



Contact Information

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Document Information

Identification

JSLM RF Module Installation Instructions
001-315-00 Revision D 04/02

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Content

These instructions are not intended to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. If further information is needed or a particular problem arises that needs to be further described, contact Monaco.

Suggestions

If you have comments or suggestions on how we may improve this document, send them to:
Monaco Enterprises, Inc.; Attention: Technical Publications; P.O. Box 14129; Spokane, WA 99214-0129

Warranty and Liability

Subject to the exceptions and conditions below, Monaco agrees to repair or replace any defect of material or workmanship of equipment manufactured by Monaco that develops within 12 months from the date of delivery but no more than 14 months after date of shipment from Monaco (whichever is earlier), free of charge F.O.B. Spokane, Washington. You must notify Monaco of any defect and provide either satisfactory proof of the defect or return the defective equipment to Monaco for examination at your expense in order for the equipment to be repaired or replaced under warranty.

Monaco does not provide warranty for expendable components or accessories incorporated or used with equipment manufactured by Monaco, such as batteries, visual indicators, fusing devices, etc. In addition, Monaco does not warrant components or accessories not manufactured by Monaco; however, Monaco may help you seek adjustment from the manufacturer if the expendable components or accessories are under warranty.

You assume full responsibility for whether or not the equipment and any programs meet your specifications, capacity, capabilities, versatility, and other requirements; the installation and the condition and effectiveness of the operating environment in which the equipment and software are to function; and maintaining the equipment as specified.

Exceptions and Conditions

The following are exceptions and conditions to this warranty:

- Except as stated in this warranty, Monaco makes no warranty, expressed or implied (either in fact or by operation of law), statutory, or otherwise. All warranties not expressly stated in this document are waived by you.
- Monaco is not responsible for damage to any product from accident, unauthorized alteration, abuse, acts of God, misuse, misapplication, or inappropriate or faulty installation.
- This warranty covers only those products that have been properly installed using factory-approved wiring and installation techniques.
- Monaco assumes no liability for products damaged in shipment to Monaco for repair or replacement.
- Monaco disclaims any liability to anyone for any damages of any kind from any cause associated with the manufacture, sale, handling, repair, maintenance, replacement, or use of its equipment.
- Monaco's liability and purchaser's or consumer's exclusive remedy is limited to repair or replacement of non-functional product at the factory. Monaco is not liable for incidental or consequential damages, including but not limited to, installation or replacement labor costs.
- Any representation and/or warranty made by any person including dealers, distributors, and representatives of Monaco that are inconsistent or in conflict with the terms of this warranty are not binding unless they are approved in writing by an Officer of Monaco.
- This warranty shall be construed in accordance with and governed by the laws of the State of Washington.
- This warranty gives you specific legal rights and you may also have other rights that may vary from state to state.

Return Procedure

Before returning your equipment, contact a Monaco Customer Service Representative at (509) 926-6277 to receive a return authorization. The return authorization number must be clearly marked on any box in which the returned items are shipped and on all documents related to the return. *Monaco will not accept equipment for repair without prior Return Authorization.*

Replacement and/or repair is subject to review by Monaco and will be done in accordance with this warranty. If the equipment is not under warranty or if the warranty is not in effect because of the Exceptions and Conditions, you will be asked to provide a purchase order for payment of the repair when the Return Authorization number is given. The amount of the purchase order will be based on an estimate of the cost of the repair. If a repair is not feasible, either because of cost or performance reliability of the repaired equipment, Monaco will contact you.

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Before You Begin

How to Get Assistance

If you need help with your Monaco products, contact one of our Customer Service Representatives at (509) 926-6277. For other methods of contacting us, see “Contact Information” on page ii.

Product Summary

The JSLM RF Module (P/N 227-444-xx) is the radio for a Monaco BT2-7, BT2-8, BT2-8S, and M-2 remote unit. The module can be used to replace an RF module for maintenance or repair, provided the appropriate power supply and cables are available; it can also be installed in a remote unit that was shipped without a radio. Installation requires hardware and cables provided with the remote unit; no additional parts are required.

The JSLM RF Module is a synthesized frequency, narrowband FM transceiver compliant with FCC refarming guidelines. The module operates like previous-model modules, but the appearance and installation differ and the new module requires higher current during transmission and standby operation.

The module is factory-programmed and tuned to a single, specific operating frequency required for operation in a Monaco FSK (frequency shift keying) central receiving system such as the D-21 or the D-700. The frequency appears on the module's label.

For Use With

This document is for use with P/N 227-444-xx. The last two digits of the part number vary depending on the programmed frequency.

Document Description

This document describes how to install the JSLM RF Module in four types of remote unit. See the section for the appropriate remote unit type.

The following table identifies the sections of this document with a brief description of the content of each section. Refer to “Contents” on page vii for a detailed table of contents.

Section	Description
1	Installation in a BT2-7 Read this section to learn how to install a JSLM RF Module in a Monaco BT2-7.
2	Installation in a BT2-8 or BT2-8S Read this section to learn how to install a JSLM RF Module in a Monaco BT2-8 or BT28-S.
3	Installation in an M-2 Read this section to learn how to install a JSLM RF Module in a Monaco M-2 fire alarm control panel.
Appendix A	Specifications



Associated Documents

Product	Associated Document Name	Associated Document Part Number
BT2-7	BT2-7 I-O-M Manual	001-204-00
BT2-8	BT2-8 I-O-M Manual	001-203-00
BT2-8S	BT2-8S I-O-M Manual	001-256-00
M-2	M-2 Fire Alarm Control Panel Installation and Scheduled Maintenance Manual	001-248-00

Unpacking and Inspection

The JSLM RF Module was carefully tested and packaged at the factory and is ready for installation and operation when it is unpacked. If the shipping cartons show evidence of rough handling, inspect the equipment carefully for shipping damage. If damage is found, notify the carrier immediately.

Warnings and Cautions


Your Monaco equipment may be damaged and the warranty voided if:

- Assemblies or components (including cables and expansion cards) are connected or disconnected while power is applied to them
- Incorrect wire connections are made
- Battery polarity is reversed
- Battery voltage rating is too high
- Antistatic precautions are not observed
- Power is applied before the antenna is connected

The following precautions must be observed during all phases of installing the equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment.

Type of Precaution	Precaution
General Safety	Proper Ground The equipment must be connected to an electrical ground to minimize shock hazard. Consult NFPA 70 (NEC) and local codes for grounding requirements
	Explosive Atmosphere Do not operate the equipment in the presence of flammable gases, fumes, or dust. Operation of this equipment in such an environment constitutes a safety hazard
	Live Circuits Operation personnel must not remove equipment covers or panels. Component replacement and internal adjustments must be made only by qualified maintenance personnel. Do not replace components with power applied. To avoid injuries, always disconnect power and allow the circuit to discharge before performing repair procedures
	Lightning Storms Equipment should not be serviced or repaired during a lightning storm
	Service or Adjustments It is recommended that a second person be present to render assistance when internal parts are serviced or adjusted



Type of Precaution	Precaution
Equipment	Removing Assemblies or Components Removal of individual assemblies or components must be done only after power is removed. This includes both ac line power and backup battery power
	External Relays <i>On the M-2 only</i> , all external relays powered by the AUX PWR circuit must be equipped with a coil suppression diode. If the relay does not have a resident coil suppression diode, install coil suppression diode 1N4003 (or equivalent) by connecting the non-banded end (anode) to the negative side of the coil and the banded end (cathode) to the positive side of the coil. Failure to install this may cause damage to the Panel when the relay is de-energized
	Specifications The equipment is designed to operate within specified design parameters such as input voltage and environmental conditions. Do not exceed the specifications
	Substituting Parts or Making Modifications Do not install substitute parts or perform any modifications to the equipment without written permission from Monaco
	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  </div> <div style="flex: 2;"> <p>WARNING Observe these antistatic precautions when handling any electronic parts:</p> <ul style="list-style-type: none"> ▪ Avoid unnecessary touching or handling of the parts ▪ Use an antistatic foam mat or bag to transport the parts ▪ Discharge static by touching a grounded surface before handling the parts or use an antistatic wrist strap ▪ Do not slide the parts on any surface </div> </div>



Notes



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Section 1 Installation in a BT2-7

Read this section to learn how to install a JSLM RF Module in a Monaco BT2-7.

