



Model 6466 RF Detector

Installation and Operation Guide







For Your Safety

Explanation of Warning and Caution Icons



Avoid personal injury and product damage! Do not proceed beyond any symbol until you fully understand the indicated conditions.

The following warning and caution icons alert you to important information about the safe operation of this product:

-  **You may find this symbol in the document that accompanies this product. This symbol indicates important operating or maintenance instructions.**
-  **You may find this symbol affixed to the product. This symbol indicates a live terminal where a dangerous voltage may be present; the tip of the flash points to the terminal device.**
-  **You may find this symbol affixed to the product. This symbol indicates a protective ground terminal.**
-  **You may find this symbol affixed to the product. This symbol indicates a chassis terminal (normally used for equipotential bonding).**
-  **You may find this symbol affixed to the product. This symbol warns of a potentially hot surface.**
-  **You may find this symbol affixed to the product and in this document. This symbol indicates an infrared laser that transmits intensity-modulated light and emits invisible laser radiation or an LED that transmits intensity-modulated light.**

Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

Notices

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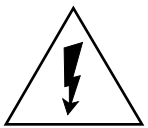

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Important Rules for Safe Operation

Notice for CATV installers

If you are a CATV installer, read the information in the box below.

<p>Note to CATV System Installer</p> <p>This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC (Section 54, Part I of the Canadian Electrical Code), that provides guidelines for proper grounding and, in particular, specifies that the CATV cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.</p>	 <p>The image shows two warning labels side-by-side. The left label is black with white text: 'CAUTION' in large letters, followed by 'RISK OF ELECTRIC SHOCK' and 'DO NOT OPEN' in smaller letters. To the left of this label is a white triangle with a black lightning bolt symbol. The right label is white with black text: 'AVIS' in large letters, followed by 'RISQUE DE CHOC ÉLECTRIQUE' and 'NE PAS OUVRIR' in smaller letters. To the right of this label is a white triangle with a black exclamation mark symbol.</p>
 <p>This symbol is intended to alert you that uninsulated voltage within this product may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this product.</p>	<p>CAUTION: To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.</p> <p>WARNING TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.</p>  <p>This symbol is intended to alert you of the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.</p>

Read and retain instructions

Carefully read all safety and operating instructions before operating this product, and retain them for future reference.

Heed warnings

Follow all warnings and cautions in the operating instructions, as well as those that are affixed to this product.

Follow instructions

Follow all operating instructions that accompany this product.

Cleaning

Before cleaning, unplug this product from the socket-outlet. **Do not** use liquid or aerosol cleaners. Use a damp cloth for cleaning.

Continued on next page

Important Rules for Safe Operation, Continued

Water and moisture

Do not expose this product to moisture. Do not place this product on a wet surface, or spill liquids on or near this product.

Placement

- Place this product close enough to a mains AC socket-outlet to accommodate the length of the product power cord.
- Make sure the mounting surface is stable and can support the size and weight of this product.

 **WARNING!**

AVOID PERSONAL INJURY AND DAMAGE TO THIS PRODUCT! AN UNSTABLE SURFACE MAY CAUSE THIS PRODUCT TO FALL.

Accessories

 **Caution:**

Maintain electrical safety! Power-operated equipment or accessories that you connect to this product should bear the UL listing mark or CSA certification mark on the accessory itself, and should not be modified so as to defeat the safety features. This will help avoid any potential for electric shock or fire. If in doubt contact qualified service personnel.

Use this product only with a cart, stand, bracket, table, or other mounting accessories that meet Cisco specifications. Carefully follow all instructions for proper mounting.

 **WARNING!**



AVOID PERSONAL INJURY AND DAMAGE TO THIS PRODUCT! MOVE ANY APPLIANCE AND CART COMBINATION WITH CARE. QUICK STOPS, EXCESSIVE FORCE, AND UNEVEN SURFACES MAY CAUSE THE APPLIANCE AND CART TO OVERTURN.

Continued on next page

Important Rules for Safe Operation, Continued

Ventilation

- This product has openings for ventilation to protect it from overheating. To ensure product reliability, do not block or cover these openings.
- Do not place entertainment equipment, lamps, books, or other objects on top of this product.
- Do not place this product in any of the following locations.
 - On a bed, sofa, rug, or similar surface
 - Over a radiator or heat register
 - In a built-in installation, such as a bookcase or rack, unless the installation provides proper ventilation

 **WARNING!**

AVOID ELECTRIC SHOCK AND FIRE HAZARD! NEVER PUSH OBJECTS THROUGH THE OPENINGS IN THIS PRODUCT. FOREIGN OBJECTS CAN TOUCH DANGEROUS VOLTAGE POINTS OR CAUSE ELECTRICAL SHORTS THAT CAN RESULT IN ELECTRIC SHOCK OR FIRE.

Power sources

- A label on this product indicates the correct power source for this product. Operate this product only from a socket-outlet with the voltage and frequency indicated on the product label.
- If you are uncertain of the type of power supply to your home or business, consult Cisco or your local power company.

 **WARNING!**

AVOID ELECTRIC SHOCK AND FIRE HAZARD! DO NOT OVERLOAD SOCKET-OUTLETS AND EXTENSION CORDS. FOR PRODUCTS THAT REQUIRE BATTERY POWER OR OTHER SOURCES TO OPERATE, REFER TO THE OPERATING INSTRUCTIONS FOR THOSE PRODUCTS.

Continued on next page

Important Rules for Safe Operation, Continued

Grounding

This product is equipped with **one** of the following types of safety plug.

- Three-prong (grounding pin) plug
- Two-prong (polarized) plug

Follow the guidelines in the table below to properly ground this product.

IF this product has a...	THEN insert this plug...
3-prong plug, Note: The middle prong on this plug is a protective grounding pin.	into a grounded mains, three-socket outlet. Note: If you are unable to insert this plug fully into the socket-outlet, try reversing the plug. If the plug still fails to fit, contact an electrician to replace your obsolete socket-outlet.
2-prong plug, Note: This plug has one wide prong and one narrow prong. It is a polarized plug.	into a grounded mains, two-socket outlet in which one socket is wider than the other. Note: This plug fits only one way. If you are unable to insert this plug fully into the outlet, contact your electrician to replace your obsolete socket-outlet.

Power cord protection

Route all power supply cords so that people cannot walk on, or place objects on or against, them. This can pinch or damage the cords. Pay particular attention to cords at plugs, socket-outlets, and the points where the cords exit the product.

Lightning and power surges

To protect this product against damage from lightning storms and power-line surges, do the following:

- Disconnect the power cord from the grounded mains socket-outlet and disconnect the antenna or cable system under the following circumstances.
 - During lightning storms, or
 - When you are not using this product for an extended period
- Ground your antenna system to provide some protection against voltage surges and built-up static charge.

Continued on next page

Important Rules for Safe Operation, Continued

Servicing

Do not open the cover of this product and attempt service unless instructed to do so in the operating instructions. Refer all servicing to qualified personnel only.



WARNING!

AVOID ELECTRIC SHOCK! OPENING OR REMOVING THE COVER MAY EXPOSE YOU TO DANGEROUS VOLTAGES.

Damage requiring service

For damage that requires service, unplug this product from the socket-outlet. Refer service to qualified personnel under the following conditions.

- When there is damage to the power-supply cord or plug
- If liquid enters, or an object falls on this product
- If you expose this product to rain or water
- If this product does not operate normally by following the operating instructions
- If you drop this product or damage its cabinet
- When this product exhibits a distinct change in performance



Caution:

Avoid damage to this product! Adjust only those controls the operating instructions describe. Improper adjustment of other controls may result in damage that may require extensive corrective work by a qualified technician.

Safety check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that this product is in proper operating condition.

