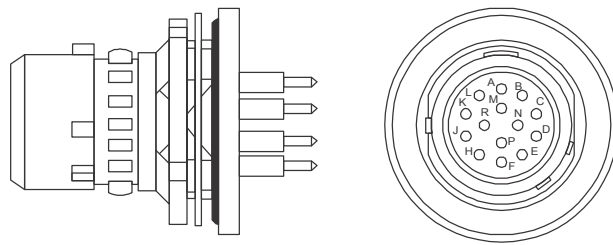


CL-0382-4200-141

Figure 4-16. RF-7800I-BU J1 Power Connector

Table 4-15. RF-7800I-BU J1 Power Pinout Data

PIN	Input/Output	Signal Name	Description
A	I/O	LIN-B	Line B power
B	I	0 V	Ground
C	I	+24 V	Power
D	I/O	LIN-A	Line A power
E	-	-	-
F	-	-	-



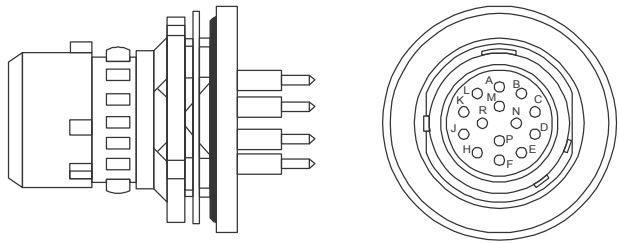
CL-0382-4200-142

**Figure 4-17. RF-7800I-BU J2 Headset Connector**
**Table 4-16. RF-7800I-BU J2 Headset Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	-	A-GND	Ground
C	I	MIC2-B	Microphone
D	-	-	-
E	I	MIC2-A	Microphone
F	I/O	PTT	Push-to-Talk (PTT) switch; short to GND A
H	-	-	-
J	-	-	-
K	O	+24 V/0.5 A	Power
L	O	AUDIO OUT 1	Master Audio Output
M	-	-	-
P	O	-	not used
R	-	-	-

**NOTE**

The J3 connector location can be customized to use one of two connector options which include: A Second Headset or an RS-232 Data Port.

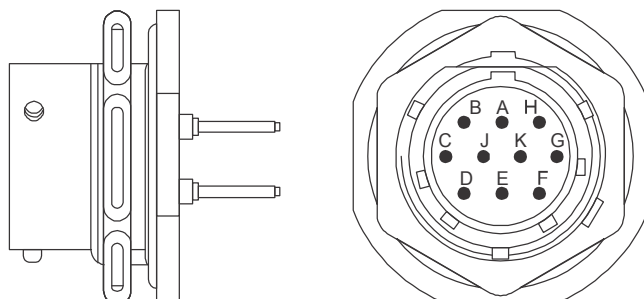


CL-0382-4200-143

**Figure 4-18. RF-7800I-BU J3 Second Headset Connector**

**Table 4-17. RF-7800I-BU J3 Second Headset Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	-	A-GND	Ground
C	I	MIC1-B	Microphone
D	-	-	-
E	I	MIC1-A	Microphone
F	I/O	PTT	Push-to-Talk (PTT) switch; short to GND A
H	-	-	-
J	-	-	-
K	O	+24 V/0.5 A	Power
L	O	AUDIO OUT 2	Slave Audio Output
M	-	-	-
P	-	-	-
R	-	-	-



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**Figure 4-19. RF-7800I-BU J3 RS-232 Connector (BU4XX Only)**
**Table 4-18. RF-7800I-BU J3 RS-232 Pinout Data**

PIN	Input/Output	Signal Name	Description
A	O	DCD	Data Carrier Detect
B	I	TxD	Transmit Data
C	O	RxD	Receive Data
D	O	CTS	Clear to Send
E	I	RTS	Request to Send
F	O	DSR	Data Set Ready
G	-	GND	Ground
H	I	DTR	Data Terminal Ready
J	O	RI	Ring Indicator
K	O	+3.1 V/0.5 A	+ 3 VDC Output

## 4.5 ADDITIONAL HARDWARE

The RF-7800I Telephone and Alarm Unit and RF-7800I Speaker Unit are additional hardware options available for all RF-7800I configurations.

For the RF-7800I-TA Telephone and Alarm Unit, refer to [Paragraph 4.5.1](#).

For the RF-7800I-SA Speaker Unit, refer to [Paragraph 4.5.3](#).

### 4.5.1 RF-7800I-TA Telephone Alarm Unit

The RF-7800I-TA Telephone and Alarm Unit provides an interface to a field telephone or Private Branch Exchange (PBX) to enable direct dialing from the Crew Stations. The Telephone and Alarm Unit provides networking capabilities with other intercom systems through an inter-vehicle field wire interface. The Telephone and Alarm Unit also includes an alarm/sensor interface for monitoring up to eight warning signals originated by vehicle subsystems (for example, engine warnings). Events trigger a warning voice broadcast relevant to the alarm source while flashing the Crew Station's red light.

The RF-7800I-TA Telephone and Alarm Unit is configurable to detect the following signals:

- Qty. 4, GND/ not connected
- Qty. 4, 24 V/ not connected

Refer to [Table 4-19](#) for configuration information.

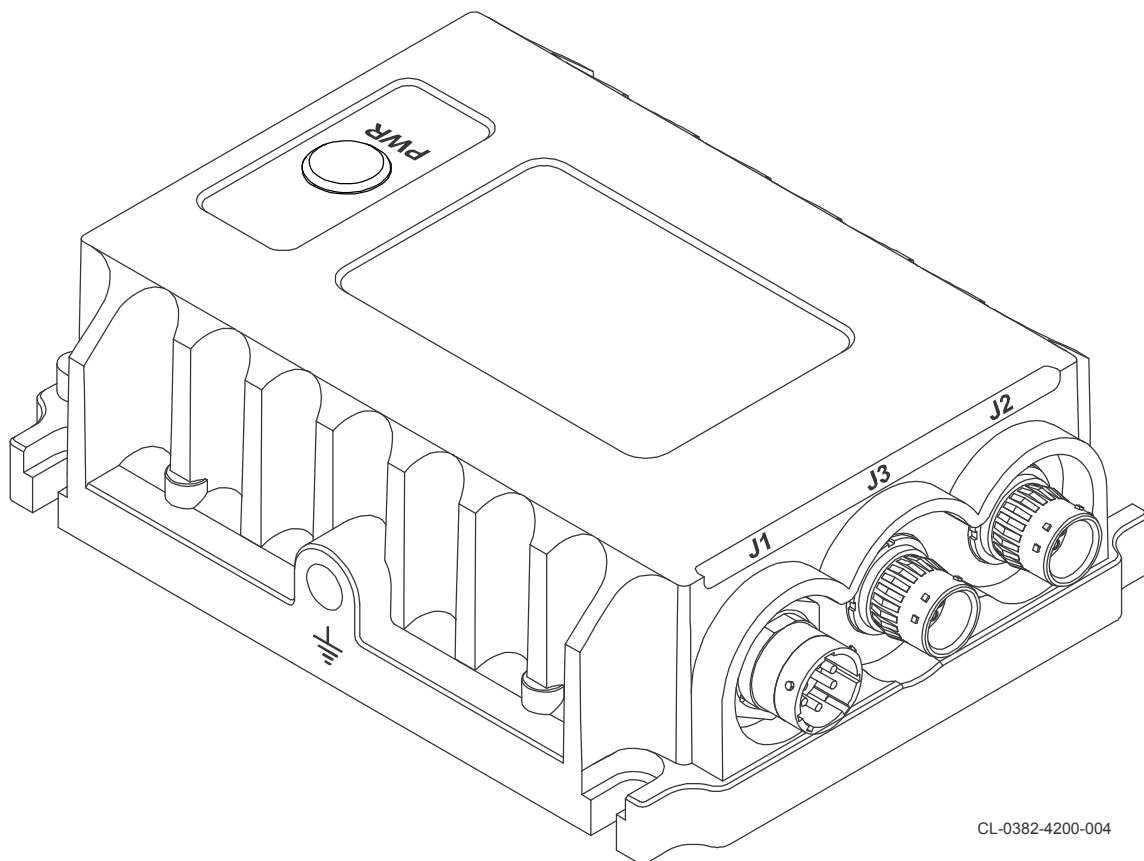
**Table 4-19. RF-7800I-TA Configurations**

