

Southwest Microwave, Inc.
Security Systems Division

INTREPID™

Relay Control Module II
Technical Manual

**ALARM RELAY OUTPUT
SYSTEM CONTROLLER**



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CE Notice

This equipment has been designed and tested to EN61000-6-2:2005 and EN61000-6-4:2006 per Directive 89/336/EEC.

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Table of Contents

1. Introduction.....	5
1.1 Limitations.....	5
1.2 Basic System Requirements	6
2. Hardware.....	6
2.1 Relay Control Module II.....	6
2.2 Optional Power Supplies	6
2.3 Interconnections.....	7
2.4 Typical Configuration.....	8
3. System Communications	9
3.1 Introduction	9
3.2 System Setup Using PuTTY™	9
4. Definitions.....	13
4.1 System Definitions.....	13
4.2 Basic Configuration	14
5. Programming Menu.....	15
5.1 Terminal Emulator Programming Screens	15
5.1.1 Main Menu	15
5.1.2 RCM II Properties	15
5.1.3 Device Management.....	15
5.1.4 Zone Administration.....	15
5.1.5 View Status.....	15
5.1.6 View Configuration Report.....	18
6. Programming Sequence.....	15
6.1 Main Menu	15
6.2 RCM II Configuration Menu	17
6.2.1 Restore RCM II Factory Default	17
6.2.2 Assign RCM II Name.....	18
6.2.3 About.....	18
6.2.4 Functional Testing and Verification.....	19
6.2.4.1 Relay Test	20
6.4.1.2 RS422 External Loopback Verification	20

- 6.3 Device Management Menu..... 21
 - 6.3.1 Device Discovery 22
 - 6.3.2 Device Name Update..... 23
 - 6.3.3 Accept Device Configuration Change..... 25
 - 6.3.4 Broadcast Real Time Clock..... 25
- 6.4 Zone Administration Menu..... 26
 - 6.4.1 Add Zones 27
 - 6.4.1.1 Assign Name 28
 - 6.4.1.2 Assign Comment..... 28
 - 6.4.1.3 Assign Input 28
 - 6.4.1.4 Assign Relay Output 32
 - 6.4.2 Modify Zones 34
 - 6.4.2.1 Next Zone..... 34
 - 6.4.2.2 Previous Zone 34
 - 6.4.2.3 Edit Name 35
 - 6.4.2.4 Edit Comment 35
 - 6.4.2.5 Edit Input..... 35
 - 6.4.2.6 Delete Input..... 35
 - 6.4.2.7 Edit Relay Output..... 36
 - 6.4.2.8 Delete Relay Output..... 36
 - 6.4.3 Delete Zones..... 36
 - 6.4.4 View Zones..... 36
 - 6.4.5 Validate Zones..... 37
- 6.5 View Status Menu..... 38
- 6.6 View Configuration Report 40

7. Attachment A 42

1.0 Introduction

The Relay Control Module II (RCM II) is part of the INTREPID™ family of products. Its' function as a system controller is to be a "Poll Master" and poll all of the INTREPID Series II compatible IPP II (INTREPID Polling Protocol II) sensor devices, relay input devices, and relay output devices that are connected to its communications port. It also has eight (8) relay outputs. When an alarm is detected on any device, it will send the command to set the appropriate relay(s) on the output device(s).

As a Poll Master, the RCM II communicates with other system devices using RS422 communications. This communication can be done over 22 or 24 gauge stranded twisted shielded pair wire (max 5,000 feet [1,500m]) or fiber optic devices.

As an output device each RCM II provides eight (8) form C relay outputs used to trigger camera presets, impact lighting or any function that can be activated by a contact closure. Both Normally Open (NO) and Normally Closed (NC) contacts are available at the terminal strip.

The RCM II operates from 10.5 to 60 VDC @ 4 Watts. The operational current rating with standard power supplies are: 12 VDC @ 260mA, 24 VDC @ 130mA and 48 VDC @ 75mA.

During installation, the RCM II will automatically detect each INTREPID Series II device that is connected to its' comport through a process called Device Discovery. This will provide a list of all possible alarm inputs and all possible relay outputs. From this Discovery list, the installer will be able to define up to 32 Alarm Zone Records, which defines the relationships between alarm inputs and relay outputs.

1.1 Limitations

When used in conjunction with other INTREPID Series II devices, a maximum of 8 devices can be connected to the communications port of the RCM II as shown in Figure 1.

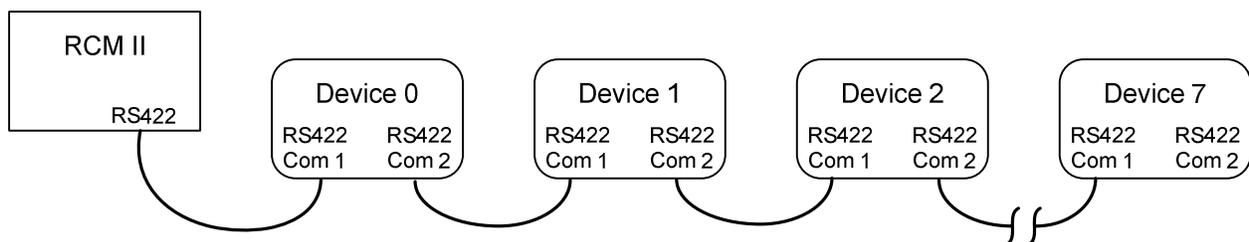


Figure 1 – Maximum Devices

The address range for these devices is limited to address 0 to address 7. The RCM II has a fixed address of 254. Regardless of configuration total length of all RS422 communications wire between devices must not exceed 5,000 feet (1,500 meters).

After configuration, the RCM II will poll each discovered device every 125ms for alarms. With the maximum of 8 devices connected to the RS422 communications port, any alarm will be received within a 1 second timeframe.

1.2 Basic System Requirements

A computer or laptop with Windows XP™, Vista™ or Windows 7™ operating system and a RS232 serial port or USB port. *Note; if a USB port is to be used, a USB to RS232 serial cable is required. The Windows USB driver should be Version 1.0.* A dB9 straight (not a null modem cable) male to female cable is required to connect from the PC to the RCM II. A terminal emulator, such as PuTTY™ version 6.0, is required to configure the RCM II. Other terminal emulators may be used as well and can be downloaded from the internet. *Note: viewable lines of information may be limited in some versions of terminal emulators.*

If copper wire is to be used, it is recommended that only stranded/twisted shielded 22 or 24 gauge wire be used for communications between the RCM II and other INTREPID™ Series II devices. The maximum distance between any two devices should not exceed 5,000 feet (1,500m). Any variations from this schedule should reference TIA/EIA TSB 89 - Applications Guidelines for TIA-422-B. Most RS422 fiber optic devices can be used as well.

2.0 Hardware

2.1 Relay Control Module II (RCM II)

The RCM II assigns alarm sources to alarm outputs and serves as the poll master to monitor and maintain the communications link between other INTREPID Series II devices by RS422.

The RCM II is packaged in the standard INTREPID enclosure as shown in Figure 2. The dimensions are 5.5 in H x 13.5 in W x 5 in deep (14cm H x 34.3cm W x 12.7cm D). It weighs 2.5 lbs (1.1kg).



Figure 2 – INTREPID Enclosure for RCM II

2.2 Optional Power Supplies

12 VDC power supply: Model PS13 Power Supply operates from 85-246VAC, 47-63Hz and furnishes 13.6 VDC at up to 2.8A. Power supplies contain automatic switchover and battery charging circuitry for optional standby batteries of up to 25AH. Temperature rated from 14° to 122° F (-10° to 50° C). UL, ETS, EMC, CE, RoHS compliant.

12 VDC power supplies: Model PS40 Power Supply operates from 120 VAC, 50-60Hz, 0.5A and furnishes 13.7 VDC at up to 1.6A. Model PS41 Power Supply operates from 220 VAC, 50-60Hz, 0.25A. Both contain

automatic switchover and battery charging circuitry for optional standby batteries of up to 25AH and are fused on both input and output for maximum protection. Temperature rated from -40° to 150° F (-40° to 66° C).

24 VDC power supply: Model 78B1064 operates from 120VAC to provide 24VDC at 5A with 6.5AH battery backup. Includes; indoor enclosure 15 x 11 x 4 in. (381 x 280 x 102mm). Temperature rated from -32° to 122° F (0° to 50° C).

48 VDC power supplies: Model PS48 operates from 120VAC to provide 48VDC at 3A. Includes; indoor enclosure 14 x 12 x 4 in. (356 x 305 x 102mm). Model PS49 operates from 220VAC to provide 48VDC at 3A. *This supply does not include enclosure.* Temperature rated from -32° to 122° F (0° to 50° C). Temperature rated from 32° to 122° F (0° to 50° C). UL, CSA, TUV, CE compliant.

2.3 Interconnections

Figure 3 shows the various connection points, programming port and diagnostic LED's available on the RCM II circuit board assembly.

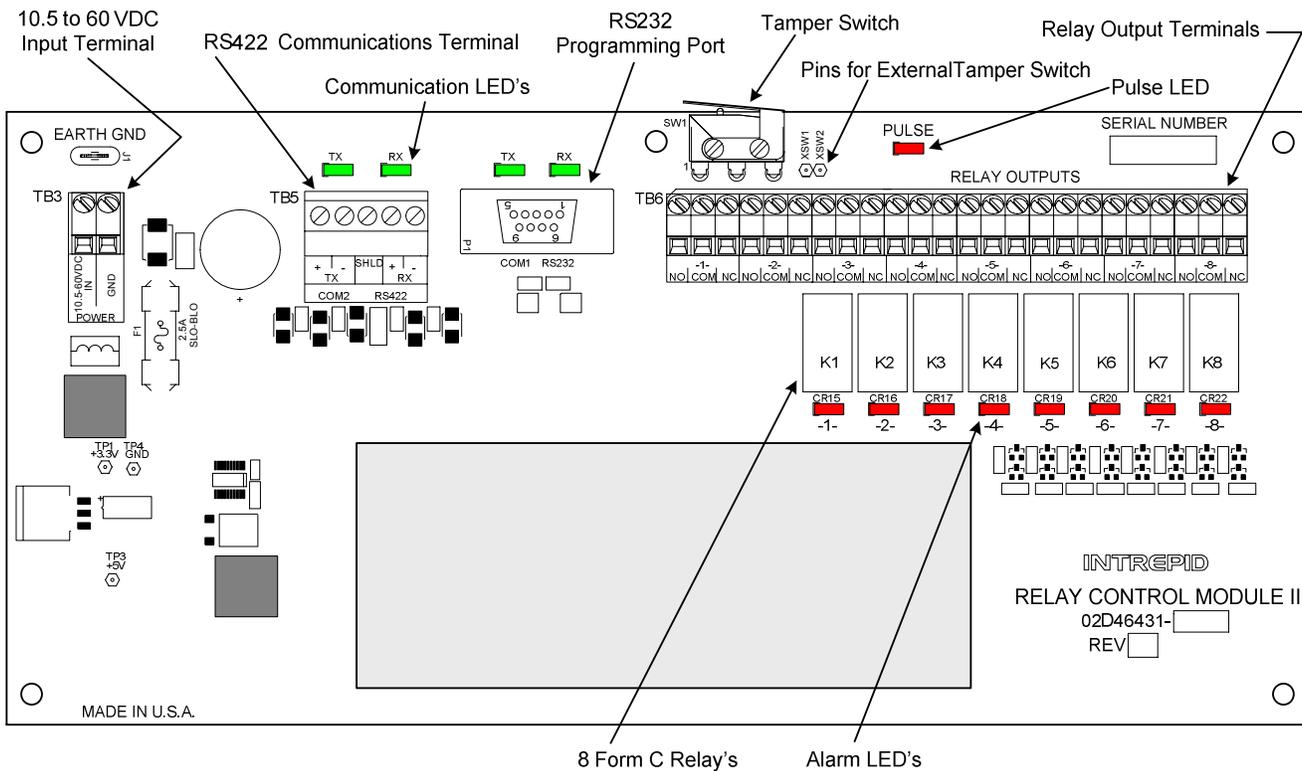


Figure 3 – Relay Control Module II (RCM II) Circuit Card

Figure 4 shows the typical RS422 wiring diagram from the Relay Control Module II (RCM II) to other INTREPID™ Series II devices. In this case an Alarm Input Module II (AIM II) and a MicroTrack Processor II (MTP II) located on the perimeter. The RCM II and the Relay Output Module II-16 (ROM II-16) are located in the control room for relay output interface to other control room devices. A maximum of eight (8) devices can be connected to the RS422 communications line. The communications is RS422 and should use a 22 or 24 gauge twisted, stranded, shielded pair wire. Fiber optic devices can be used as well. Since this RS422 communications format is a point to point configuration, no termination device is required for the last unit on the line. The RS422 communications wiring is from the transmit side of one device to the receive side of the next device with the wiring from + to + and – to – as shown in Figure 4.

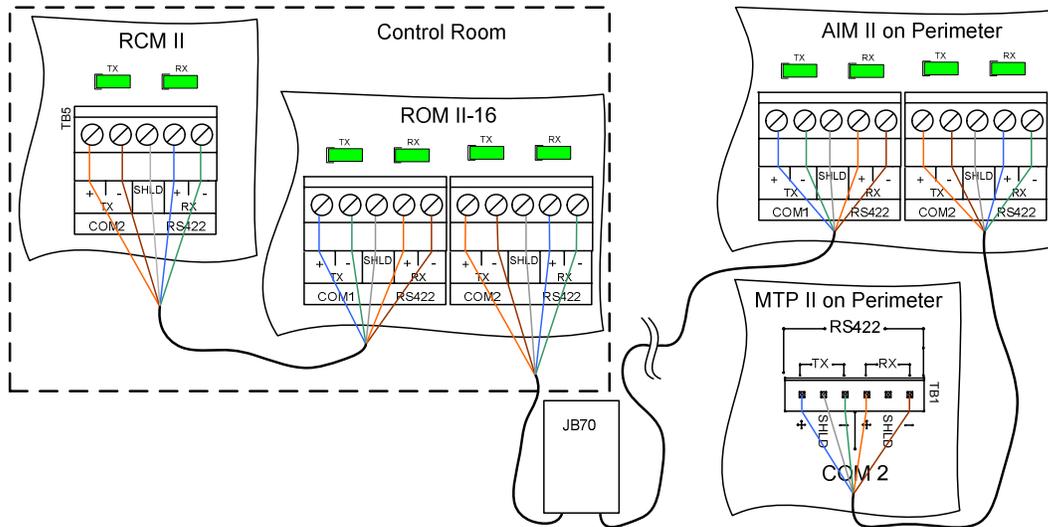


Figure 4 –RCM II Communications Wiring Diagram

2.4 Typical Configuration

Figure 5 shows a typical configuration using a RCM II, ROM II-16, AIM II, MTP II and a Microwave Link. The Control Room has a matrix switcher, lighting control system, paging system and an alarm panel. A computer is shown as the configuration/programming tool to set up the RCM II. The JB70A Surge/Lightning protection module is shown on the outside of the control room. The RCM II, ROM II-16, AIM II and MTP II are connected together with the RS422 communications line. The Microwave Link alarm relay and tamper switches are wired into the AIM II. The RCM II and the ROM II-16 are programmed so their relay outputs trigger inputs on the alarm panel, lighting control system, pager system and CCTV matrix. A UPS is also shown and is recommended for backup of the INTREPID™ products.

