

Chapter 3

The Front Panel

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Overview

You can configure and operate all functions of the 3512 DSU/CSU through the front panel (Figure 3-1). This chapter introduces you to:

- **Local front panel** features and operation, which include light-emitting diodes (LEDs), a liquid-crystal display (LCD) menu system, and control keys
- **Remote front panel (RFP)** features and operation, which enable you to access the parameters of another 3512 with RFP

To access the front panel, open the front door.

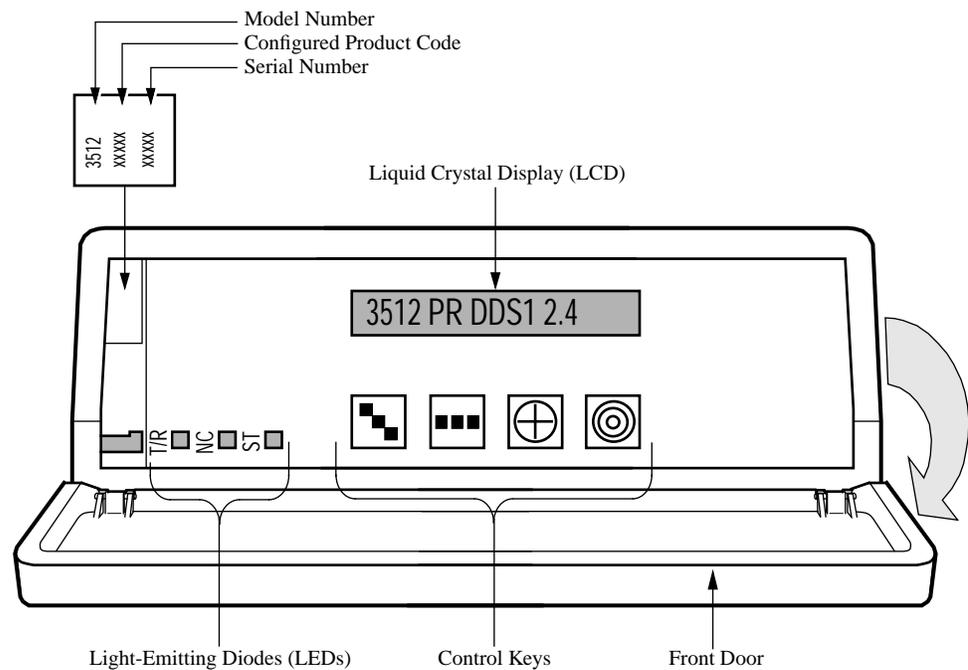


Figure 3-1. 3512 Front Panel

When you contact a customer service representative, or return a unit to Motorola, provide the following identification numbers, found on the front panel:

- The **model number** identifies the product type
- The **configured product code** identifies the features included with your unit
- The factory-installed **serial number** identifies your unit

Light-Emitting Diodes (LEDs)

LEDs (Figure 3-2) show the status of the port the 3512 is monitoring.

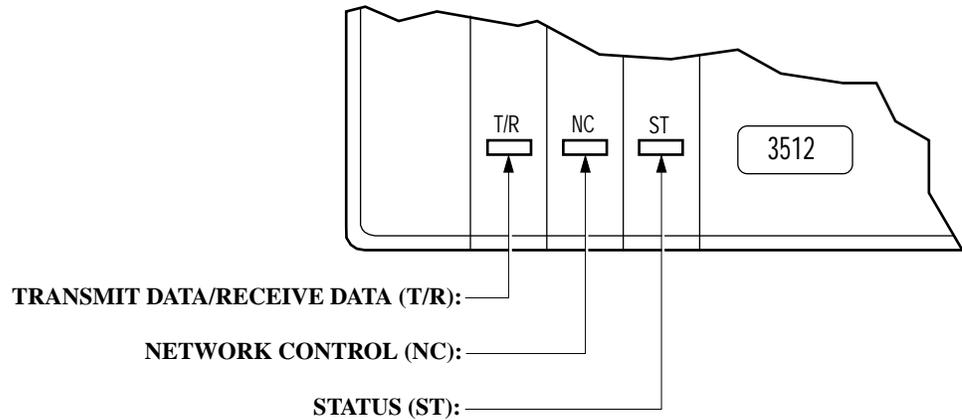


Figure 3-2. 3512 Front-Panel Light-Emitting Diodes (LEDs)

Table 3-1 explains LED functions.