Part Number	Description
RF-7800I-TA10X	Telephone Alarm Unit

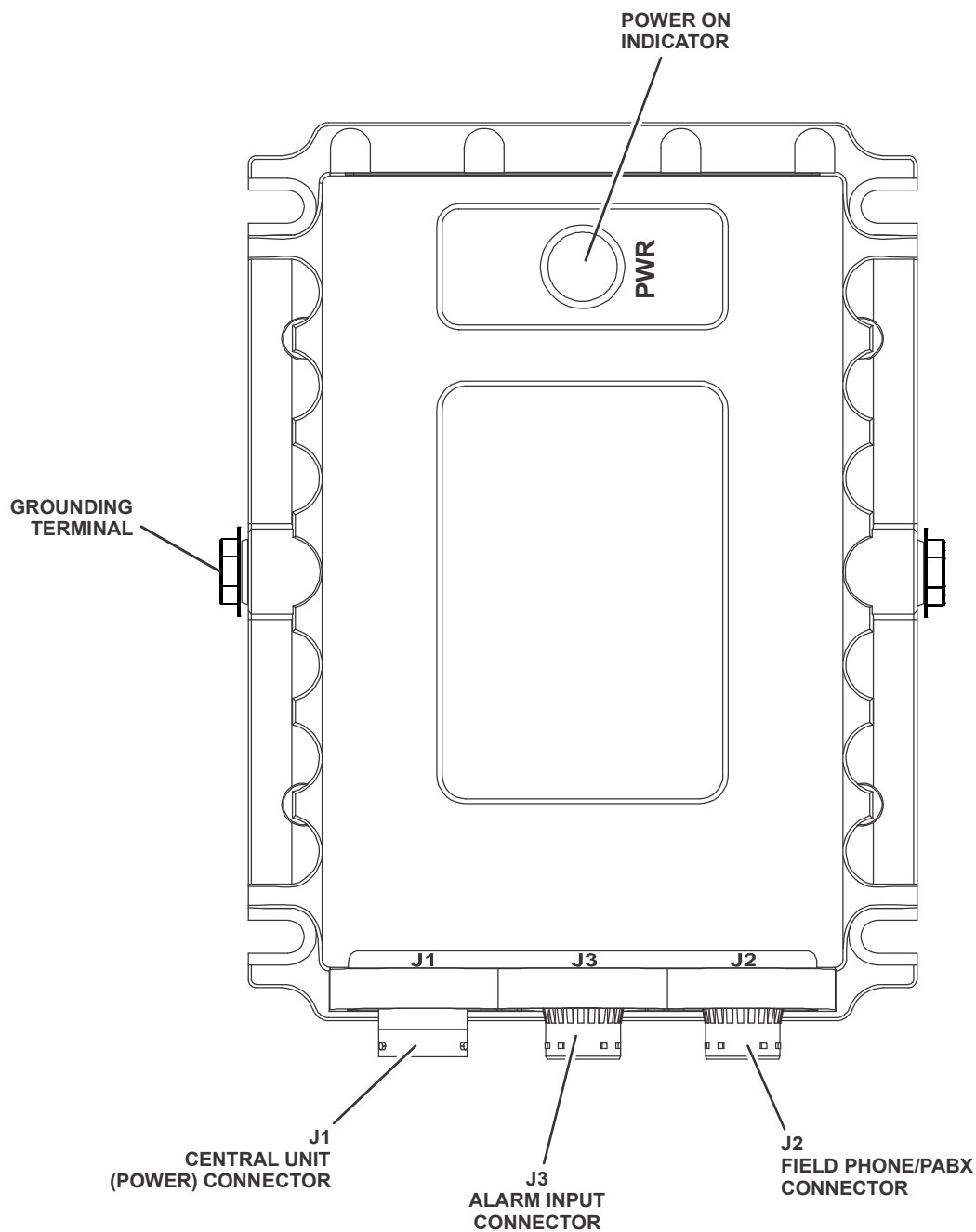
X denotes color.

See [Figure 4-20](#) and [Figure 4-21](#) for connector information.





**Figure 4-20. RF-7800I-TA10X Telephone Alarm Unit**



CL-0382-4200-404

**Figure 4-21. RF-7800I-TA10X Telephone Alarm Unit Front View**

#### 4.5.1.1 RF-7800I-TA Specifications

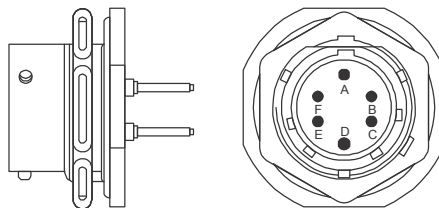
Table 4-20 provides specifications for the RF-7800I-TA.

**Table 4-20. RF-7800I-TA Specifications**

Function	Specification
<b>GENERAL</b>	
Power Input Voltage Range	18-32 VDC nominal (or Central Unit)
Maximum Current Efficiency	100 mA
<b>ENVIRONMENTAL</b>	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
<b>MECHANICAL</b>	
Dimensions	17.20 L x 12.6 W x 5.0 H cm (6.77 L x 4.96 W x 1.96 H inches)
Weight	.9 kg (2.0 lbs) without cables

#### 4.5.2 RF-7800I-TA PIN Connector Data

Table 4-21 through Table 4-23 and Figure 4-22 through Figure 4-24 provide pinout data for the connectors on the RF-7800I-TA.

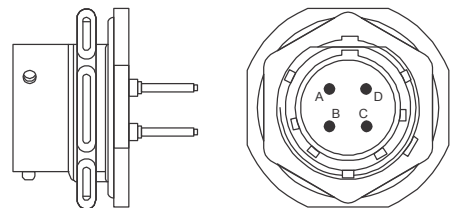


CL-0382-4200-152

**Figure 4-22. RF-7800I-TA J1 Power Connector**

**Table 4-21. RF-7800I-TA J1 Power Pinout Data**

PIN	Input/Output	Signal Name	Description
A	I/O	LIN-B	Line B power
B	I	0 V	Ground
C	I	+24 V	Power
D	I/O	LIN-B	Line A power
E	-	-	-
F	-	-	-



CL-0382-4200-150

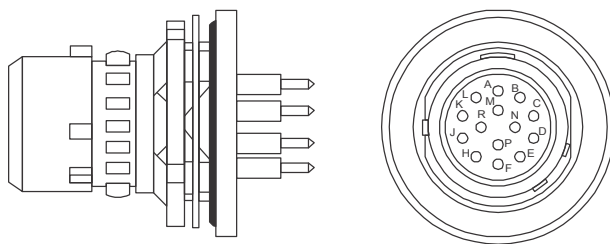
**Figure 4-23. RF-7800I-TA J2 Telephone Connector**

**Table 4-22. RF-7800I-TA J2 Telephone Pinout Data**

PIN	Input/Output	Signal Name	Description
A	I/O	TFL-MB-A	Field phone (line unbiased)
B	I/O	TFL-MB-B	Field phone (line unbiased)
C	I/O	TFL-CA-A	Private Automatic Branch Exchange (PABX)
D	I/O	TFL-CA-B	PABX

**NOTE**

Intercom does not supply power to field telephone, field telephone must be self-powered.



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**Figure 4-24. RF-7800I-TA J3 Alarm Input Connector**
**Table 4-23. RF-7800I-TA J3 Alarm Input Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	GND	Ground
B	I	A1	Alarm 1 Active High
C	I/O	A2	Alarm 2 Active High
D	-	-	-
E	I	A3	Alarm 3 Active High
F	I	A4	Alarm 4 Active High
H	-	-	-
J	-	-	-
K	I	PWR	Power
L	I	A5	Alarm 5 Active Low/GND
M	I/O	A6	Alarm 6 Active Low/GND
N	I	A7	Alarm 7 Active Low/GND
P	I	A8	Alarm 8 Active Low/GND
R	-	-	-

4.5.3 RF-7800I-SA Speaker Unit

The RF-7800I-SA Speaker Unit features an 8-watt amplifier and a 5-step volume control knob (with position 0 = mute). Speaker volume control is also software configurable. The RF-7800I Speaker Unit enables single or multiple channel audio of selected voice channels and its high-power is ideal for command broadcasts or radio monitoring.

