

***evs/* MARS**
(Monitor and Reporting System)
Installation and Operations Manual
(Ethernet Version)



evs/

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1. PC Software Installation

1.1 System Requirements

- MARS was developed to operate with Windows 98, 2000, ME, XP.
- Pentium-based CPU, minimum. High speed CPU is recommended for faster performance.
- 32 MB minimum, 64 MB or higher recommended for higher performance.
- 2-button mouse.
- Monitor specifications:
Minimum: 15" Monitor @ 1024 x 768, 256 color, normal font size setting.
Recommended: 17" monitor @ 1024 x 768, 256 color, normal font size setting.
Note: If large fonts are set, the complete MARS screen may not be displayed on smaller monitors.
- Network Interface Card, PCI or ISA
(for communication with MARS via TCP/IP protocol)

1.2 Software installation

- Insert MARS CD into CD-DRIVE.
- Close all other window applications currently running on your system.
- Select **Run** from the **Start** menu and browse the CD for "**setup.exe**".
- Select **OK** and follow the instructions within the set-up procedure. Default installation directories are recommended.

NOTE: MARS may contain files that are older than those currently installed on your computer. It is recommended that the newer files be kept.

2. MARS Hardware Installation

2.1 Caution information

- When handling the MARS hardware it is recommended that a static strap be worn to prevent damage to components affected by static discharge.

2.2 MARS external sensor(s)/devices installation

- External devices, such as temperature, voltage and condition sensors, may be rack-mounted on an RP8 rack panel (See **Figure 1**, below). Alternately they may be mounted on a wall or ceiling using a single module L-bracket as shown in **Figure 2**, below.
- Up to 8 external temperature sensor modules and 8 voltage sensor modules may be monitored by one MARS module.
- MARS may monitor only 1 external condition sensor. The condition sensor can sense up to 9 logic states.



Figure 1: MARS sensors mounted on RP8 rack panel



Figure 2: L-bracket mount for wall or ceiling

- Up to 7 external addressable power strips (See **Figure 3**, below) and two on-board AC outlets can be controlled by one MARS module. These devices can be mounted directly on a wall, ceiling, etc. or rack-mounted on a 2 RU panel.



Figure 3: MARS APS-8 (Addressable Power Strip)

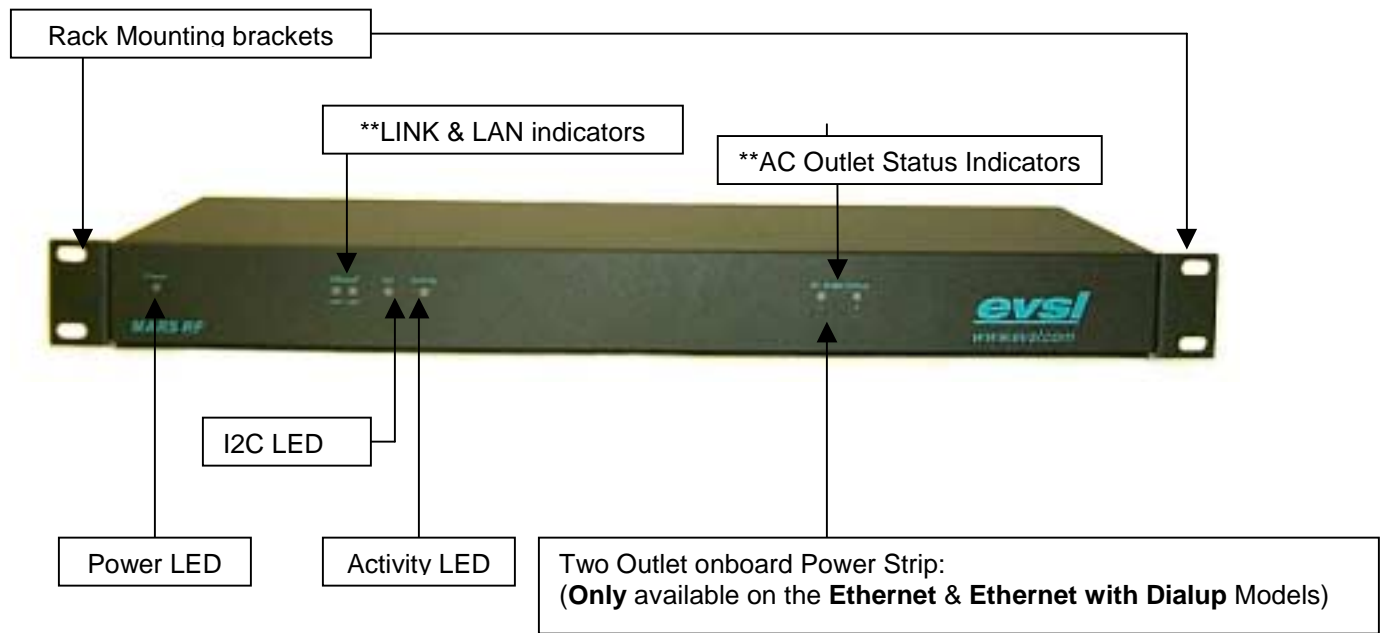


Figure 4: MARS Chassis, Front Panel

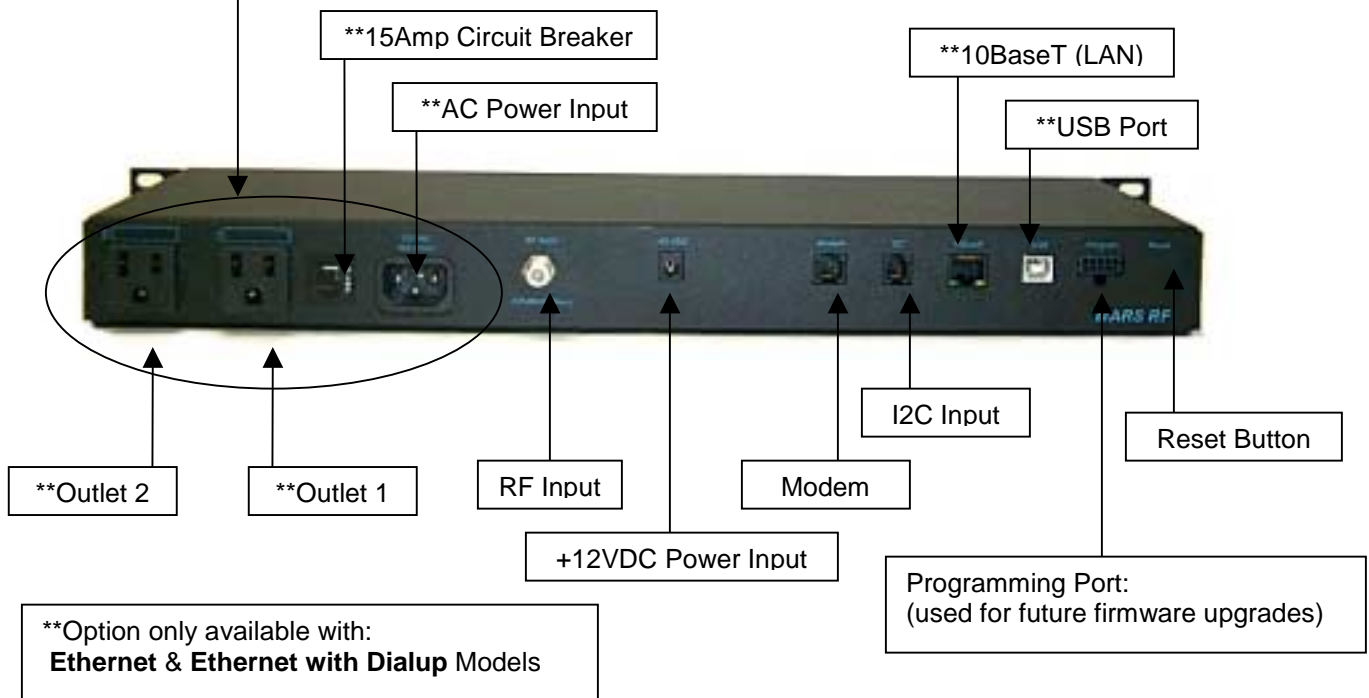


Figure 5: MARS Chassis, Rear Panel

2.3 Serial (I2C) connection

- Analog TV RF, video and audio and QAM RF functions are sensed internal to the MARS module, with a sample of the combined RF signal being supplied to the MARS via an F-Connector. Sensing of temperatures, voltages and conditions (logic states) is done external to the MARS module and communicated to the MARS monitoring circuitry via a serial I2C¹ bus. Control of Addressable Power Strips and Addressable Switches is accomplished via the same serial I2C bus. (See white cable connections in **Figure 1**). All external devices are connected serially using standard flat, 4-conductor telephone cable and crimped handset plug. The plugs must be assembled such that the wire colors are ordered alike when the plugs are observed in the same view. (See Appendix B for I2C cable assembly instructions.) Connect one of the devices to the MARS module handset jack located on the rear panel (See **Figure 5**, above). Each external sensing or control device has one or more LED indicators which will illuminate (Green or Red) upon insertion of the handset plug indicating successful connection and the presence of +5 volts I2C bus power.

2.4 RF input connection

- Using a standard RG-59/RG-6 cable, connect the combined CATV/QAM RF output to the F-connector located on the rear panel of the MARS module (see **Figure 5**, above). See **3.2 RF levels** for setting the RF level to the MARS input at the proper level.