**Table 3-1.
3512 LED Descriptions**

Label	Name	Color	Description
T/R	Transmit Data/ Receive Data	Green	Device is accepting data to transmit
		Red	Device is passing received data to a DTE
		Orange	Device is accepting and passing data
NC	Network Control	Green	Device is attached to an NMS
		Flashing green	Device is passing secondary channel data
ST	Status	Green	Power is on; no alarms
		Red	Alarm on primary or alternate line; check display; or unit is in restoral (A/B or integral)
		Flashing green	Test or RFP session in progress. ST flashes at both devices. When the local device is in escape-RFP mode, ST stops flashing
		Flashing red	Test errors, or restoral-line loop

Menu Structure

Table 3-2 details the 3512's menu tree symbols and structure. Use the front panel (local or remote) to configure, test, monitor, and troubleshoot network devices.

Table 3-2.
3512 Front-Panel Display Key

<i>Display Description</i>	<i>Symbol</i>	<i>Menu Level</i>	<i>Example</i>
Asterisk	*	Main menu	*MODIFY
Uppercase letters (no asterisk)		Category	MODIFY DSU
Upper- and lowercase letters with = or:		Parameter and option	Timing=Network
Upper- and lowercase letters to the right of a = or:		Option	Network
Equals sign	=	Currently selected option	Timing=Network
Colon	:	Available option	Timing: Internal

Default Display

The front-panel **default display** indicates the model number, the currently-active line, and the data rate. You can change the default display with your own message (*AUXILIARY main menu, FRONT PANEL category).

Control Keys



Control keys let you navigate through the **menu tree** to configure, monitor, test, and troubleshoot the 3512. **NOTE:** When the **Password** parameter is enabled, you must enter the password before you can make configuration changes.

<i>For more information on using...</i>	<i>Refer to...</i>
Password	Chapter 4, Configuring the 3512
Password and Remote Front Panel (RFP)	Remote Front Panel, in this chapter

Table 3-3 explains the 3512's control keys.

Table 3-3.
Front Panel Control Keys

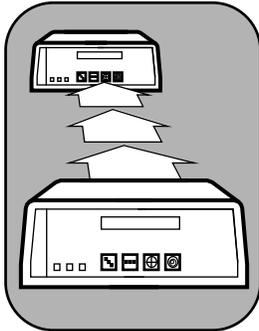
Key	Name	Function	Example
⏏	Down	Displays the categories of a main menu	In the *MODIFY main menu, ⏏ displays MODIFY DSU, MODIFY PORT, MODIFY NETWORK.
■ ■ ■	Across	Displays main menus <i>or</i> Scrolls through a category's parameters and selected options.	At the top menu level, ■ ■ ■ displays *TEST and *STATUS. In the MODIFY DSU category, ■ ■ ■ displays Opmode=DDS1 .
⊕	Option	Displays options available for a parameter.	In the Timing parameter, ⊕ displays Timing:Internal.
Ⓞ	Enter	Selects an option; changes: to = In the *TEST main menu, activates or terminates a test.	Timing:Internal becomes Timing=Internal. Selecting DSU Check=On activates the DSU Check test. Selecting DSU Check=Off terminates the test.

Alphanumeric Entry

For some parameters, you enter alphanumeric options, such as **BER Address** (*TEST main menu). Enter alphanumeric values as follows:

- 1) Display the parameter. Press ⊕ to put the display in alphanumeric mode. The leftmost character-position blinks and the equals sign changes to a colon.
 - 2) Press ⊕ to increment the character until the character you want displays.
 - 3) Press ■ ■ ■ once to advance to the next position, which then blinks.
 - 4) Repeat Steps 2 and 3 for each character to be changed.
 - 5) Press Ⓞ to save the new character. The colon changes to an equals sign.
- To exit from alphanumeric entry *without* saving the new value, press ⏏.