Continued on next page

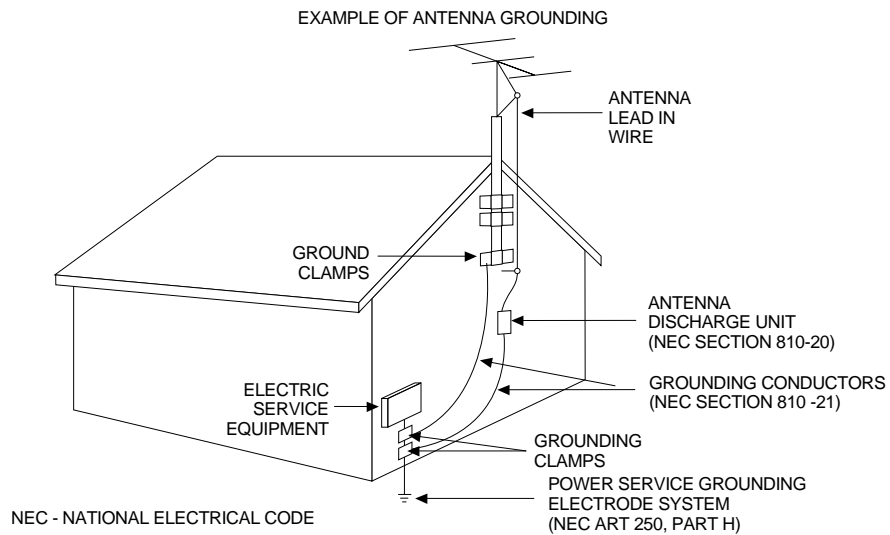
Important Rules for Safe Operation, Continued

Outdoor grounding system

If this product connects to an outdoor antenna or cable system, be sure the antenna or cable system is grounded (earthed). This provides some protection against voltage surges and built-up static charges.

Section 810 of the National Electric Code (NEC), ANSI/NFPA No. 70-1990, provides the following information:

- Grounding of the mast and supporting structure
- Grounding the lead-in wire to an antenna discharge unit
- Size of the grounding conductors
- Location of the antenna-discharge unit
- Connection to grounding electrodes
- Requirements for the grounding electrodes



Chapter 1

Installing the Model 6466 RF Detector

Overview

Introduction

This chapter introduces the Model 6466 RF Detector and provides the site requirements and instructions necessary to install the RF detector in a rack.

In this chapter

This chapter contains the following topics.

Topic	See Page
Introducing the Model 6466 RF Detector	1-2
Site Requirements	1-5
Installing the RF Detector in a System 60 Chassis	1-8
Connecting the RF and Alarm Cables to the RF Detector	1-9
Powering Up the RF Detector and Checking Power Supply Voltages	1-10
Verifying Factory-Specified Operating Parameters	1-12
Checking the RF Input to the RF Detector	1-13
Mounting the Chassis in a Rack	1-14

Introducing the Model 6466 RF Detector

Features

The Model 6466 RF Detector includes the following features.

- Integrated driver amplifier
 - Local and remote status monitoring
 - Front panel diagnostics
-

Packaging

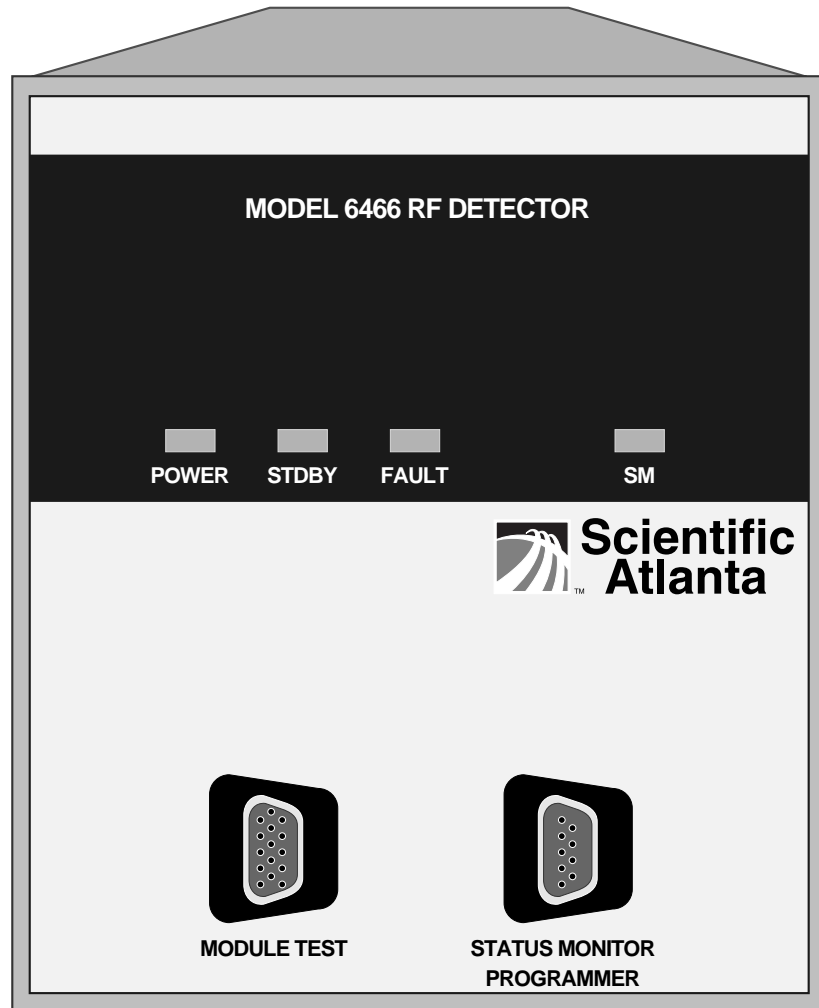
The Model 6466 RF Detector mounts in a standard System 60 chassis. Up to four RF detectors, or a combination of any four System 60 modules, can be mounted in a single System 60 chassis.

Continued on next page

Introducing the Model 6466 RF Detector, Continued

Front view

The diagram below shows the front view of the Model 6466 RF Detector.



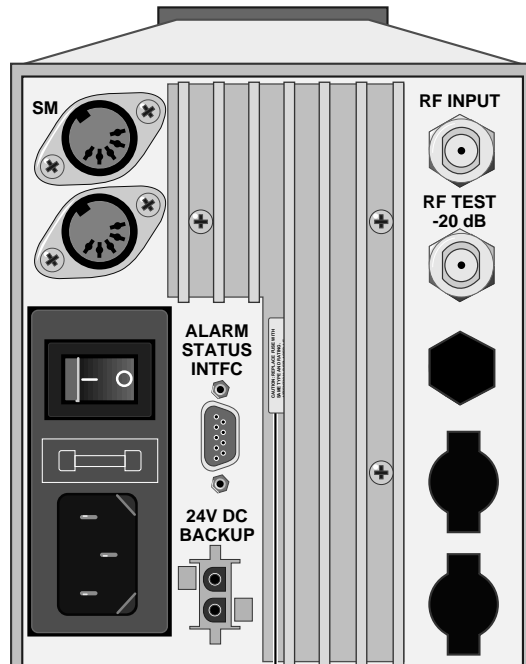
T2012

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Introducing the Model 6466 RF Detector, Continued

Back view

The diagram below shows the back view of the Model 6466 RF Detector.



**CAUTION: REPLACE FUSE WITH
SAME TYPE AND RATING.
ATTENTION: REPLACER LE
FUSIBLE AVEC MÊME TYPE.**

T2003

**VORSICHT: DIE
SICHERUNG NUR MIT
EINER DES GLEICHEN
TYPUS UND DER GLEICHEN
LEISTUNG
AUSWECHSELN.**

**PRECAUCION:
REEMPLACESE CON UN
FUSIBLE DEL MISMO TIPO
Y VALORES NOMINALES.**


**ATTENZIONE: SOSTITUIRE
CON UN FUSIBILE DELLO
STESSO TIPO E DELLA
STESSA POTENZA
NOMINALE.**

Site Requirements

Introduction

Before you begin, make certain that your installation site meets the requirements that follow.

Caution

 **Caution:**
Use this product in locations that restrict access to all persons who are not authorized.

Chassis

This product requires a standard System 60 chassis that is 133-mm (5.25-in.) high by 483-mm (19-in.) wide.

Rack

The System 60 chassis mounts into a standard EIA equipment rack that is 610-mm (24-in.) deep.

