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FRC

A Safe Fleet Brand

INTERCOM
AMBULANCE/RESCUE VEHICLE
MODEL ICA100
SURFACE MOUNT SERIES
MODELS ICA200, ICA300
FLUSH MOUNT SERIES
MODELS ICA400, ICA500

ICA100

ICA200/300

ICA400/500

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INTRODUCTION

Overview

Fire Research intercoms are designed to meet rescue and fire service requirements for two or three-way voice communications system. The ICA100 series intercom systems are designed for use inside ambulances and rescue vehicles. The ICA200/300 surface mount and ICA400/500 flush mount series intercom systems are weather-resistant and specifically designed for outside use on fire service apparatus.

Features

Master station with volume and push-to-talk controls

Remote station is operated hands free

Dual master stations for three-way systems

Adjustable mount (ICA200/300 Series)

Hand-held microphone option for master stations

Foot switch option for master stations

Specifications

Table 1. Intercom Specifications

SERIES	ICA100	ICA200/300	ICA400/500
SUPPLY VOLTAGE	12 VDC	12 VDC	12 VDC
OUTPUT POWER	8 WATTS	16 WATTS	16 WATTS
FUSE	3 AMP RECOMMENDED	3 AMP SLOW BLOW .25" X 1.25" MDL	3 AMP SLOW BLOW .25" X 1.25" MDL
DIMENSIONS MASTER (IN INCHES)	5.25 x 4 x 1.5	8.25 x 5.625 x 3 (Without Bracket)	6.25 x 7.25 (Panel Dimensions) **3" Clearance Required Behind Panel**
DIMENSIONS REMOTE (IN INCHES)	4.25 x 3.25 x 1.5	5.25 x 5.25 x 2.25 (Without Bracket)	5.625 x 6 (Panel Dimension) **2.5" Clearance Required Behind Panel**
Handheld Microphone	N/A	Optional	Optional
PTT Button for Remote Station	Optional	Optional	Optional

GENERAL INSTALLATION NOTES

Mount the intercom stations in locations that are safe and convenient for use.

It is recommended that the master station be mounted inside the cab.

Consider potential background noise that the hands free remote station might pick up.

If excess background noise is picked up by the hands free remote station due to vibration, mounting it on a rubber pad can help reduce noise.

Ensure a good ground connection. Isolate the intercom ground wire from other grounds that can be noisy (strobes, radios, priming motors, etc.).

Make interconnecting cable runs as short as possible.

Secure excess intercom cable in a figure 8 pattern.

The foot switch option requires the installation of a single-pole single-throw switch (not supplied with intercom).

ICA100 SERIES INSTALLATION

Pre-Installation

1. Measure and mark station locations for two mounting holes. Refer to Figure 1 for layout and dimensions.

2. Drill two 3/4-inch mounting holes at each station location.

3. Install the four conductor cable between station locations.

4. Remove nuts from mounting post on intercom boxes.

Install Remote Station

1. Place station box in position with mounting post through the holes and secure with two nuts. (The nuts should be hand tight plus 1/4 turn.)

2. Connect station box four wires to cable. Refer to Figure 2 for wiring details.
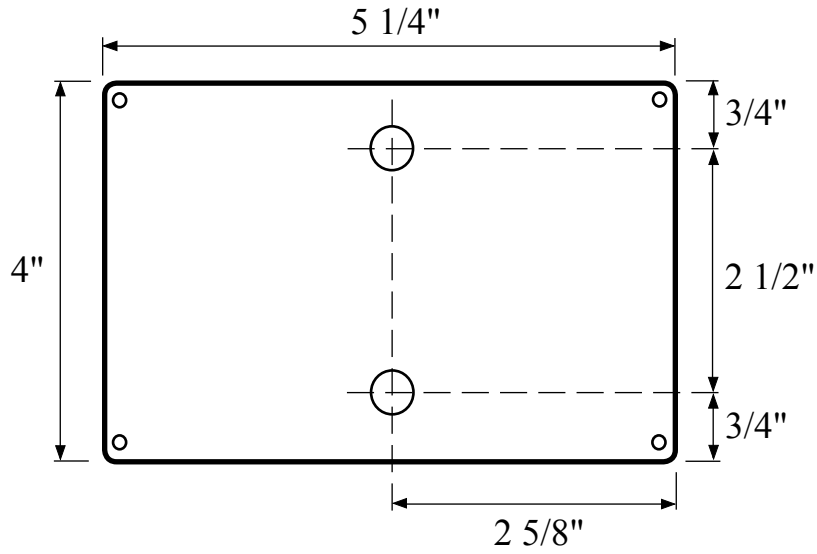
Install Master Station

1. Place station box in position with mounting post through the holes and secure with two nuts. (The nuts should be hand tight plus 1/4 turn.)

2. Connect station box four wires to cable. Refer to Figure 2 for wiring details.

3. Connect black wire to ground.

4. Connect red wire to +12 VDC.

Master Station

Two 3/4" holes are needed.

5 1/4"

4"

3/4"

2 1/2"

3/4"

2 5/8"

Remote Station

Two 3/4" holes are needed.

