

# UltraVoice® Remote Interface

Indoor Controller  
Model: UVRI-B Series C



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## ***Description, Specifications, Installation, Operation, and Configuration Manual***

## Limited Warranty

This product is subject to and covered by a limited warranty, a copy of which can be found at [www.fedsig.com/SSG-Warranty](http://www.fedsig.com/SSG-Warranty). A copy of this limited warranty can also be obtained by written request to Federal Signal Corporation, 2645 Federal Signal Drive, University Park, IL 60484, email to [info@fedsig.com](mailto:info@fedsig.com) or call +1 708-534-3400.

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## Safety Messages

### **⚠ WARNING**

It is important to follow all instructions shipped with this product. This device is to be installed by trained personnel who are thoroughly familiar with the country's electric codes and will follow these guidelines as well as local codes and ordinances, including any state or local noise-control ordinances.

Listed below are important safety instructions and precautions you should follow:

#### **Important Notice**

Federal Signal reserves the right to make changes to devices and specifications detailed in the manual at any time in order to improve reliability, function, or design. The information in this manual has been carefully checked and is believed to be accurate; however, no responsibility is assumed for any inaccuracies.

#### **Publications**

Federal Signal recommends the following publications from the Federal Emergency Management Agency for assistance with planning an outdoor warning system:

- The "Outdoor Warning Guide" (CPG 1-17)
- "Civil Preparedness, Principles of Warning" (CPG 1-14)
- FEMA-REP-1, Appendix 3 (Nuclear Plant Guideline)
- FEMA-REP-10 (Nuclear Plant Guideline).

#### **Planning**

- If suitable warning equipment is not selected, the installation site for the siren is not selected properly, or the siren is not installed properly, it may not produce the intended optimum audible warning. Follow Federal Emergency Management Agency (FEMA) recommendations.
- If sirens are not activated in a timely manner when an emergency condition exists, they cannot provide the intended audible warning. It is imperative that knowledgeable people, who are provided with the necessary information, be available at all times to authorize the activation of the sirens.
- When sirens are used out of doors, people indoors may not be able to hear the warning signals. Separate warning devices or procedures may be needed to warn people indoors effectively.
- The sound output of sirens can cause permanent hearing damage. To prevent excessive exposure, carefully plan siren placement, post warnings, and restrict access to areas near sirens. Review and comply with any local or state noise control ordinances as well as OSHA noise exposure standards, regulations, and guidelines.
- Activating the sirens may not result in people taking the desired actions if those to be warned are not properly trained about the meaning of siren sounds. Siren users should follow FEMA recommendations and instruct those to be warned of the corrective actions to be taken.



- After installation, service, or maintenance, test the siren system to confirm that it is operating properly. Test the system regularly to confirm that it will be operational in an emergency.
- If future service and operating personnel do not have these instructions to refer to, the siren system may not provide the intended audible warning, and service personnel may be exposed to death, permanent hearing loss, or other bodily injuries. File these instructions in a safe place and refer to them periodically. Give a copy of these instructions to new recruits and trainees. Also give a copy to anyone who is going to service or repair the siren.

### **Installation and Service**

- Electrocutation or severe personal injury can occur when performing various installation and service functions such as making electrical connections, drilling holes, or lifting equipment. Therefore, only experienced electricians should install this product per national, state, and any other electrical codes having jurisdiction. Perform all work under the direction of the installation or service crew safety foreman.
- The sound output of sirens is capable of causing permanent hearing damage. To prevent excessive exposure, carefully plan siren placement, post warnings, and restrict access to areas near the sirens. Sirens may be operated from remote control points. Whenever possible, disconnect all siren power, including batteries, before working near the siren. Review and comply with any local or state noise control ordinances as well as OSHA noise exposure regulations and guidelines.
- After installation or service, test the siren system to confirm that it is operating properly. Test the system regularly to confirm that it will be operational in an emergency.
- If future service personnel do not have these instructions shipped with the equipment to refer to, the siren system may not provide the intended audible warning, and service personnel may be exposed to death, permanent hearing loss, or other bodily injuries. File these instructions in a safe place and refer to them periodically. Give a copy of these instructions to recruits and trainees. Also give a copy to anyone who is going to service or repair the sirens.

### **Operation**

Failure to understand the capabilities and limitations of your siren could result in permanent hearing loss, other serious injuries, or death to persons too close to the sirens when you activate them or to those you need to warn. Carefully read and thoroughly understand all safety notices in this manual and all operations-related items in all instruction manuals shipped with the equipment. Thoroughly discuss all contingency plans with those responsible for warning people in your community, company, or jurisdiction. A well-written contingency plan document is recommended.

### Hazard Classification

Federal Signal uses signal words to identify the following:

**⚠ DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**⚠ WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE**

NOTICE is used to address practices not related to physical injury.

***Read and understand the information contained in this manual before attempting to install or service the siren.***

Pay careful attention to notices located on the equipment.

## General Description

### Overview

The UltraVoice Remote Interface unit (UVRI-B) provides a remote extension of Federal Signal indoor and outdoor warning systems. The UVRI-B is available for indoor applications only. The UVRI-B is available with many standard and optional features to allow efficient and cost-effective alerting and notification.

The UVRI-B control board handles all relay control, audio generation, and remote communication functions. The control board contains connectors and terminal blocks for interconnection to other system components.

The UVRI-B receives remote control signals and responds to the Federal Signal Commander® System for live PA and for activation of recorded voice, warning tones, and relay outputs. The UVRI-B can provide a relay contact closure and audio output for interfacing local fire panel notification.

Operation is supervised, and status information is transferred back to the control station(s) through one or more available communications networks. The UVRI-B monitors the audio output level and the Remote Activation input to verify proper operation. Remote Fire Alarm and PA systems provide a contact closure to indicate proper operation.

The control board is powered from 120 or 240 Vac with 12 Vdc battery backup. The UVRI-B can also be optionally configured for 24 Vdc operation.

### Features

The UVRI-B unit has the following features.

- 120/240 Vac operation (Optional 24 Vdc Operation)
- Built-in battery charger (12 Vdc)
- IP-enabled standard
- Integrated Modbus® TCP industrial PLC interface for control and monitoring.
- Integrated SIP phone interface for live PA, remote wave file, and function control.
- Commander® and CommanderOne® HMI software provide configuration, control, activation, and notification options.
- Mass storage for digital voice messages
- Built-in standard warning tones: wail, alternate wail, pulsed wail, steady, alternate steady, pulsed steady, and Westminster chime (auxiliary)
- Standard models with VHF and UHF radio communications
- Standard models with 100-watt amplifier
- Local microphone input and volume control for public address requires microphone MNC-MC
- Local buttons (eight) for activations (or for cabinet-mounted switches use OMRON® A22NN-XXM or equivalent momentary switch)
- Enclosure mounted speaker

## General Description

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- Relays for activation of local hardware (for example, strobes)
- Battery backup during the loss of power events (12 Ah battery included)
- Send Digital Voice messages over IP from Commander® to the UVRI-B
- Remote monitoring of system and speaker circuits
- Optional cellular, satellite, or broadband IP communications
- Stackable siren functions enable user predefined warning scenarios
- 600-ohm I/O for wire line control and status monitoring
- 600-ohm input/output for connection to external amplifiers and fire protection systems
- Built-in 8 ohm (0.7 W) Audio Output. Typically used for cabinet speaker.
- Built-in 10 V/25 V (0.7 W) Audio Output. Typically used to interface 100 W optional amplifier. Alternatively, can interface to Selectone® Amplified Speakers.
- Monitoring and control of standard amplifier for voltage, current, and status
- Two transceiver ports for radio communications
- Built-in level meter to set and monitor receive level for radio interface
- VOX to provide carrier detect for primary transceiver port
- Optional noise monitoring for automatic level control
- Real-time battery voltage monitoring
- Ambient noise level monitoring with automatic volume control requires microphone X-SM1-FS1
- Supervised and fault monitored TC1/TC2 Fire Alarm Panel Interface
- Local Audible and Visible Trouble Indicators

## Ordering Information

All UVRI-B models are designed for two-way control and status monitoring using the Federal Signal Commander® System. You can equip all models with a microSD card for local storage of voice and/or tone messages.

**Table 1 Ordering Information**

<b>Model</b>	<b>Description</b>
UVRI-B*	Remote Interface unit, IP enabled, battery backup
UVRI-BH*	Remote Interface unit, IP enabled, battery backup, VHF radio
UVRI-BU*	Remote Interface unit, IP enabled, battery backup, UHF radio
UVRI-B100*	Remote Interface unit, IP enabled, battery backup, 100 watt amplifier
UVRI-BH100*	Remote Interface unit, IP enabled, battery backup, VHF radio with 100 watt amplifier

Model	Description
UVRI-BU100*	Remote Interface unit, IP enabled, battery backup, UHF radio with 100 watt amplifier

\*Add -V to the UVRI-B model name for a model with a volume knob for the internal speaker.

**Table 2 Accessories**

Model	Description
X-SM1-FS1	Ambient Noise Microphone
MNC-MC	Noise Canceling Push to Talk Microphone

## Specifications

**Table 3 Electrical on the Control Board**

AC Power (JP38)	102-132 Vac, 120 VAC nominal, -15%, +10% < 150 mA Standby < 200 mA with active with NO amplifier and NO radio < 2000 mA with active with amplifier at full power and NO radio < 2000 mA with active with NO amplifier and radio transmitting < 3000 mA with active with amplifier at full power and radio transmitting  204-264 Vac, 240 Vac nominal, -15%, +10% < 100 mA Standby < 150 mA with active with NO amplifier and NO radio < 1500 mA with active with amplifier at full power < 1500 mA with active with NO amplifier and radio transmitting < 2000 mA with active with amplifier at full power and radio transmitting
Battery Input Voltage Range	11.0-14 Vdc, on at 12 Vdc, off at 11 Vdc
12 Vdc Input Current Draw	< 600 mA Standby < 13 A with amplifier at full power
Battery Charge Current	1.5 or 4.0 A selectable
Battery Charge Float Voltage	13.8 V +/-2%
24 V Input Voltage Range (optional)	20.0-28.0 Vdc
24 Vdc Input Current Draw (optional)	< 400 mA Standby < 7.0 A with 100 W siren load
Radio Current Draw	Not to exceed 6 A. Configure transmit power for no more than 10 W.

**Table 4 Electrical on the Amplifier Board**

Operating Voltage/Current	From Control Board
Power Output	100 W Amplifier Output with addition of output transformer 28.3 V <sub>RMS</sub> into 8-Ω load for 100 W
Frequency response	+/- 3 dB from 300-6.0 kHz at transformer output
THD	< 5% at transformer output
Hum and Noise	< -45 dB

**Table 5 Serial and I<sup>2</sup>C Ports on Control Board**

Serial Port Protocol	RS232C 115200,N,8,1
I <sup>2</sup> C Port Protocol	Philips Standard I <sup>2</sup> C

**Table 6 Relay Outputs on Control Board**

Quantity	5
Contact Rating	10 A, 250 Vac, 30 Vdc, Optically isolated, (NO and NC)

**Table 7 600 ohm I/O Balanced Line on Control Board**

Audio Input Level	Minimum of 0.10 to at least 2 V <sub>P-P</sub> to make 1 V <sub>P-P</sub> at TP2
Audio Output Level Protection	Minimum of 0.25 to at least 2.0 V <sub>P-P</sub> MOV surge protection

**Table 8 Audio Outputs on Control Board**

Balanced 600 Ω Output (JP10)	Adjustable from 0.2 to 3.1 V <sub>P-P</sub> Voice, 0.2 to 1.5 V <sub>P-P</sub> Siren
10 V/25 V Output (JP6)	10 V/25 V <sub>RMS</sub> 0.7 mW max load
8 Ω Output (JP39)	2.37 V <sub>RMS</sub> 0.7 mW max load

**Table 9 Audio Sense Input on Control Board**

Type/Impedance	Balanced 600 Ω
Minimum Detection Threshold	500 mV <sub>P-P</sub> at 1 kHz

**Table 10 Remote Activation and Sensor Inputs on Control Board**

Remote Activation Inputs	8
Remote Sensor Inputs	6
Input Type	Optically Isolated activated by Dry Contact closure 2 kΩ or less will activate

**Table 11 TC1 Relay Outputs on Control Board**

Quantity	4, incorporating 4.75 K $\Omega$ EOL resistive load Open loop; Current < 220 $\mu$ A / pull-up Voltage < 1.3 V. Shorted loop; < 1.10 V (Out- to Out+). Ground Fault, Earth ground to; < 63 k $\Omega$ to ISO GND, > -12 $\mu$ A < 750 k $\Omega$ to TC+12V, > 8 $\mu$ A
Contact Rating	5 A, 220 Vac, 30 Vdc, Optically isolated, (NC)

**Table 12 TC1 Sensing Inputs on Control Board**

Quantity	4
Input Type	Optically Isolated. To be connected to contact closure through a series 1.00 k $\Omega$ resistor and with a 2.2 k $\Omega$ resistor across the contacts.  Senses; Active loop; < 360 $\Omega$ across End-of-Line Resistor. Inactive loop; > 360 $\Omega$ across End-of-Line Resistor. Open loop; > 3.7 k $\Omega$ total resistance. Shorted loop; < 750 $\Omega$ total resistance. Ground Fault, Earth ground to; < 63 k $\Omega$ to ISO GND, > -12 $\mu$ A < 750 k $\Omega$ to TC+12V, > 8 $\mu$ A

**Table 13 Signaling Formats**

Number of codes	Up to 200 activation codes maximum
Functions allowed stacked under each code	Up to 20
Two-Tone Sequential or Single Tone Frequency range Tone timing	282-3000 Hz First tone: 0.5 seconds minimum Second tone: 0.25 seconds minimum 8 seconds maximum for both
Inter-tone Gap Tone Accuracy Tone Spacing	400 ms (maximum) +/- 1.5% 5.0% preferred, 3% minimum
Single Tone Frequency range Tone timing Tone Accuracy Tone Spacing	282-3000 Hz 0.5-8 seconds maximum +/- 1.5% 5.0% preferred, 3% minimum
DTMF String length Mark/Space timing: Decoder Minimum Decoder Maximum Encoder Space between Stacked codes	All timings in milliseconds 3-12 standard DTMF characters  50 ms/50 ms (below 50/50 consult factory) 800 ms total mark/space timing per code 100 ms/100 ms mark/space timing minimum 1.25 seconds

AFSK Baud rate Modem type Mark frequency Space frequency Error checking	1200 bps MSK (minimal shift key) 1200 Hz 1800 Hz 16 bit CRC
EAS	Supports standard EAS codes and wildcards
POCSAG Not applicable to the UVRI-B	Supports Binary frequency shift keying 512 Baud numeric messages
Decode Sensitivity	18 dB SINAD for tone (except with CTCSS tones > 200 Hz and decode tones < 400 Hz) and 21 dB SINAD for MSK, EAS, POCSAG and DTMF with 50 ms/50 ms or greater timing
Two Way Formats	Federal Packet Digital and DTMF

**Table 14 Environmental and Physical**

Operating temperature range	-22°F to +150°F (-30°C to + 65°C)
Humidity	0-95%, non-condensing
Control cabinet (H x W x D)	20.36 x 16.30 x 6.62 inches (51.7 x 41.4 x 16.8 cm)
UVRI-B (Weight without radio)	41.4 lb (18.8 kg)
Net Shipping Weight	45.4 lb (20.6 kg)
UVRI-BH and UVRI-BU (Weight with radio)	44.6 lb (20.2 kg)
Net Shipping Weight	48.6 lb (22.0 kg)
UVRI-B100 (Weight with amplifier)	44.8 lb (20.3 kg)
Net Shipping Weight	48.8 lb (22.1 kg)
UVRI-BH100 and UVRI-BU100 (Weight with radio and amplifier)	48.0 lb (21.8 kg)
Net Shipping Weight	52.0 lb (23.6 kg)

## Installation

**⚠ DANGER**

***ELECTROCUTION HAZARD: Electrocution or severe personal injury can occur when making electrical connections, drilling holes, or lifting equipment. Therefore, experienced electricians, per national and local electrical codes, acting under the direction of the installation crew safety foreman, should perform the installation.***

**⚠ DANGER**

***EXPLOSION HAZARD: Explosive gases and corrosive materials may be present. To prevent explosion or severe personal injury, installation technicians must be experienced with the safe installation of lead-acid type batteries.***



**⚠ WARNING**

***SOUND HAZARD: The output level of high-powered speakers is capable of causing permanent hearing damage. To prevent excessive exposure, carefully plan the placement of the siren and post warnings. To prevent excessive exposure to installers and service personnel, take adequate measures to ensure that the sirens are not activated while they are within 150 feet of the speaker array or provide proper ear protection.***

This section contains reference drawings to assist with installation.

Before installing, commissioning, or performing maintenance for the UVRI-B, visit <https://www.fedsig.com/warning-mass-notifications-systems-tech-support> to download the ICM-UV checklist. Click the Commissioning and Maintenance Documents heading to view the checklists.

## Control Unit Location

Select a suitable mounting location that is secure and away from high-voltage wiring and high-power RF systems. The UVRI-B is available for indoor configurations.

Refer to the specification section to obtain the weight of the UVRI-B. Ensure that the mounting surface and fasteners can safely sustain the weight of the assembly.

When interfacing to a fire panel or PA system, place the UVRI-B near the panel or PA system to reduce the possibility of introducing noise in the audio path.

Locate the control unit out of the reach of vandals. The UVRI-B is supplied with locking mechanisms.

The UVRI-B requires a 120 Vac or 240 Vac 50 to 60 Hz power source to power the UVRI-B and charge the internal 12 V battery. You can configure the UVRI-B to be powered from 24 Vdc.

You can use several methods to activate the UVRI-B. Use the manual activation buttons and a hand-held microphone to activate the UVRI-B locally. Use landline control through normally open contact switches. Make connections directly to the controller terminal block. Activate the UVRI-B remotely through the optional radio receiver or an external 600-ohm audio source.

