Meridian 1

M3900 Series Meridian Digital Telephones

Description, Installation and Administration

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Revision history

April 2000

Standard 4.00. This is a global document and is up-issued for X11 Release 25.0x. Document changes include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases.

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Contents

Preface

This guide provides feature, expansion module, and specification information for the M3900 Series Meridian Digital Telephones.

Other documentation

For more information, refer to the following documentation:

- *Digital Telephone Line Engineering* (553-2201-180)
- *Spares Planning* (553-3001-153)
- *Equipment Identification* (553-3001-154)
- *Line Cards: Description* (553-3001-105)
- *X11 Features and Services* (553-3001-306)
- *X11 Administration* (553-3001-311)
- *X11 System Messages Guide* (553-3001-411)
- *X11 Maintenance* (553-3001-511)

Functional description

Content list

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Software Conversion Procedures* (553-2001-320)

This document introduces the M3900 Series Meridian Digital Telephones and provides the user with description, installation and administration information for the M3900 Series telephones. Document sections are:

- "General features" on page 18
- Individual M3900 Series telephone descriptions that begin on page 22
- A description of enhancements introduced with X11 Release 25 that begins on page 13
- "Configure the M3900 Series Meridian Digital Telephone" on page 31
- "Hardware options" on page 57
- "Installation" on page 65
- "Environmental and safety considerations" on page 79

The M3900 Series telephones communicate with the Meridian 1 through digital transmission over standard twisted pair wiring.

The M3900 Series Meridian Digital Telephone can interface with all versions of the Intelligent Peripheral Equipment (IPE) Digital Line Card (DLC). The DLC supports 16 voice ports and 16 data ports. The system software assigns a Terminal Number (TN) to each port in the system.

> ***Note:*** The M3900 Series telephones are not supported by the Enhanced Peripheral Equipment (EPE) based digital line card.

Enhancements for X11 Release 25

Seven enhancements to the M3900 Series telephones are introduced with X11 Release 25. These enhancements are:

- Context Sensitive Soft Keys (M3903 and M3904)
- Set-to-Set Messaging (M3903 and M3904)
- Corporate Directory (M3903 and M3904)
- Virtual Office (M3903 and M3904)
- Support for the Display-based Expansion Module accessory (M3904)
- Flash Download of firmware to M3902, M3903, M3904 and M3905 telephones
- Language selection, during software installation, for M3900 Series telephone displays

Context Sensitive Soft Keys

The four keys immediately below the display on the M3903 and M3904 telephones are referred to as Soft Keys. The function or features accessed by these keys varies dependent on:

- the features configured for the telephone
- whether the phone is on-hook, off-hook, or on a call
- whether the Options List, Directory/Log, or Applications are in use

With Context Sensitive Soft Keys, only the features that are applicable and configured for your telephone appear on the soft labels above these keys.

For example, while you are on a call, you may have access, via the Soft Keys, to features such as Transfer and Conference. You will not, however, have access to Forward since you would not forward your telephone while you are on a call.

A total of ten features can be accessed through the Context Sensitive Soft Keys. These features are:

- Call Transfer (TRN)
- 6 Party Conference (AO6) / 3 Party Conference (AO3)

- Call Forward (CFW)
- Ring Again (RGA)
- Call Park (PRK)
- Ringing Number Pickup (RNP)
- Speed Call (SCU/SCC/SSU/SSC)
- Privacy Release (PRS)
- Charge Account (CHG)
- Calling Party Number (CPN)

Set-To-Set Messaging

The Set-to-Set Messaging feature provides a visual message from one M3900 telephone to another M3900 telephone when a user makes a call to that telephone. The user on a M3903 or M3904 set enters the Set-to-Set message text at the telephone. Set-to-Set Messaging is accessed through the Applications Key.

The maximum length for Set-to-Set message text is 24 characters (one line of the set display).

Table 1
Sample of Message Text

OUT TO LUNCH
BACK TO WORK: 4 Dec 99
BACK TO OFFICE: Jan 00
WILL REPLY AFTER 1 PM
BACK @ 4:00 PM
NOT IN TODAY
RETURN SOON -- 8:10 AM
GONE FOR THE DAY

The user may have only one Set-to-Set message on their telephone at a time. To activate Set-to-Set Messaging, the user must first define a message. If password protection is active for the M3900, it also applies to Set-to-Set Messaging.