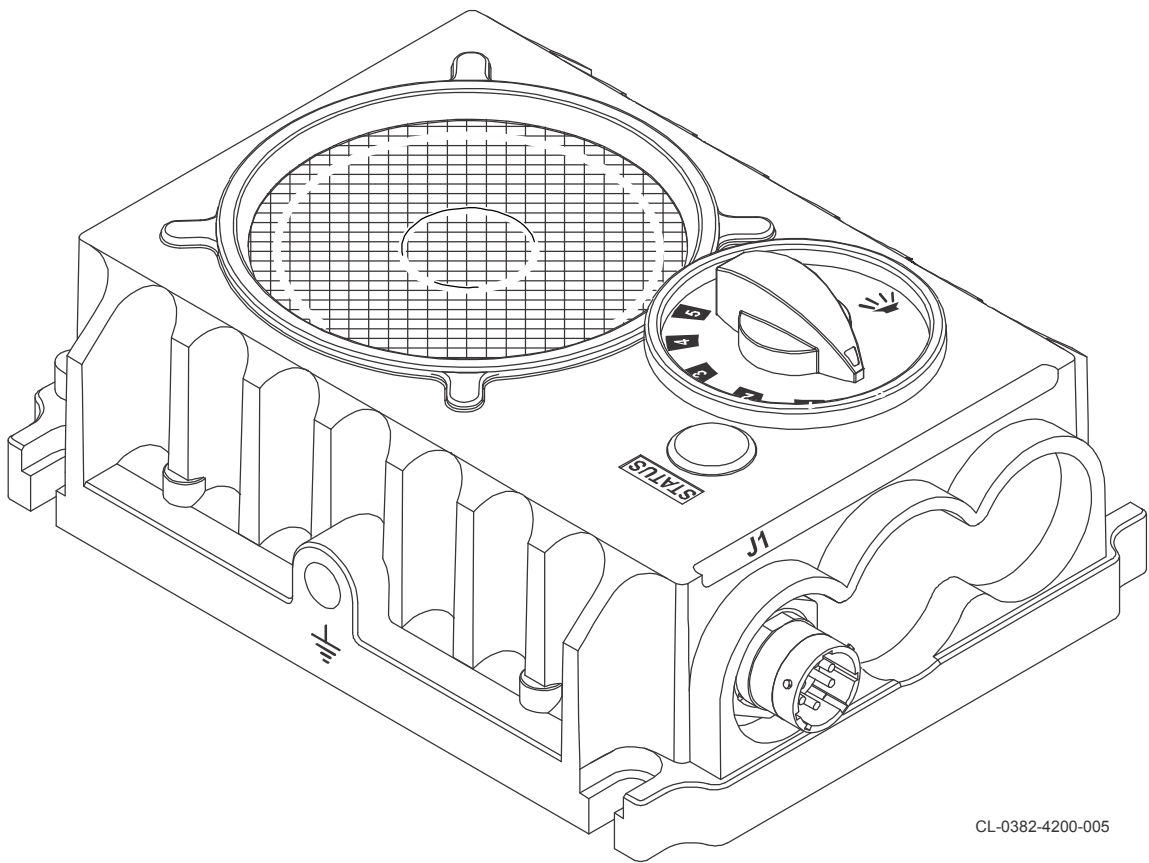
Refer to [Table 4-24](#) for configuration information.

Table 4-24. RF-7800I-SA Configurations

Part Number	Description
RF-7800I-SA10X	Speaker Unit

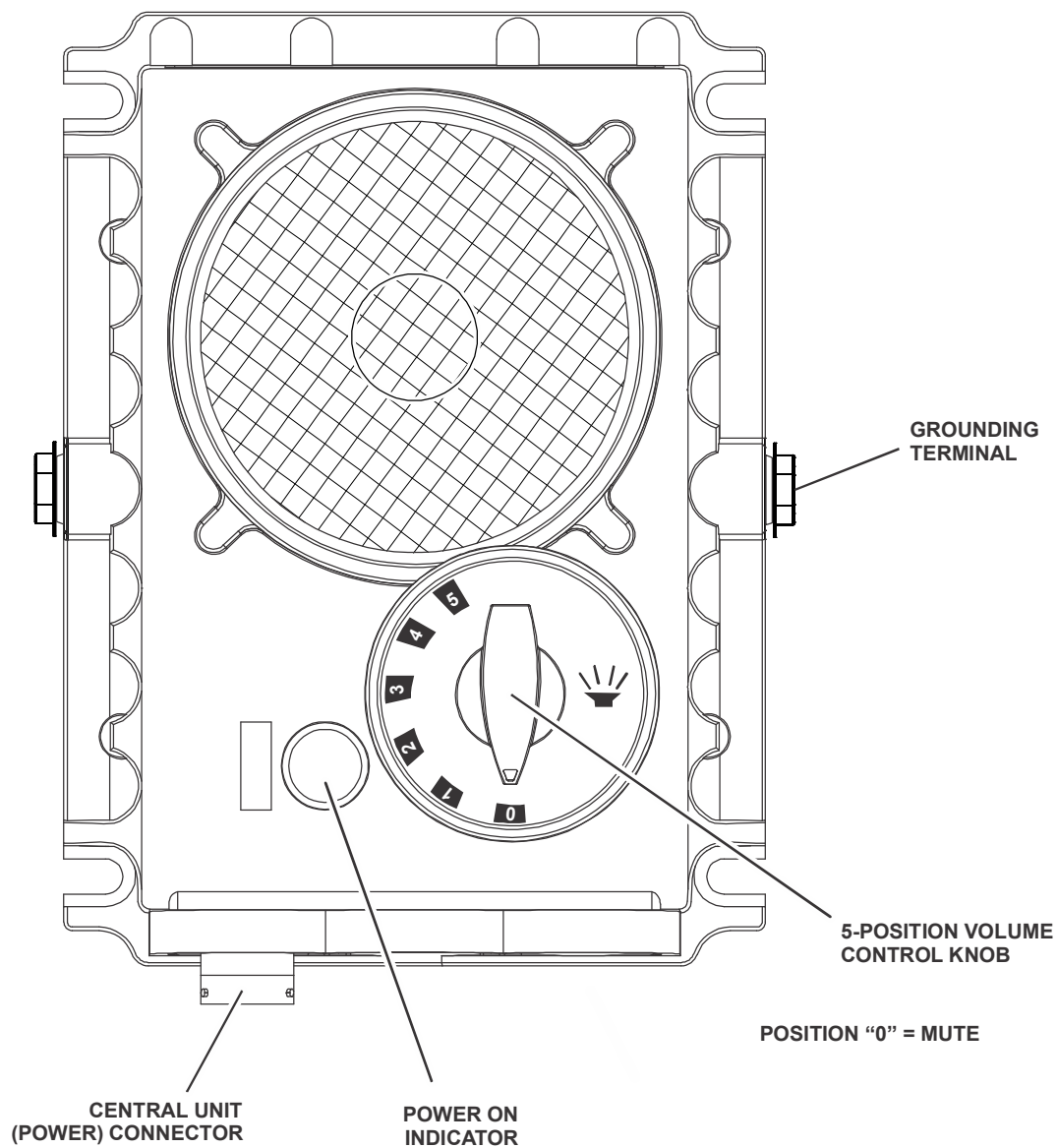
X denotes color.

See [Figure 4-25](#) and [Figure 4-26](#) for connector information.



CL-0382-4200-005

Figure 4-25. RF-7800I-SA10X Speaker Unit



CL-0382-4200-505A

**Figure 4-26. RF-7800I-SA Speaker Unit Front View**

#### 4.5.3.1 RF-7800I-SA Specifications

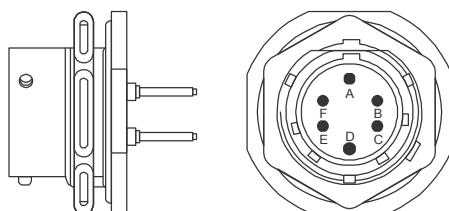
Table 4-25 provides specifications for the RF-7800I-SA.

**Table 4-25. RF-7800I-SA Specifications**

Function	Specification
<b>GENERAL</b>	
Power Input Voltage Range	18-32 VDC nominal
Maximum Current Efficiency	1 Amp maximum
<b>ENVIRONMENTAL</b>	
Storage Temperature Range	-50 °C to +65 °C (-58 °F to +149 °F) MIL-STD 810G
<b>MECHANICAL</b>	
Dimensions	17.20 L x 12.6 W x 6.1 H cm (6.77 L x 4.96 W x 2.40 H inches)
Weight	1 kg (2.2 lbs) without cables

#### 4.5.4 RF-7800I-SA PIN Connector Data

Table 4-26 and Figure 4-27 provide pinout data for the connectors on the RF-7800I-SA.



CL-0382-4200-160

**Figure 4-27. RF-7800I-SA J1 Power Connector**

**Table 4-26. RF-7800I-SA J1 Power Pinout Data**

PIN	Input/Output	Signal Name	Description
A	-	-	-
B	I	0 V	Ground
C	I	+24 V	Power
D	-	-	-
E	I	AUDIO_IN_1	Audio in 1
F	I	AUDIO_IN_2	Audio in 2



## **CHAPTER 5**

### **SCHEDULED MAINTENANCE**

#### **5.1 PREVENTIVE MAINTENANCE**

Preventive maintenance is the systematic, daily care and inspection of equipment to prevent equipment failure and reduce downtime.

