

Command and Control

*This chapter describes the keypad presses and remote control commands required to use your **CDQPrima***

5. Command and Control Summary

There are three ways to control the **CDQPrima**: the front panel keypad and display, a remote terminal, or an optional Windows® Remote Control program. You can enter all commands and access all functions by working through the command menu tree (see the **CDQPrima** Technical Reference Manual) using the built in cursor, alphanumeric keypad and LCD display. A computer (running any terminal emulation program) or terminal can connect to the **CDQPrima** for configuration and control using the built in commands and the powerful PLL (Prima Logic Language) command language. Using a computer or terminal makes it possible to send and execute a large number of commands and actions to a far end **CDQPrima**. An easy-to-use Windows® Remote Control program is also available for configuring and controlling several locally attached and far-end **CDQPrimas**.

Only the basic **CDQPrima** functions will be discussed here. More advanced control functions, such as Prima Logic Language and psychoacoustic parameter adjustments are discussed in the **CDQPrima** Technical Reference Manual.

Although not a tutorial, this chapter discusses all of the necessary programming, setup, and configuration information required to use the **CDQPrima** for most applications. The following sections can be found here:

- Command entry using the front panel keypad and display, remote control commands and the Windows Remote Control program
- Digital Interface Module, including Terminal Adapter setup, configuration storage and recall
- Encoder/Decoder configuration using Quick Configurations, including configuration table maintenance
- Manual encoder and decoder configuration
- Terminal Adapter dialing, including speed dial directory maintenance
- Remote control port configuration
- Loopback modes
- Headphones, displays, beeper and fan controls

Information and discussions of the following advanced topics can be found in the **CDQPrima Technical Reference Manual**:

- Digital transmission networks, including Switched-56, ISDN and dedicated lines.
- Compression algorithms, line formats, bit and sample rate selections and performance considerations.
- Advanced configuration for dual-algorithm, decoder independent, independent mono and broadcast applications.
- Advanced encoder and decoder configurations and features including digital audio I/O and timing, calibration, peak detection, status bits, error concealment, sine detection and simulated switches.
- Remote control, Windows Remote Control program, RS232/RS485 considerations and far-end remote control.
- Ancillary data, including SMPTE time code, relay closures, optical inputs and data port configurations.
- Prima Logic Language, including error and out of frame detection, silence and audio detection, timers, optical inputs and relay outputs, event definition, status and link events, action definition, virtual actions and event to action logic.
- Psychoacoustic parameter adjustment.
- Security, including passwords, port and command lockout.
- Booting, resetting defaults, User Profiles and software downloading.
- Troubleshooting.
- Maintenance and debugging functions

The [CDQPrima Remote Control Manual](#), available upon request, discusses the full command syntax for the nearly 200 commands used to control the **CDQPrima** from a terminal. Please note that on-line help is available for all commands.

All three methods of **CDQPrima** control are discussed in this guide. For each function, the terminal commands and the Windows ‘clicks’ are shown next to the menu commands. Function and syntax details of each command are available on-line or can be found in the [CDQPrima Remote Control Manual](#).

5.1 Menu Navigation using Keypad and Display

Most **CDQPrima** functions can be set from the front panel keypad; using the menu on the LCD display.

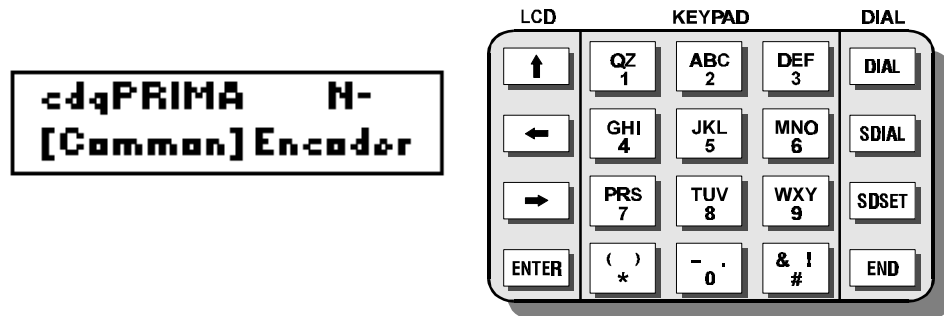
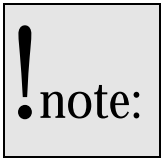


Figure 5-1 Model 110 and 210 Display and Keypad

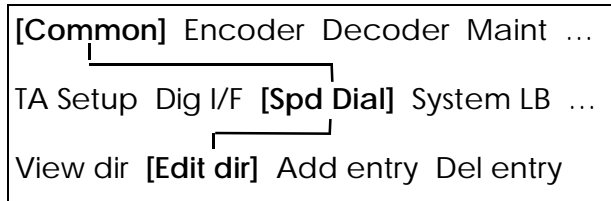
The following discussion of menu navigation is based on the basic keypad and display as shown in Figure 5.1. The enhanced and extended keypads offer more flexibility, but all functions are accessible using the basic keypad. To use the keypad and display, use the arrow keys to move the cursor (the [] brackets) to the desired selection. Press the **ENTER** key to execute that selection or move down one layer of the menu tree. Pressing the up arrow key at any time will bring you up one layer of the menu tree. At any given time, only a limited number of the available options are shown on the screen. Several presses of the left and right arrow keys may be required to scroll to the desired selection.

The alphanumeric portion of the keypad is used to enter numbers or text for those commands that require it. Each key of the alphanumeric keypad represents up to 4 characters. For example, pressing the “QZ1” key once will enter a “1.” The second press of the same key will enter a “Q,” the third press a “Z,” and the fourth press will enter a space.



Once the first character of the string is displayed, use the right arrow to move to the next character until all desired characters are displayed, then press **ENTER** to execute the command. **A space is added to the character string by pressing the “1” key four times, not by moving the cursor to the next position with the arrow key.**

Two shorthand notations will be used throughout the remainder of this manual. Examples are shown here:



and

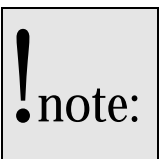
<Common><Spd Dial><Edit dir>

Both notations shown above have the same meaning: Start at the top of the menu tree, move the cursor (the square brackets) to “Common” and press **ENTER**. Next, move the cursor to “Spd Dial” and press **ENTER**. Finally, move the cursor to “Edit dir” and press **ENTER**.

5.2 Computer or Terminal Control

The RS232/RS485 remote control port permits control and operation of the **CDQPrima** from an attached terminal or computer. Computer control can be either from a terminal emulation program or from within a user written control program. These user programs can be written in any language that supports RS232 or RS485 I/O, and are beyond the scope of this manual. Any terminal emulation program that supports VT-100 emulation can be used, including those programs that come standard with Microsoft Windows. Terminal emulation programs are available for most platforms, including IBM, Macintosh, and Sun.

Only one RS232 device can be controlled from a single RS232 terminal; However, RS485 control allows multiple **CDQPrimas** to be controlled from a single controller in an addressed fashion. Refer to the **CDQPrima Technical Reference Manual** for RS232/RS485 remote configuration. **Please note that it may be necessary to use the keypad and display method to make the RS232/RS485 control active for the first time.**



Also note that non-standard cables are required for remote control. Refer to the CDQPrima Technical Reference Manual for cable information.

5.3 Windows® Control

A Windows remote control program is optionally available for use with all **CDQPrima** models. This is by far the easiest method of controlling the **CDQPrima**, but it does require a computer running Microsoft Windows version 3.0 or higher. No Macintosh version is currently available, but this program will run using most Windows Emulation software packages. This is a full control program using the familiar features of Windows, such as drop-down menus, dialog boxes and icons. Using the RS485 interface, multiple units can be controlled within the same window. As with terminal control, it may be necessary to use the keypad and display method to configure the remote port of the **CDQPrima** before the Windows control program can be used. The Windows control program also makes control of the far end **CDQPrima** a simple point-and-click procedure. An additional feature, only available when using the Windows Remote Control program, is the addition of a VCR-like timer, with up to 20 events, for unattended operation of your **CDQPrima**. A sample screen is shown below:

You can download a 30 day trial version of the Windows Remote Control Program from our home page:

www.musicamusa.com



Figure 5-2 Main Screen for Windows Control

!note:

Please note that in the following listings, an 'N/A' in the columns representing the Windows 'clicks' means that there are no shortcut 'clicks' for this function. You can still access that function using the 'Direct Command' pull-down window available in the Windows program.

5.4 Command Summary—Basic Operation

In the following sections, commands are grouped together by similar functions. Preceding the brief discussion of the command groups will be the necessary keypad entries. The associated remote control command and the ‘clicks’ required to access the command using Windows are shown next. For the complete command discussion, including options and syntax, refer to on-line help or the **CDQPrima Remote Control Manual**.

In the following sections, all command tables are arranged as follows:

The first column shows the commands as entered from the keypad and display. All spelling and capitalizations are shown as they will appear on the display. The second column is the command as it would be entered from a terminal. Refer to on-line help or the **CDQPrima Remote Control Manual** for the command syntax. The third column represents the Windows program menu ‘clicks.’ The fourth column is a brief description of the command itself.



The following command trees shown in the first column refer to software version 30/6.30 and later. Any commands specific to software version 6.30 and not available on version 30 will be indicated. A full command tree is shown in Appendix A.