2.5 Ethernet connection

- Connect a **straight-through** Category 5 cable from the 10BaseT input on the MARS module (see **Figure 5**, above) to an available access point (such as a hub, switch or router/gateway) on a Local Area Network (LAN) or Wide Area Network (WAN). **Note:** Do not use the cross-over cable included with the MARS – it is intended for direct connection to a PC. Note that a GREEN LED on the 10BaseT input indicates a successful connection to a network. The ORANGE LED on the 10BaseT input indicates activity.
- The MARS has a number of LEDs on the front panel (See **Figure 4**, above). The ‘Activity’ LED, when RED, indicates that MARS is connected and transferring data to the PC (via TCP/IP or dialup). When the ‘Activity’ LED is GREEN this indicates that MARS is monitoring functions. There are two 10BaseT LEDs – the ‘LINK’ LED indicates a successful connection to the network, the ORANGE ‘LAN’ LED indicates activity. The ‘I2C’ LED indicates that I2C communication is occurring. It is normal for this LED to flicker. The ‘AC Outlet Status’ LEDs indicate whether an outlet is currently on or off.

3. MARS Hardware setup

3.1 Setup of sensor and control modules

- The sensor module’s address can be set through an access hole located on one side of the module’s chassis (See **Figure 6**, below).
- The device address of the temperature and voltage sensor modules must be set for MARS to properly read and configure each module. Devices of the same function set to the same address will produce an I2C bus conflict, thus affecting other MARS

¹ I2C: Inter-Integrated Circuit (a 2-wire bus specification developed by Philips Semiconductor)

operations. Insert a small, flat screwdriver into the slot of the octal selector switch and set devices of the same function to different addresses.



Figure 6: Sensor module showing address selector

- The condition sensor uses the same type of switch to configure the 9th (auxiliary) input (There is only one fixed address for this device). The following options are available:

SW0: Aux input trips on ACTIVE HIGH signal; buzzer is DISABLED

SW1: Aux input trips on ACTIVE LOW signal; buzzer is DISABLED

SW2: Aux input trips on ACTIVE HIGH signal; buzzer is ENABLED

SW3: Aux input trips on ACTIVE LOW signal; buzzer is ENABLED

SW4: Aux input trips on ACTIVE HIGH; buzzer is DISABLED; Faults are LATCHED

SW5: Aux input trips on ACTIVE LOW signal; buzzer is DISABLED; Faults are LATCHED

SW6: Aux input trips on ACTIVE HIGH signal; buzzer is ENABLED; Faults are LATCHED

SW7: Aux input trips on ACTIVE LOW signal; buzzer is ENABLED; Faults are LATCHED

3.2 RF levels

- The RF input should ideally be equal (flat within +/- 3dB) for all analog TV channels. The nominal level can be from +10 dBmV to +25 dBmV per carrier with an ideal range of about +15 dBmV +/- 3dB. QAM RF levels are typically about 7 to 10 dB lower than analog TV RF levels and the MARS is designed to handle QAM signals at these levels relative to the analog channels.

NOTE: Large RF level deviations from nominal will produce inconsistent alarm conditions. Ensure that the RF levels of all channels are within +/- 3dB of nominal at the MARS RF Input.

3.3 Initial Configuration of MARS TCP/IP parameters

- The MARS needs to be assigned an IP Address and port number before it can communicate. The MARS is shipped with the following defaults:

IP address: 192.168.1.253
Port Number: 21
Gateway: 192.168.1.1

- The IP address and port number of the MARS can be configured via a USB connection using the MARS USB Utility (See MARS_USB_Manual.pdf for instructions) or, optionally, from the MARS application software using an ethernet connection (See **4.8 Advanced Features and Settings** for instructions on configuration via Ethernet connection). It is recommended that the initial configuration be performed using the USB Utility. If the initial configuration is performed via direct ethernet connection between the MARS and the PC, it will be necessary to use a crossover cable and have the PC and the MARS set to IP addresses that are in the same subnet range.
- The gateway is set from the PC using the MARS application software. If the gateway specified at the PC is different than the MARS gateway, the gateway at the MARS site will be updated automatically during communication with the MARS site.

4. PC Software setup

4.1 Setting Options

Start the MARS application on the PC. The MARS Diagnostic Utility (MDU) screen will appear (See **Figure 7**, below).

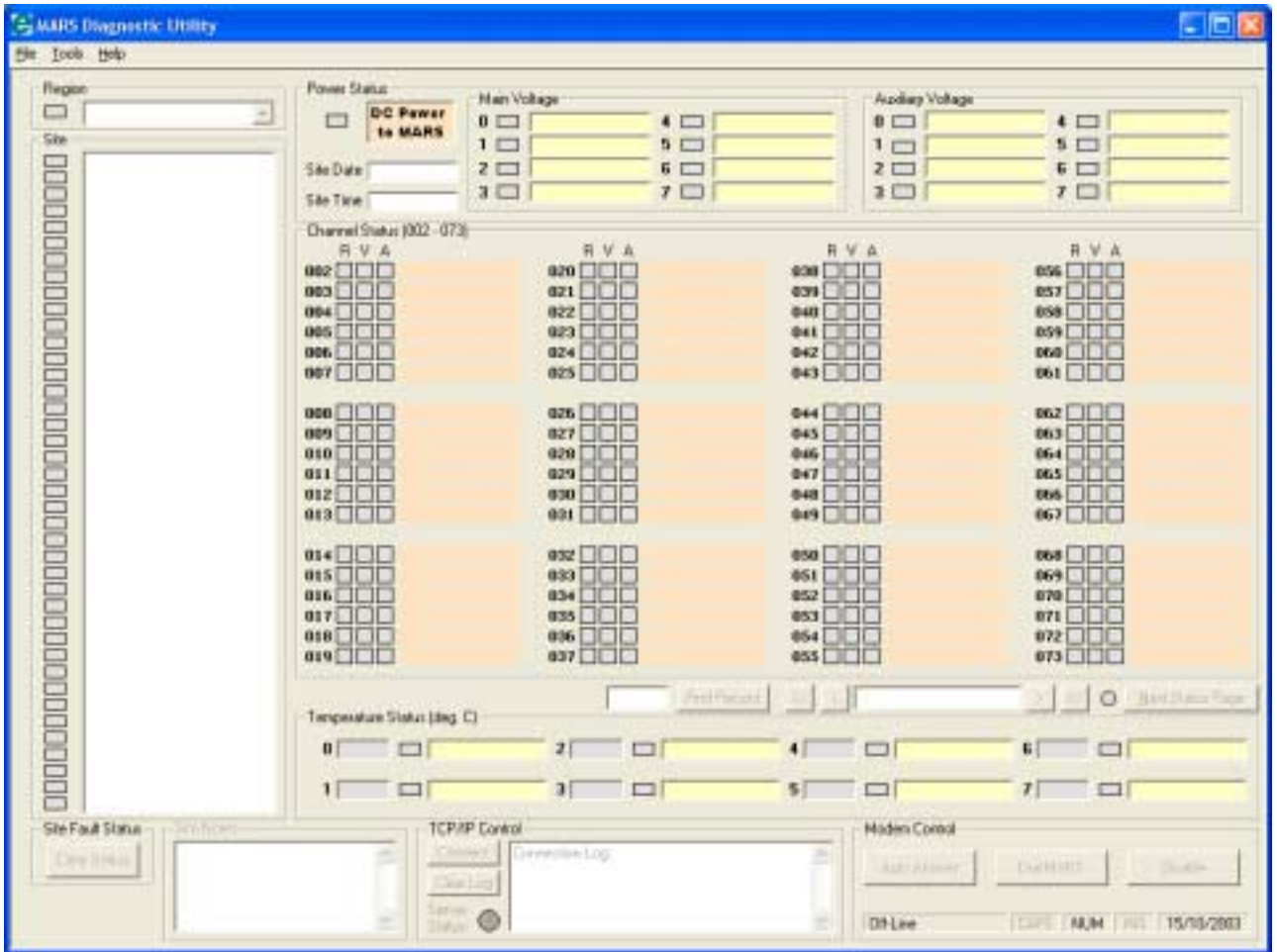


Figure 7: MARS Diagnostic Utility (MDU) main screen

- Select **Options...** from the **Tools** menu on the MDU screen. The “Options” screen will appear (See **Figure 8**, below)



Figure 8: Options Screen, General Tab

- To set the default database path, click “**Browse**” then locate the “**Mars.mdb**” database file (The “**Mars.mdb**” file is located in the installation directory that was specified during the MARS application installation. If you accepted the defaults during the installation it will be located in the Program Files\Mars directory. Otherwise, it will be located in the installation directory that you specified during the installation). Select “**Mars.mdb**” then select **OK**. Select **Save** on the “Options” screen.
- Keep the “Options” screen open and proceed to **4.2 Entering Password Information**, below.

4.2 Entering Password information

- Passwords are required to access various features of the MARS. The USER and ADMINISTRATOR passwords control access to the MARS application on the PC while the TCP/IP username and password control access the remote MARS site(s). More specifically, the USER password allows access to the MARS database on the PC and, in combination with the TCP/IP username and password, allows the monitoring of the MARS site and ‘cycling’ of power strips on site. The ADMINISTRATOR password allows full access to the configuration of the MARS application on the PC and, in combination with the TCP/IP username and password, allows full monitoring and configuration of the MARS site.
- Before MARS operations begin, it is recommended that the default passwords be replaced with new passwords.
Note: Alpha characters ARE NOT case sensitive for the USER and administration password. However, they ARE case sensitive for the TCP/IP username and password.
- To enter a new password, there must be either a current, valid password or the password must be cleared. If a valid password(s) currently exists, then skip the instructions on clearing the passwords that follow.
- To clear the password(s), ensure the database is closed (If the database is not closed, then close the database by selecting **Close Data Base** from the **File** menu), then select **Password Administration** from the **Tools** menu on the MDU screen. After the

“Password Administration” screen appears (See **Figure 9**, below), enter the product ID and click **Submit** to enable the check boxes for clearing password(s). Check the boxes according to what you wish to clear, and then select **OK**. The password(s) will be cleared after selecting **Yes** to the subsequent dialogues. Note: clearing the TCP/IP Username/Password clears the username and password at the PC only – it does not clear the username and password at the MARS.