Power

This product requires a power source that has the specifications in the table below.

Item	Specification
Supply voltage	230 V AC
Line frequency	50 Hz
Power	23 W

 **WARNING!**
AVOID ELECTRIC SHOCK! CONNECT THE POWER PLUG ON THIS PRODUCT TO A GROUNDED (EARTHED) OUTLET ONLY.

Continued on next page

Site Requirements, Continued

Fuse

The RF detector requires one 0.16A, SLO-BLO, 250 V AC, 5 mm x 20 mm fuse.

You can access the fuse from the back panel. (See **Maintenance** in chapter 2 for instructions on how to change the fuse.)



WARNING!

AVOID ELECTRIC SHOCK AND DAMAGE TO THIS PRODUCT! REPLACE THE FUSE ONLY WITH A FUSE THAT IS THE CORRECT TYPE AND RATING. THE CORRECT TYPE AND RATING IS INDICATED ON THE BACK PANEL.

Operating temperature

The operating temperature of this product is 0°C (32°F) to 50°C (122°F).



Caution:

Avoid damage to this product! Your warranty is void if you operate this product above the maximum specified operating temperature.

The following recommendations will help you keep the operating temperature in the acceptable range.

- Adjust the ambient temperature to 20°C (68°F).
 - Place this product in an air-conditioned environment.
 - Do not obstruct the cooling vents on this product.
 - Arrange the placement of this product so that there is 44.5 mm (1.75 in.) of space above and 44.5 mm (1.75 in.) of space below this product.
 - Provide additional ventilation, as necessary. To do this, use one or more of the following methods.
 - Baffles that deflect air
 - A forced-air ventilation system
 - Air outlets above the enclosures
-

Continued on next page

Site Requirements, Continued

Necessary equipment and tools

You need the following equipment and tools to install this product.

- Digital voltmeter
 - Coaxial cable with standard male F-connectors
 - Phillips-head screwdriver
 - Spectrum analyzer
-

Installing the RF Detector in a System 60 Chassis

Introduction

Cisco designed the Model 6466 RF Detector to be rack-mounted in a 133-mm (5.25-in.) by 483-mm (19-in.) rack-adaptor style chassis (Cisco part number 463166). You can mount up to four System 60 modules in the chassis.

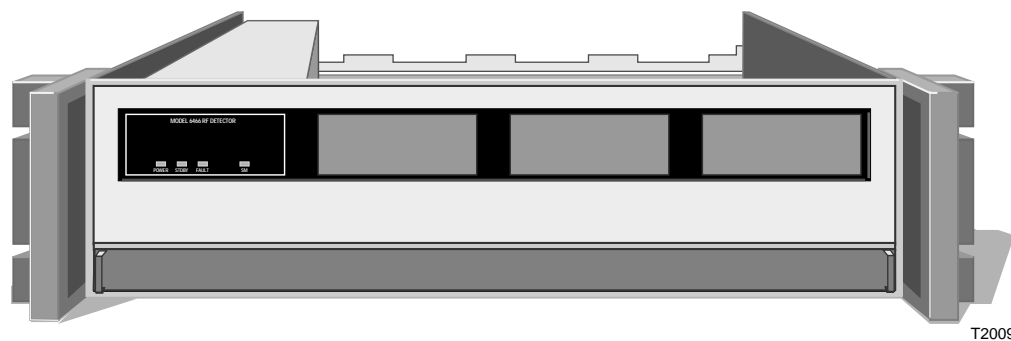
Installing the RF detector

Perform the following steps to install the RF detector in a System 60 chassis.

Step	Action
1	Align the module with one of the four slots in the chassis front window.
2	Secure the locking bar on the back of the chassis to retain the back of the RF detector module.

Chassis front panel with RF detector installed

The diagram below shows the Model 6466 RF Detector installed in a System 60 chassis.



Connecting the RF and Alarm Cables to the RF Detector

Option

Before you connect the RF and alarm cables to the back of the RF detector, you may choose to mount the chassis in the rack. However, providing you have long enough RF and alarm cables, it is usually more convenient to perform the other installation steps first, then mount the chassis as the last step.

RF and alarm cable connections

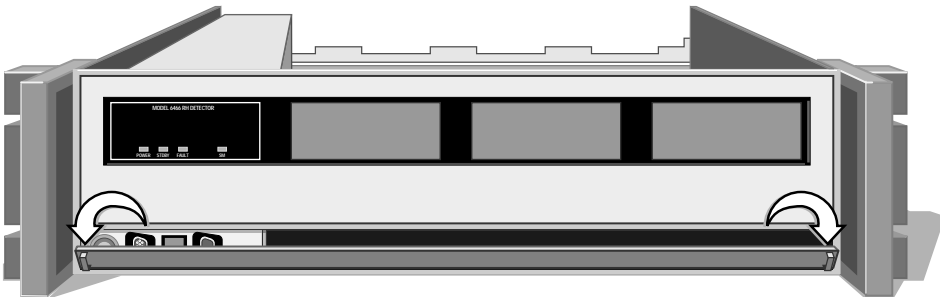
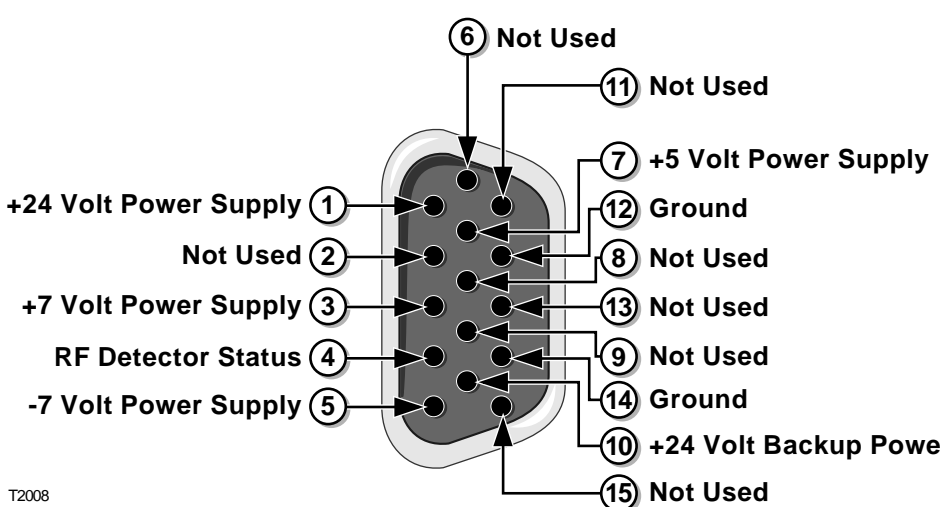
Follow the steps in the table below to connect the RF and alarm cables to the back of the RF detector.

Step	Action														
1	Bring the RF input cable and the alarm cable from the DB-9 connector on the back of the rack, through the opening where you will mount the chassis.														
2	Place the chassis (with the RF detector mounted in it) on a convenient work space in front of the rack.														
3	<p>Check the RF input with a spectrum analyzer. Verify that the composite signal level is -13 dBm, which is the specified input level for correct operation.</p> <p>Use the channel-loading chart in the table below to determine the correct level for your installation.</p> <table border="1"><thead><tr><th>Number of Channels Per RF Detector</th><th>Input Level Per Channel</th></tr></thead><tbody><tr><td>10</td><td>26 dBmV</td></tr><tr><td>20</td><td>23 dBmV</td></tr><tr><td>30</td><td>21 dBmV</td></tr><tr><td>40</td><td>20 dBmV</td></tr><tr><td>60</td><td>18 dBmV</td></tr><tr><td>80</td><td>17 dBmV</td></tr></tbody></table>	Number of Channels Per RF Detector	Input Level Per Channel	10	26 dBmV	20	23 dBmV	30	21 dBmV	40	20 dBmV	60	18 dBmV	80	17 dBmV
Number of Channels Per RF Detector	Input Level Per Channel														
10	26 dBmV														
20	23 dBmV														
30	21 dBmV														
40	20 dBmV														
60	18 dBmV														
80	17 dBmV														
4	Connect the RF input cable to the F-connector labeled RF INPUT on the back of the RF detector.														
5	Connect the alarm cable to the DB-9 connector on the back of the RF detector.														