5.4.1 Digital Interface and Terminal Adapter Setup

5.4.1.1 Digital Interface Setup

```
[Common] Encoder Decoder ...
      |
      v
TA Setup [Dig I/F] Spd Dial ...
      |
      v
Def I/F DTR/CON
```

<Common><Dig I/F><DTR/CON>	CDT	Setup, Digital Interface	Set state of the DTR/CON line
<Common><Dig I/F><Def I/F>	CIF	Setup, Digital Interface	Set digital interface type

The **CDQPrima** must have at least one digital interface to operate. 200 Series models can have up to three interfaces. There are several types of digital interfaces, classified as TA (Terminal Adapter) and non-TA types. A TA type of digital interface is one that is capable of directly connecting to the ISDN line and dialing.

There are three different internal TAs available for the **CDQPrima**, TA101, TA201 and TA301, and there are several different Non-TA type interfaces that can be used with the **CDQPrima**:

- X.21
- X.21XTA
- RS422
- V.35
- V.35XTA

The RS422 and X.21 protocols have the same voltage levels and thus both share the same interface card. The distinction between them is made by setting jumper P4 on the DIF card. Position 1 and 2 should be shorted for X.21 operation, and position 2 and 3 should be shorted for RS422.

The V.35 standard specifies different voltage levels and hence must use a different type of line interface IC. The interface card used for this standard is therefore different from the interface card for the X.21/RS422 standard.

The **CI F** command,

<Common><Dig I/F><Def I/F>

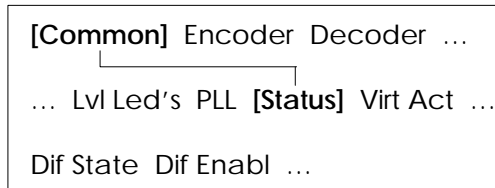
is used to define and enable the type of digital interface that has been installed in the **CDQPrima**. Please remember that each installed interface card has two ports, and that each port must be defined.

Some models of external terminal adapters can use the state of the DTR/CON line to terminate a connection. If your external terminal adapter or CSU/DSU can do this, use the X.21XTA or V.35XTA setting, whichever is appropriate. This enables the user to terminate the connection by pressing the **END** key on the front of the **CDQPrima**. Otherwise, use the X.21 or V.35 setting.

On some non-TA interfaces, there is a signal designated DTR for the V.35 interface and CON for the X.21 interface. These are control lines from the **CDQPrima** interface card to the external terminal adapter equipment. The levels of these lines are controlled by the **CDT** command (<Common><Dig I/F><DTR/CON>). Some external ISDN terminal adapters and Switched-56 CSU/DSUs require that the DTR/CON line is asserted. The **CDT** command provides an easy method of controlling the state of the DTR/CON line.

If your **CDQPrima** was delivered with the digital interfaces installed by the factory, the modules have already been set up. You should, however, check to see that non-TA type interfaces have been set up properly for your application. In addition, after any reset of default values, you will have to re-install all DIF modules.

5.4.1.2 Digital Interface Status



<Common><Status><DIF Enabl>	CIE	Setup, Digital Interface	Display DIF enable status
<Common><Status><DIF State>	CIS	Setup, Digital Interface	Display DIFstate

A digital interface can be in one of three states:

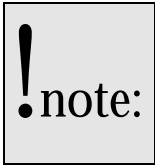
- DISCONNECTED
- DIALING (TA type only)
- CONNECTED

For **CDQPrima** models 120, 220 and 230 containing an LED display, the state of the digital interface is shown by the 6 DIF LEDs on the front panel. If the LED is dark, then the state of the DIF is DISCONNECTED. If it is blinking, then the DIF is DIALING and if the LED is illuminated, then the DIF is CONNECTED. Certain non-Terminal Adapter interfaces will always be in the connected state.

On **CDQPrima** Models 110 and 210, which do not have the DIF LEDs, you can use the **CIE** command (<Common><Status><DIF Enabl>) to display which DIFs been enabled: ‘ * ’ for enabled, ‘ - ’ for disabled and ‘ _ ’ for not defined. Use the **CIS** command (<Common><Status><DIF State>) to display the current status of the DIFs: ‘ _ ’ for not installed or enabled, ‘ - ’ for not connected, ‘D’ for dialing, and ‘C’ for connected.

5.4.1.3 Terminal Adapter TA101 Configuration.

The TA101 terminal adapter provides one S/T interface for one ISDN BRI (2 x 64 kb/s) line. In North America, the Telco provides a ‘U’ interface; therefore, an external NT-1 must be used between the **CDQPrima** and the wall jack. Elsewhere, the Telco provides an S/T interface and an external NT-1 is not needed.



The TA101 requires country specific ROM chips for use in different countries. Please contact MUSICAM USA, CCS-Europe or your local distributor for information if you plan to take your **CDQPrima** to a different country.

```
[Common] Encoder Decoder ...
|
[TA Setup] Dig I/F Spd Dial ...
|
[DIFs] TA Cnfgs Conn Time ...

Sw type SPID ID Lcl Chk Reset I/F ... (these selections under DIFs)
```

<Common><TA Setup><DIFs><Inband>	CIB	TA, Settings	Set Inband for internal TA
<Common><TA Setup><Difs><Lcl Chk>	CLC	TA, Settings	Set TA local check
<Common><TA Setup><DIFs><ID>	CLD	TA, Settings	Set ID for a Terminal Adapter
<Common><TA Setup><DIFs><MSN>			Set MSN for European TA
<Common><TA Setup><DIFs><LLC>	CLL	TA, Settings	Set LLC state (United Kingdom)
<Common><TA Setup><DIFs>< Sub addr>	CSA	TA, Settings	Set sub-address for a terminal adapter.
<Common><TA Setup><DIFs><EAZ>			Set EAZ for 1TR6 switch (Germany)
<Common><TA Setup><DIFs><SPID>	CSI	TA, Settings	Set SPID for a Terminal Adapter
<Common><TA Setup><DIFs><Sw type>	CSW	TA, Settings	Set switch type
<Common><TA Setup><DIFs><I/F>	CTF	TA, Settings	Set TA interface mode
<Common><TA Setup><DIFs><Reset>	CTR	N/A	Reset the internal terminal adapter

Probably the most confusing aspect of ISDN codecs is configuring the Terminal Adapter for the ISDN in your area. This is especially true in North America, where there are several local 'flavors' of ISDN that are all provisioned differently. Elsewhere, configuration of the terminal adapter may be as simple as insuring the proper ROM chip is installed for the country where the **CDQPrima** is being used.

In North America, certain information must be supplied by the ISDN service provider in order to correctly configure the Terminal Adapter:

- Switch Manufacturer, e.g. AT&T, Seimens, Northern Telecom

- ISDN 'Flavor', e.g. National ISDN or Custom Point-to-Point. Please note that Custom Point-to-Multipoint will not work with the TA101 terminal adapter.
- Service Provider Identification Numbers (SPID numbers). National ISDN *always* requires SPID numbers, some locations using Custom Point-to-Point may *not* require SPID numbers. If SPID numbers are required, most areas use two, but some implementations require only one.

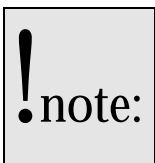
5.4.1.3.1 Switch Type (North America and Germany Only)

It is necessary to tell the TA101 what type of switch protocol is being used at the Telco central office. This information will be given to you by the ISDN service provider. You only need to set the switch type once for each TA since the switch governs both. Go down the <Common><TA Setup><DIFs><Sw type> branch, selecting the desired DIF, then select the appropriate switch type. The **CSW** command is used for setting the switch type from a terminal.

In North America, four switch types are available:

- 5E6 is used for AT&T Custom Point-to-Point ISDN version 5E6 or earlier. If your service provider can only provide Custom Point-to-Multipoint, you must use a TA201 or TA301 terminal adapter.
- 5E8 is used for AT&T Custom Point-to-Point ISDN version 5E8 or later. If your service provider can only provide Custom Point-to-Multipoint, you must use a TA201 or TA301 terminal adapter.
- NTI is used when the switch is a Northern Telecom DMS-100.
- NI1 is used for all other National-ISDN-1 implementations, including AT&T.

German users have three choices, DSS1, 1TR6 and AUTO (AUTO will not work if a PBX is used). Contact CCS-Europe for information on which to use in your area.



Special Notes for Switch Type 5E6 and 5E9.1 Custom Point-to-Point (North America Only):

If your service provider tells you that the switch type is an AT&T 5ESS with software version 6 or earlier, you cannot enter a SPID and ID number since these are not supported. Since SPID and ID numbers are not entered, you must tell the **CDQPrima** not to look

for them, by turning Local Check (<Common><TA Setup><DIFs><Lcl Chk>) to NONE. **When SPIDs are not used, Line 2 will answer incoming calls first.**

If your service provider says your 5ESS switch is running software version 5E9.1 in Custom Point-to-Point configuration, they may give you SPID numbers. On the **CDQPrima**, select switch type 5E8, do not enter the SPID numbers, but enter the ID numbers and local check values. A TA reset may or may not result in a “SP1 BAD SP2 BAD” message. **When dialing, ‘1 + area code’ dialing is required, even for local calls.**

5.4.1.3.2 Service Provider ID (SPID) Number (North America Only)

For *most* areas in North America, the TA must be told the number of the *calling* ISDN line; that is, the line connected to the **CDQPrima**. This number is provided to you by the ISDN service provider in your area. **It is important to remember that every time the CDQPrima is moved, or whenever there is a change in the ISDN line, or even area code changes, the SPID and ID number, switch type and possibly other parameters for the TA setup must be updated.** You can store up to 20 ISDN location configurations for later recall.