4 1/4"

3 1/4"

1 5/8"

7/8"   2 1/2"   7/8"
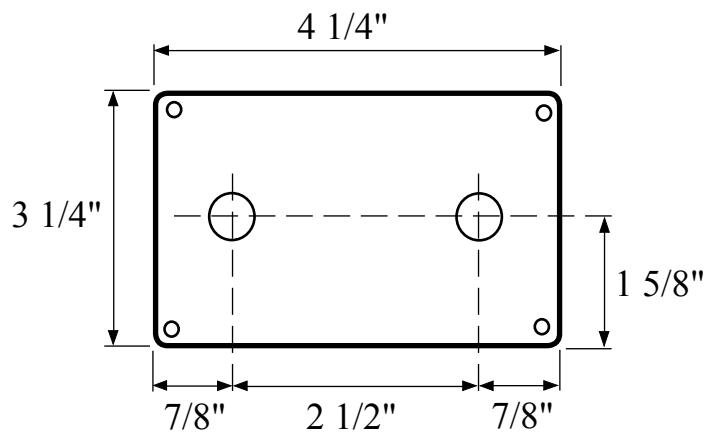
Figure 1. ICA100 Mounting Dimensions

Note: It is recommended that a 3 AMP fuse be installed between the master station box and the 12 VDC power source.

Red
+12 VDC
GND
Black

Master Station

Master station
may have
a power on
LED.

Black   Yellow
White   Red

A one-to-one cable
connects the two stations.
Black-to-Black
White-to-White
Red-to-Red
Yellow-to-Yellow

White   Red
Black   Yellow
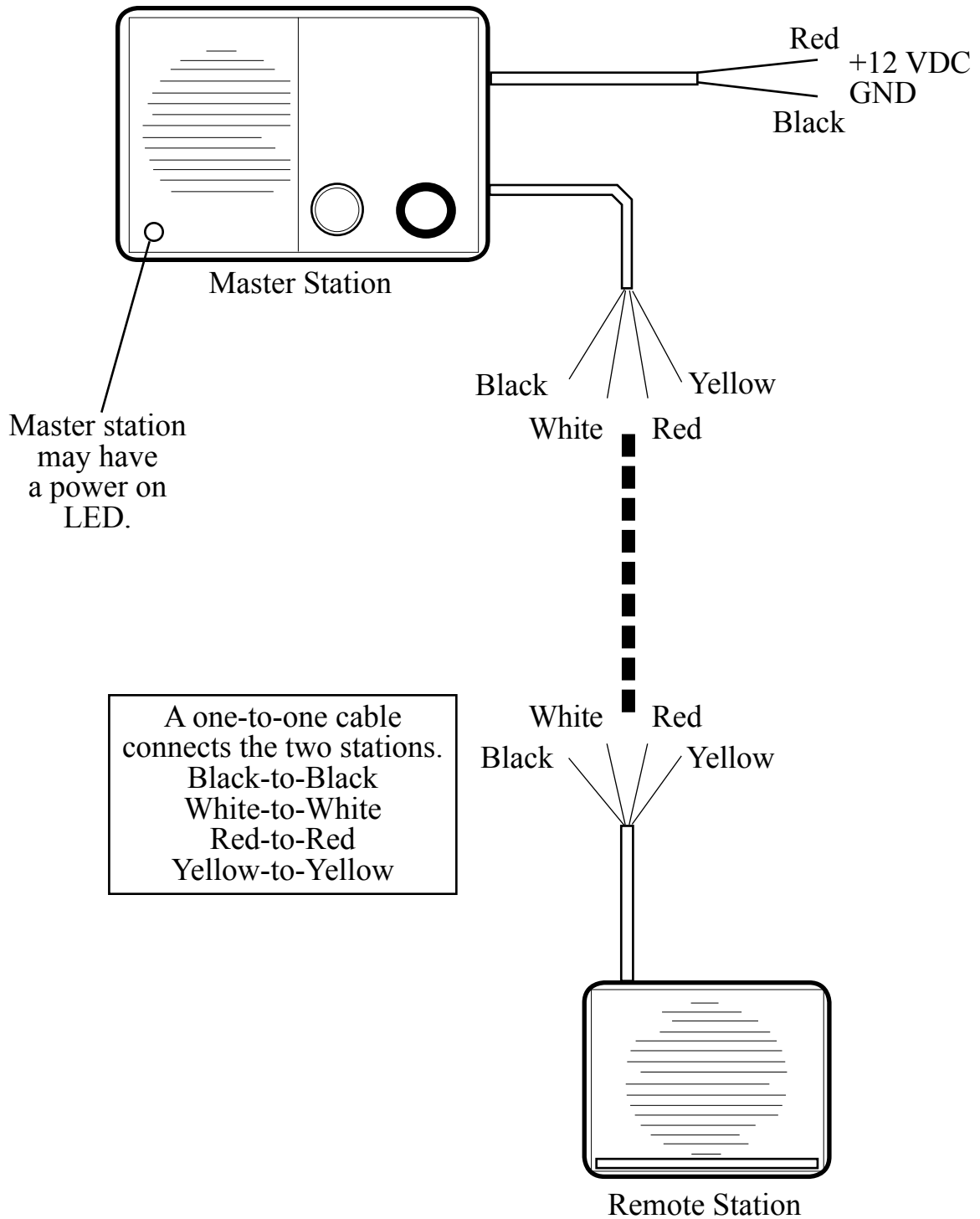
Remote Station

Figure 2. ICA100 Wiring

ICA200/300 SERIES INSTALLATION

Note: In a three-way system (ICA300) master station A has transmit priority over master station B and the remote station.