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BT2-7 with the Old Style Radio	1-4

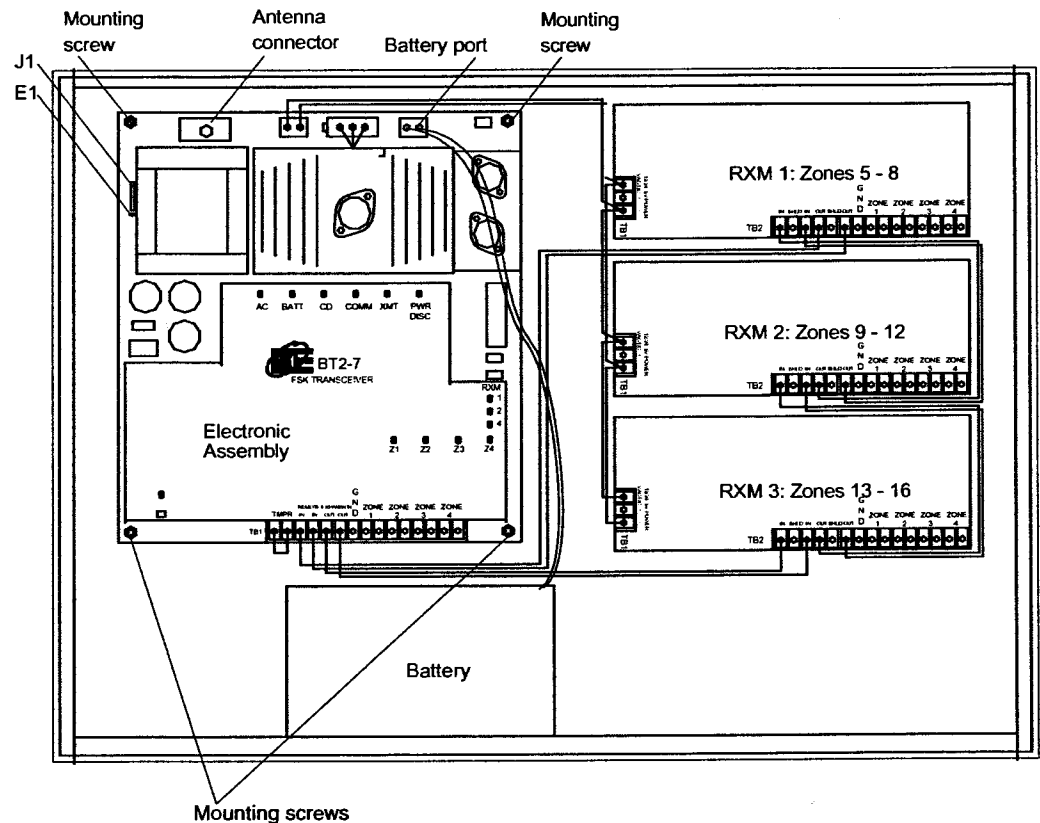


BT2-7 with No Radio or a JSLM Module

A new BT2-7 or a BT2-7 that already has a JSLM module installed has the cables required for installation.

≡ To install the module in a BT2-7 that has no radio or already has a JSLM RF module

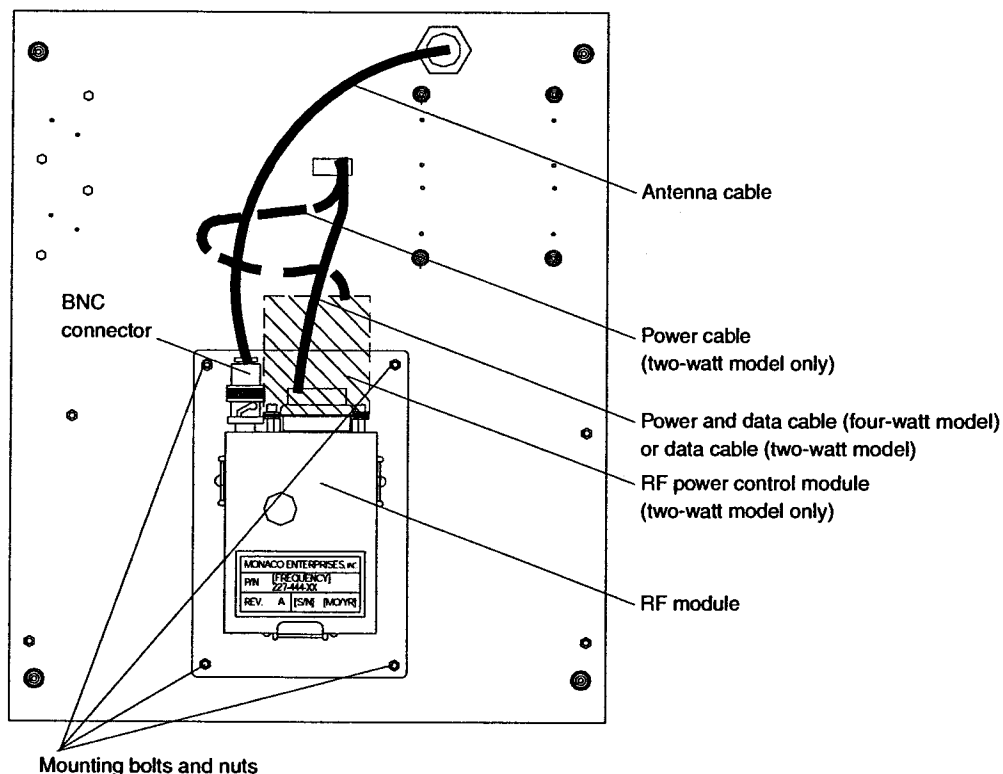
IMPORTANT Notify the central receiving system operator before taking a remote unit offline.



- 1 Remove ac power from the BT2-7.
- 2 Disconnect the battery cable from the battery port.
- 3 Disconnect the ac power cable from J1 and E1.
- 4 Disconnect the antenna from the antenna connector.
- 5 Remove the electronic assembly from the BT2-7:
 - a If the panel includes RXMs, label and then disconnect the wires connecting the RXMs to the electronic assembly.
 - b Remove the four mounting screws near the corners of the electronic assembly. Do not remove the BT2-7 cover plate.
 - c Set the electronic assembly on an antistatic surface with the cover plate facing down.



6 Remove the installed module (if any):



- a** Disconnect the power and data cables from the old module (and, if the BT2-7 is configured for two-watt output, from the RF power control module), leaving the other ends of the cables connected to the circuit board.

NOTE *The captive screws securing the data and power cable to the module can be lost if they are backed completely out of their retaining clips.*

- b** Disconnect the female BNC connector on the antenna cable from the male BNC connector on the module.
- c** Unfasten the mounting nuts.
- d** Lift the module off the board.

7 Install the new module:

- a** Position the RF module bolt holes over the bolts and lower the module onto the board.

IMPORTANT *Do not separate the RF power control module—if there is one—from the transceiver. This module reduces output from four watts to two and is included only when required.*

- b** Secure the nuts.
- c** Connect the power and data cable to the new module (and, if the BT2-7 is configured for two-watt output, to the RF power control module).
- d** Connect the female BNC connector on the antenna cable to the male BNC connector on the module.



- 8 Replace the electronic assembly in the BT2-7:
 - a Position the electronic assembly bolt holes over the holes in the BT2-7 mounting brackets.
 - b Secure the four mounting bolts.
 - c If the panel includes RXMs, connect the RXM wires to the terminal block on the electronic assembly.
- 9 Connect the ac power cable to J1 and E1.
- 10 Connect the battery cable to the battery port on the electronic assembly.
- 11 Apply ac power.
- 12 Test the system according to instructions in the BT2-7 I-O-M Manual (P/N 001-204-00).