To set the SPID number using the keypad, go down the branch <Common><TA Setup><DIFs><SPID>, selecting the desired DIF, and follow the prompts to enter the SPID number for all connected TAs. Please note also, that each TA supports 2 basic rate ISDN ‘B’ channels, so if your service provider gave you two SPID numbers, you must enter both of them, one for each ‘B’ channel. Use the **CSI** command to set the SPID number from a terminal. See the **CDQPrima Remote Control Manual** for details.

5.4.1.3.3 Identification (ID) Number (North America Only)

If you are required to use two SPID numbers, then you must use ID numbers. For the TA101, the ID number is just the last 4 digits of the ISDN line number connected to the **CDQPrima**. Use the <Common><TA Setup><DIFs><ID> branch, and follow the prompts to set the ID from the keypad. Use the **CLD** command from a terminal.

5.4.1.3.4 Multiple Subscriber Number (MSN — Europe Only)

If you have selected the DSS1 switch type in Germany, then MSNs must also be used. Use the <Common><TA Setup><DIFs><MSN> or use the **CLD** command.

5.4.1.3.5 Local Check (North America Only)

If you are required to use ID numbers, you must also set the Local Check values. Local check tells the TA101 which internal buffers to check for the ID number. To set this parameter, branch down <Common><TA Setup><DIFs><Lcl Chk>, enter the DIF number, then enter the number of the buffer that contains the ID number. You can use the **CLC** command from the terminal. The Local Check values for all odd-numbered DIFs must be set to 'T5' and all even-numbered DIFs get set to 'T6'. If IDs are not used, local Check must be set to 'NONE' for all installed DIFs.

5.4.1.3.6 LLC State (United Kingdom)

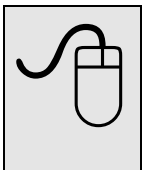
In some areas of the United Kingdom it may be necessary to toggle the state of the Low Level Command mode. Use the LLC command (<Common><TA Setup><DIFs><LLC>) command for this.

5.4.1.3.7 Sub Address, EAZ (Germany), Interface Mode and Inband

The sub-address for an S/T interface TA (TA101) is set by the **CSA** command (<Common><TA Setup><DIFs><Sub addr/EAZ>). This command is used when a **CDQPrima** is connected to a digital PBX. If the TA101 is directly connected to an NT1, then the sub-address should be set to 0. Subaddresses are generally not used in North America. In Germany, when using the 1TR6 switch type, subaddresses are required. Use the **CSA** command to set the EAZ sub address.

The **CTF** command (<Common><TA Setup><DIFs><Interface>) sets the interface mode of the internal TA101. **For North American operation the mode should always be set to IGNORE.** For operation elsewhere, initially start with the mode set to IGNORE. If you have problems making or receiving calls, then set the mode to ACTIVE.

The **CIB** command (<Common><TA Setup><DIFs><Inband>) controls inband signaling and enables the factory to remotely control your **CDQPrima's** TA101 terminal adapter for maintenance purposes. Normal operation requires **CIB OFF**.



All of the terminal adapter parameters discussed so far can be entered at the same time when using the available Windows Remote Control program. A sample window is shown here, and is reached by clicking on 'TA' and then 'Setup':

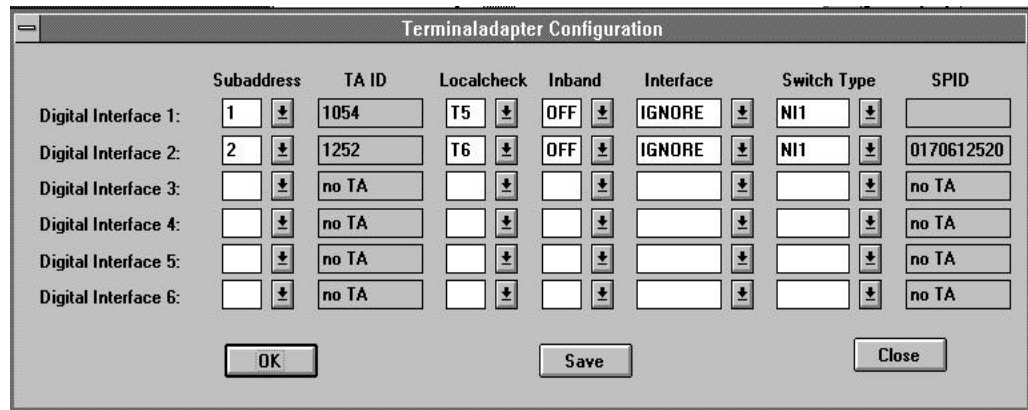


Figure 5-3 Terminal Adapter Configuration Window

5.4.1.3.8 Reset

After the above parameters have been set, it is necessary to reset the TA101 Terminal Adapter. The **CTR** command is used to reset the internal terminal adapter and to check if the SPID and ID numbers have been entered correctly for North American operation. To reset the terminal adapters from the keypad, use the sequence <Common><TA Setup><DIFs><Reset>, selecting the appropriate DIF. **The reset process takes from 20 to 40 seconds to complete, and the response will be flash for 2 seconds on the top line of the LCD display.** The following responses are possible:

- SP1 OK SP2 OK SPID 1 and SPID 2 initialized properly
- SP1 OK SP 2 BAD SPID 1 initialized, SPID 2 did not
- SP1 BAD SP2 OK SPID 1 did not initialize, SPID 2 did
- SP1 BAD SP2 BAD Both SPIDs did not initialize.

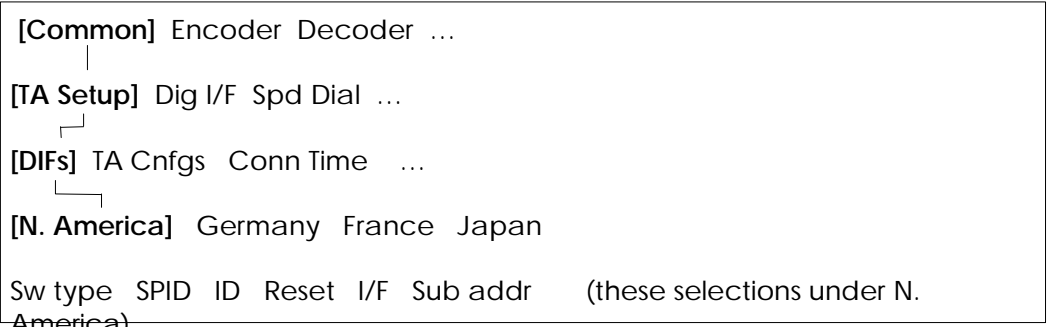
If you require two SPID numbers, and if you get any response other than the first, your TA101 has not been configured properly and you will not be able to make or receive calls. If only one, or no SPID numbers are required, than any response may be OK. Try dialing and see if you can connect to another codec. If you get a bad response, or you cannot dial, please refer to the Troubleshooting section in the **CDQPrima Technical Reference Manual** before calling for assistance.

5.4.1.4 Terminal Adapter TA201 and TA301 Configuration for North America

The TA201 terminal adapter provides one S/T interface for one ISDN BRI (2 x 64 kb/s) line. In North America, the Telco provides a 'U' interface, therefore an external NT-1 must be used between the **CDQPrima** and the wall jack. Elsewhere, the Telco provides an S/T

interface and an external NT-1 is not needed. The TA201 contains all country specific configuration and provisioning information in memory, and there is no need to change ROM chips when using your **CDQPrima** in a different country.

The TA301 is similar the TA201 except it contains a built-in NT-1 and connects directly to the ISDN 'U' interface provided in North America.



<Common><TA Setup><DIFs><N. America><ID>	CLD	TA, Settings	Set ID for a Terminal Adapter
<Common><TA Setup><DIFs><N. America><Sub addr>	CSA	TA, Settings	Set sub-address for a Terminal Adapter.
<Common><TA Setup><DIFs><N. America><SPID>	CSI	TA, Settings	Set SPID for a Terminal Adapter
<Common><TA Setup><DIFs><N. America><Sw type>	CSW	TA, Settings	Set switch type
<Common><TA Setup><DIFs><N. America><I/F>	CTF	TA, Settings	Set TA interface mode
<Common><TA Setup><DIFs><N. America><Reset>	CTR	N/A	Reset the internal terminal adapter

Probably the most confusing aspect of ISDN codecs is configuring the Terminal Adapter for the ISDN in your area. This is especially true in North America, where there are several local 'flavors' of ISDN that are all provisioned differently. Elsewhere, configuration of the terminal adapter may be as simple as insuring the proper country is selected.

In North America, certain information must be supplied by the ISDN service provider in order to correctly configure the Terminal Adapter:

- ISDN 'Flavor', e.g. National ISDN or Custom.

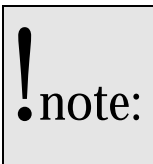
- Service Provider Identification Numbers (SPID numbers). National ISDN *always* requires SPID numbers, some locations using Custom ISDN may *not* require SPID numbers. If SPID numbers are required, most areas use two, but some implementations require only one.