Note: Mounting hardware is not included, 1/4-inch hardware is recommended.

Pre-Installation

Note: The mounting bracket can be removed by unscrewing the adjustment knobs at the side of the station box (Refer to Figure 3).

1. Measure and mark station box locations for mounting bracket installation. Refer to Figure 4 for layout and dimensions.

2. Drill four mounting holes at each station box location for mounting hardware.

Note: Pre-installed apparatus wiring can be used. The intercom connections are one-to-one. The yellow wire is shield.

3. Install the cable (with 3-pin connector) between remote and master station box locations. Refer to Figure 5 or 6 for wiring details.

4. For three-way system (ICA300) install the cable (with 5-pin connector) between master stations A and B box locations. Refer to Figure 6 for wiring details.
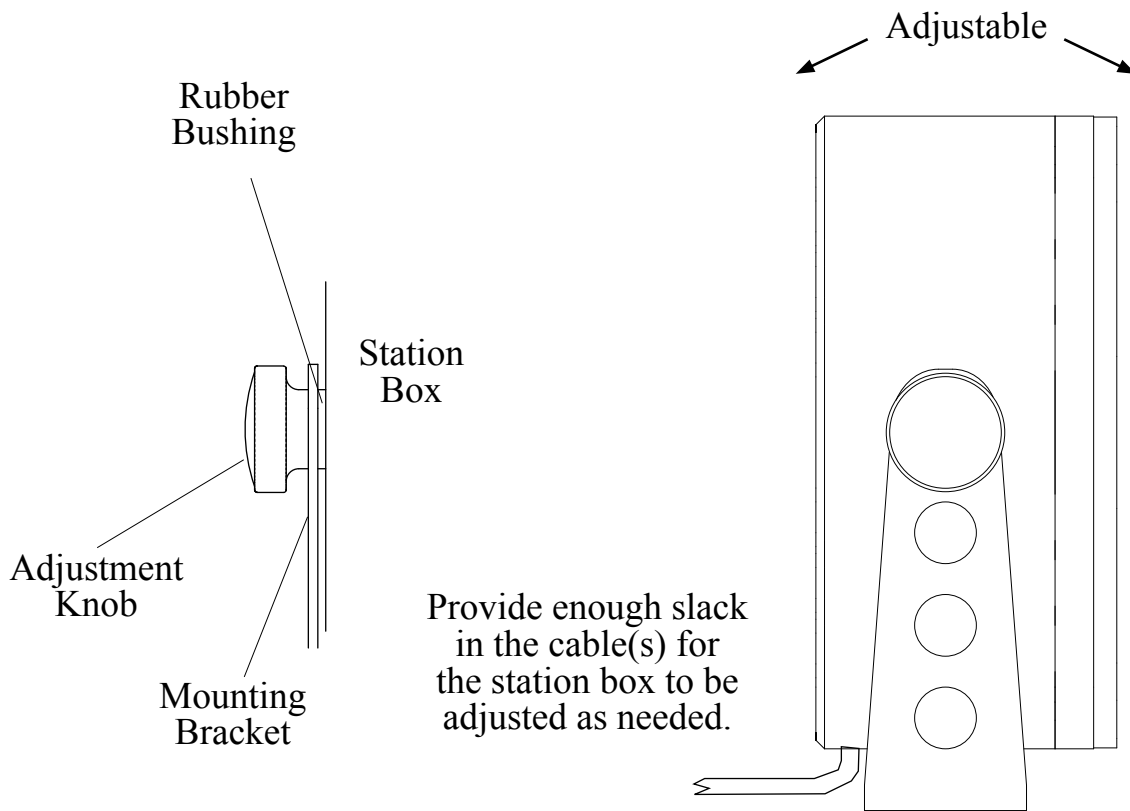
Install Remote Station

1. Place mounting bracket in position and secure with four screws.

2. If bracket was removed from box, place remote station box in position and install rubber bushings and mounting knobs.

3. Connect station box 3-pin Molex connector to cable connector.

Install Master Station(s)

1. Place mounting bracket(s) in position and secure with four screws.

2. If bracket was removed from box, place master station(s) in position and install rubber bushings and mounting knobs.

3. Connect station box 3-pin Molex connector to cable connector.

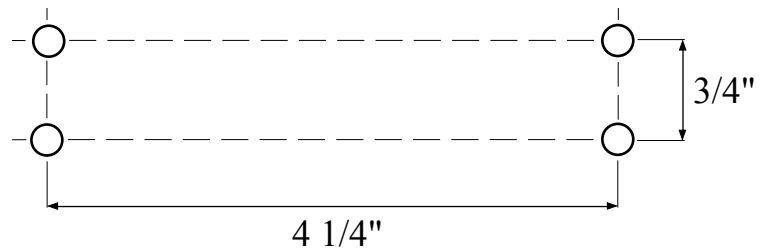4. For three-way system (ICA300) connect station box 5-pin Molex connector to cable connector.