BT2-7 with the Old Style Radio

You must replace the radio cables in a BT2-7 that has radio P/N 227-440-xx installed. Part numbers for the required cables are:

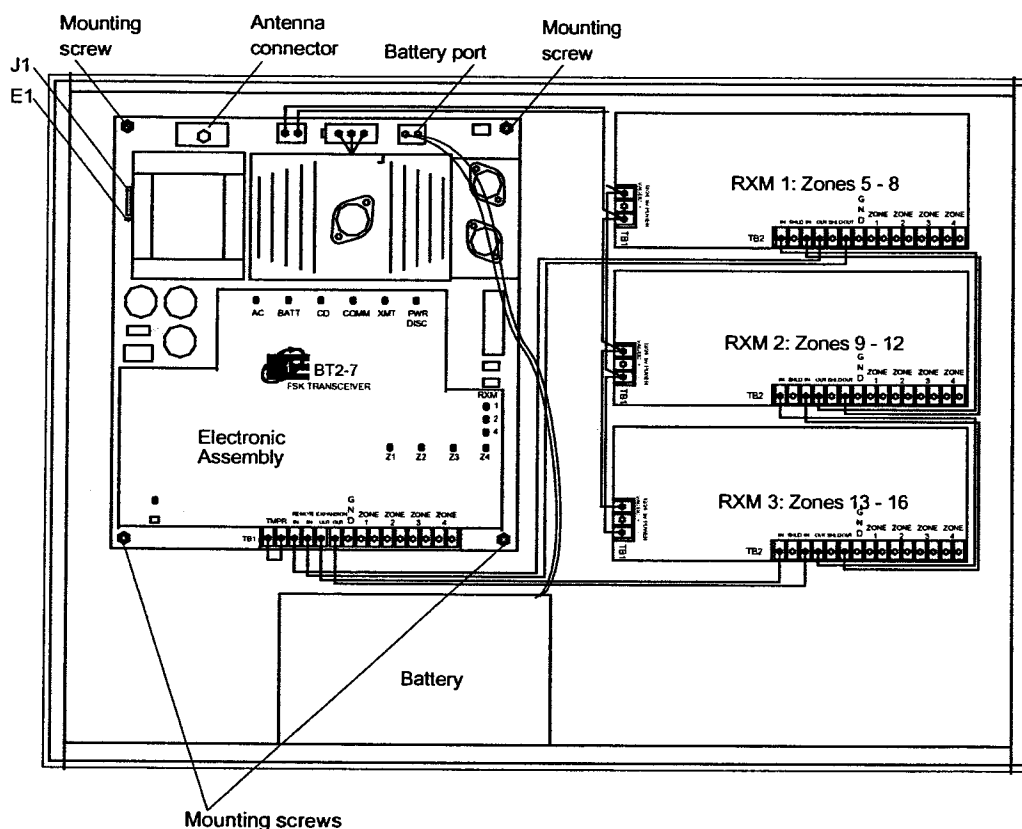
- **Antenna cable** P/N 626-072-01
- **Power and data cable for radios without a RF Power Control Module** P/N 625-084-00
- **Power and data cable for radios with a RF Power Control Module** P/N 625-084-02

To order the cables, see "How to Get Assistance" on page iii.



≡ To install the module in a BT2-7 that has radio P/N 227-440-xx

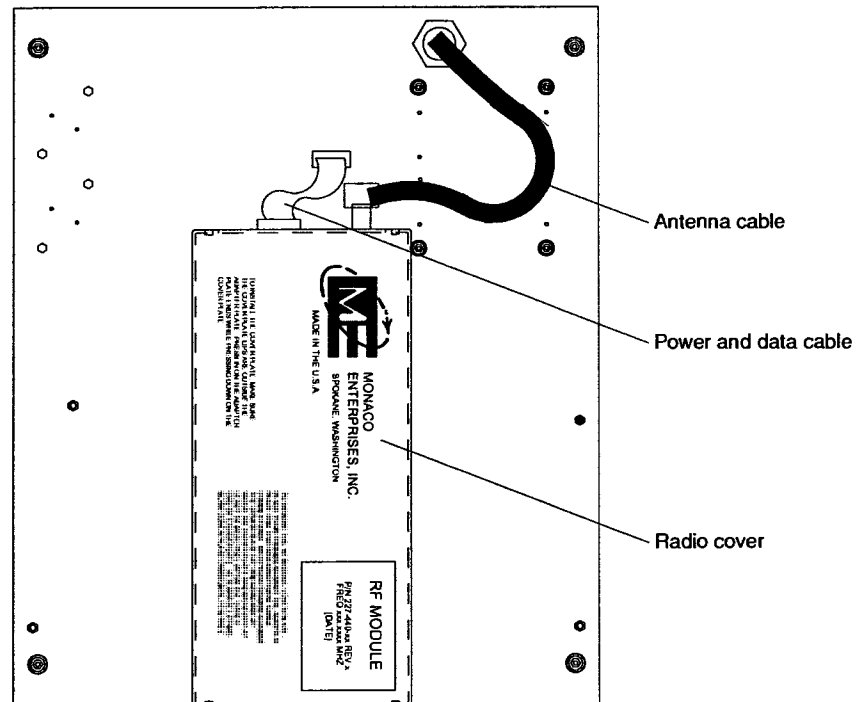
IMPORTANT Notify the central receiving system operator before taking a remote unit offline.



- 1 Remove ac power from the BT2-7.
- 2 Disconnect the battery cable from the battery port.
- 3 Disconnect the ac power cable from J1 and E1.
- 4 Remove the electronic assembly from the BT2-7:
 - a If the panel includes RXMs, label and then disconnect the wires connecting the RXMs to the electronic assembly.
 - b Remove the four mounting screws near the corners of the electronic assembly. Do not remove the BT2-7 cover plate.
 - c Set the electronic assembly on an antistatic surface with the cover plate facing down.



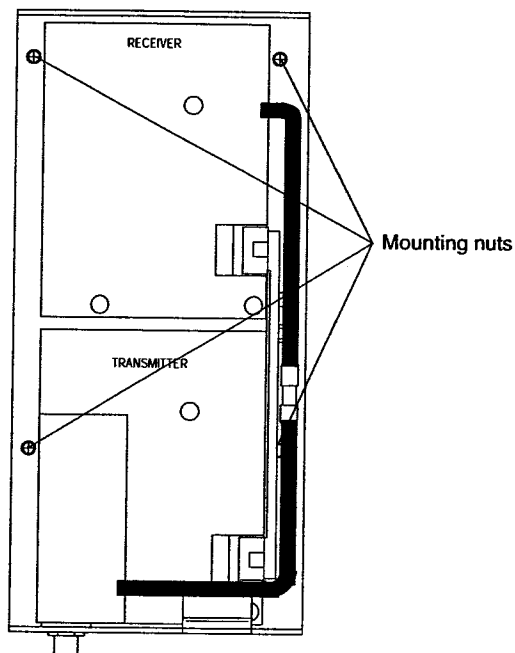
5 Remove the installed module:



- a** Disconnect the power-and-data cable from the old module and from the circuit board.
- b** Disconnect the female BNC connector on the antenna cable from the male BNC connector on the module.
- c** Pull the cover off the radio. There are no screws or other fasteners holding the cover to the mounting plate.



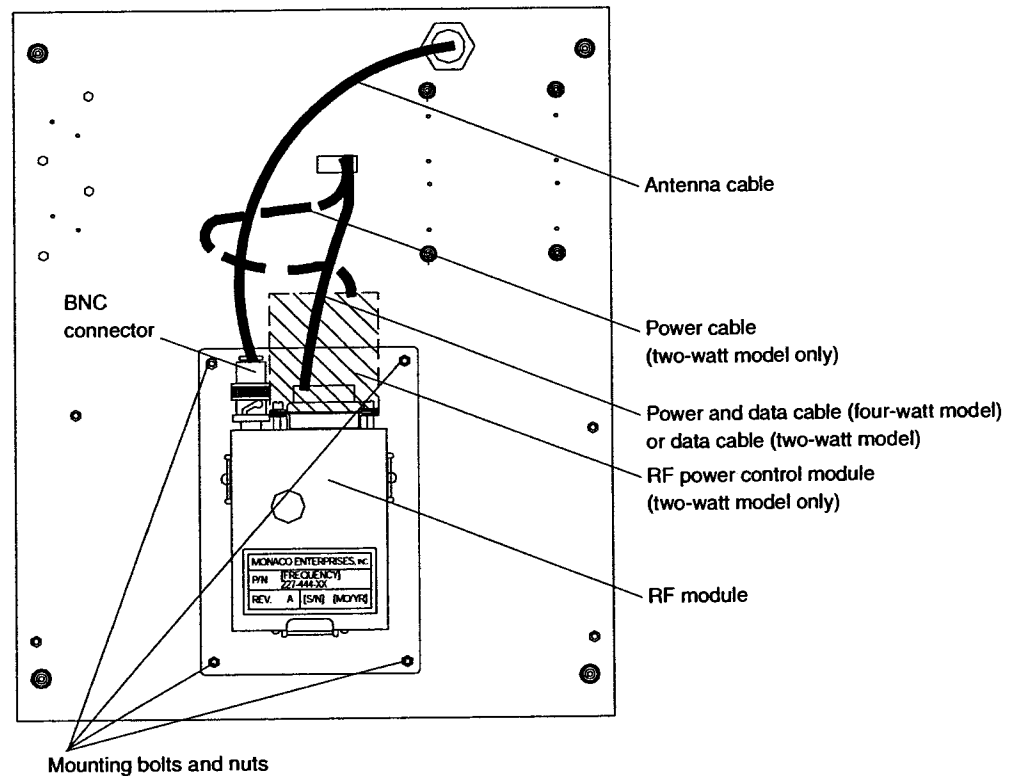
- d** Unfasten the mounting nuts.