5.4.1.4.1 Switch Type

It is necessary to tell the TA what type of switch protocol is being used at the Telco central office. This information will be given to you by the ISDN service provider. You only need to set the switch type once for each TA since it is impossible to have different switch types for the individual "B" channels in an ISDN line. Go down the <Common><TA Setup><DIFs><N. America><Sw type> branch, selecting the desired DIF, then select the appropriate switch type, either National or AT&T Custom. The **CSW** command is used for setting the switch type from a terminal.

5.4.1.4.2 Service Provider ID (SPID) Number

For *most* areas in North American, the TA must be told the SPID number of the *calling* ISDN line, that is, the line to which the **CDQPrima** is plugged into. This number is provided to you by the ISDN service provider in your area. **It is important to remember that every time the CDQPrima is moved, or whenever there is a change in the ISDN line, or even area code changes, the SPID and ID number, switch type and possibly other parameters for the TA setup must be updated.** You can store up to 20 ISDN location configurations for later recall.

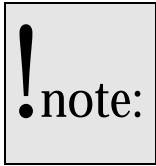


To set the SPID number using the keypad, go down the branch <Common><TA Setup><DIFs><N. America><SPID>, selecting the desired DIF, and follow the prompts to enter the SPID number for all connected TAs. Please note also, that each TA supports 2 basic rate ISDN "B" channels, so if your service provider gave you two SPID numbers you must enter both of them, one for each 'B' channel. Use the **CSI** command to set the SPID number from a terminal.

If SPIDs are not used in your area, line 2 will answer the first incoming call, line 1 will answer the second.

5.4.1.4.3 Identification (ID) Number

If you are required to use two SPID numbers, than you must use ID numbers. For the TA201 and 301, the ID number is just the 7 digit ISDN line number connected to the **CDQPrima**. Use the



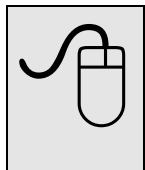
<Common><TA Setup><DIFs><N. America><ID> branch, and follow the prompts to set the ID from the keypad. Use the **CLD** command from a terminal.

The TA201 and TA301 use a 7-digit ID number for North American operation.

5.4.1.4.4 Sub-Address and Interface Mode

The sub-address for the TA201 and TA301 is set by the **CSA** command. This command is used when a **CDQPrima** is connected to a digital PBX. If the TA201 is directly connected to an NT1, then the sub-address should be set to 0. Sub-addresses are generally not used in North America. Use the **CSA** command to set the sub-address if required.

The **CTF** command <Common><TA Setup><DIFs><N.America><I/F>) sets the interface mode of the internal TA201 and TA301. **For North American operation the mode should always be set to ACTIVE.** For operation elsewhere, initially start with the mode set to ACTIVE. If you have problems making or receiving calls, then set the mode to IGNORE.



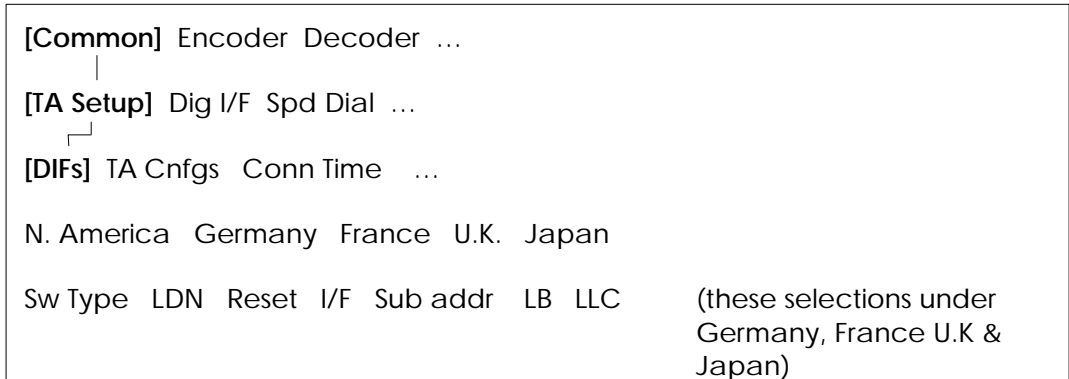
All of the terminal adapter parameters discussed thus far can be entered at the same time when using the available Windows Remote Control program. A sample window is shown in Figure 5-3, and is reached by clicking on 'TA' and then 'Setup'.

5.4.1.4.5 Reset

After the above parameters have been set, it is necessary to reset the terminal adapter. The **CTR** command is used to reset the internal terminal adapter. The TA201 and TA301 currently return no information after a reset. Please note that a complete reset of the TA201 and TA301 terminal adapters takes about 45 seconds, and you should not attempt to dial before the reset is complete.

5.4.1.5 Terminal Adapter TA201 Configuration, Non-North American Operation

The TA201 terminal adapter provides one S/T interface for one ISDN BRI (2 x 64 kb/s) line. The TA201 contains all country specific configuration and provisioning information in memory, and there is no need to change ROM chips when using your **CDQPrima** in a different country. Use the Germany setting for most of Europe, except France.



<Common><TA Setup><DIFs><country><LDN>	CLD	TA, Settings	Set LDN/MSN for a Terminal Adapter
<Common><TA Setup><DIFs><country><CLL>	CLL	TA, Settings	Set LLC state (United Kingdom)
<Common><TA Setup><DIFs>< country ><Sub addr>	CSA	TA, Settings	Set sub-address for a Terminal Adapter.
<Common><TA Setup><DIFs>< country ><Sw type>	CSW	TA, Settings	Set switch type
<Common><TA Setup><DIFs>< country ><I/F>	CTF	TA, Settings	Set TA interface mode
<Common><TA Setup><DIFs>< country ><Reset>	CTR	N/A	Reset the internal terminal adapter

5.4.1.5.1 Switch Type

It is necessary to tell the TA what type of switch protocol is being used by the PTT central office. This information will be given to you by the ISDN service provider. You only need to set the switch type once for each TA the switch governs both 'B' channels in an ISDN line. Go down the <Common><TA Setup><DIFs><country><Sw type> branch, selecting the desired DIF, then select the appropriate switch type, either DSS1 or 1TR6. The **CSW** command is used for setting the switch type from a terminal.

5.4.1.5.2 LDN / MSN Number

The MSN (Multiple Subscriber Number) allows you to connect several codecs (terminal adapters) to one ISDN bus if the DSS1 Euro-ISDN protocol is used. Each TA201 interface required two MSN numbers, one for each 64 kb/s channel. You do not need to enter the whole MSN, you just have to enter the last different digits. For example, if your MSN for line 1 is 8115517571 and for line 2 is 8115517581, then you only need to enter '71' and '81' for the MSNs.

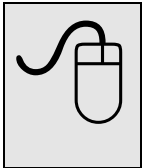
5.4.1.5.3 LLC (Low Level Command) State

Although this menu item appears under all countries, it is only necessary to set the LLC state in the United Kingdom. Different areas in the UK require different settings. If your TA201 cannot dial properly with the default setting, toggle the setting. Remember, you must set each DIF to the proper state.

5.4.1.5.4 Sub-Address and Interface Mode

Sub-addresses are required when using the German 1TR6 switch protocol. Like the MSN used with DSS1, the sub-address enables you to connect several codecs (terminal adapters) to the same ISDN bus. For every terminal adapter, you need two sub addresses (EAZ numbers), one for each 64 kb/s channel, numbers between 1 and 8.

The **cdQPrima's** interface mode has a different meaning for the TA201 terminal adapter when not used in North America. Some ISDN implementations in some countries require LLC (Low Layer Compatibility) to be turned off. For example, some DSS1 networks in the United Kingdom require LLC to be turned OFF.




All of the terminal adapter parameters discussed so far can be entered at the same time when using the available Windows Remote Control program. A sample window is shown in Figure 5-3, and is reached by clicking on 'TA' and then 'Setup'.

5.4.1.5.5 Reset

After the above parameters have been set, it is necessary to reset the TA201 Terminal Adapter. The **CTR** command is used to reset the internal terminal adapter. The TA201 and TA301 currently return no information after a reset.


5.4.1.6 Other TA Parameters

[Common] Encoder Decoder ...
 |
 [TA Setup] Dig I/F Spd Dial ...
 DIFs TA Cnfgs Conn Time Auto Ans AutoReCon Redial Dial TO
 RCProtol
 LCD Dsply Dspl Time Clr Time Dspl Num (these selections under Conn
 Time)

<Common><TA Setup><Auto Ans>	CAA	N/A	Set TA auto answer mode
<Common><TA Setup><AutoReCon>	CAC	TA, Settings	Set TA auto reconnection state
<Common><TA Setup><DIFs><LB>	CLB		Set TA loopback (TA101 only)
<Common><TA Setup><Redial>	CRD	TA, Settings	Set number of redial attempts
<Common><TA Setup><Dial TO>	CTO	TA, Settings	Set dialing time-out
<Common><TA Setup><RCProtocol>	CTP	N/A	Set TA remote control protocol usage
N/A	CTC	not allowed	Connect to TA control port

The **CAA** command can be used to switch the TA out of the auto answer mode. If the TA is not in the auto-answer mode, then it will not accept any incoming calls. The factory default is set to auto-answer. This feature is useful if you want to prevent anyone from dialing into your **CDQPrima**.