5. Connect black wire to ground.

6. Connect red fused wire to +12 VDC.

7. For three-way system repeat steps 4 through 6 at master station B.

Rubber
Bushing

Station
Box

Adjustment
Knob

Mounting
Bracket

Adjustable

Provide enough slack
in the cable(s) for
the station box to be
adjusted as needed.

Figure 3. ICA200/300 Adjustable Mount

Master Station Bracket
Mounting Holes

3/4"

4 1/4"

Drill the holes for 1/4-inch
mounting hardware.

Remote Station Bracket
Mounting Holes

3/4"

3"
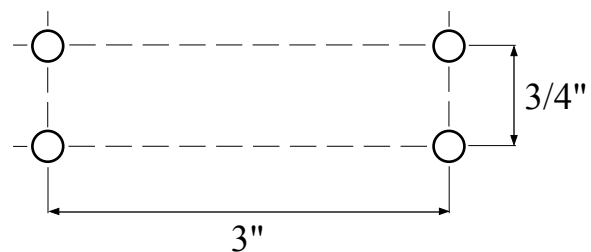
Figure 4. ICA200/300 Mounting Dimensions

Remote Station

Master Station

3 Pin
Molex Connector
Wiring
○ White
○ Yellow
○ Black

GND
+12 VDC

Fuse
3 AMP

To Remote
Station

If the PTT option is installed
on the remote station a 5-pin
Molex will be used.