If the Multiple Appearance Redirection Prime (MARP) feature is active, then MARP determines which DNs receive the Set-to-Set Message. If MARP is not active, then Multiple Appearance Directory Number (MADN) determines which DNs configured on the telephone receive the Set-to-Set Message.

To use Set-to-Set Messaging the M3903 or M3904 telephone must have:

- the Set-to-Set feature class of service enabled
- a Set-to-Set message text created
- the Set-to-Set Messaging feature enabled

When Set-to-Set Messaging is active, the caller hears an audible tone and the Set-to-Set Message appears on their display. The caller then hears ringback and the call goes to voice messaging. If the called set is busy, a call waiting tone is heard by the called party.

Corporate Directory

The M3903 and M3904 telephones provide access from the telephone to a corporate wide directory. The Corporate Directory is accessed through the Applications Key. The Corporate Directory allows:

- users to search by name
- a user to view additional information on each entry
- the user to dial from the Corporate Directory
- the user to copy and paste an entry into the Personal Directory (M3904)
- an alphabetical listing of entries by using the last names (system generated)

  Note: When names are copied to the Personal Directory (M3904) the names are listed by first name.

- the system administrator to configure Meridian Administration Tools (MAT) to download the directory database manually or automatically to the system

Operating parameters for the Corporate Directory

The user must have an M3903 or M3904 telephone to support the Corporate Directory feature. To access the Corporate Directory from the telephone, the user must have the Corporate Directory class of service enabled.

When the Corporate Directory is being updated with new data, the user cannot access the Corporate Directory. The user exits the Corporate Directory by pressing the Quit Key or the Applications Key.

The MAT Corporate Directory utility gathers data from the MAT databases and downloads it to the Meridian 1 system. To use the Corporate Directory utility, MAT 6.6 or later must be installed.

Virtual Office

The Virtual Office feature allows users to log in to a designated M3903 or M3904 telephone and use their individual telephone configurations at that telephone. The calls to the user's primary DN are routed to the Virtual Office Host telephone where the Virtual Office Worker is logged in.

Both the M3903 and M3904 can be configured as Host Terminals; however, a Virtual Office Worker is required to login to a Host Terminal that matches their Virtual Terminal set type. For example, when the Virtual Terminal of a Virtual Office Worker is configured as an M3904, the login process will be blocked if they attempt to login to an M3903 Host Terminal.

The Virtual Office recognizes all system configuration related to the Virtual Office Worker; however, it does not record or retain contents of the Redial List, Personal Directory and Callers log between logon sessions. The Virtual Office feature operates on a stand-alone Meridian 1 system only.

Only one active session per user login ID is allowed at one time in the system. The Virtual Office Worker is identified by their primary DN, which cannot be used as the primary DN for any other set, virtual or physical, in the system. Use the Station Control Password (SCPW, configured in overlay 11), to validate the login.

Nortel Networks recommends that the Host Terminal have at least internal call and emergency call (911 in North America) capability.

Terms:

Host Terminal - the physical telephone that a user can use to log on as a Virtual Office worker, must be either an M3903 or M3904.

Virtual Terminal - set of features configured for a user and defined on a phantom loop. There is no permanent physical telephone associated with a Virtual Terminal.

Display-based Expansion Module

The Display-based Expansion Module is an accessory that provides a single strip of eight additional keys for the M3904 telephone. The user presses the Page Key on the Display-based Expansion Module to access three different layers of keys. A single Display-based Expansion Module can be configured to provide up to 24 soft-labeled programmable feature or DN keys (eight keys on each of the three layers).

Flash Download

Flash Download provides the ability to download a new version of firmware from the Meridian 1 to a single M3900 Series telephone, or to a range of M3900 Series telephones. For X11 Release 25, this feature is applicable to M3902, M3903, M3904, and M3905 telephones. Flash Download enables firmware upgrades without the necessity of replacing the telephones in the field thereby “future-proofing” the M3900 Series telephones.

Language selection during software installation

With X11 Release 25 the software installer has been given the ability to select one of six different language sets to be installed on the Meridian 1. This selection determines the languages available to M3900 Series telephone users. The six different language sets are:

1 Global 10 Languages - English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian Portuguese, Finnish, Japanese Katakana

2 Western Europe 10 Languages - English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese

3 Eastern Europe 10 Languages - English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish

4 North America 6 Languages - English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana

5 Rls24 up-issue - English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian Portuguese, Finnish, Japanese Katakana

6 North America 6 Languages - English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana (Duplicate of the fourth set)

During the software installation process, the installer selects one of the above six Peripheral Software DownLoad (PSDL) files. Please see *Software Conversion Procedures* (553-2001-320) for information on software installation.