[Table 5-1](#) contains the checks and services that should either be performed on a daily basis when the equipment is in use or on a weekly basis when the equipment is in a standby condition. [Table 5-2](#) contains the checks and services that should be performed on a weekly basis.

**Table 5-1. Daily Preventive Maintenance Checks and Services**

<b>Check No.</b>	<b>Item to be Inspected</b>	<b>Procedure</b>
1	Completeness	Check to see that the equipment is complete.
2	Exterior Surfaces	Remove dust, dirt, and moisture from all surfaces.
3	Operation	Verify operation, turn-on power.
4	Installation	Check hardware and cables for looseness. Make sure units are secure.

**Table 5-2. Weekly Preventive Maintenance Checks and Services**

<b>Check No.</b>	<b>Item to be Inspected</b>	<b>Procedure</b>
1	Connectors	Check all connectors for debris, damage, or corrosion. Elevate to a higher level of maintenance, if required.
2	Cables	Check for cracks or cuts; repair or replace as required.

#### **5.2 AFTER EXPOSURE TO WATER**

After exposure to fresh or salt water, detach cabling from each unit. Wipe connectors using fresh, clean water and thoroughly dry with a soft cloth to prevent corrosion. In the event corrosion does occur, clean the connectors using a Nylon Mesh Abrasive Pad (3M Scotchbrite 7447 or Equivalent).

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## **CHAPTER 6**

### **SUPPORT DOCUMENTATION**

#### **6.1 INTRODUCTION**

This chapter contains reference data for system level support of the RF-7800I Vehicular Intercom System. This information consists of accessory and cable part number lists.

#### **6.2 ADDITIONAL SUPPORT**

To ensure our customers have continued success with our products, Harris RF Communications provides logistics planning, spares, tools, technical documentation, training, product service, and field service. For any of these services, call 585-244-5830 (toll free: 866-264-8040), or visit the Harris RF Support web site at <https://premier.harris.com/rfcomm>.

#### **6.3 INTERCOM ACCESSORIES AND CABLES**

This sections lists the accessories available for the RF-7800I Vehicular Intercom System. Accessories include headsets, cables, and shock mounts. Information covered in this section includes cable part numbers and descriptions.

##### **NOTE**

Not all supported accessories/cables are listed here. Contact Harris for an up-to-date list of supported RF-7800I Vehicular Intercom System accessories.

- For Headsets and Headset cables, refer to [Paragraph 6.3.1](#).
- For Intercom System cables, refer to [Paragraph 6.3.2](#).
- For Radio cables, refer to [Paragraph 6.3.3](#).
- For Intercom System Shock Mounts, refer to [Paragraph 6.3.4](#).
- For Dust Caps, refer to [Paragraph 6.3.5](#).

### 6.3.1 Headsets and Headset Cables

The RF-7800I Vehicular Intercom System is designed to work with a wide range of headsets. The vehicular headsets used with the RF-7800I typically come equipped with Active Noise Reduction (ANR) voice communications. Refer to [Table 6-1](#) for a list of tested, compatible headsets and headset cables.

#### NOTE

Numerous headsets and headset cables are compatible. For an up-to-date list, contact Harris.

**Table 6-1. Headsets and Headset Cables**

Headset	Description	Recommended Cable
A06-0015-001	Headset, Under Helmet, Light ANR, Live Push-to-Talk Active	12106-1050-A32
A30-0521-001	Headset, Integrated Helmet, Heavy ANR	12106-1350-A32
A30-0521-002	Headset, Under Helmet, Heavy	12106-1350-A32

### 6.3.2 Intercom System Cables

The cables used in RF-7800I Vehicular Intercom System are for unit to unit cabling and Intercom to vehicle cabling and are configuration dependent.

RF-7800I Vehicular Intercom System cables include:

- For Central Unit Ancillary cables, refer to [Table 6-2](#).
- For Central Unit Accessory cables, refer to [Table 6-3](#).
- For Crew Station cables, refer to [Table 6-4](#).
- For Ethernet and serial cables, refer to [Table 6-5](#).
- For Speaker cables, refer to [Table 6-6](#).

**Table 6-2. Central Unit Ancillary Cables**

Part Number	Description
12106-1003-A020	Cable Assembly, DC Power to Central Unit, Right Angle
12106-1013-AXXX	Cable Assembly, Basic Unit/Keypad Display/Rotary Dial/Telephone Alarm to Distribution cable or Remote Distribution Box
12106-1322-A002	Cable Assembly, CU to 2 Crew, Extension
12106-1323-A002	Cable Assembly, CU to 3 Crew, Extension
12106-1324-A002	Cable Assembly, Central Unit to Four (4) Crew Extension
12106-1328-A002	Cable Assembly, Central Unit to Eight (8) Crew Extension

**Table 6-2. Central Unit Ancillary Cables (Continued)**

<b>Part Number</b>	<b>Description</b>
12106-1344-A006	Cable Assembly, Central Unit to Remote Distribution Box
12106-1344-A010	Cable Assembly, Central Unit to Remote Distribution Box
12106-1346-A18	Cable Assembly, Central Unit Light to Distribution Unit, Speaker, Two (2) Radios
12106-1347-A002	Cable Assembly, Central Unit Light to Two (2) Crew Stations, Speaker, Two (2) Radios, Extension
12106-1348-A002	Cable Assembly, Central Unit Light to Four (4) Crew Stations, Speaker, Two (2) Radios, Extension

**Table 6-3. Central Unit Accessory Cables**

<b>Part Number</b>	<b>Description</b>
12106-1353-A006	Cable Assembly, Central Unit to Two (2) Ethernet, One (1) RS-232, Program Cable
12106-1354-A006	Cable Assembly, Central Unit to One (1) Ethernet, RJ-45
12106-1355-A006	Cable Assembly, Central Unit COM Port to USB, 37-pin
12106-1356-A006	Cable Assembly, CU COM Port to 9-Pin D Socket, J5-J8
12106-1357-A006	Cable Assembly, CU COM Port to USB and 9-Pin D Socket
12106-1358-A006	Cable Assembly, CU COM Port to 9-Pin D Plug
12106-1359-A006	Cable Assembly, Y, CU COM Port to USB 9-Pin D Plug
12106-1360-A006	Cable Assembly, CU COM Port to J2 GPS
12106-1364-A010	Cable Assembly, Central Unit to Speaker
12106-1366-A006	Cable Assembly, Central Unit COM Port to Precision Lightweight Global Positioning System (GPS) Receiver (PLGR)/Defense Advanced GPS Receiver (DAGR)

**Table 6-4. Crew Station Cables**

Part Number	Description
12106-1050-A32	Cable Assembly, Crew Station to Headset
12106-1065-A015	Cable Assembly, Headset Cable Extender
12106-1072-A006	Cable Assembly, Field Phone and Private Automatic Branch Exchange (PABX)
12106-1350-A32	Cable Assembly, Crew Station to RA-108/315 Headset
12106-1351-A006	Cable Assembly, Crew Station to RS-232 (PC)
12106-1374-A010	Cable Assembly, Alarm, Open Ended
12106-1450-A32	Cable Assembly, Crew Station to 6-Pin Audio

**Table 6-5. Ethernet/Serial Cables**

Part Number	Description
12106-1351-A006	Cable, Crew Station to RS-232 (PC)
12106-1353-A006	Y-Cable, Ethernet/RS-232
12106-1354-A006	Cable, Central Unit to One (1) Ethernet, RJ45
12106-1355-A006	Cable Assembly, Central Unit COM Port to USB, 37-Pin
12106-1356-A006	Cable Assembly, CU COM Port to 9-Pin D Socket, J5-J8

**Table 6-6. Speaker Cables**

Part Number	Description
12106-2364-A010	Cable, Central Unit to Speaker, RT Angle

### 6.3.3 Radio Cables

The RF-7800I allows voice and data operation with a wide range of Harris Falcon II and Falcon III radios covering HF, VHF, UHF, and Broadband Global Area Network (BGAN) satellite communications.

#### NOTE

Refer to [Table 1-1](#) for a list of related radio operation manuals that list cable part numbers. Multiple cable length options are available and not all are called out in [Table 6-7](#).