Figure 5. ICA200 Wiring

Remote Station

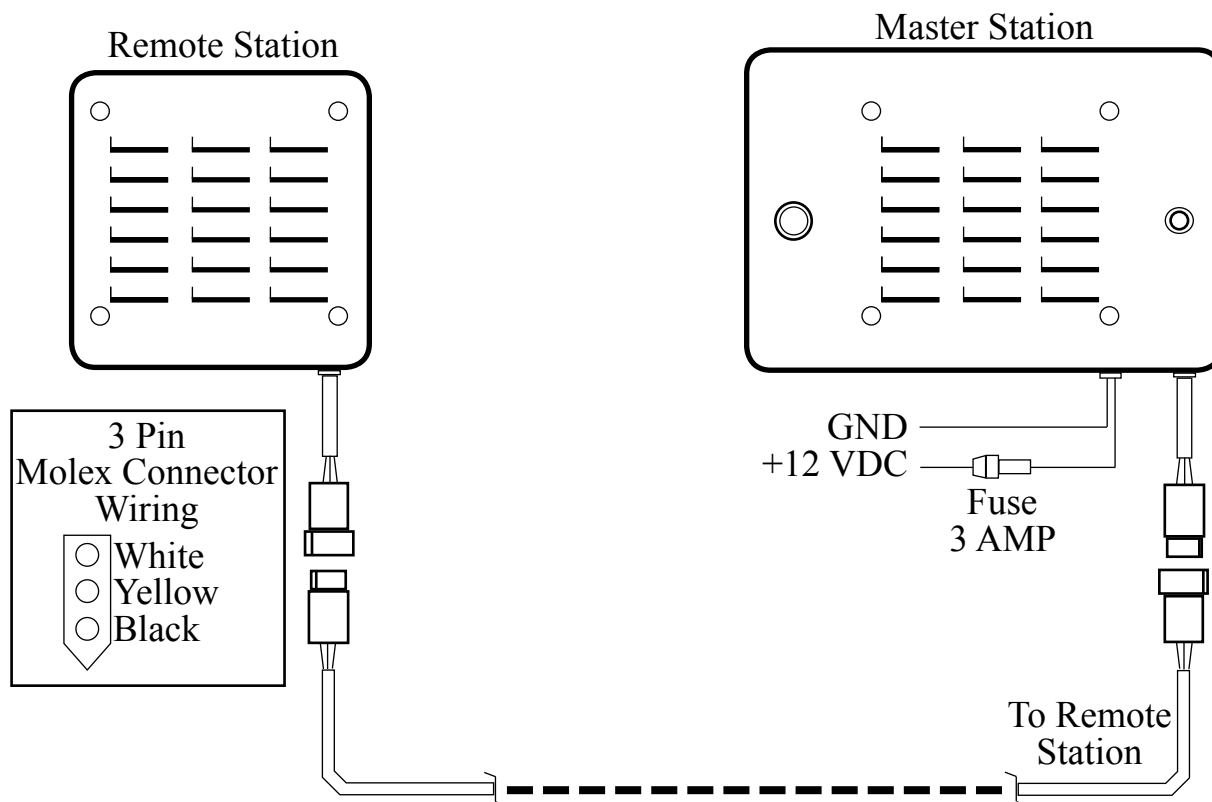Master Station A

3 Pin
Molex Connector
Wiring
○ White
○ Yellow
○ Black

GND
+12 VDC
Fuse
3 AMP

To Remote
Station

To Master
Station B

Master Station B

GND
+12 VDC
Fuse
3 AMP

5 Pin
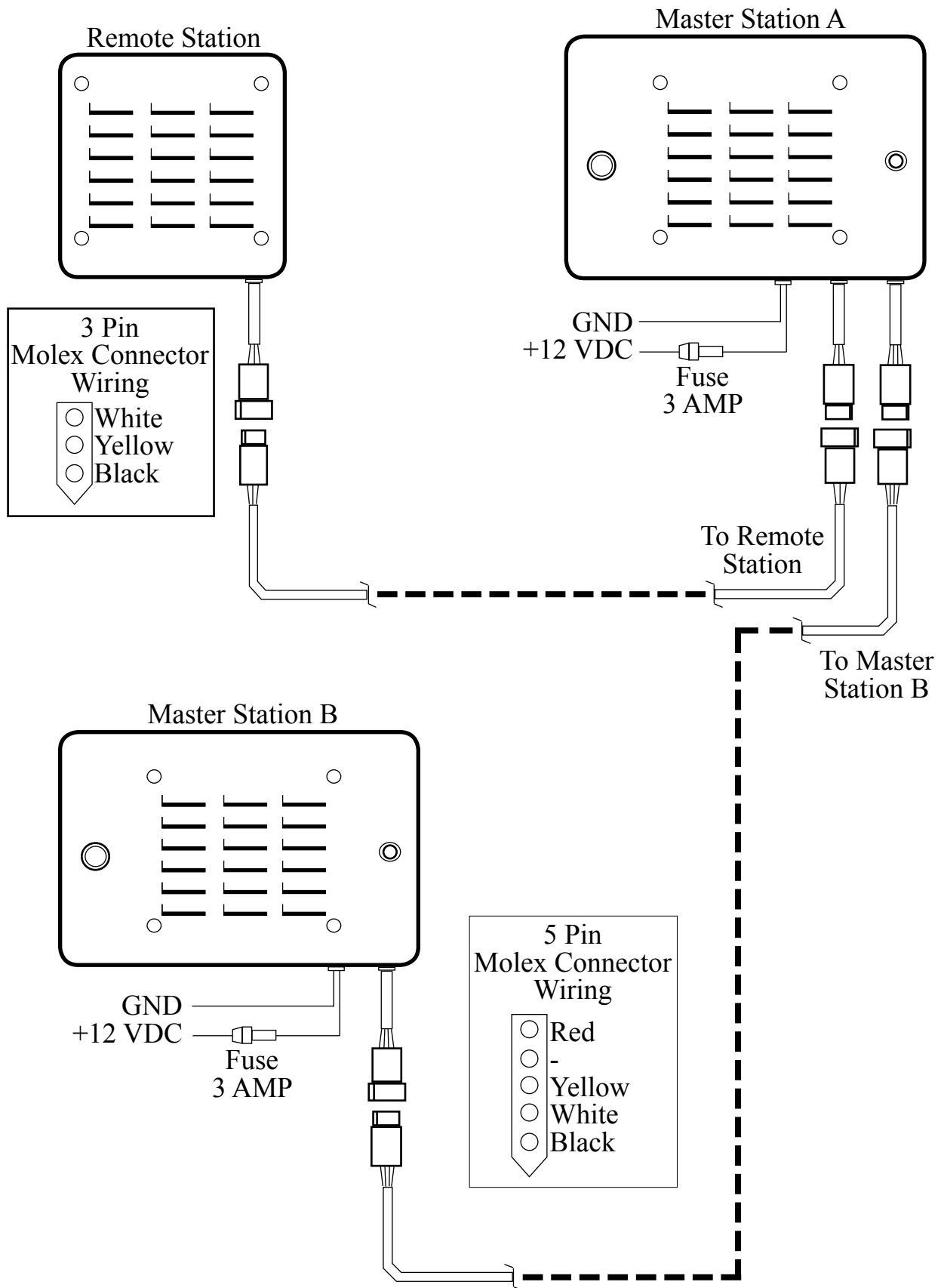Molex Connector
Wiring

○ Red
○ -
○ Yellow
○ White
○ Black

Figure 6. ICA300 Wiring

ICA400/500 SERIES INSTALLATION

Note: In a three-way system (ICA500) master station A has transmit priority over master station B and the remote station.

Note: Mounting hardware is not included, number 10 hardware is recommended.

Pre-Installation

1. Measure and mark station box locations for panel opening and four screw holes. Refer to Figure 7 for layout and dimensions.

2. Drill four mounting holes at each station box location for mounting hardware.

3. Cut out panel opening at each station location.

Note: Pre-installed apparatus wiring can be used. The intercom connections are one-to-one. The yellow wire is shield.

4. Install the cable (with 3-pin connector) between remote and master station box locations. Refer to Figure 8 or 9 for wiring details.