Remote Front Panel (RFP)



All 3512s

The remote front panel feature (Figure 3-4) enables you to view and set most parameters on another 3512 equipped with the RFP feature, using the *local 3512 device's* front panel. RFP helps you avoid travel and delay when you need to set or change configurations on distant 3512s and 3512 SDCs.

You can perform the following remote functions using RFP:

- Set a device's network control address (**NC Address** parameter)
- Search for an **NC Address** value using a device serial number
- Change most parameters

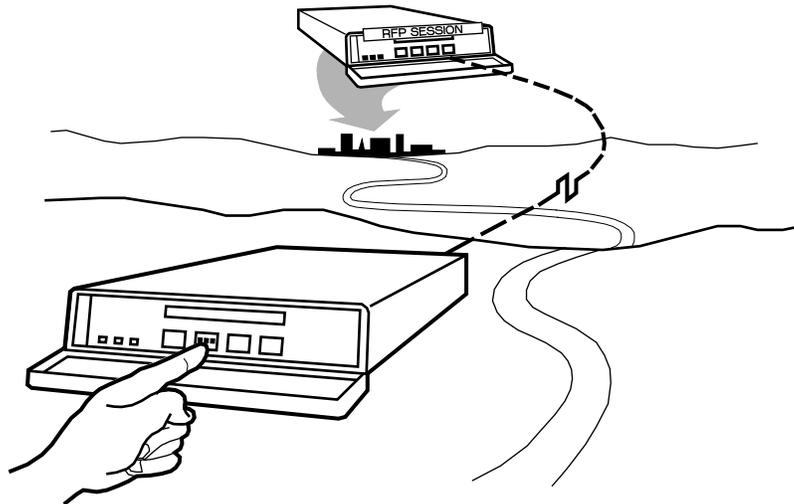


Figure 3-3. Remote Front Panel

During an RFP session, the local device displays the remote device's front-panel display, and each local key-press is forwarded to the remote device. The ST LED blinks throughout an RFP session. Because RFP uses the secondary channel, operation is not as fast as regular, local operation. The message

EXECUTING

displays on the local device when it is waiting for signals from the remote device. Motorola recommends that after each key-press, you *wait for the front-panel response corresponding to that key* before you press another key.

During an RFP session, you can temporarily revert to local operation, then resume the session. This is referred to as **escape-RFP mode**; it is described below.

Figure 3-4 shows RFP's local front-panel categories and parameters (*AUXILIARY main menu). Refer to Chapter 4 for details on these parameters.

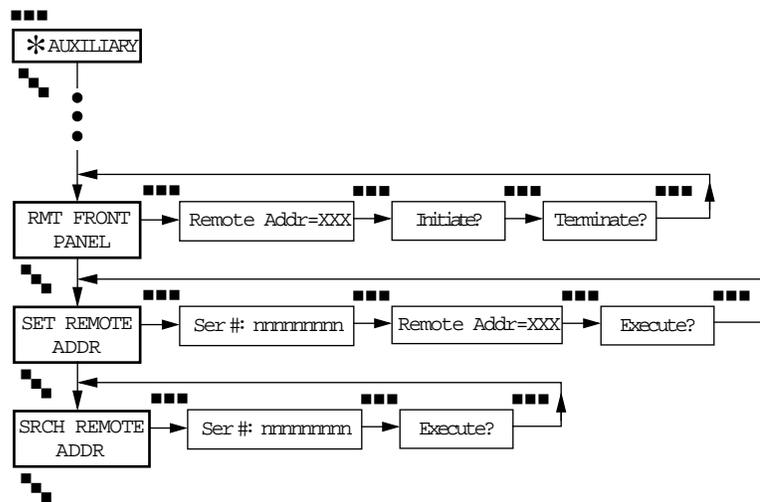


Figure 3-4. Remote Front Panel (RFP) Categories and Parameters

RFP Operation

Beginning an RFP Session

You need the remote device's network address for an RFP session. Obtain it, then proceed. To begin an RFP session:

- 1) Display **Remote Addr** (*AUXILIARY, RMT FRONT PANEL).
- 2) Use the front-panel control keys, as described under Alphanumeric Entry, above, to enter the network address (**NC Address** parameter) of a remote 3512 that is equipped with the RFP feature.
- 3) Press ■■■ to display the **Initiate?** parameter.
- 4) Press Ⓢ. The local device displays:

3512 RFP ACTIVE

The remote device displays:

RFP SESSION

On both devices, the ST LED flashes green.

