

ISDN

Digital Set User's Guide

SRS-2100

National ISDN

Fujitsu
Delivering on the promise of ISDN

ISDN

SRS-2100

Digital Set User's Guide

National ISDN

Fujitsu Network Switching of America, Inc.
4403 Bland Road, Somerset Park
Raleigh, NC 27609
U.S.A.

Part Number P-UG-2100V
Revision 1.0

©Copyright 1994 Fujitsu Network Switching of America, Inc. All rights reserved. Printed in the United States of America.

This publication may be replaced by a revised edition. To find out if a revision exists, or to order copies of publications, write to 4403 Bland Road, Somerset Park, Raleigh, NC 27609, or call 1-800-228-ISDN. Please direct all communications to Fujitsu Network Switching of America, Inc.

No part of this publication may be reproduced or translated, stored in a database or retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Fujitsu Network Switching of America, Inc.

The information contained in this document is subject to change without notice.

Warning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by unplugging the equipment to turn it off, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna of the affected receiver.
- Increase the separation between the equipment and the affected receiver.
- Connect the equipment to an outlet on a circuit different from the one to which the affected receiver is connected.
- Consult a dealer or experienced radio or television technician for help.

Cable Notice: The use of standard shielded cables to connect external data devices is required to ensure compliance with FCC Part 15 Rules for Class B devices.

PREFACE

This guide provides descriptions and procedures for using Fujitsu's Digital Set, the SRS-2100, when it is attached to a switch supporting National ISDN (NISDN).

This guide is for anyone interested in using the SRS-2100 to gain the benefits of the combined voice and data network capabilities of ISDN technology.

Read the sections that follow for information on:

- Using this guide efficiently
- Special features of your ISDN telephone
- Background on ISDN technology

USING THIS GUIDE

This section can help you make the most efficient use of this guide. The section describes the overall organization, aids to finding information, and conventions.

Organization

This guide is organized in the following chapters:

Chapter	Content
Chapter 1	Has illustrations to introduce the physical layout of the SRS-2100. It also describes the features and functions of its components.
Chapter 2	Describes the use of the basic voice services, such as placing and receiving calls and using the speaker/microphone (handsfree mode). It also explains how to use one-touch calling, the unanswered-call feature, and the function buttons SPEAKER, MIC-OFF, REDIAL, HOLD, CONFERENCE, TRANSFER, and DROP.

Chapter	Content
Chapter 3	Explains how to set up SRS-2100 features such as one-touch buttons, unanswered call logging, and the calendar/clock.
Chapter 4	Explains how to use the optional data terminal adapter to place or receive data calls.

Conventions and Layout

In procedures, the required actions are noted, with the buttons you press in capital letters, such as HOLD or REDIAL.

Other important words, such as messages that appear on the display, also appear in CAPITAL LETTERS.

Actions that pertain to only a specific phone system have the following symbols inserted. These symbols appear in the section heading when the information applies entirely to that system, or they appear adjacent to a command where only a specific action applies to that system.

|  **AT&T 5ESS** | Required for AT&T Systems.

|  **NT DMS100** | Required for Northern Telecom Systems.

NOTE: 5ESS and DMS-100 are registered trademarks of AT&T and Northern Telecom respectively.

Menus or screen displays appear as text in boxes.

.....			
.....			
12:55PM	SATURDAY	May 10	
UNA-LIST	DATA	CLEAR	DIR-LIST

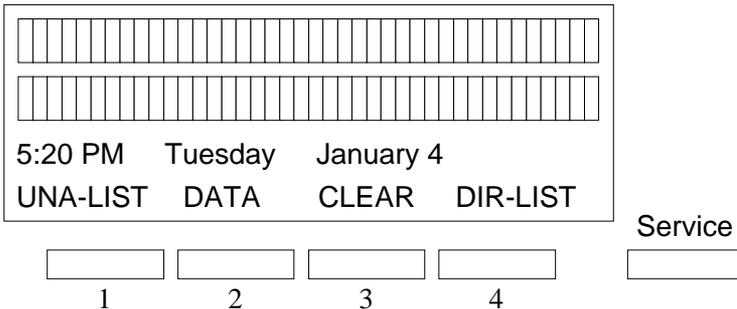
Helpful Tips About Your SRS-2100

Because ISDN technology is new, some features of your SRS-2100 may be unfamiliar.

