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6 DRB-25 DIAGNOSTICS MONITOR

6.1 OVERVIEW

DRB-25 Diagnostics Monitor is a Windows™ based software application running on an IBM™ compatible PC connected to the front panel RS-232 port (RJ-11) on the Controller Module of the DRB-25. ZDM allows an operator to monitor the activity and status of both transceiver modules together with the alarm status of all DRB-25 modules.

6.2 GETTING STARTED

6.2.1 System requirements

The minimum system requirements for operation of the DRB-25 Diagnostics Monitor software application are given in Table 6-1.

Table 6-1 System Requirements

Component	Minimum	Recommended
Computer	80386	Intel Pentium at 100 MHz
Operating system	Windows 3.1	Windows 95 or Windows NT
RAM	4 Mb	16 Mb
Hard disc free space	1.5 Mb	10 Mb
Display type	Super VGA	Super VGA
Display resolution	640 x 480 pixels	1024 x 768 pixels

6.2.2 Making a Backup Copy of the DRB-25 Diagnostic Monitor Disk

To prevent accidental erasing or overwriting of files, it is recommended that a write-protected backup copy of the DRB-25 Diagnostics Monitor program disk be made prior to installation.

6.2.3 Installing the DRB-25 Diagnostic Monitor Software

The following steps assume that the DRB-25 Diagnostic Monitor software is being installed from diskette drive A:\ or CD ROM on to hard drive D:\. If other drives are being used, make the appropriate substitutions in the following procedure.

To install the DRB-25 Diagnostic Monitor software application:

1. Start Windows
2. Place the DRB-25 Diagnostic Monitor distribution diskette in a floppy disk drive on the PC or if the software was distributed on CDROM, place the CD in the CDROM drive.
3. Run File Manager (Windows 3.1) or Explorer (Windows98 and NT), and display the files on the distribution medium.

4. Double-click on the file “setup.exe”. For floppy disk distributions this will be a top-level file, for CDROMS it may be located in a subdirectory named “disk1”.
5. Follow the instructions given by the **Setup** dialog boxes.

If installation problems occur then contact the supplier.

6.2.4 Starting DRB-25 Diagnostic Monitor for the First Time

To start the DRB-25 Diagnostic Monitor, select the ZDM icon from the **Start | Programs** menu.

The DRB-25 Diagnostic Monitor main window will appear as shown in Figure 6.1.