5. For three-way system (ICA500) install the cable (with 5-pin connector) between master stations A and B box locations. Refer to Figure 9 for wiring details.
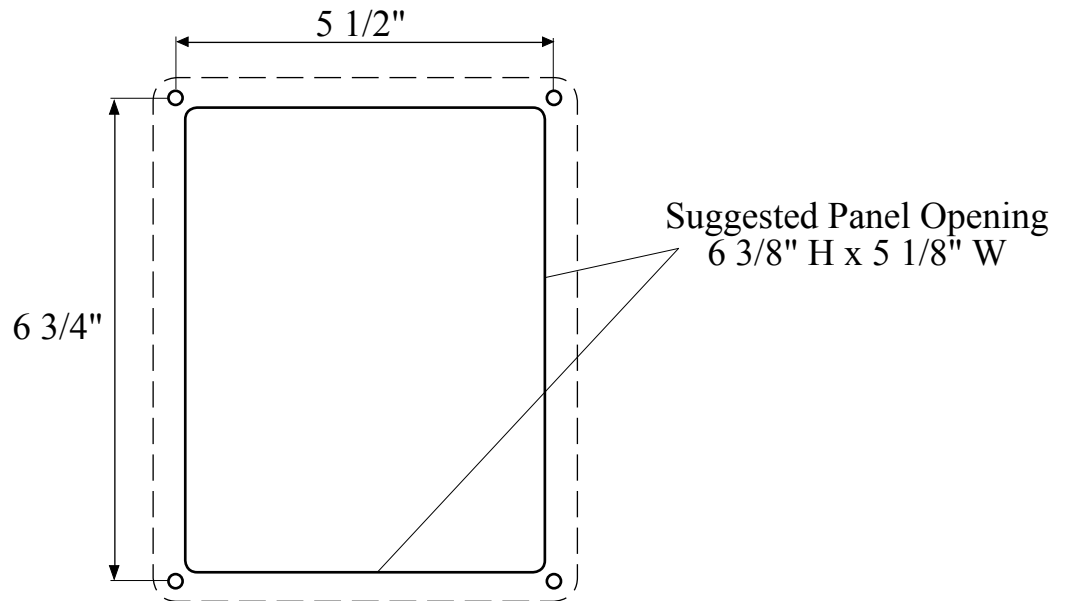
Install Remote Station

1. Place station box in position and secure with four screws.

2. Connect station box 3-pin Molex connector to cable connector.

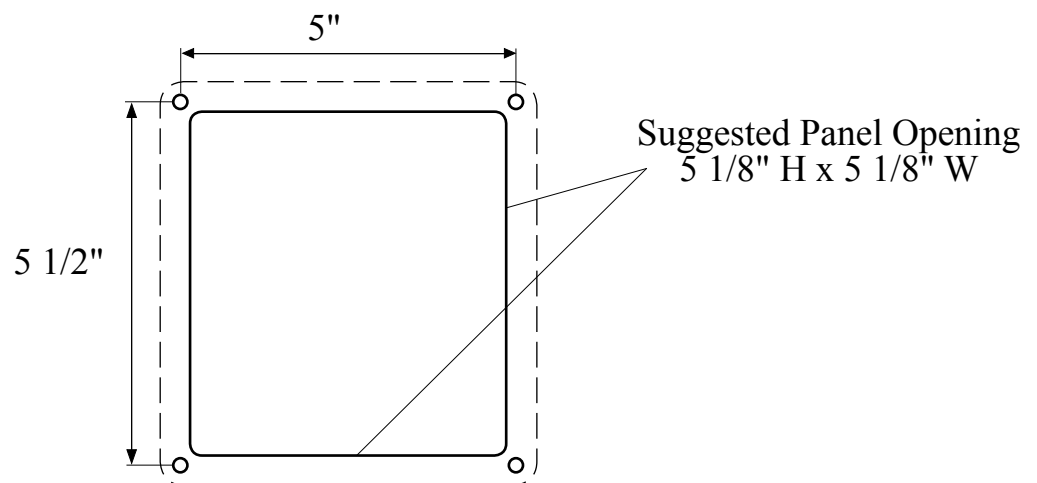## Install Master Station(s)

1. Place station box(es) in position and secure with four screws.

2. Connect station box 3-pin Molex connector to cable connector.

3. For three-way system (ICA500) connect station box 5-pin Molex connector to cable connector.

4. Connect black wire to ground.

5. Connect red fused wire to +12 VDC.

6. For three-way system repeat steps 3 through 5 at master station B.

Master Station
Cutout and
Mounting Holes

5 1/2"

6 3/4"

Suggested Panel Opening
6 3/8" H x 5 1/8" W

Drill the holes for number 10
mounting hardware.