Powering Up the RF Detector and Checking Power Supply Voltages

Power-up and verification procedure

Perform the following steps to power up the RF detector and verify that the +24 V DC, +24 V DC backup, +5 V DC, and ± 7 V DC supply voltages are at their proper levels.

Step	Action
1	Connect the power cord to a standard 230 V AC socket-outlet.
2	Turn the power switch on the back of the RF detector to the ON () position.
3	<p>Lower the drop down panel on the front of the chassis to access the MODULE TEST connector.</p>  <p style="text-align: right; font-size: small;">T2006</p>
4	<p>Set your digital voltmeter to V DC.</p> <p>Note: All measurements are made on the appropriate pins on the DB-15 MODULE TEST connector on the front of the RF detector.</p>  <p style="font-size: small;">T2008</p>

Continued on next page

Powering Up the RF Detector and Checking Power Supply Voltages, Continued

Power-up and verification procedure (continued)

Step	Action												
5	Connect your voltmeter negative lead to chassis ground.												
6	Connect your voltmeter positive lead to the appropriate pin for the supply you are checking. <table border="1" data-bbox="479 657 1406 884"> <thead> <tr> <th>To check . . .</th> <th>Connect the positive lead to . . .</th> </tr> </thead> <tbody> <tr> <td>+24 V DC,</td> <td>pin 1, +24 Volt Power Supply.</td> </tr> <tr> <td>+24 V DC backup,</td> <td>pin 10, +24 Volt Backup Power.</td> </tr> <tr> <td>+5 V DC,</td> <td>pin 7, +5 Volt Power Supply.</td> </tr> <tr> <td>+7 V DC,</td> <td>pin 3, +7 Volt Power Supply.</td> </tr> <tr> <td>-7 V DC,</td> <td>pin 5, -7 Volt Power Supply.</td> </tr> </tbody> </table>	To check . . .	Connect the positive lead to . . .	+24 V DC,	pin 1, +24 Volt Power Supply.	+24 V DC backup,	pin 10, +24 Volt Backup Power.	+5 V DC,	pin 7, +5 Volt Power Supply.	+7 V DC,	pin 3, +7 Volt Power Supply.	-7 V DC,	pin 5, -7 Volt Power Supply.
To check . . .	Connect the positive lead to . . .												
+24 V DC,	pin 1, +24 Volt Power Supply.												
+24 V DC backup,	pin 10, +24 Volt Backup Power.												
+5 V DC,	pin 7, +5 Volt Power Supply.												
+7 V DC,	pin 3, +7 Volt Power Supply.												
-7 V DC,	pin 5, -7 Volt Power Supply.												
7	Measure the DC voltage. The result should read as follows: <table border="1" data-bbox="479 1003 1406 1230"> <thead> <tr> <th>Supply</th> <th>Acceptable Range</th> </tr> </thead> <tbody> <tr> <td>+24 V DC</td> <td>+24 V (± 2.4 V)</td> </tr> <tr> <td>+24 V DC backup</td> <td>+24 V (± 2.4 V)</td> </tr> <tr> <td>+5 V DC</td> <td>+5 V (± 0.5 V)</td> </tr> <tr> <td>+7 V DC</td> <td>+7 V (± 0.7 V)</td> </tr> <tr> <td>-7 V DC</td> <td>-7 V (± 0.7 V)</td> </tr> </tbody> </table>	Supply	Acceptable Range	+24 V DC	+24 V (± 2.4 V)	+24 V DC backup	+24 V (± 2.4 V)	+5 V DC	+5 V (± 0.5 V)	+7 V DC	+7 V (± 0.7 V)	-7 V DC	-7 V (± 0.7 V)
Supply	Acceptable Range												
+24 V DC	+24 V (± 2.4 V)												
+24 V DC backup	+24 V (± 2.4 V)												
+5 V DC	+5 V (± 0.5 V)												
+7 V DC	+7 V (± 0.7 V)												
-7 V DC	-7 V (± 0.7 V)												

Verifying Factory-Specified Operating Parameters

Status LEDs

Verify the status of the four LEDs on the front panel by comparing their states with the data in the table below.

LED Name	LED Color	Status						
POWER	Green	On						
STDBY	Amber	Off						
FAULT	Amber	Off						
SM	Green	<table border="1"><thead><tr><th>IF unit is. . .</th><th>THEN LED is . . .</th></tr></thead><tbody><tr><td>connected to and addressed by the Cisco monitoring system,</td><td>On.</td></tr><tr><td>not connected to or addressed by the Cisco monitoring system,</td><td>Off.</td></tr></tbody></table>	IF unit is. . .	THEN LED is . . .	connected to and addressed by the Cisco monitoring system,	On.	not connected to or addressed by the Cisco monitoring system,	Off.
IF unit is. . .	THEN LED is . . .							
connected to and addressed by the Cisco monitoring system,	On.							
not connected to or addressed by the Cisco monitoring system,	Off.							

Checking the RF Input to the RF Detector

Procedure

Follow the steps in the table below to check the RF input to the RF detector.

Step	Action														
1	Connect a coaxial cable (F-connector) between the -20 dB RF TEST point on the back of the RF detector and the spectrum analyzer.														
2	Set the spectrum analyzer for frequency response across your band of operation.														
3	<p>Verify that the input level to the module is within ± 1.0 dB of the proper value.</p> <p>The specified composite input level to the RF detector is -13 dBm. This equates to the per-channel levels in the table below.</p> <table border="1"><thead><tr><th>Number of Channels Per RF Detector</th><th>Input Level Per Channel</th></tr></thead><tbody><tr><td>10</td><td>26 dBmV</td></tr><tr><td>20</td><td>23 dBmV</td></tr><tr><td>30</td><td>21 dBmV</td></tr><tr><td>40</td><td>20 dBmV</td></tr><tr><td>60</td><td>18 dBmV</td></tr><tr><td>80</td><td>17 dBmV</td></tr></tbody></table> <p>Note: <i>Remember!</i> You must add 20 dB back to the measured per-channel level to achieve the correct reading.</p>	Number of Channels Per RF Detector	Input Level Per Channel	10	26 dBmV	20	23 dBmV	30	21 dBmV	40	20 dBmV	60	18 dBmV	80	17 dBmV
Number of Channels Per RF Detector	Input Level Per Channel														
10	26 dBmV														
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30	21 dBmV														
40	20 dBmV														
60	18 dBmV														
80	17 dBmV														

Mounting the Chassis in a Rack

Requirements

You can mount the System 60 chassis in a standard EIA rack that is 483-mm (19-in.) wide by 610-mm (24-in.) deep. Below are some additional recommendations.

- Locate the chassis away from strong RF radiation and line transients that can damage the equipment.
 - Leave a minimum of 44.5 mm (1.75 in.) of space above and below the chassis to allow for proper ventilation.
 - Mount the chassis in a rack that permits access to the back of the RF detector.
-

Optional support methods

You may choose to support the chassis with optional brackets or slides.

Cisco manufactures optional rack slides to EIA/Universal RETMA standards. The design fits any 610-mm (24-in.), EIA/Universal RETMA enclosed rack. The slides come equipped with front disconnect as a standard feature.

Chapter 2

Operating the Model 6466 RF Detector

Overview

Scope of this chapter

This chapter describes the functions of all operator controls, indicators, inputs, and outputs for the Model 6466 RF Detector.

In this chapter

This chapter contains the following topics.

Topic	See Page
Functions of the Front Panel Controls and Indicators	2-2
Functions of the Back Panel Connections	2-5
Monitoring Operating Parameters	2-9
Maintenance	2-13

About RF detector power sources

The RF detector has a built-in power supply.

The RF detector also provides for connection of a standby 24 V DC power supply with automatic switching to the backup power source in the event of a primary power interruption.

About RF detector status monitoring

The RF detector has status monitoring capability. You can control each RF detector manually or automatically.

You can order the automatic functions pre-programmed according to your specific instructions, or you can operate them remotely using status monitoring software.