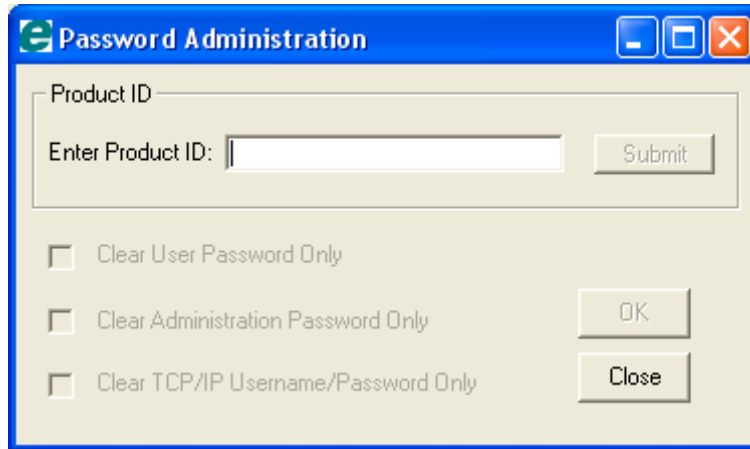


Figure 9: Password Administration Screen

- To enter passwords for the MARS application:
Select **Options...** from the **Tools** menu.
On the “Options” screen, select the **MARS Security** Tab (See **Figure 10**, below).

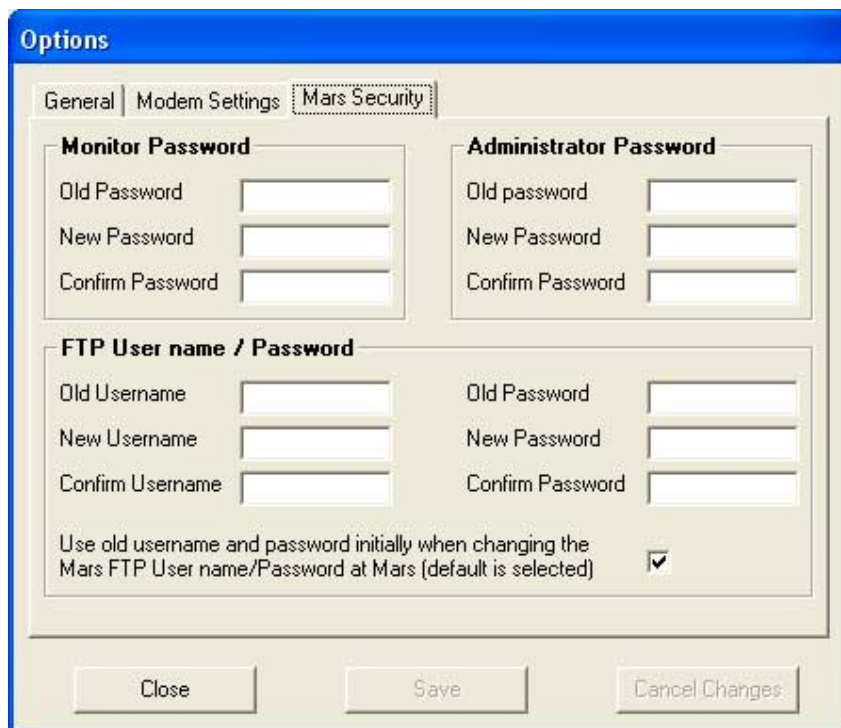


Figure 10: Options Screen, MARS Security Tab

If passwords were cleared in the previous step above:

For each password or username, leave “Old Password” blank and enter in the “New Password” and “Confirm Password” with a minimum of four and a maximum of 10 alphanumeric characters. Click **Save** and then click **Yes** to save the new password.

If passwords were not cleared and existing passwords are known:

For each password or username, enter in the “Old Password”, “New Password” and “Confirm Password” with a minimum of four and a maximum of 10 alphanumeric characters. Click **Save** and then click **Yes** to save the new password.

- After entering the password(s), select **Close** to close the “Options” screen.

4.3 Opening the Database

- If the USER password is configured and the default database path is set in the "Options" screen as per instructions above, the database can now be opened. From the File menu on the main MDU screen, select **Open Database** or select a recent file from the **File** menu.
- Enter the USER or ADMINISTRATOR password and press ENTER or select **OK**.
- If **Open Database** was selected, browse to the location of the database, select the file, then select **Open**.
- The name of the opened file will be appended to the "MARS Diagnostic Utility" title bar located on the top of the MDU screen. If the database contains status information, the screen will display status information, otherwise the screen will be blank.

4.4 Creating a Site

- Prior to configuring a MARS Site, there must be at least one Region created. Select **DataBase Manager/Region Manager** from the **Tools** menu. Enter the ADMINISTRATOR password and press ENTER or select **OK**. When the “Region Manager” screen appears (See **Figure 11**, below), enter a region name and click **Add**. Select **Close** to exit the “Region Manager” screen.

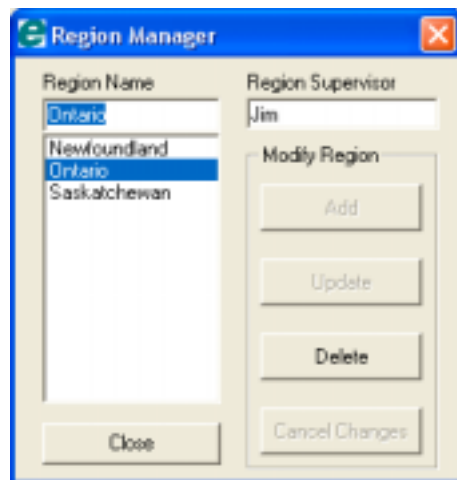


Figure 11: Region Manager Screen

- Select **DataBase Manager/Site Manager** from the **Tools** menu. Enter the ADMINISTRATOR password and press ENTER or select **OK**. When the “Site Manager” screen appears (See **Figure 12**, below), enter a Site name and select an associated region from the Region List.

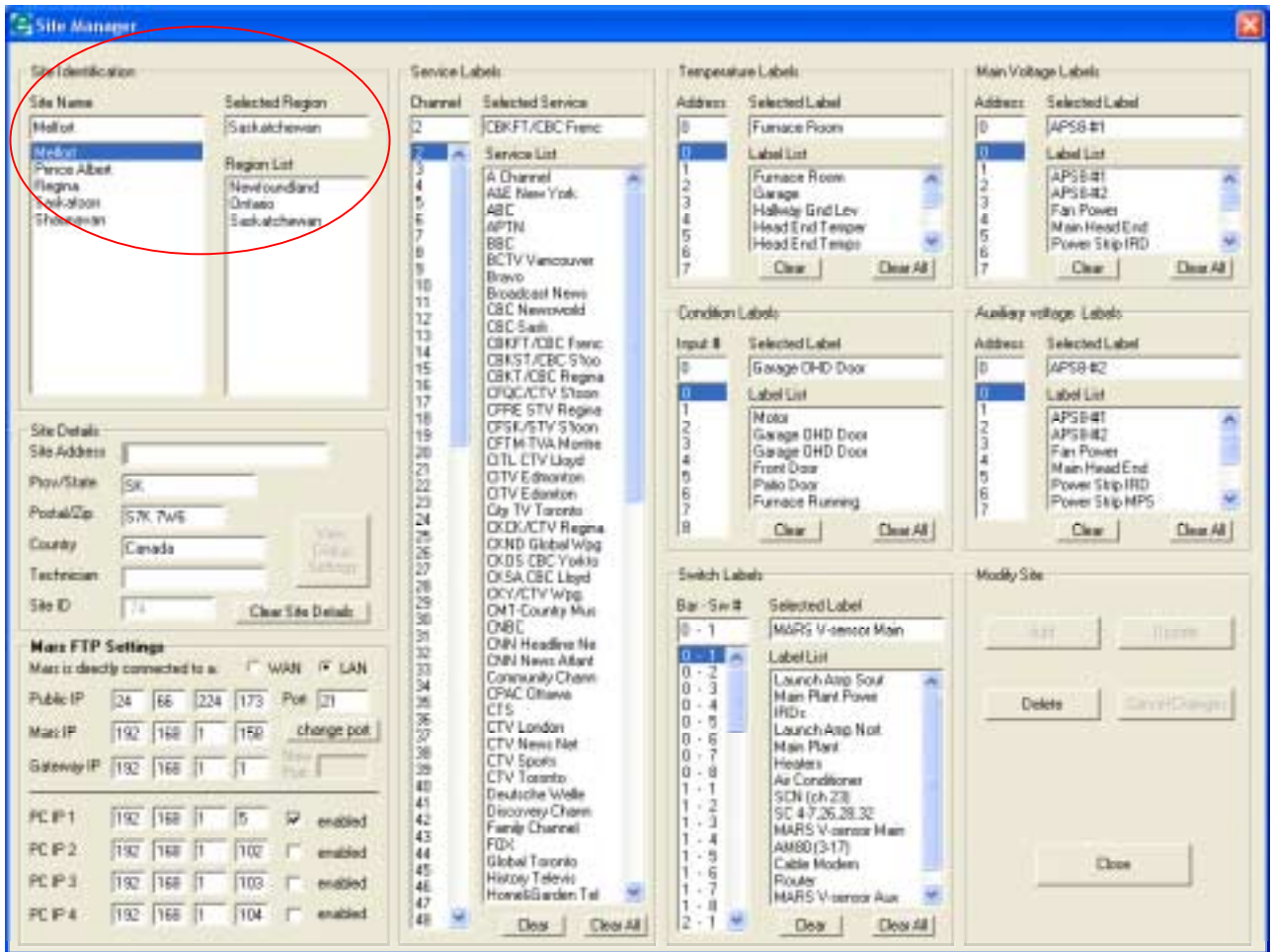


Figure 12: Site Manager Screen

4.5 Configuring a Site

4.5.1 Configuration of MARS TCP/IP Site Parameters

1. Select **Database Manager/Site Manager** from the **Tools** menu, then provide the ADMINISTRATOR password. Enter the IP address of the MARS site beside the Mars IP label.