Remote Station
Cutout and
Mounting Holes

5"

5 1/2"

Suggested Panel Opening
5 1/8" H x 5 1/8" W

Figure 7. ICA400/500 Mounting Dimensions

Master Station

Remote Station

3 Pin
Molex Connector
Wiring
⦿ White
⦿ Yellow
⦿ Black

GND
+12 VDC
Fuse
3 AMP
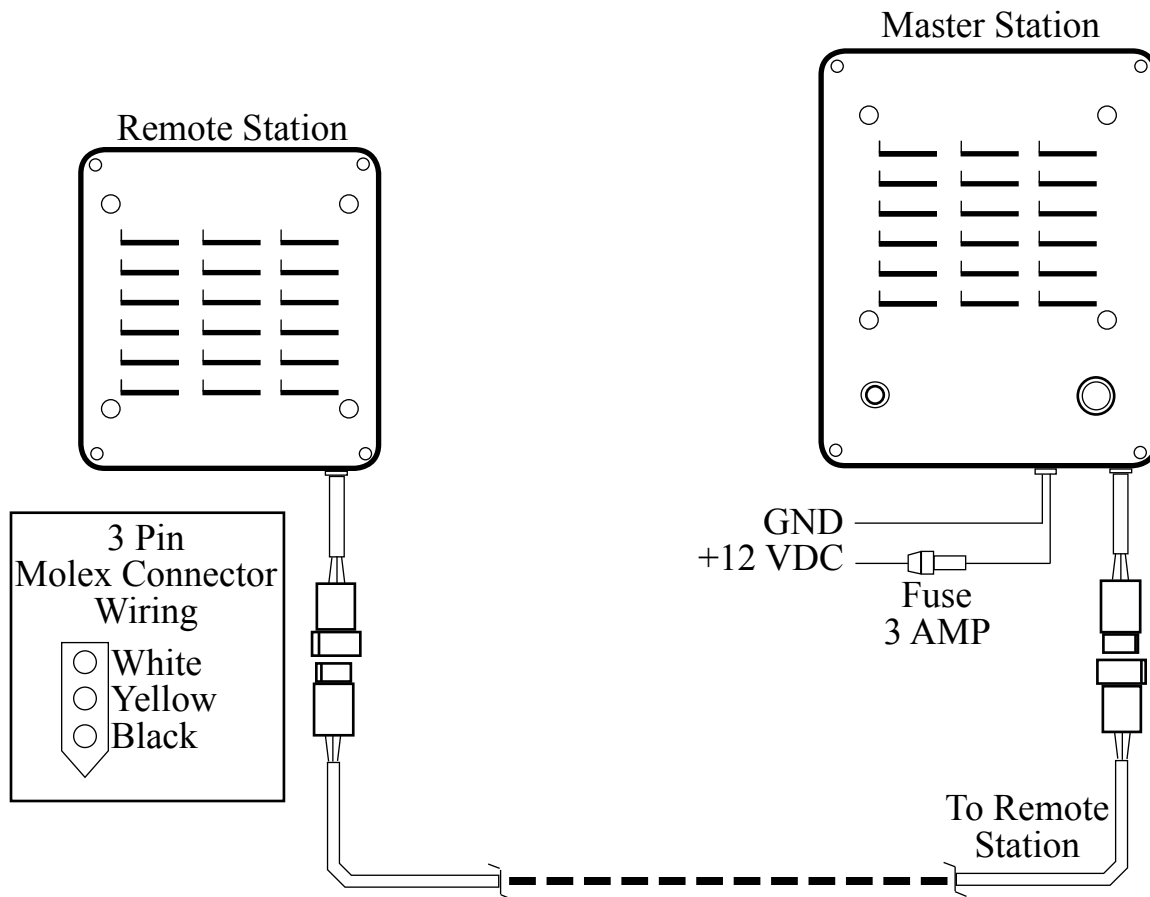
To Remote
Station

If the PTT option is installed
on the remote station a 5-pin
Molex will be used.