Functions of the Front Panel Controls and Indicators

Overview

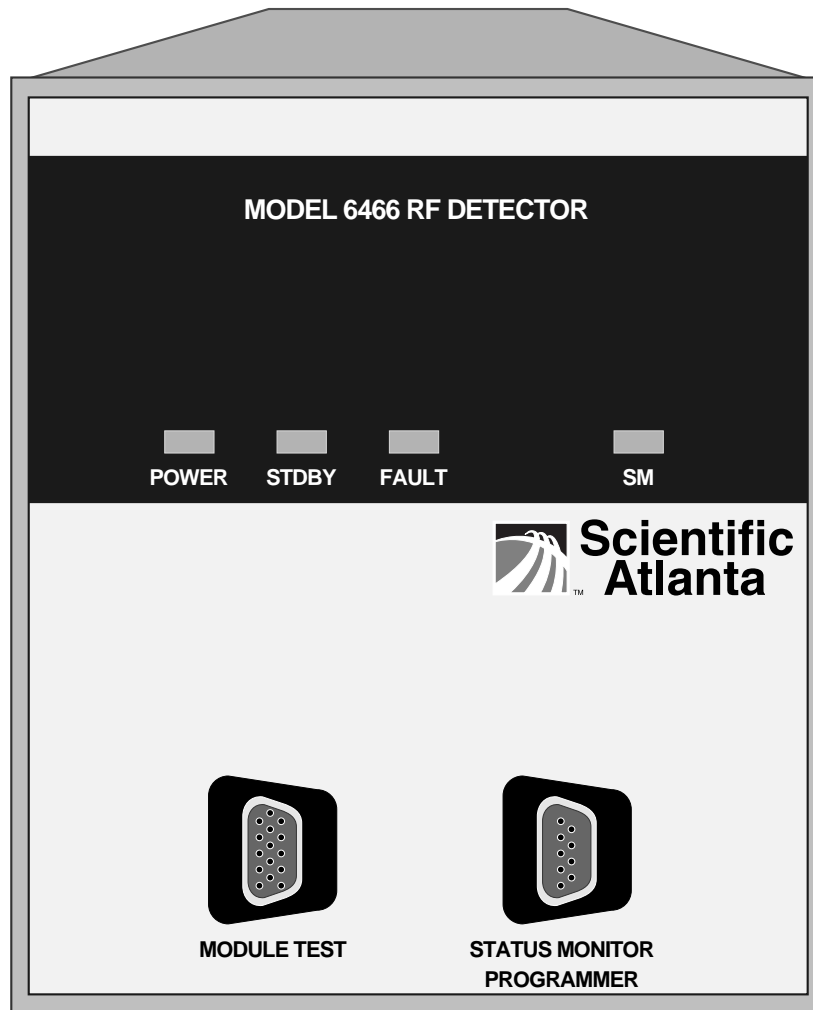
The Model 6466 RF Detector front panel includes...

- a module test connector,
- LED status indicators, and
- a status monitoring programmer connector.

This section describes the front panel controls and indicators.

Front panel

The diagram below shows the front panel of the Model 6466 RF Detector.



T2012

Continued on next page

Functions of the Front Panel Controls and Indicators, Continued

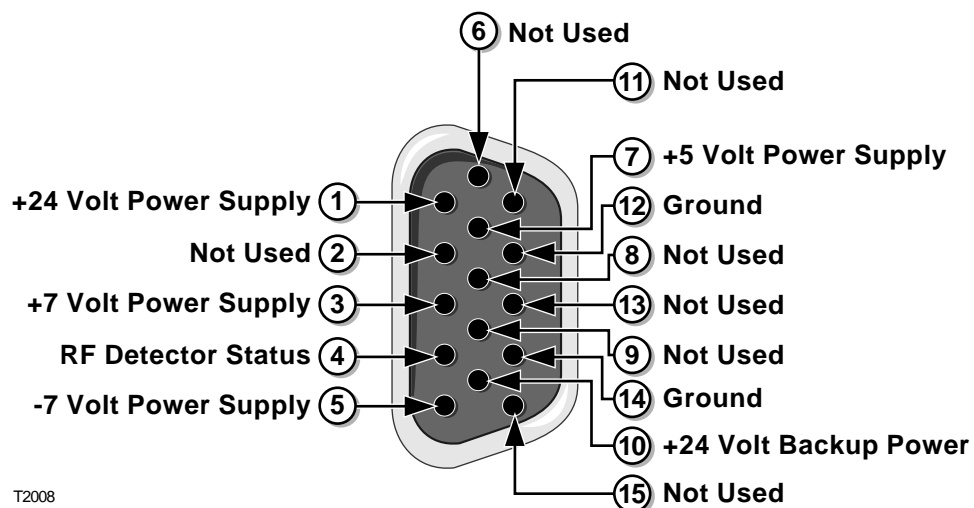
Front panel LEDs

The table below describes the functions of the LEDs on the Model 6466 RF Detector front panel.

LED	Description
POWER	A green LED indicates the main AC power is operating in the appropriate voltage range. If AC power is not present or out of range, an amber LED indicates the FAULT condition. If a backup 24 V DC power supply is in use, an amber LED indicates the STDBY condition.
STDBY	An amber LED indicates the unit is being powered by standby power via the 24 V DC input on the back panel.
FAULT	An amber LED indicates a parameter is out of range. Further investigation of the other LEDs and digital readouts should isolate the problem area. Refer to the Troubleshooting Guide in chapter 3.
SM	A green LED indicates the unit is connected with the Cisco status monitoring (SM) system, and has received incoming data from the subsystem within the last 10 minutes.

MODULE TEST connector

The MODULE TEST connector provides test points to measure the power supply voltages, and other parameters identified in the following diagram.



T2008

Continued on next page

Functions of the Front Panel Controls and Indicators, Continued

STATUS MONITOR PROGRAMMER connector

The STATUS MONITOR PROGRAMMER connector provides a connection point for the Cisco Model 6585 Handheld Status Monitoring Programmer. This unit enables direct programming of the status monitoring parameters. For further information please consult the Model 6585 Status Monitoring System User's Guide, part number 372478.

Functions of the Back Panel Connections

Overview

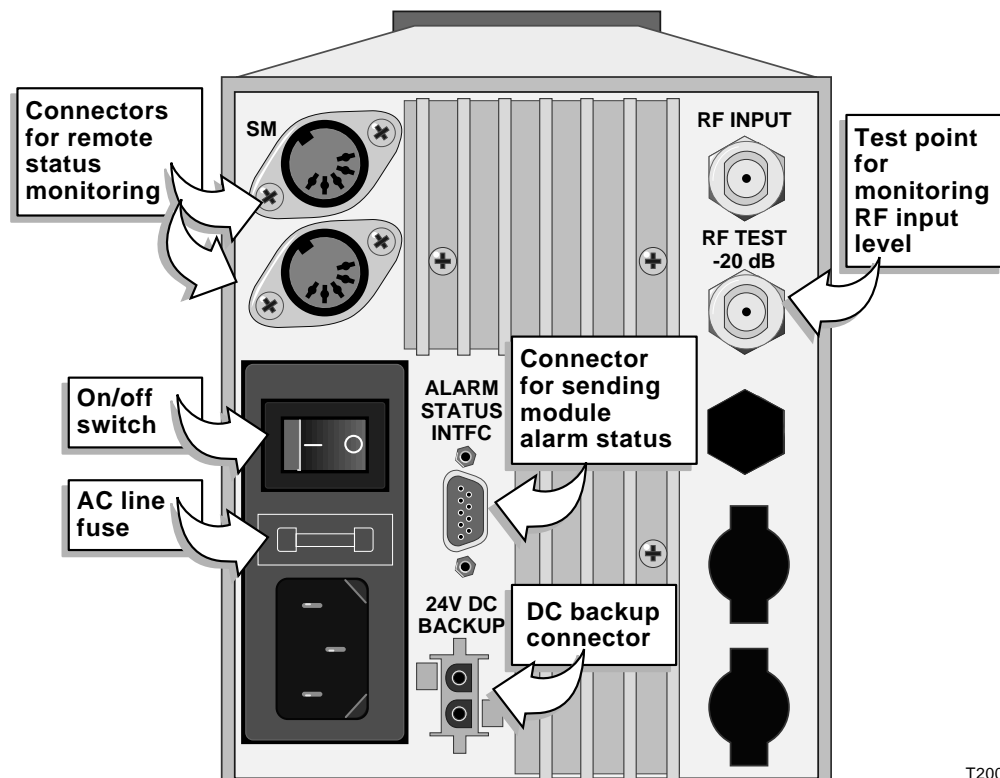
The Model 6466 RF Detector back panel provides connections for...