If you call another codec and the connection is lost, it is possible to have the **CDQPrima** automatically redial the connection. This is done by setting AutoReCon to YES using the **CAC** command. This is a very powerful feature when less than ideal lines are used. **Remember, however, that when this feature is enabled, only the calling CDQPrima can terminate the connection.**

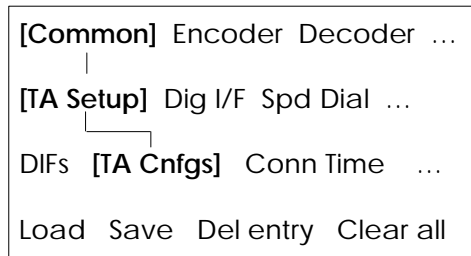
The **CRD** command (Redial) sets how many times the **CDQPrima** will attempt to establish connection before giving up. The factory default is 1 redial attempt, i.e., the **CDQPrima** will dial each connection twice. The dial time-out command **CTO** (Dial TO) sets the time that the **CDQPrima** waits for a connection to be established before giving up. Regardless of the number of redial attempts selected, you can abort the dialing sequence anytime after the first attempt by pressing the  key.

It is possible to loop back at the internal terminal adapter using the **CLB** command. Terminal Adapter loopback can be used as a troubleshooting tool.

A direct connection from the remote control port to the TA control port is performed by the **CTC** command. This mode of operation is useful because it allows the lowest level of control over the TA. When the **CTC** command is used, all the low level TA commands are available. Under normal conditions, it should not be necessary to access the TA at this level; however, this is a powerful troubleshooting tool. Consult the factory for a description of these low level commands. The **CTC** command, and low-level TA control should not be used without factory assistance, and is only available when using a terminal for remote control.

The **CDQPrima** allows direct connection over ISDN into the ISDN remote control port. This allows complete remote control including software download from a far end **CDQPrima** via ISDN. The **CTP** command is used to enable or disable command protocol usage over the ISDN line.

5.4.1.7 Terminal Adapter Configuration Storage and Recall

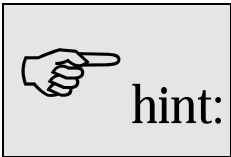


<Common><TA Setup><TA Cnfgs><Load>	CTA	N/A	Loads a previously stored TA configuration
	CTA	N/A	Prints first stored TA configuration
	CTB	N/A	Display TA configuration description
<Common><TA Setup><TA Cnfgs><Del entry/clear all>	CTD	N/A	Erases one or all stored TA configuration
<Common><TA Setup><TA Cnfgs><Save>	CTE	N/A	Saves the current TA configuration
	CTN	N/A	Prints next stored TA configuration

It is now possible to store up to 20 terminal adapter configurations for later recall. This feature makes it easy to reconfigure your terminal adapter when your **CDQPrima** is used in multiple locations. Each stored configuration includes up to six SPID and ID numbers, local check values, switch types, and sub-addresses.

Once your TA has been configured and is working properly, we recommend that you store that configuration for later recall using the **CTE** command. You will be asked to enter a descriptive name, up to 30 characters, and the **CDQPrima** will assign an identification number to the entry. To recall the configuration, use the **CTA** command. To delete one or all of the stored configurations use the **CDT** command. To list all stored configurations on a terminal, use the **CTA**, **CTB** and **CTN**.

Please note that you can only reload a stored configuration into the same type of TA. You cannot save a TA101 configuration and reload it into a TA201





We recommend that you always save your TA configuration after you are satisfied that it works. This will save you time and effort if you must later reload the configuration.

5.4.2 Automatic Encoder and Decoder Configuration using Quick Configurations

Every **CDQPrima** comes with a Speed Dial directory capable of holding over 250 table entries. Not only can each entry hold up to six ISDN phone numbers, but it also contains all information required to completely configure the encoder and decoder for that connection. By using a Speed Dial table entry that does not dial a number, you can now fully configure the encoder and decoder with as little as one button press. We call these non-dialing entries 'Quick Configurations.'

Your **CDQPrima** comes pre-loaded with over two dozen of the most popular encoder/decoder configurations. Unless you will be using a custom application, such as broadcasting to multiple locations, independent mono or dual algorithms, you should be able to find a Quick Configuration to meet your needs. All Quick Configurations are listed in Chapter 6.

SDSET <Del entry>	CDS	  N/A	Delete a Quick Configuration
SDSET <Clear all>	CSC		Clear all speed dial entries and Quick Configurations
SDIAL	CSD		Speed dial or configure
SDSET <Add entry>	CSE		Enter a configuration in the speed dial directory
SDSET <View dir> *(see text)	CSF		Display first of speed dial entries and Quick Configurations
SDSET <View dir> *(see text)	CSN		Display next speed dial entry or Quick Configuration
SDSET <Edit dir>	N/A		Edit speed dial directory

To view the speed dial directory including Quick Configurations, use the **CSF** and **CSN** commands from a terminal. From the keypad, use the sequence **SDSET** <View dir> and the cursor keys to view the full directory. Once the desired entry has been found, simply press the **ENTER** key twice to load the configuration. If you already know the ID number of the desired configuration, press the **SDIAL** key, enter the ID number and press **ENTER**, or use the **CSD** command. A complete list of all pre-programmed Quick Configurations can be found in Chapter 6.


There are two ways to create a new Quick Configuration: manually, or automatically using 'system snapshots.' To create a new Quick Configuration automatically, configure your **CDQPrima** manually, and, once satisfied, press **SDSET** and select <Save CRNT> from the options. Enter a descriptive name and press **ENTER**. You can also use the **CSE** command to do this from a terminal. Just type **CSE name**, where name is any name you choose up to 20 characters.

To create a new quick configuration manually, use the **CSE** command, following the syntax shown in the **CDQPrima Remote CONTROL Manual**. Enter 1 as the number of numbers, and enter a '#' character as the phone number. From the keypad, press **SDSET**, select <Add Entry> and enter all information prompted for. Enter 1 as the number of numbers, and enter a '#' character as the phone number.

Use the **CSC** command to erase *all* current Quick Configurations and speed dial entries. Use the **CDS** command to erase a single entry.

5.4.3 Manual Encoder Configuration

Common [Encoder] Decoder Maint ...			
Qstatus	Bit rate	Algorithm	Algo Mode Line Fmt Smpl rate Audio src More
General	Audio In	ISO Hdr ...	(these selections under 'More')
Timing	ACE	Cal AD	Sine Det (these selections under 'General')

<Encoder><Audio src>	EAI		Set encoder audio input source
<Encoder><Algorithm>	EAL		Set encoder algorithm
<Encoder><Algo mode>	EAM		Set encoder algorithm mode
<Encoder><Bit rate>	EBR		Set encoder bit rate
<Encoder><Line fmt>	ELI		Set encoder digital lines format
<Encoder><Smpl rate>	ESR		Set encoder sampling rate
<Encoder><QStatus>	ESS		Display encoder status summary
<Encoder><More><General><Timing>	ETI		Set encoder timing
<Encoder><More><Audio In><Copy/Swap>	ECS	Setup, Audio I/O	Set encoder audio channel swap
<Encoder><More><Audio In><Mono Mix>	EMM	Setup, Audio I/O	Set encoder mono mix

5.4.3.1 Audio Source Selection

The **CDQPrima** can accept either analog or digital (optional on model 110) audio inputs. You can select which input to use with the **EAI** (<Encoder><Audio Src>) command. In dual mono, stereo and joint stereo modes, audio input to the left channel will be encoded as left channel audio, and audio input to the right channel will be encoded as right channel audio. If mono is selected, only audio input to the *left* channel is encoded under normal operation.

The **ECS** (<Encoder><More><Audio In><Copy/Swap>) allows you to exchange the left and right audio inputs (stereo modes) or use the right input for mono. If you want to use a stereo source for mono

transmissions, you can use any one of three different mono-mix settings available using the **EMM** (<Encoder><More><Audio Src><Mono Mix>) command. The mono-mix choices are: L + R (M0), L + R - 3 dB (M3), or L + R - 6 dB (M6) mixing.

If you are using digital audio input¹, you must also select a timing source using the **ETI** (<Encoder><More><General><Timing>) command. The factory default, NORMAL, should work for most applications. The different settings are beyond the scope of this guide. Further information can be found the [cdQPrima Technical Reference Manual](#). Please note that digital audio input is not allowed when using G.722 encoding.



You can use the Copy/Swap feature to instantly switch between two monaural audio sources. You can even perform this switching from half way around the world using far-end remote control. By combining the Copy/Swap feature with the Analog/Digital input switching, you can switch between 4 monaural or 2 stereo sources instantly, even from the far-end!

5.4.3.2 Algorithm, Mode, Bit Rate and Sample Rate Selection

Your **cdQPrima** gives you choice of encoding algorithms, bit rates, and sample rates so that you can tailor the transmitted audio characteristics to your application and budget. A complete discussion of the different algorithms and their intended uses can be found in Chapter 6.



Setting the decoder to 'Independent NO' will slave all decoder settings to the encoder configuration. Therefore, unless different settings are desired for the return audio, it is not necessary to configure the decoder.

Rev. 6

The encoder audio compression algorithm is set by the **EAL** (<Encoder><Algorithm>) command. If the algorithm is one of the ISO/MPEG compatible types, either Layer II or Layer III, then the **EAM** (<Encoder><Algo mode>) command sets the algorithm mode to mono, dual mono, joint stereo or stereo. If G.722 is selected as the algorithm, then the algorithm mode defaults to 'M1' and the sample rate defaults to 16 kHz cannot be changed.

¹ The **cdQPrima** is factory configured for AES/EBU digital audio. Refer to section 4.1.1 of the [cdQPrima Technical Reference Manual](#) for S/PDIF configuration.