- e** Lift the module off the board.
- f** Turn the electronic assembly over and use a 16 mm wrench to unfasten the nut holding the male BNC antenna connector to the circuit board. Save the nut and washer.
- 6** Use a 16 mm wrench and the nut and washer from the previous step to secure the new antenna cable (P/N 626-072-01) to the circuit board so that the connector sticks out the front.
- 7** Turn the electronic assembly over and connect the new power and data cable to the plug on the back of the circuit board.



8 Install the new module:



- a Position the RF module bolt holes over the bolts and lower the module onto the board.
IMPORTANT Do not separate the RF power control module—if there is one—from the RF module. The RF power control module reduces output from four watts to two and is included only when required.
 - b Secure the nuts.
 - c Connect the power and data cables to the new module (and, if the BT2-7 is configured for two-watt output, to the RF power control module).
- 9** Replace the electronic assembly in the BT2-7:
- a Position the electronic assembly bolt holes over the holes in the BT2-7 mounting brackets.
 - b Secure the four mounting bolts.
 - c If the panel includes RXMs, connect the RXM wires to the terminal block on the electronic assembly.
- 10** Connect the ac power cable to J1 and E1.
- 11** Connect the battery cable to the battery port on the electronic assembly.
- 12** Apply ac power.
- 13** Test the system according to instructions in the BT2-7 I-O-M Manual (P/N 001-204-00).



Section 2

Installation in a BT2-8 or BT2-8S

Read this section to learn how to install a JSLM RF Module in a Monaco BT2-8 or BT28-S.

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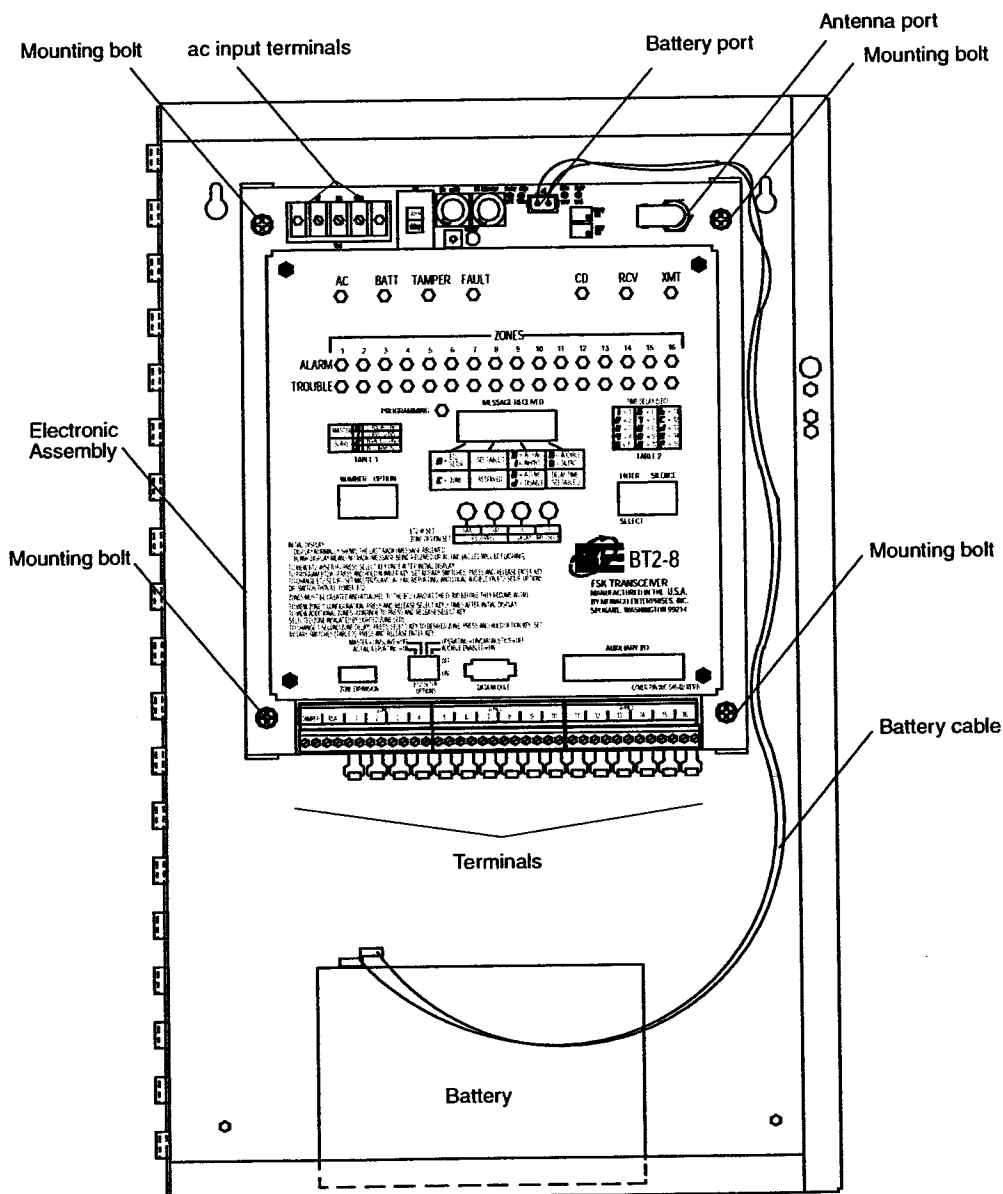


BT2-8 or BT2-8S with No Radio or a JSLM Module

A new BT2-8 or BT2-8S or a BT2-8 or BT2-8S that already has a JSLM radio installed has the cables required for installation.

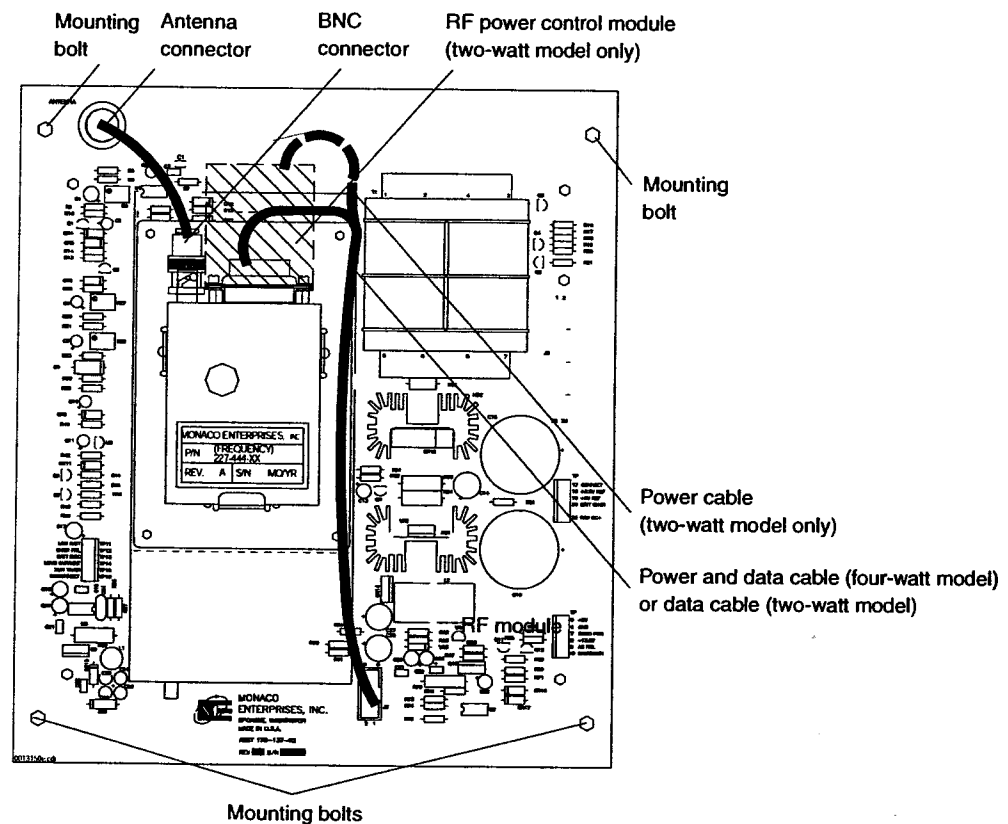
≡ To install the module in a BT2-8 or BT2-8S that has no radio or already has a JSLM RF module

IMPORTANT Notify the central receiving system operator before taking a remote unit offline.