Plan how the UVRI-B will be connected to the antenna system wired or wireless communications network. If you are using radio control, consider RF coverage and antenna placement when selecting a suitable location.

Figure 1 UVRI-B Parts Layout

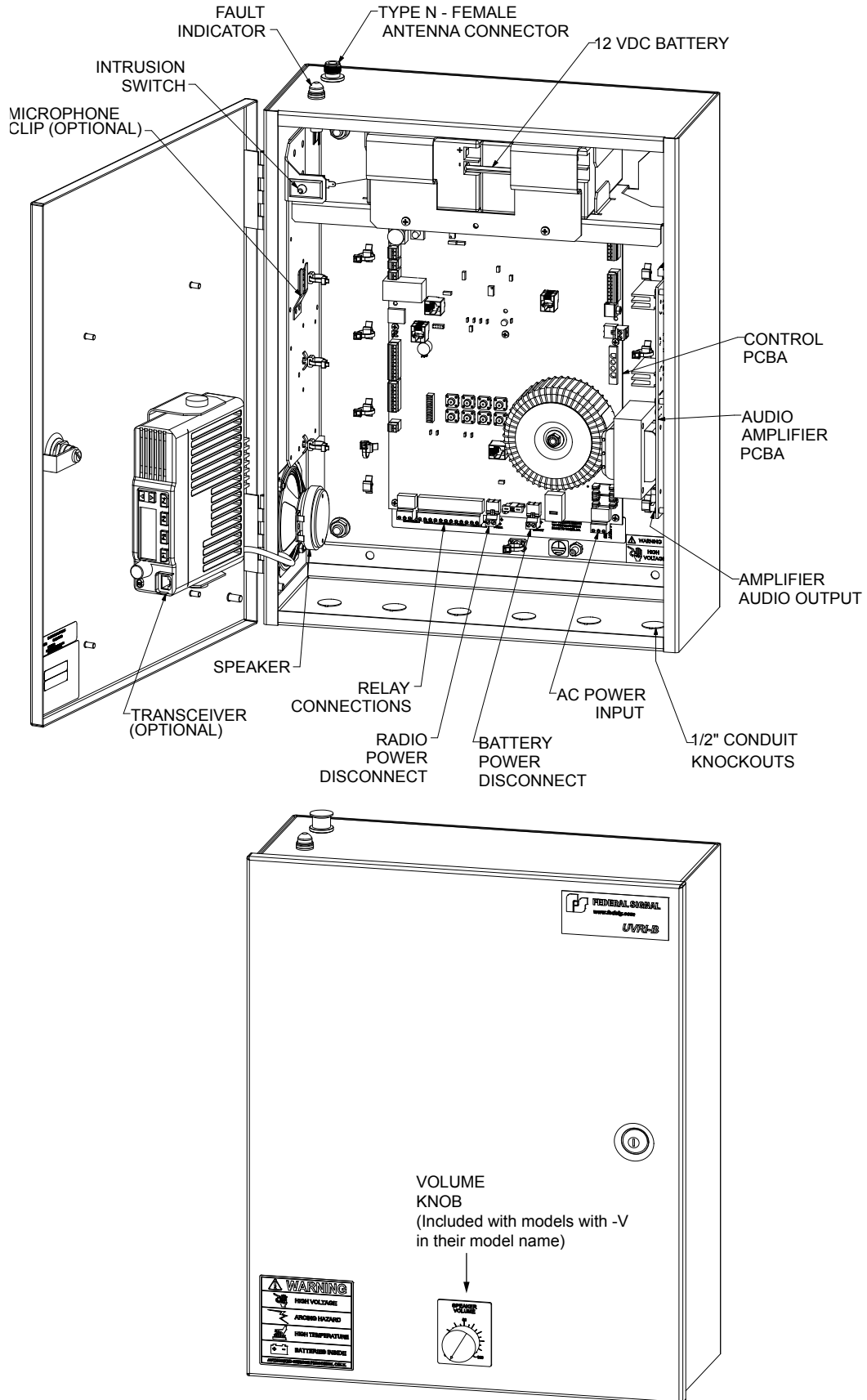


Figure 2 Typical UVRI-B Installation Drawing (Fire Panel Interface)

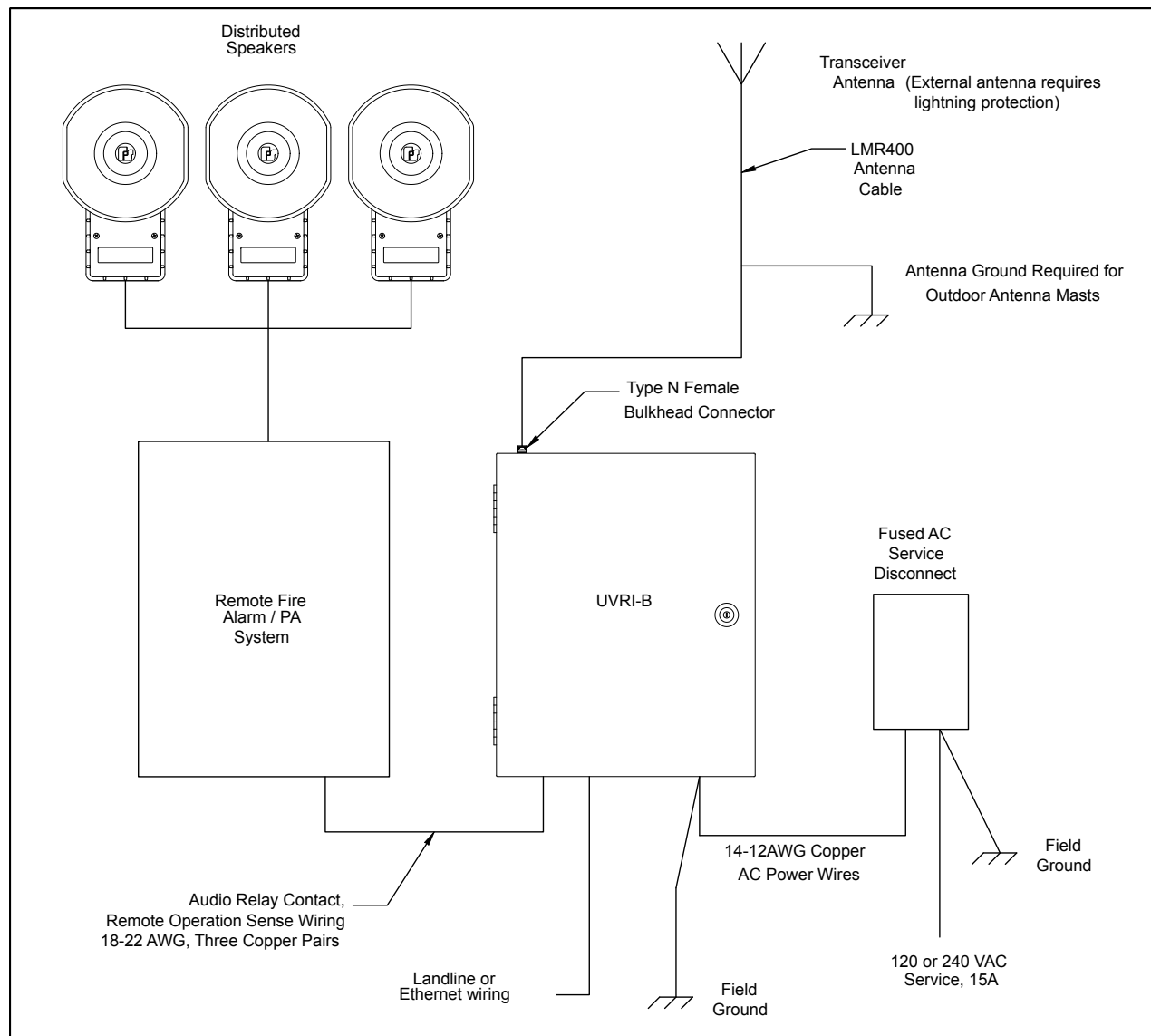


Figure 3 UVRI-B Cabinet Dimensional - Front and Side View

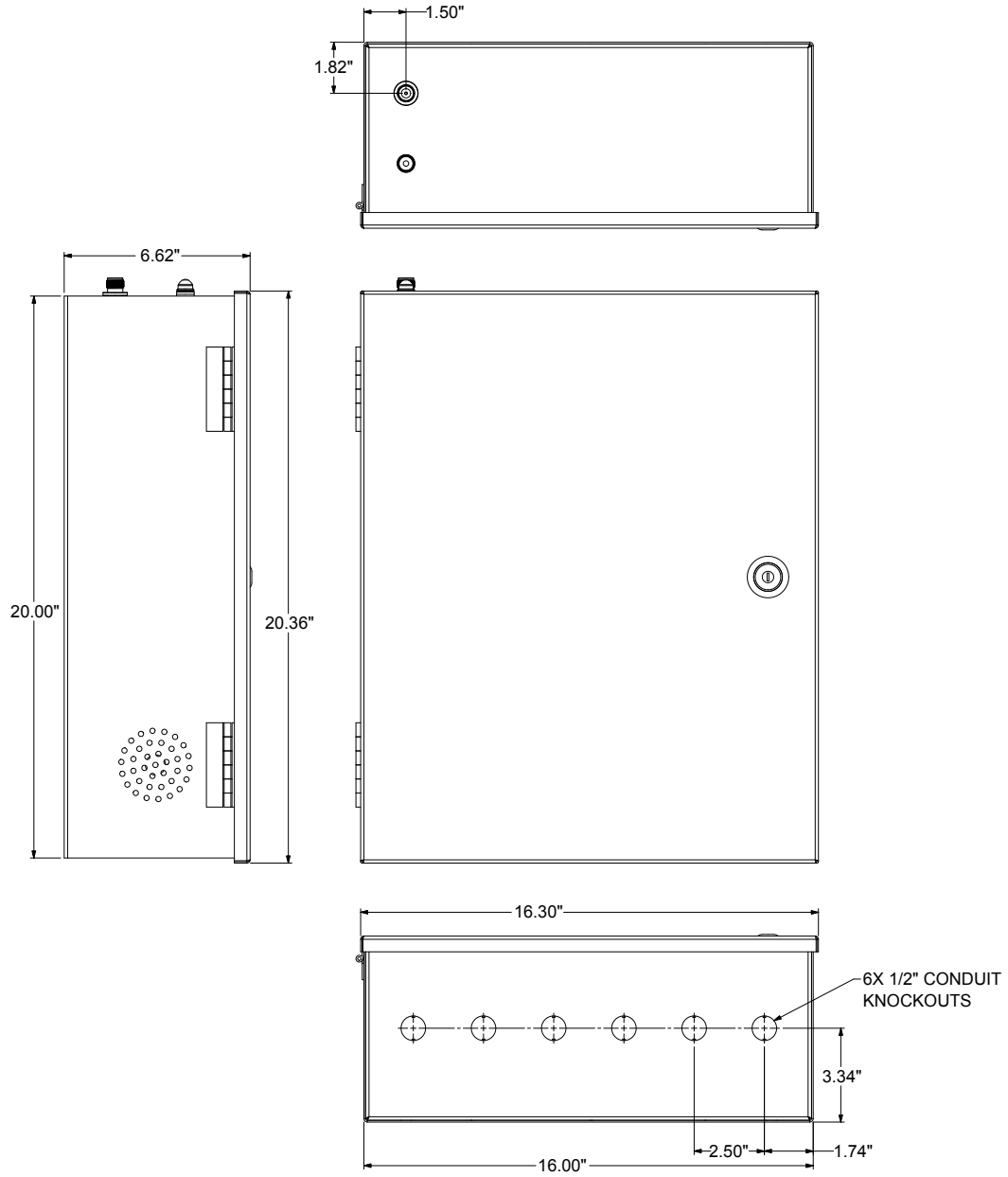


Figure 4 UVRI-B Cabinet Dimensional - Back View

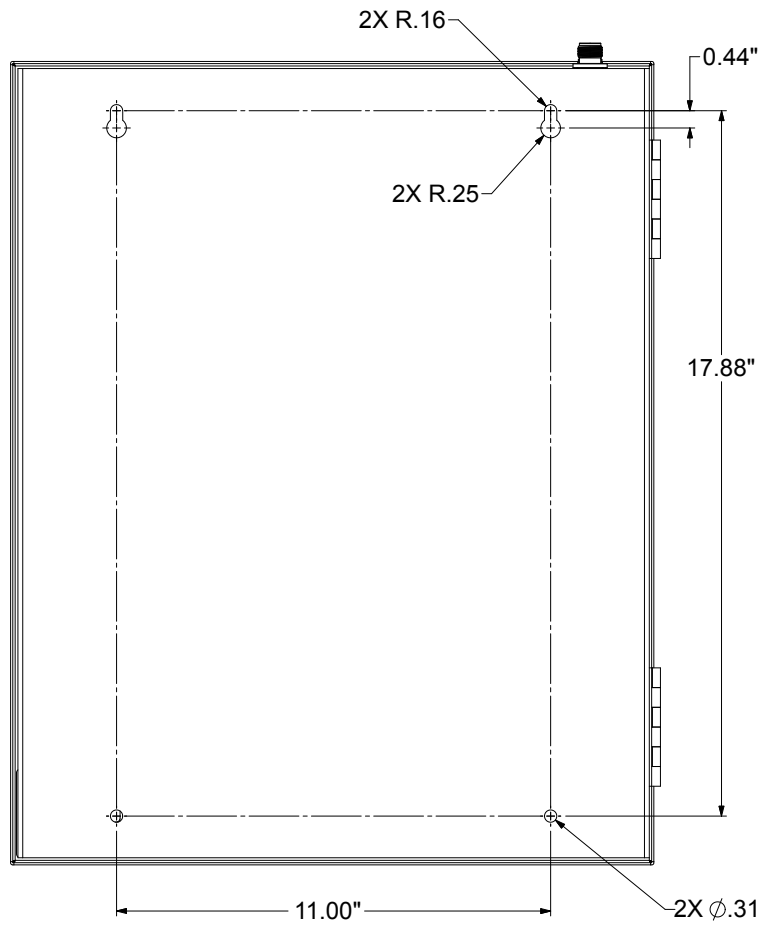
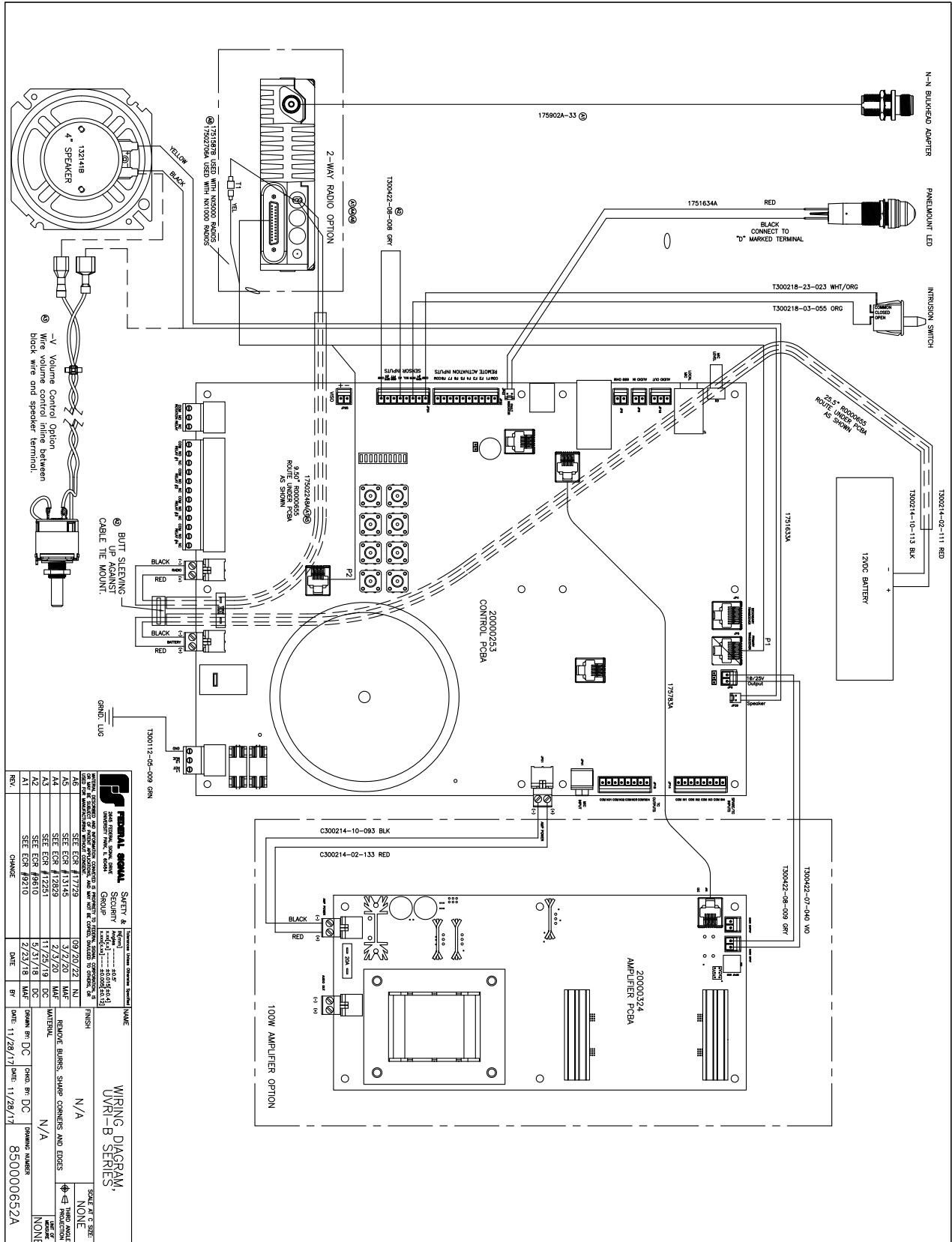


Figure 5 UVRI-B Wiring Diagram



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## General Mounting Guidelines

### **NOTICE**

**INSTALLATION PRECAUTIONS: Use good installation methods and follow local ordinances for mounting the cabinet.**

These general installation instructions are pertinent to all installations. Specific mounting methods and required installation materials are described in the next section.