Softkeys

Softkeys are a way of simplifying the phone and still supporting the richness of ISDN features. These keys assume different functions depending on the feature you are using, thus avoiding the need for a large number of permanent function keys.

The SRS-2100 softkeys are the four keys located just below the display. When you press the SERVICE button to their right, the display changes and REGISTER appears over the fourth softkey.



Standard Softkey Layout

Timeouts

When you are setting up local features as described in Chapter 3, some of the data entry displays have built-in timers. If you do not enter information within fifteen seconds, the display reverts to the menu for selecting the feature you were setting up. You must reselect the feature and start again.

Starting Over

If for any reason you become confused while setting up a local feature in menu mode, you can always press REGISTER, softkey number 4, to return to the setup menus and start over.

Phone Operation

The following two features of ISDN phones may be different from what you are used to:

Dialing 9. When you dial for an outside line (usually by pressing 9), you do not hear a pause and a second dial tone. You can begin dialing the telephone number immediately.

Onhook dialing. You can dial a number before you get a dial tone. The number you dial appears on the display and remains there for three minutes. When you lift the handset and press an idle Call Appearance button, or press the SPEAKER button for handsfree mode, the phone initiates the call automatically.

ISDN CONCEPTS: INTEGRATED VOICE AND DATA

ISDN stands for Integrated Services Digital Network, which provides many voice and communication features. (The SRS-2100 data features, available with the voice/data version are described in Chapter 4. For more information, please see the *Data User's Guide*.)

The basic ISDN service provides two 64,000 bits per second "B" channels for voice or data communications. Each B-channel can support circuit-switched or packet-switched data services. There is also one "D" channel, at 16,000 bits per second, for network signaling and packet-switched data service. The combination is often referred to as "2B+D", or the Basic Rate Interface (BRI).

Voice Features

The voice features of an ISDN telephone have several advantages:

- They allow your telephone to **handle multiple calls** simultaneously, receiving calls while keeping others on hold.
- They also permit a call coming in to a single directory number to **ring more than one** physical telephone. This feature facilitates call handling within a group.
- They provide **easy-to-use-access** to powerful features such as call conferencing and call transfer, to enhance your productivity.
- They allow the incoming directory number to be displayed if it is available.

Data Features

The voice/data version of the SRS-2100 includes the following data capabilities:

- Communication on the D-channel using packet switching with an asynchronous RS-232 terminal at terminal speeds up to 19,200 bits per second
- Communication on the B-channel using circuit switching with an asynchronous RS-232C terminal at speeds up to 38,400 bits per second
- Communications on the B-channel using circuit switching via an RS-232 connector for synchronous data transmission at speeds of 56,000 or 64,000 bits per second.

The supporting network data features must also be assigned to the line.

Multipoint Configurations

In older ISDN installations, most phone connections are point-to-point. Each phone in a point-to-point configuration requires a separate line into your building. However, most service providers now offer multipoint configurations as a subscription option. In a multipoint configuration, up to eight devices (digital sets and/or terminal adapters) can be connected to a single line. For example, your company could connect two digital sets and two data terminal adapters to a single line. The two digital sets could each use one B-channel for voice communication, and the data terminal adapters could use the D-channel for packet-switched data calls. The DMS-100 switch allows only two devices which use a B-channel in a multipoint configuration (or a single device that uses two B-channels).

SPID

For your SRS-2100 to work, it must have a valid Service Profile Identifier (SPID). (If your SRS-2100 is the voice/data version, you need two SPIDs, one for voice and one for data.) The SPID number is usually entered when the SRS-2100 is installed. So if your digital set already has a SPID number, you don't have to reenter it. If you do need to enter a SPID number, you can find out what it should be from your System Administrator or service provider. For the procedure to enter a SPID, see Appendix A.

CAUTION: Once the SPID number is entered, don't change it unless your System Administrator tells you to do so. Your SRS-2100 won't work without the correct SPID number. If the SPID number is wrong, the set displays the message SPID NG. (The message is redisplayed a second time if the data terminal adapter SPID is also invalid.) Enter the correct SPID number and you'll get the normal dial tone.

System Administrator

ISDN is very flexible in allowing businesses to customize how it works to meet their specific needs. This User's Guide refers you to your System Administrator if a customized option may have been chosen during installation.

Your System Administrator may be your phone company representative or a member of your telecommunications department.