The audio sampling rate of the A/D is controlled by the **ESR** (<Encoder> <Smpl rate>) command, while the encoder bit rate is set by the **EBR** (<Encoder><Bit rate>) command. The chosen bit and sample rates depend on several factors: line rates available, compatibility with the far-end codec, additional post processing and transcoding and desired audio quality. Refer to Chapter 6 and the *CDQPrima* Technical Reference Manual for discussions of the bit and sample rate versus audio quality issues. When using G.722 coding, the sample rate is fixed at 16 kHz, and only 56 or 64 kb/s bit rates are possible.



When using MPEG compatible encoding at low bit rates (56 or 64 kb/s), lower sampling rates will result in better audio quality.

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The **ELI** <Encoder><Line fmt> command is used to control how the compressed digital audio bit stream is transmitted. For example, if **ELI L1** (single line, line 1) is used, then the compressed output bits are output through digital interface (DIF) 1. Four modes are possible: single line (1 LN), 2 line (CCS 2 LN), H.221/J.52 BONDING (H221 6 LN) and independent mono (Ind. Mono).² Detailed information can be found in the *CDQPrima* Technical Reference Manual.

Single line mode sends the entire compressed audio bit stream to a single port and supports all bit rates. 2 line mode uses inverse multiplexing and divides the encoded bit stream between two ports. 2 line mode only supports 112 and 128 kb/s operation. H.221 BONDING allows combining up to six ISDN 'B' channels together for higher bit rates and better audio quality. H.221 BONDING allows all bit rates in multiples of 64 kb/s up to 386 kb/s.

Rev. 6



Selecting Ind. Mono allows two different monaural audio sources to be sent to two or more different locations simultaneously. Refer to the *CDQPrima* Technical Reference Manual for further details.

Use the **ESS** (<Encoder><QStatus>) command to instantly view the current encoder configuration.


The **ESS** command can be used to quickly review the current encoder configuration. Information displayed includes current

² Independent Mono, the ability to send 2 discrete audio programs to two or more locations is standard with Revision 6 hardware, This feature can be added to older hardware, but a factory upgrade is required.

bit and sample rates, audio source, line format, algorithm and mode, and loopback state.

5.4.4 Manual Decoder Configuration

Common Encoder [Decoder] Maint ...
 Qstatus Indep Line fmt Bit rate AES More
 Audio Out Algo Mode ... Algorithm Stat bits (these selections under 'More')
 Mute Copy/Swap ... (these selections under 'Audio Out')

<Decoder><More><Algorithm>	DAL		Set decoder algorithm
<Decoder><Bit rate>	DBR	N/A	Set decoder bit rate
<Decoder><More><Algo Mode>	DCO		Set decoder decoding mode
<Decoder><Indep>	DIN		Set decoder/encoder interaction
<Decoder><Line fmt>	DLI		Set decoder digital line format
<Decoder><More><Audio Out><Mute>	DMU		Mute decoder output channels
<Decoder><QStatus>	DSS		Display decoder status summary
<Decoder><More><Audio Out><Copy/Swap>	DCS	Setup, Audio I/O	Set channel copy/swap mode

Under normal operation the decoder should be slaved to the encoder by selecting the 'Independent NO' mode. Under certain circumstances, the decoder must be set to operate independently of the encoder:

- **When connecting to any codec not manufactured by MUSICAM USA or CCS Audio Products.**
- When using any of the broadcast modes described in the Application Notes section of the *CDQPrima* Technical Reference Manual.
- When the Independent Mono (Ind. Mono) mode for sending two different monaural programs to two different locations is used.
- When using different algorithms, bit rates or line formats for send and receive audio.

Rev. 6



The decoder independent mode also allows send and receive audio to use different algorithms. For example, high quality audio can be sent to another codec, but low-delay, lower quality return audio can be used for cueing. **The decoder must be set to independent when connecting to other brands of MPEG Layer II and Layer III compatible codecs.**

This standalone (independent) mode can be used at any time; however, there are certain times when the decoder must operate in conjunction with the encoder, for example, when H.221/J.52 line BONDING is used³.

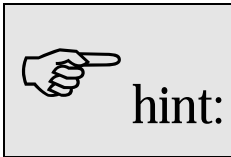
Use the **DIN** (<Decoder><Independent>) command to select the desired mode. If the decoder mode was set to 'Independent NO' prior to setting any encoder parameters, then the decoder settings will match the encoder settings. Some decoder settings cannot be changes when in the 'Independent NO' mode.

Use the **DAL** (<Decoder><More><Algorithm>) command to select the decoder algorithm. The **DLI** (<Decoder><Line fmt>) command sets the line format, and the **DBR** command (<Decoder><Bit rate>) command sets the bit rate. The **DLI** command tells the decoder how to interpret the incoming compressed digital data, and which lines the data is coming from. For example, if the incoming data is only present on line 1, then **DLI L1** instructs the decoder to look for the audio data on line 1. The decoder line format only needs to be set when the decoder in the independent mode. The decoder algorithm is another parameter that is only meaningful when in the decoder independent mode. The **DAL** command will enable the decoder to recognize a different algorithm than the encoder only when the decoder is in the independent mode.

The audio output of the decoder can be muted by the **DMU** (<Decoder><More><Audio Out><Mute>) command. Either one or both stereo channels can be muted. It is also possible to swap the left and right channel outputs, or to copy the left channel audio to the right channel and visa-versa. Use the **DCS** (<Decoder><More><Audio Out><Copy/Swap>) command for this.


³J.52 is a standard for BONDING from 1 to 6 N-ISDN channels together on permanent connections to form higher bandwidth 'pipes'. Higher audio quality, or increased number of transcodings is possible when multiple ISDN channels are bonded together.

The decoder can be instructed to decode only standard ISO/MPEG Layer II bit streams by the **DCO** (<Decoder><More><Algo mode>) command. This is useful for determining if the incoming bitstream is fully ISO/MPEG compliant. Please note that the decoder 'algorithm mode' has a different meaning than the encoder algorithm mode.



A summary of all major decoder settings, including bit rate, digital audio output sampling rate, audio mode, independent mode, algorithm, framed state and loopback state, can be displayed using the **DSS** (<Decoder><QStatus>) command. Refer to the **CDQPrima Technical Reference Manual** for details.

5.4.5 Speed Dialing and Directory Maintenance (Terminal Adapter Only)

SDSET <Del entry>	CDS	 N/A	Delete a speed dial number
SDSET <Clear all>	CSC		Clear all speed dial entries
SDIAL	CSD		Speed dial a number
SDSET <Add entry>	CSE		Add an entry in speed dial directory
SDSET <Save Crnt>	CSE		Save current settings and numbers
SDSET <View dir> *(see text)	CSF		Display first of speed dial entries
SDSET <View dir> *(see text)	CSN		Display next speed dial entry
SDSET <Edit dir>	N/A		Edit speed dial directory

The Speed Dial feature allows the entry and storage of up to 256 Speed Dial addresses. Each address consists of up to six 20-digit ISDN telephone numbers and all information required to completely set all encoder and decoder parameters for the connection. Note that each Speed Dial address can contain up to six 'B' channel ISDN numbers for use with up to three individual plug-in terminal adapter modules. If you do not have an internal terminal adapter installed, then a non-dialing Speed Dial entry can be used to quickly configure the **CDQPrima**. You can not use the front panel keypad to dial through an external terminal adapter.

To view the Speed Dial directory use the **CSF** and **CSN** commands from a terminal. From the keypad, use the sequence **SDSET** <View dir> and

the cursor keys to view the full directory. Once the desired entry has been found, simply press the **ENTER** key twice to configure and dial. If you already know the ID number of the desired configuration, press the **SDIAL** key, enter the ID number and press **ENTER**. From a terminal, use the **CSD** command. Several test numbers have been pre-programmed into your **CDQPrima** so that you can test various configurations. These are listed in Chapter 6. Please note that the pre-programmed numbers must be edited if you require access codes or for international dialing.

New Speed Dial entries can be created two ways, speed dial entry automatically, configure your **CDQPrima** as you would normally, either manually or using a Quick Configuration, and once satisfied, dial to the codec that you wish to add to the Speed Dial directory. Once the connection has been established, press **SDSET** and select <Save CRNT> from the options. Enter a descriptive name and press **ENTER**. You can also use the **CSE** command to do this from a terminal. Just type **CSE name**, where name is any name you choose up to 20 characters.

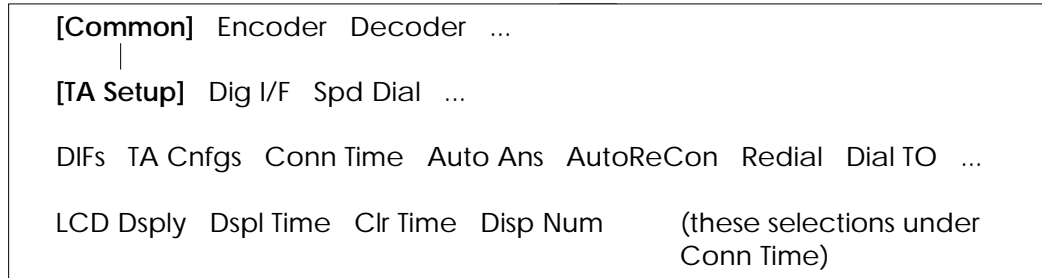
To create a new quick configuration manually, use the **CSE** command, following the syntax shown in the **CDQPrima Remote Control Manual**. From the keypad, press **SDSET**, select <Add Entry> and enter all information prompted for. You will be asked to enter the number of phone numbers this connection will require before entering any phone numbers. Once all parameters are accepted, you will be given an ID number to use to dial the entry.