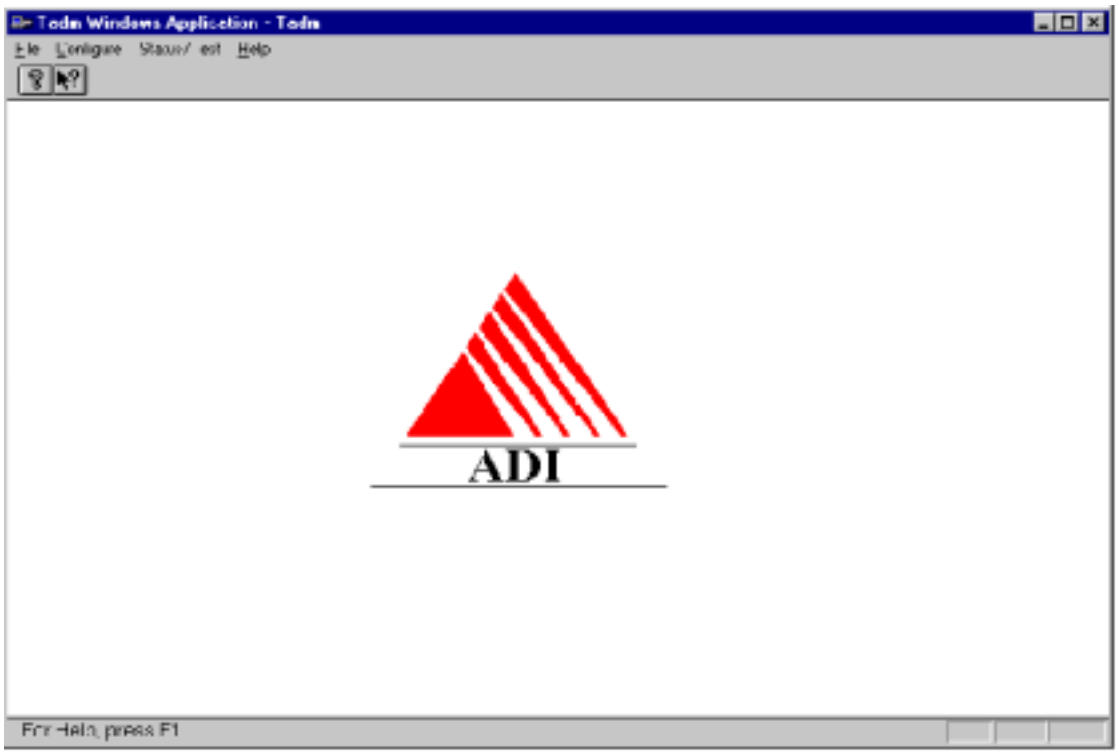


Figure 6-1 DRB-25 Diagnostic Monitor Main Window

6.2.5 Connecting the DRB-25 Diagnostic Monitor to the Controller Module

To connect to a Controller Module:

1. A DRB-25 Programming Cable (ADI Part number AMX-CB-02272) is required. Connect the PC communications port to be used to the DRB-25 Controller Module RJ-11 serial port connector using the cable.
2. The DRB-25 Diagnostic Monitor will attempt to automatically establish communications with the Controller Module. If this is successful the status dialog boxes will open automatically. If not the Configure Comms dialog box will be opened.
3. Using the procedure given in Section “Configuring Communications”, set the PC communications port used to connect to the DRB-25, and the PC communication parameters required for the Controller Module.

The Controller Module default communications settings are 9600 baud, 8 data bits, 1 stop bit and no parity (8N1).

6.2.6 Getting Help

To get help on the Transceiver Module programmer, from the main menu activate the **Help** pull-down menu and select **Contents, Search** or **Index** as required.

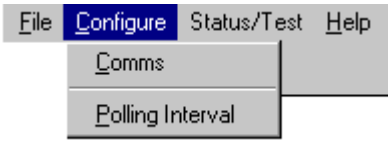
6.3 RUNNING THE DRB-25 DIAGNOSTIC MONITOR

Once DRB-25 Diagnostic Monitor is installed it will attempt establish communications with the Controller Module and if successful the status dialog boxes will open automatically. The Main Screen provides access to the following dialog boxes.

- **File menu:** The only option available is **Exit**.
- **Configure**: Dialog boxes for Configure **Communications** and **Polling** Interval.
- **Status/Test**: Status dialog boxes for **Radio 1 Status, Radio 2 Status** and **Alarms**; Test dialog boxes for **Radio 1 Test, Radio 2 Test** and **Change Test Password**
- **Help** dialog box.

6.3.1 Configuration

From the main screen the Configure Menu gives access to configuring communication parameters and the polling interval.



6.3.2 Configure Communications

The user will be prompted for Configure Communications dialog box if the DRB-25 Diagnostic Monitor is unable to establish communications with the Controller Module or whenever Configure | Comms is selected The following communications parameters may be set:

- Flow control (Xon or Xoff).
- Communications Port.
- Data Bits.
- Baud rate.
- Stop Bits.
- Parity.

To configure communications parameters, from the main menu activate the **Program** pull-down menu and select **Configure Comms**. The **Configure Comms** dialog box will appear as shown in Figure 6-2.