- 5) You can now display the remote device's parameters.
 - If the remote device's **Password**=Disable, you can *change* options.
 - If the remote device's **Password**=Enable, you can *display* options; when you press Ⓢ to *change* an option, the following displays:

PASSWORD?

Enter the remote-device password (refer to Alphanumeric Entry, above).
When you press Ⓢ, the message

WELCOME

displays briefly, followed by the parameter you intended to change.
You can now change the parameter value.

This ends the procedure for initiating an RFP session.

NOTES:

- 1) If the remote device is already in an RFP session with *another* device when you attempt to initiate a session,
RFP FAIL NO RESP
displays at the local device.
- 2) During RFP sessions, you may notice that menu-tree displays change more slowly than in regular operation. During an RFP session, *wait for the front-panel response corresponding to each key-press* before you press another key. If you press keys faster than the secondary channel can process them, the remote device will usually "catch up" after a few seconds; occasionally, it ignores signals that come in too fast.
- 3) If you change a remote parameter option, such as **Data Rate**, **Chn Rate**, or **Opmode**, enter escape-RFP mode immediately and change the local configuration to match the remote's. Then return to RFP mode. If you do not complete this task within three minutes, the remote device's inactivity timer may expire, terminating the RFP session.

Interrupting and Resuming an RFP Session: Escape-RFP Mode

During a session, you can temporarily revert to local operation at any time; to change a local option, for example. This is **escape-RFP mode**. The remote-device display remains locked when the local device is in escape-RFP mode.

- To enter *escape-RFP mode*, press  and  together. ST stops flashing and the local device displays:

3512 RFP ESCAPE

- To resume an RFP session from *escape-RFP mode*, press  and  together.

3512 RFP ACTIVE

displays, and the ST LED resumes flashing. (If the devices cannot resume the session, a timer ends the session after 30 seconds.)

NOTE: If you do not resume the RFP session within three minutes, the session ends.

Ending an RFP Session

*Manual termination of RFP with the remote device's **Terminate?** parameter):*

- 1) Display the remote device's **Terminate?** parameter (*AUXILIARY main menu, RMT FRONT PANEL category).
- 2) Press . The session ends. Both devices display

RFP SESSION TERM

Manual termination of RFP through the local device's RFP-escape mode:

- 1) Press  and  together. The ST LED stops flashing. The local device displays

3512 RFP ESCAPE

- 2) Display the **Terminate?** parameter (*AUXILIARY main menu, RMT FRONT PANEL category).
- 3) Press . The session ends. Both devices display

RFP SESSION TERM

Automatic termination of RFP by the inactivity timer: when no activity occurs, or there is no response to a command that requires one, the session ends. One or both devices display

RFP TIMEOUT or RFP SESSION TERM

Searching for a Remote Device's NC Address

RFP lets you find a remote device's **NC Address** parameter by entering its serial number. You do this in **local front-panel mode**, *not* during an RFP session and *not* in RFP-escape mode.

To search for a remote device:

- 1) Display the SRCH REMOTE ADDR category. Press **■■■**. **Ser #** displays.
- 2) Enter the serial number of the device whose NC Address you want; press **Ⓢ**. The colon (:) changes to an equals sign (=).
- 3) Press **■■■** once, to display **Execute?** (RMT FRONT PANEL category). Press **Ⓢ**. There may be a pause.
 - This display indicates RFP located the device and stored its address in **Remote Address** (SET REMOTE ADDRESS category):
ADDRESS FOUND
 - This display indicates the device is not connected to the network:
RFP FAIL NO RESP

Setting a Remote Device's NC Address Parameter

RFP lets you change a remote device's **NC Address** by entering its serial number. You do this in **local front-panel mode**, *not* during an RFP session and *not* in RFP-escape mode.