If the Mars is on a LAN:

Next to the label “Mars is connected to a:” select ‘LAN’. Then enter the Public IP address beside the Public IP label.

If the Mars is on a WAN: (e.g. Mars is connected directly to a cable modem)

Next to the label “Mars is connected to a:” select ‘WAN’. Then enter the Public IP address beside the Public IP label. Note: both the MARS IP and the Public IP will be the same on a WAN.

2. Enter the gateway IP beside the Gateway IP label to enable the Mars to report to other PC's.

4.5.2 Activating the MARS site

NOTE: Initially, all MARS sites are de-activated, and therefore require activation before they are operational.

To activate the MARS site:

1. Select the site on the main screen.
2. Select **MARS Configuration** from the **Tools** menu, enter the admin password, then place a check mark in the box next to "Activate Site".
3. Select **Close** to exit the "MARS configuration" screen and return to the main screen.
4. Select the **Connect** button to activate the Mars site. (The message "Activating Site" should appear in the TCP/IP Log window).

Note: The message "Activating Site" in the log or status window confirms that the MARS site has been activated. If it does not appear, the steps must be repeated (the "Activate Site" check box automatically clears after each communication to prevent accidental re-configuration of the MARS).

4.5.3 Configuration of MARS Automatic Reporting

To configure MARS automatic reporting:

1. Select **Site Manager** from the **Tools** menu.
2. Enter the IP addresses for up to 4 PC's in the space provided. Click on the check box beside each PC IP to enable communication to that PC.
3. Select **Save** then **Close** to close the "Site Manager" screen. Select **Connect** to update the MARS site with the new configuration.

Each PC specified in Step 1., above, is enabled to receive reports from the MARS site as long as it has the MARS application software installed. By default, the PC accepts communication from the MARS site on Port 21. If you wish to change any of the default settings, refer to **4.8 Advanced Features and Settings**.

4.5.3.1 Enabling E-mail Notification

Select **Internet Configuration** from the **Tools** menu. The "Internet Configuration" screen will display (See **Figure 13**, below). The "Internet configuration" screen includes an email configuration section that will allow you to automatically notify up to four recipients by email in the case of a fault from the Mars. After entering email settings, ensure that the Email Communication checkbox is selected so that

email is enabled. Select **Save email config** to save settings. Select the **Hide** Button, to return to the main MDU screen.

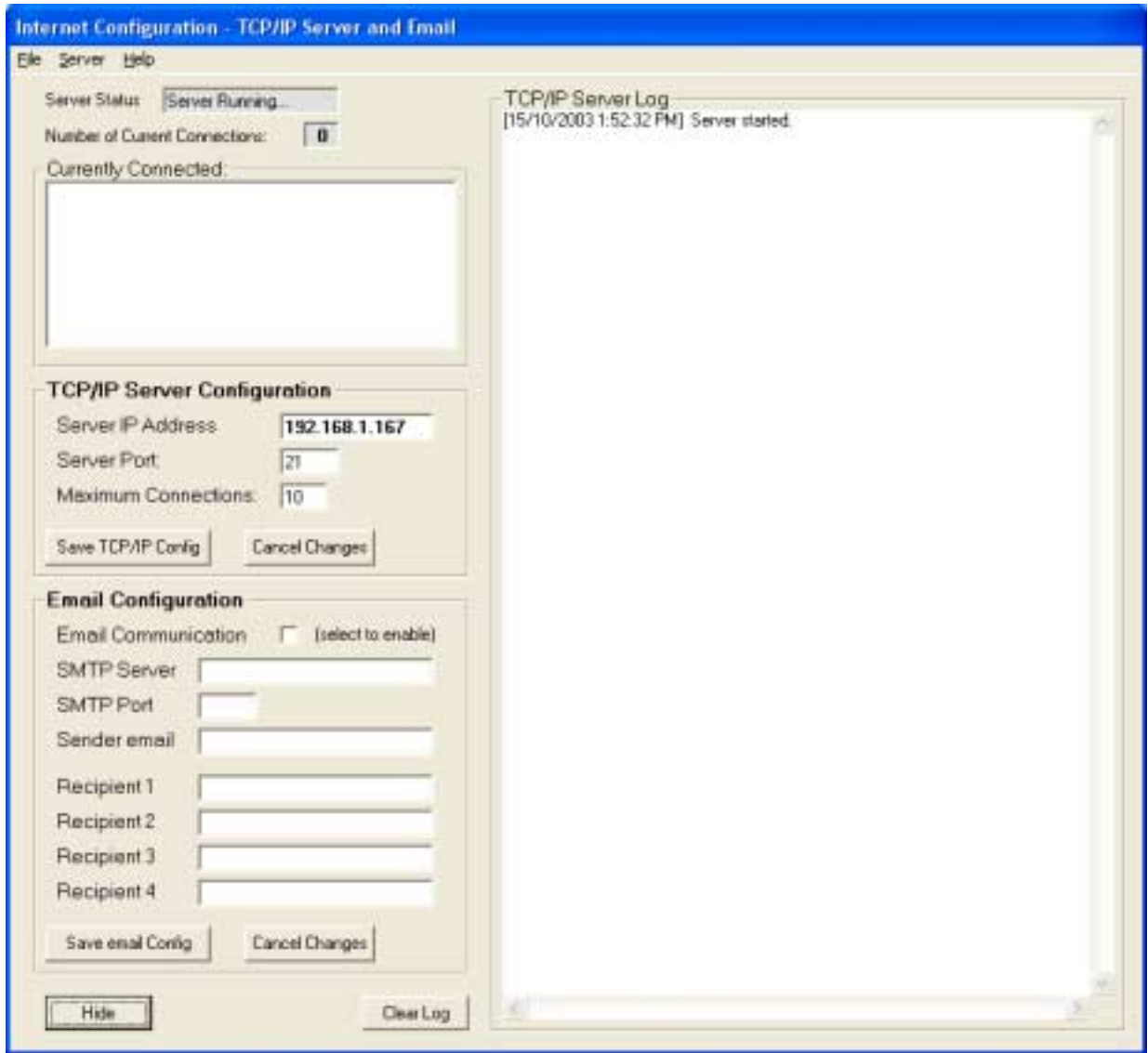


Figure 13: Internet Configuration Screen

4.5.4 Configuration of MARS Monitoring Functions

This section describes how to specify what the MARS site is to monitor. You may specify the configuration manually or, optionally, perform an automatic detection from the PC. The automatic detection will detect most of the devices and RF carriers with the exception of QAM carriers (QAM carriers must be specified manually at the PC).

To specify the monitoring configuration, select the MARS site that you wish to configure from the main screen.

If you wish to automatically detect the monitoring devices that are present at the MARS site refer to section **4.5.3.1** immediately below.

Otherwise, skip to section **4.5.3.2** and follow the steps to manually specify the configuration of the MARS site.

Notes:

1. A channel will not be configured as part of the auto-detect configuration if any one of RF, video or audio is absent. The channel can, however, be manually configured from a PC at any time.
2. AC/DC voltage must be available at the Voltage Sensor for MARS to detect the modules (See Appendix C, Specifications, for voltage range).
3. A valid logic-level input must be present for MARS to detect the condition module inputs.

4.5.4.1 Automatic Configuration of MARS Monitoring Functions

To perform an auto detect from the PC, select **Options...** from the **Tools** menu on the MDU screen. Under the **General** tab select "Enable auto-configuration from MARS to PC". Select **Save** then **Close**. Select the MARS site on the main screen. Select **MARS Configuration** from the **Tools** menu on the main screen. Select **Next Page** to view the next configuration screen. Select the checkbox to the right of the **Auto Configuration** button (at the bottom right hand corner of the screen). Select the items that you wish to auto-detect, then select **Save and Close**. Select **Close** on the "Mars Configuration" screen. Connect to the site by selecting the **Connect** button. The MARS site configuration will be received and stored at the PC. After receiving the update, select **Options...** from the **Tools** menu on the MDU screen. Under the **General** tab de-select "Enable auto-configuration from MARS to PC". Select **Save** then **Close**.

Note: All monitoring functions at the MARS site are detected except for the QAM channels. These must be entered manually at the PC.

To specify the QAM configuration Select **Mars Configuration** from the **Tools** menu and then proceed to step 10. in Section **4.5.3.2**, immediately below.

4.5.4.2 Manual Configuration of MARS Monitoring Functions

To Configure MARS monitoring Functions from the PC:

1. Select **MARS Configuration** from the **Tools** menu. The Mars "Power Strip Configuration" screen will appear (See **Figure 14**, below).