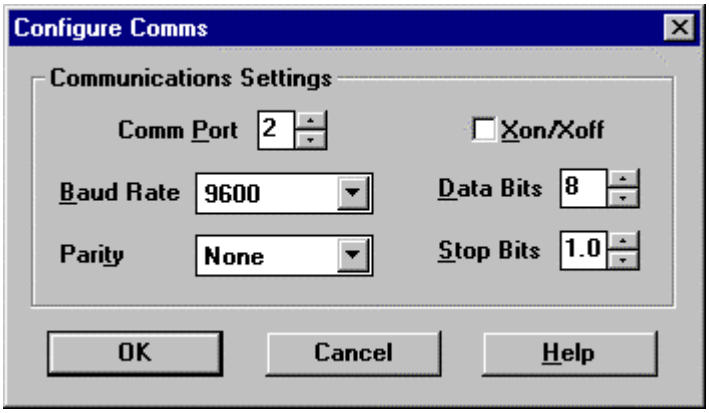


Figure 6-2 Configure Comms Dialog Box

The communications settings of the currently open file will be displayed. Where there is no file open, the default settings will be displayed. Table 6-2 lists the default communications settings.

To enter parameters:

1. Place the cursor on a cell where a change is required. The cursor will flash in the cell if placed there by use of the mouse. The cell will be highlighted if the Tab key is used.
2. Delete the existing value in the cell and enter the new parameter.
3. Click **OK** to update the current configuration.

OK

Closes the **Configure Comms** dialog box and writes any newly-entered communications data to the BP application's .INI file.

Cancel

Closes the **Configure Comms** dialog box without writing data to the .INI file..

Help

Provides access to on-line help on the **Configure Comms** dialog box.

Table 6-2 lists the applicable ranges and defaults for the communications parameters.

Table 6-2 Communications Parameters

Parameter	Range/Description	Default
Flow Control	Xon or Xoff	X off
Baud Rate	1200, 2400, 4800, 9600, 14400, 19200 and 28800	9600
Com Port	1,2,3 etc.	1

Parameter	Range/Description	Default
Data Bits	7 to 10	8
Parity	Odd, Even, None.	O
Stop bits	1, 1.5, 2	1

6.3.3 *Configure Polling Interval*

The Configure | Polling Interval dialog box enables the user to set the interval at which the DRB-25 Diagnostic Monitor polls the Controller card for status information. The default polling interval is 1000ms. The **Polling Interval Dialog** box will appear as shown in Figure 6-3.

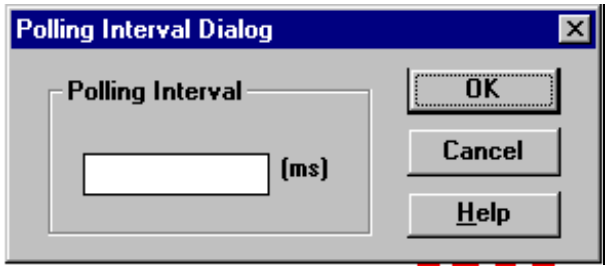


Figure 6-3 Polling Interval Dialog Box

To enter/change parameters:

1. Place the cursor in the cell
2. Delete the existing value in the cell and enter the new parameter.
3. Click **OK** to update the current configuration.

OK

Closes the **Polling Interval** dialog box and writes any newly-entered communications data to the ZDM application's .INI file.

Cancel

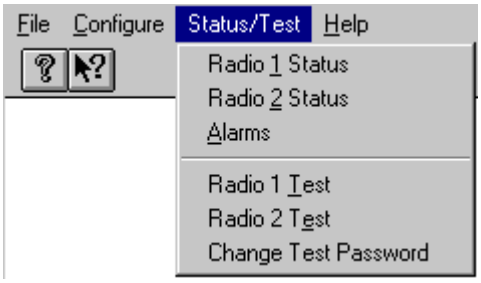
Closes the **Polling Interval** dialog box without writing data to the .INI file..

Help

Provides access to on-line help on the **Polling Interval** dialog box.