General features

The specific characteristic of the five models of the M3900 Series telephones is found on the following pages. Refer to:

- "M3901" on page 22
- "M3902" on page 23
- "M3903" on page 25
- "M3904" on page 27
- "M3905" on page 29

The M3900 Series Meridian Digital Telephones support features through:

- Fixed Feature Keys
- Programmable Line/Feature Keys (self-labeled)
- Programmable Soft Keys (self-labeled) (M3902 and M3905)
- Context Sensitive Soft Keys (M3903 and M3904)
- Applications Key
  - — Set-to-Set Messaging (M3903 and M3904)
  - — Corporate Directory (M3903 and M3904)
- M3900 "Hardware options" on page 57

Feature keys

Fixed Feature Keys

The Fixed Feature Keys (see Table 2) are the feature keys on the M3900 Series Meridian Digital Telephone that are prelabeled with the assigned feature. The Fixed Feature Keys appear on the telephone with text or icon labels. Telephones with icon labels are only available in specific market areas.

Table 2
Fixed Feature Key text and icon labels (Part 1 of 3)

Feature	Text Key Label	Icon Key Label
Goodbye		
Hold		
Mute		
Handsfree		
Volume		
Headset		
Options		
DN line		
Feature (M3901)		
Message		
Directory/Log (M3904)		

Table 2
Fixed Feature Key text and icon labels (Part 2 of 3)

Feature	Text Key Label	Icon Key Label
Call Log (M3903)	Call Log	
Shift	Shift	
Application	Applications	
Navigation		
Copy	Copy	
Quit	Quit	Quit
Transfer (M3902)	Transfer	
InCalls (M3905 Call Center)	In - Calls	
Not Ready (M3905 Call Center)	Not Ready	
Make Busy (M3905 Call Center)	Make Busy	
Call Supervisor (M3905 Call Center)	Supervisor	
Answer Agent (M3905 Call Center)	Ans Agent	
Activity Code (M3905 Call Center)	Activity	
Answer Emergency (M3905 Call Center)	Ans Emerg	

Table 2
Fixed Feature Key text and icon labels (Part 3 of 3)

Feature	Text Key Label	Icon Key Label
Emergency (M3905 Call Center)	Emergency	
Observe Agent (M3905 Call Center)	Obv Agent	
Display Queue (M3905 Call Center)	Dsply Queue	

Note: Icon key labels are available in specific markets areas.

Programmable Line/Feature Keys (self-labeled)

The Programmable Line/Feature Keys (self-labeled) are the keys located at the left and right sides of the upper section of the display area. The user can change the LCD label of these keys (with the exception of the primary Directory Number Key) to meet their business needs.

The Programmable Line/Feature Key (self-labeled) provides two layers of functionality on the M3903 and M3904. The two layer keys on the M3903 and M3904 provides the user access to two Lines/Features per key. For example, the M3904 has six Programmable Line/Feature Keys (self-labeled), which provide the user with 12 line/feature keys accessible on the six keys.

Soft Keys (self-labeled)

The Soft Keys (self-labeled) are the three (M3902) or four (M3903, M3904, and M3905) keys located below the display on the M3900 Series Meridian Digital Telephones. The labels and corresponding functionality of these keys change depending on the features available or the application in use.

Programmable Features

The M3901 can have five Programmable Features assigned. The user activates the features by pressing the Feature Key and assigned key pad keys as indicated by the Feature Card. The system administrator programs selected features for the M3901 telephone.