- There are two keyhole-type slots and two pre-drilled holes for mounting located on the back panel of the cabinet. (See “Figure 3 UVRI-B Cabinet Dimensional - Front and Side View” on page 20.)
- The total weight of the UVRI-B cabinet with batteries is listed in the Specifications section. It is important that the mounting surface and mounting method selected can safely sustain the weight of the assembly.
- Prepare the mounting surface for hanging the cabinet by predetermining the location of the mounting holes. Attach the cabinet to a wall or other substantial vertical surface.
- If the mounting surface is not flat, the cabinet may require shimming to keep the cabinet square.
- Guidelines for various attachment methods to accommodate different wall types are described in the following section. Make provisions for spacing behind the cabinet when mounting to an exterior wall that is susceptible to condensation or other surface moisture.
- Use two people to lift the cabinet to the desired mounting height and lag to the wall using the prepared holes and anchors.
- If the UVRI-B model being installed has a two-way radio, ensure the radio power switch is turned off until all wiring is completed to avoid damaging the radio.

## **UVRI-B Installation Material List and Installation Guidelines**

The following material lists and guidelines describe basic installation details required to install the UVRI-B cabinet. This list varies depending on mounting methods, other options, local and national electrical codes, etc. Use the list as reference guidelines only.

### **Concrete or Filled Cement Block Wall Mounting Guidelines**

**Table 15 Concrete or Filled Cement Block Wall Mounting Materials**

<b>Material Description</b>	<b>Purpose</b>	<b>Qty</b>
1/4 in x 2 in Pin/Sleeve/ Lock Washer/Nut Style Anchors	Anchor Bolts	4

To mount the cabinet on concrete or filled cement block:

1. Mark the mounting hole locations on the wall for the cabinet.
2. Install the anchor bolts for the four cabinet corners according to the manufacturer's instructions.
3. Mount the cabinet to the wall.
4. Proceed to the following section.

**NOTE:** If the wall is not straight, use shims to ensure the enclosure maintains square and structural integrity.

### **Hollow Block Wall Mounting Guidelines**

**Table 16 Hollow Block Wall Mounting Materials**

<b>Material Description</b>	<b>Purpose</b>	<b>Qty</b>
1/4 in x 2 in Heavy Duty Toggle Bolts	Anchor Bolts	4

To mount the cabinet on a hollow block wall:

1. Mark the mounting hole locations on the wall for the cabinet.
2. Install the anchor bolts for the four cabinet corners according to the manufacturer's instructions.
3. Mount the cabinet to the wall.
4. Proceed to the following section.



## Wood Stud Wall Mounting Guidelines

**Table 17 Wood Stud Wall Mounting Materials**

Material Description	Purpose	Qty
1/4 in x 1 in lag bolts	Backboard and cabinet mounting bolts	8
2 ft x 2 ft x 3/4 in B/C or better plywood	Mounting backboard	1
Construction adhesive	Mounting backboard attachment	1

To mount the cabinet on a wood stud wall:

1. Locate the wall studs for attaching the mounting backboard to the wall. Attach the backboard to at least two studs.
2. Mark the wall stud location on the mounting backboard and drill four pilot holes for the lag bolts.
3. Apply construction adhesive to the back of the mounting backboard.
4. Attach the mounting backboard to the wall with four lag bolts.
5. Locate the mounting position of the cabinet on the mounting backboard.
6. Drill pilot holes for the lag bolts.
7. Mount the cabinet to the mounting backboard.
8. Proceed to the following section.

## Metal Stud Wall Mounting Guidelines

**Table 18 Metal Stud Wall Mounting Materials**

Material Description	Purpose	Qty
1/4 in x 2 in lag bolts	Cabinet mounting bolts	4
2 ft x 2 ft B/C or better plywood	Mounting backboard	1
#14 x 2 in metal stud screws	Backboard mounting	12
Construction adhesive	Backboard mounting	1

To mount the cabinet on a metal stud wall:

1. Locate the wall studs for attaching the mounting backboard to the wall.
2. Mark the wall stud location on the mounting backboard and drill pilot holes for the #14 metal stud screws. Place three screws in each stud evenly spaced apart.
3. Apply construction adhesive to the back of the mounting backboard.
4. Attach the mounting backboard to the wall with #14 metal stud screws.
5. Locate the mounting position of the cabinet on the mounting backboard.
6. Drill pilot holes for the 1/4-inch lag bolts.
7. Mount the cabinet to the mounting backboard.
8. Proceed to the following section.

**Table 19 Installer Supplied UVRI-B Electrical Installation Material List**

<b>Material Description</b>	<b>Purpose</b>	<b>Qty</b>
30 A/250 V/ 2 Pole Solid Neutral/ Fused Disconnect with Ground Kit/ NEMA 1 Rating/ Lockable Cover Tang/ Lockable Operator	Optional Electrical Disconnect	1
10 A FRNR Fuse	Fuses for 120 V Service	1
5 A FRNR Fuse	Fuses for 240 V Service	2
12-14 AWG White Wire	AC Neutral from disconnect	8 ft
12-14 AWG Black Wire	AC Load from disconnect	8 ft
12-14 AWG Green Wire	Equipment ground from disconnect	8 ft
1/2-inch Seal Tight Conduit and Fittings	Electrical conduit from disconnect and to Fire Panel/PA System	Varies
Metal Ground Bushings	Equipment ground connections	2
Screws, appropriate to the mounting surface	Disconnect mounting	4
15 A Breaker	Service panel breaker serving unit	1
White Wire appropriately sized	AC neutral from the breaker panel to disconnect	Varies
Black Wire appropriately sized	AC load from the breaker panel to disconnect	Varies
Green Wire appropriately sized	Equipment ground from the breaker panel to disconnect	Varies
Conduit and fittings, appropriately type and size for particular installation requirements	Electrical conduit from the breaker panel to disconnect	Varies
6 AWG Stranded	Cabinet ground to earth ground for external antenna applications	Varies
18-26 AWG stranded wire pairs	Audio, Relay Output, and Remote System Operation Sense	Varies

## Electrical Connections

Install the siren electrical system in compliance with local electrical codes and NEC recommendations. Federal Signal recommends that all user-installed conduit connections enter from the bottom of the UVRI-B cabinet using the supplied conduit knockouts. Disconnect all power and read all warnings at the beginning of this manual and on the batteries before making connections.

## Grounding Requirements

Review the following grounding requirements:

- The UVRI-B cabinet must be properly connected to an earth ground. The cabinet contains an internal ground stud for making this connection.
- If an outdoor antenna is used, install a separate antenna ground.
- Externally installed antennas require a dedicated ground to either a ground rod or building steel below grade in addition to the UVRI-B cabinet ground.

### **⚠ CAUTION**

**INSTALLATION PRECAUTIONS: Verify the AC voltage requirement for the UVRI-B model being installed. The control board requires proper switch selection for 120 or 240 Vac.**

The UVRI-B control PCB provides a removable connector for making AC power connections. The connector accepts bare 12-14 AWG wire.

## Wiring Guidelines for 120 Vac Electrical Service

### **NOTICE**

**EQUIPMENT DAMAGE: To avoid shorting the output of the charger, do not apply AC power to the UVRI-B controller before making the battery connections described later in this section. Failure to follow this notice may result in equipment damage.**

Review the following wiring guidelines:

1. Install a dedicated 15 A breaker in an existing breaker panel or install a new breaker panel if necessary for the UVRI-B.
2. Install conduit from the breaker panel to a conduit entrance at the bottom of the UVRI-B.
3. Route user-supplied 12-14 AWG wires (1 black, 1 white, 1 green - optional) through the conduit from the UVRI-B cabinet and the fused breaker panel.
4. Connect the white neutral wire from the breaker panel neutral to pin 2 of JP38, L2/NUE, on the UVRI-B control board.
5. Connect the black line wire from the 15 A breaker to pin 3 of JP38, L1/HOT, on the UVRI-B control board.
6. Connect a green ground wire from the breaker panel earth ground to the ground stud in the UVRI-B cabinet and to pin 1 of JP38, GND, on the UVRI-B control board.

### Wiring Guidelines for 240 Vac Electrical Service

#### **NOTICE**

**EQUIPMENT DAMAGE:** To avoid shorting the output of the charger, do not apply AC power to the UVRI-B controller before making the battery connections described later in this section. Failure to follow this notice may result in equipment damage.

Review the following wiring guidelines:

1. Install a dedicated 15 A breaker in an existing breaker panel or install a new breaker panel if necessary for the UVRI-B.
2. Install conduit from the breaker panel to a conduit entrance in the bottom of the UVRI-B.
3. Route user-supplied 12-14 AWG wires (1 black, 1 white, 1 green - optional) through the conduit from the UVRI-B cabinet and the fused breaker panel.
4. Connect the white neutral wire from the breaker panel neutral to pin 2 of JP38, L2/ NUE, on the UVRI-B control board.
5. Connect the black line wire from the 15 A breaker to pin 3 of JP38, L1/HOT, on the UVRI-B control board.
6. Connect a green ground wire from the breaker panel earth ground to the ground stud in the UVRI-B cabinet and to pin 1 of JP38, GND, on the UVRI-B control board.

### Connecting Audio Output

Connect the audio output JP10 on the control board to the audio input of the Remote Fire Alarm/PA System. Adjust R141 (Audio Out Level), the Audio Output Level potentiometer, to the desired output level. The pot is located next to the Ethernet module M1.

### Relay Output

You can use the TC Interface relays to activate the remote Fire Alarm/PA System. Use the five standard relay outputs to control other remote devices such as strobe lights.

### Ethernet Connection

The UVRI-B is equipped with an IP interface for operation using an IP network.

The UVRI-B requires an IEEE 802.3, 10/100BASE-T full or half-duplex connection and uses ports 16887 (TCP/IP) and port 80 (HTTP) for its configuration web page. To use the IP port, verify J2 has a jumper across pins 1 and 2. Ethernet wire runs must be less than 328 feet (100 meters) from the nearest network switch. See the Commander® Software System Manual.

**NOTE:** In the Ethernet web configuration, the contact field (site ID) must match the Address Switch S1 (site ID). See “Assigning Site Address (S1)” on page 37.

## Battery Connections

**⚠ DANGER**

**SHOCK HAZARD:** When installing or removing the battery, take care to avoid shorting battery terminals to metal surfaces. Failure to do so could result in serious personal injury or death. Batteries mis-wired can cause serious personal injury or death. Read and understand the following information before making actual connections.

**NOTICE**

**EQUIPMENT DAMAGE:** To avoid shorting the output of the charger, do not apply AC power to the UVRI-B controller before making the battery connections. Failure to follow this notice may result in equipment damage.

The battery supply wires are attached to the battery at the factory, and the unit is shipped with the battery supply wires disconnected from the control board at JP36. Wait until all other wiring connections are made and refer to the Turning on the Power section before making the connection at JP36.

## Speaker Connections (JP2 on the Amplifier board)

The output voltage is  $28.3 V_{\text{RMS}}$  to drive up to 100 watts into an 8-ohm load.

If using distributed speakers, the speakers must be capacitively coupled and connected sequentially with a 2 watt, 2.7 k $\Omega$  end-of-line terminating resistor.

## Local PA Audio Connections (J1 on the UVRI-B Control board)

For local PA, plug the optional microphone (part number: MNC-MC) into the 1/4-inch jack (J1) on the UVRI-B control board. Mount the microphone on the microphone clip located on the access panel. (See “Figure 1 UVRI-B Parts Layout” on page 18.) Use R3 on the control board for microphone level control.

The UVRI-B also has remote volume control for optimizing sound levels across your alerting area. The remote volume control also includes an ambient noise monitoring capability to automatically adjust volume depending on external noise levels. Use the recommended microphone (X-SM1-FS1) to monitor noise levels and automatically adjust the volume. The X-SM1-FS1 is a weather-resistant omni-directional microphone for use with the UVRI-B controller. Mount the microphone in a standard 1/2-inch electrical knock out or 1/2-inch drilled hole in the UVRI-B cabinet or where the noise is needed to be measured. The microphone has a 6-foot cord for connecting to the UVRI-B controller.

## Remote Activation Contact Closure Inputs (JP22 on the UVRI-B Control board)

Connect any desired remote contact closure inputs to the remote control inputs at JP22 on the UVRI-B control board. Activating the input requires a connection of less than 2,000 ohms from pins 1 or 10 to one of the function inputs on pins 2 through 9 for functions 1 through 8 respectively.

## Optional Powering of the UVRI-B with 24 Vdc (JP23 on the UVRI-B Control board)

Using an optional cable assembly (part number: Q17501999A), configure the UVRI-B to be powered by a 20 to 28 Vdc, 24 Vdc nominal supply. The unit may draw up to 7 amperes at full power. See Figures 9 and 10 for the location of JP23.

To power the UVRI-B with 24 Vdc power source:

1. Disconnect the power transformer connection at JP23 and connect cable assembly Q17501999A.
2. Connect the red (+) lead and black (-) lead of the cable assembly to the 24 Vdc power source.

### **NOTICE**

**EQUIPMENT DAMAGE:** To avoid shorting the output of the charger, do not apply AC power to the UVRI-B controller before making the battery connections. Failure to follow this notice may result in equipment damage. See “Turning on the Power” on page 34.

## 600 ohm I/O Connections (JP8 on the UVRI-B Control board)

### Control Connections

Use terminal block JP8 on the UVRI-B control board for making connections to 600-ohm balanced audio equipment such as a direct connection to an SS2000+ or other type of control and status monitoring equipment. To use the 600-ohm input for control signal audio, place a jumper across pins 2-3 (600-ohm RCV) of JP11 and across pins 2-3 (TX Audio) of JP12. Jumper JP2 (the VOX) to provide carrier detect while the incoming audio is present. The 600-ohm input can receive audio for control and audio amplification as well as transmit reports to an external unit.

Use a twisted pair wire run to the connecting equipment, which should have a balanced 600-ohm output. Keep the cable length as short as possible and run away from sources of electrical noise. The input works best with an input level between 200 to 2,000 mV<sub>p-p</sub>. At 200 mV<sub>p-p</sub>, turn pot R59 (RX1 Level) fully up, 20 turns clockwise. Set the level so that a tone signal from the connected equipment provides 1 V<sub>p-p</sub> at TP2 or until the two green LEDs of the RX Level meter are on.

### Audio Connections

Connect the optional remote audio input for Public Address to the 600-ohm port on the UVRI-B control board (JP8) with jumper JP11 set for 600-ohm PA, pins 1 and 2, and no jumper on JP12. A contact closure for remote PTT is required between JP24 pins 6 and 1 to activate the 600 ohms.

Use a twisted pair wire run to the connecting equipment, which should have a balanced 600-ohm output. Keep the cable length as short as possible and run away from sources of electrical noise. The input works best with an input level of around 0 dB or 707 mV<sub>RMS</sub>. Short the 600 ohm PTT input at JP24 pins 1 and 6 and set R17 so that a tone signal from the connected equipment provides 4.5 V<sub>p-p</sub> or 1.6 V<sub>RMS</sub> at TP4 or TP5.

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## **TC Interface/Fire Panel Interface**

A TC Interface is typically used for a fire panel interface. When a relay closure is sent from one piece of equipment to the other, the other sends a relay closure back to acknowledge it so the equipment sending the original relay closure knows it has been received. The lines going back and forth are also monitored for opens, shorts, or ground faults.

If the UVRI-B's unit type is set for fire panel interface in Commander®, for each output that is activated, the UVRI-B will expect to see the corresponding input go active or a fault is generated. For example, if output 1 closes, input 1 must go active.

When the UVRI-B is configured as a Fire Panel interface, the audio output will be delayed until the Fire Panel provides an acknowledgment to the TC1 input to ensure the Fire Panel is ready to receive audio. If the acknowledgment is not received within 10 seconds, the UVRI-B will record a fault and proceed to send the audio.

### **Outputs (JP18)**

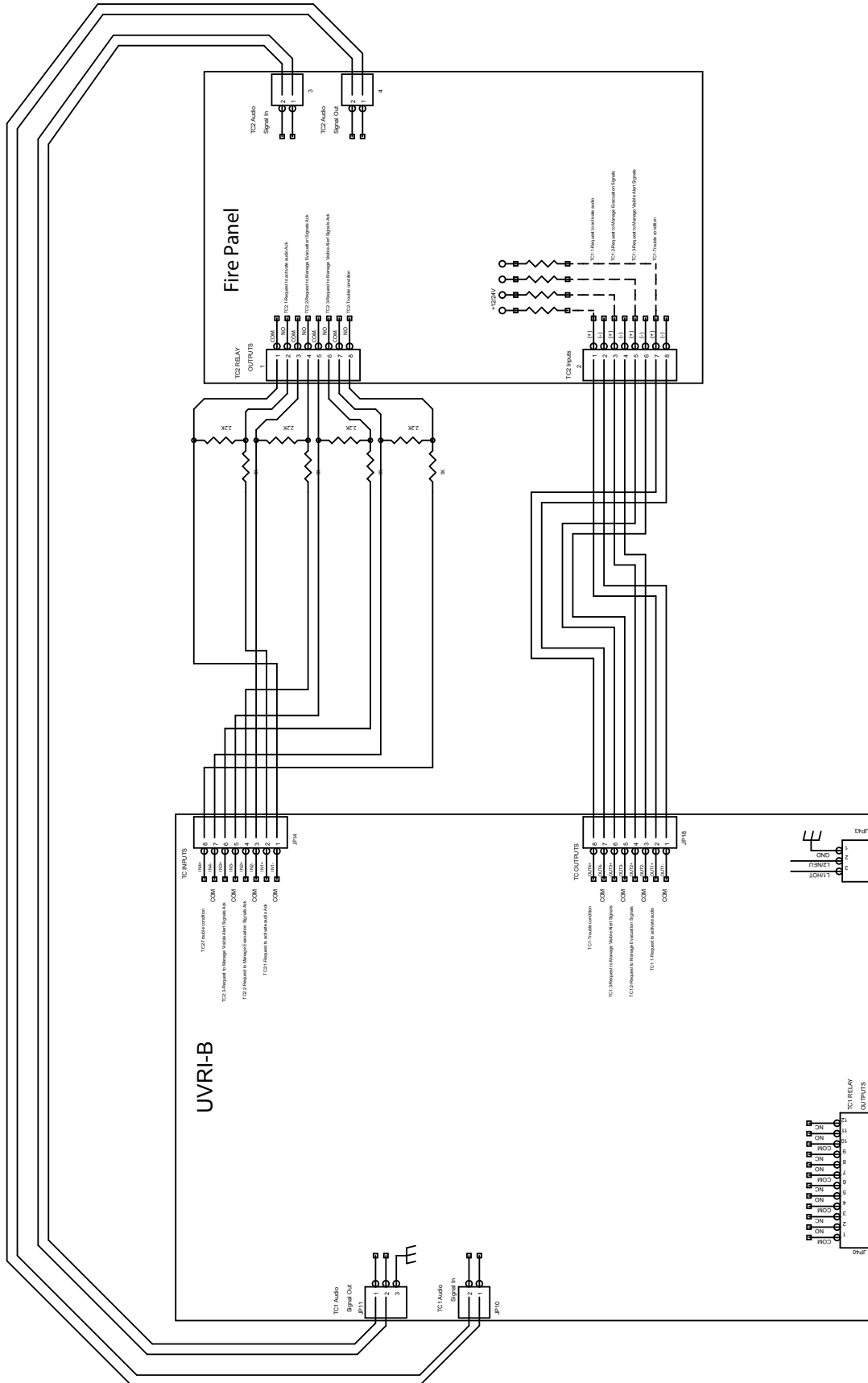
The UVRI-B expects each TC output (not the COM) to be connected to equipment that incorporates a pull-up resistor to 12 to 24 Vdc.