- 1 Remove ac power from the BT2-8 or BT2-8S.
- 2 Disconnect the battery cable from the battery port.
- 3 Disconnect the ac power cable from the ac input terminals.
- 4 Disconnect the antenna from the antenna connector.
- 5 Remove the electronic assembly from the BT2-8 or BT2-8S:
 - a Label and then disconnect wires connected to the zone terminals.
 - b Remove the four mounting screws near the corners of the electronic assembly. Do not remove the cover plate.
 - c Set the electronic assembly on an antistatic surface with the cover plate facing down.
- 6 Remove the installed module (if any):



- a Disconnect the power and data cables from the old module (and, if the BT2-8 or BT2-8S is configured for two-watt output, from the RF power control module), leaving the other ends of the cables connected to the circuit board.
- NOTE** The captive screws securing the data and power cable to the module can be lost if they are backed completely out of their retaining clips.
- b Disconnect the female BNC connector on the antenna cable from the male BNC connector on the module.
 - c Unfasten the mounting screws.
 - d Lift the module off the board.



- 7 Install the new module:
 - a Position the RF module bolt holes over the standoffs.
IMPORTANT *Do not separate the RF power control module—if there is one—from the transceiver. This module reduces output from four watts to two and is included only when required.*
 - b Secure the screws.
 - c Connect the power and data cable to the new module (and, if the BT2-8 or BT2-8S is configured for two-watt output, to the RF power control module).
 - d Connect the female BNC connector on the antenna cable to the male BNC connector on the module.
- 8 Connect the ac power cable to the ac power terminals. Connect the green cable to GND; connect the black cable to either L1 or L2, and the white cable to the remaining terminal.
- 9 Replace the electronic assembly in the BT2-8 or BT2-8S:
 - a Position the electronic assembly standoff holes over the holes in the BT2-8 or BT2-8S mounting brackets.
 - b Secure the four mounting bolts.
 - c Connect the zone wires to the terminal block on the electronic assembly.
- 10 Connect the battery cable to the battery port on the electronic assembly.
- 11 Apply ac power.
- 12 Test the system according to instructions in the BT2-8 I-O-M Manual (P/N 001-203-00) or the BT2-8S I-O-M Manual (P/N 001-256-00).

BT2-8 or BT2-8S with the Old Style Radio

You must replace the radio cables in a BT2-8 or BT2-8S that has radio P/N 227-440-xx installed. Part numbers for the required cables are:

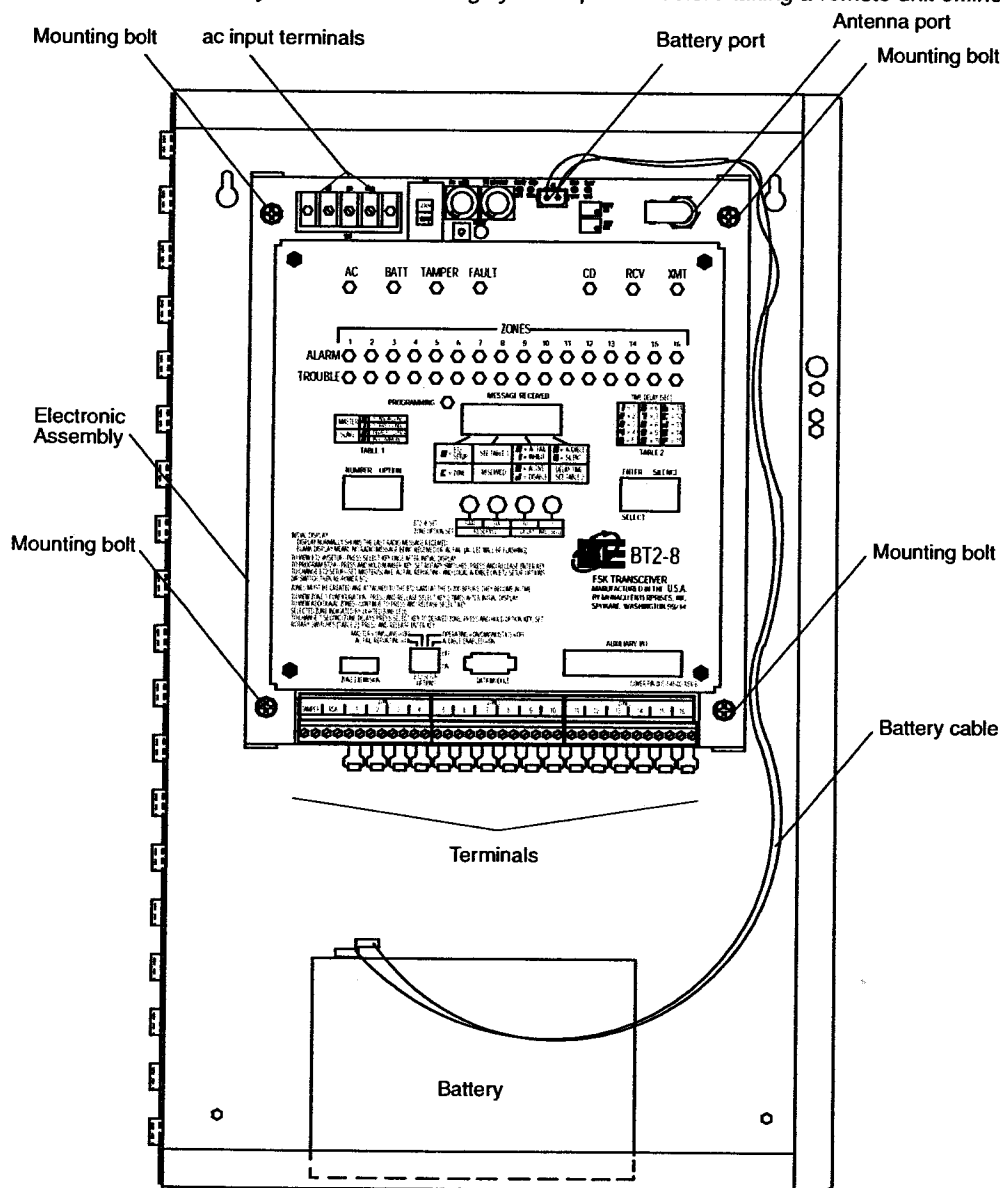
- Antenna cable P/N 626-072-00
- Power and data cable for radios without a RF Power Control Module P/N 625-084-01
- Power and data cable for radios with a RF Power Control Module P/N 625-084-03

To order the cables, see “How to Get Assistance” on page iii.