For feature key assignment information see:

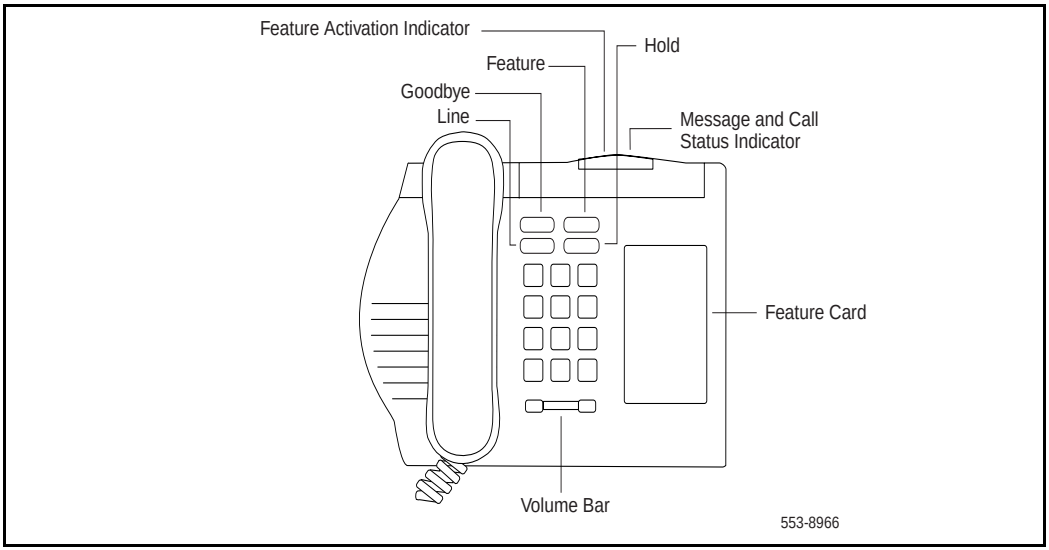
- Table 3, “M3901 key description,” on page 45
- Table 4, “M3902 key description,” on page 47
- Table 5 “M3903 key description” on page 48
- Table 6 “M3904 key description” on page 51
- Table 7 “M3905 key description” on page 54

M3901 Entry Telephone

The features of the M3901 include:

- one line (Directory Number (DN)) capability
- five programmable features
- Fixed Feature Keys: Line, Feature, Hold, Goodbye, and Volume control
- Feature Activation and Message Waiting/Incoming Call Status Indicator LED
- support for an amplified headset

Figure 1
M3901

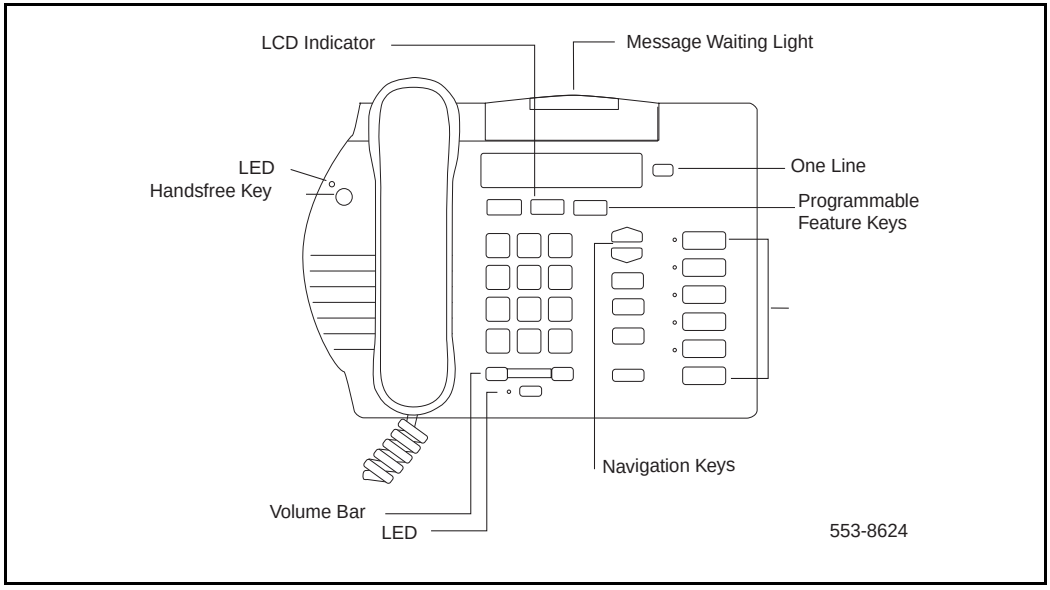


M3902 Basic Telephone

The features of the M3902 include:

- one line (Directory Number (DN)) capability
- three Programmable Soft Keys (self-labeled)
- Fixed Feature Keys: Options, Message, Transfer, Goodbye, Hold, “Smart” Mute, and Volume control
- two lines by twenty-four character display area
- Group Listening
- on-hook dialing
- support for an amplified headset
- one accessory port
- handsfree calling option with LED