If the UVRI-B's relay output is going to the input of a fire panel, the panel will have a pull-up voltage on its input.

### **Inputs (JP14)**

Each TC input requires a 1 k $\Omega$  resistor in series with the TC connection and a 2.2 k $\Omega$  resistor across the relay output that drives it at the fire panel end. So the UVRI-B sees 3.2 k $\Omega$  of resistance in standby, 1 k $\Omega$  resistance when the fire panel's relay output is closed, infinite resistance if the wire is cut, and zero resistance if the wire is shorted.

Figure 6 TC Inputs and Outputs to the Fire Panel





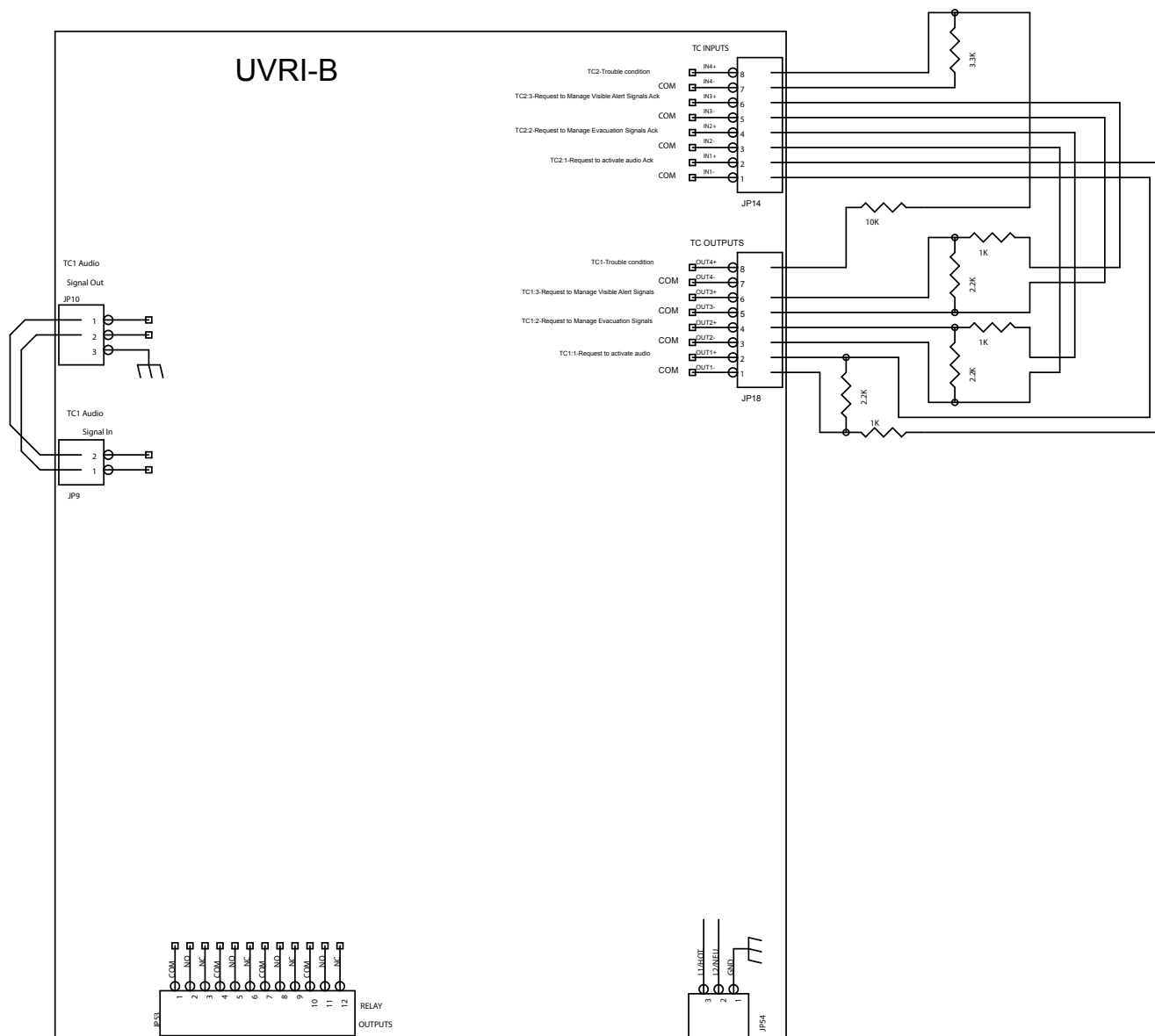
## Terminating Unused Inputs and Outputs

Unused inputs and outputs must be terminated.

To terminate unused inputs and outputs:

1. Connect the unused inputs to the unused outputs using a 1 kΩ and 2.2 kΩ resistor as shown in Figure 7.
2. Connect the commons together.
3. Connect the input through a 1 kΩ resistor to the output.
4. Connect a 2.2 kΩ resistor across the output.

**Figure 7 Terminating Unused TC Inputs and Outputs**



## Turning on the Power

### **NOTICE**

**EQUIPMENT DAMAGE:** *To avoid shorting the output of the charger, do not apply AC power to the UVRI-B controller before making the battery connections. Failure to follow this notice may result in equipment damage.*

To turn the power on:

1. Verify all wiring is completed in the previous sections and that the connections are tight and secure.
2. Connect the battery supply wires to the control board with the pluggable connector at JP36. After the battery connections and antenna connections are made and the battery disconnect connector is plugged in, the UVRI-B is running on battery power.
3. The UVRI-B control board clock LED begins to blink approximately 3 seconds after power is applied.
4. Connect AC power and verify that the battery charger LEDs turn on, indicating the charger is charging the batteries.
5. Turn on the radio transceiver power (if applicable) and verify the radio power LED turns on.

## Installing the Antenna

Determine the type of antenna to be installed if a wireless RF system is used:

- Cabinet Mounted Magnetic Base
- Remote Mounted Magnetic Base
- Yagi External Antenna Type
- Omni external antenna Type

For installation instructions on the Yagi and Omni Antennas, refer to Federal Signal Website (<http://www.fedsig.com/>).

### Installing the Cabinet Mounted Magnetic Base Antenna

If the UVRI-B is being installed in a very good RF coverage area, you may use a cabinet-mounted magnetic base antenna.

1. Connect the antenna cable to the antenna connector on the top of the UVRI-B cabinet.
2. Mount the magnetic antenna base on the top of the UVRI-B cabinet.

## Installing the Remote Mounted Magnetic Base Antenna

The remote magnetic base antenna allows for additional antenna height to improve reception.

1. Locate a suitable location for the antenna away from any electrical devices, high voltage, and computer wiring. Locate as high as possible to enable the antenna mast to be at least 2 feet away from any grounded metal objects.
2. Mount the antenna to a flat, secure metal structure with at least 225 inches square area that the magnetic mount will securely stick to.

## Pre-operational System Configuration and Testing

### **▲ WARNING**

*The following procedures should be performed by a properly trained technician to ensure the equipment is operating properly.*

### Visual Inspection

To conduct a visual inspection:

1. Fill out the ICM-UV Checklist to document the following inspections and tests. Visit <https://www.fedsig.com/warning-mass-notifications-systems-tech-support> to download the ICM-UV checklist.
2. Verify all connections and fasteners are tight.
3. Ensure that all installation debris is removed from the cabinet.
4. Secure all wiring with wire-ties to provide strain relief and to neatly manage the wiring.
5. Verify the control board clock LED is blinking.
6. Verify the charger LED is on.

### Amplifier and Speaker Pre-Operation Checkout

To conduct a pre-operation checkout:

1. Measure the DC voltage at JP36. The voltage should be at least 12.5 Vdc. If the voltage is below 12.5 Vdc, verify the green charging LED (D118) is lit. Allow the battery time to charge before continuing with the tests.
2. Verify the microphone is plugged into the 1/4-inch jack in the control module. Turn the microphone volume potentiometer fully counterclockwise. Press the PTT button on the microphone and announce a test message (for example, "Testing 1,2,3,4, Testing"). Turn the microphone volume knob clockwise until the desired level is obtained during the test count.
3. Verify the AUD1, AUD1, ARM, and PA LEDs on the control and the green ARMED LED on the amp light when the test message is broadcast.
4. Test all siren signals at this time by momentarily pressing the appropriate switch on the control board.

## **Adjusting the Radio Transceiver (if applicable)**

**NOTE:** This procedure was previously completed at the factory. Only readjust if radio re-alignment is required or if the radio is being installed in the field.

### **Qualifications**

Requires a properly trained Radio Technician.

### **Equipment Required**

- Service Monitor
- Oscilloscope

### **Setup**

Connect the radio to the service monitor.

### **Receive Audio Adjustment**

To receive audio adjustment:

1. Using a service monitor, modulate the correct RF signal into the receiver with a 1 kHz tone at 3 kHz deviation. If bandwidth is 12.5, then modulate at 1.5 kHz deviation. (If using private line, add 750 Hz private line deviation to the signal. If bandwidth is 12.5, then modulate at 350 Hz deviation.)
2. For JP5, the Primary Transceiver Port, using R59, the RX1 Level pot, adjust the level for  $1 V_{p,p}$  at TP2 or until the two green LEDs of the RX Level meter are on.
3. For JP4, the Secondary Transceiver Port, using R18, the RX2 Level pot, adjust the level for  $1 V_{p,p}$  at TP2 or until the two green LEDs of the RX Level meter are on.

### **Transmit Deviation Adjustment**

To transmit deviation adjustment:

1. Simultaneously press buttons 5 and 7. This causes the controller to transmit for approximately 8 seconds.
2. Measure the deviation level using a service monitor.
3. For JP5, the Primary Transceiver Port, using R21, the TX1 Level pot;  
For JP4, the Secondary Transceiver Port, using R19, the TX2 Level pot;

Adjust the deviation for 3 kHz deviation. If the bandwidth is 12.5 kHz, then adjust for a 1.5 kHz deviation. (If using private line, add 750 Hz private line deviation to the signal.) If bandwidth is 12.5, add 350 Hz private line deviation to the signal.

**NOTE:** Obtain slightly higher S/N levels by increasing the RF modulation levels to 4 and 2 kHz, depending on the channel spacing. Do not exceed these deviation levels. All sites in the system should be set to the same modulation level.

## **Control and Status Monitoring**

To test the control and status monitoring:

1. Use the Federal Signal Commander® Software to verify the UVRI-B has been properly configured for the application. Make any required changes.
2. Test the control and status monitoring features from each control point. Test each control function and all status indications using Commander®. Verify each status point provides the proper indication of both pass and fail conditions.

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## Operations

### Communications Link

When the UVRI-B is equipped with a communications interface, the following interface parameters require configuration: Unit Type, RF Frequency, Security Key, 128/256-bit Encryption Key, Site Address, and Configuration Jumper Settings.

### Unit Type

The Federal Signal Commander® System requires configuration based on the communications method. See the Commander® Software System Manual for configuration information.

### RF Frequency

Program the radio transceiver with the RF frequency(s), channel spacing, and power output before placing it into service. These settings are pre-set at the factory if the requirements are provided with the order.

### Security Key

The Security Key is a unique number assigned to the system that prevents interference of nearby systems operating on the same RF frequency. Like the 128-bit/256-bit encryption key, the Security Key is typically programmed during initial system programming. All sites in the system must use the same security key. The exception is a key value of 65535 (the default), defined as an open system, and communicates with all encoders regardless of the encoder's key setting.

### 128-bit/256-bit Encryption Key

The 128-bit or 256-bit data encryption provides security against malicious operation or monitoring. Program the 128-bit/256-bit encryption key during the flashing of the microprocessor to match the encoder (Federal Signal Commander® Software or SS2000+) being used to activate the unit. A key value of zero disables the 128-bit/256-bit encryption; use if the encoder does not support 128-bit/256-bit encryption. All sites in the system must use the same encryption key.

### Assigning Site Address (S1)

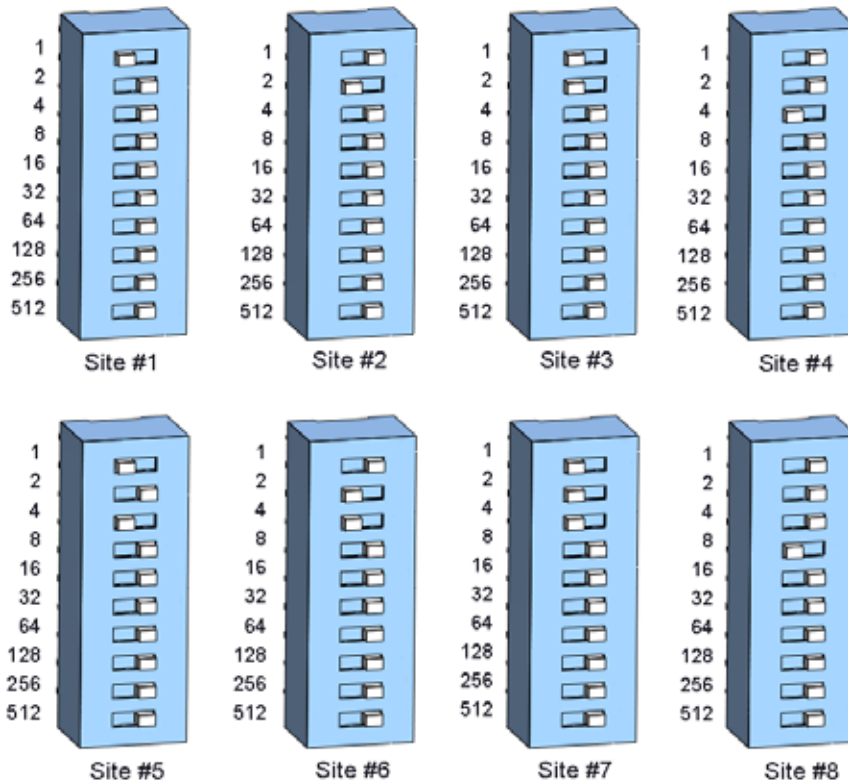
The site address switch gives each UVRI-B controller in a two-way system its unique unit number.

For use with Commander®: For the siren to report back with its identity, define the site address by setting DIP switches located on the board. The DIP switches have values of 1, 2, 4, 8, 16, 32, 64, 128, 256, 512. Add appropriate DIP switch values to define the site number address.

#### Example

To define the board for Site #1, the toggle first DIP switch to the left. All other DIP switches are to the right. For Site #2, toggle the second DIP switch to the left. For Site #3, toggle the first and second DIP switch to the left. For Site #4, toggle the third DIP switch to the left. For Site #5, toggle the first and third DIP switch to the left. Continue this method to define other site number addresses.

Figure 8 Setting the Switch Number Example



Switch number	1	2	3	4	5	6	7	8	9	10
Binary number	1	2	4	8	16	32	64	128	256	512

Example: Switch numbers 1, 2, and 3 are binary numbers 1, 2, and 4.

Add 1 + 2 + 4 = 7; 7 is the unit address

**NOTES:**

- Set the site address to one to program the UVRI-B control board with firmware (HEX code).
- To program a non-digital unit using Commander® Software, set the site address to one. When programming is completed, change the DIP switch setting to the actual site address.
- The site address is stored at power up of the controller. If the site address is changed, cycle all power to the card (battery and AC).
- When using the IP Port, the unit address switch above must match the contact field during the configuration of the UVRI-B Ethernet port. See the Ethernet connection section.

## User Programs

The UVRI-B can store functions for specific alerting configurations. Use functions to activate relays for control of external devices and activation of pre-recorded messages. See the Commander® Software System Manual.

## Status Monitoring

The UVRI-B provides system monitoring with automatic or manual reporting of system operation and status. The following items are monitored:

- System operation
- Audio Output
- Input voltage
- Charger/battery status
- Intrusion
- Local activations

## Connectors, Configuration Jumpers, Test Points, Controls and Indicators

The following table provides settings and interface inputs and outputs for the control card.