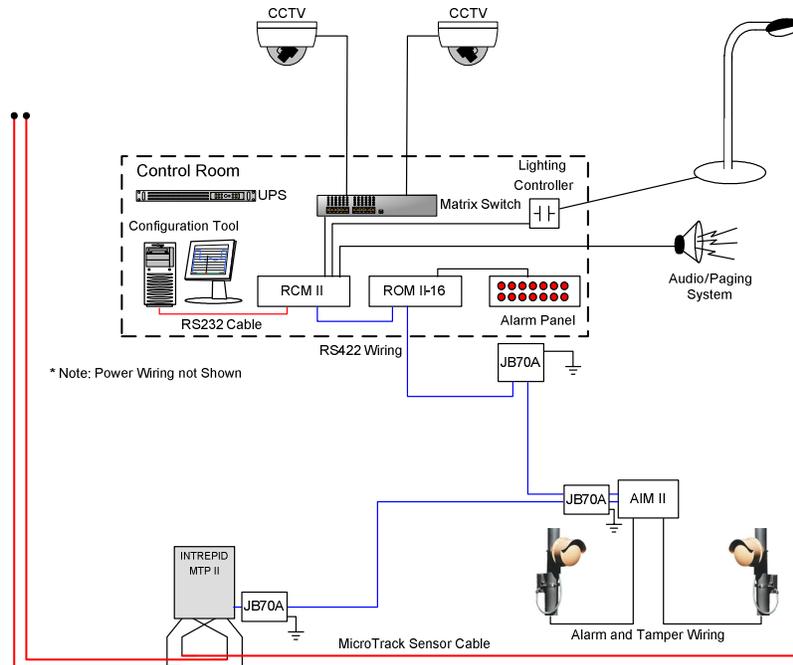


Figure 5 – Typical RCM II Network Configuration

3.0 System Communications

3.1 Introduction

To set up alarm reporting and communications hierarchy of the RCM II network, a Terminal Emulator will be used. It is recommended that PuTTY™ version 6.0 be used to establish communication to the RCM II. Other terminal emulators may be used as well and these can be downloaded from the internet or may already exist on a computer. *Note: viewable lines of information may be limited in some versions of terminal emulators.*

Connect a RS232 serial cable between the communications port on the computer and the RS232 communications port (COM 1) on the RCM II.

3.2 System Setup Using PuTTY

Open the PuTTY Terminal Emulator software to launch the program to the default configuration screen as shown in Figure 6.

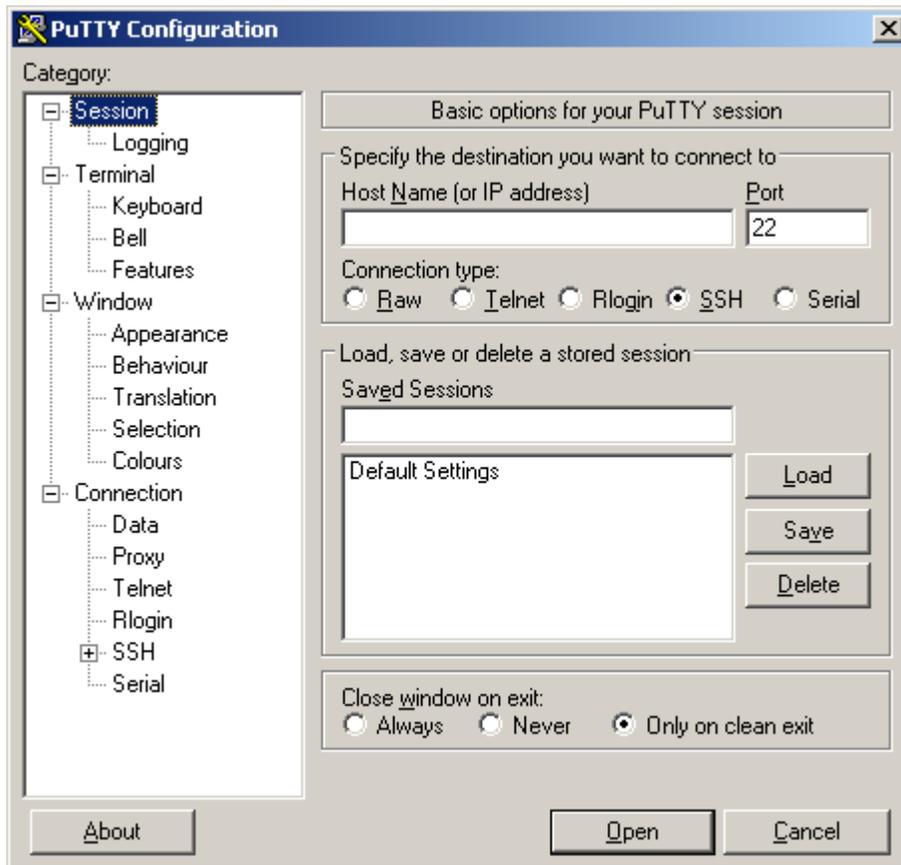


Figure 6 – PuTTY Configuration Default Screen

On the default screen, select “Serial” from the Category menu tree. This will change the configuration screen to “Option’s controlling local serial lines” as shown in Figure 7.

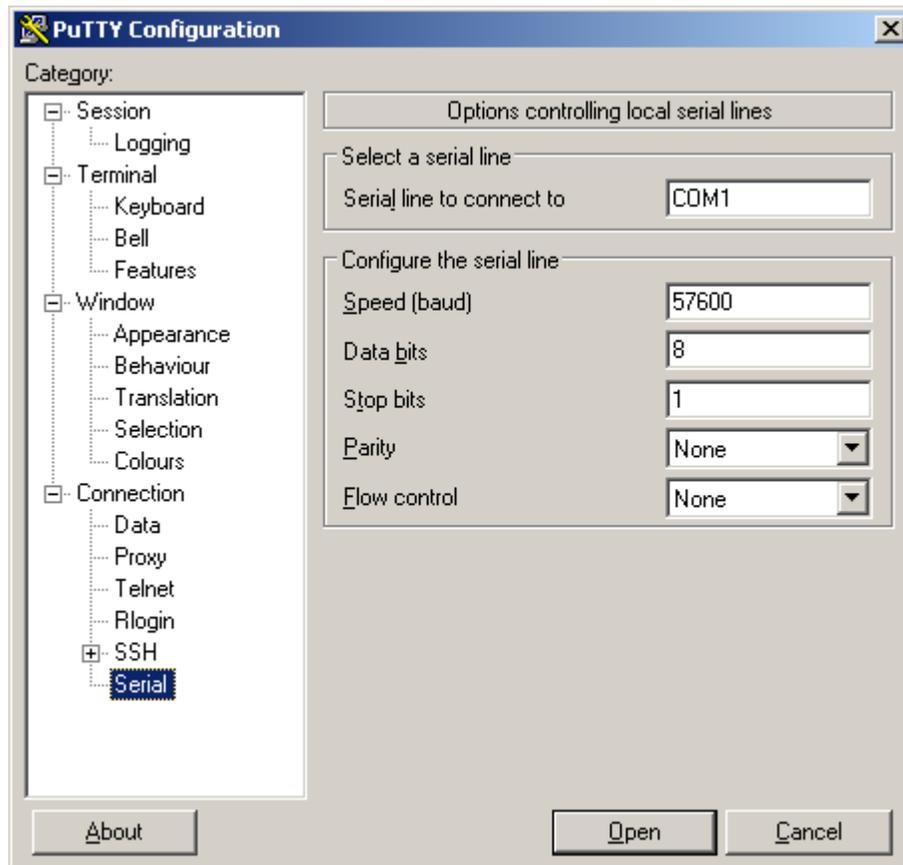


Figure 7 – Options Controlling Local Serial Lines

On this screen select the appropriate communications port to be used from the computer and enter it into the “Serial line to connect to” field in the “Select a serial line” section. In the “Configure the serial line” section set the parameters as follows:

Speed (baud):	57600
Data bits:	8
Stop bits:	1
Parity:	None
Flow control:	None

Next select “Window” from the Category menu tree to open the “Options controlling PuTTY’s window” screen as shown in Figure 8.

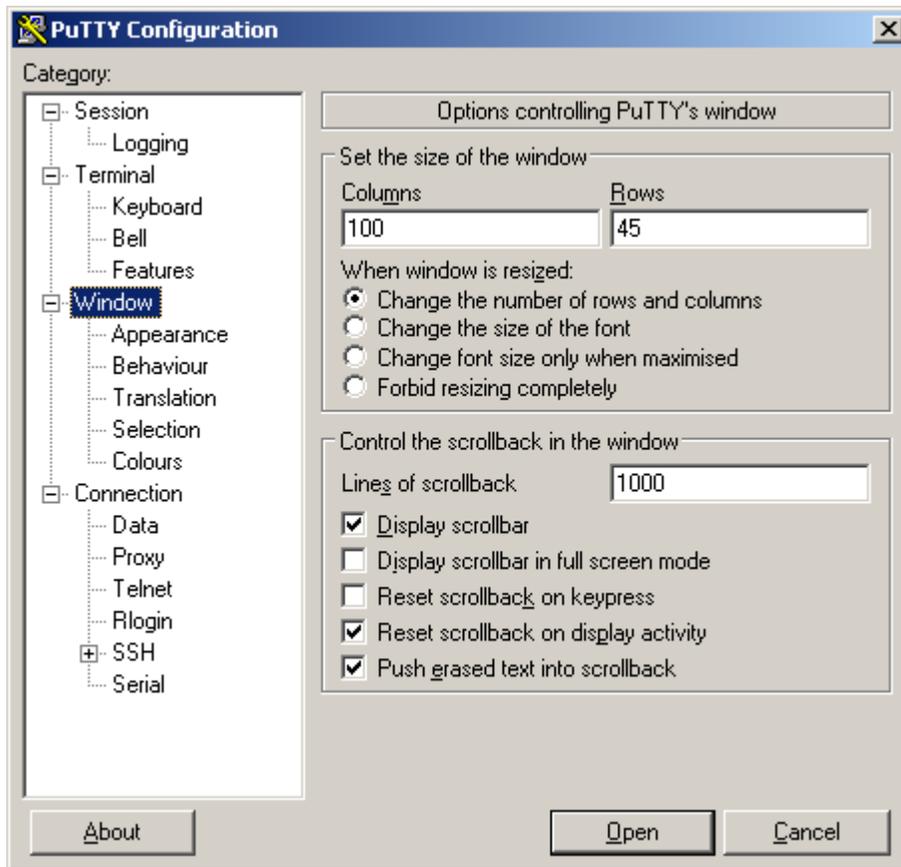


Figure 8 – Options Controlling PuTTY's Window

On this screen in the “Set the size of the window” section, set the “Columns” to 100 and the “Rows” to 45. This will allow more visible lines of text on the screen. In the “Control the scrollbar in the window” section, set the “Lines of scrollbar” to 1000. **Do not change any of the other parameters.**

Next select “Colours” from the category menu tree under “Window” to open the “Options controlling use of colours” screen as shown in Figure 9. In addition to all the boxes that are checked, check the “Use system colours” box.

Next select “Session” from the category menu tree to open the “Basic options for your PuTTY session” screen as shown in Figure 10. Select the “Serial” radial button. Make sure the correct communications port and speed are set as shown in Figure 10. They should fill in automatically from the previous data entered. In the “Saved Sessions” section enter a name for the RCM II and select “Save”. This will save the profile for future use. Selecting “Load” will open the screen with the previously entered data.

Selecting “Open” will launch a blank Terminal Emulator screen as shown in Figure 11. Press any key to establish communications from the computer to the RCM II. This will open the programming information screen for the RCM II.

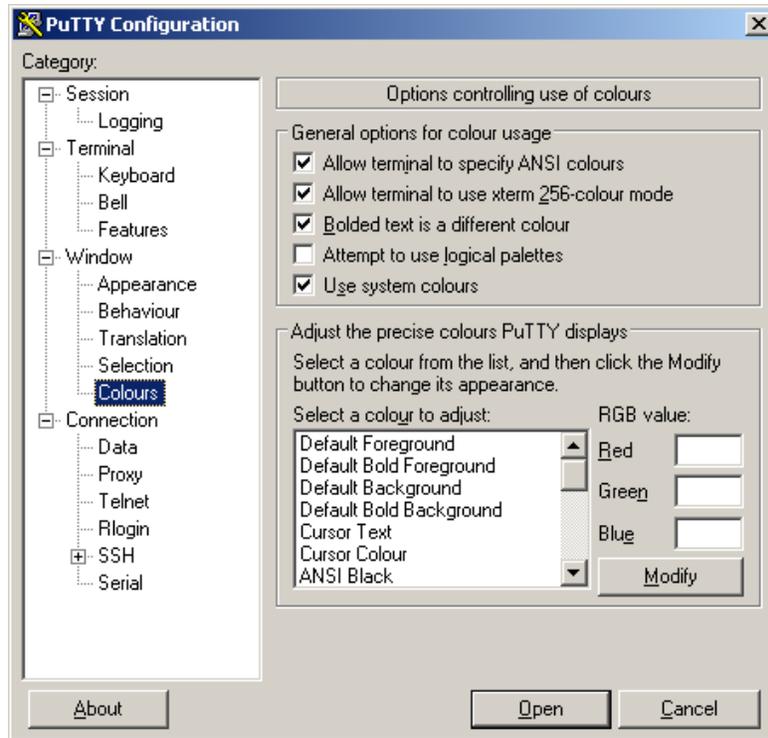


Figure 9 – Options Controlling Use of Colours

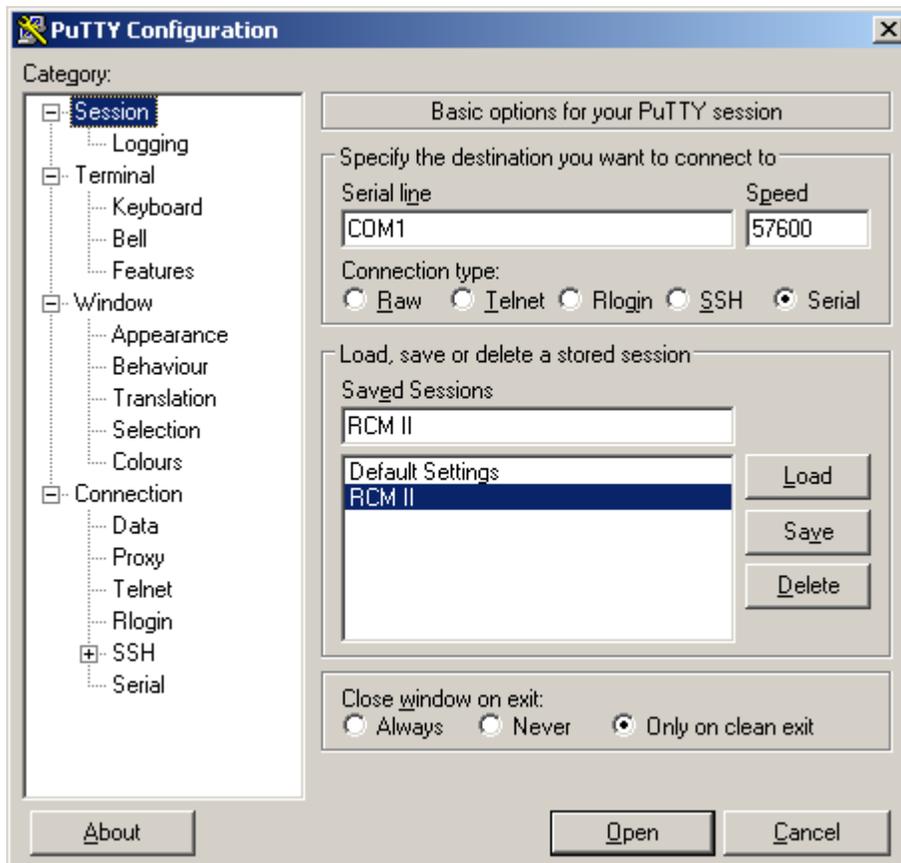


Figure 10 – Basic Options for PuTTY Session

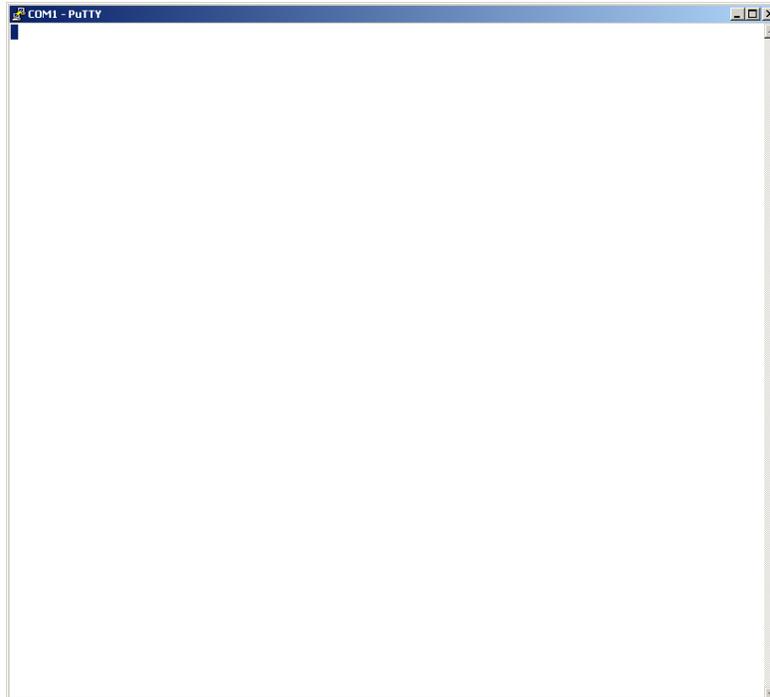


Figure 11 – Blank Terminal Emulator Screen

4.0 Definitions

4.1 System Definitions

Before beginning the programming process, there are a few definitions and concepts to understand.