**Table 6-7. Harris Radio Cables**

<b>Part Number</b>	<b>Description</b>
12106-1401-A006	Cable Assembly, Central Unit to AN/PRC-152
12106-1405-A006	Cable Assembly, Central Unit to AN/PRC-117F
12106-1412-A006	Cable Assembly, Central Unit to RF-7800V-HH
12106-1413-A006	Cable Assembly, Central Unit to RF-7800M-MP or AN/PRC-117G
12106-1420-A006	Cable Assembly, Central Unit to 6-Pin Audio
12106-1421-A006	Cable Assembly, 45 Degree Central Unit to AN/PRC-152
12106-1501-A006	Cable Assembly, Central Unit to RF-5800H or AN/PRC-150 or RF-7800H
12106-1502-A006	Cable Assembly, Central Unit to RF-5800H-V006 or RF-7800H
12106-1503-A006	Cable Assembly, HF and AN/PRC-150 to CU w/PA Ext, 37-Pin, 150 W PA
12106-1503-A1	Cable Assembly, HF and AN/PRC-150 to CU w/PA Ext, 37-Pin, 120/400 W PA
12106-1503-A2	Cable Assembly, HF and AN/PRC-150 to CU w/PA Ext, 37-Pin, 120/400 W PA
12106-1505-A006	Cable Assembly, Central Unit to RF-5800V-MP or 5800M-MP
12106-1507-A006	Cable Assembly, Central Unit to RF-5800V-HH or RF-5800M-HH
12106-1509-A006	Cable Assembly, Central Unit to RF-7800S Voice Only
12106-1426-A006	Cable Assembly, RF-7800I Intercom to 18 Pin Intercom
12106-1510-A006	Cable Assembly, Central Unit USB to RF-7800S

#### 6.3.4 Intercom Shock Mounts

The RF-7800I Vehicular Intercom System provides several Shock Mount accessory options. Refer to [Table 6-8](#).

**Table 6-8. Intercom Shock Mounts**

<b>Part Number</b>	<b>Description</b>
RF-7800I-VM301	Shock Mount, Quick Release, Crew Station, Black
12109-6410-01	Shock Mount, VIS, CU/CU Light

### 6.3.5 Dust Caps

Refer to [Table 6-9](#) for a listing of replacement dust caps.

**Table 6-9. Dust Caps**

Part Number	Where Used	Notes/Usage
12109-6701-01	RF-7800I-BU20X RF-7800I-RD20X RF-7800I-KD20X	Provides dust cap covers for both the J2 and J3 port on any 2 headset variant of a Crew Stations.
	RF-7800I-TA10X	Provides dust cap covers for both the J2 and J3 port on the Telephone and Alarm Unit.
	RF-7800I-CU10X	Provides dust cap covers for up to 2 of the COM ports on the Central Unit (J5, J6, J7, J8)
12109-6702-01	RF-7800I-BU40X RF-7800I-RD40X RF-7800I-KD40X	Provides dust cap covers for both the J2 and J3 port on any Crew Station with the 1 headset and 1 RS-232 port.
12109-6703-01	RF-7800I-BU20X RF-7800I-RD20X RF-7800I-KD20X	Provides 1 dust cap cover for either the J2 or the J3 port on any 2 headset variant Crew Station.
	RF-7800I-TA10X	Provides 1 dust cap cover for either the J2 or J3 port on the Telephone and Alarm Unit.
	RF-7800I-CUX0X	Provides 1 dust cap cover for the J2 Programming/Ethernet Port on the Central Unit.
12109-6704-01	RF-7800I-CU10X	Provides dust cap covers for up to 2 of the Radio ports on the Central Unit (J9, J10, J11, J12)
12109-6705-01	RF-7800I-CU10X	Provides dust cap cover for the J4 Speaker Unit port on the Central Unit.

### 6.3.6 Accessories

Refer to [Table 6-10](#) for a list of accessories.

**Table 6-10. Accessories**

Part Number	Description
12106-3650-01	Intercom System, Remote Distribution Box, Eight (8) Port, Green
12106-3650-02	Intercom System, Remote Distribution Box, Six (6) Port, Green
12106-3650-03	Intercom System, Remote Distribution Box, Four(4) Port, Green
12109-6050-01	Kit, Intercom Field Wire
RF-6015-HS002	Field Telephone



## **APPENDIX A**

### **INTERCOM VEHICULAR APPLICATIONS**

#### **A.1 CONFIGURATION EXAMPLES**

This section provides examples of four typical RF-7800I Intercom Vehicular System applications with configuration diagrams and corresponding parts lists. The four application types include:

- For Intercom Voice Only Configuration, refer to [Paragraph A.1.1](#).
- For Intercom Voice and Data Configuration, refer to [Paragraph A.1.2](#).
- For Intercom Voice and Data with Alarm Configuration, refer to [Paragraph A.1.3](#).
- For Intercom Voice and Data with Alarm and Telephone Configuration, refer to [Paragraph A.1.4](#).

#### **NOTE**

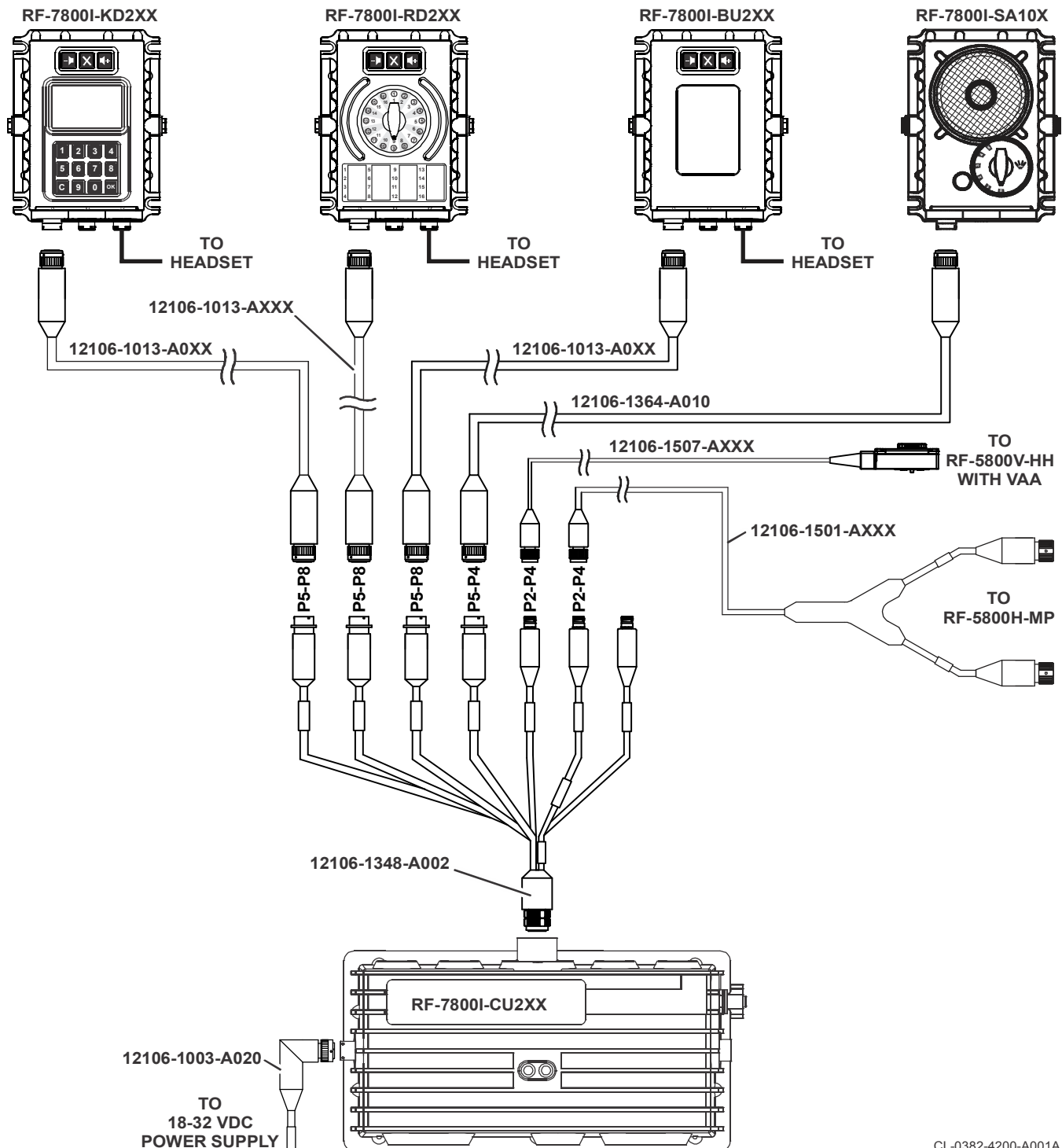
The figures and tables provided in this appendix are for reference only. Multiple cable length options are available and not all are called out in the following tables and figures. Custom configurations will vary.

##### **A.1.1 Intercom Voice Only Configuration**

The RF-7800I Intercom Vehicular System Voice Only configuration supports up to two radios and up to four Crew Stations and additional components. The specific quantity and type of stations are dependent on the individual vehicle configuration and/or mission requirements. In Voice Only configurations, a Central Unit Light is used for voice channel switching between the Crew Stations and additional components and two radios.