**Table 20 Connectors on the Control Board (See Figure 9)**

J1	Microphone jack (Part Number MNC-MC) 10 k $\Omega$ input impedance, 50 mV <sub>P-P</sub> nominal input level
J2	Options Connector: 1-2 Enable Ethernet Port 9-10 Change Serial ports 1 and 2 from 1200 baud to 115200 and 9600 baud Respectively.
JP5 and JP4	Transceiver #1 and #2 Ports
JP6 (Line C)	10 V/25 V, 0.7 W Audio output (to Amp JP3 Audio Input)
JP7	microSD FLASH card holder
JP8	600 $\Omega$ I/O Control and PA Input Siren and TX Audio Output – Balanced Typically used with landline application
TC1 Output	600 $\Omega$ Audio Signal
TC1 Input	600 $\Omega$ Audio Sense
JP9	600 $\Omega$ Audio Sense Input – Balanced Jumpered to JP10 when not used Typically used for fire panel interface
JP10	600 $\Omega$ Audio Signal Output – Balanced Typically used for fire panel interface

JP14	TC1 Interface/Spare Inputs (Typically used for fire panel interface) 1 Isolated (-) 2 TC2-1 / Spare #3 Request to activate audio, ready 3 Isolated (-) 4 TC2-2 / Spare #4 Request to manage evacuation signals, ready 5 Isolated (-) 6 TC2-3 / Spare #5 Request to manage visible alert signals, ready 7 Isolated (-) 8 TC2-4 / Spare #6 Trouble condition
JP18	TC1 Interface Relay Outputs (Typically used for fire panel interface) 1 TC1-1 (-) Request to activate audio 2 TC1-1 (+) 3 TC1-2 (-) Request to manage evacuation signals 4 TC1-2 (+) 5 TC1-3 (-) Request to manage visible alert signals 6 TC1-3 (+) 7 TC1-4 (-) Trouble condition 8 TC1-4 (+)
JP19 (Line B)	I <sup>2</sup> C Port (to I <sup>2</sup> C [JP5] on Amplifier board)
JP21 (Line A)	External Amplifier Power Output, nominal 12 Vdc 1 +10.4-14.08 Vdc (to DC Power Input [JP8] on Amplifier board) 2 (-) Ground (to DC Power Input [JP8] on Amplifier board)
JP22	Remote Activation Inputs: 1 Isolated (-) 2 Function # 1 3 Function # 2 4 Function # 3 5 Function # 4 6 Function # 5 7 Function # 6 8 Function # 7 9 Function # 8 10 Isolated (-)
JP23	AC Power Transformer Output (optional 24 Vdc input) External 20 to 28 Vdc can be connected to JP23 with the (+) connected to pin #1 and the (-) to pin #2.
JP24	Sensor Inputs: (Default = Wire Jumper 5-8, if not using an external AC power sensor) 1 Common 2 Spare # 1 3 Intrusion switch (Typically closed for normal operation) 4 Solar (Typically closed for normal operation) 5 AC (Typically closed for normal operation) 6 600 Ω PTT (Typically short to activate PA) 7 Spare # 2 8 Common
JP25	Isolated Supply Output (VISO) 1 Isolated +5V 2 Isolated (-)
JP31	Serial Port #2
JP32	Serial Port #1, Programming/FLASH



Figure 9 UVRI-B Boards (Lines A, B, C for Control Board to Amplifier Connection)

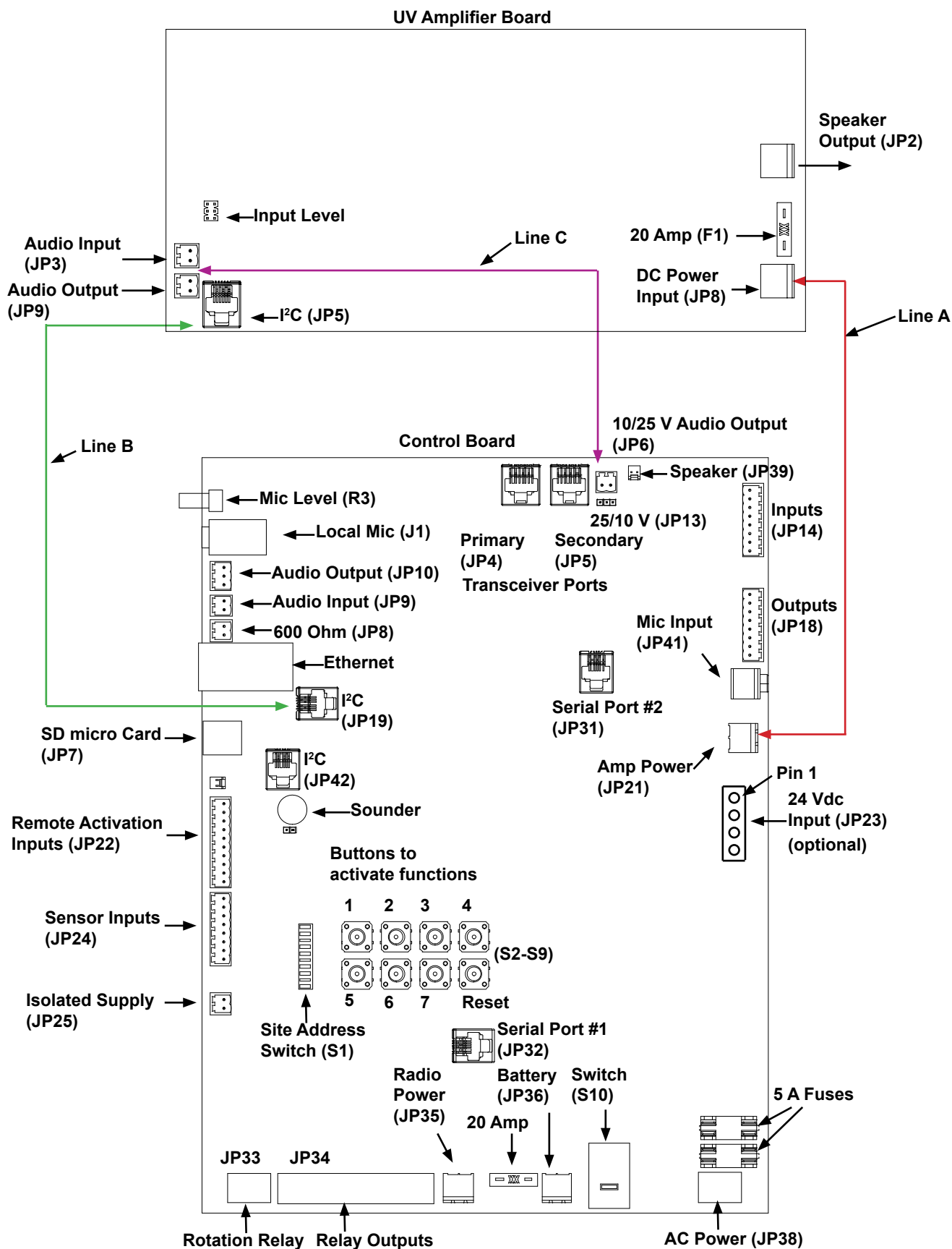
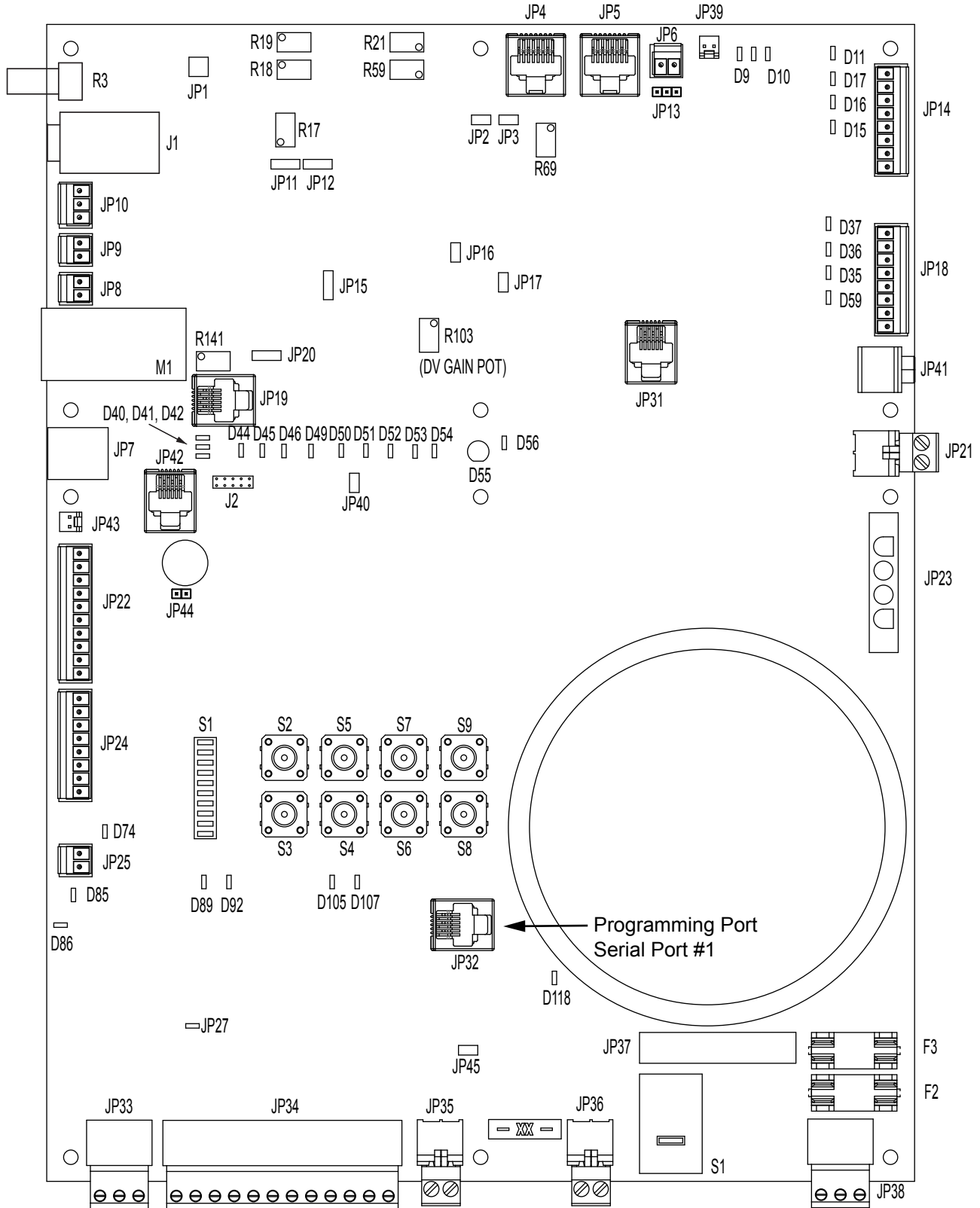


Figure 10 Control Board with Configuration Jumpers, Controls, and indicators



JP33	Rotation Relay Output 1 Common 2 Normally Open 3 Normally Closed
JP34	Relay Outputs 1 Relay # 1 Common 2 Relay # 1 Normally Open 3 Relay # 1 Normally Closed 4 Relay # 2 Common 5 Relay # 2 Normally Open 6 Relay # 2 Normally Closed 7 Relay # 3 Common 8 Relay # 3 Normally Open 9 Relay # 3 Normally Closed 10 Relay # 4 Common 11 Relay # 4 Normally Open 12 Relay # 4 Normally Closed
JP35	Radio Power Output 2 +10.4-14.08 Vdc (to DC Power Input [JP8] on Amplifier board) 1 (-) Ground
JP36	Battery/12 Vdc In 1 (+) Positive 2 (-) Ground
JP37	AC Power Transformer Input
JP38	AC Power Input 1 L1/HOT 2 L2/Neutral 3 Earth Ground
JP39	8 $\Omega$ , 0.7 W output (Local Speaker, indoor)
JP41	Ambient level monitoring microphone input (Part Number: X-SM1-FS1) Ring ground Tip Audio in/1m V <sub>RMS</sub> at 94 dB SPL
JP42	I <sup>2</sup> C Port
JP43	Fault Indicator LED Output 1 +5 Vdc 2 Active low through 1 k $\Omega$

**Table 22 Connectors on the Amplifier Board (See Figure 9)**

JP2	Speaker Output 1 To Control board JP34 1 and 4 2 To Speaker Common
JP3 (Line C)	Balanced Audio Line Input 1 and 2 1.33 to 10/25 V <sub>RMS</sub> Audio Output (JP6) on the Control board
JP4	Audio Input Level Select 1 and 2 – 1.33 V <sub>RMS</sub> line level 3 and 4 – 10 V <sub>RMS</sub> 5 and 6 – 25 V <sub>RMS</sub>
JP5 (Line B)	I <sup>2</sup> C port to I <sup>2</sup> C port (JP19) on Control board
JP7	Disable Line Fault Shorted to disable speaker line fault detection
JP8 (Line A)	DC Power Input 1 Ground – To JP21 (Amp -) 2 +12.0 Vdc – To JP21 (Amp +)
JP9	Balanced Audio Line Output
JP10	Shorted when amplifier is NOT used in Stand-Alone mode
VR1	Volume Control

**Configuration Jumpers**

**Table 23 Configuration Jumpers on the Control Board (See Figure 10)**

JP1	Dual transceiver priority jumper Jumper XCVR1 side to give transceiver #1 priority Jumper XCVR2 side to give transceiver #2 priority Jumper neither side, first carrier detect has priority
JP2	Transceiver #1 VOX Jumper Short to use VOX for Carrier Detect
JP3	Short to force Carrier Detect of transceiver 1
JP11	600 Ω I/O Input Configuration Jumper Pins: 2-3 600 Ω audio in to receiver decoders 1-2 Audio from 600 Ω sent to amplifier when 600 Ω PTT is closed
JP12	600 Ω I/O Output Configuration Jumper Pins: 1-2 Output siren audio 2-3 Output radio transmit audio
JP13	10 V/25 V Output Configuration Jumper Pins: 1-2 25 V Output 2-3 10 V Output
JP15	Voice Output Configuration Jumper Pins: 1-2 Normal Equalization 2-3 Treble Boost
JP16	Fast DTMF Decode. Short for fast timing.
JP17	Disable Digital Receive. Short to disable.
JP20	Siren Audio Channel Select Jumper: 1-2 Signal 0, A 2-3 Signal 1, B
JP27	Options Connector: 1 Microcontroller Input 2 Ground

JP40	Options Jumper - future use
JP44	Short to enable Sounder/Piezo
JP45	Battery charger current limit: 1.5 A un-jumpered, 4 A jumpered

**Table 24 Configuration Jumpers on the Amplifier Board**

JP4	Audio Input Level Select 1 and 2 – 1.33 V <sub>RMS</sub> line level 3 and 4 – 10 V <sub>RMS</sub> 5 and 6 – 25 V <sub>RMS</sub> use this selection, (Default = Jumper 5-6)
JP6	Unit I <sup>2</sup> C Address, (Default = Jumper removed. If two amplifiers are used, install jumper across JP6 on second amplifier.)
JP7	Disable Speaker Line Fault, (Default = Jumper installed. Remove jumper if using with capacitive coupled 25 V speakers with a 2.7 kΩ EOL resistor.)
JP10	Stand-Alone mode, Enables I <sup>2</sup> C control. (Default = Jumper installed, Remove jumper when amplifier is used in a stand-alone application without the UVRI-B control board.)

**Table 25 Control Board Controls: Addressing, Local Activation, and Adjustments (See Figure 10)**

S1	Address Switch
S2	Code # 1 Activation Switch
S3	Code # 5 Activation Switch
S4	Code # 6 Activation Switch
S5	Code # 2 Activation Switch
S6	Code # 7 Activation Switch
S7	Code # 3 Activation Switch
S8	Stop/Reset Switch
S9	Code # 4 Activation Switch
S10	115/230 Vac Switch
R3	Local Microphone Gain
R17	600 Ω I/O PA Level
R18	Transceiver #2 Receive Audio Level
R19	Transceiver #2 Transmit Audio Level
R21	Transceiver #1 Transmit Audio Level
R59	Transceiver #1 Receive Audio Level
R69	Volume Control for 10 V or 25 V and 8 Ω
R103	Digital Voice Gain
R141	TC Interface 600 Ω audio output level

Indicators

**Table 26 Indicators on the Control Board (See Figure 10)**

D9	TC Interface GND Fault
D10	TC Interface Line Fault
D11	TC Interface TC2-4 / Spare #6 Input
D15	TC Interface TC2-1 / Spare #3 Input
D16	TC Interface TC2-2 / Spare #4 Input
D17	TC Interface TC2-3 / Spare #5 Input
D35	TC Interface TC1-2 Output
D36	TC Interface TC1-3 Output
D37	TC Interface TC1-4 Output
D40, D41, D42	RECEIVE LEVEL, 3 stage LED bar graph
D44	RXD Receive Serial Data and receipt of radio channel modulation
D45	TXD Transmit Serial Data and DTMF and Digital
D46	CARRIER RF Carrier Indicator on with carrier present
D49	TX PTT
D50	ARM Unit Armed Indicator
D51	PA Public Address mode Indicator
D52	CPU Microcontroller Heartbeat
D53	AUDIO A, Audio present on Channel A
D54	AUDIO B, Audio present on Channel B
D55	Fault
D56	Power
D59	TC Interface TC1-1 Output
D74	ISO +5V
D85	Rotation Relay Active
D89	Relay #1 Output Active
D92	Relay #2 Output Active
D86	ISO 12V
D105	Relay #3 Output Active
D107	Relay #4 Output Active
D118	Battery Charging

**Table 27 Indicators on the Amplifier Board**

D4	ARM
D5	Output Current Indicator
D6	Output Voltage Indicator
D8	Amp Fault
D12	Speaker Line Fault
D13	Power

## POT Settings

**Table 28 POT Settings on the Control Board**

R69	Output level for 10 V/25 V and 8 $\Omega$ , 0.7 W Audio outputs, (Default = Turn clockwise 20 turns or all of the way up.)
R103	Digital Voice Gain, (Default = Turn clockwise 20 turns or all of the way up.)