6.3.4 *Status/Test*

From the Main Menu the Status/Test gives access to the status dialog boxes for Radio 1, Radio 2 and Alarms and the test dialog boxes for Radio 1, Radio 2. It also includes provision to change the password used to access the test functions.



Radio Status

The status boxes for Radio 1 and Radio 2 provide identical parameters for the two DRB-25 transceiver modules:

- Channel : The current channel in use
- Mode : the current mode
- Frequency : the current receive and transmit frequencies
- Signal Strength : the current receive signal level
- BER : for digital signals the current BER (%)
- Squelch : open/closed
- NAC : for digital signals the current transmit and receive NAC
- CxCSS : for analog signals the current CTCSS or CDCSS
- Talk Group ID : for digital signals the current receive and transmit TGID
- Station ID : the station ID/FCC callsign
- Last subscriber ID : for digital signals the identity of the last subscriber unit heard.

The **Radio Status** dialog box will appear as shown in Figure 6-4.

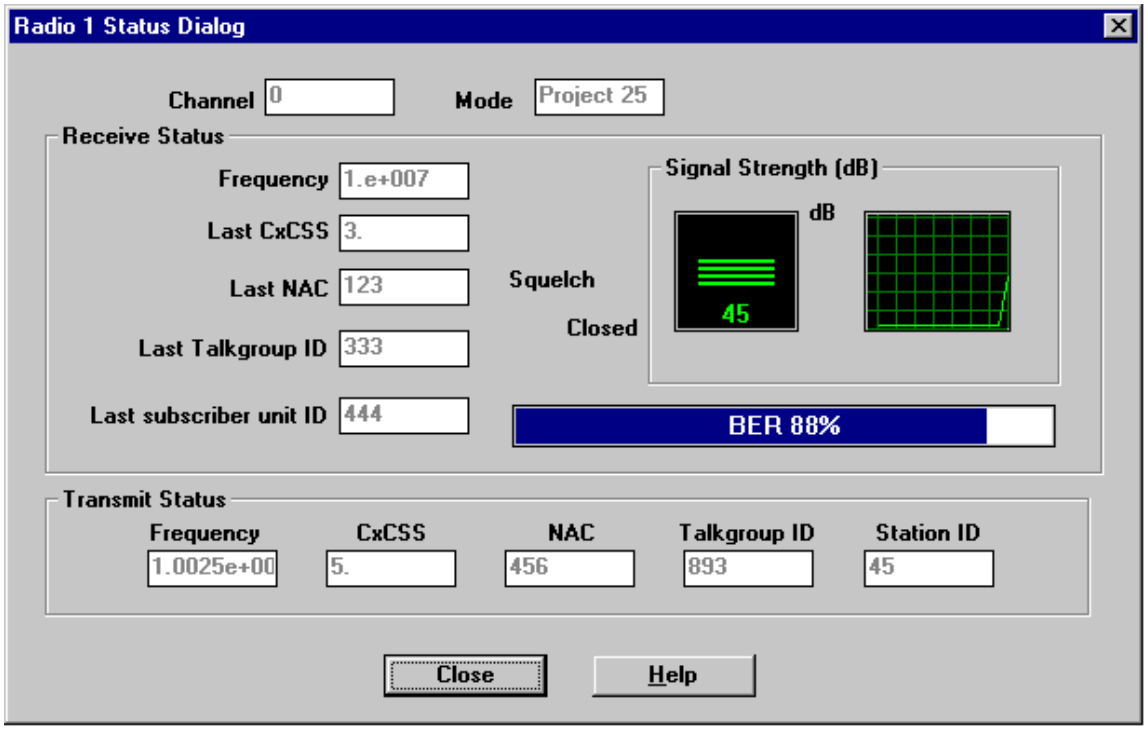


Figure 6-4 Radio 1 and Radio 2 Status Dialog Box

The status parameters are updated at the rate specified in the Configure | Polling Interval dialog box.

Close

Closes the **Radio Status** dialog box.