≡ To install the module in a BT2-8 or BT2-8S that has radio P/N 227-440-xx

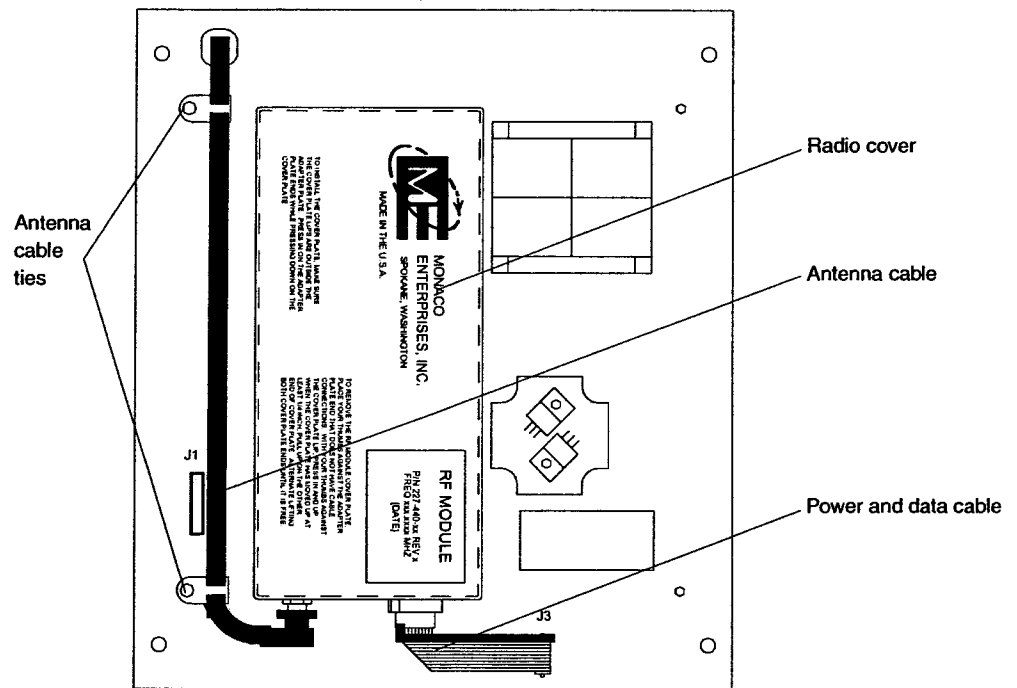
IMPORTANT Notify the central receiving system operator before taking a remote unit offline.



- 1 Remove ac power from the BT2-8 or BT2-8S.
- 2 Disconnect the battery cable from the battery port.
- 3 Disconnect the ac power cable from the ac input terminals.
- 4 Disconnect the antenna from the antenna connector.



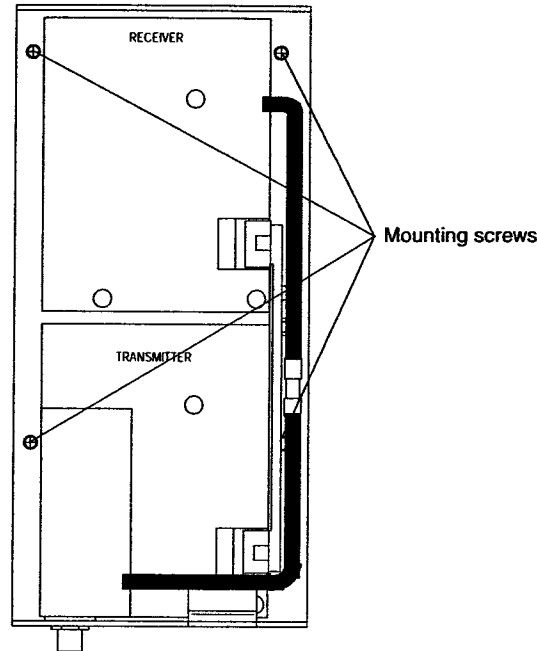
- 5 Remove the electronic assembly from the BT2-8 or BT2-8S:
 - a Label and then disconnect wires connected to the zone terminals.
 - b Remove the four mounting screws near the corners of the electronic assembly. Do not remove the cover plate.
 - c Set the electronic assembly on an antistatic surface with the cover plate facing down.
- 6 Remove the installed module:



- a Disconnect the power and data cable from the module and from the connector on the circuit board.
- b Disconnect the female SMC connector on the antenna cable from the male SMC connector on the module.



- c Unfasten the mounting screws.



- d Lift the module off the board.
- e Unfasten the screws holding the antenna cable ties to the circuit board. Discard the screws and ties.
- f Turn the electronic assembly over and use a 16 mm wrench to unfasten the nut holding the male BNC antenna connector to the circuit board. Save the nut and washer.
- 7 Use a 16 mm wrench and the nut and washer from the previous step to secure the new antenna cable (P/N 626-072-00) to the circuit board so that the connector sticks out the front.
- 8 Turn the electronic assembly over and connect the new power and data cable to the plug on the back of the circuit board.
- 9 Install the new module:
- a Position the RF module bolt holes over the standoffs.
IMPORTANT Do not separate the RF power control module—if there is one—from the transceiver. This module reduces output from four watts to two and is included only when required.
 - b Secure the screws.
 - c Connect the power and data cable to the new module (and, if the BT2-8 or BT2-8S is configured for two-watt output, to the RF power control module).
 - d Connect the female BNC connector on the antenna cable to the male BNC connector on the module.
- 10 Connect the ac power cable to the ac power terminals. Connect the green cable to GND; connect the black cable to either L1 or L2, and the white cable to the remaining terminal.



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- 11** Replace the electronic assembly in the BT2-8 or BT2-8S:
 - a** Position the electronic assembly standoff holes over the holes in the BT2-8 or BT2-8S mounting brackets.
 - b** Secure the four mounting bolts.
 - c** Connect the zone wires to the terminal block on the electronic assembly.
 - 12** Connect the battery cable to the battery port on the electronic assembly.
 - 13** Apply ac power.
 - 14** Test the system according to instructions in the BT2-8 I-O-M Manual (P/N 001-203-00) or the BT2-8S I-O-M Manual (P/N 001-256-00).



Section 3 Installation in an M-2

Read this section to learn how to install a JSLM RF Module in a Monaco M-2 fire alarm control panel.

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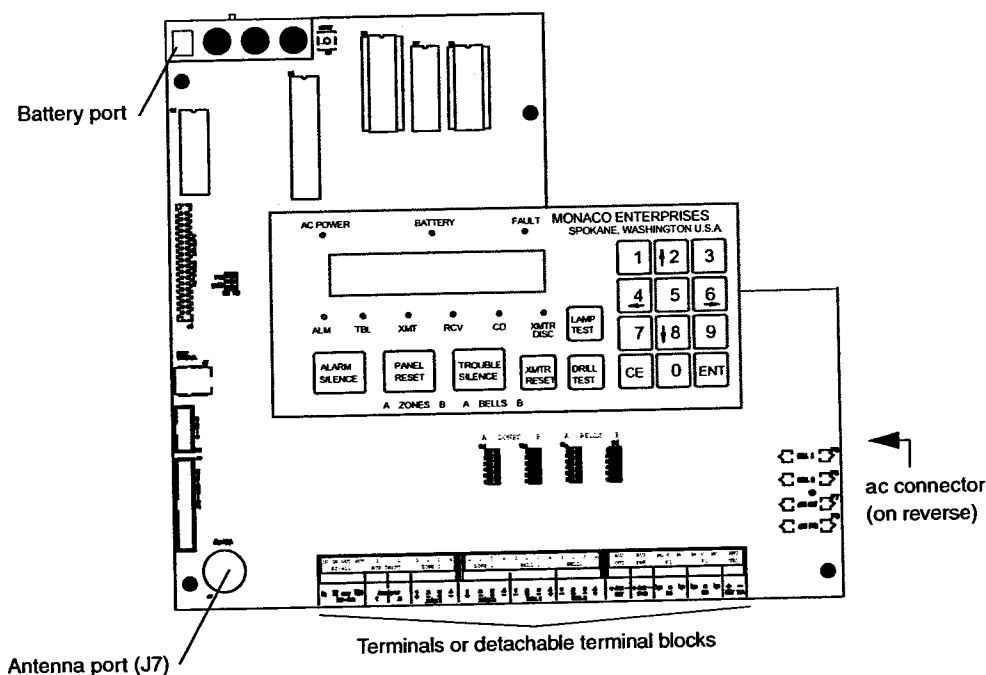


M-2 with No Radio or a JSLM Module

A new M-2 or an M-2 that already has a JSLM radio installed has the cables required for installation.