- **RCM II** – This is the Relay Control Module II. It has 8 relay outputs per board. Eight (8) INTREPID™ Series II devices can be connected to the communications port. It is the Poll Master in the system and has a fixed address of 254. It has LED's showing communications status and a Pulse LED to indicate the device application is functioning.
- **MTP II** – This is the MicroTrack™ Processor II. It will monitor up to two 656 feet (200m) buried sensor cable sets and will report Alarms, Cable Faults, Communication Failure and Tamper back to the Poll Master on request. It has LED's showing communications status, Alarm LED's, Tamper LED and a Pulse LED to indicate the device application is functioning.
- **AIM II** – This is the Alarm Input Module II. It is used to bring auxiliary alarms from other sensors such as: microwave sensors, infrared sensor and contact closures. Typically these are alarm and tamper contacts. It can accommodate normally open (N.O.) or normally closed (N.C.) contacts. The input can also be set as a supervised input. It has LED's showing communications status and a Pulse LED to indicate the device application is functioning.
- **ROM II** – This is the Relay Output Module II. It is available with 8 or 16 relay outputs. It has LED's showing communications status, Alarm LED's, and a Pulse LED to indicate the device application is functioning.

- **PM II** – This is the MicroPoint™ Processor II. It will monitor up to 1,443 feet (440m) of fence mounted sensor cable and will report Alarms, Cable Faults, Communication Failures and Tamper back to the Poll Master on request. It has LED's showing communications status, Alarm LED's, Tamper LED and a Pulse LED to indicate the device application is functioning.
- **Model 330** – This is a microwave intrusion link with transmitter and receiver. It has LED's showing communications status, Alarm LED's, Tamper LED and a Pulse LED to indicate the device application is functioning.
- **Zone Record** – The zone record consists of up to eight (8) inputs that can be assigned to up to eight (8) relay outputs. This information is what is programmed into the RCM II to control the alarm relay output functions. Inputs that can be assigned are: intrusion alarms from sensors such as microwaves, infrareds, etc., intrusion alarms from subcell groupings from MicroPoint II or MicroTrack II systems, tamper switches, cable faults, communication failures, supervised alarms, configuration change alarms, and service alarms.
- **Zone Record Input/Output Assignment Matrix** – In Attachment A of this manual is a matrix to list the inputs and outputs that have been assigned for a particular Zone Record. This should be saved for future reference.

4.2 Basic Configuration

Figure 12 shows an basic system that will be used as the example throughout this manual for the RCM II programming. The configuration will use a MTP II with two sets of buried sensor cables, an AIM II, a Model 300B microwave link, a ROM II-16 and the RCM II.

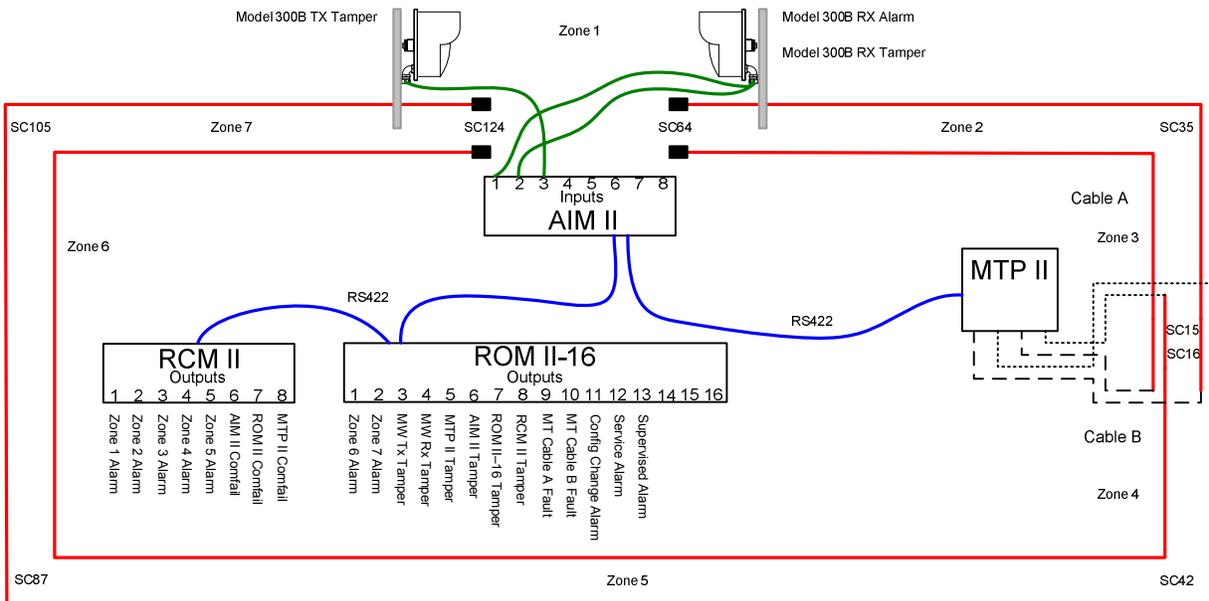


Figure 12 – Example System

The alarms from the example that will be programmed are: zone alarms, tamper alarms, comfail alarms, cable fault alarms, configuration change alarms (an alarm if the saved system configuration is changed), supervised alarm and service alarm (an alarm if the Installation Service Tool or programming tool is connected to a device).

5.0 PROGRAMMING MENU

The programming menus that will be displayed in the terminal emulator are shown in section 5.1. A brief description of the function is inserted after the menu. Section 6.0 will cover each menu in detail for the programming of the RCM II.

5.1 Terminal Emulator Programming Screens for RCM II

5.1.1 Main Menu

1. RCM II Properties
2. Device Management
3. Zone Administration
4. View Status
5. View Configuration Report

5.1.2 RCM II Properties

1. Restore RCM II to Factory Default Settings (*restores factory default setting into RCM II*)
2. Assign RCM II Name (*allows for naming of RCM II device*)
3. About (*shows software version, build date and time*)
4. Functional Testing and Verification (*tests the in/out RS422 communications port of RCM II*)

5.1.3 Device Management

1. Device Discovery (*automatically finds all devices on communications line*)
2. Device Name Update (*allows for naming of other devices connected*)
3. Accept Device Configuration Change (*acceptance for changes or edits to system*)
4. Broadcast Real Time Clock to All Devices (*sends PC time to all devices*)

5.1.4 Zone Administration

1. Add Zones (*where zone records are created*)
2. Modify Zones (*modification of existing zone records*)
3. Delete Zones (*deletes zone records*)
4. View Zones (*view existing zone records*)
5. Validate Zones (*confirms zone records*)

5.1.5 View Status

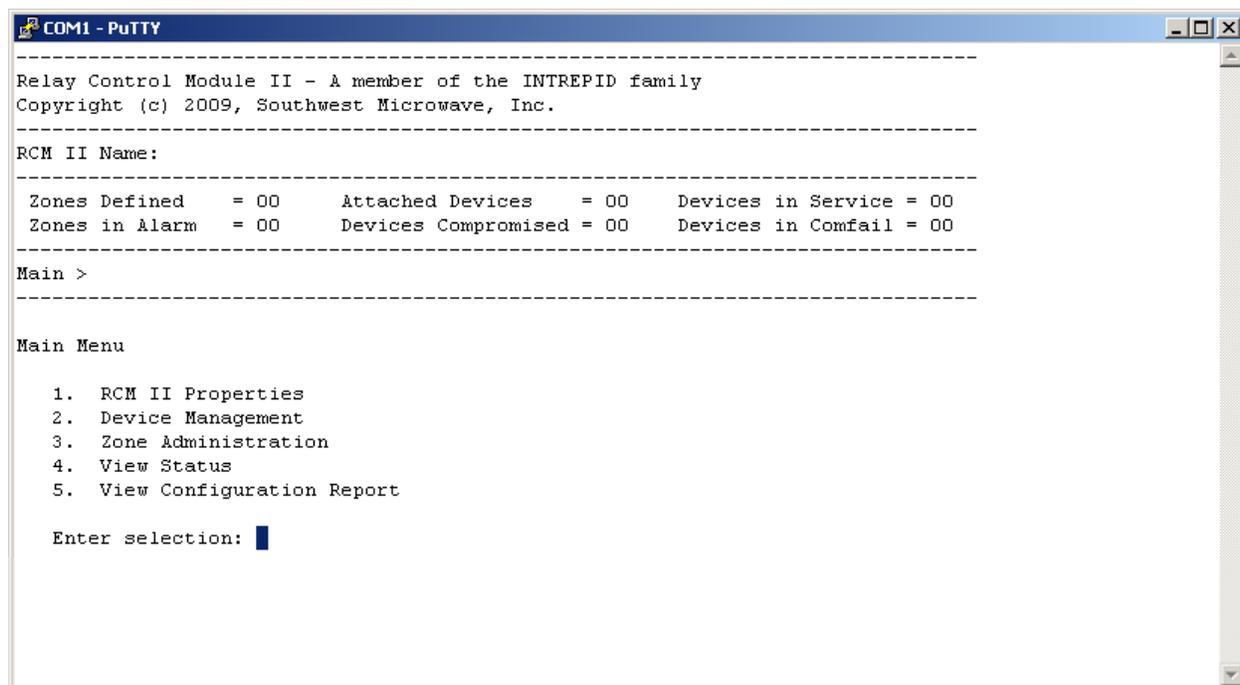
5.1.6 View Configuration Report

6.0 PROGRAMMING SEQUENCE

6.1 Main Menu

NOTE! *When the RCM II has been programmed with a zone record the system will automatically start polling that zone record. Any alarm activity will be displayed on the terminal emulator screen and by the relay(s) assignment(s). Selecting "ESC" will return to previous menu without saving any changes.*

After the terminal emulator has been configured and opened, all the devices communications wiring has been connected and verified and power has been applied, hit any key to open the Main Menu screen as shown in Figure 13.



```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name:
-----
Zones Defined      = 00      Attached Devices   = 00      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main >
-----

Main Menu

  1. RCM II Properties
  2. Device Management
  3. Zone Administration
  4. View Status
  5. View Configuration Report

Enter selection: █
```

Figure 13 – Main Menu Screen

The Main Menu screen as well as all subsequent screens will have a banner as shown in Figure 13. The banner will display:

- Relay Control Module II – A member of the INTREPID™ family: product model that is connected
- Copyright information
- The RCM II Name: displays RCM II user defined name (*used for reference only*)
- Zones Defined = 00: displays the number of Zone Records created
- Zones in Alarm = 00: displays the number of Zone Records in an alarm state
- Attached Devices = 00: displays devices found on the RS422 communications port
- Devices Compromised = 00: displays the number of devices in Configuration Change Alarm
- Devices in Service = 00: displays devices that have the UIST II programming tool connected
- Devices in Comfail = 00: displays any device(s) that are not responding to the polling message
- Main: this line will display what menu is currently being used
- Main Menu: selection list for programming

From this Main Menu screen all programming of the RCM II will be performed. Selecting the appropriate command number (1-5) will open the various menu functions for programming and reviewing the data of the RCM II. Entering the number will open the requested menu. Selecting “ESC” will return to the previous menu.

6.2 RCM II Properties Menu

Selecting “1” from the Main Menu will open the “RCM II Properties” menu as shown in Figure 14. There will be four (4) command selections available.

```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name:
-----
Zones Defined      = 00      Attached Devices   = 00      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > RCM II Properties >
-----
RCM II Properties Menu

  1. Restore RCM II to Factory Default Settings
  2. Assign RCM II Name
  3. About
  4. Functional Testing And Verification

Enter selection or press <ESC> to return: █
```

Figure 14 –RCM II Configuration Screen

6.2.1 Restore RCM II to Factory Default Settings

Selecting command number 1 will open the “Restore RCM II Factory Defaults” screen as shown in Figure 15. This menu is used to erase all data in the RCM II and restore it to the factory default settings. ***This will stop all alarm polling and reporting!***

```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name:
-----
Zones Defined      = 00      Attached Devices   = 00      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > RCM II Properties > Restore RCM II to Factory Default Settings
-----
Restore RCM II to Factory Default Settings

                          WARNING

This function will delete all configuration data
and restore the RCM II to the factory default settings

Restore factory default settings: (Y/N)?

Are you sure you want to restore default settings: (Y/N)? █
```

Figure 15 – Restore RCM II Factory Defaults Screen

It is recommended that this function be performed for any new installation before any data entry is to be made. This will ensure that any miscellaneous data from previous use or any factory testing data is removed. This way only current data for the new installation should be found in the system.

Selecting “Y” for “Yes” will provide a prompt asking “Are you sure you want to restore defaults: (Y/N)?” Selecting “Y” for “Yes” again will start the process. The screen will display “Erasing all configuration data, please wait. When finished erasing it will state: “DONE”. Select “N” for “No” to end the process.

The screen will then display “The system is restarting”. It will return to the main menu after it is restarted. All relays on the system should reset and all LED’s should be illuminated.

6.2.2 Assign RCM II Name

Selecting command number 2 will open the “Assign RCM II Name” screen as shown in Figure 16. This screen will display a Current Name (if there has been one given from a previous time it will be displayed otherwise it will be blank) for reference and New Name line entry that is blank. This screen allows the name changing of the RCM II. Enter an appropriate name for the RCM II (up to 64 characters long).