**Table 29 POT Settings on the Amplifier Board**

VR1	Volume Control, (Default = Turn clockwise 20 turns or all of the way up.)
-----	--

## Software Tests

**Table 30 Software Tests**

Power-up System Test	Function of microSD card. Card is present.
Quiet Test	25 V output at least 20 V <sub>RMS</sub> . Audio channel status. Performed on command and polled for results.
Sounding Functions/P.A./ Digital Voice	TC1 Contact loop back from TC1 Relay outputs K4, K3, K2, and K1 (JP18) to fire panel (TC2) and from a fire panel to TC1 inputs (JP14). TC1 Audio loop back from (JP10) to fire panel to (JP9). Performed during activations and polled for results.
Low Battery	Battery voltage less than 11.3 V Auto reports.
AC Power Fail	AC voltage less than 90 V. If in 240 Vac mode, 180 V. Auto reports.
Charger Fail	Charge voltage drops below 8.7 V. Auto reports.

---

## Configuring

For information on configuring, see the Commander® Software System Manual.

To configure the UVRI-B, use the web browser interface. This method requires a username and password for security.

### Default Username and Password

The default username is the following:

admin

The default password is the following:

fedsig

The config user has security rights to change the config user password.

**NOTE:** Usernames and passwords are case sensitive.

To configure the amplifier:

1. From the Commander® main window, click RTU. Select the unit to configure. Click Configure.
2. Enter the name, address, latitude and longitude. This information is used for mapping devices and for naming throughout the Commander® system.
3. Click RTU Configuration.



The following dialog box appears.



Fields	Description
Amplifier 1, 2	Select the type of speaker load connected to your amplifier from the drop-down list. This setting must agree with the actual load for proper operation and reporting of the unit.

- Under UVRI-B, in the Amplifier box, select the speaker configuration.

Amplifier Type	Speaker Configuration
No amplifier	Not Present
AudioMaster® Public Address Speaker 8 ohm, 30 watts	1 x AM30 2 x AM30 4 x AM30
DSA1 100 watts non-amplified Speaker 25 V <sub>RMS</sub>	1 x 100W
AM300 15 watts AM302 30 watts Transformer coupled, 25 V <sub>RMS</sub> , Has in-line capacitor	Distributed

**NOTE:** If using an end-of-line resistor, distributed speakers are required to be capacitively coupled.

### Digital Voice Recording

When purchased, the Digital Voice option adds a microSD card capable of storing up to 4,093 voice or tone messages that total up to 17 hours of total recording time.

### File Format

The digital voice message format is 8000 samples per second, 8 bit, mono. Save these messages with a DV#.wav naming format, or the messages are not recognized. This naming format results in messages DV1.wav through DV4093.wav.

### Voice Levels Within Files

Voice sections of a recording should be “Normalized” so that the peaks are at the limits. After Normalization, increase the gain by 4 dB to deliver full nominal output power at the peaks and about 3.5 dB down on average during a word.

### Tone Levels Within Files

Tone signals in the recording (such as siren sounds, horn sounds, and music) should be at no more than 36% of the maximum level (-9 dB) to prevent them from overdriving the amplifiers and overpowering the drivers. These can be normalized to set them at the maximum level and then reduced to 36% or -9 dB. Voice maximum is +4 dB.

These levels assume that the UV attenuation is not programmed, and the DV GAIN on the control board is turned fully up. This delivers -1.8 dB compared to the square wave siren tones or about  $28.3 V_{RMS}$ . For UVRI-Bs, this delivers -2 dB compared to the square wave siren tones.

### Filtering Files

You need to filter the files to reduce content below 300 Hz. This prevents low-frequency tones in a recording from saturating the output transformer and the speaker drivers.

#### **NOTICE**

***SPEAKER DAMAGE: The speaker drivers can not reproduce these frequencies and can be damaged by them.***

### Checking/Setting Control Board DV Levels

These levels assume that the UV attenuation is not programmed, and the DV GAIN on the control board is turned fully up.

To check the control board DV levels, with the speakers un-plugged from the amplifiers:

1. Turn the DV GAIN pot fully (25 turns) counterclockwise.
2. Play the stored tone function.
3. Monitor the output of the amplifier level (9 dB).
4. Turn up the DV GAIN pot until  $27 V_{RMS}$  is reached.

**NOTE:** It is important to start by turning the DV GAIN pot down to a low level and work your way up to prevent overdriving the amplifiers.

Alternatively, with the speakers plugged into the amplifiers:

1. Turn the DV GAIN pot fully (25 turns) counterclockwise.
2. Play the stored tone function.
3. Monitor the amplifiers output level.
4. Turn up the DV GAIN pot until  $23 V_{\text{RMS}}$  is reached.

**NOTE:** It is important to start by turning the DV GAIN pot down to a low level and work your way up to prevent overdriving the amplifiers and speakers.

These methods leave the tone 0.4 to 1.8 dB low, depending on frequency, but limit the current to a safe level.

### **Converting the files**

To convert the files:

1. Adjust the amplitude to ensure that the peaks are at or slightly into the limits. If converting from 16 bit to 8 bit, ensure that dithering is disabled.
2. To program activation codes with Digital Voice Messages under them, follow the instructions in the programming software. It is possible to assign codes to the functions DIG VOICE 1 through DIG VOICE 4093. As in all sounding functions, the unit must first receive the ARM command followed by one of the DIG VOICE commands to activate the stored message. The Digital Voice Volume is adjustable through a potentiometer located on the controller front panel, called DV GAIN.

## Manual Activation

If configured, use the manual activation switches to activate siren functions. Buttons are located on the Control Board.

**Figure 11 UVRI-B Activation Buttons**



**Table 31 Manual Activation Buttons on Control Board**

Function Switch	Function
S2	Code # 1 Activation Switch
S3	Code # 5 Activation Switch
S4	Code # 6 Activation Switch
S5	Code # 2 Activation Switch
S6	Code # 7 Activation Switch
S7	Code # 3 Activation Switch
S8	Stop/Reset Switch
S9	Code # 4 Activation Switch

**NOTE:** During a sounding function, push the RESET button to cause the unit to halt all output immediately.

## Local Public Address

With the microphone (part number X-SM1-FS1), the operator can locally activate live PA.

To activate live PA:

1. Enter the PA mode by pressing the push-to-talk (PTT) button on the microphone. The PA LED is lit anytime the PTT button on the microphone is pressed.
2. Set the local PA volume level by adjusting the MIC LEVEL knob located directly above the J1 local MIC jack.

**NOTE:** Local PA overrides ALL siren functions activated either remotely or locally.

Verify operation of Local PA for potential feedback of broadcasts into the local microphone. Use of local PA with a microphone and local cabinet speaker may cause feedback. Verify proper operation when using.

## Relay Output

The UVRI-B provides five high-powered relays for the control of external hardware.

## Sensor Inputs

Terminal block JP24 is located on the left edge of the UVRI-B control board. Use sensor inputs to detect and notify conditions occurring at an RTU location.

**Table 32 Sensor Connections**

JP24 Terminal	Function
1—ISO	Common
2—SPR #1	Spare #1
3—INTR	Intrusion
4—SOL	Solar Sense
5—AC	AC Power
6—600 PTT	600 ohm PTT
7—SOL Mode	Solar Mode
8—ISO	Common

### Spare 1 (JP24: pins 1 and 2)

Configured as close or open for fault. Commander® Software indicates fault condition (red dot) on the state of the input.

Use for user-defined application.

### Intrusion (JP24: pins 1 and 3)

Alerts the UVRI-B control board when the unit's door is open. When the door is closed, the normal operation is for the intrusion switch to be closed.

### Solar Sense (JP24: pins 1 and 4)

Use to sense operation of the solar charging system.

### AC Power/Solar (JP24: pins 1 and 5)

If using AC, 1 and 5 are connected to the AC power sensor. Jumper JP24 pins 1 and 5 when using solar only.

### 600 ohm PTT (JP24: pins 6 and 8)

Shorting pins 6 and 8 puts the UVRI-B control board in local PA mode.

### Solar Mode (JP24: pins 7 and 8)

Jumper JP24: pins 7 and 8 when using solar. This jumper enables solar mode, which causes the system not to report a failure during low-light conditions or at nighttime. This is done by locking in a power pass until a master reset. For solar panel testing during the day, initiate a master reset, wait 15 seconds, and then poll.

## Status Monitoring

The UVRI-B uses a variety of sensors to communicate its status back to the Federal Signal Commander® System. This alerts personnel of potential issues at the UVRI-B unit. The UVRI-B monitors power, battery, door opening, amplifier status, and other important system components. The UVRI-B includes an external fault indicator when any of the following occur: battery voltage, charger fault, AC power, intrusion, amplifier/line faults, audio A and B.

### Quiet Test

The Federal Signal Commander® System can manually or automatically activate Quiet Test for verification of system operation. Quiet Test uses a 20 kHz tone to test tone generators and optional amplifiers. To configure the Quiet Test, see the Commander® Software System Manual. To access the results of the Quiet Test, use the Federal Signal Commander® System.

### AC/DC Power System

The UVRI-B includes a 13.5 Vdc power supply. The DC voltage is used to power external radio equipment or broadband modems. The DC voltage also charges a battery for operation during power loss. The battery is also used to power the optional amplifier.

### Restoring Webpage and Network Settings to Factory Defaults

If the webpage is not accessible, perform the following procedure to restore the webpage and network settings to factory defaults.

To restore the webpage and network settings to factory defaults for the UVRI-B:

1. Remove power (AC and battery) from the UVRI-B.
2. Press and hold the S8 (RESET) button. (See Figure 10.)
3. Apply power and continue to hold down the S8 (RESET) button for at least 5 seconds before releasing it.
4. The UVRI-B will reinitialize, which may take several minutes.

You need to re-enter all local configuration settings before placing the UVRI-B into service. This method restores all parameters, including network settings, to the factory defaults.

## **Applications**

### **Two-Way Radio Controlled System**

You can use the UVRI-B as a two-way radio-controlled extension of a Federal Signal outdoor warning system. The ability to replicate the pre-recorded messages/tones and live PA allows indoor recipients to receive the same alerts indoors as well as outdoors. Use the UVRI-B to replace Radio Informers with two-way supervised and monitored capabilities. The UVRI-B can also be equipped with a 100-watt amplifier to drive local speakers for wide-area notification. Applications include wastewater treatment facilities, campus, military, firehouse, and commercial applications.

### **Fire Panel Interface**

The UVRI-B is designed to interface with a UL2572 fire panel to control, monitor, and activate a Mass Notification System. Use the UVRI-B in the military, industrial, and campus environments where interfacing Federal Signal outdoor warning into a fire panel is required. The UVRI-B provides the supervision between the UL2572 fire panel and the outdoor notification system. All messages and live PA are passed from the UVRI-B into the fire panel for complete site notification.

### **Fiber-connected Facility**

Upgraded industrial and commercial locations have been running fiber throughout their facility to enable IP connectivity. IP connectivity allows cameras, sensors, access control, and alerting systems to be easily installed across the enterprise. With multi-site locations and interconnected facilities, the ability to tie all these systems together is simple and easy to do. Security can be controlled and managed from a centralized location. Alert and notification systems can be managed across locations, and an alert in one location can trigger alerts anywhere within the network. The UVRI-B and the Intelligent product family are all IP-enabled to allow a seamless and efficient alert system to be deployed.

## Maintenance

**⚠ WARNING**

**SHOCK HAZARD:** Service and maintenance should be performed by qualified personnel familiar with the UVRI-B, associated controls, and power sources being used and in conjunction with the authorities having jurisdiction. Before servicing or maintaining, ensure that remote activation cannot occur and disconnect power to the UVRI-B.

**⚠ WARNING**

**SOUND HAZARD:** The sound output of speakers is capable of causing permanent hearing damage. Use adequate hearing protection and avoid excessive exposure. To prevent the speakers from sounding, always turn off the power to the UVRI-B at the AC disconnect and remove any DC power being supplied before inspecting or maintaining the speakers.

Before installing, commissioning, or performing maintenance for the UVRI-B, visit <https://www.fedsig.com/warning-mass-notifications-systems-tech-support> to download the ICM-UV checklist. Click the Commissioning and Maintenance Documents heading to view the checklists.

### Recommended Cables for Radio

The Federal Signal part number, communication control cable, and power cable are on the Recommended Cables for Radio sheet (SYS5060).

To download the Recommended Cables for Radio sheet:

1. Go to [www.fedsig.com](http://www.fedsig.com).
2. Search for SYS5060.

### Control Unit Preventive Maintenance

Test the UVRI-B for proper operation at least once a month. A daily test at noon, curfew, or other selected time is preferred. This not only enhances the usefulness of the UVRI-B and verifies that it remains ready for use when needed; it also instills confidence in the reliability of the system.

To minimize the potential for a failure, annual inspection and maintenance is recommended.



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## General Maintenance

### Checking Signal Operational

To check signal operation:

1. When checking for proper control module output, unplug the terminal strip connector to the speakers to eliminate output from the speaker array.
2. Activate each of the signals and observe the signal indicators on the control module and the amplifiers.
3. If desired, connect an oscilloscope or digital multimeter (DMM) to the amplifier module output terminal strip to observe the amplifier output. This output should be at least  $25.5 V_{RMS}$  for the 100-watt amplifier during a signal if the amplifier is programmed to run at full power.
4. Plug all of the amplifier terminal strip connectors to enable amplifier outputs.
5. Verify that the system status is reported correctly at the control point. Check each status point to verify both pass and fail conditions are correctly reported. Verify that the relay output closes with each function activated.

### Checking the Battery Charger

To check the battery charger:

1. Connect AC power and verify that the battery charger LED D118 is on.
2. Charger should be at 13.5-13.6 Vdc when charging the battery.

**NOTE:** Charger fails when voltage drops below 8.7 Vdc.

### Checking the Battery

To check the battery:

1. Remove AC power and measure the DC voltage across the DC input connector on the control board. If the battery has been charging for at least 24 hours, this voltage should be above 12.75 Vdc.
2. Typically, the battery needs to be replaced every 3 to 5 years, depending on the application environment. The battery life is diminished if it is left in a discharged state for prolonged periods.
3. Maintain or replace the battery as recommended by its manufacturer; obey local or state laws governing the disposal of lead-acid batteries.
4. Check the battery terminals for corrosion. Clean and grease connectors and terminals if necessary.

### Replacing the Battery

To replace the battery:

1. Disconnect the battery from the control board by unplugging the connector at JP36.
2. Disconnect the battery wires from the battery terminals.
3. Remove and retain the two screws that have the battery bracket.
4. Remove the battery bracket and then remove the battery.
5. Reassemble in the reverse order of these steps.

## Troubleshooting

**Table 33 Troubleshooting**

<b>Problem</b>	<b>Action</b>
No Radio Decode	<ul style="list-style-type: none"><li>• Unit is not programmed to recognize that particular code sequence or signal is not being received properly.</li><li>• Verify programming is correct. Check the received audio signal quality at the RX test pin on the front of the control card.</li></ul>
Low output from the speaker array	Check the battery voltage. Also check signal indicators on amplifiers during a function. If indicators are off, remove the amplifier for service.
Function stops before a normal timeout	Batteries may require further charging. Check battery voltage under load. Check charger output.
Local PA feeds back	Lower PA volume using knob above MIC connector.
Local PA has little or no output	Hold microphone close to mouth. Increase PA volume using knob above MIC connector.
Batteries not holding charge	Check that the battery fuse is intact and check charger output. Load test batteries.
Relay outputs do not operate	With a voltmeter, check that there is at least 12 Vdc across TP16 and TP18.
Radio PA takes too long to timeout	Check radio for proper operation of squelch. CD LED should light while carrier is present
Amplifier not working	Ensure that the amplifier is configured in the Commander® Software.

## Replacement Parts

The UVRI-B has the following replacement parts.

**Table 34 Replacement Part Numbers**

Description	Part Number
Control Board	Q20000253
Amplifier Board, 100 W	Q20000324
F1	148142A, 20 Ampere auto fuse
Littlefuse*	Not Available through Federal Signal
Bussman # GDC-5A	148186-02, 5 Ampere fuse
Battery, 12V, 12 Ah	Q155193A
Radio	19902693A-XX or 19902163A-XX
Microphone	MNC-MC
Ambient noise level monitoring Microphone	X-SM1-FS1
UVRI-B Power Cable, 24 Vdc	Q17501999A
Service Part Fuse 2 per unit* Bussman part – GDC-5A Littlefuse part p 218005.HXP	Not Available through Federal Signal

\*Not available through Federal Signal. Please source locally.

## Configuring the UVRI-B Using the Web Interface

The following section describes how to activate from a built-in web server that allows the UVRI-B to be controlled and configured over a LAN using standard web browsers.

The System Administrator identifies the server IP address, Subnet Mask, Default Gateway, and the IP addresses for all UVRI-B controllers.

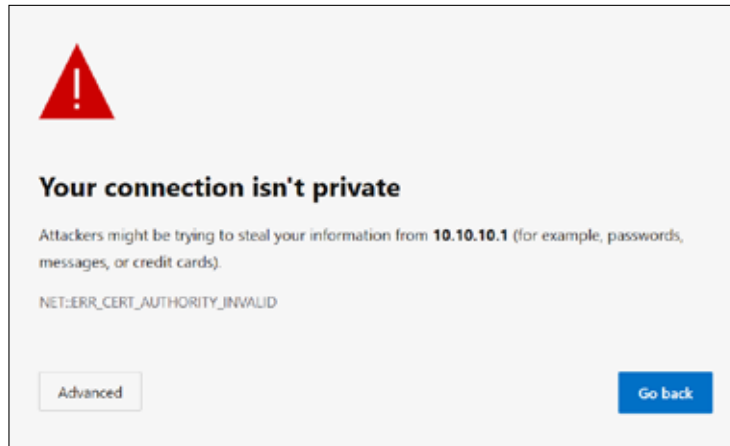
### Logging on to the Web Interface

To configure the network interface through the web interface:

1. Type the IP address into your Chrome®, Edge®, or Firefox® browser to navigate to the UVRI-B web page.

Your browser displays a security warning screen.

**NOTE:** Your screens may look different depending on the browser selected. The following example is from using Microsoft® Edge.



HTTPS is a secure, encrypted connection.