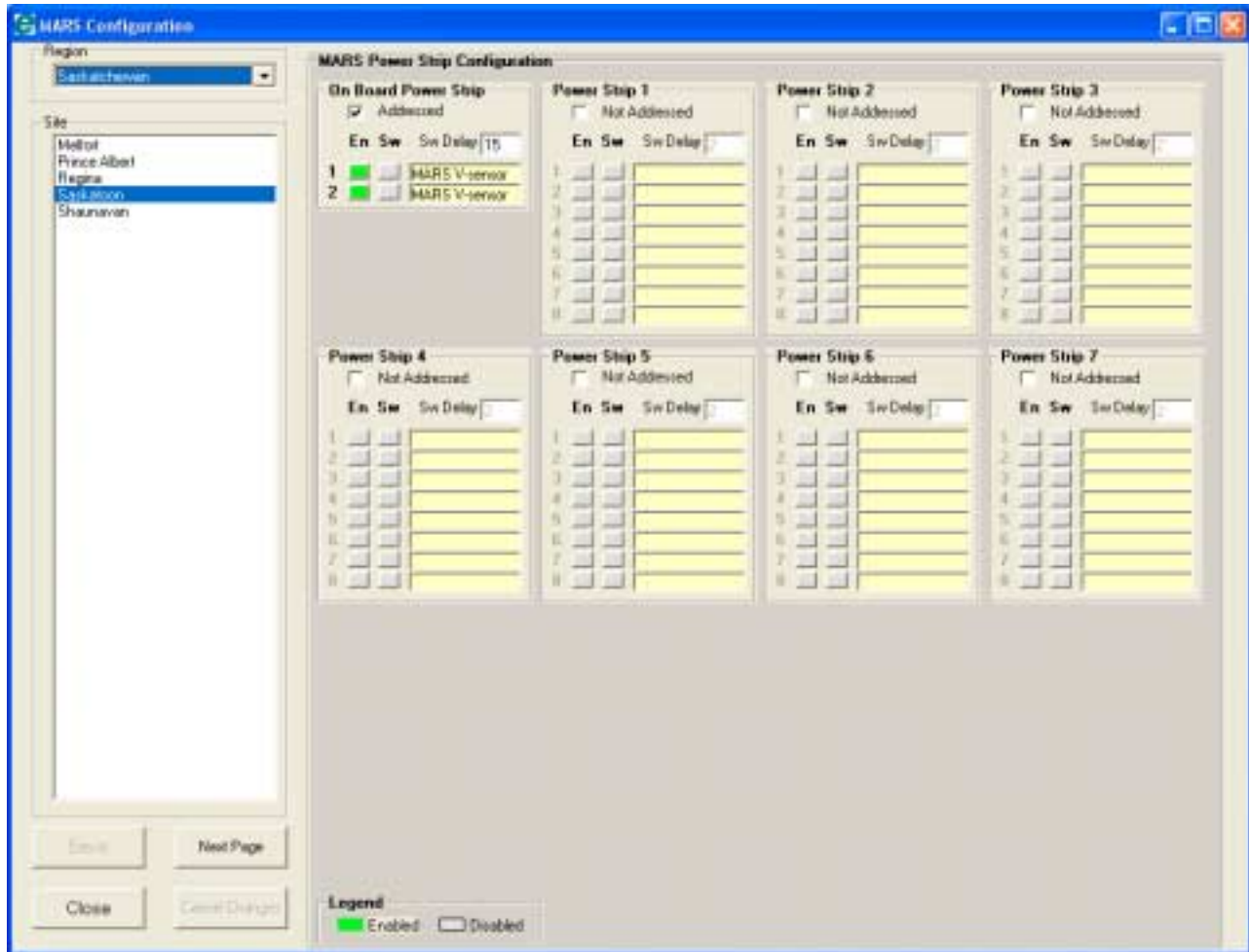


Figure 14: MARS Configuration, Power Strip Configuration Screen

2. This screen allows the configuration of the on-board power outlet and up to 7 external power strips. Each power strip can be configured to individually switch 120VAC power to each of its receptacles. For each power strip that is to be used, select the checkbox beside the “Addressed” label. Enable receptacles by clicking the **En** button associated with that receptacle (the button will turn GREEN). Additionally, each receptacle can be ‘cycled’ (turned off, then on) for a predetermined time. To cycle a receptacle, click the **Sw** button associated with the receptacle and enter a value between 1 and 255 seconds in the "Sw Delay" text box. On the next communication with the MARS site, the power strip will remove power from the receptacle for the specified time. (NOTE: After this command is sent to the MARS site or there is any communication attempt whether successful or not, all commands to ‘cycle’ power strips are cleared. This provides assurance that a power strip will not be cycled unintentionally at a later time).
3. Select **Next Page**. The next page of the “Mars Configuration” will appear (See **Figure 15**, below).

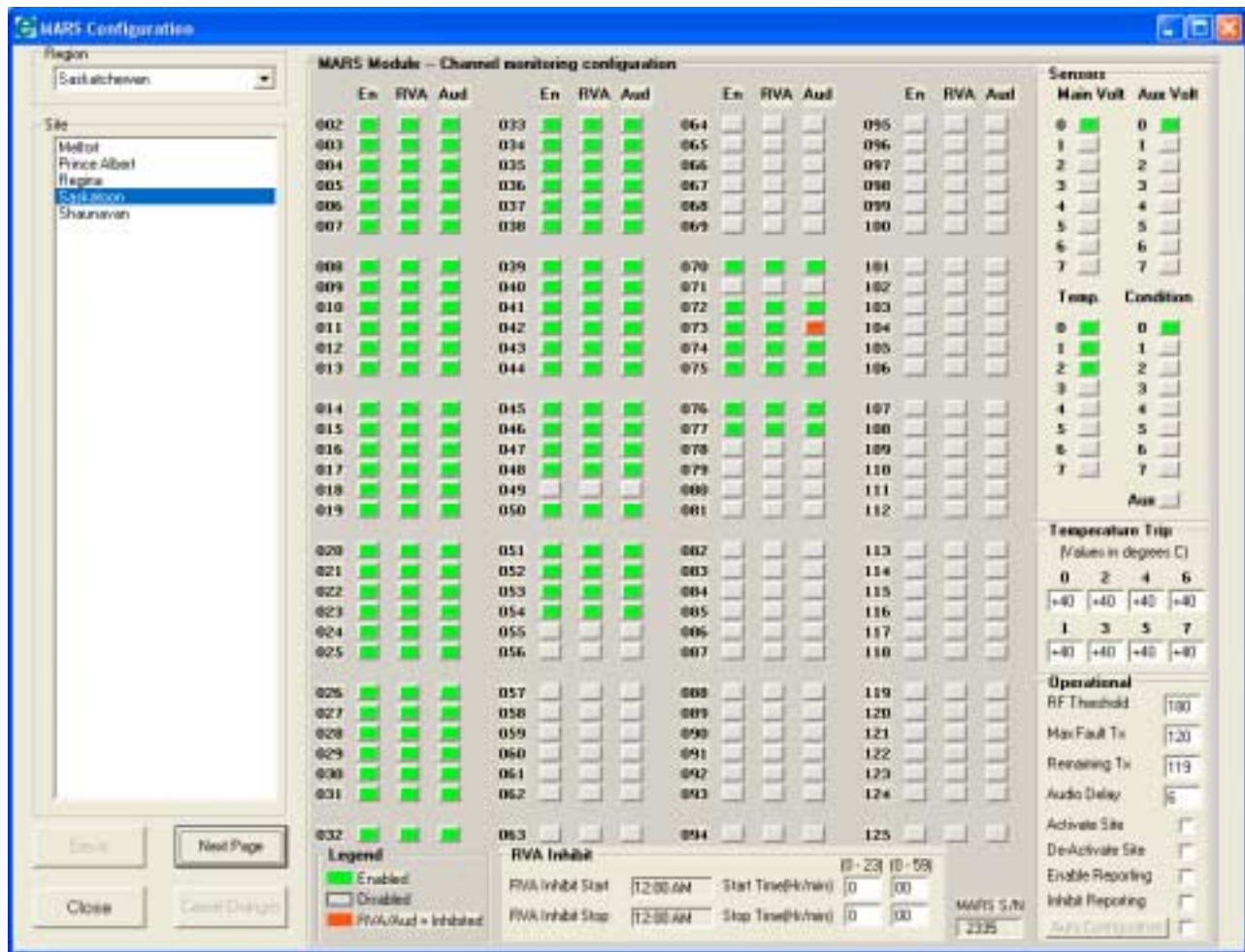


Figure 15: MARS Configuration, Channel and Sensor configuration

4. In the "MARS module--Channel monitoring configuration" frame, select the CATV channels that MARS should monitor by clicking on the **En** box beside each channel. The function of the next two boxes (RVA and Aud) is not required for minimal setup.
5. In the "Sensors" frame, select the voltage and temperature modules and condition inputs that MARS should monitor by clicking the boxes beside each number. The numbers beside the boxes represent the selected address of each voltage and temperature module (discussed earlier in **3.1 Setup of sensor modules**). Each number beside each box of the condition sensor represents a single input.
6. Enter the temperature trip points a few degrees higher than the anticipated normal operating temperature of each temperature module.
7. Enter "200" in the "RF Threshold" text box, (200 is a "level" that would equate to an RF input of about +6 dBmV). assuming that analog RF levels being input to the MARS are approximately +15 dBmV +/- 3dB. A fault will be detected

when the RF level drops approximately 9 dB. See **Appendix A** for a calibration graph of values.