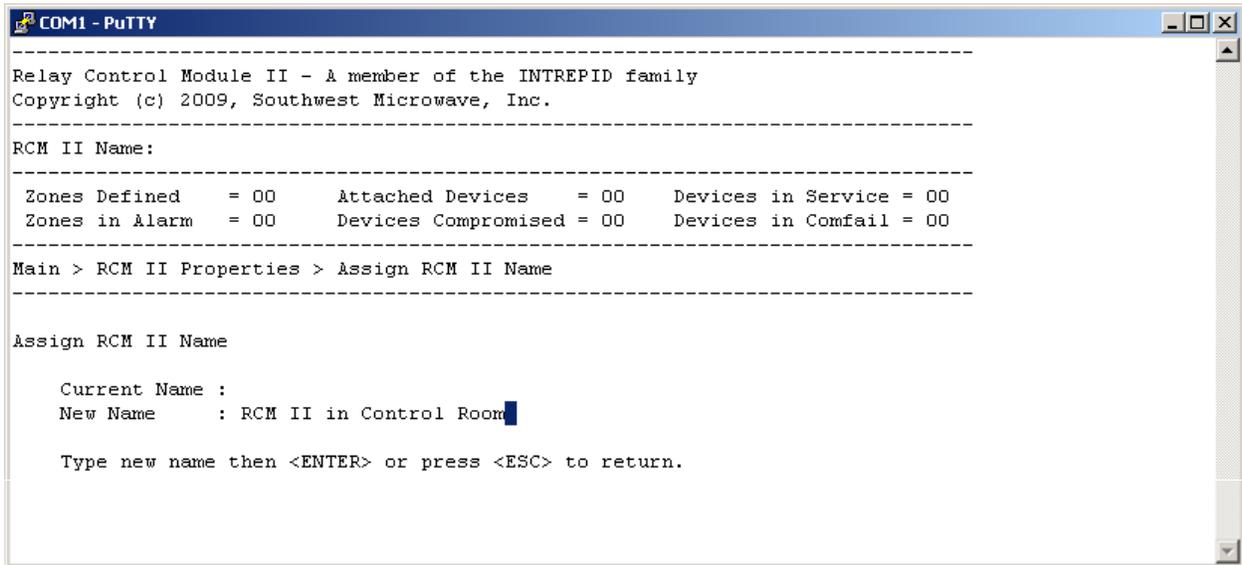


Figure 16 – Assign RCM II Name Screen

Once the new name has been typed in, select “ENTER” to save the new name. This name will now be displayed in the header next to the “RCM II Name:” line. This name is for reference only and will also be used in the Configuration Report that will be discussed later. Select “ESC” to return to the previous menu.

6.2.3 About

Selecting command number 3 will open the “About” screen as shown in Figure 17. The About screen will display the software version information, the build date and the build time. This is for information purposes only.

Press the “ESC” key to return to the RCM II Properties screen.

```

COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices    = 00      Devices in Service = 00
Zones in Alarm    = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > RCM II Properties > About
-----
About

Software Version : 64A46366-A01-REV-0
Build Date      : May 26 2009
Build Time      : 07:57:37

Press <ESC> to return █

```

Figure 17 – About Screen

6.2.4 Functional Testing and Verification

Selecting command number 4 will open the “Functional Testing and Verification” screen as shown in Figure 18. This screen will allow for relay testing and testing the RS422 communications port of the RCM II. These tests are recommended before the RCM II is put into service.

The RCM II will need to have the RS422 communications port (Comm 2) wired from the Transmit side to the Receive side of the terminal strip to perform these tests. Transmit plus (+) should be wired to Receive plus (+) and Transmit minus (-) should be wired to Receive minus (-).

Note: All LED's should be illuminated as no programming has been done to the RCM II. Selecting command 1 or 2 will turn off all LED's during these test functions.

```

COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices    = 00      Devices in Service = 00
Zones in Alarm    = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > RCM II Properties > Functional Testing And Verification
-----
Functional Testing And Verification

1. Relay Test
2. RS422 External Loopback Verification

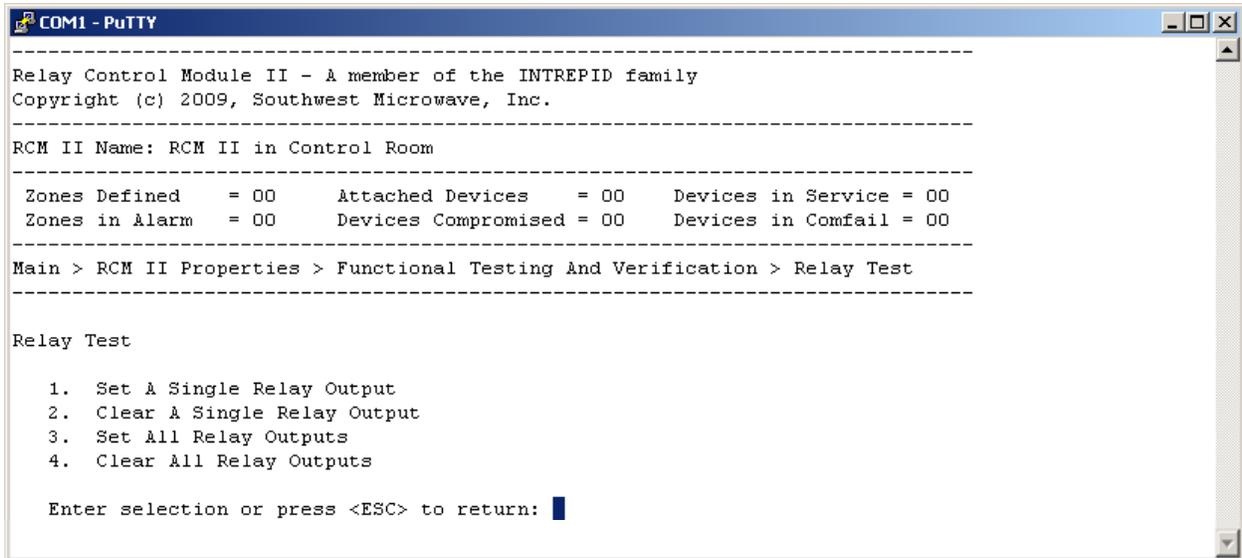
Enter selection or press <ESC> to return: █

```

Figure 18 – Functional Testing and Verification Screen

6.2.4.1 Relay Test

Selecting command 1 will open the “Relay Test” screen as shown in Figure 19. The commands on this screen will allow setting and clearing of a single relay or all relays of the RCM II as a verification test.



```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices   = 00      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > RCM II Properties > Functional Testing And Verification > Relay Test
-----

Relay Test

1.  Set A Single Relay Output
2.  Clear A Single Relay Output
3.  Set All Relay Outputs
4.  Clear All Relay Outputs

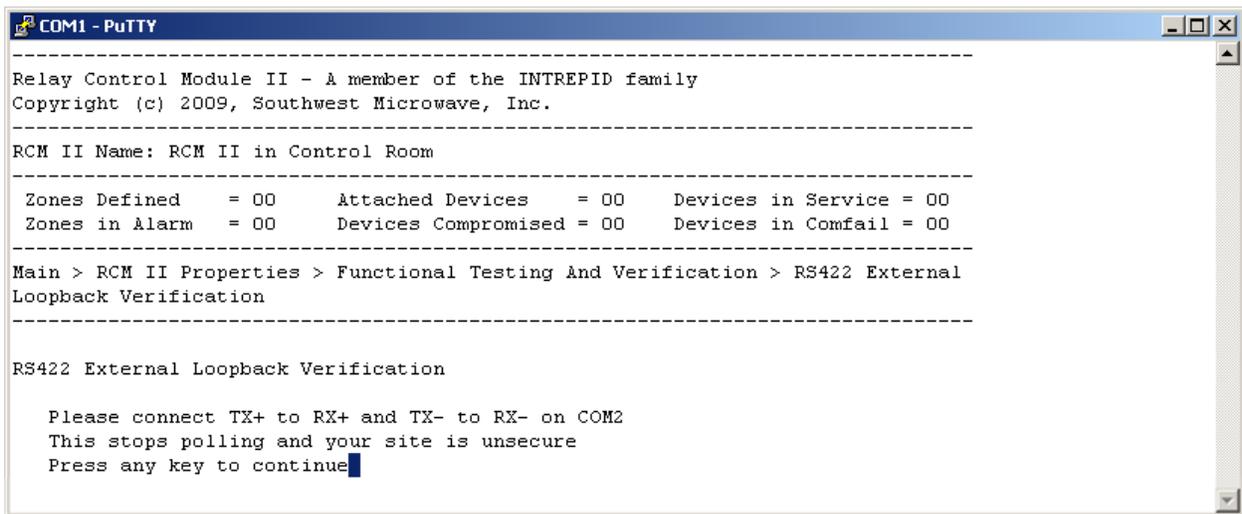
Enter selection or press <ESC> to return: █
```

Figure 19 – Relay Test

Selecting “Relay Test” command 1 will set a single relay output on the RCM II. Enter the relay number to be set and press enter. That relay and the associated LED will activate (the LED will turn on). Select “Relay Test” command 2, enter the relay number and press enter to clear the relay output. Selecting command 3 will set all relay outputs of the RCM II. Command 4 will clear all the relay outputs.

6.2.4.2 RS422 External Loopback Verification

Selecting command 2 will open the “RS422 External Loopback Verification” screen as shown in Figure 20.



```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices   = 00      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > RCM II Properties > Functional Testing And Verification > RS422 External
Loopback Verification
-----

RS422 External Loopback Verification

Please connect TX+ to RX+ and TX- to RX- on COM2
This stops polling and your site is unsecure
Press any key to continue █
```

Figure 20 – RS422 External Loopback Verification Screen

Press any key to start the loopback verification test. The screen will display “Testing RS422 Port.....Press any key to stop”. Once a key has been selected the test will stop and the screen will display the testing results as shown in Figure 21. It will show Total Transmitted Bytes and Total Received Bytes and Test Results (PASSED or ERROR). For the test to pass the total transmitted and received bytes should be the same. If not, ERROR will be displayed.

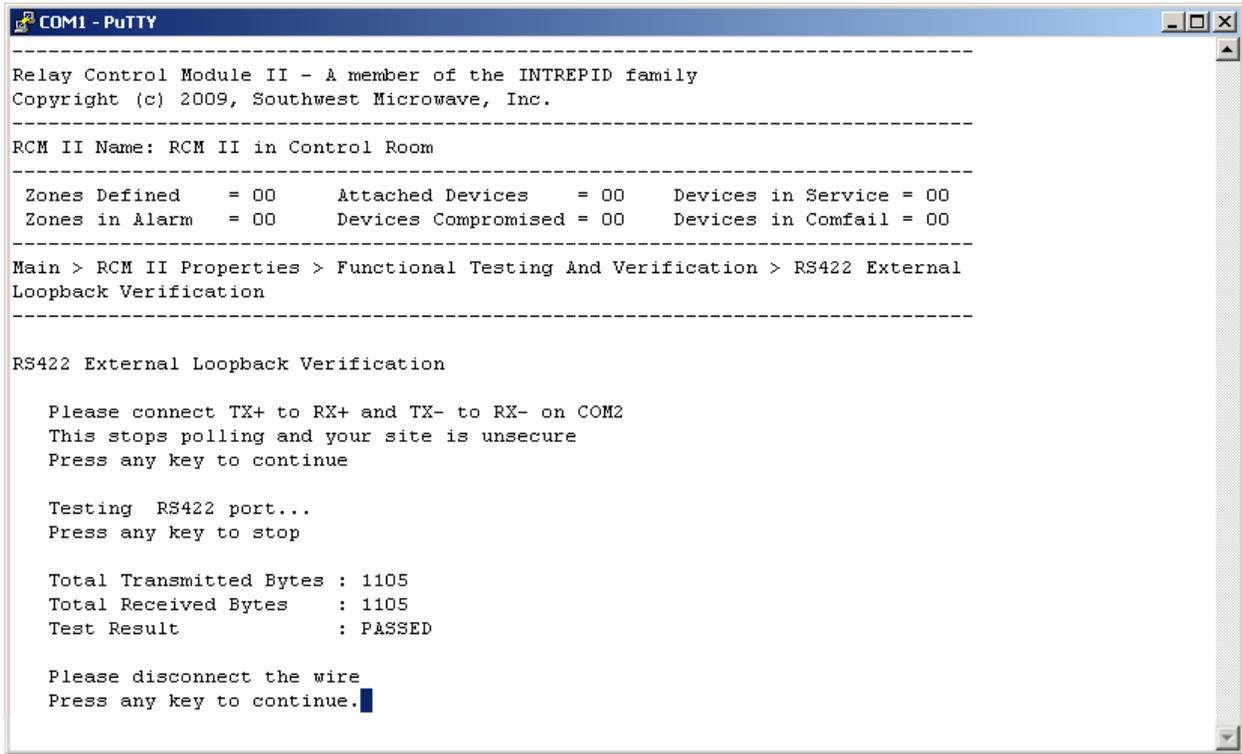


Figure 21 – RS422 External Loopback Verification Test Screen

After testing has been completed and successfully passed, press any key to return to the Functional Testing and Verification screen as shown in Figure 18. Press “ESC” twice to return to the Main Menu.

Disconnect the local wiring at the RCM II and make the wiring connections to all the devices that will be used in the system at this particular site.

6.3 Device Management Menu

Selecting “2” from the Main Menu will open the “Device Management” menu as shown in Figure 22. There will be four (4) command selections available:

1. Device Discovery
2. Device Name Update
3. Accept Device Configuration Changes
4. Broadcast Real Time Clock to All Devices

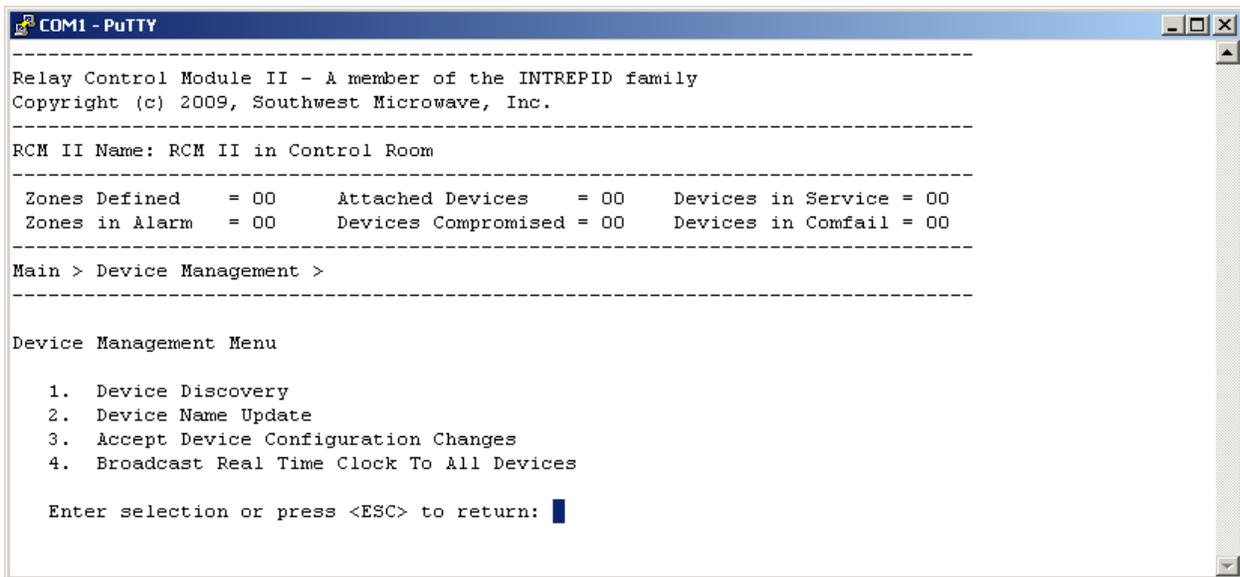


Figure 22 – Device Management Screen

6.3.1 Device Discovery

Selecting command number 1 will open the “Device Discovery” screen as shown in Figure 23. The Device Discovery function will poll all address in the range from 0 to 7. If there is a device properly connected to the RS422 communications line that responds to the address poll, the RCM II will determine what type of device it is and will display it in the New Discovered Device list. This process will continuously repeat and update the list until “any key” is selected to stop the discovery process.