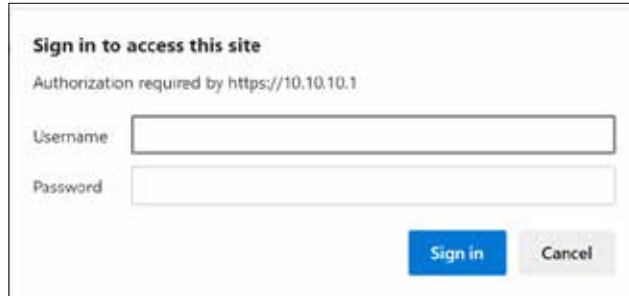
2. Click Advanced. The following dialog box appears.



Your connection is secure, encrypted, and digitally signed. The server issued the certificate. Certificates issued by the server are referred to as self-signed certificates. See “Uploading Certificates” on page 79 for information on how to install your own certificate if required.

3. Click the Continue link at the bottom of the screen.

The Login window appears.



A login window titled "Sign in to access this site" with the text "Authorization required by https://10.10.10.1". It contains two input fields: "Username" and "Password". Below the fields are two buttons: "Sign in" (blue) and "Cancel" (grey).

4. Enter the Username:  
admin (or preconfigured Username)
5. Enter the Password:  
fedsig (or preconfigured Password)  
**NOTE:** The password is case sensitive.
6. Click Sign in.

The Home page appears.

7. View your search bar.



**NOTE:** Depending on the browser you are using, your dialog boxes may look different.

8. Click the Not secure icon to open a menu about the site. The following is a typical example.



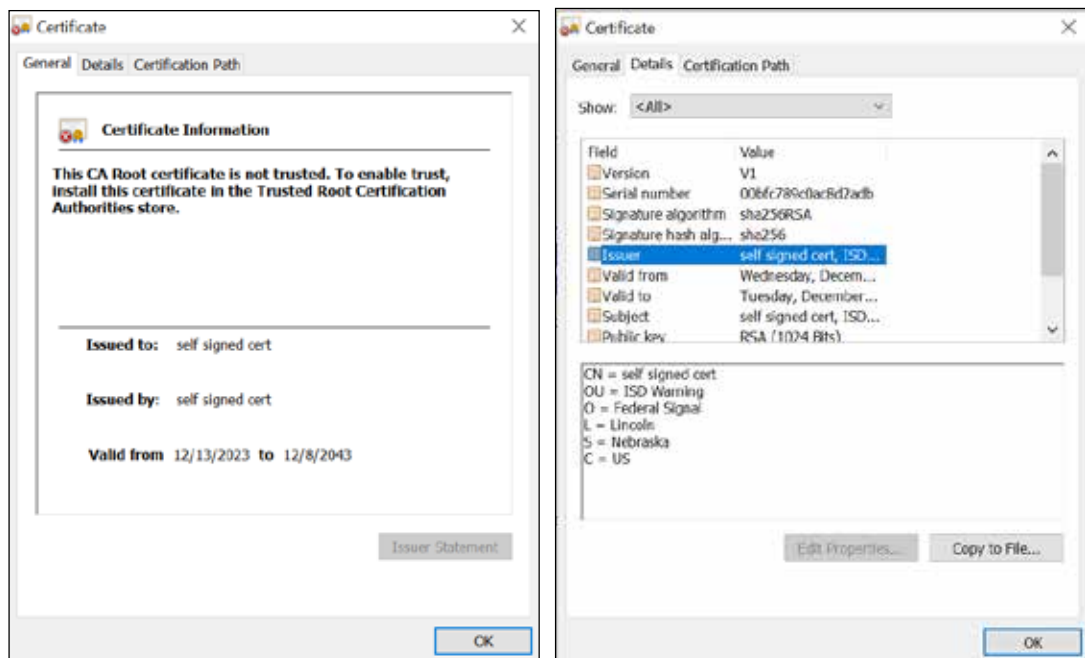
An error occurs when a web browser cannot verify the certificate installed on a site. Rather than connect users to your website, the browser displays an error message.

## Configuring the UVRI-B Using the Web Interface

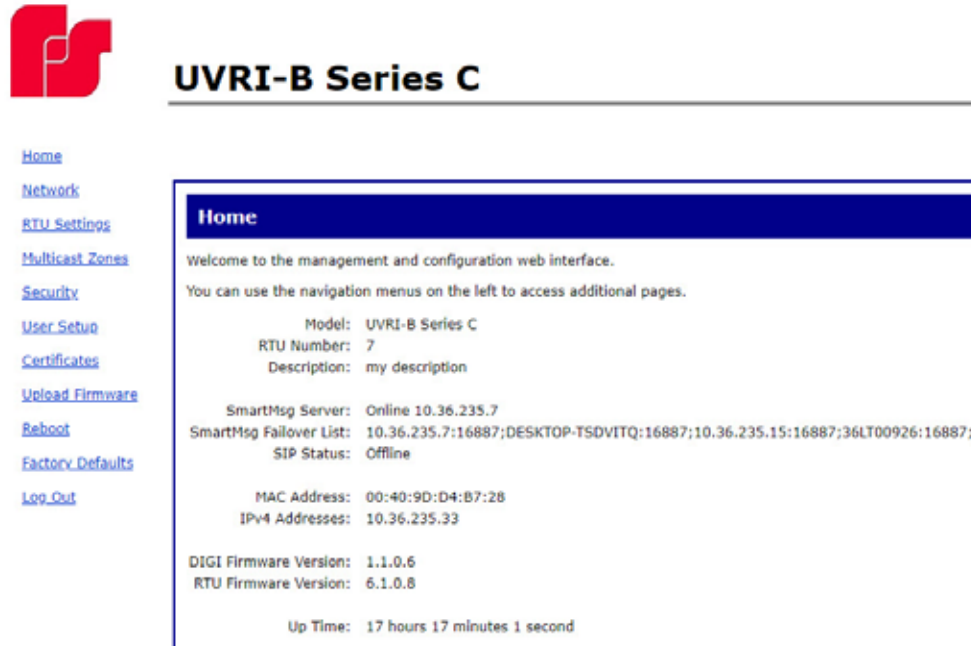
- Click the arrow to display the next dialog box.



- Click the certification icon. The following displays the General and Details tabs. The Details tab shows a self-signed certificate, making this a secure connection.



The Home page appears.



The home page displays a summary of the current configuration settings for the RTU. The Navigation Menu (blue hyperlinks on the left) is used to access other System Management web pages.

Use the Help hyperlink to access the Help screen from any web page.

Field	Description
Model	The RTU model of the device. This field will be blank for a few minutes following power up or master reset.
RTU Number	The RTU's assigned identity.
Description	The text field is used to describe the RTU.
SmartMsg Server	The RTU's assigned default SmartMsg server.
SmartMsg Failover List	The RTU's SmartMsg Failover List. This field will be blank until the unit successfully connects to the server and retrieves the failover list.
SIP Status	The RTU's SIP connection status. When the RTU is registered with a SIP server, the status will be Online, and the SIP server's IP address will be displayed. Offline will be displayed when the RTU is not registered with a SIP server.
MAC Address	The MAC Address of the device.
IPv4 Addresses	The RTU's assigned IPV4 address or its domain name.
DIGI Firmware Version	The firmware version of the DIGI Connect ME 9210 module.
RTU Firmware Version	The firmware version of the RTU.
Up Time	The elapsed time since power up or reboot.

- Record the MAC and IP address to ensure the device can be managed in the future.

## Changing the Network Settings

You can configure the RTU to obtain an IP address automatically using DHCP and AutoIP, or you can assign a static IP address. Federal Signal highly suggests a static IP address. Coordinate the static IP addresses with the System Network Manager to prevent address duplication.

You cannot leave the Default Gateway blank when a static IP address is assigned. A valid IP address is required. Use the server's IP address as the gateway if making a direct Ethernet connection to the device.

After changes are made, click the Apply button and reboot the RTU to begin using the new configuration settings. Reboot the RTU by cycling power or from the Reboot web page.

Use a MAC/IP address discovery tool to locate the IP address of the RTU if the network configuration settings are lost, misconfigured, or if DHCP is used. You must use the tool on the same side of a network router as the RTU. Contact Federal Signal Customer Support for assistance with the discovery tool. See "Getting Technical Support and Service" on page 84.

To change the Network Settings of the UVRI-B:

1. Select Network. The Network Settings page appears.

**UVRI-B Series C**

[Home](#)  
[Network](#)  
[RTU Settings](#)  
[Multicast Zones](#)  
[Security](#)  
[User Setup](#)  
[Certificates](#)  
[Upload Firmware](#)  
[Reboot](#)  
[Factory Defaults](#)  
[Log Out](#)

### Network Settings

**IP v4 Settings**

Obtain an IP address automatically  
 Use the following IP address

IP v4 Address:   
Subnet Mask:   
Default Gateway:   
Primary DNS:   
Secondary DNS:

**MAC Address**

MAC Address:

Fields	Description
Obtain an IP address automatically	When the device is rebooted, it obtains new network settings automatically from the network DHCP server.



<b>Fields</b>	<b>Description</b>
Use the following IP address	Supplies static settings. You must enter an IP Address, Subnet Mask, and Gateway. A DNS server address is only required if domain names are used instead of IP addresses.
IP Address or Domain Name	The RTU's assigned IPV4 address or its domain name in the IP address field.
Subnet Mask	The RTU's assigned subnet mask.
Default Gateway	The RTU's network gateway for routing IP traffic.
Primary DNS	The Primary Domain Name Server for the network. (Must be entered if the RTU is required to connect to a server by its domain name.)
Secondary DNS	The Secondary Domain Name Server for the network.
Apply	Saves your settings. You must reboot for changes to take effect.

2. Select the Use the following IP address option button.
3. Enter the static IP Address, Subnet Mask, and Default Gateway for the device.
4. Click Apply.
5. Reboot the device for the IP address change to take effect.

**NOTE:** The factory default IP settings must be changed to work with the IP network that the product will be connected to. Consult with your Network Manager to ensure the settings adhere to your network policy.

Once the IP address is changed, configuration is only possible when the UVRI-B and the configuration computer are placed on the live network together. Reconfigure the configuration computer's IP settings before returning to the live network. You now need to log on to the web page with the new IP address after the address is changed.

**NOTE:** You can use DHCP to simplify UVRI-B deployment, but MAC address discovery tools may not traverse routers, and maintenance may be more difficult.

## **Configuring the RTU Settings**

Use the RTU Settings page to configure the device's RTU Number and Description. All devices in the system must have a unique RTU Number.

### **SmartMsg**

Use the SmartMsg check box to enable or disable the SmartMsg network interface. To use the interface, check the box and enter the IP address of the SmartMsg server. The port is preconfigured to 16887. When applied, the RTU attempts to log in to the SmartMsg server. If a server connection is lost for over 10 minutes, the unit performs a hardware and software reset; therefore, to prevent interruption of other system services, disable the interface if not in use.

### **Modbus**

Use the Modbus® check box to enable or disable the Modbus® interface. You can change the default port number if needed. Use this interface in conjunction with the SmartMsg interface, but disable if it is not required for system operation.

### **SIP**

Use the SIP check box to enable or disable the SIP interface. You can use this interface in conjunction with SmartMsg, but disable if it is not required.

### **Digital Inputs**

You can assign Digital Inputs to play digital voice messages when the input becomes active. Inputs that have been programmed from Commander® for local activation cannot be configured from the web page and are unavailable.

After changes are made, click the Apply button, and then reboot the RTU from the Reboot web page to begin using the new configuration settings. Use the Reboot web page to reboot the RTU.

To change the configure the RTU Settings of the UVRI-B:

1. Select RTU Settings.

The RTU Settings page appears.



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**RTU Settings**

**General**

RTU Number:

Description:

Power Attenuation:

Ambient Attenuation:

**SmartMsg**

Enable SmartMsg

SmartMsg Server:

SmartMsg Port:

**Modbus**

Enable Modbus

Modbus Port:

**SIP**

Enable SIP

SIP Port:

SIP TLS Port:

Local Address:

Primary SIP Server:

Secondary SIP Server:

Address (Extension):

Registration User ID:

Password:

Registration Interval:

Call Time Limit:

Underrun (Jitter) Delay:

Transport:

Private Key Passphrase:

SSL Common Name:

Keepalive Mode:

Keepalive Interval:

QoS:

Activation Callout:

Relay 1:

Relay 2:

Relay 3:

Relay 4:

## Configuring the UVRI-B Using the Web Interface

**Input #7:**

Mode:

Polarity:

Priority:

Digital Voice:

Relay 1:

Relay 2:

Relay 3:

Relay 4:

Fields	Description
General	
RTU Number	The RTU's assigned identity. All devices in the system must have a unique RTU Number. The number must be a positive integer.
Description	Use this 48-character text field to describe the RTU. This can be the physical address of the site or any other text string. The description field has a 255-character limit and can be scrolled to view additional characters.
Power Attenuation	Use this control to set the default volume level. The selected level applies to SIP audio and all other functions unless overridden by Commander®. The selected value defines dB attenuation from full volume: 0 dB is full volume, and 20 dB is minimum volume.
Ambient Attenuation	Use this control to set the default Ambient Attenuation Threshold. The selected level applies to SIP audio and all other functions unless overridden by Commander®. The sound level will start attenuating when the ambient SPL drops below this threshold.
SmartMsg	
Enable SmartMsg	Check to enable the SmartMsg interface.
SmartMsg Server	The RTU's assigned default SmartMsg Server IP Address or DNS name.
SmartMsg Port	The port is preconfigured to 16887.
Modbus	
Enable Modbus	Check to enable the Modbus® interface.
Modbus Port	The RTU's assigned Modbus® TCP port number. The default is 502.
SIP	
Enable SIP	Check to enable the SIP interface
SIP Port	The RTU's assigned SIP port number. The default is 5060.
SIP TLS Port	The RTU's assigned TLS SIP port number. The default is 5061.
Local Address	Displays the RTU's IP address.
Primary SIP Server	The RTU's assigned primary SIP server.

<b>Fields</b>	<b>Description</b>
Secondary SIP Server	The RTU's assigned secondary SIP server. If your system does not use a failover server, leave this field blank.
Address (Extension)	The RTU's assigned Address or Extension number. This field is required.
Registration User ID	Username for registration. If this field is blank, the Address (Extension) will be used for the Registration User ID.
Password	The RTU's assigned SIP password.
Registration Interval	The RTU's assigned SIP registration interval in seconds. Enter a value between 10 and 3600.
Call Time Limit	The RTU's assigned SIP call limit duration in seconds. The call is dropped automatically when the time limit is reached. This prevents a speaker from staying busy if a phone is left off the hook or on hold unintentionally. Enter a value between 10 and 3600.
Underrun (Jitter) Delay	Underrun occurs when a device runs out of data during live streaming PA or VoIP, causing the audio to cut out. The underrun delay setting defines the length of data buffering to use before playback begins. The buffer size is adjustable from 0-15 seconds. You can set the buffer duration to 0 on high-speed networks designed for VoIP traffic. Wireless networks and networks without QoS may require additional buffering to eliminate jitter and lost audio.
Transport	The RTU's assigned SIP transport protocol. For TLS, optional certificates can be uploaded from the Certificates page.
Private Key Passphrase	The RTU's assigned private key passphrase. Leave this field blank if a private key certificate is not provided or does not require a passphrase.
SSL Common Name	The Common Name associated with the SIP Server's SSL certificate. This field must be left blank if a CA certificate is not provided or if it is desired to not validate the server certificate.
Keepalive Mode	If enabled, the RTU will send a keepalive message to the server at the specified interval
Keepalive Interval	The keepalive interval in seconds. Enter a value between 10 and 3600.
QoS	The differentiated services code point value assigned to signaling messages from the RTU.

<b>Fields</b>	<b>Description</b>
Activation Callout	<p>The destination device to call during siren activation. For devices registered on a server, enter the extension and server IP address in the format number@serverip (for example, 1014@10.10.248.17). For direct IP calls, enter the IP address of the device.</p> <p>When the speaker is configured with an Activation Callout extension or IP Address, speaker audio is buffered until the SIP call is established or 5 seconds. When the SIP call is answered, the audio starts streaming to the amplifier, the Activation Callout extension/IP Address, and the configured Multicast TX Zone. If the call is not answered within 5 seconds, the Activation Callout is terminated, and audio is routed to the speaker and the configured Multicast TX Zone. If the RTU receives a direct SIP call, the incoming SIP audio is not routed to the configured Activation Callout extension but relayed to the Multicast TX Zone. This feature allows SIP phones to make a direct call to one RTU and control all RTUs configured to listen to the Multicast Zone. All audio sources except for incoming SIP calls and Commander PA VoIP (locally generated tones and wave files, local PA audio, radio PA audio, Multicast RX Zone) is routed to the Activation Callout extension.</p>
Relay 1	Turns on Relay 1 during a SIP call.
Relay 2	Turns on Relay 2 during a SIP call.
Relay 3	Turns on Relay 3 during a SIP call.
Relay 4	Turns on Relay 4 during a SIP call.
<b>Digital Inputs</b>	
Mode	<p>The digital input mode. Available options:</p> <ul style="list-style-type: none"> <li>• Disabled: The digital input is not configured for local activation.</li> <li>• Commander®: The digital input is configured for local activation from Commander®. This selection is for display only, and if selected, the mode will revert to Disabled.</li> <li>• Momentary: The selected digital voice message(s) will play one time when the state changes from Inactive to Active.</li> <li>• Continuous: The selected digital voice message(s) will play continuously while the input is Active.</li> </ul> <p>If more than one input is configured for Continuous mode, the WAV file(s) and relay output(s) associated with each input will activate in sequence as long as the inputs are active.</p>
Polarity	<p>The polarity of the digital input active state.</p> <ul style="list-style-type: none"> <li>• Normally Open: Active state is input Closed.</li> <li>• Normally Closed: Active state is input Open.</li> </ul>
Priority	<p>The Priority assigned to the digital input. For Momentary mode, an input of equal or higher priority will interrupt an active Continuous mode input and will stop and override currently active Momentary mode input. When multiple Continuous mode inputs are active with different priorities, the lower priority inputs will be skipped until the higher priority inputs become inactive. The highest priority is 1. The lowest priority is 4.</p>
Digital Voice	<p>List of digital voice messages to play when the input becomes active. This field must be a comma-delimited list of 1-19 digital voices indices (for example 1,2,3,4).</p>
Relay 1	Turns on Relay 1 when the input is active.
Relay 2	Turns on Relay 2 when the input is active.