To set a remote device's NC Address parameter:

- 1) Display the SET REMOTE ADDR category. Press **■■■**, to display **Serial**.
- 2) Enter the serial number of the device whose **NC Address** you want to change; press **Ⓢ**. The colon (:) changes to an equals sign (=).
- 3) Press **■■■** to display the **Remote Addr** (RMT FRONT PANEL category). Enter the new **NC Address** option for the device specified in by **Serial**. Press **Ⓢ**. The colon (:) changes to an equals sign (=).
- 4) Press **■■■** to display **Execute?**. Press **Ⓢ**. There may be a pause.
 - If RFP successfully changes the remote **NC Address** option,
ADDRESS CHANGED
displays locally, and
RMT ADDR CHANGED
displays on the remote device.
 - If RFP cannot locate the device,
RFP FAIL NO RESP
displays.

RFP and Restoral Operation

You can have an RFP session with a remote device that is operating in restoral.
(Both devices must support a secondary channel.)

Automatic Initiation and Termination of Restoral

During an RFP session:

- If either device answers an incoming call, it terminates the RFP session
- If the remote device automatically terminates restoral during the RFP session, it also terminates RFP
- If the remote device automatically initiates restoral, it terminates RFP

In all these cases, both devices display

RFP SESSION TERM

Manual Initiation and Termination of Restoral

During an RFP session, you cannot manually initiate or terminate restoral.

RFP and Network Management

RFP operates independently of network management commands, although it uses the secondary data channel.

If *either* device is attached to a network management system, you must set its **NC Override = On** (*MODIFY NETWORK category*) before beginning the RFP session.

Both devices ignore network-management commands during an RFP session. In a network with **no network management**:

- On *multipoint* links, you must assign a unique network address (**NC Address**) to each device on the circuit in order to have an RFP session
- On *point-to-point* links, you can have an RFP session regardless of whether each device has a unique network address

Use **Set Network Addr** (*AUXILIARY main menu) to set **NC Address** options.

RFP and Link Problem Determination Aid (LPDA)

Both devices ignore LPDA commands during an RFP session.

RFP Rules

RFP operates within the following rules.

- Both devices must be configured on the same tier
- Both devices (local and remote) must have the RFP feature; remote devices without RFP ignore RFP commands
- Both devices must be configured to use a secondary channel
- Dynamic front-panel displays, such as **EIA Signals** (PORT STATUS category), are *not* dynamically updated during an RFP session (to view changes, press **Ⓢ**)
- You cannot initiate or terminate restoral (local or remote) using RFP
- Alarms that occur during a session are stored in the device where they occur.
- You cannot run most tests using RFP (refer to Table 3-3)
- On a multipoint link:
 - Each slave device must have a unique **NC Address** option
 - You can have an RFP session between the master and any slave
 - You cannot have an RFP session *between* two slaves
- If either device is power cycled during a session, the session is terminated

Local Device Displays During an RFP Session

During an RFP session, the local device displays alarm messages originating from either device. Remote alarms display with an asterisk (*). The local device does not display the remote device's error messages. (Refer to Appendix B for error and alarm messages that can display.)

Remote Device Displays During an RFP Session

During an RFP session, the remote device's:

- Control keys are inactive
- ST LED flashes green
- Display, *at* the remote device, is

RFP SESSION

Table 3-4 lists the remote-device options you can *not* access in an RFP session.

Table 3-4.
Remote-Device Options Not Accessible with RFP

Main Menu	Category	Parameter	Option
*TEST	LOOPBACKS	Loop 2	RT (aggregate)
	PATTERN TESTS	All	All
	BER TESTS	All	All
	OTHER TESTS	All	All
MODIFY	MODIFY NETWORK	NC Address	NC Address*
*AUXILIARY	RMT FRONT PANEL	Rmt Addr= Initiate?	
	FRONT PANEL	Lamp Test	All
	SET REMOTE ADDR	All	
	SRCH REMOTE ADDR	All	All
*RESTORAL	ACTIVATE RESTOR	All	All

*Use RFP's SET REMOTE ADDR parameter, but not during an RFP session.