The Device Discovery screen will display two (2) lists. The first list is the “Currently Defined Device” list which will display the results of a previous Device Discovery (if one) that was accepted. From a new installation standpoint, there should be nothing in this list. The second list is the “New Discovered Device” list from the current discovery that was just performed.

Next to each node address and device type is a Device Name column and a Status column. The Device Name will be entered or updated using command selection 2. The Status column will display whether that device is Supported or Unsupported. If any device displays Unsupported, then the RCM II software does not have the proper driver for that device configuration. Please contact the factory.

Press any key to stop the device discovery. The RCM II will compare the two lists for differences and then scan all existing Zone Records (if any exist – none should be found for a new installation) and report any conflicts through the Validate Zones of command number 3, Zone Administration, on the main menu. If there are any conflicts they will be displayed on this screen.

A prompt to: “Accept this setup? (Y/N)” will be displayed at the bottom of the screen. Selecting “N” for “No” will discard the list and the RCM II will revert back to the Currently Defined Devices list (if one exists). Selecting “Y” for “Yes” will place the New Discovered Devices list into the Currently Defined Devices list. If an existing list is present, it will replace the Currently Defined Devices list and all Zone Record conflicts (if any exist) will be removed. All relays on the system should reset and all LED’s should turn off.

The banner will now display how many Attached Devices have been found.

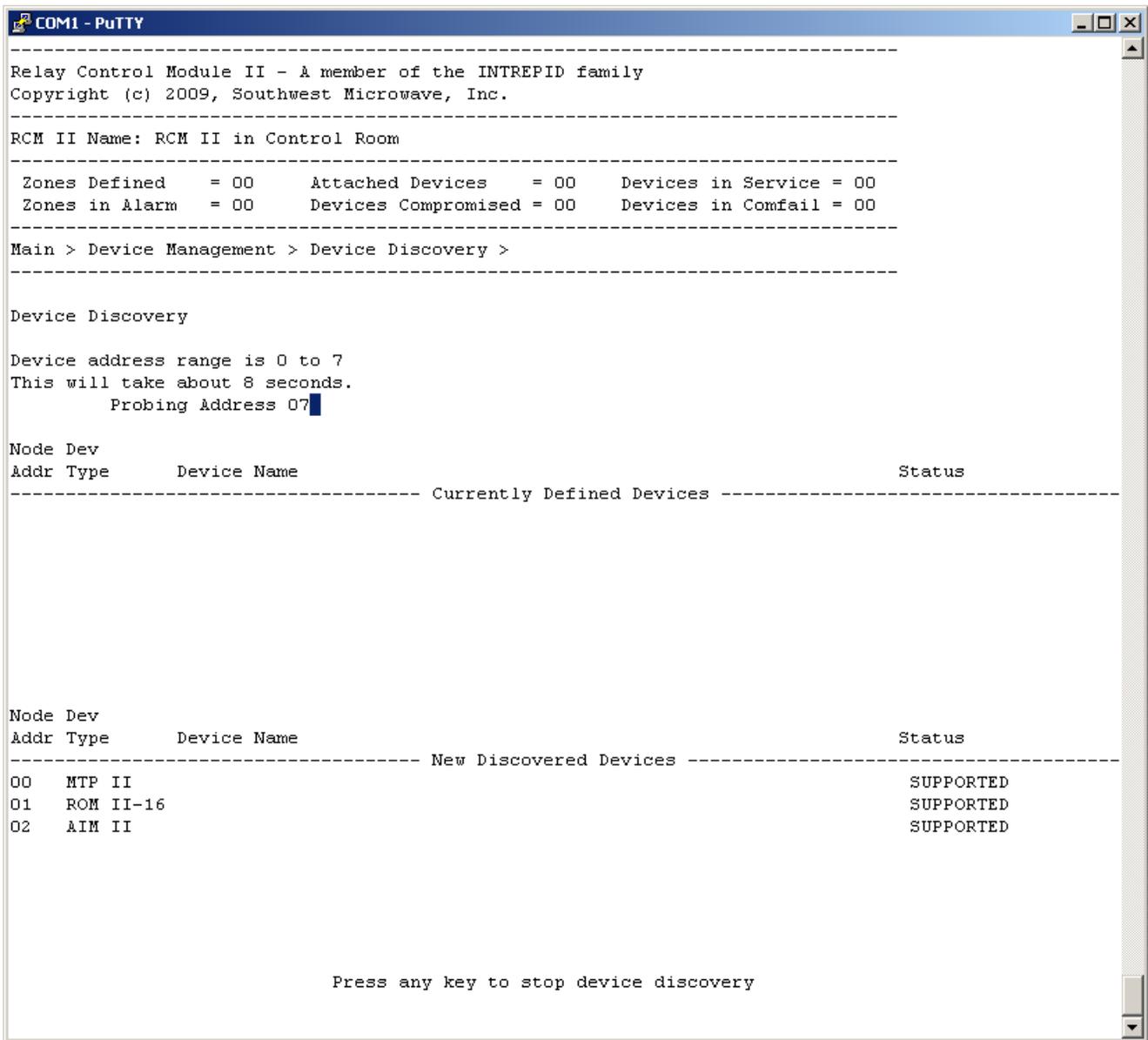


Figure 23 – Device Discovery Screen

6.3.2 Device Name Update

Selecting command number 2 will open the “Device Name Update” screen as shown in Figure 24. After the Device Discovery has been accepted, the devices found can be given a name for reference. In a new installation the name fields should be blank.

Enter the Node Address of the device to be given a name and press the enter key to display the name entry line as shown in Figure 25. Type in the new name (maximum of 64 characters) and press the enter key. Perform this step for all found devices.

To erase a name enter the node address, press the space bar on the keyboard and press enter.

```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices    = 03      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > Device Management > Device Name Update >
-----

Device Name Update

Node Device      Device
Addr Type       Name
-----
00  MTP II
01  ROM II-16
02  AIM II

-----

Enter a node address or press <ESC> to return: █
```

Figure 24 – Device Name Update Screen

```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices    = 03      Devices in Service = 00
Zones in Alarm     = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > Device Management > Device Name Update >
-----

Device Name Update

Node Device      Device
Addr Type       Name
-----
00  MTP II
01  ROM II-16
02  AIM II

-----

Node Address : 01
Current Name :
New Name      : ROM II-16 in Control Room █
Enter a new name or press <ESC> to exit without change.
```

Figure 25 – Device Name Update Screen

6.3.3 Accept Device Configuration Changes

Selecting command number 3 will open the “Accept Device Configurations” screen as shown in Figure 26. If any of the control parameters on a device have been changed that affect alarm detection or alarm reporting, a “Device Configuration Change Alarm” will be generated for that device. This is shown in the banner as “Device Compromised”. This alarm is latched in the RCM II.

The “Status” indication will either display “OK” or “COMPROMISED”

In order to clear this alarm, the Accept Device Configuration Changes screen must be opened. As shown in Figure 26, the AIM II is displaying a Compromised Alarm. By entering the node address (in this example: 02) the Compromised Alarm for that device will be cleared and unlatched in the RCM II. Alternately, entering the second number of the node address and pressing enter will perform the same function.

```
COM1 - PuTTY
-----
Relay Control Module II - A member of the Intrepid family
Copyright (c) 2007-2009, Southwest Microwave, Inc.
-----
RCM-II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices   = 03      Devices in Service = 00
Zones in Alarm    = 00      Devices Compromised = 01      Devices in Comfail = 00
-----
Main > Device Management > Accept Device Configuration Changes >
-----
Accept Device Configuration Changes

Node Device      Device
Addr Type      Name
-----
00  MTP-II      MTP II West Side of Test Site      OK
01  ROM-II-16  ROM II - 16 in Control Room      OK
02  AIM-II-8   AIM II for MW at Gate      COMPROMISED
-----

Enter a node address or press <ESC> to return: █
```

Figure 26 – Accept Device Configuration Changes Screen

6.3.4 Broadcast Real Time Clock to All Devices

Selecting command number 4 will open the “Broadcast Real Time Clock to All Devices” screen as shown in Figure 27. Only the “Enter Year” will be displayed when the screen is first opened.

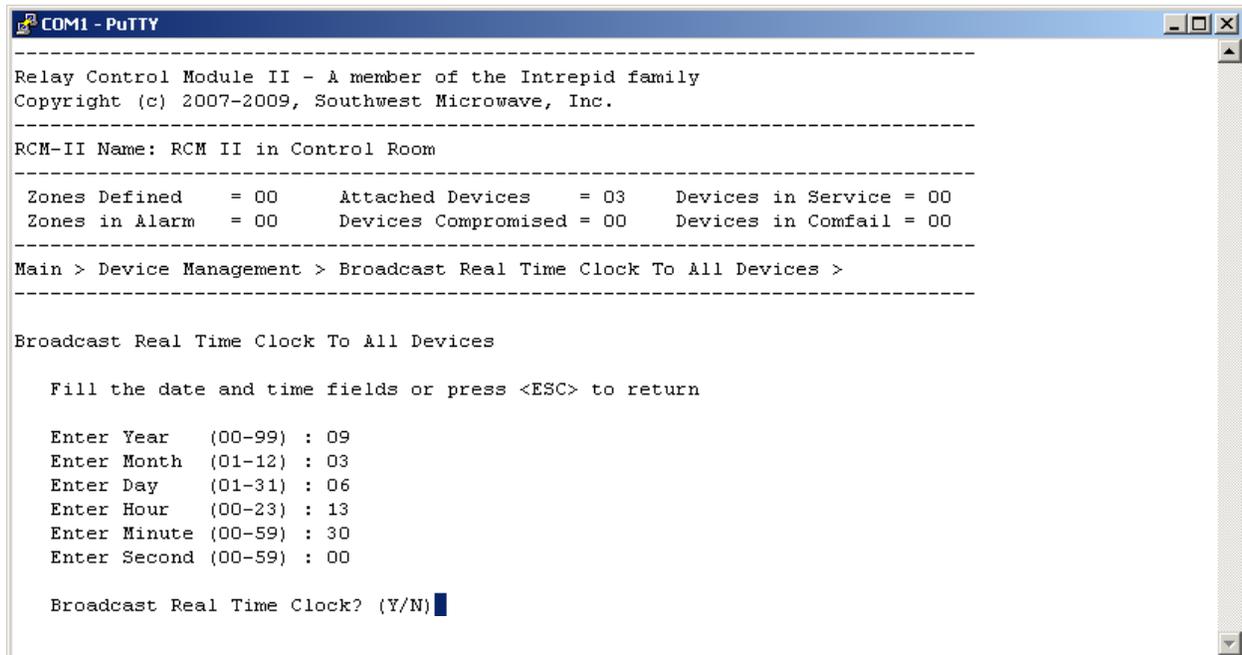


Figure 27 – Broadcast Real Time Clock to All Devices Screen

The other fields will be displayed after each entry. This command will update the Real Time Clock on all devices connected to the RS422 communications line that support a Real Time Clock function. The RCM II itself does not have a clock. The clock is based on inputs entered in the fields for year, month, day, hour, minute and second. After all fields are entered a prompt “Broadcast Real Time Clock? (Y/N) will be displayed. Select “Y” for “Yes” to send the clock to all devices.

Daylight Savings Time is not supported by the devices. Manual adjustment of the clock is required twice per year to maintain correct time on the devices.

6.4 Zone Administration Menu

Selecting “3” from the Main Menu will open the “Zone Administration” menu as shown in Figure 28. There will be five (5) command selections available:

- 1- Add Zones
- 2- Modify Zones
- 3- Delete Zones
- 4- View Zones
- 5- Validate Zones

```
COM1 - PuTTY
-----
Relay Control Module II - A member of the Intrepid family
Copyright (c) 2007-2009, Southwest Microwave, Inc.
-----
RCM-II Name: RCM II in Control Room
-----
Zones Defined      = 00      Attached Devices   = 03      Devices in Service = 00
Zones in Alarm    = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > Zone Administration >
-----

Zone Administration Menu

1. Add Zones
2. Modify Zones
3. Delete Zones
4. View Zones
5. Validate Zones

Enter selection or press <ESC> to return: █
```

Figure 28 – Zone Administration Screen

6.4.1 Add Zones

Selecting command number 1 will open the “Add Zones” screen as shown in Figure 29. This will open as a blank Zone Record screen that will be used to create a Zone Record. A maximum of 32 Zone Records can be created. A Zone Record can have up to eight (8) inputs and eight (8) outputs assigned to it. There are four (4) commands to make the Zone Record; Assign Name, Assign Comment, Assign Input and Assign Relay Output. A copy of this blank record will be in Attachment A for handwriting the assignments for a specific site.

The banner will list the area of the programming that is open. In this case it states Main > Zone Administration > Add Zone > then lists the Zone Record number. In this case it is Zone Record # 01.

The next area will list the Name, Comment and State. This will be blank until this information has been entered. The State will be listed as NEW as this is a new record. Once it has been named it will state that it is UNASSIGNED. The next area will be used for entering the input and output assignment information.

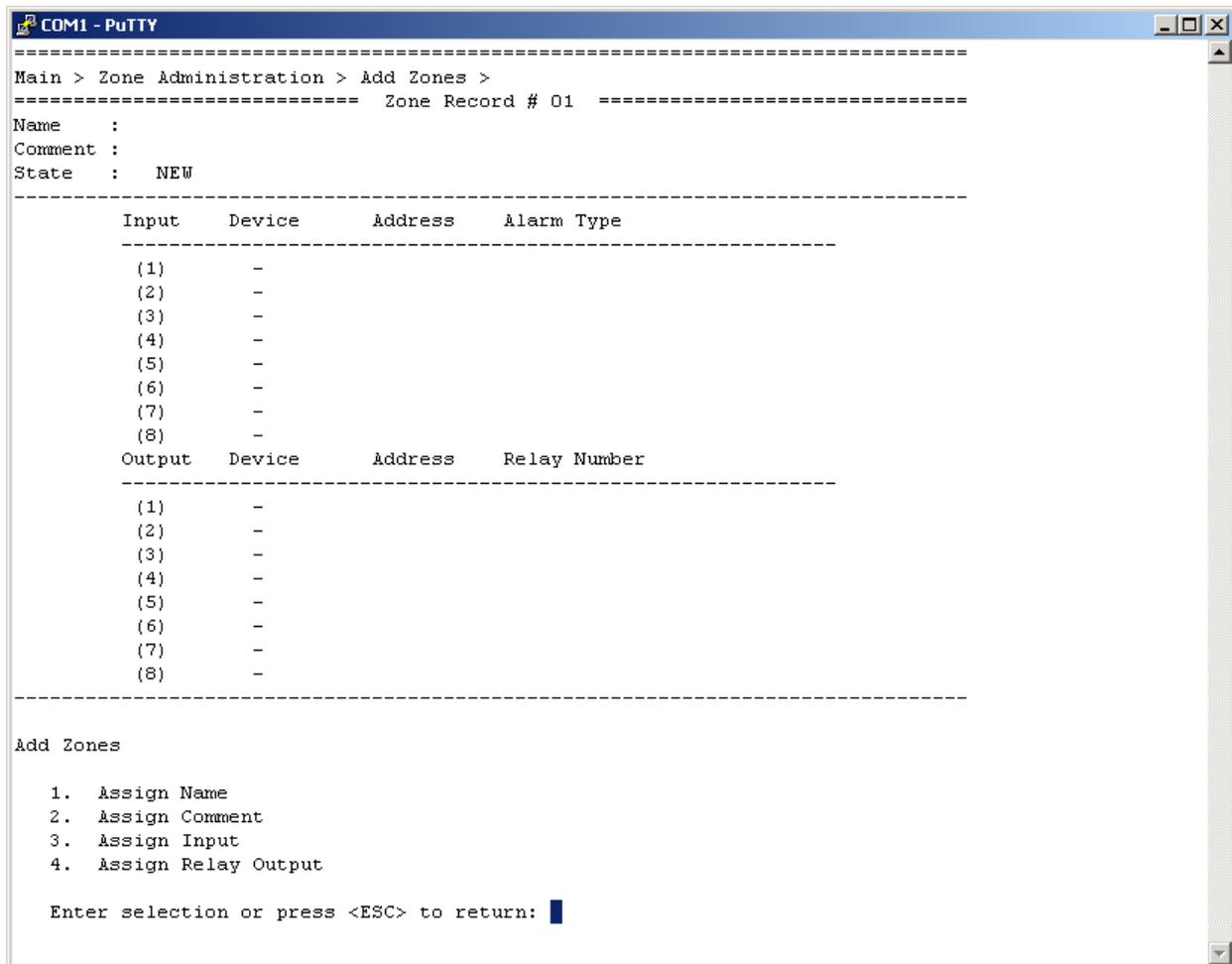


Figure 29 – Add Zones Screen

6.4.1.1 Assign Name

Selecting command number 1 opens the “Assign Name” function that allows for naming of the Zone Record. The name can be up to 64 characters long. This name is used for reference only. See Figure 30.