Help

Provides access to On-line help for the **Radio Status** dialog box.

6.3.5 Alarms

The **Alarms** dialog box shows the status of the following DRB-25 parameters and alarms:

- VSWR hi/lo/normal
- Temperature critical/abnormal/normal
- Radio Fault Status on/off
- PA Fault on/off
- Controller Fault set/clear
- DC Standby on/off

The **Alarms** dialog box will appear as shown in Figure 6-5.

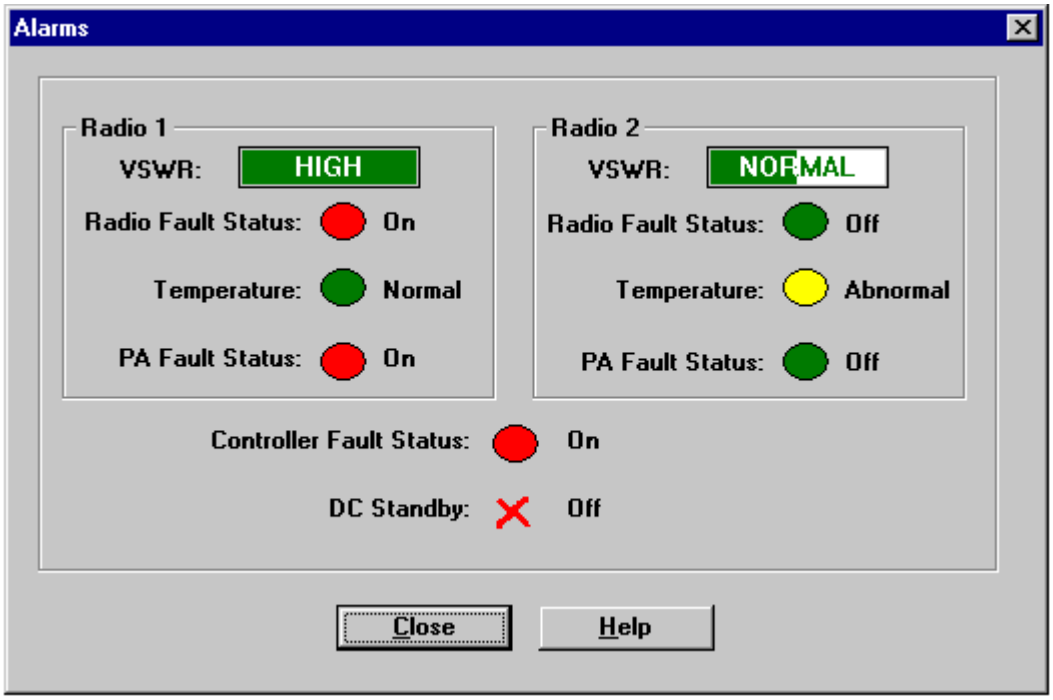


Figure 6-5 Alarms Dialog Box

Close

Closes the **Alarms** dialog box.

Help

Provides access to on-line help on the **Alarms** dialog box.

6.3.6 Test

The Test dialog boxes (**Test Radio 1** and **Test Radio 2**) enable the operator to select various APCO Project 25 digital and Analog FM test signals and conduct limited testing of the transmitter to verify the performance.

On entering the test dialog boxes the user will be prompted for a password. The **Password** dialog box will appear as shown in Figure 6-6.

Figure 6-6 Password Dialog Box

Enter the Password corresponding to the Login for the module and click OK. Password entry is case-sensitive. Passwords are from 1 to 8 characters. The initial password is "ZDM". For security, the password should be changed as soon as practical to a secret password known only to the user. Procedures for password change are in Section, 5.2.6 "Changing the Password".

When the password has been successfully entered, the Transceiver Module programmer is now ready to read or write data to or from the DRB-25 module.