Figure 2
M3902

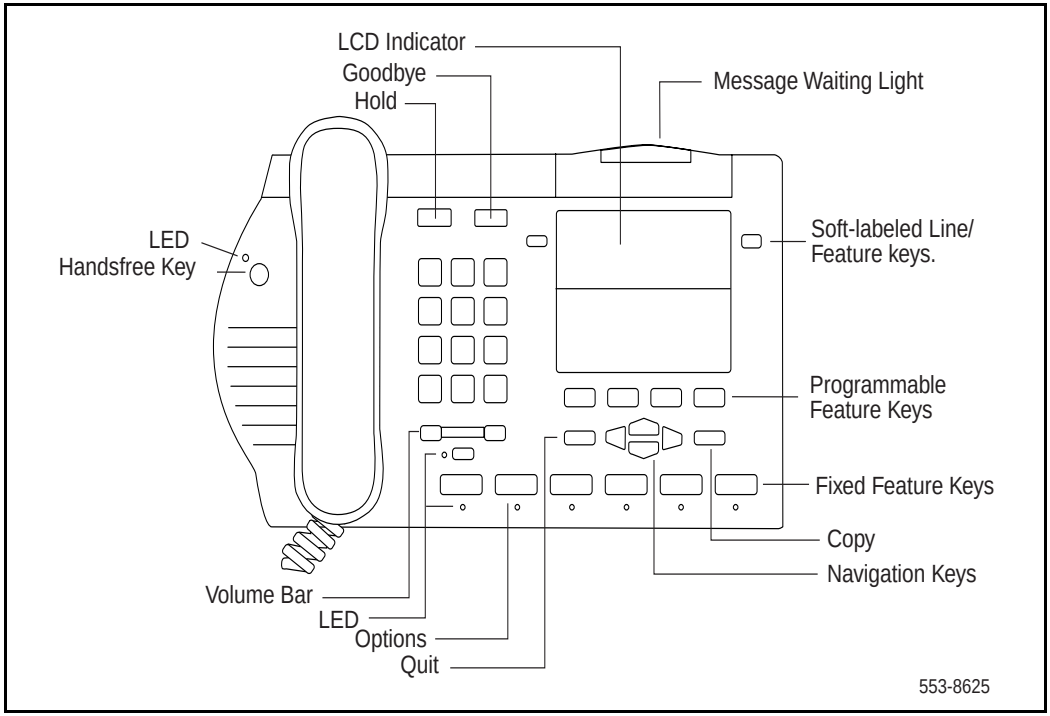


M3903 Enhanced Telephone

The features of the M3903 include:

- two Programmable Line/Feature Keys (self-labeled) which have two layers each, giving the user access to four Line/Feature keys
- four Interactive Soft Keys (self-labeled) that change functionality depending on the features available or the application in use
- Handsfree calling with LED
- Fixed Feature Keys: Goodbye, Message, Call log (including Redial List), Applications, Shift, Goodbye, Hold, “Smart” Mute, and volume control
- Navigation cluster, Quit, and Copy
- three line by twenty-four character display area
- Call Log (includes Redial List)
- Group Listening
- on-hook dialing
- two accessory ports
- support for an amplified or unamplified headset
- Direct Connect Headset port