8. Enter a number in the range of 2 to 255, inclusive into the "Max Fault Tx" text box. When MARS has reached the Maximum number of faults or restorations indicated in the text box, the PC will instruct the MARS to inhibit further calls for the remainder of the day. MARS will reset this status at midnight. This is useful if you want to limit the number of fault and restoration reports in a day.
9. Enter number between 1 and 6, inclusive for the "Audio Delay". With lower numbers MARS will be more sensitive to intermittent audio lapses. If the MARS site does not detect the presence of audio within the number of seconds specified, it will report a fault.
10. Click **Next Page** until the "QAM configuration" screen is displayed (See **Figure 16, below**)

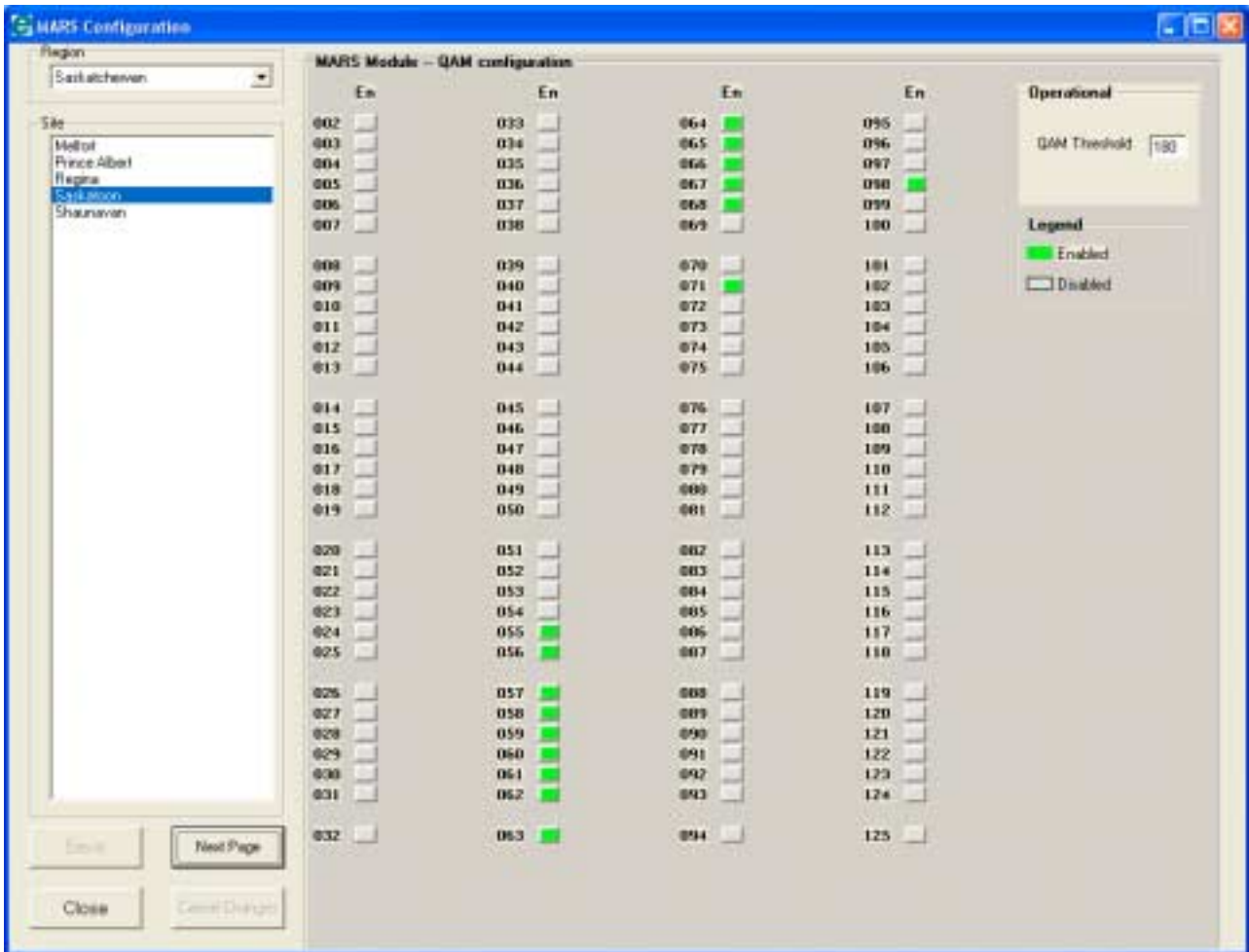


Figure 16: MARS Configuration, QAM Configuration Screen

11. Select the QAM channels that MARS should monitor by clicking on the **En** box beside each channel. Note that if a CATV channel is already configured for this channel, QAM cannot be configured. Alternately if QAM is previously configured then CATV cannot be configured for this channel.
12. Enter "225" in the "QAM Threshold" text box (225 is a "level" that would equate to an QAM RF input of about +8 dBmV). A QAM fault will be detected when the RF-level drops approximately 10 dB. See Appendix A for a calibration graph of values.
13. Select **Save** and **Close** to store the selected information in the database.

4.6 Description of the MARS Diagnostic Utility (MDU) Main Screen

A brief description of the MARS Diagnostic Utility (MDU) Main Screen:

- The Region can be selected by clicking on the combo box at the upper left corner of the MDU (See **Figure 17**, below). Selecting the region will cause the Site list box to be filled with associated sites.

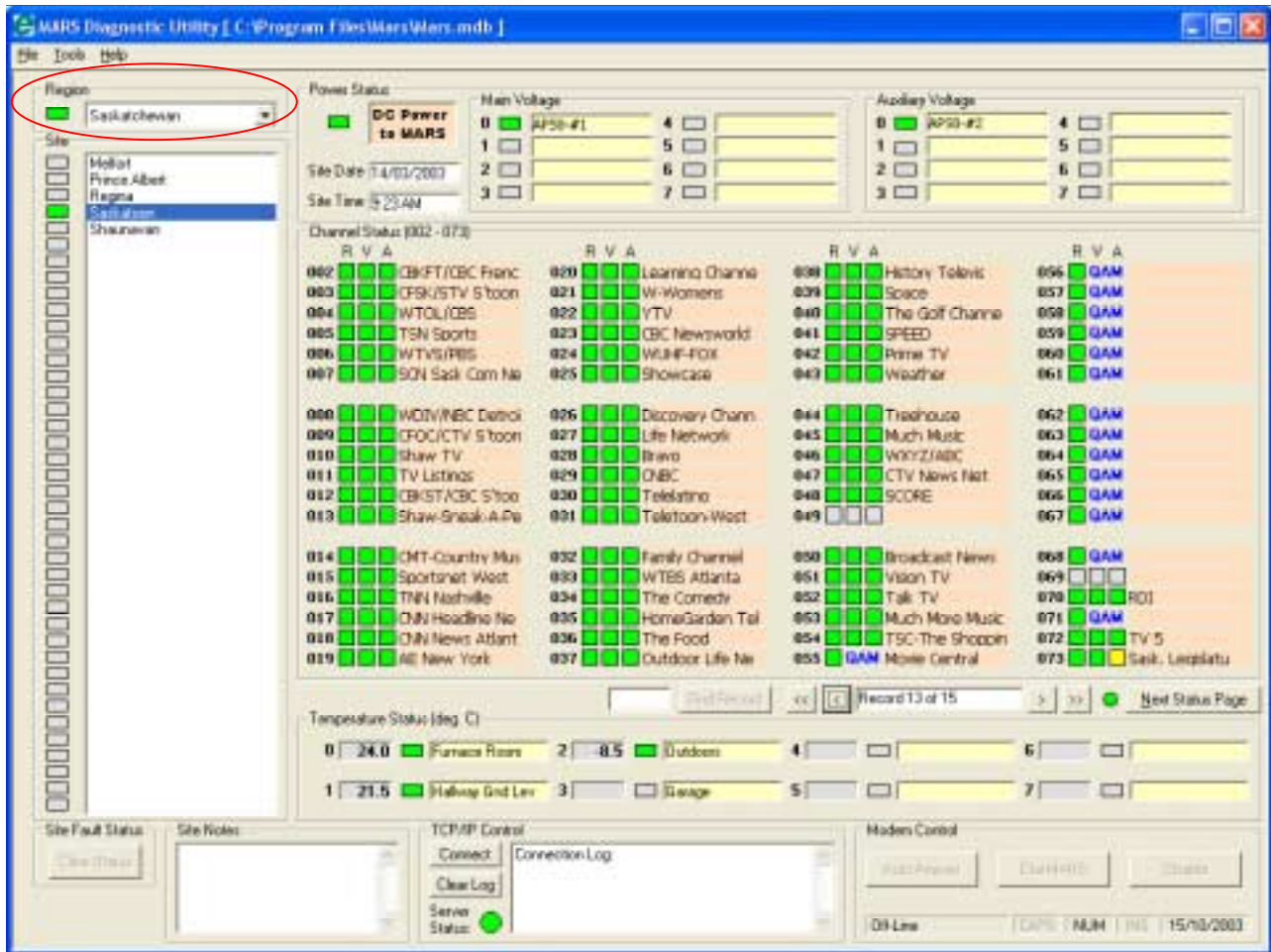


Figure 17: MARS Diagnostic Utility (MDU) Main Screen

- A Site is selected by clicking a site name in the Site list box. Selecting a Site causes the remainder of the screen to be filled with site status information.

- When a site is selected the **Connect** button is enabled in the TCP/IP section of the MDU screen. Selecting the **Connect** button will retrieve data from and/or update the selected MARS site (Assuming the site had previously been configured with necessary parameters).
- The main screen is divided up into several sections. The MARS Power Status, located near the upper left area of the screen, displays the DC power status to the MARS module as well as the date and time of the current MARS status. Voltage status (main and auxiliary) is displayed at the top of the screen, while temperature is displayed near the bottom of the screen.

NOTE: By moving the cursor over the temperature display boxes, a ToolTip will appear displaying the current temperature trip point.

- The center section displays the RVA (RF, Video, and Audio) status of all analog TV and QAM channels for which monitoring has been enabled. QAM channels are indicated by a “QAM” label beside the channel number.
- To display the results of the remainder of the channels, select the **Next Status Page** button located near the bottom right side of the Channel Status section (See **Figure 18**, below).