6.4.1.2 Assign Comment

Selecting command number 2 opens the “Assign Comment” function that allows a comment to be attached to the Zone Record. The name can be up to 80 characters long. This name is used for reference only. Referencing Figure 30 the banner will read Assign Comment.

6.4.1.3 Assign Input

Selecting command number 3 opens the “Assign Input” function that allows entering of inputs to the Zone Record. The Zone Record can have a maximum of eight (8) inputs assigned. See Figure 31. Referencing Figure 30 the banner will read Assign Input. The available inputs are determined by the devices that were found during the Device Discovery process. Inputs that would be available for assignment are:

- Alarm Input Module II
 - Enclosure Tamper - activation of the tamper switch
 - Comfail – loss of communications with the RCM II
 - Device Configuration Change – any changes to the setup, such as NO vs. NC, Supervised vs. Non-Supervised
 - Alarm Input – activation of one of the 8 inputs
 - Supervised Alarm – open or short of a Supervised Input

- Relay Output Module II
 - Enclosure Tamper - activation of the tamper switch
 - Comfail – loss of communications with the RCM II
 - Device Configuration Change – any changes to the setup, such as a change to the comfail timeout jumper

- MicroTrack™ II
 - Enclosure Tamper - activation of the tamper switch
 - Comfail – loss of communications with the RCM II
 - Device Configuration Change – any changes to the setup, such as control parameters, calibration, threshold, etc
 - Cable Alarm – detection of an alarm by the sensor cable A or B
 - Cable Fault – detection of a cable fault condition on the sensor cable A or B
 - UIST II Service Alarm – activated when the Universal Installation Service Tool II is connected to the sensor

- MicroPoint™ II
 - Enclosure Tamper - activation of the tamper switch
 - Comfail – loss of communications with the RCM II
 - Device Configuration Change – any changes to the setup, such as control parameters, calibration, threshold, etc.
 - Cable Alarm – detection of an alarm by the sensor cable A or B
 - Cable Fault – detection of a cable fault condition on the sensor cable A or B
 - UIST II Service Alarm – activated when the Universal Installation Service Tool II is connected to the sensor
 - External Input Alarm – detection of an alarm from an auxiliary device (MW, IR, gate contact, etc.)

- Microwave Model 330
 - Enclosure Tamper - activation of the tamper switch, transmitter, receiver or transceiver
 - Comfail – loss of communications with the RCM II
 - Device Configuration Change – any changes to the setup, such as control parameters, threshold, etc.
 - Microwave Sensor Alarm – detection of an alarm by the sensor
 - Path Fault – alarm from a change in the received signal strength (alignment)
 - UIST II Service Alarm – activated when the Universal Installation Service Tool II is connected to the sensor
 - Auxiliary Input – detection of an alarm from an auxiliary device (MW, IR, gate contact, etc.)

- Relay Control Module II
 - Enclosure Tamper - activation of the tamper switch

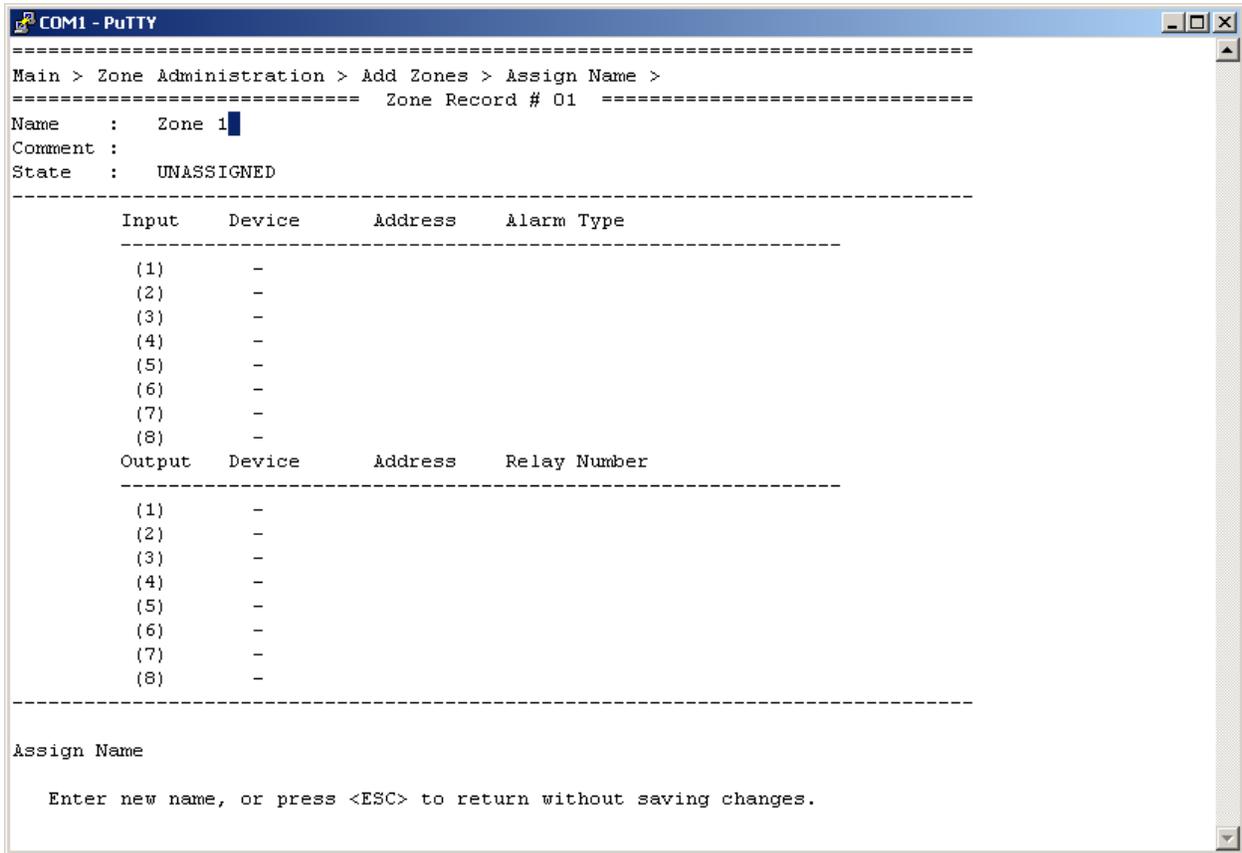


Figure 30 – Add Zone Name and Comment Screen

To enter an input, a prompt will be displayed to select the Input Line Number (1-8) as shown in Figure 31. These can be selected in any order and gaps can be left in the table if desired. Select the desired number(s) and press ENTER.

Once the input line number(s) has been selected, a prompt will be displayed to select a device address from the Available Devices list as shown in Figure 32. Only Discovered Devices that have assignable inputs will appear in the list. Input the three (3) number node address and press enter.

Depending on the device type selected, a prompt will be displayed to select one of that devices alarm inputs and any additional information that is needed as shown in Figure 33. ***For cable alarms from MicroPoint™ II or MicroTrack™ II, prompts will be displayed for which cable (A or B) and the subcell range. For cable fault alarms prompts will be displayed for which cable (A or B).*** Using the example drawing as shown in Figure 12, Input Alarm (4) is selected for Type and Input 1 entered for the AIM II input. When finished a prompt will be displayed to accept or decline (Y/N) the setting. Select “Yes” to save the setting and continue.

Note: in the banner of each screen is a description of what processing step is being performed.

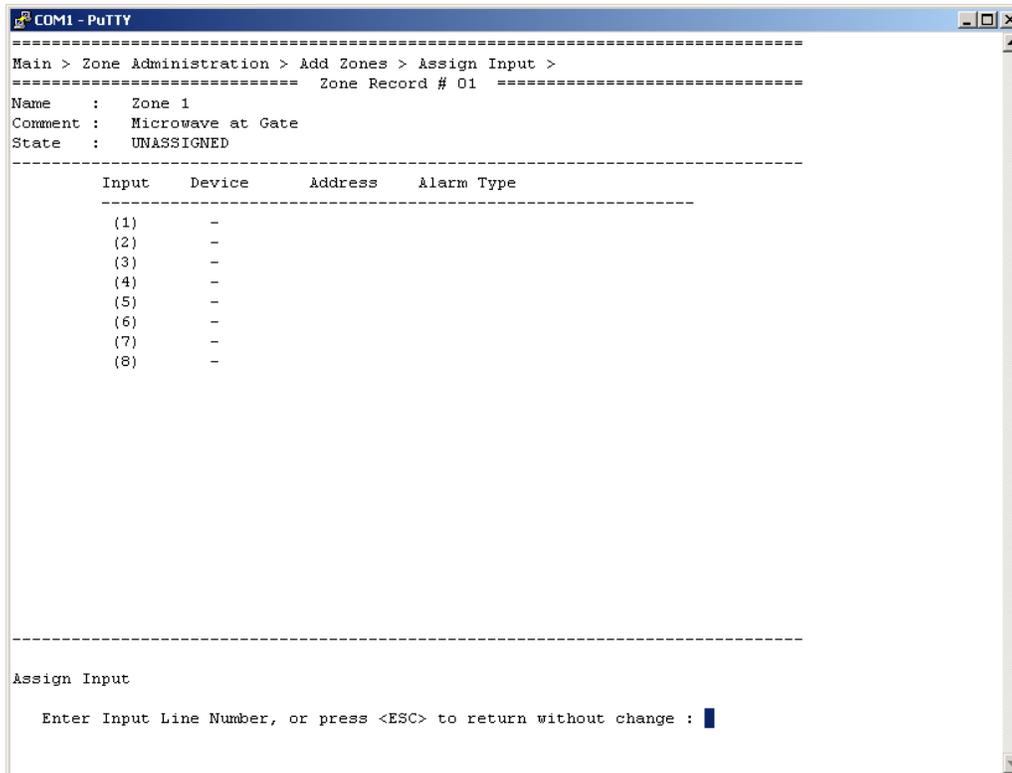


Figure 31 – Input Line Number Screen

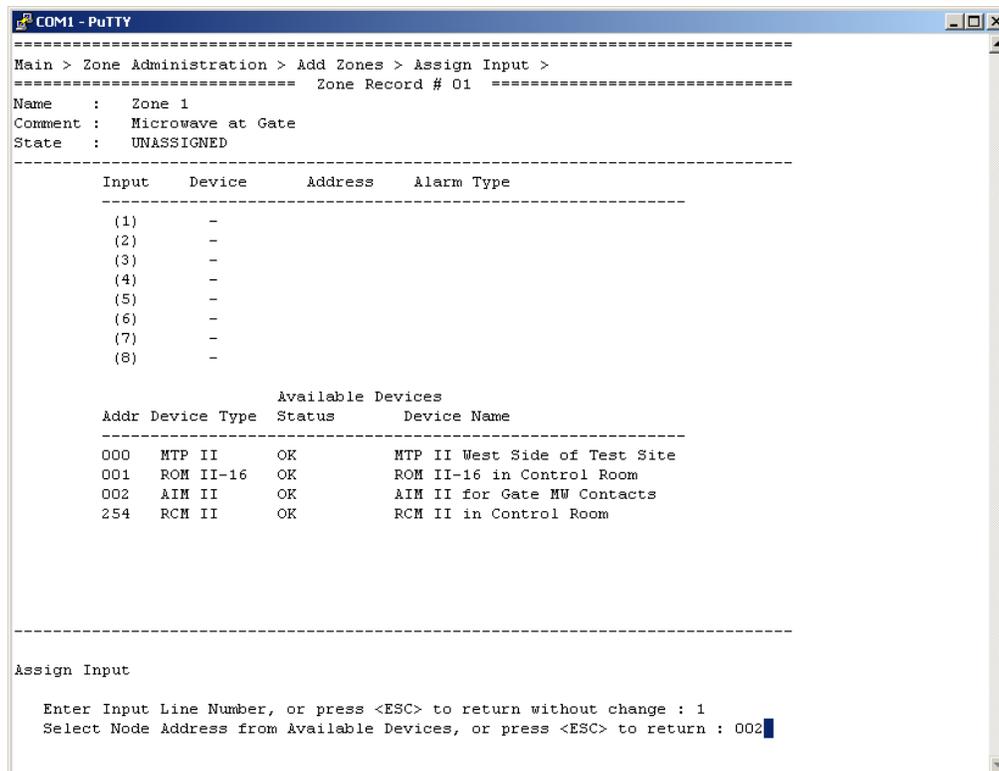


Figure 32 – Available Input Devices Screen

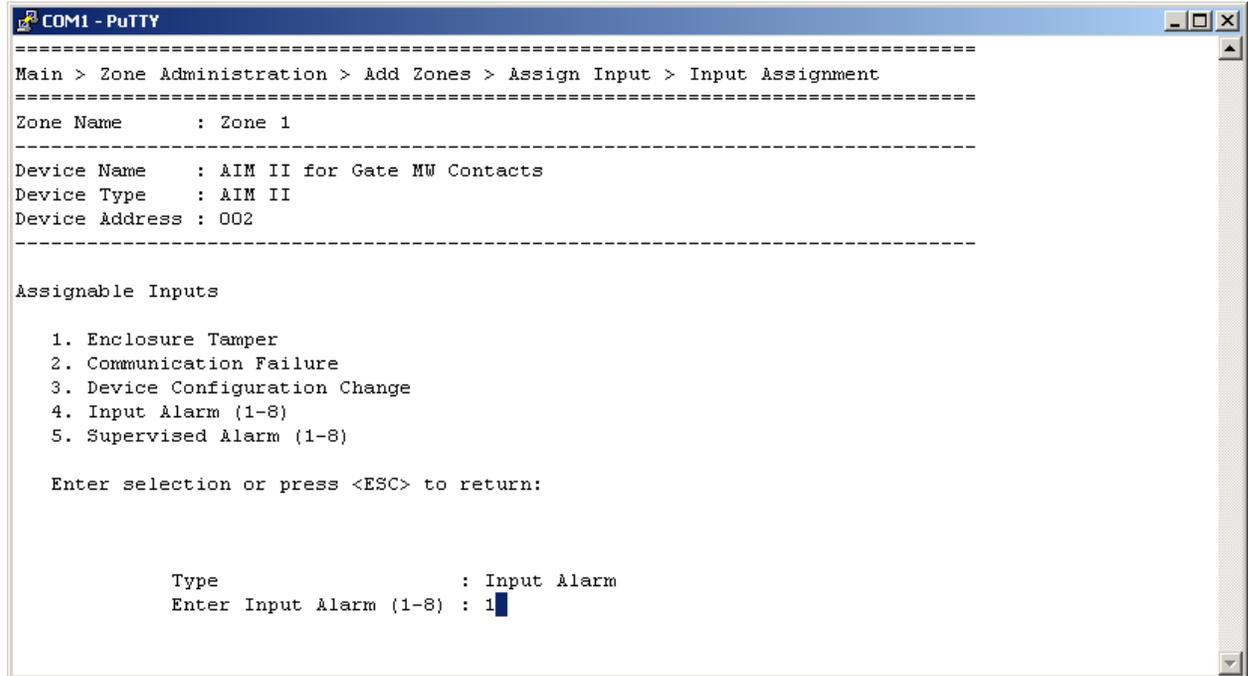


Figure 33 – Available Inputs Screen

6.4.1.4 Assign Relay Output

Selecting command number 4 opens the “Assign Relay Output” function that allows entering of outputs to the Zone Record. The Zone Record can have a maximum of eight (8) outputs assigned. See Figure 30. The available outputs are determined by the devices that were found during the Device Discovery process. Outputs that would be available for assignment are:

- Relay Control Module II
 - RCM II has 8 relays that can be assigned
- Relay Output Module II - 8/16
 - ROM II-8 has 8 relays that can be assigned
 - ROM II-16 has 16 relays that can be assigned

To enter an output, a prompt will be displayed to select the Output Line Number (1-8) as shown in Figure 34. These can be selected in any order and gaps can be left in the table if desired. Select the desired number(s) and press ENTER.