Figure 3
M3903

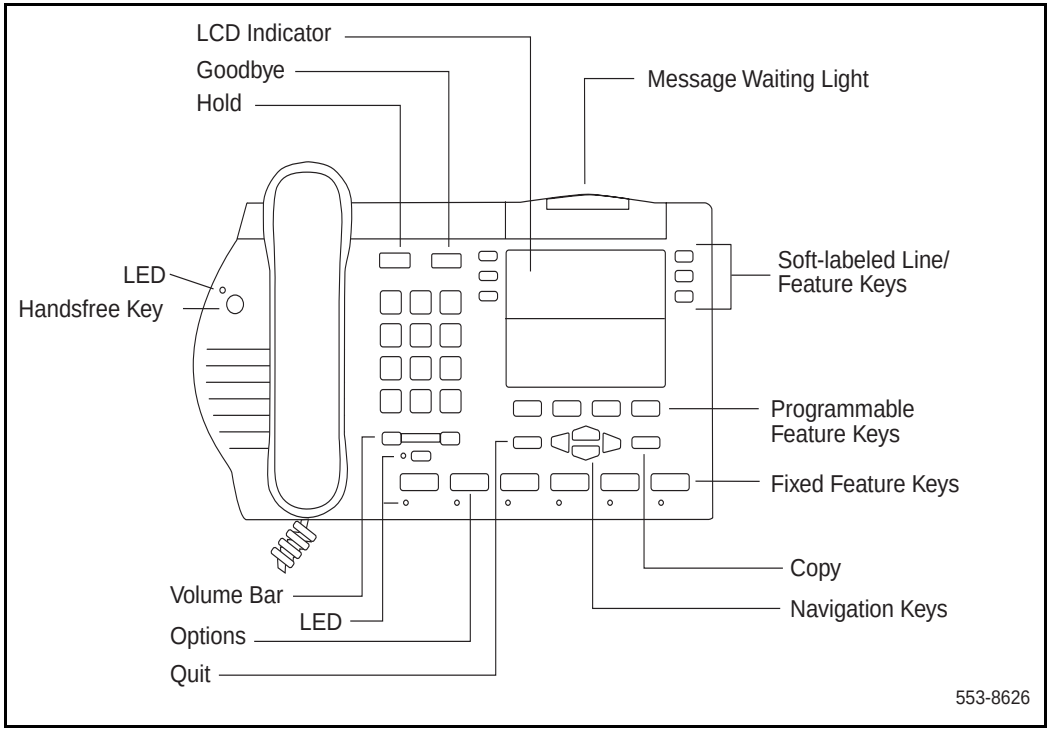


M3904 Professional Telephone

The features of the M3904 telephone include:

- six Programmable Line/Feature Keys (self-labeled) which have two layers each, giving the user access to 12 Line/Feature keys
- four Interactive Soft Keys (self-labeled) that change functionality depending on the features available or the application in use
- Handsfree Calling with LED
- Fixed Feature Keys: Options, Message, Directory/Log (including Redial List), Applications, Shift, Goodbye, Hold, “Smart” Mute, Volume control
- Navigation cluster, Quit, and Copy
- five line by twenty-four character display
- Personal Directory
- Call Log (includes Redial List)
- Group Listening
- on-hook dialing
- two accessory ports (support for an amplified/unamplified headset)
- Direct Connect Headset port