Figure 8. ICA400 Wiring

Master Station A

Remote Station

3 Pin
Molex Connector
Wiring

○ White
○ Yellow
○ Black

GND
+12 VDC

Fuse
3 AMP

To Remote
Station

To Master
Station B

Master Station B

GND
+12 VDC

Fuse
3 AMP

5 Pin
Molex Connector
Wiring

○ Red
○ -
○ Yellow
○ White
○ Black
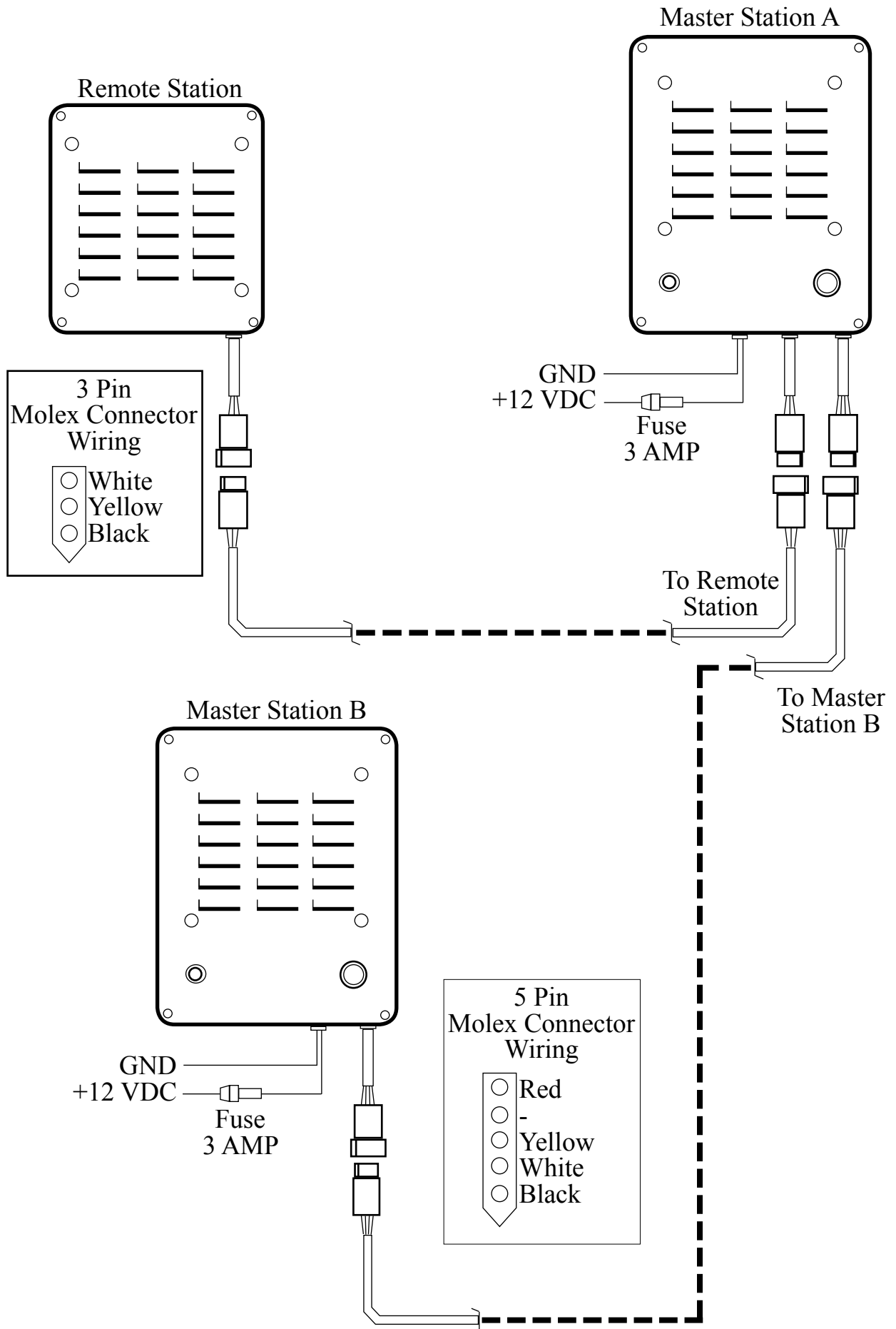
Figure 9. ICA500 Wiring

OPERATION

Basic Two-Way System

The basic two-way intercom system includes a master station with volume and Push-To-Talk (PTT) controls and a remote station that is operated hands free. The remote station is always transmitting unless interrupted by a transmission from the master station.

Basic Three-Way System

The basic three-way system includes two master stations (A and B) with volume and PTT controls and a remote station that is operated hands free. The remote station is always transmitting unless interrupted by a transmission from a master station. Master station A has transmit priority over master station B and the remote station.

System Options

Handheld Microphone Option

This option is for installations in high noise areas. The microphone plugs into a receptacle on the station box. The system can be keyed to transmit with the microphone switch or the PTT button on the station box.

Remote Station with PTT Button Option

This option is for installations where a remote station with hands free operation is not required. The PTT button will have to be pressed for the remote to transmit.

Foot Switch Option

This option requires the installation of a single-pole single-throw foot switch (not supplied with intercom). A two conductor cable is wired at the foot switch and connected at the station box with a 2-pin Molex connector. The system can be keyed to transmit with the foot switch or the PTT button on the station box.

Operational Check

Basic Two-Way System

1. Turn on 12 VDC power.

2. Press and hold PTT button on master station box.

3. Speak into the box and adjust volume knob for transmit and receive level.

Result: Voice is heard at remote station.

4. Release PTT button.

5. Speak into remote station box.

Result: Voice is heard at master station.

Basic Three-Way System

1. Turn on 12 VDC power.

2. Press and hold PTT button on master station A box.

3. Speak into the box and adjust volume knob for transmit and receive level.

Result: Voice is heard at remote station and master station B.

4. Release PTT button.

5. Press and hold PTT button on master station B box.

6. Speak into the box and adjust volume knob for transmit and receive level.

Result: Voice is heard at remote station and master station A.

7. Release PTT button.

8. Speak into remote station box.

Result: Voice is heard at master station A and master station B.

Handheld Microphone and Foot Switch Option

Perform basic system test. For a station with either option, repeat the steps that key the system with the PTT button using the microphone switch or foot switch.

Remote Station with PTT Button Option

Preform basic system test. For a station with the option press and hold the PTT button to speak into the box.

NOTES

NOTES

⚠ DANGER

PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and/or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.

FEMSA

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