Once the output line number(s) has been selected, a prompt will be displayed to select a device address from the Available Devices list as shown in Figure 34. Only Discovered Devices that have assignable outputs will appear in the list. Input the three (3) number node address and press enter.

Depending on the device type selected, a prompt will be displayed to select one of that devices alarm outputs. Using the example drawing as shown in Figure 12, the RCM II is selected and Output 1 entered. When finished a prompt will be displayed to accept or decline (Y/N) the setting. Select “Yes” to save the setting and continue.

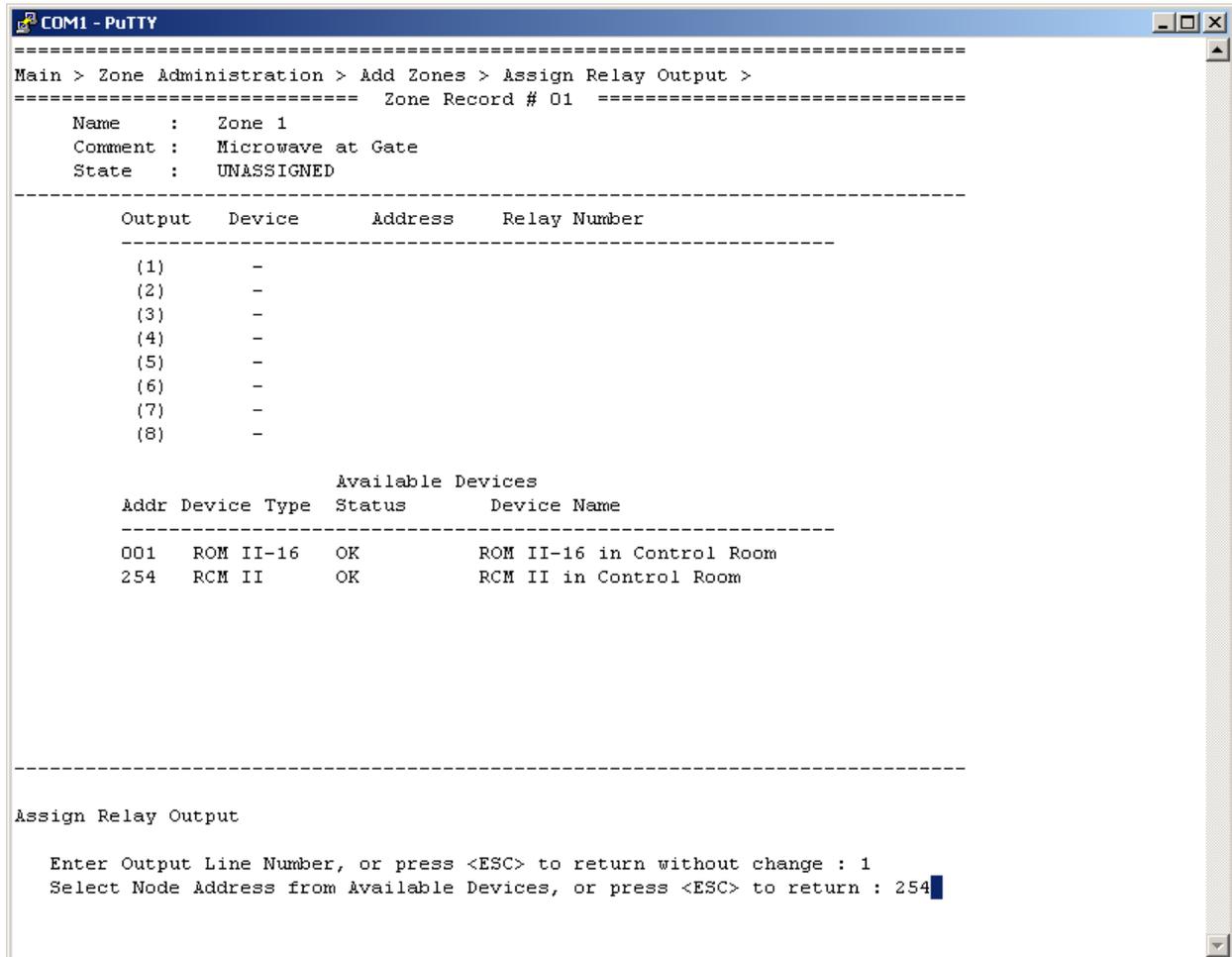


Figure 34 – Available Output Devices Screen

A completed Zone Record will now be displayed as shown in Figure 35. Perform these steps for all Zone Records that need to be created. Again, in Attachment A is a blank record for writing in all the programming to be accomplished. This should be saved for future use or reference. Also, once a Zone Record has been created using the ALT>PRINT SCREEN function will allow for saving the record in electronic format.

```

COM1 - PuTTY
=====
Main > Zone Administration > Add Zones >
===== Zone Record # 01 =====
Name      : Zone 1
Comment   : Microwave at Gate
State     : SECURE
=====

      Input   Device   Address   Alarm Type
      -----
      (1)    AIM II   002      INPUT ALARM # 1
      (2)    -
      (3)    -
      (4)    -
      (5)    -
      (6)    -
      (7)    -
      (8)    -
      Output  Device   Address   Relay Number
      -----
      (1)    RCM II   254      01
      (2)    -
      (3)    -
      (4)    -
      (5)    -
      (6)    -
      (7)    -
      (8)    -
=====

Add Zones

1. Assign Name
2. Assign Comment
3. Assign Input
4. Assign Relay Output

Enter selection or press <ESC> to return: █

```

Figure 35 – Completed Zone Record Screen

6.4.2 Modify Zones

Selecting command number 2 from the Zone Administration Menu will open the “Modify Zones” screen as shown in Figure 36. There will be eight (8) command selections available: Next Zone, Previous Zone, Edit Name, Edit Comment, Edit Input, Delete Input, Edit Relay Output and Delete Relay Output. Once a Zone Record has been completed and saved, any existing Zone Record can be modified from this menu.

6.4.2.1 Next Zone

Selecting command number 1 “Next Zone” will allow selecting of the next higher number of defined Zone Record. The screen will open with Zone Record 1. Pressing “1” will tab through all Zone Records that have been defined.

6.4.2.2 Previous Zone

Selecting command number 2 “Previous Zone” will allow selecting of the next lower number of defined Zone Record. The screen will open with Zone Record 1. Pressing “2” will tab through all Zone Records that have been defined.

```

=====
Main > Zone Administration > Modify Zones >
===== Zone Record # 01 =====
Name      : Zone 1
Comment   : Microwave at Gate
State     : SECURE
=====

      Input   Device   Address   Alarm Type
      -----
      (1)    AIM II   002      INPUT ALARM # 1
      (2)    -
      (3)    -
      (4)    -
      (5)    -
      (6)    -
      (7)    -
      (8)    -
      Output  Device   Address   Relay Number
      -----
      (1)    RCM II   254      01
      (2)    -
      (3)    -
      (4)    -
      (5)    -
      (6)    -
      (7)    -
      (8)    -
=====

Modify Zones

1. Next Zone
2. Previous Zone
3. Edit Name
4. Edit Comment
5. Edit Input
6. Delete Input
7. Edit Relay Output
8. Delete Relay Output

Enter selection or press <ESC> to return: █

```

Figure 36 – Modify Zones Screen

6.4.2.3 Edit Name

Selecting command number 3 “Edit Name” allows for changing the name of the Zone Record.

6.4.2.4 Edit Comment

Selecting command number 4 “Edit Comment” allows for changing the comment of the Zone Record.

6.4.2.5 Edit Input

Selecting command number 5 “Edit Input” allows for edits of any of the eight (8) inputs of a Zone Record.

6.4.2.6 Delete Input

Selecting command number 6 “Delete Input” allows for deleting any of the eight (8) inputs of a Zone Record.

6.4.2.7 Edit Relay Output

Selecting command number 7 “Edit Relay Output” allows for edits of any of the eight (8) outputs of a Zone Record.

6.4.2.8 Delete Relay Output

Selecting command number 8 “Delete Relay Output” allows for deleting any of the eight (8) outputs of a Zone Record.

6.4.3 Delete Zones

Selecting command number 3 from the Zone Administration Menu will open the “Delete Zones” screen as shown in Figure 37. There will be three (3) command selections available: Next Zone, Previous Zone and Delete Zone. Once a Zone Record has been completed and saved, any existing Zone Record can be deleted using this menu. Next (1) and Previous (2) tab through all defined Zone Records. Delete Zone (3) will delete the record. A prompt for Yes or No will be displayed.

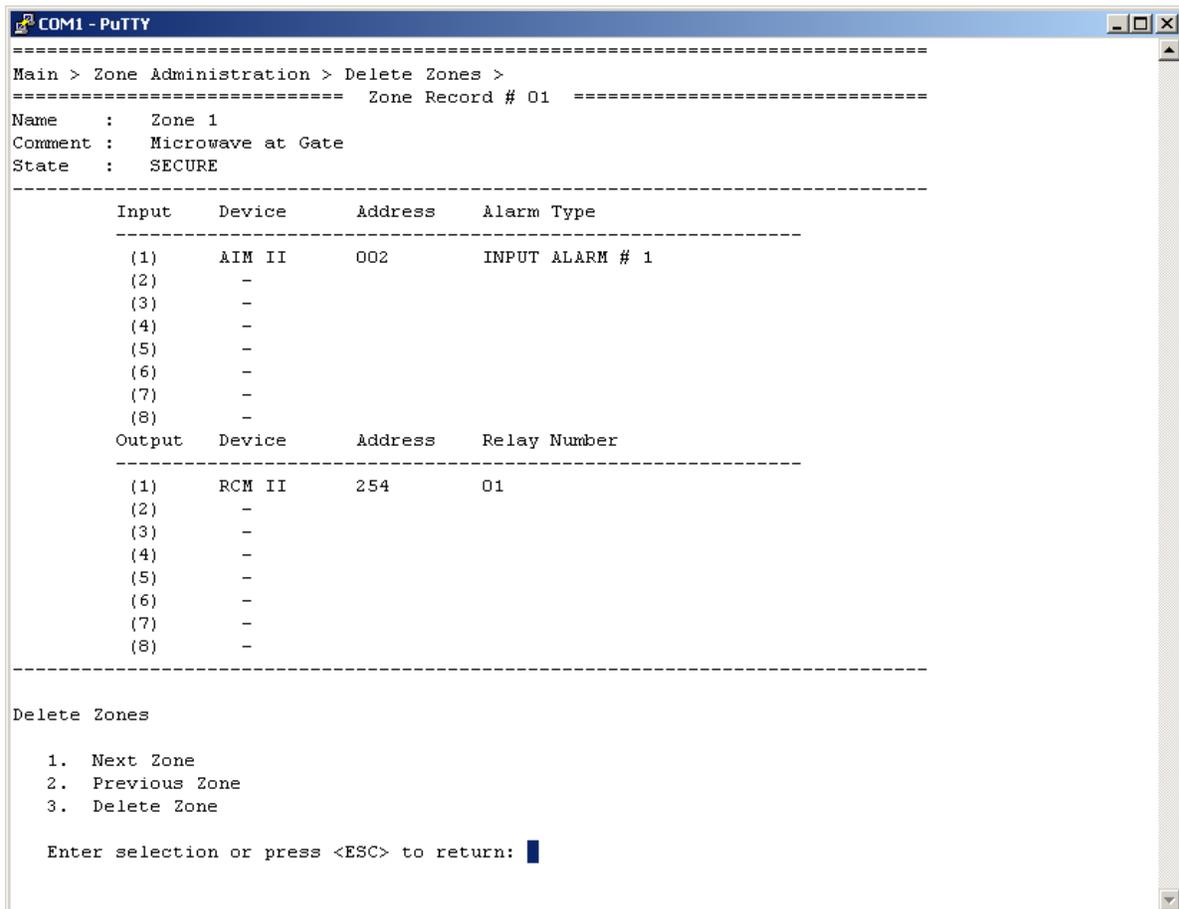


Figure 37 – Delete Zones Screen

6.4.4 View Zones

Selecting command number 4 from the Zone Administration Menu will open the “View Zones” screen as shown in Figure 38. There will be two (2) command selections available: Next Zone and Previous Zone. Once a Zone

Record has been completed and saved, any existing Zone Record can be viewed using this menu. Next (1) and Previous (2) tab through all defined Zone Records. No changes or edits can be made from this screen.

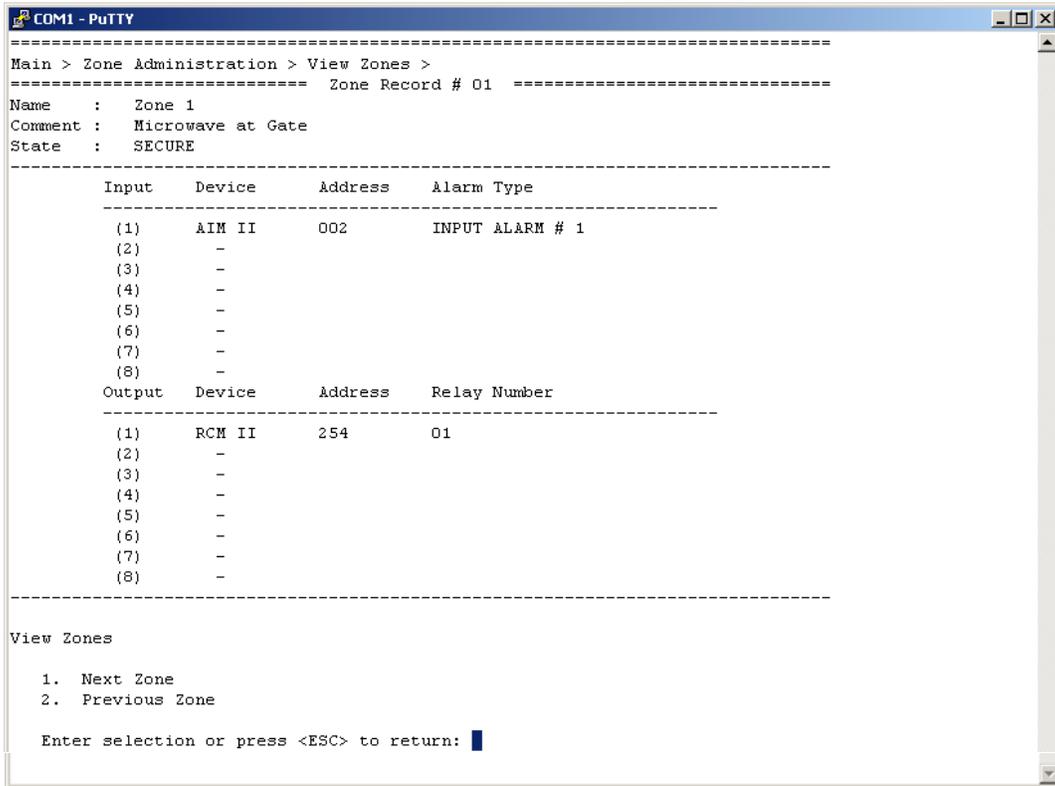


Figure 38 – View Zones Screen

6.4.5 Validate Zones

Selecting command number 5 from the Zone Administration Menu will open the “Validate Zones” screen as shown in Figure 39. This feature will compare the Device Discovery List with all Inputs and Outputs for each Zone Record and will list any line items that are in conflict or not valid. If any changes are accepted, the individual Inputs and Outputs that were in conflict will be removed from the Alarm Zone Record.