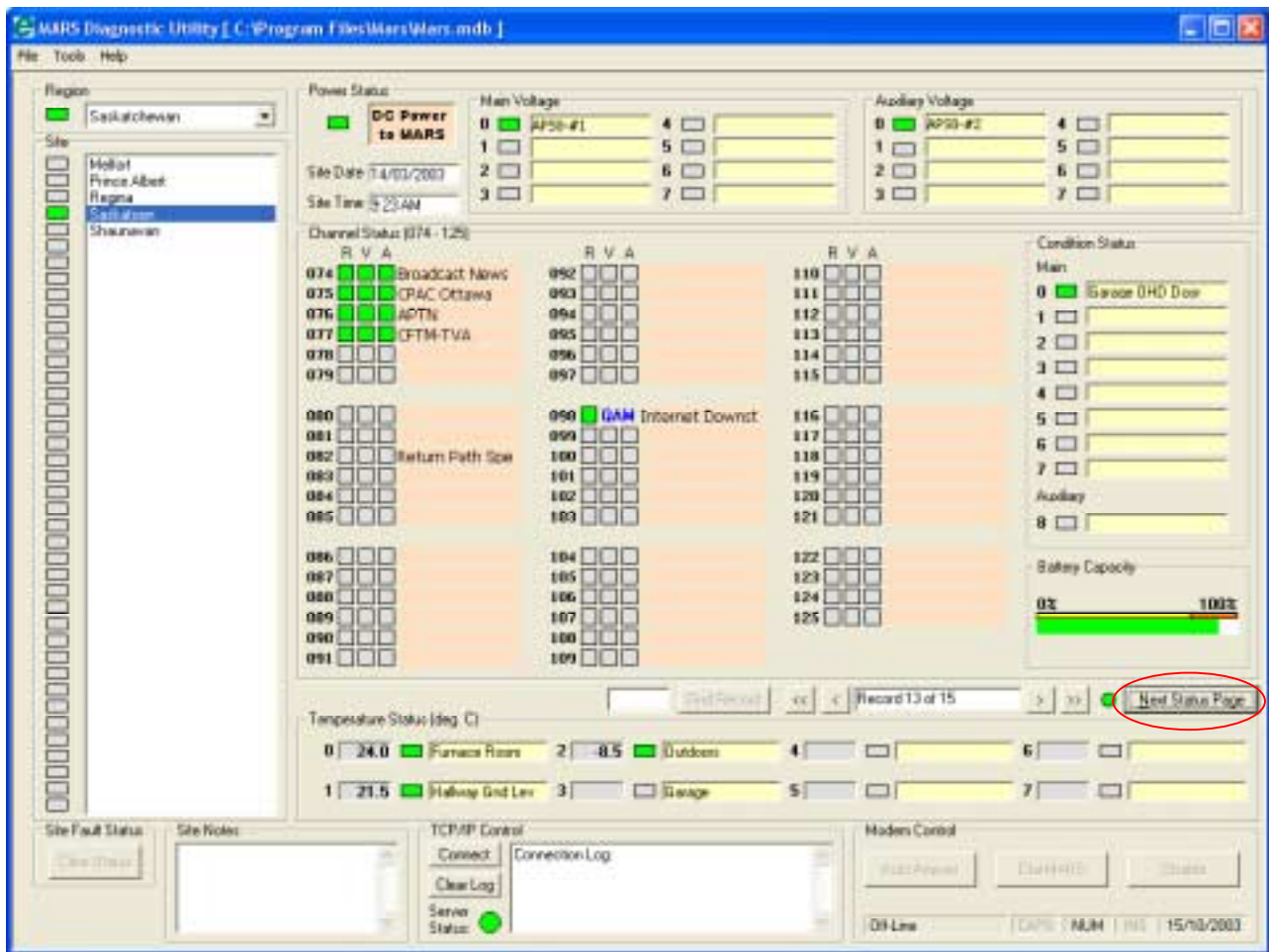


Figure 18: MARS Diagnostic Utility (MDU) main screen ('Second' status page)

- In addition to RVA, the second status-page displays the “Alarm Sensors” and battery status. To return to the first status-page select the **Next Status Page** again.
- To the left of the **Next Status Page** button is a display of the current status record and the total number of status records for the selected site. Clicking the arrows on either side of the display retrieves previous or subsequent status data.

4.7 Advanced Features and Settings

MARS has a number of features that allow it to be customized for various installation configurations. Note that some configuration changes to the MARS site can only be performed from a PC with the MARS Master software installed.

Notes:

1. For all requests to update the MARS site configuration from the PC, it is advisable to confirm that the request was sent to the MARS site. During communication with the MARS site, the PC log window will display the message “Data sent to MARS.” if the update was successfully sent to the MARS. If this message does not appear, the update was not received at the MARS site and communication will have to be re-tried from the PC.
2. Alternatively, the operations as described in Sections **4.7.1**, **4.7.2**, **4.7.3**, below, can also be performed by using the MARS USB Utility and a direct USB connection to the MARS. See the Mars USB Utility manual for instructions.

4.7.1 Changing MARS IP from the MARS PC application

Select **Site Manager** from the **Tools** menu on the MDU screen. Provide the ADMINISTRATOR password when prompted. On the Site Manager screen, enter the new MARS IP beside the “Mars IP” label. Select **Update** then **Close**. On the main screen select **Connect**. The MARS site will be updated with the new IP.

Note: Following this it is necessary to update the Site Manager with the new IP of the MARS prior to the next communication.

4.7.2 Changing MARS Port from the MARS PC application

Select **Site Manager** from the **Tools** menu from the MDU screen. Provide the ADMINISTRATOR password when prompted. On the Site Manager screen, select the **change port** button and enter the new port. On the next communication with the MARS site, the port will be changed at the MARS site.

4.7.3 Changing MARS TCP/IP Username and Password from PC

To change the TCP/IP username and password of the MARS site from the PC, the TCP/IP username and password must first be changed or cleared at the PC (See **4.1 Setting Options** and **4.2 Entering Password information** to review this process). Then on the next successful communication with the MARS site, the new username and password will be updated at the MARS site. Following this update, the new username and password will automatically be used for communications with the MARS site. Note: this process must be repeated for each MARS site that the PC is to communicate with.

4.7.4 Changing the PC Port Number

To change the port that the PC uses to accept communication from the MARS site, ensure that the database is opened then select **Internet Configuration** from the **Tools** menu on the main screen. Beside the server port, enter the new port number to be used (Note: the number must be between 21 and 65535, inclusive). To save the new port number, select **Save TCP/IP Config**. Respond to the prompts to save the configuration and then close and restart the MARS PC application. Once the application is restarted, the changes will take effect at the PC. Now it is necessary to communicate with the MARS site to ensure that it gets updated with the new port required to reach the PC. **Reminder:** all PC's that the MARS site contacts in the event of a fault must be using the same port.

4.7.5 Re-enabling a Disabled MARS Site

A disabled MARS site is inhibited from automatically communicating faults to PC(s). When the MARS site is in this state, it is still possible for a PC to communicate with the site to monitor and configure the site.

The MARS site may be in a disabled state for two reasons:

1. It has been disabled on-site by a technician (for example, while the technician is working on the monitored equipment)

OR:

2. The site has reached the maximum daily transmissions specified at the PC (in the Site Manager screen).

If the MARS site has been disabled it can be re-enabled by clicking on the "Re-enable site" checkbox in the Site Manager screen and then connecting to the MARS site to send this request.

4.7.6 De-Activating the MARS site

When a MARS site is de-activated, it is fully disabled. The MARS site will not automatically report faults or update status information on a PC that connects to it. To de-activate a site, open the "Mars configuration" screen by selecting **MARS Configuration** from the **Tools** menu on the MDU screen. Ensuring that the site to be de-activated is highlighted, select the "De-Activate Site" check box, then select **Close** to exit the configuration screen. "De-Activate Site" will appear in RED in the "Site Fault Status" frame on the MDU screen. The label will disappear after the MARS site has been de-activated. On subsequent communications with the MARS site, the site will inform the PC that it is de-activated. The PC will display a BLACK rectangle beside the disabled site in the site list box on the MDU screen.

Circumstances under which it may be desirable to de-activate a site:

1. There are frequent faults being reported due to unusual circumstances.
2. You wish to remove access to monitoring and control of the MARS site.
3. You wish to have the site inactive for a long term.

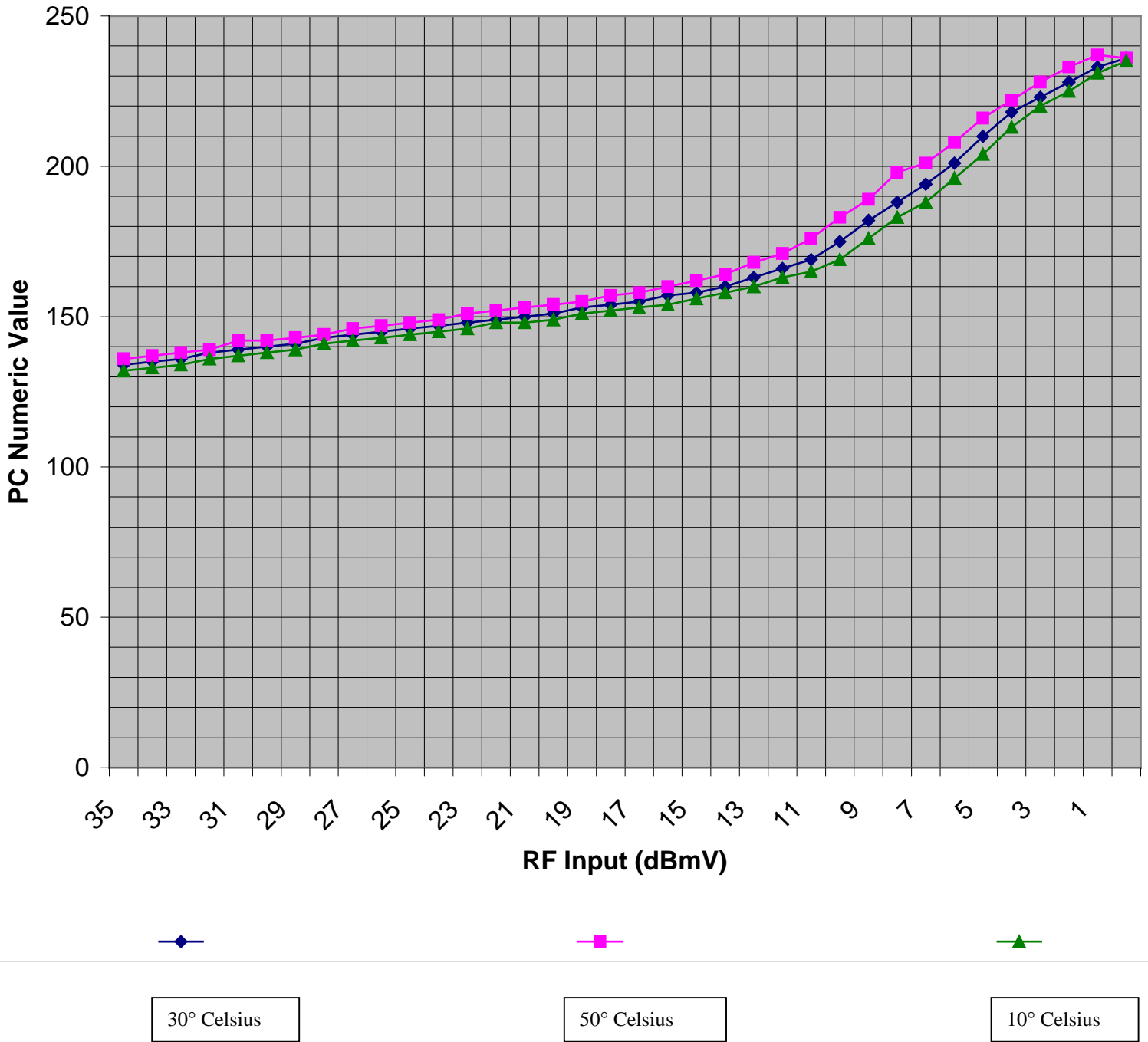
Compare this to a disabled MARS site. A disabled MARS site will automatically re-enable after Midnight. A de-activated MARS site will not automatically re-activate at any time in the future. A disabled MARS site can still provide status information to a PC that connects to it, A de-activated MARS site cannot provide status information to a PC that connects to it.