The vehicle commander uses a RF-7800I-KD Keypad Display Unit for controlling and configuring the system in real-time. The Keypad Display Unit is equipped with a secondary headset connection for changing mission requirements. Subordinate crew stations use a pre-programmed RF-7800I-BU Basic Units and RF-7800I-RD Rotary Dial Units with predefined configurations. Cabling is simplified by using the 12106-1348-A002.

See [Figure A-1](#) for an example of an RF-7800I Intercom Vehicular System Voice Only configuration and refer to [Table A-1](#) for a parts list.



CL-0382-4200-A001A

**Figure A-1. Intercom Voice Only Diagram**

### NOTE

Some radio and accessory part numbers are not included in table. For additional radio and accessory cable information, refer to [Chapter 6](#).

**Table A-1. Intercom Voice Only Parts List**

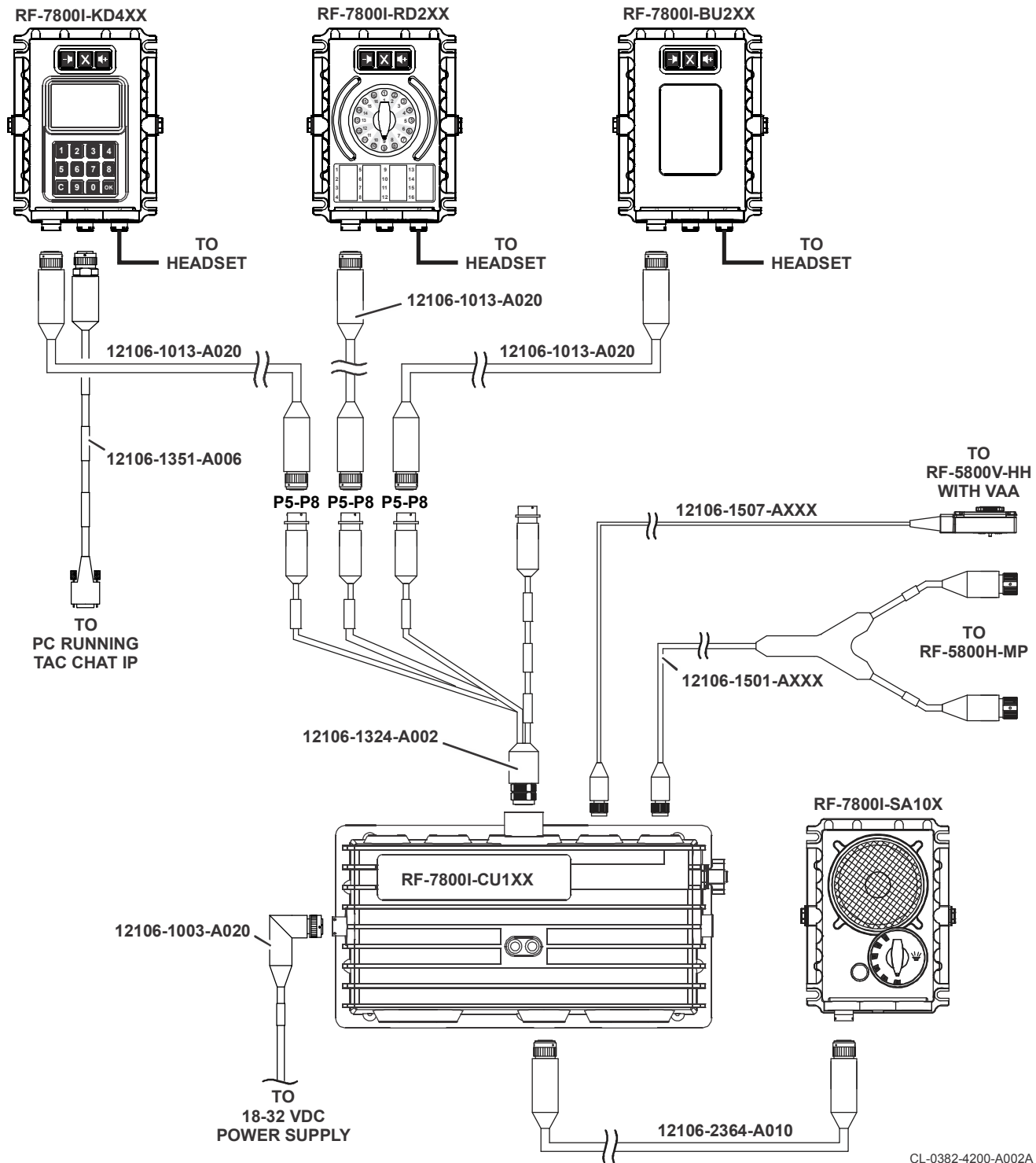
Part Number	Quantity	Description
RF-7800I-CU2XX	1	Central Unit Light
RF-7800I-KD2XX	1	Keypad Display Unit
RF-7800I-RD2XX	1	Rotary Dial Unit
RF-7800I-BU2XX	1	Basic Unit
RF-7800I-SA10X	1	Speaker Unit
12106-1348-A002	1	Distribution Cable
12106-1013-A0XX	3	Cable, Crew Station to Distribution Box
12106-1003-A020	1	DC Power, Central Unit
12106-1507-AXXX	1	Cable, RF-5800V-HH to 12106-1343-A18 W-Cable
12106-1501-AXXX	1	Cable, RF-5800H-MP to 12106-1343-A18 W-Cable
12106-1364-A010	1	Cable, Speaker

#### A.1.2 Intercom Voice and Data Configuration

The RF-7800I Intercom Vehicular System Voice and Data configuration can support up to four radios and up to eight Crew Stations and additional components. The specific quantity and type of stations are dependent on the individual vehicle configuration and/or mission requirements. In Voice and Data configurations, a Central Unit is used for voice channel switching and digital packet routing between two Crew Stations and additional components. It is also used for voice channel switching between the Crew Stations and additional components and two radios.

The vehicle commander uses a RF-7800I-KD Keypad Display Unit for controlling and configuring the system in real-time and to send/receive data. Subordinate crew stations use a pre-programmed RF-7800I-BU Basic Units and RF-7800I-RD Rotary Dial Units with predefined configurations. A Speaker is also used to broadcast voice and selected messages. Cabling is simplified by using 12106-1324-A002.

See [Figure A-2](#) for an example of RF-7800I Intercom Vehicular System Voice and Data configuration and refer to [Table A-2](#) for a parts list.



CL-0382-4200-A002A

**Figure A-2. Intercom Voice and Data Diagram**

### NOTE

Some radio and accessory part numbers are not included in the table. For supported radio and accessory cable parts list information, refer to [Chapter 6](#).

**Table A-2. Intercom Voice and Data Parts Lists**

Part Number	Quantity	Description
RF-7800I-CU1XX	1	Central Unit Standard
RF-7800I-KD4XX	1	Keypad Display Unit
RF-7800I-RD2XX	1	Rotary Dial Unit
RF-7800I-BU2XX	1	Basic Unit
RF-7800I-SA10X	1	Speaker Unit
12106-1013-A020	3	Cable, Crew Station to Distribution Box
12106-1003-A020	1	DC Power, Central Unit
12106-1324-A002	1	Cable Assembly, CU to 4 Crew Extension
12106-1501-AXXX	1	Cable, Central Unit to RF-5800H-MP
12106-1507-AXXX	1	Cable, Central Unit to RF-5800V-HH
12106-1351-A006	1	Cable, Keypad Display Unit to PC running Harris TacChat IP
12106-2364-A010	1	Cable, Central Unit to Speaker, RT Angle

### A.1.3 Intercom Voice and Data with Alarm Configuration

The RF-7800I Intercom Vehicular System Voice and Data with Alarm configuration can support up to four radios and eight Crew Stations and additional components. The Alarm option can be configured to allow maximum of eight custom voice alerts. The specific quantity and type of stations are dependent on the individual vehicle configuration and/or mission requirements. In Voice and Data with Alarm configurations, a Central Unit is used for voice channel switching, alarm signal routing, and digital packet routing between three stations. It is also used for voice channel switching between the Crew Stations and additional components and two radios.

The vehicle commander uses a RF-7800I-KD Keypad Display Unit for controlling and configuring the system in real-time and to send/receive data. One crew station uses the pre-programmed RF-7800I-RD Rotary Dial Unit to select among configuration options and to monitor the vehicle's alarm system. Subordinate crew stations use a pre-programmed RF-7800I-BU Basic Units and RF-7800I-RD Rotary Dial Units with predefined configurations. A Speaker is also used to broadcast voice and selected messages. Cabling is simplified by using 12106-1324-A002.