Call Appearance Preference

The SRS-2100 allows you to specify which Call Appearance button it selects when you go offhook (lift the receiver or press SPEAKER). You have three choices:

- Primary line preference. The SRS-2100 always selects button number 1, the Call Appearance associated with your primary directory number.
- No preference. The SRS-2100 does not automatically select any Call Appearance button when you go offhook. You must press the button you wish to be connected to either before or after you go offhook.
- Ringing line preference. The SRS-2100 selects the Call Appearance button that is ringing with an incoming call. You are immediately connected to the call.

For more details about Call Appearance preference, see "Selecting CA Preference," in Chapter 3.

TABLE OF CONTENTS (click on the desired chapter)

Section	Page
Chapter 1	
Getting Acquainted With Your Digital Set	1-1
Digital Set Components	1-1
Telephone Components.....	1-2
Function Buttons.....	1-3
Indicators.....	1-3
Switches and Connectors	1-4
MULTIFUNCTION BUTTONS.....	1-5
CALL INFORMATION DISPLAYS.....	1-7
SOFTKEYS AND SERVICE.....	1-8
Chapter 2	
INTRODUCTION TO VOICE FEATURES	2-1
PLACING AND RECEIVING CALLS	2-1
Switching Between Handset and Handsfree Modes.....	2-2
Placing Handset Calls	2-2
Receiving Handset Calls.....	2-4
Placing Handsfree Calls	2-4
Receiving Handsfree Calls.....	2-7
Placing Headset Calls.....	2-8
Receiving Headset Calls.....	2-9
FUNCTION BUTTONS.....	2-10
REDIAL	2-11
HOLD.....	2-12
CONFERENCE  NT DMS100 	2-12
CONFERENCE  AT&T 5ESS 	2-14
DROP	2-15
TRANSFER  NT DMS100 	2-16
TRANSFER  AT&T 5ESS 	2-17
ONE-TOUCH CALLING.....	2-18
Using a One Touch Button to Make a Call	2-18
Dialing Special Codes Using One-touch Buttons	2-19
UNANSWERED CALL LOGGING (UNA-LIST).....	2-20
Using the UNA-LIST Feature.....	2-20
Returning a Call.....	2-21
Deleting a Record from the UNA-LIST	2-21

Section	Page
Chapter 3	
LOCAL FEATURES.....	3-1
SERVICE MODE OPERATIONS	3-1
Selecting a Menu Option.....	3-2
CHANGING RINGER MODE.....	3-4
Setting Ringer Volume.....	3-4
Setting Ringer Tone.....	3-5
Selecting Ringer Mode.....	3-6
Selecting Ringer Pattern.....	3-6
PROGRAMMING A BUTTON FOR ONE-TOUCH DIALING	3-7
Programming a One-Touch Button	3-7
Changing or Canceling the Number Stored in a One-Touch Button.....	3-9
SETTING THE CALENDAR/CLOCK	3-10
Setting Calendar and Clock Values	3-10
REINITIALIZING THE PHONE	3-12
UNANSWERED CALL LOGGING (UNA-LIST).....	3-13
Disabling the UNA-LIST Feature.....	3-15
HANDSFREE, HANDSET, AND HEADSET MODES	3-15
Operating the Set with a Headset.....	3-16
Switching from Headset Back to Handset Mode	3-17
Selecting Handsfree Operation (using the speaker and microphone).....	3-17
Switching Back to Handset-Only Operation	3-18
CALL ANNOUNCE INTERCOM	3-18
Call Announce Intercom on Selected Buttons.....	3-19
Specifying the Directory Numbers of Call Screeners.....	3-21
Announcing a Call by Intercom.....	3-23
USING Q.931 MESSAGE LOGGING	3-23
Starting or Stopping Message Logging.....	3-24
Reviewing Logged Messages.....	3-25
ACTIVATING AND DEACTIVATING THE MIC-OFF BUTTON.....	3-26
SELECTING CALL APPEARANCE PREFERENCE.....	3-27
PERSONAL DIRECTORY	3-28
Setting Up the Personal Directory	3-28

Section	Page
Chapter 4	
DATA OPERATION.....	4-1
USING THE TERMINAL ADAPTER	4-1
MAKING AND TERMINATING A DATA CALL.....	4-1
Using the DATA Key.....	4-1
Using AT Commands.....	4-2
Using X.28 Commands	4-3
Appendix A	Installation
Appendix B	Testing
Appendix C	ISDN Call Identification Displays
Appendix D	Error Messages
Appendix E	Interpreting Q.931. Message Logging Codes