You can use any of the pre-programmed Quick Configurations as a basis for your own Speed Dial entry. Just load a non-dialing Quick Configuration, dial the far-end codec and save the configuration.

Use the **CSC** command to erase *all* current Quick Configurations and Speed Dial entries. Use the **CDS** command to erase a single entry.

5.4.6 Manual Dialing and Connection Status (TA Only)



DIAL	CDI		Dial TA phone number
END	CHU		Hang up a line or lines
<Common><TA Setup><Conn Time><Dspl Num>	CCD		Get last number dialed and data rate
<Common><TA Setup><Conn Time><Clr Time>	CCR	N/A	Clear TA digital interface connect time
<Common><TA Setup><Conn Time><Dspl Time>	CCS	Setup, Digital Interface	Print TA digital interface connect time
<Common><TA Setup><Conn Time><LCD Dsply>	CDC	N/A	Real-time display TA digital interface connect time on LCD
<Common><TA Setup><Redial>	CRD	TA, Configuration	Set number of TA redial attempts
<Common><TA Setup><Dial TO>	CTO	TA, Settings	Set TA dialing time-out

When equipped with an internal terminal adapter, individual lines may be dialed by utilizing the **CDI** command or pressing the **DIAL** button. This command allows dialing individual ISDN lines at either 56 or 64 kb/s. Once a call has been placed to the far end, a time-out is in effect waiting for the far end to answer. This time-out is set by the **CTO** command. If a connection has not been made on the first attempt, the number of times that the **CDQPrima** will retry is controlled by the **CRD** command (the default is 1 retry). It may be necessary to increase the dial time-out for international calls, or when access codes are required. It is also possible to abort the dialing sequence after the first attempt by pressing the  key.

Once a call has been placed by the **CSD** or **CDI** command, the line or lines may be “hung up” by the **CHU** command. This command disconnects a connected line. To hang up from the keypad, press the

END key, enter the line to hang up, and press **ENTER**. Please remember that it is possible to dial at either 56 or 64 kb/s and that the encoder must be set to a matching rate. Setting the encoder to a multiple of 64 kb/s and dialing at multiples of 56 kb/s is an invalid condition.

The **CDQPrima** can display the time the line has been connected for any one of the six digital interfaces. This is useful for estimating the cost of the connection. The **CDC** command is used to display the connect time on the LCD. The current time connected for any of the six lines can be printed on a remote control terminal by the **CCS** command. The connect time counter can be set to zero at any time by the **CCR** command. These commands, in conjunction with the **CCD** command that displays the number and the connected bit rate of the last call, can be used to determine the exact cost of each call.

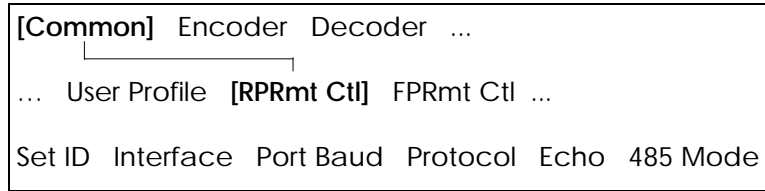
5.4.7 Remote Control Configuration

Depending on model, the **CDQPrima** has one or two remote control ports. Each port operates independently of the other, and you can even control your **CDQPrima** from both ports simultaneously.

The rear panel remote control port, available on all models, can be configured for either RS232 or RS485 operation. RS485 operation allows you to control up to 32 **CDQPrima**'s simultaneously from a single computer port. The front panel remote control port, available on Models 120, 220 and 230 only, is a dedicated RS232 port.

Please remember that the **CDQPrima** requires non-standard remote control cables for all remote control applications. For rear panel RS232 remote control, use MUSICAM USA part number C-1800 and for RS485, use part number C-1900. For front panel RS232 remote control, use part number C-2000. You can purchase these cables from MUSICAM USA, or you can use the figures in the **CDQPrima Technical Reference Manual** to make your own.

5.4.7.1 Remote Control (Rear Panel - All Models)



<Common><RPRmt Ctl><Set ID>	CID	<i>Parameters</i>	Set RS485 remote control ID
<Common><RPRmt Ctl><Protocol>	CPC	<i>are set when</i>	Set remote control protocol usage
<Common><RPRmt Ctl><Prot baud>	CRB	<i>Windows</i>	Set remote control baud rate
<Common><RPRmt Ctl><Echo>	CRE	<i>program</i>	Set remote control command response echo
<Common><RPRmt Ctl><Interface>	CRI	<i>loads and</i>	Set remote control interface type
<Common><RPRmt Ctl><485 mode>	CRM	<i>initializes</i>	Set rear panel remote control RS485 port mode

Rear panel remote control is provided on all **CDQPrima** models. Rear panel remote control allows computer access to all the internal functions of the **CDQPrima**. Rear panel remote control is especially useful for applications that need permanent access to the **CDQPrima** via a control computer. This frequently occurs when the **CDQPrima** is located remotely from the control room.

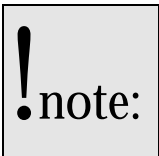
The rear panel remote control electrical interface may be either RS232 or RS485. The choice of the electrical interface is controlled by the **CRI** command (<Common><RPRmt Ctl><Interface>).

Using RS485 remote control allows up to 30 **CDQPrima**'s to be controlled from a single PC. The RS485 interface may be either the 2 or 4 wire interface. The choice of the RS485 mode is controlled by the **CRM** command. For more discussion of the various RS485 modes, see the **CDQPrima** Technical Reference Manual. For most applications, you will want to use the 4 wire slave configuration. If you are going to be connecting to less than 5 **CDQPrima**'s using RS485 remote control, you do not need to remove any terminations from any unit. For more than 5 units, or long cable lengths, only the controller and the last **CDQPrima** of the string should be terminated. To remove the terminations, refer to the **CDQPrima** Technical Reference Manual.

The baud rate of the rear panel remote control port is set by the **CRB** command. And the command echo mode is set using the **CRE** command. When downloading data to the **CDQPrima**, it is possible to turn off the command echo. This speeds up the download process at the expense of seeing the command echo.

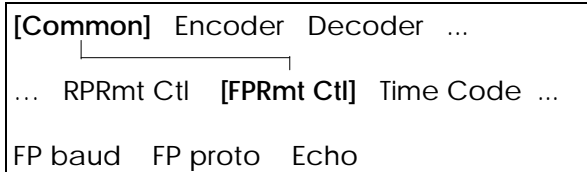
The protocol for this interface is defined by the **CPC** command. There are two possible protocols for communication with the **CDQPrima**. This first is simple ASCII messages that can be generated by any terminal emulator communications package. The second method of communication is via protocol-protected messages. In this case, the simple ASCII message is surrounded by a header at the beginning of the message to specify the byte length of the message and other parameters and a CRC is appended to the end of the message for error control. The details of the protocol are covered the **CDQPrima** Technical Reference Manual.

If protocol protected messages are used to control the **CDQPrima**, then the message must have a destination ID. This ID is set by the **CID** command. RS484 control must also use an ID, and each **CDQPrima** controlled by a single controller must have a unique ID number.



The Windows Remote Control program will automatically set the protocol to ON. When using most terminals or computers (most terminal emulators or program languages) for control, protocol must be turned OFF. *THIS MUST BE DONE FROM THE KEYPAD since you cannot communicate with the CDQPrima from the terminal until this parameter is changed.*

5.4.7.2 Front Panel Remote Control (Models 120, 220, 230)



<Common><FPRmt Ctl><FP baud>	CFB	N/A	Set front panel remote control baud rate
<Common><FPRmt Ctl><FP protp>	CFP	N/A	Set front panel remote control protocol usage
<Common><FPRmt Ctl><Echo>	CFE	N/A	Set front panel remote control command

			response echo
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Front panel remote control is provided on all models except the 110 and 210. Front panel remote control allows a second computer (or terminal) to simultaneously access all the internal functions of the **CDQPrima**. Front panel remote control is especially useful for applications that need quick access to the **CDQPrima** through a palm or lap top computer. This frequently occurs in control rooms in which there are many **CDQPrima** units in equipment racks.

New software may be downloaded into the local **CDQPrima** through the front or rear panel remote control port (see the **CDQPrima** Technical Reference Manual). However, software to be loaded into a far end **CDQPrima** by way of ISDN or direct digital links must be input through the front panel remote control port of the local **CDQPrima**.

The baud rate of the front panel port is set by the **CFB** command, and is independent from the settings of the rear panel port. The protocol for this interface is defined by the **CFP** command. There are two possible protocols for communication with the **CDQPrima**. This first is simple ASCII messages that can be generated by any terminal emulator communications package. The second method of communications is through protocol-protected messages. In this case, the simple ASCII message is surrounded by a header at the beginning of the message to specify the byte length of the message and other parameters. A CRC bit is appended to the end of the message for error control. The details of the protocol are covered in the **CDQPrima** Technical Reference Manual.

When downloading data to the **CDQPrima**, it is possible to turn off the command echo. This speeds up the download process at the expense of seeing the command echo. The command echo can be turned off with the **CFE** command.