See [Figure A-3](#) for an example of RF-7800I Intercom Vehicular System Voice and Data with Alarm configuration and refer to [Table A-3](#) for a parts list.

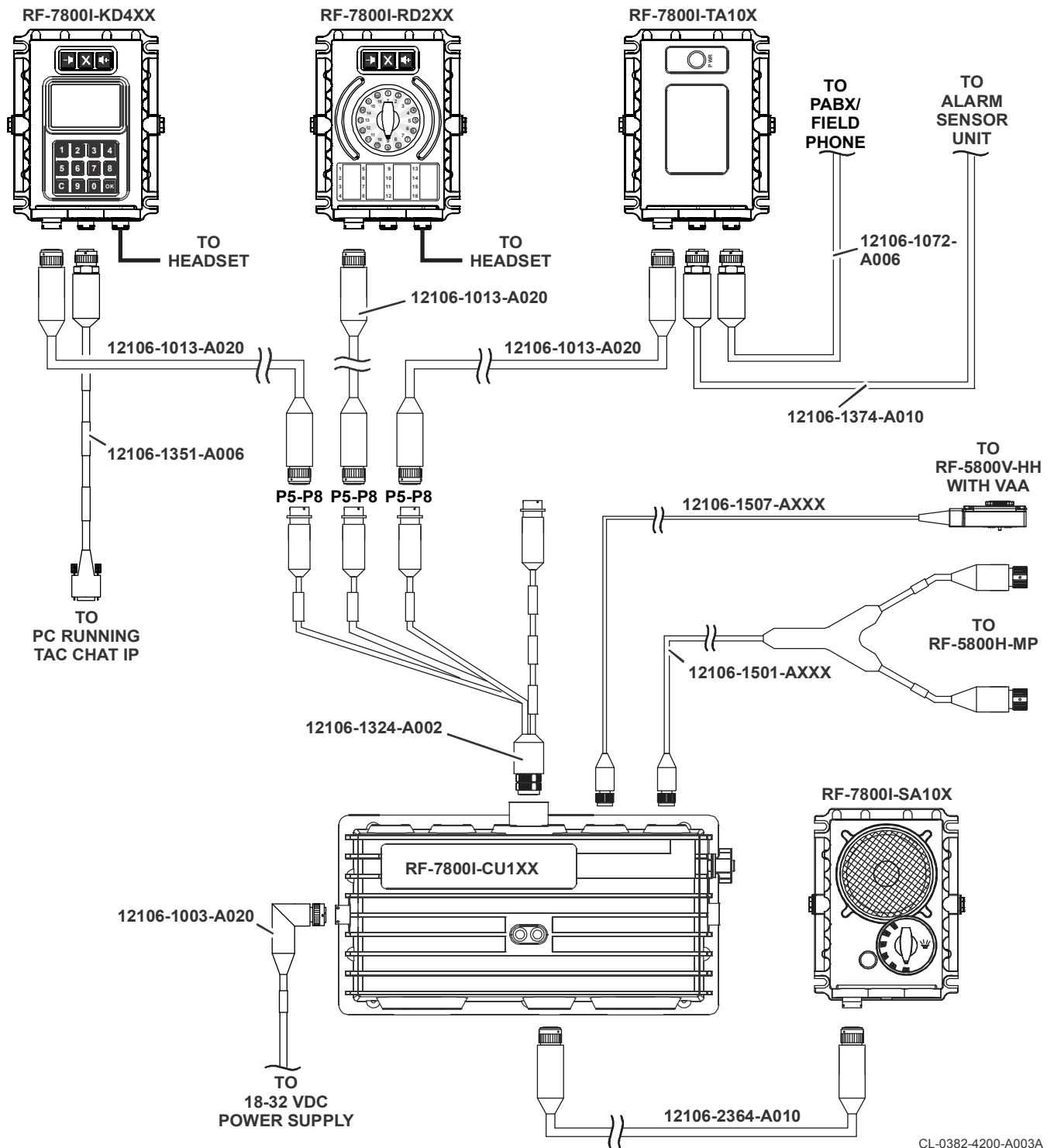


Figure A-3. Intercom Voice and Data with Alarm Diagram

### NOTE

Some radio and accessory part numbers are not included in the table. For supported radio and accessory cable parts list information, refer to [Chapter 6](#).

**Table A-3. Intercom Voice and Data with Alarm Parts List**

Part Number	Quantity	Description
RF-7800I-CU1XX	1	Central Unit Standard
RF-7800I-KD4XX	1	Keypad Display Unit
RF-7800I-RD2XX	1	Rotary Dial Unit
RF-7800I-TA10X	1	Telephone Unit
RF-7800I-SA10X	1	Speaker Unit
12106-1013-A020	3	Cable, Crew Station to Distribution Box
12106-1003-A020	1	DC Power, Central Unit
12106-1324-A002	1	Cable Assembly, CU to 4 Crew Extension
12106-1501-AXXX	1	Cable, Central Unit to RF-5800H-MP
12106-1507-AXXX	1	Cable, Central Unit Light to RF-5800V-HH
12106-1351-A006	1	Cable, Keypad Display Unit to PC running Harris TacChat IP
12106-2364-A010	1	Cable, Central Unit to Speaker, RT Angle
12106-1072-A006	1	Cable Assembly, Field Phone and PABX
12106-1374-A010	1	Cable Assembly, Alarm, Open Ended

#### A.1.4 Intercom Voice and Data with Alarm and Telephone Configuration

The RF-7800I Intercom Vehicular System Voice and Data with Alarm and Telephone configuration can support up to four radios and up to eight stations. The Alarm option can be configured to allow maximum of eight custom voice alerts. The specific quantity and type of stations are dependent on the individual vehicle configuration and/or mission requirements. In Voice and Data with Alarm and Telephone configurations, a Central Unit is used for voice channel switching, alarm signal routing, and digital packet routing between three stations. It is also used for voice channel switching between the Crew Stations and additional components and two radios.

The vehicle commander uses a RF-7800I-KD Keypad Display Unit for controlling and configuring the system in real-time, to send/receive data, and to dial telephone numbers. One crew station uses the pre-programmed RF-7800I-RD Rotary Dial Unit to select configuration options. The Rotary Dial Unit also has an unused headset connection that could be used if mission requirements change. Subordinate crew stations use a pre-programmed RF-7800I-BU Basic Unit with predefined configurations. A Telephone and Alarm Unit is used to monitor the vehicle's alarm system and to connect to a Private Branch Exchange (PBX) and a field telephone. A Speaker is also used to broadcast voice and selected messages.

See [Figure A-4](#) for an example of RF-7800I Intercom Vehicular System Voice and Data with Alarm and Telephone configuration and refer to [Table A-4](#) for a parts list.