- power,
- RF input,
- test points, and
- status monitoring.

This section describes the back panel connections.

Back panel

The diagram below shows the back panel of the Model 6466 RF Detector.



T2004

Continued on next page

Functions of the Back Panel Connections, Continued

SM connectors

Two DIN connectors are provided for remote status monitoring. The SM connectors allow various System 60 modules to be daisy-chained together in a bus configuration. You can connect the bus to the Status Monitor Controller through the Model 6585 RF Subsystem IV.

Power switch

The AC power switch is located on the back panel below the SM connectors. Press the rocker switch on the right to power off (O) the RF detector. Press the rocker switch on the left to power on (I) the RF detector.

Fuse

The Model 6466 RF Detector requires a 0.16 A, SLO-BLO, 250 V AC fuse (5 mm x 20 mm).

Power cord receptacle

The AC power cord plugs into the receptacle on the back panel. The RF detector operates on 230 V AC at 50 Hz.

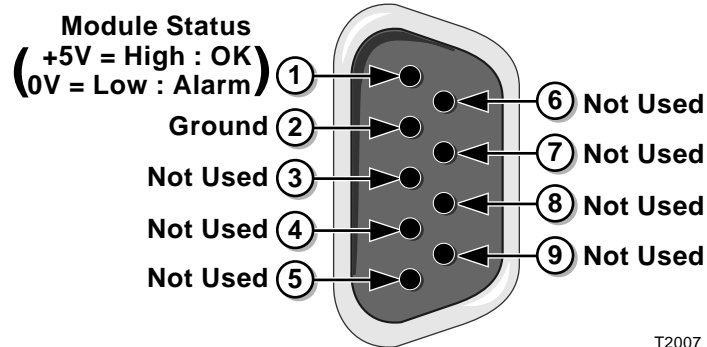
ALARM STATUS INTFC connector

This DB-9 receptacle can be used as an alarm or status interface connection. Two of the nine pins signify alarm conditions. Pin 1 provides either a high or low condition and pin 2 provides a ground reference. The remaining lines (pins 3 through 9) are not used at this time.

Continued on next page

Functions of the Back Panel Connections, Continued

ALARM/ STATUS INTFC connector pinout



Alarm functions

The alarm indicator (pin 1 of the DB-9 connector) can be used to perform the following functions.

- Signal other System 60 modules, such as the Model 6961 RF Controller or the Model 6461 Optical Switch Controller to activate a switch to a backup RF detector
- Activate a local alarm, such as an audio and/or visual alarm
- Trigger an auto dialer to call a technician

24 V DC BACKUP connector

The 24 V DC BACKUP connector provides the ability to connect a backup power supply to the RF detector. The connector is configured with the positive terminal on the top and the negative terminal on the bottom.

RF INPUT connector

A female F-connector is provided on the back panel for the RF input signal. The required RF input level is variable and depends on channel loading. The RF detector is designed for a composite loading of -13 dBm.

Continued on next page

Functions of the Back Panel Connections, Continued

RF input level per-channel loading

The table below lists the per-channel loading for typical configurations.

Channels Per RF Detector	Input Level Per Channel
10	26 dBmV
20	23 dBmV
30	21 dBmV
40	20 dBmV
60	18 dBmV
80	17 dBmV

RF TEST -20 dB connector

The RF TEST -20 dB F-connector provides a test point for the RF input level. Since the test signal feeds off a 20 dB directional coupler at the module input, you must add 20 dB to the measured level to get the correct reading.

Monitoring Operating Parameters

Overview

Cisco recommends that each time you monitor the unit, you record the data in a maintenance log. You should also record the factory-specified setup data and initial operating parameters in this log. A **Sample Maintenance Log** is included in appendix A for this purpose.

Checking LED status

Use the table below to check the status of the four LEDs on the front panel. If any of the LEDs do not indicate as described below, consult the **Troubleshooting Guide** in chapter 3.

LED Name	LED Color	Status	
POWER	Green	On	
STDBY	Amber	Off	
FAULT	Amber	Off	
SM	Green	IF the unit is . . .	THEN LED is . . .
		connected to and addressed by the Cisco monitoring system,	On.
		not connected to or addressed by the Cisco monitoring system,	Off.

Continued on next page

Monitoring Operating Parameters, Continued

RF detector RF input level

Perform the following steps to verify the input level to the module is within ± 1.0 dB of the most recent recorded value.

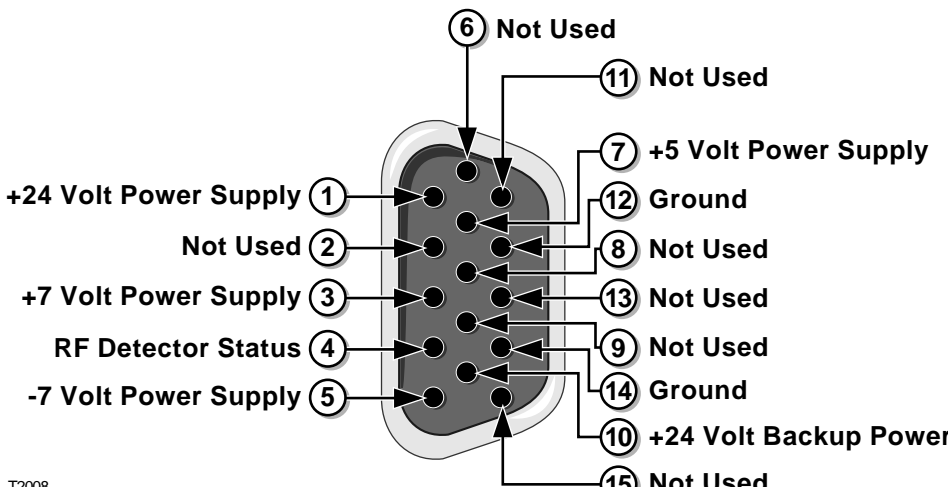
Step	Action														
1	Connect a coax cable with an F-connector from the -20 dB RF TEST point on the back of the RF detector to the spectrum analyzer.														
2	Set the spectrum analyzer for frequency response across your band of operation.														
3	<p>Verify that the input level to the module is within ± 1.0 dB of the proper value.</p> <p>The specified composite input level to the RF detector is -13 dBm, which equates to the per-channel levels shown in the following table.</p> <table border="1"> <thead> <tr> <th>Number of Channels Per RF Detector</th> <th>Input Level Per Channel</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>26 dBmV</td> </tr> <tr> <td>20</td> <td>23 dBmV</td> </tr> <tr> <td>30</td> <td>21 dBmV</td> </tr> <tr> <td>40</td> <td>20 dBmV</td> </tr> <tr> <td>60</td> <td>18 dBmV</td> </tr> <tr> <td>80</td> <td>17 dBmV</td> </tr> </tbody> </table> <p>Note: Remember to add 20 dB back to the measured per-channel level to get the correct reading.</p>	Number of Channels Per RF Detector	Input Level Per Channel	10	26 dBmV	20	23 dBmV	30	21 dBmV	40	20 dBmV	60	18 dBmV	80	17 dBmV
Number of Channels Per RF Detector	Input Level Per Channel														
10	26 dBmV														
20	23 dBmV														
30	21 dBmV														
40	20 dBmV														
60	18 dBmV														
80	17 dBmV														
4	Return all equipment to its normal operating state.														

Continued on next page

Monitoring Operating Parameters, Continued

Verifying operating voltages

Perform the following steps to verify the operating voltages are within the proper range.