≡ To install the module in an M-2 that has no radio or already has a JSLM RF module

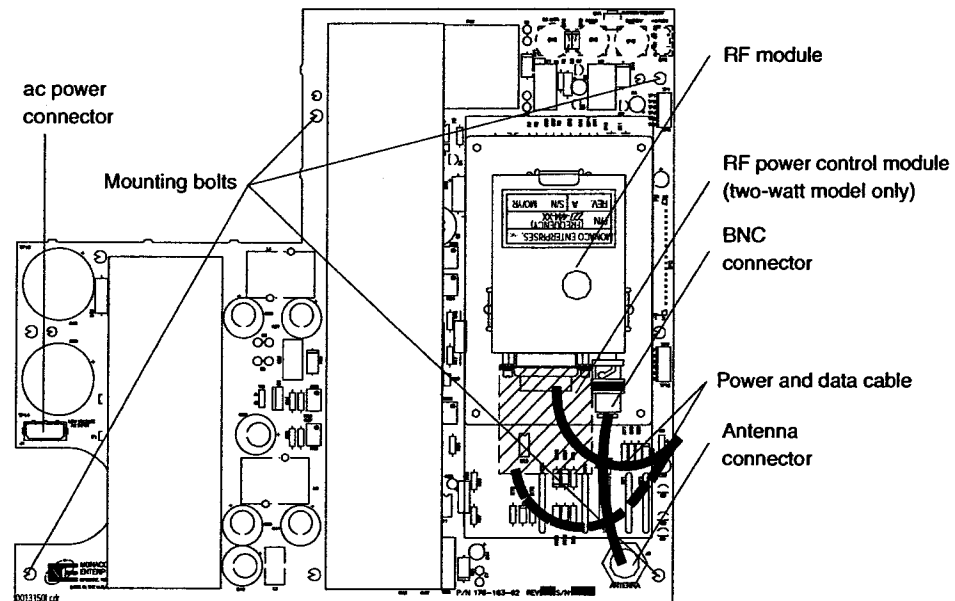
IMPORTANT Notify the central receiving system operator before taking a remote unit offline.



- 1 Remove ac power from the M-2.
- 2 Disconnect the battery cable from the battery port.
- 3 Disconnect the antenna from the antenna connector.
- 4 Remove the electronic assembly from the M-2:
 - a Label and then disconnect wires connected to the terminals or, if the M-2 includes detachable terminal blocks, detach the terminal blocks.
 - b Remove the four mounting screws near the corners of the electronic assembly. Do not remove the cover plate.
 - c As you lift the electronic assembly out of the enclosure, disconnect the ac power cable plug from the back of the assembly.
 - d Set the electronic assembly on an antistatic surface with the cover plate facing down.



5 Remove the installed module (if any):



- a Disconnect the power and data cable from the old module (and, if the M-2 is configured for two-watt output, from the RF power control module), leaving the other ends of the cables connected to the circuit board.

NOTE The captive screws securing the data and power cable to the module can be lost if they are backed completely out of their retaining clips.

- b Disconnect the female BNC connector on the antenna cable from the male BNC connector on the module.
 - c Unfasten the mounting screws.
 - d Lift the module off the board.
- 6 Install the new module:
- a Position the RF module bolt holes over the standoffs.
IMPORTANT Do not separate the RF power control module—if there is one—from the transceiver. This module reduces output from four watts to two and is included only when required.
 - b Secure the screws.
 - c Connect the power and data cable to the new module (and, if the M-2 is configured for two-watt output, to the RF power control module).
 - d Connect the female BNC connector on the antenna cable to the male BNC connector on the module.
- 7 Replace the electronic assembly in the M-2:
- a Connect the ac power cable to the ac power connector.
 - b Position the electronic assembly standoff holes over the holes in the M-2 mounting brackets.



- c Secure the four mounting bolts.
- d Connect the zone wires to the terminal block on the electronic assembly or, if the M-2 includes detachable terminal blocks, detach the terminal blocks.
- 8 Connect the battery cable to the battery port on the electronic assembly.
- 9 Apply ac power.
- 10 Test the system according to instructions in the M-2 Fire Alarm Control Panel Installation and Scheduled Maintenance Manual (P/N 001-248-00).

M-2 with the Old Style Radio

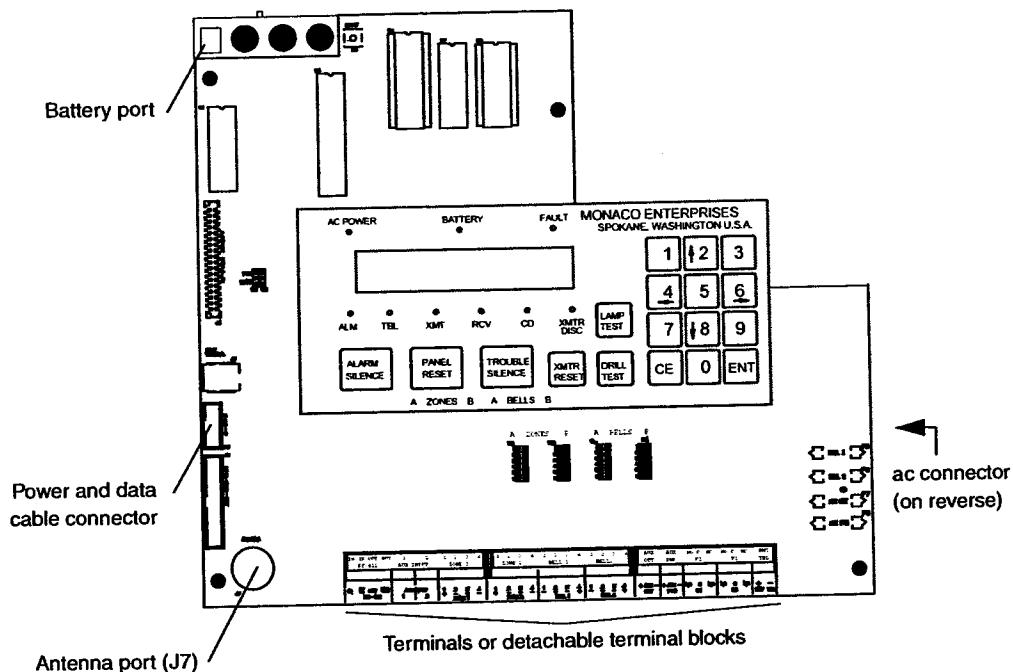
You must replace the radio cables in a M-2 that has radio P/N 227-440-xx installed. Part numbers for the required cables are:

- Antenna cable P/N 626-072-00
- Power and data cable for radios without a RF Power Control Module P/N 625-084-00
- Power and data cable for radios with a RF Power Control Module P/N 625-084-02

To order the cables, see "How to Get Assistance" on page iii.

≡ To install the module in an M-2 that has radio P/N 227-440-xx

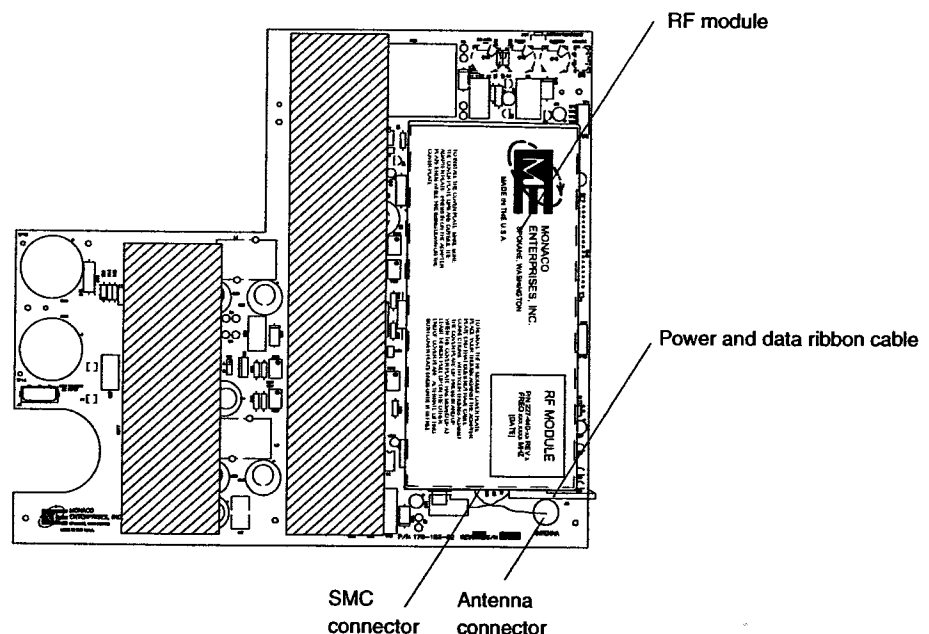
IMPORTANT Notify the central receiving system operator before taking a remote unit offline.