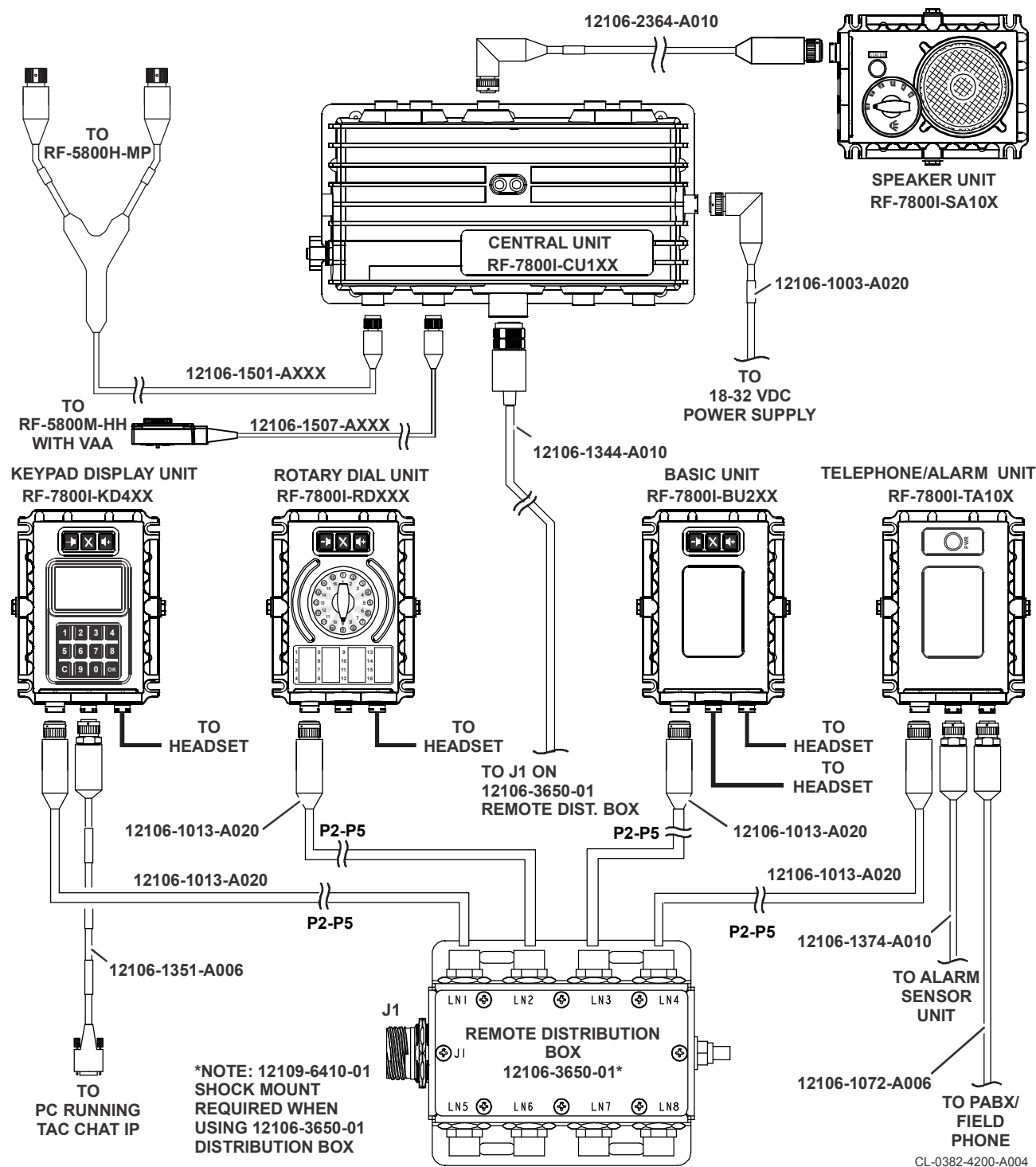


Figure A-4. Intercom Voice and Data with Alarm and Telephone Diagram



### NOTE

Some radio and accessory part numbers are not included in the table. For supported radio and accessory cable parts list information, refer to [Chapter 6](#).

**Table A-4. Intercom Voice and Data with Alarm and Telephone Parts List**

Part Number	Quantity	Description
RF-7800I-CU1XX	1	Central Unit Standard
RF-7800I-KD4XX	1	Keypad Display Unit
RF-7800I-RDXXX	1	Rotary Dial Unit
RF-7800I-BU2XX	1	Basic Unit
RF-7800I-TA10X	1	Telephone Unit
12106-3650-01	1	Remote Distribution Box, 8-Port
RF-7800I-SA10X	1	Speaker Unit
12109-6410-01	1	Shock Mount, VIS, CU/CU Light
12106-1013-A020	4	Cable, Crew Station to Remote Distribution Box
12106-1003-A020	1	DC Power, Central Unit
12106-1344-A010	1	Cable Assembly, Central Unit to Remote Distribution Box
12106-1501-AXXX	1	Cable, Central Unit to RF-5800H-MP
12106-1507-AXXX	1	Cable, Central Unit to RF-5800M-HH
12106-1351-A006	1	Cable, Keypad Display Unit to PC
12106-2364-A010	1	Cable Central Unit to Speaker, RT Angle,
12106-1072-A006	1	Cable Assembly, Field Phone and PABX
12106-1374-A010	1	Cable Assembly, Alarm, Open Ended

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**APPENDIX B****GLOSSARY****B.1 GLOSSARY**

The following provides a glossary of terms used in this document.

**-A-**

<b>A</b>	Ampere
<b>Amp(s)</b>	Ampere
<b>ANR</b>	Active Noise Reduction

**-B-**

<b>BITE</b>	Built in Test Equipment
<b>BGAN</b>	Broadband Global Area Network
<b>bps</b>	Bits per second
<b>BU</b>	Basic Unit

**-C-**

<b>C</b>	Celsius
<b>C.I.F.</b>	Cost, Insurance, Freight
<b>cm</b>	Centimeter
<b>COM</b>	Communication, serial port connection
<b>CTS</b>	Clear to Send
<b>CU</b>	Central Unit

## GLOSSARY - CONTINUED

### -D-

<b>D</b>	Depth
<b>DAGR</b>	Defense Advanced GPS Receiver
<b>dB</b>	Abbreviation for decibel, which is one-tenth of a bel.
<b>DC</b>	Direct Current
<b>DCD</b>	Data Carrier Detect
<b>DISCC</b>	Digital Intercom System Control Center
<b>DSR</b>	Data Set Ready
<b>DTR</b>	Data Terminal Ready

### -E

<b>EMR</b>	Electromagnetic radiation
<b>ETH</b>	Ethernet

### -F-

<b>F</b>	Fahrenheit
----------	------------

### -G-

<b>GND</b>	Ground
<b>GPS</b>	Global Positioning System

### -H-

<b>H</b>	Height
<b>HF</b>	High Frequency
<b>HH</b>	Handheld
<b>Hz</b>	Hertz

**GLOSSARY - CONTINUED****-I-**

<b>I</b>	Input
<b>IC</b>	Integrated Circuit
<b>ID</b>	Identification
<b>IP</b>	Internet Protocol
<b>I/O</b>	Input/Output
<b>ISDN</b>	Integrated Services Digital Network

**-J-****-K-**

<b>kbit</b>	kilo bit (1000 bits)
<b>kbps</b>	kilo bits per second
<b>KD</b>	Keypad Display Unit
<b>kHz</b>	kilo Hertz
<b>kg</b>	Abbreviation for kilogram, or one thousand grams.
<b>km</b>	kilometer, 1000 meters

**-L-**

<b>L</b>	Length
<b>lbs</b>	Abbreviation for pound

**-M-**

<b>m</b>	Meter
<b>mA</b>	milli Ampere
<b>MB</b>	Multiband
<b>Mbps</b>	mega bits per second
<b>MIC</b>	Microphone
<b>MIL-STD</b>	Military Standard
<b>MP</b>	Manpack

## GLOSSARY - CONTINUED

-N-

-O-

<b>O</b>	Output
<b>OLED</b>	Organic Light-Emitting Diode
<b>OS</b>	Operating System

-P-

<b>PABX</b>	Private Automatic Branch Exchange
<b>PBX</b>	Private Branch Exchange
<b>PC</b>	Personal Computer
<b>PCM</b>	Pulse Code Modulation
<b>PLGR</b>	Lightweight Global Positioning System (GPS) Receiver
<b>PPP</b>	Point-to-Point Protocol
<b>PTT</b>	Push-to-Talk
<b>PWB</b>	Printed Wiring Board
<b>PWR</b>	Power

-Q-

-R-

<b>RF</b>	Radio Frequency
<b>RD</b>	Rotary Dial Unit
<b>RI</b>	Ring Indicator
<b>RMA</b>	Return Material Authorization
<b>RTS</b>	Request to Send
<b>RS-232</b>	Recommended Standard 232, computer serial interface
<b>RX</b>	Receive
<b>RXD</b>	Receive Data

-S-

<b>SA</b>	Speaker Amplifier Unit
<b>SKA</b>	Soft Keypad Application
<b>SMT</b>	Surface Mount Technology
<b>SPKR</b>	Speaker

**GLOSSARY - CONTINUED****-T-**

<b>TA</b>	Telephone Alarm Unit
<b>TCP/IP</b>	Transmission Communication Protocol/Internet Protocol
<b>TX</b>	Transmit
<b>TXD</b>	Transmit Data

**-U-**

<b>UHF</b>	Ultra High Frequency
<b>U.S.</b>	United States
<b>USB</b>	Universal Serial Bus

**-V-**

<b>V</b>	Volt(s)
<b>VDC</b>	Volts Direct Current
<b>VHF</b>	Very High Frequency
<b>VoIP</b>	Voice over Internet Protocol
<b>VOX</b>	Voice Activated

**-W-**

<b>W</b>	Watts, Width
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**-X-****-Z-**

<b>ZIP</b>	Zone Improvement Plan (United States postal service code)
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## APPENDIX C

### MAINTENANCE LEVELS

#### C.1 MAINTENANCE LEVELS

MAINTENANCE CONCEPT OUTLINE				
	LEVEL I	LEVEL II	LEVEL III	LEVEL IV
CORRECTIVE AND PREVENTIVE MAINTENANCE				
MAINTENANCE REPAIR KITS	NO SPECIAL ITEMS	NO SPECIAL ITEMS		
COMMON TOOLS AND TEST EQUIPMENT	NO TOOLS/TEST EQUIPMENT			
TECHNICAL MANUALS				
TRAINING				
SPARES	NO SPARES			

Figure C-1. Harris Defined Maintenance Levels

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