<b>Fields</b>	<b>Description</b>
Relay 3	Turns on Relay 3 when the input is active.
Relay 4	Turns on Relay 4 when the input is active.  The relays remain on while the DV messages are playing. If no DV messages are specified, the relay remains closed while input is active for continuous mode or pulse for momentary mode.
Apply	Saves your settings. You must reboot for changes to take effect.

- 2.** Enter the RTU Number.
- 3.** Enter a description of the RTU.
- 4.** Click the arrow to select Power Attenuation.
- 5.** Click the arrow to select Ambient Attenuation.
- 6.** Click Enable SmartMsg to enable the SmartMsg interface.
- 7.** Click Enable Modbus to enable the Modbus® interface.
- 8.** Click Enable SIP to enable SIP.
- 9.** Select the options for the Digital Inputs.
- 10.** Click Apply.
- 11.** Reboot the device for the IP address change to take effect.

## Configuring the Multicast Zones

The Multicast Transmit Zone (send siren audio) will stream siren audio to a multicast IP Address. To configure, enter a valid multicast IP Address, Port Number, and check the Enable box.

Configure up to 50 multicast receive zones on the Multicast Zones webpage. To configure a zone to receive public address messages, enter a valid multicast IP Address, Port Number, and check the Enable box for the zone.

To configure a multicast zone to receive public address messages:

1. Select Multicast Zones.

The Multicast Zones page appears.



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### Multicast Zones

**Priority Settings**

Lower numbered zones preempt higher numbered zones.

Individual calls preempt multicast zones.

**Multicast Transmit Zone (send siren audio)**

Tx Zone	IP Address	Port	Enabled
Tx Zone 1	<input type="text" value="239.20.19.100"/>	<input type="text" value="8222"/>	<input type="checkbox"/>

**Multicast Receive Zones**

Zone/Priority	IP Address	Port	Enabled
Zone 1	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 2	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 3	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 4	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 5	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 6	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 7	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 8	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 9	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 10	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 11	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 12	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 13	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 14	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 15	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 16	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 17	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>



Zone 18	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 19	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 20	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 21	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 22	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 23	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 24	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 25	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 26	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 27	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 28	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 29	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 30	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 31	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 32	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 33	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 34	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 35	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 36	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 37	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 38	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 39	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 40	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 41	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 42	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 43	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 44	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 45	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 46	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 47	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 48	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 49	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>
Zone 50	<input type="text"/>	<input type="text" value="0"/>	<input type="checkbox"/>

Fields	Description
Priority Settings	
Lower numbered zones preempt higher numbered zones	Allows pages in a lower numbered zone to interrupt a higher numbered zone.
Individual calls preempt multicast zones	Allows individual calls to interrupt multicast pages.

The Multicast Transmit Zone (send siren audio)	When the speaker is configured with an Activation Callout extension or IP Address, speaker audio is buffered and delayed until the SIP call is established or 5 seconds. All audio sources except incoming Multicast RX Zone Audio are routed to the Multicast TX Zone. Configure only one RTU per Zone with a Multicast TX Zone to prevent Multicast audio contention. Do not allow other devices to be multicast to the same address and port (Multicast Zone) at the same time the UVRI-B is multicasting.
IP Address	Multicast IP address between 234.0.0.0 and 239.255.255.255.
Port	Port number between 1 and 65535.
Enabled	Check to send activation audio to this zone.
Multicast Receive Zones	If Zone priority is not configured or if two zones are configured with the same priority, the RTU only listens to audio from the first source that started multicasting until the RTU detects the original source has stopped sending RTP audio. This prevents audio contention if two sources attempt to multicast to the same address and port at the same time. If Zone priority is enabled, audio from the highest priority zone overrides all other multicast zone traffic.
IP Address	Multicast IP address between 234.0.0.0 and 239.255.255.255.
Port	Port number between 1 and 65535.
Enabled	Check to subscribe to this zone.
Apply	Saves your settings. You must reboot for changes to take effect.

2. Set the Priority Settings.
3. Enter a valid multicast IP Address and Port Number, and check the Enabled box for the zone.
4. Click Apply.
5. Reboot the device for the IP address change to take effect.

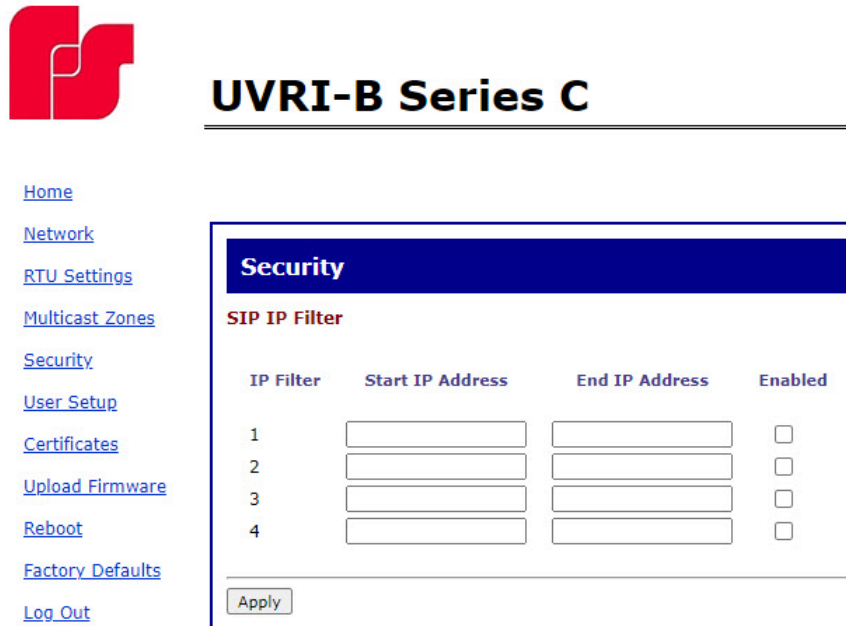
## Configuring Security

Configure up to four IP address filters to limit access to incoming SIP calls. If one or more filters are enabled, the source IP address of the caller must be within one of the enabled filter ranges, or the call is rejected. When using a SIP server, the source IP address is the SIP server or proxy server. **NOTE:** The IP Address Filter does not apply to Multicast paging.

To configure security:

1. Select Security.

The Security page appears.



Field	Description
SIP IP Filter	
Start IP Address	Starting IP Address in dotted decimal format.
End IP Address	Ending IP Address in dotted decimal format. The ending IP address must be a greater value than the starting IP address.
Enabled	Check the box to enable this filter. If all filters are disabled, the system will accept any IP address. If one or more filters are enabled, the source IP address must be within one of the enabled filter ranges.
Apply	Saves your settings. You must reboot for changes to take effect.

2. Enter the starting IP Address in dotted decimal format.
3. Enter the ending IP Address in dotted decimal format.
4. Click Enabled.
5. Click Apply.
6. Reboot the device for the IP address change to take effect.

## **Configuring the User Setup**

User Setup allows Full Admin privileged users to create users, passwords, and assign security privileges.

Enter up to five usernames. Each username requires a password and a security privilege.

Three privilege levels are available to restrict access to configuration screens:

- The View Only privilege enables the user to view the Home screen only.
- The View and Configuration privilege can configure all settings except User Setup.
- The Full Admin privilege has unrestricted access to all configuration screens.

The default Admin username is admin. The default password is fedsig. The Admin user cannot be deleted, and its security privilege cannot be changed. The Admin user's username and password can be changed.

User 1 - User 4 are optional users that have configurable names, passwords, and privileges.

Enable Factory Support User: When enabled, a hidden static user and password is enabled for Federal Signal Technical Support. This user can be disabled.

After changes are made, click the Apply button. Reboot the RTU from the Reboot web page to load the changes into the RTU.

To create users and enable the factory support user:

1. Select User Setup.

The User Setup page appears.



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**User Setup**

**Admin**

Username:

Password:

Password Confirm:

Privileges:

**User 1**

Username:

Password:

Password Confirm:

Privileges:

**User 2**

Username:

Password:

Password Confirm:

Privileges:

**User 3**

Username:

Password:

Password Confirm:

Privileges:

**User 4**

Username:

Password:

Password Confirm:

Privileges:

**Factory Support User**

Enable Factory Support User

Field	Description
Username	Enter the name of the user (case sensitive).
Password	Enter the user's password (case sensitive).
Password Confirm	Enter the user's password again. The Password Confirm must match the Password.

Field	Description
Privileges	The privilege level assigned to this user. Three privilege levels are available to restrict access to configuration screens: <ul style="list-style-type: none"><li>• The View Only privilege enables the user to view the Home screen only.</li><li>• The View and Configuration privilege can configure all settings except User Setup.</li><li>• The Full Admin privilege has unrestricted access to all configuration screens. The default Admin username is admin. The default password is fedsig. The Admin user cannot be deleted, and its security privilege cannot be changed. The Admin user's username and password can be changed.</li></ul>
Enable Factory Support User	Check the box to enable the factory support user.
Apply	Saves your settings. You must reboot for changes to take effect.

2. For the Admin fields, enter the default Username:  
`admin` (This is the default username.)
3. For the Admin fields, enter the Password:  
`fedsig` (This is the default password.)  
**NOTE:** The password is case sensitive.
4. Enter the fields for User 1 through User 4 to create optional users. Each username requires a password and a security privilege.
5. Click Enable Factory Support User to enable a hidden static user and password for Federal Signal Technical Support.
6. Click Apply to save changes.
7. Reboot the device to load the changes into the RTU.

## Uploading Certificates

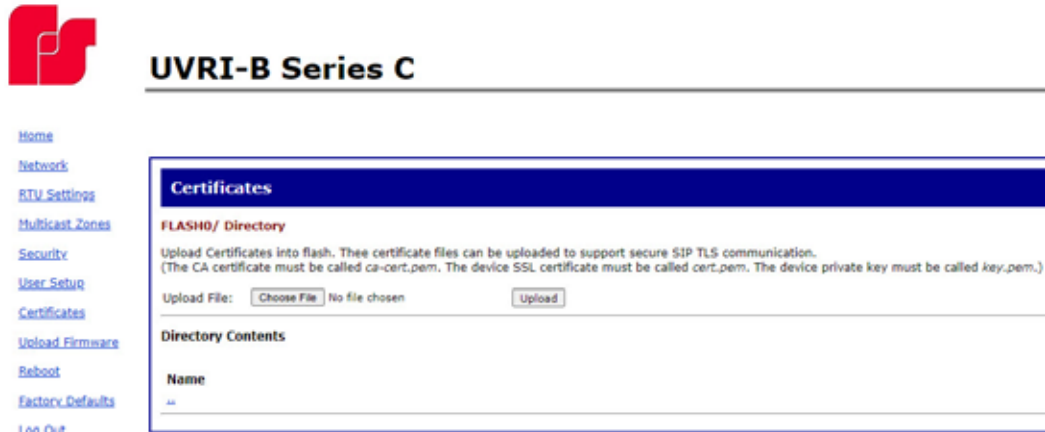
Use the Certificates page to upload certificates and key files to support secure https. Certificate files are optional; if not provided, the device will generate its own self-signed certificate. Three certificate types are supported. The device SSL certificate must be called cert.pem, the device key must be called key.pem, and the CA certificate must be called ca-cert.pem. If you provide certificate files you must provide both the cert.pem and key.pem files. The ca-cert.pem is optional.

File type	Filename
Device SSL certificate	cert.pem
Device private key	key.pem
CA certificate	ca-cert.pem

To upload a certificate file:

1. Select Upload Certificates.

The Upload Certificates page appears.



Field	Description
Choose File	Click Choose File to open a dialog box. Select the new file to upload.
Upload	Upload the new file by clicking the Upload button. You must reboot for changes to take effect.

2. Click Choose File to open a dialog box to select the new ca-cert.pem, cert.pem, or key.pem file to upload.
3. Click the Upload button to upload the new file.
4. Reboot the device for the changes to take effect.

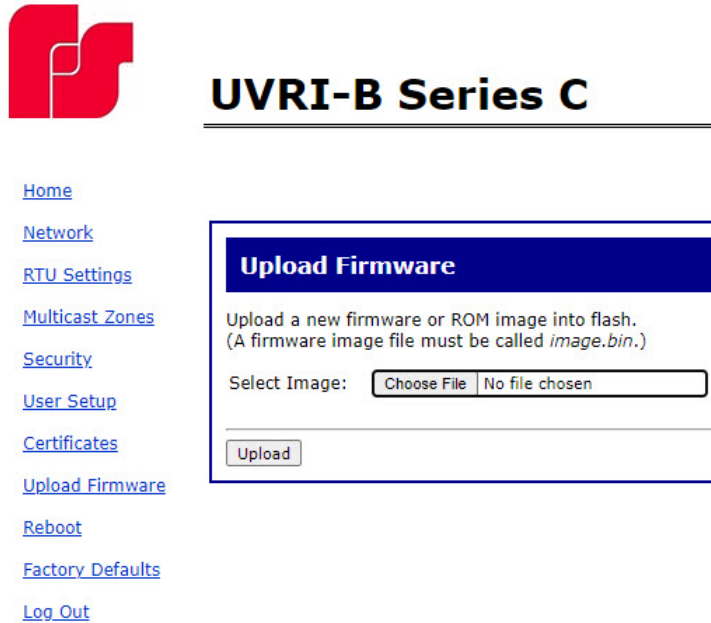
## Uploading Firmware

Use the Upload Firmware page to load a new operating system into the Digi Ethernet module. The Home page displays the current version of the firmware.

To upload new firmware:

1. Select Upload Firmware.

The Upload Firmware page appears.



Field	Description
Select Image	Click Choose File to open a dialog box. Select the new image.bin file to upload.
Upload	Upload the new image.bin file by clicking the Upload button. You must reboot for changes to take effect.

2. Click Choose File to open a dialog box to select the new image.bin file to upload.

File type	Filename
Firmware image file	image.bin
Firmware backup or recovery image	backup.bin
ROM image	rom.bin, spi_rom.bin, or romzip.bin

3. Click the Upload button to upload the new image.bin file.

**IMPORTANT:** To prevent operating system corruption, power must not be interrupted during the upload and reboot process.

4. Reboot the device for the changes to take effect.



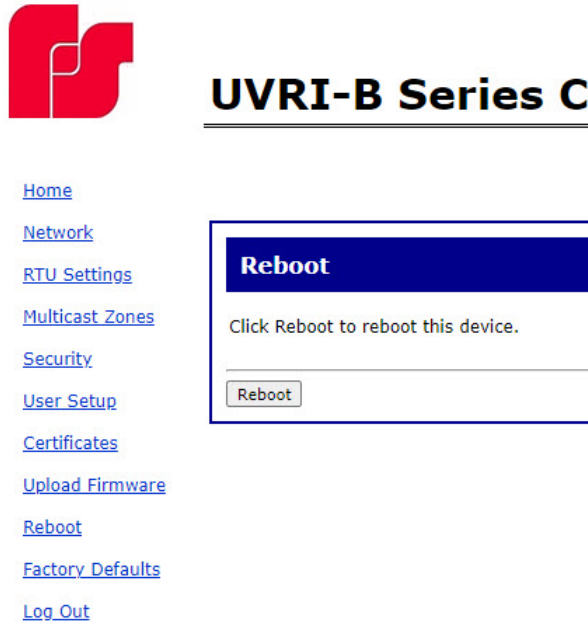
## Rebooting Device and Loading Configuration Settings

Use the Reboot page to reboot the device and load new configuration settings.

To reboot the device and load new configuration settings:

1. Select Reboot.

The Reboot page appears.



2. Click the Reboot button to reboot the device and load new configuration settings.

The login prompt appears within 20 seconds after the reboot.

## Restoring Configuration to Factory Defaults

You can restore the factory default settings with or without restoring the network parameters.

The RTU must reboot to begin using the new settings. Use the Reboot web page to reboot the RTU.

If web access is not available, see “Restoring Webpage and Network Settings to Factory Defaults” on page 54. This method restores all parameters, including network settings, to the factory defaults.

### Default Settings

RTU Number: 1  
Description: my description  
SmartMsg disabled  
Modbus disabled  
Smartmsg Server: 10.10.10.10  
IP Address: 10.10.10.1  
Subnet Mask: 255.255.0.0  
Default Gateway: 10.10.10.10  
Primary/Secondary DNS: 0.0.0.0/0.0.0.0  
Admin user name: admin  
Admin user password: fedsig  
User 1 - User 4 username/password: blank  
Factory Support User: Enabled

To restore the configuration to factory defaults:

1. Select Factory Defaults.

The Factory Defaults page appears.



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### Factory Defaults

**Restore Factory Defaults**

Include Network Parameters

Press Apply button to restore factory defaults. **Warning! The device settings will be overwritten.**

Field	Description
Include Network Parameters	Check the box to include network parameters. <b>IMPORTANT:</b> This changes the IP address of the RTU to factory default settings and makes the device inaccessible over a production network.
Apply	Restores factory defaults. <b>IMPORTANT:</b> Your current settings will be overwritten.

2. Click Apply to restore your settings to the factory defaults.
3. Reboot the device for the changes to take effect.

## Logging Out of the Web Interface

Use the Log Out page to log out before the five-minute session timer expires.

To log out of the web interface:

1. Select Log Out.

The Log Out page appears.



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2. Click the Log Out button to log out.

## **Getting Technical Support and Service**

For technical support, contact:

Federal Signal  
Technical Support  
Phone: 800-524-3021 or 708-534-4790  
Email: [techsupport@fedsig.com](mailto:techsupport@fedsig.com)  
[www.fedsig.com](http://www.fedsig.com)

For customer support, contact:

Federal Signal  
Customer Support  
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