- 1 Remove ac power from the M-2.
- 2 Disconnect the battery cable from the battery port.
- 3 Disconnect the antenna from the antenna connector.



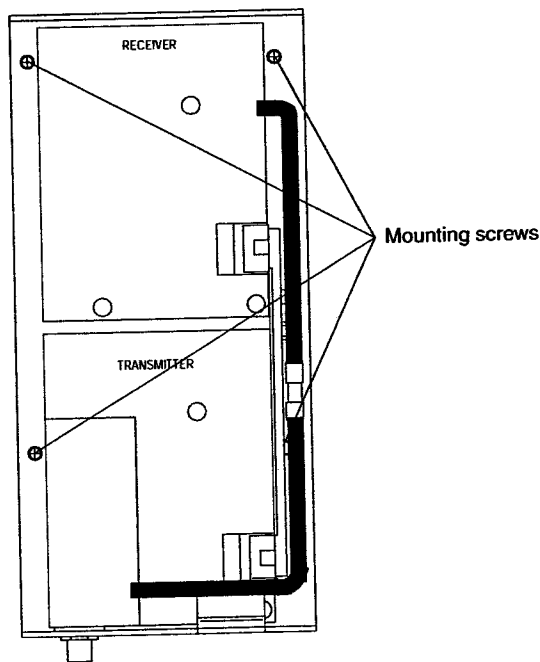
- 4 Disconnect the power and data cable from the connector on the front of the electronic assembly.
- 5 Remove the electronic assembly from the M-2:
 - a Label and then disconnect wires connected to the terminals or, if the M-2 includes detachable terminal blocks, detach the terminal blocks.
 - b Remove the four mounting screws near the corners of the electronic assembly. Do not remove the cover plate.
 - c As you lift the electronic assembly out of the enclosure, disconnect the ac power cable plug from the back of the assembly.
 - d Set the electronic assembly on an antistatic surface with the cover plate facing down.
- 6 Remove the installed module:



- a Disconnect the power and data ribbon cable from the old module.
- b Disconnect the female SMC connector on the antenna cable from the male SMC connector on the module.



- c Unfasten the mounting screws.



- d Lift the module off the board.
- e Turn the electronic assembly over and use a 16 mm wrench to unfasten the nut holding the male BNC antenna connector to the circuit board. Save the nut and washer.
- 7 Use a 16 mm wrench and the nut and washer from the previous step to secure the new antenna cable (P/N 626-072-00) to the circuit board so that the connector sticks out the front.
- 8 Connect the new power and data cable to the connector on the front of the circuit board.
- 9 Install the new module:
- a Position the RF module bolt holes over the standoffs.
- IMPORTANT** Do not separate the RF power control module—if there is one—from the transceiver. This module reduces output from four watts to two and is included only when required.
- b Secure the screws.
 - c Connect the power and data cable to the new module (and, if the M-2 is configured for two-watt output, to the RF power control module).
 - d Connect the female BNC connector on the antenna cable to the male BNC connector on the module.
- 10 Replace the electronic assembly in the M-2:
- a Connect the ac power cable to the ac power connector.
 - b Position the electronic assembly standoff holes over the holes in the M-2 mounting brackets.
 - c Secure the four mounting bolts.



-
- d** Connect the zone wires to the terminal block on the electronic assembly or, if the M-2 includes detachable terminal blocks, detach the terminal blocks.
 - 11** Connect the battery cable to the battery port on the electronic assembly.
 - 12** Apply ac power.
 - 13** Test the system according to instructions in the M-2 Fire Alarm Control Panel Installation and Scheduled Maintenance Manual (P/N 001-248-00).



Appendix A Specifications

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Synthesized Frequency, VHF Transceiver

General

Specification	Description
Frequency range	132–174 MHz
Frequency control	Synthesized; factory-programmed to a single channel
Operating voltage	7.5–15.0 Vdc
Operating temperature	–22 °F to 140 °F (–30 °C to 60 °C)
RF connector type	BNC
Power and data interface	DA-15 (15 pin D)
Maximum dimensions	1.0 in. high x 2.5 in. wide x 3.7 in. long (25.4 mm high x 63.5 mm wide x 94.0 mm long)
Case dimensions	1.0 in. H x 2.5 in. W x 3.0 in. L (25.4 x 63.5 x 76.2 mm) excluding connectors
FCC emission designator	11K0F3D
FCC type acceptance	NP42422430-001

Transmitter

Specification	Description
Occupied bandwidth	11 kHz
RF output power	1–5 W
RF output impedance	50 Ω
Duty cycle (–30 °C to 60 °C)	2 W \approx 7.5 Vdc: 50%, 60 second maximum transmit 4 W \approx 12 Vdc: 5%, 5 second maximum transmit
Transmitter attack time	< 7 ms
Frequency stability	2.5 ppm
Spurious and harmonic FM	–37 dBm
FM hum and noise	–40 dB @ 12.5 kHz
Current drain	2 W \approx 7.5 Vdc: < 1100 mA 4 W \approx 12 Vdc: < 1500 mA
Modulation distortion	< 3%
Audio input	6 dB pre-emphasis
Input impedance	11 k Ω
Data (Aux) input level	190 mVrms for 1.9 kHz deviation
Data (Aux) input	ac coupled



Receiver

Specification	Description
RF input impedance	50 Ω
Frequency stability	2.5 ppm
Receiver attack time	< 7 ms
Carrier detect on cold start	< 30 ms
Selectivity	15.0 kHz channel: -60 dB
Intermodulation	-70 dB
Spurious and image rejection	-70 dB
FM hum and noise	-40 dB @ 12.5 kHz
Sensitivity -12 dB SINAD	0.35 μ V
Conducted spurious	-57 dBm
Current drain	90 mA max
Audio distortion	< 3%
Audio response	6 dB de-emphasis
Data (Aux) output	200 mVrms into 600 Ω @ 60% deviation



Synthesized Frequency, UHF Transceiver

General

Specification	Description
Frequency range	403–512 MHz
Frequency control	Synthesized; factory-programmed to a single channel
Operating voltage	6.0–15.0 Vdc
Operating temperature	–22 °F to 140 °F (–30 °C to 60 °C)
RF connector type	BNC
Power and data interface	DA-15 (15 pin D)
Maximum dimensions	1.0 in. high × 2.5 in. wide × 3.7 in. long (25.4 mm high × 63.5 mm wide × 94.0 mm long)
Case dimensions	1.0 in. high × 2.5 in. wide × 3.0 in. long (25.4 mm high × 63.5 mm wide × 76.2 mm long) excluding connectors
FCC emission designator	11K0F3D
FCC type acceptance	NP42423414-001

Transmitter

Specification	Description
Occupied bandwidth	11 kHz
RF output power	1–4 W
RF output impedance	50 Ω
Duty cycle (–30 °C to 60 °C)	2 W \approx 7.5 Vdc: 50%, 60 sec maximum transmit 4 W \approx 12 Vdc: 5%, 5 sec maximum transmit
Transmitter attack time	< 7 ms
Frequency stability	1.5 ppm
Spurious and harmonic FM	–37 dBm
FM hum and noise	–40 dB
Current drain	2 W \approx 7.5 Vdc: < 1200 mA 4 W \approx 12 Vdc: < 1500 mA
Modulation distortion	< 3%
Audio input	6 dB pre-emphasis
Input impedance	11 k Ω data, 2 k Ω audio
Data (Aux) input level	190 mVrms for 1.9 kHz deviation
Data (Aux) input	ac coupled



Receiver

Specification	Description
RF input impedance	50 Ω
Frequency stability	1.5 ppm
Receiver attack time	< 7 ms
Carrier detect on cold start	< 30 ms
Selectivity	12.5 kHz channel: -60 dB
Intermodulation	-70 dB
Spurious and image rejection	-70 dB
FM hum and noise	-40 dB
Sensitivity -12 dB SINAD	0.35 μ V
Conducted spurious	< -57 dBm
Current drain	90 mA max
Audio distortion	< 3%
Audio response	6 dB de-emphasis
Data (Aux) output	200 mVrms into 600 Ω @ 60% deviation