Figure 4
M3904

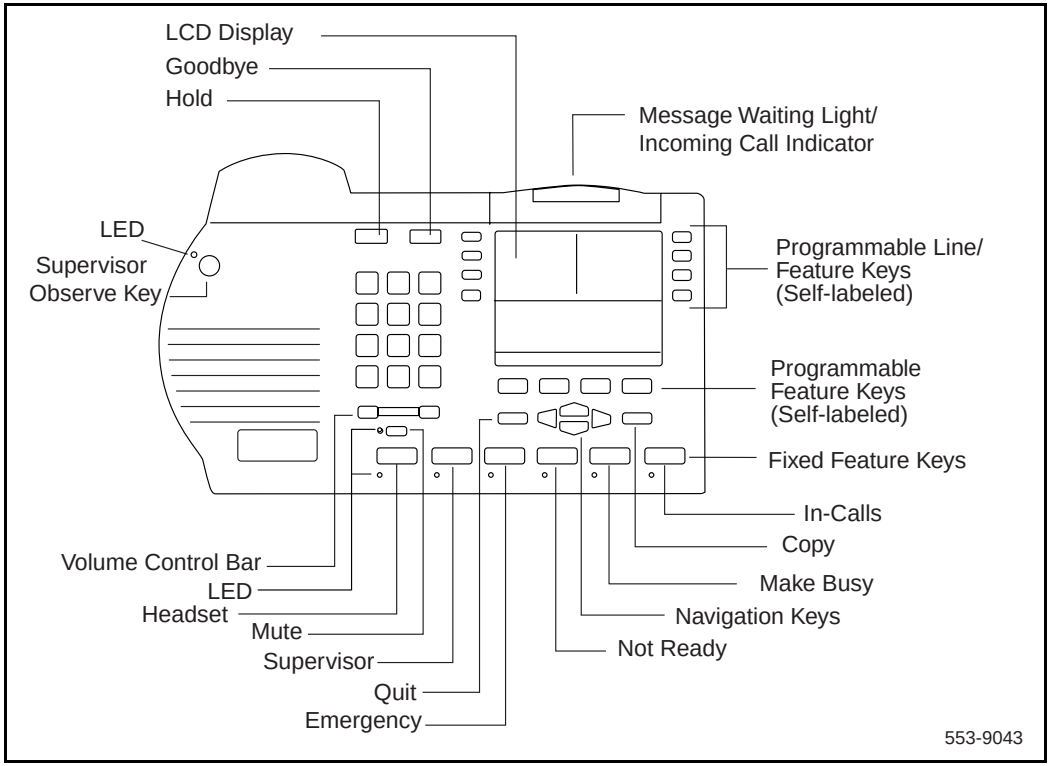


M3905 Call Center Telephone

The features of the M3905 Call Center Telephone include:

- eight Programmable Line/Feature Keys (self-labeled), giving the user access to eight Line/Feature Keys
- four Interactive Soft Keys (self-labeled) that change functionality depending on the features available or the application in use
- Fixed Feature Keys with LED: Headset, Supervisor, Emergency, Not Ready, Make Busy, In-Calls, goodbye, Hold, “Smart” Mute, Volume control
- Navigation cluster, Quit and Copy
- four line by twenty-four character display
- an optional handset
- two accessory ports (supports amplified/unamplified headset)
- Supervisor Observe Key with LED
- Supervisor Headset Observe port

Figure 5
M3905



Note: The system administrator can configure four of the bottom six Fixed Feature Keys (Make Busy, Not Ready, Supervisor and Emergency) to Feature Keys that suit the business needs of the Call Center user.

Configure the M3900 Series Meridian Digital Telephone

Content list

The following are the topics in this section:

Reference list

The following are the references in this section:

- *X11 Administration* (553-3001-311)
- *X11 Maintenance* (553-3001-511)
- *X11 System Messages Guide* (553-3001-411)

To configure the M3900 Series Meridian Digital Telephones and related features, follow the procedures in the following tables:

- "LD 11 – Configure the M3900 Series Digital Telephone," on page 33
- "LD 11 – Configure the Server-based Applications (Corporate Directory and Set-to-Set Messaging)," on page 37
- "LD 32 – Clear Personal Directory Password for M3900 set," on page 38
- "LD 57 – Configure the Flexible Feature Codes for the Virtual Office feature," on page 39
- "LD 97 – Configure a Phantom loop for the Virtual Office feature," on page 40
- "LD 20 – Print Terminal Number Block (TNB) data for Virtual and Host Terminals," on page 41
- "LD 22 – Print request for peripheral software versions," on page 41
- "LD 97 – Configure parameters for System-wide Flash Download," on page 42
- "LD 32 – Flash Download commands," on page 44

Note 1: The (...) within the table indicate additional prompts not shown.

Note 2: For more information refer to *X11 Administration* (553-3001-311), *X11 Maintenance* (553-3001-511), and *X11 System Messages Guide* (553-3001-411).

Configure the M3901, M3902, M3903, M3904, and M3905 telephone

LD 11 – Configure the M3900 Series Digital Telephone (Part 1 of 4)

Prompt	Response	Description
REQ:	NEW	New data.
	CHG	Change current data.
TYPE:	x..x	Type of telephone. 3901 = M3901. 3902 = M3902. 3903 = M3903. 3904 = M3904. 3905 = M3905. 3903H = M3903 Host Terminal. 3904H = M3904 Host Terminal. 3903V = M3903 Virtual Terminal. 3904V = M3904 Virtual Terminal. ***Note 1:*** The M3903 or M3904 telephones only support the Host Terminal and the Virtual Terminal feature. ***Note 2:*** If the M3901, M3902 or M3905 are configured as a Virtual Terminal, the error message SCH0099 is output. ***Note 3:*** M3903 and M3904 are the telephone types supported for Corporate Directory and Set-to-Set Messaging.
TN		Terminal number.
	l s c u	l = loop address. If confirmed as 3903V or 3904V, the loop must be a phantom. If confirmed as 3903H or 3904H, the loop must NOT be a phantom s = shelf address. c = card address. u = unit address.
	c u	For Option 11C, input only the card and unit address. If confirmed as 3903V or 3904V the card must be a phantom (card slots 61-80). ***Note:*** If the telephone has an Analog Terminal Adapter (ATA), then use the voice Terminal Numbers 16-31.
...	...	...