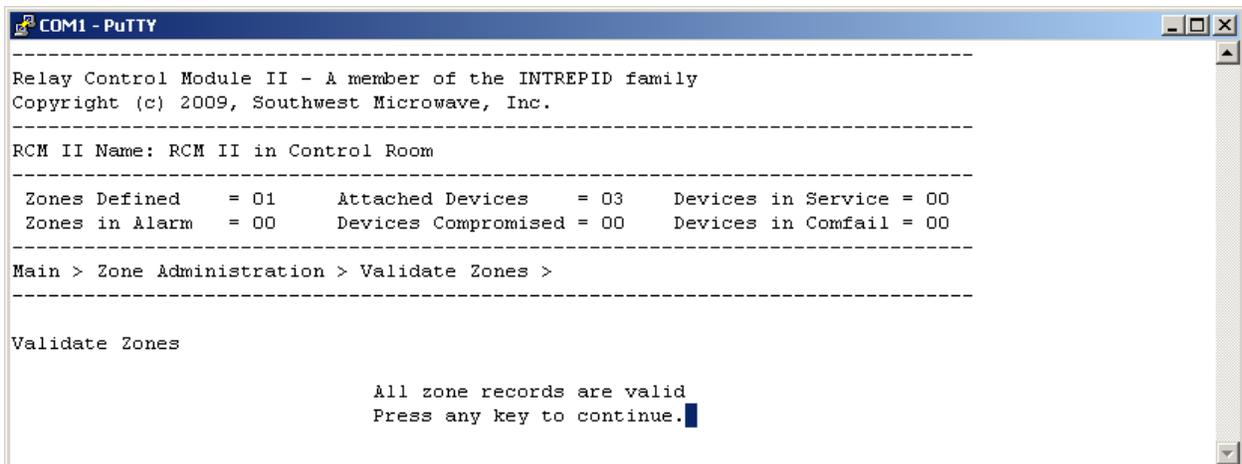
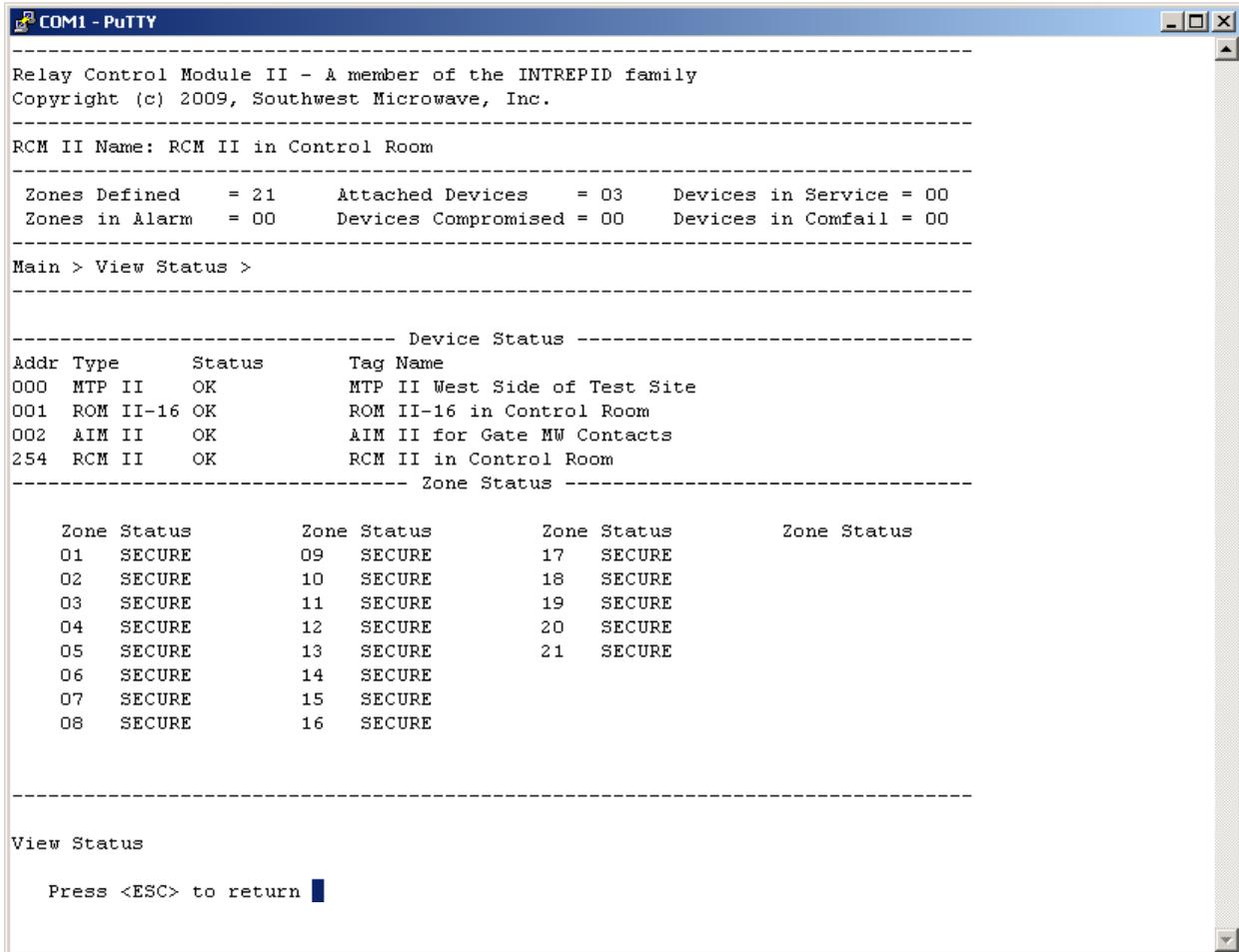


Figure 39 – Validate Zones Screen

6.5 View Status Menu

Selecting “4” from the Main Menu will open the “View Status” screen as shown in Figure 40. This screen provides a real time display of the status of each device and of each zone record. This can be used for testing of the input/output configuration, but also requires manual verification that the proper alarm relays are being activated. The screen in Figure 40 is based on the example drawing shown in Figure 12 with no zones in an alarm condition.



```
COM1 - PuTTY
-----
Relay Control Module II - A member of the INTREPID family
Copyright (c) 2009, Southwest Microwave, Inc.
-----
RCM II Name: RCM II in Control Room
-----
Zones Defined      = 21      Attached Devices   = 03      Devices in Service = 00
Zones in Alarm    = 00      Devices Compromised = 00      Devices in Comfail = 00
-----
Main > View Status >
-----
----- Device Status -----
Addr Type   Status   Tag Name
000 MTP II   OK      MTP II West Side of Test Site
001 ROM II-16 OK      ROM II-16 in Control Room
002 AIM II   OK      AIM II for Gate MW Contacts
254 RCM II   OK      RCM II in Control Room
-----
----- Zone Status -----

Zone Status      Zone Status      Zone Status      Zone Status
01 SECURE        09 SECURE        17 SECURE
02 SECURE        10 SECURE        18 SECURE
03 SECURE        11 SECURE        19 SECURE
04 SECURE        12 SECURE        20 SECURE
05 SECURE        13 SECURE        21 SECURE
06 SECURE        14 SECURE
07 SECURE        15 SECURE
08 SECURE        16 SECURE
-----
View Status
Press <ESC> to return
```

Figure 40 – View Status Screen

The Device Status can be listed as Compromised, Alarm, Service, or OK. These are defined as:

- Compromised – the configuration of the device has been changed since it was last accepted. Alarm detection or reporting by the device may have been altered.
- Alarm – the device is currently detecting an alarm condition. This could be a normal detection alarm, device fault, or tamper.
- Service – the Universal Installation/Service Tool II (UIST II) is currently connected to the device. The UIST II allows the installer to make changes to the configuration of the device, which could affect alarm detection or reporting. There is approximately a 30 second delay from the time the UIST II is disconnected until the Service status is cleared.

- Comfail – the device is unable to communicate with the controller.
- OK – no type of alarm conditions is currently active.

If multiple Device Status conditions occur at the same time, the display will show the highest priority condition, based on the above order.

The Zone Status can be listed as Unassigned, Alarm, or Secure. These are defined as:

- Unassigned – The zone record has either no assigned inputs or no assigned outputs, or both.
- Alarm – one or more of the assigned inputs are in the alarm state.
- Secure – the zone record is properly configured and is not in an alarm condition.

Figure 41 shows the View Status screen with several alarm conditions.

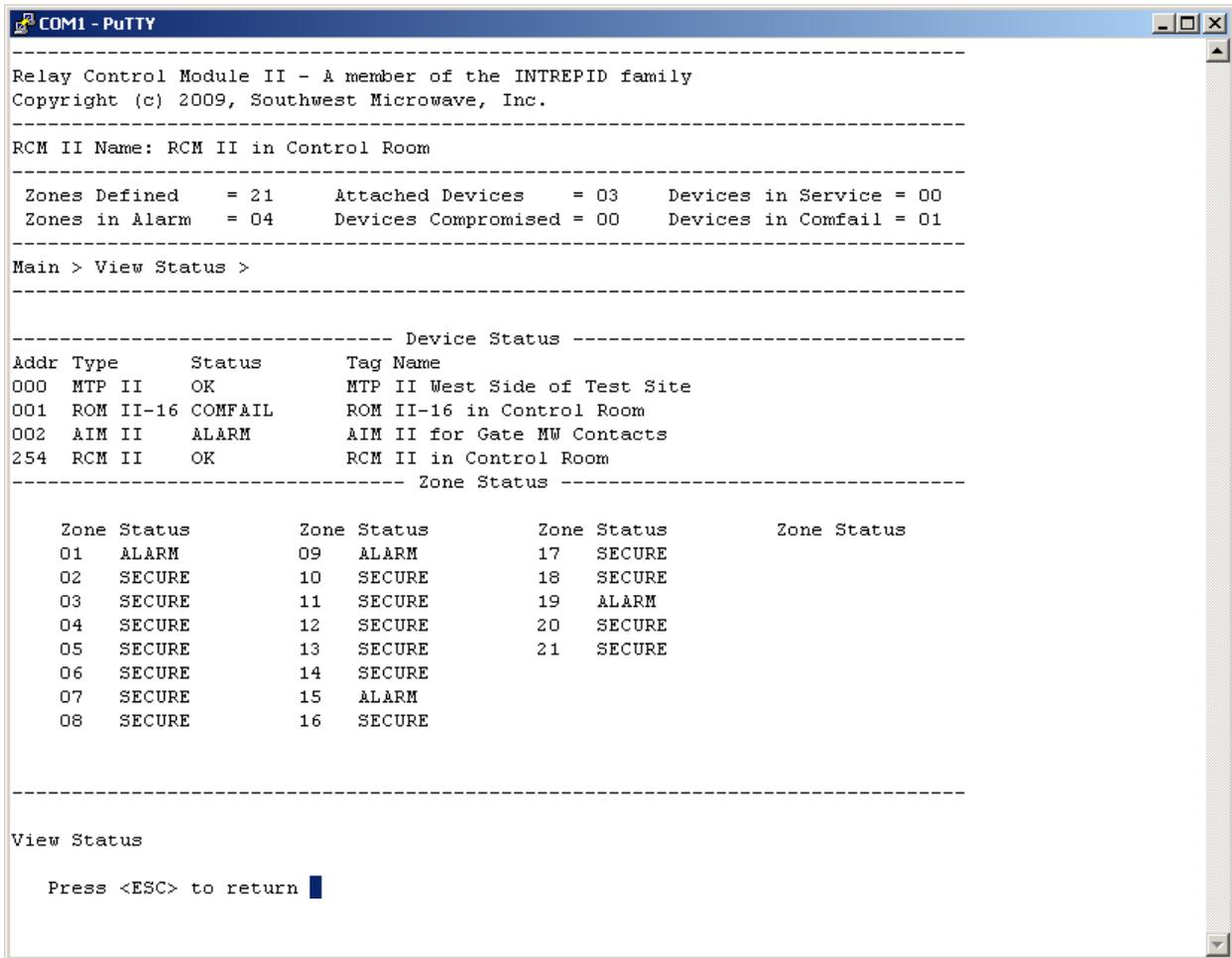


Figure 41 – View Status Screen with Alarms

6.6 View Configuration Report

Selecting “5” from the Main Menu will open the “View Configuration Report” screen as shown in Figure 42. This report lists the same header as displayed in the other menus (not shown) plus the RCM II’s software version and MAC address (serial number). To avoid displaying other information that the terminal emulator has saved, disconnect the RCM II from the emulator and then re-connect. Next select “5” to only display the configuration data. *Figure 42 only shows a partial example.*

```
===== RCM II Configuration Report =====
Software Ver : 64A46366-A01-REV-0      MAC Address : 12C5D65D
Device Name  : RCM II in Control Room
===== Devices =====
Addr Type   Status   Name
000 MTP II    OK      MTP II West Side of Test Site
001 ROM II-16 OK      ROM II-16 in Control Room
002 AIM II   OK      AIM II for Gate MW Contacts
254 RCM II   OK      RCM II in Control Room
===== Zones =====
===== Zone Record # 01 =====
Name       : Zone 1
Comment    : Microwave at Gate
-----
Input  Device  Address  Alarm Type
-----
  1   AIM II   002     INPUT ALARM # 1

Output Device  Address  Relay Number
-----
  1   RCM II   254     01
=====
===== Zone Record # 02 =====
Name       : Zone 2
Comment    : Buried Cable
-----
Input  Device  Address  Alarm Type
-----
  1   MTP II   000     CABLE ALARM A 036-064

Output Device  Address  Relay Number
-----
  1   RCM II   254     02
=====
===== Zone Record # 03 =====
Name       : Zone 3
Comment    : Buried Cable
-----
Input  Device  Address  Alarm Type
-----
  1   MTP II   000     CABLE ALARM A 015-035

Output Device  Address  Relay Number
-----
  1   RCM II   254     03
=====
Configuration report is complete. Press any key to continue.
```

Figure 42 – View Configuration Report Screen

This is a record of all information that has been programmed and all that is required to reprogram the RCM II if needed. A copy of this report should be saved for future reference or use. From the PuTTY™ screen select CTRL>V to copy the report for pasting into a text file such as Word™ or Notepad™.

ATTACHMENT A

INPUT/OUTPUT ASSIGNMENT RECORD

=====
Zone Record #
=====

Zone:

Name:

Comment:

Input	Device	Address	Alarm Type
(1)	-		
(2)	-		
(3)	-		
(4)	-		
(5)	-		
(6)	-		
(7)	-		
(8)	-		

Output	Device	Address	Relay Number
(1)	-		
(2)	-		
(3)	-		
(4)	-		
(5)	-		
(6)	-		
(7)	-		
(8)	-		