Step	Action
1	<p>Set the digital voltmeter to V DC.</p> <p>Note: All measurements are made on the appropriate pins on the DB-15 MODULE TEST connector on the front of the RF detector.</p>  <p style="text-align: center;">T2008</p>
2	Connect the voltmeter negative lead to pin 14, ground.

Continued on next page

Monitoring Operating Parameters, Continued

Verifying operating voltages (continued)

Step	Action												
3	<p data-bbox="472 436 1341 510">Connect your voltmeter positive lead to the appropriate pin for the supply you are checking.</p> <table border="1" data-bbox="480 548 1406 779"> <thead> <tr> <th data-bbox="480 548 760 583">To check . . .</th> <th data-bbox="760 548 1406 583">Connect the positive lead to . . .</th> </tr> </thead> <tbody> <tr> <td data-bbox="480 583 760 621">+24 V DC,</td> <td data-bbox="760 583 1406 621">pin 1, +24 Volt Power Supply.</td> </tr> <tr> <td data-bbox="480 621 760 659">+24 V DC backup,</td> <td data-bbox="760 621 1406 659">pin 10, +24 Volt Backup Power.</td> </tr> <tr> <td data-bbox="480 659 760 697">+5 V DC,</td> <td data-bbox="760 659 1406 697">pin 7, +5 Volt Power Supply.</td> </tr> <tr> <td data-bbox="480 697 760 735">+7 V DC,</td> <td data-bbox="760 697 1406 735">pin 3, +7 Volt Power Supply.</td> </tr> <tr> <td data-bbox="480 735 760 772">-7 V DC,</td> <td data-bbox="760 735 1406 772">pin 5, -7 Volt Power Supply.</td> </tr> </tbody> </table>	To check . . .	Connect the positive lead to . . .	+24 V DC,	pin 1, +24 Volt Power Supply.	+24 V DC backup,	pin 10, +24 Volt Backup Power.	+5 V DC,	pin 7, +5 Volt Power Supply.	+7 V DC,	pin 3, +7 Volt Power Supply.	-7 V DC,	pin 5, -7 Volt Power Supply.
To check . . .	Connect the positive lead to . . .												
+24 V DC,	pin 1, +24 Volt Power Supply.												
+24 V DC backup,	pin 10, +24 Volt Backup Power.												
+5 V DC,	pin 7, +5 Volt Power Supply.												
+7 V DC,	pin 3, +7 Volt Power Supply.												
-7 V DC,	pin 5, -7 Volt Power Supply.												
4	<p data-bbox="472 823 1239 858">Measure the DC voltage. The result should read as follows:</p> <table border="1" data-bbox="480 896 1406 1127"> <thead> <tr> <th data-bbox="480 896 760 932">Supply</th> <th data-bbox="760 896 1406 932">Acceptable Range</th> </tr> </thead> <tbody> <tr> <td data-bbox="480 932 760 970">+24 V DC</td> <td data-bbox="760 932 1406 970">+24 V (\pm 2.4 V)</td> </tr> <tr> <td data-bbox="480 970 760 1008">+24 V DC backup</td> <td data-bbox="760 970 1406 1008">+24 V (\pm 2.4 V)</td> </tr> <tr> <td data-bbox="480 1008 760 1045">+5 V DC</td> <td data-bbox="760 1008 1406 1045">+5 V (\pm 0.5 V)</td> </tr> <tr> <td data-bbox="480 1045 760 1083">+7 V DC</td> <td data-bbox="760 1045 1406 1083">+7 V (\pm 0.7 V)</td> </tr> <tr> <td data-bbox="480 1083 760 1121">-7 V DC</td> <td data-bbox="760 1083 1406 1121">-7 V (\pm 0.7 V)</td> </tr> </tbody> </table>	Supply	Acceptable Range	+24 V DC	+24 V (\pm 2.4 V)	+24 V DC backup	+24 V (\pm 2.4 V)	+5 V DC	+5 V (\pm 0.5 V)	+7 V DC	+7 V (\pm 0.7 V)	-7 V DC	-7 V (\pm 0.7 V)
Supply	Acceptable Range												
+24 V DC	+24 V (\pm 2.4 V)												
+24 V DC backup	+24 V (\pm 2.4 V)												
+5 V DC	+5 V (\pm 0.5 V)												
+7 V DC	+7 V (\pm 0.7 V)												
-7 V DC	-7 V (\pm 0.7 V)												

Maintenance

Guideline

Only qualified personnel should perform routine maintenance and service of this product.

Fuse

This product contains one 0.16 A, SLO-BLO, 250 V AC fuse (5 mm x 20 mm).

Warning



WARNING!

AVOID ELECTRIC SHOCK AND DAMAGE TO THIS PRODUCT! REPLACE THE FUSE ONLY WITH A FUSE THAT IS THE CORRECT TYPE AND RATING.



AVERTISSEMENT!

PROTEGEZ-VOUS DES CHOCS ELECTRIQUES ET EVITEZ L'ENDOMMAGEMENT DU PRODUIT! NE REMPLACEZ LE FUSIBLE QU'AVEC UN FUSIBLE DE TYPE ET DE CALIBRE CORRECTS.



WARNUNG!

VERMEIDEN SIE ELEKTRISCHEN SCHLAG SOWIE BESCHÄDIGUNG DES GERÄTES! ERSETZEN SIE DIE SICHERUNG NUR MIT EINER DES GLEICHEN TYPUS UND GLEICHER LEISTUNG.



¡ADVERTENCIA!

¡PROTEJASE DE DESCARGAS ELECTRICAS Y PROTEJA DE DAÑOS AL PRODUCTO! UNICAMENTE UTILICE FUSIBLES DEL TIPO Y ESPECIFICACIONES CORRECTAS.



ATTENZIONE!

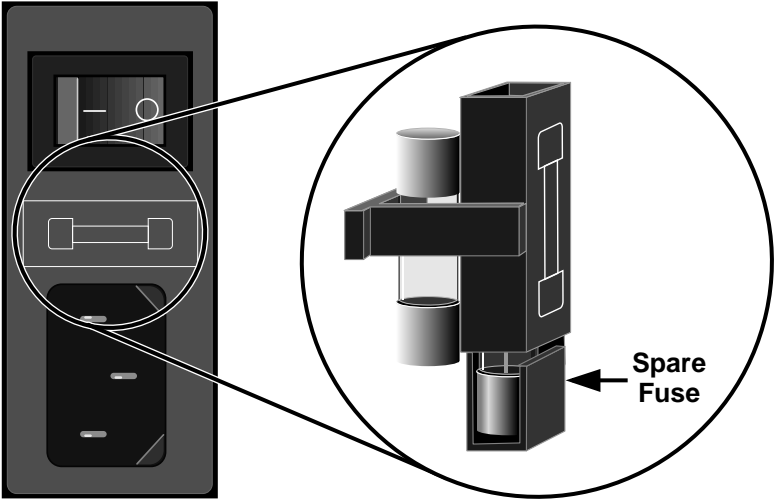
EVITARE SCOSSE ELETTRICHE E DANNI A QUESTO PRODOTTO! SOSTITUIRE IL FUSIBILE SOLO CON UN FUSIBILE CHE SIA DI TIPO E POTENZA NOMINALE CORRETTA.

Continued on next page

Maintenance, Continued

Changing the fuse

Perform the following steps to change the fuse in the Model 6466 RF Detector.