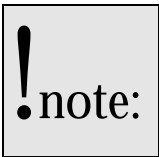
5.4.8 Loopback

<Common><System LB><Lp Bk Br>	CBR		Set loopback bit rate
Common><TA Setup><DIFs><LB>	CLB		Set loopback on a digital data interface
Common><System LB><Sys LB>	CSL		Set system loopback

Loopback testing is an ideal troubleshooting tool and can be used to quickly find problems with audio I/O connections. The **CDQPrima** has


two types of loopback. The first type is a system loopback and the second is a digital interface loopback. The system loopback is an internal (to the **CDQPrima**) loopback and is enabled by the **CSL** command. System loopback is performed by looping the encoder output to the decoder input and tests all functions of the **CDQPrima** codec. Interface loopback not only tests the codec, but the digital interface as well.

The **CLB** command is used to set the loopback on each digital interface module. The individual lines can be looped independently.



When the **CDQPrima** is set to system loopback (the **CSL** command), the internal clock is used to supply the digital data clocks. The rate of this clock is set by the **CBR** command which has a limited number of bit rates. Thus, the bit rate set by this command overrides the encoder and decoder bit rate settings when in loopback.

5.4.9 Headphones (models 120, 220 and 230 only)

VOL+ VOL-	CHV		Set headphone volume level of current device
ENC DEC	CHP		Set headphone audio source
VOL+ VOL-	DHV		Set decoder headphone volume level
VOL+ VOL-	EHV		Set encoder headphone volume level

The front panel headphone output can be used to monitor either the encoder input signal (after the A/D converter) or to the decoder output (before the D/A converter). The **CHP** command is used to make the selection. The headphone can monitor the stereo signal (left channel to left earphone and right channel to right earphone) or the left channel only (left channel to left and right earphones) or the right channel only (right channel to left and right earphones). Indications on the front panel, under the HP STATUS label show which channels and signals you are hearing.

The headphone volume may be adjusted by the **CHV**, **DHV** and **EHV** commands, or by pressing the volume up and down button on the front panel. The volume of the encoder and decoder are adjusted separately. There are not separate adjustments for the left and right channels. The volume level is from 0 to 127 arbitrary units with 0 being mute and 127 being the loudest. Operating the headphones near the loudest levels

will produce audible distortions through the headphones that are not in the signal being monitored. For best results, we recommend that efficient headphones be used.

5.4.10 Status and Level Display (models 120, 220 and 230 only)

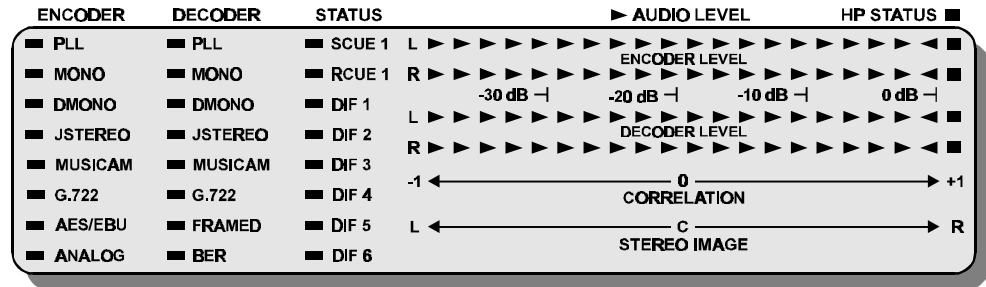
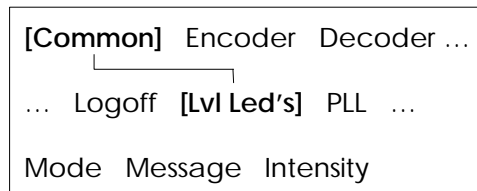


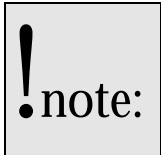
Figure 5-7 CDQPrima 120 & 220 Display



<Common><Lvl LED's><Intensity>	CLI	N/A	Set LED display intensity
<Common><Lvl LED's><Message>	CLM	N/A	Display LED message
<Common><Lvl LED's><Mode>	CVU	N/A	Set level meter mode

A front panel LED display is provided on all **CDQPrima** models except the 110 and the 210. This front panel display can be used for various functions. Three measurement modes are available: level, stereo image and left-right phase correlation. The **CVU** command is used to set the measurement mode. The normal mode is the level indication mode in which the average and peak input and output signals are displayed. The stereo image can be displayed as well as the left-to-right channel correlation.

The level mode of operation is the default mode. The right hand side of the level display is labeled 0 dB and each LED to the left represents a 2 dB weaker signal. The five right hand LEDs are red, the next five LEDs to the left are yellow and the last 10 LEDs on the left are green. Thus, the 20 LEDs represent a 40 dB range.



The far right LED has a reversed arrow display to indicate that the input or output is at the maximum level of 0 dB (relative to +18 dBu). The VU meter is labeled with 0 as the maximum because the input amplifiers may be different values. For example, the standard input amplifier on the **CDQPrima** allows a maximum input of +18 dBu. If a sine wave with a peak-to-peak level of +18 dBu is input to this amplifier module, the peak level LED will illuminate. **A 0 level of the level LED means that the input is at the maximum allowed value, or 0 dB down from +18 dBu.** The output LED display is similarly calibrated.

The level display consists of an encoder and a decoder section, each with a left and a right channel display. When illuminated, each channel display contains a single LED representing the peak value and a solid group of LEDs representing the average value of the audio.

If the stereo image display is selected, the scale below the display must be used. This scale shows the relative location of the stereo image. If the image is centered, the single LED is illuminated above the **C**. If the image center is to the right, the LED is displayed toward the **R**. This display is useful when the gains of the left and right channels must be balanced for stereo signals.

The stereo correlation display is indicated by a double LED illumination on the Encode and Decode meters. The correlation display is useful to verify that the input or output signal can be properly mixed to mono. A correlation from 0 to +1 indicates that there is mono compatibility. A stereo correlation near -1 indicates that the left and right signals are out of phase and will cancel to some degree if mixed to mono. This is important when the stereo source may be encoded for *simulated* surround sound since some of these encoding techniques are not mono compatible.



The **CLM** command allows a scrolling text message to be displayed on the front panel LED VU meter display. This is useful to alert a remote location of an upcoming feed, provide a cue, or describe an error or status condition.

The **CLI** command is used to set the intensity of the LED display. The display is divided into 3 groups (status, Encoder level and Decoder level) and the intensity of each group can be controlled. This allows

instant focus on one group by dimming the intensity of the other groups.

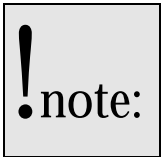
5.4.11 FFT (Spectrum Analyzer) and Phase Display (Model 230 Only)

FFT	PHASE	T1	T2	MTM	N/A	Display FFT or Phase
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The **CDQPrima** Model 230 has built in FFT (spectrum analyzer) and Lissajous phase displays. By pressing one of the front panel measurement buttons, you can display either the encoder or decoder spectrum analysis or phase display. Pressing the **FFT** button will display the encoder left channel spectrum analysis, and pressing the **T1** button will display the decoder left channel spectrum. You can only change to the right channel using the **MTM** command from a terminal. The phase correlation between left and right channels can be displayed by pressing the **PHASE** or **T2** buttons for input (encoder) and output (decoder) audio respectively.

To return to the normal menu display, press the up arrow button.

Please note that the **CDQPrima** may be slow to respond to remote control commands when the FFT display is on.



5.4.12 Hot Keys (Model 230 only)

<Common><Hot Key>	CHK	Extra, Define Hotkeys	Define Hot Key
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On the **CDQPrima** Model 230, 8 user definable hot keys are available. These keys allow the user to attach any **CDQPrima** remote control command sequence to a single key. Once a command has been attached to a key, pressing the key causes the command to execute. See the **CHK** command in the **CDQPrima Remote Control Manual** for a detailed explanation of the syntax of this command.

Although physical hot key buttons are only available on the front panel of the Model 230, all **CDQPrima** models have the hot key capability that

is accessible using the  icons of the Windows remote control program.

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5.4.13 Fan Control, Display Contrast, Keypad Beeper and Audible Alarm

[Common] Encoder Decoder ...
 ... Buzzer Fan Contrast

<Common><Fan>	CFN	N/A	Toggle state of cooling fan
<Common><Buzzer><Buzzer>	CBZ	N/A	Buzzer state
<Common><Buzzer><Pb Click>	MBX	N/A	Keypad beep state
<Common><Contrast>	CCV	N/A	Adjust LCD display contrast

Your new **CDQPrima** has a thermostatically controlled cooling fan that can be turned off using the **CFN** command if silent operation is required. If a safe operating temperature is exceeded, the fan will automatically turn on, and cannot be turned off until a safe temperature has been reached.

With the addition of a keypad beeper there is now positive audible feedback whenever a keypad button is pressed. In some instances however, it may be necessary to silence this feature. The **MBX** command can be used to turn off the beeper.

It is also possible to use the beeper to produce an audible alarm if any (user defined) trouble condition exists. Using the virtual action or event-to-action feature of Prima Logic Language, you can program an event to sound the buzzer on either the local or far-end **CDQPrima**. The **CBZ** command is used to toggle the state of the buzzer.

For ease of viewing at any angle, the contrast of the LCD display can be adjusted over a wide range using the **CCV** command.