The following APCO Project 25 digital test signals are available:

- Standard 1011 Hz Test Tone;
- Standard Silence Test Pattern;
- Hi Deviation Pattern;
- Lo Deviation Pattern, and
- PRBS sequence.

The following Analog modulation test signals are available:

- 1000 Hz test tone, deviation = 1.5 kHz (25 kHz wideband FM)
- 1000 Hz test tone, deviation = 3.0 kHz (12.5 kHz narrowband FM)

The Test Dialog boxes allows the following radio controls to be exercised:

- **Enable Local PTT** (on/off) check box allows the user to transmit from a front panel microphone while the TDM is connected even if the channel in use has front panel PTT turned off.
- **Enable Intercom** check box shall allow the user to use a front panel microphone or handset to talk to a tone remote or console operator via 4 W/2 W interface while the TDM is connected.
- Select **Channel**.

The **Test Radio** dialog box will appear as shown in Figure 6-7.

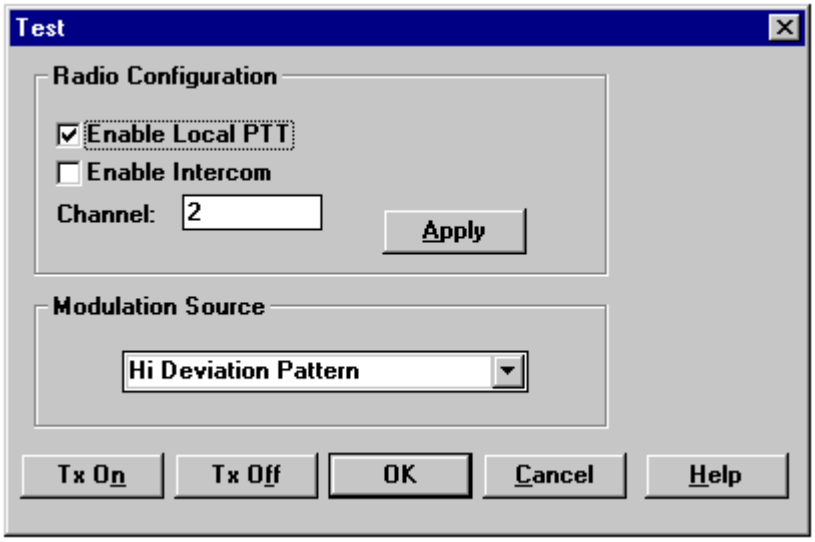


Figure 6-7 Test Radio Dialog Box

Apply

The **Apply** button sets the Enable Local PTT, Enable Intercom and Channel. This is, however, not stored on the Transceiver Module.

Tx On

The TDM Test dialog box **Tx On** button selection causes the TDM to write the factory test parameter to the selected Transceiver Module. The transmitter is turned on using the selected test tone as the modulation source. Note that if TDM is closed with TX On still selected then TDM will turn the transmitter off before closing and the transceiver will revert to its normal operating mode for its current channel.

Tx Off

Turns the transmitter off.

OK

Closes the **Test** dialog box returns the user to the **Main** dialog box. The transmitter is returned to the off state and the Enable Local PTT and Enable Intercom revert to their previous settings.

If a channel has been changed during a test session then a box will appear after the user closes the test dialog box : 'The current channel of Radio x has been changed during this session. Do you wish to change the radio back to its original channel?' Yes/No. If yes is clicked, then the channel will be changed back to the channel in use when the TDM session was started.

Cancel

Closes the **Test** dialog box without writing data to the .INI file..

Help

Provides access to on-line help on the **Polling Interval** dialog box.

6.3.7 Changing the Password

To change the password, from the main menu activate the S**tatus/Test** pull-down menu and select **Change Passwords**. The **Change Password** dialog box will appear as shown in figure 6-8.

Figure 6-8 Change Password Dialog Box

Enter the old password, followed by the desired new one. Enter the new password again in the bottom field for verification and click **OK**. The Tab key may be used to move between the text boxes.