4.7.7 Re-Activating a MARS site

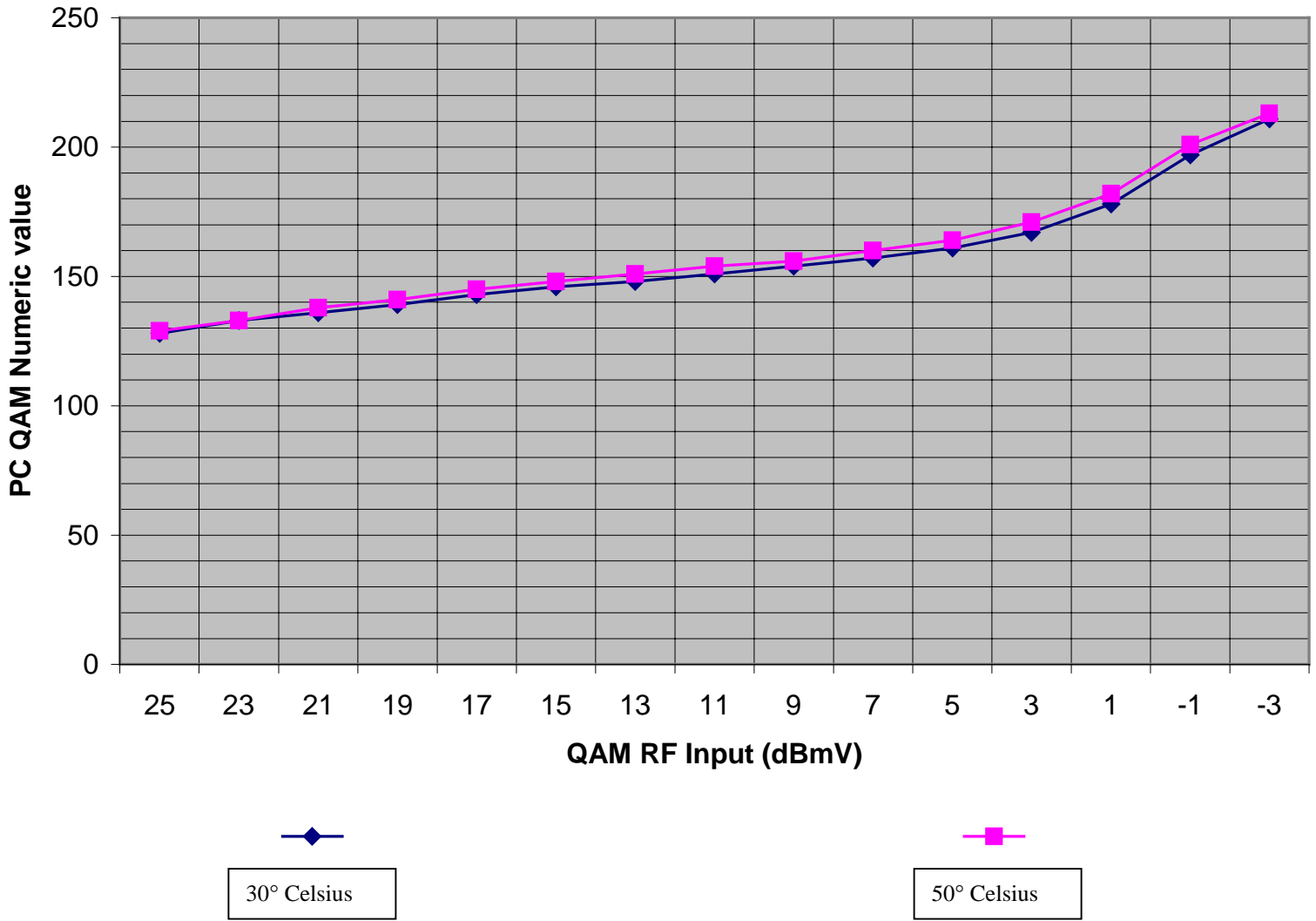
The steps to re-activate a MARS site are the same as those steps to activate the site on initial installation. (See Item **4.5.2 Activating the MARS site**). Once those steps are taken, it is necessary to connect to the MARS site in order for the PC to display whether the site is re-activated. If the site was re-activated the rectangular display to the left of the site in the site list should be RED or GREEN (RED in the case of a status fault at site, GREEN in the case of no fault at site). If the site is not re-activated, the rectangular display beside the site will remain BLACK.

Appendix A – Calibration Graphs

Graph of MARS RF threshold values for CATV



Graph of MARS RF threshold values for QAM



Appendix B - I2C cable assembly instructions

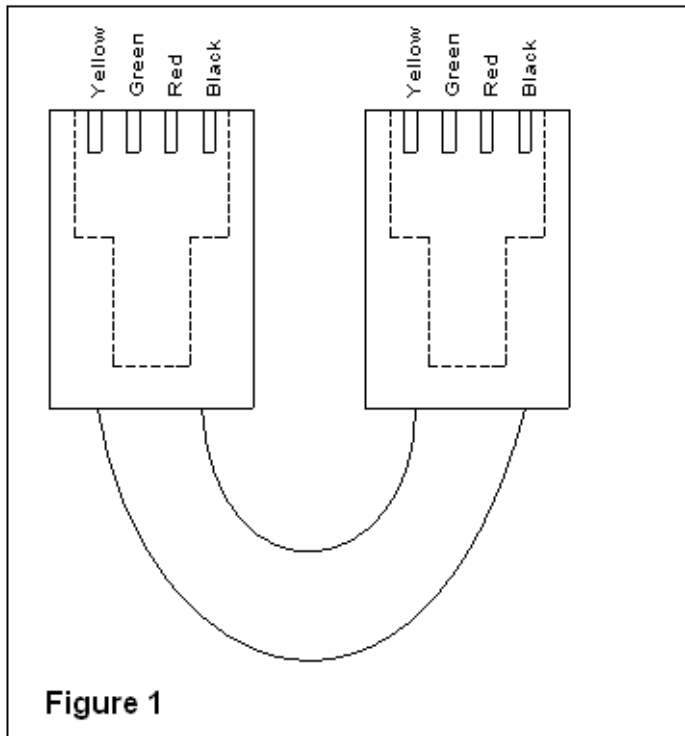
Cable Assembly for I2C Bus

Parts List:

- a) Handset Plugs
- b) Telephone cord(standard 4-wire)

Assembly:

1. Using conventional tool, connect handset plugs to telephone cord ensuring that the wires are ordered the same on each handset plug.
(See figure 1, below)



Note:

Dotted lines indicate hidden lines.
The hand set locking tab is viewed on the under side.

Appendix C MARS Specifications

Main Module Monitoring

CATV parameters RF, Video and Audio on Channels 2 to 125

Battery Backup

Type 6-volt (nominal) NiCAD pack
Charging Continuous
Duration 30 to 90 minutes

Optional Sensing Devices

Temperature Maximum of 8 devices (-55 to 100 degrees Celsius)
Voltage Maximum of 8 devices (6 to 130 VAC/VDC)
Condition Maximum of 1 device (9 inputs total, 1 auxiliary output)

Remote Control Devices

Power Strip Maximum of 7 external devices (8 outlets each), 1 on-board 2 outlet
Switch Maximum of 8 devices (8 terminals each)

Operating Temperature

Main Module 0 to 40 degrees C (32 to 104 degrees F)
Sensing Devices 0 to 50 degrees C (except for temperature module)

DC Power Input +9.2 VDC, 800ma

Mounting

Main Module Table top or rack mount
Sensing Devices Panel mount or wall bracket mount

Communication

Remote Ethernet
Sensing Devices I2C Bus**

Dimensions

Mars Chassis 1.75"(h) x 17"(w) x 5"(d) (4.45 x 43.1 x 12.7 cm)

Connections

RF input I2C Bus** DC Input Jack
RJ45 Ethernet Handset Jack
USB Port

** I2C: Inter-Integrated Circuit (a 2-wire bus specification developed by Philips Semiconductor)

Note: Specifications Subject to change