Step	Action			
1	Disconnect mains power and backup power before proceeding.			
2	<p data-bbox="472 543 1192 579">Locate the fuse holder on the left side of the back panel.</p> <div data-bbox="561 625 1330 1121"><p data-bbox="1187 974 1263 1031">Spare Fuse</p><p data-bbox="1281 1125 1330 1142">T2005</p></div> <table border="1" data-bbox="480 1192 1406 1335"><tr><td data-bbox="480 1192 760 1335">VORSICHT: DIE SICHERUNG NUR MIT EINER DES GLEICHEN TYPUS UND DER GLEICHEN LEISTUNG AUSWECHSELN.</td><td data-bbox="760 1192 1045 1335">PRECAUCION: REEMPLACese CON UN FUSIBLE DEL MISMO TIPO Y VALORES NOMINALES.</td><td data-bbox="1045 1192 1406 1335">ATTENZIONE: SOSTITUIRE CON UN FUSIBILE DELLO STESSO TIPO E DELLA STESSA POTENZA NOMINALE.</td></tr></table>	VORSICHT: DIE SICHERUNG NUR MIT EINER DES GLEICHEN TYPUS UND DER GLEICHEN LEISTUNG AUSWECHSELN.	PRECAUCION: REEMPLACese CON UN FUSIBLE DEL MISMO TIPO Y VALORES NOMINALES.	ATTENZIONE: SOSTITUIRE CON UN FUSIBILE DELLO STESSO TIPO E DELLA STESSA POTENZA NOMINALE.
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Continued on next page

Maintenance, Continued

Changing the fuse (continued)

Step	Action
3	<ul style="list-style-type: none">• Use a small, flat-blade screwdriver. Lift the fuse door.• Pull the fuse holder out to expose the fuse. <div data-bbox="618 543 1338 1402"><p>The diagram illustrates the fuse holder assembly. It is labeled 'AC FUSE POWER' at the top. Below the labels, the specifications '230 VAC 50 Hz' and '1/16A ON/OFF' are shown. A circular callout provides a detailed view of the fuse holder, with an arrow pointing to a 'Spare Fuse' located inside the holder.</p></div> <p data-bbox="618 1381 665 1402">T2005</p>
4	Replace the fuse. Note: There is a hidden holder that contains one extra fuse.
5	Push the fuse holder back in until the fuse door snaps closed.

Continued on next page

Maintenance, Continued

Spare parts

We recommend keeping spare AC line fuses available.

Quarterly inspection

Under normal conditions, this product operates unattended for extended periods of time. Inspect the following every three months.

- Make sure all cables are mated properly.
 - Inspect cables for stress and chafing.
 - Make sure all retaining screws are tight.
 - Clean the back panel with a soft cloth dampened with a mild detergent solution if necessary.
-

Chapter 3

Troubleshooting the Model 6466 RF Detector

Overview

Introduction

The Model 6466 RF Detector is fully tested prior to shipment. The RF detector should provide reliable operation when installed as instructed. If you encounter any problems, this troubleshooting guide addresses symptoms of the three most common problems.

In this chapter

This chapter contains the following topic.

Topic	See Page
Troubleshooting Guide	3-2

Troubleshooting Guide

Introduction

This troubleshooting guide describes three problems and lists their typical symptoms, causes, and items to check before consulting Cisco.

Caution



Caution:

Avoid damage to this product! Do not open the enclosure of this product for any reason. Your warranty is void if you open the enclosure of this product.



Advertissement:

Afin d' éviter d'endommager ce produit, n'en ouvrez jamais le boîtier. La garantie de ce produit sera annulée si le boîtier est ouvert.



Vorsicht:

Vermeiden Sie jede Beschädigung des Gerätes! Öffnen Sie unter keinen Umständen das Gehäuse. Ihre Garantie wird hinfällig, wenn Sie das Gehäuse dieses Gerätes öffnen.



Precaución:

¡Evite dañar este producto! No abra la cubierta de este producto por ningún motivo. En caso de abrirla, la garantía quedará anulada.



Attenzione:

Evitare danni al prodotto! Non aprire la chiusura di questo prodotto per alcun motivo. La garanzia viene invalidata se aprite la chiusura di questo prodotto.

If you have questions

If you have questions about this product, telephone one of our Technical Assistance Centers or your local sales subsidiary. The Customer Support section in appendix B contains a list of telephone numbers.

Continued on next page

Troubleshooting Guide, Continued

Equipment needed

The following equipment may be required to troubleshoot the RF detector.

- Digital voltmeter
 - Spectrum analyzer
-

AC power problems

Use the table below to troubleshoot the following three symptoms of an AC power problem.

- Displays are not on
- POWER LED is off
- STDBY LED is on

Possible Causes	Solutions
<ul style="list-style-type: none">• Loss of power• LED burned out• AC power failure; 24 V backup in use	<ul style="list-style-type: none">• Check other displays and LEDs for power indication.• Check for proper power cord connection.• Check if power switch is in ON () position.• Check if AC power is present at receptacle.• Contact Cisco for replacement LED if required.

Continued on next page

Troubleshooting Guide, Continued

RF problems

Use the table below to troubleshoot the following symptoms of an RF problem.

Possible Causes	Solutions
<ul style="list-style-type: none">• RF problem prior to RF detector• RF input too high• RF input too low	<ul style="list-style-type: none">• Check RF input level at back of unit; adjust at headend if necessary.• Check RF devices in line prior to RF detector.

Status monitoring problems

Use the table below to troubleshoot the following symptom of a status monitoring (SM) problem.

- SM LED is off

Possible Causes	Solutions
Status monitoring is not in use	This is normal. The LED is on only when status monitoring is in use.
LED burned out	Contact Cisco for replacement LED if required.

Chapter 4

Customer Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

Appendix A

Technical Information

Overview

Introduction

This appendix provides specifications and other technical information that will assist you in installing and operating the Model 6466 RF Detector.

In this appendix

This appendix contains the following topics.

Topic	See Page
Specifications	A-2
Practical Equations for Fiber Optics	A-3
Sample Maintenance Log	A-4

Specifications

Introduction

The following are the specifications for the Model 6466 RF Detector.

Note: Specifications are subject to change without notice.

Specifications

Item	Specification
Input signal level	-13 dBm composite power (at chassis rear connector)
Input impedance	75 Ω
Input return loss	11 dB
Modulation bandwidth	46 MHz to 860 MHz
Input voltage	230 V AC, 50 Hz
Power consumption	23 W
Rear RF test point	-20 dB \pm 1.0 dB (referenced to module input level)
Dimensions	5 in. H x 4 in. W x 15 in. D (13 cm H x 10 cm W x 38 cm D)
Weight	Approximately 10 lbs (4.5 kg)
Operating temperature	0°C to 50°C (32°F to 122°F)

Practical Equations for Fiber Optics

Calculating RF input level

Use the following equation to calculate the RF input level if you are increasing or decreasing your channel capacity.

Equation: New Drive Level = Old Drive Level + L

where

$$L = 10\log\left(\frac{\text{Number of Existing Channels}}{\text{Number of Desired Channels}}\right)$$

Sample Maintenance Log

Maintenance Log 1

Customer	_____	Link Name	_____
Location	_____	Serial Number	_____
Front Panel 15-Pin Test Connector			
#1	+24.0 Volts dc	_____ V DC	_____ V DC
#3	+7.0 Volts dc	_____ V DC	_____ V DC
#5	-7.0 Volts dc	_____ V DC	_____ V DC
#7	+5.0 Volts dc	_____ V DC	_____ V DC
<i>Optional</i>			
#4	RF Detector Status	_____ V DC	_____ V DC
#10	+24 Volt Backup Power	_____ V DC	_____ V DC
#12	Ground	_____ V DC	_____ V DC
#14	Ground	_____ V DC	_____ V DC
Rear Panel RF Test Points			
-20 dB RF Input Test Point	_____ dBmV	_____ dBmV	_____ dBmV

Continued on next page

Sample Maintenance Log, Continued

Maintenance Log 2

Customer	_____	Link Name	_____
Location	_____	Serial Number	_____
Front Panel 15-Pin Test Connector			
#1	+24.0 Volts dc	_____ V DC	_____ V DC
#3	+7.0 Volts dc	_____ V DC	_____ V DC
#5	-7.0 Volts dc	_____ V DC	_____ V DC
#7	+5.0 Volts dc	_____ V DC	_____ V DC
	<i>Optional</i>		
#4	RF Detector Status	_____ V DC	_____ V DC
#10	+24 Volt Backup Power	_____ V DC	_____ V DC
#12	Ground	_____ V DC	_____ V DC
#14	Ground	_____ V DC	_____ V DC
Rear Panel RF Test Points			
-20 dB RF Input Test Point	_____ dBmV	_____ dBmV	_____ dBmV



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