LD 11 – Configure the M3900 Series Digital Telephone (Part 2 of 4)

Prompt	Response	Description
DES	d...d	Designator. d...d = represents an Office Data Administration System (ODAS) Station Designator of 1-6 alphanumeric characters.
...	...	...
CUST	xx	Customer number as defined in LD 15.
...	...	...
KBA	(0)-2	Key-based Expansion Module accessory (configuration prompt KBA). The KBA prompt appears when the set type is M3904 or M3905. 0 = allows configuration of up to and including key number 31. 1 = allows configuration of up to and including key number 53. 2 = allows configuration of up to and including key number 75.
DBA	(0)-1	Display-based Expansion Module accessory (configuration prompt DBA) If KBA is a non-zero value, then DBA is not prompted. If KBA is a zero value or if the carriage return is pressed, then the DBA prompt appears. 0 = allows configuration of up to and including key number 31. 1 = allows configuration of up to and including key number 55.
FDN	xxx...x	Flexible CFNA (Call Forward No Answer) DN.
...	...	...
SCPW	xxx...x	Station Control Password.
...	...	...

LD 11 – Configure the M3900 Series Digital Telephone (Part 3 of 4)

Prompt	Response	Description
CLS	aaaa	Class of Service options where aaaa: = (GRLD) Group Listening Denied, (M3902, M3903, M3904, M3905). = GRLA Group Listening Allowed, (M3902, M3903, M3904, M3905). = (HFD) Handsfree Denied,M3902, M3903, M3904). = HFA Handsfree Allowed (M3902, M3903, M3904). = ADD Automatic Digit Display, default for M3902, M3903, M3904, M3905. = (VCE) Voice Terminal, required if ATA equipped. = DTA Data Terminal. = (FLXD) Flexible voice/data denied. = FLXA Flexible voice/data allowed, required if ATA equipped. = (STSD) Set-to-Set Messaging Denied, (M3903, M3904). = STSA Set-to-Set messaging Allowed, (M3903,M3904). = (CRPD) Corporate Directory Denied, (M3903, M3904). = CRPA Corporate Directory Allowed. Applies to M3903 and M3904. ***Note 1:*** If ATA is equipped, CLS = FLXA, VCE required. ***Note 2:*** M3903 and M3904 must have HFA class of service for the Headset to operate.
...	...	...
DCFW	z..z	Default Call Forward DN. DN where calls are forwarded (the target DN). The maximum length of the DCFW is 31.
	x <CR>	x = remove the DCFW DN. ***Note:*** The DCFW prompt appears only for Virtual Terminals (3903V, 3904V).

LD 11 – Configure the M3900 Series Digital Telephone (Part 4 of 4)

Prompt	Response	Description
KEY	xx aaa yyyy zzz	Telephone function key assignments where: xx = key number. aaa = key name or function. yyyy, zzz = additional information required. Refer to the Key description table for each M3900 telephone: “M3901 key description” on page 45. “M3902 key description” on page 47. “M3903 key description” on page 48. “M3904 key description” on page 51. “M3905 key description” on page 54. MTAD (Meridian 1 Time and Date) - The system puts a block on the time/date key on all the M3900 Series Meridian Digital Telephones. ***Note 1:*** VTN primary DN cannot be a primary DN for any other TN, and the VTN must be defined as a MARP TN. ***Note 2:*** The DN of a Virtual Terminal cannot be defined on a Host Terminal, and the Host Terminal DN cannot be defined on a Virtual Terminal.
...	...	...

Configure for Corporate Directory and Set-to-Set Messaging

LD 11 – Configure the Server-based Applications (Corporate Directory and Set-to-Set Messaging)

Prompt	Response	Description
REQ:	NEW	New data.
	CHG	Change current data.
TYPE:	3903 3904	M3900 set types that support the Corporate Directory and the Set-to-Set Messaging.
...	...	...
CLS	aaaa	Class of Service options where aaaa: = ADD - Automatic Digit Display, default for M3903 and M3904. = (VCE), DTA - Voice Terminal, Data Terminal. = (FLXD) - Flexible voice/data Denied = FLXA - Flexible voice/data Allowed ***Note 1:*** Class of Service must be VCE, FLXA if telephone is equipped with the optional Analog Terminal Adapter. = (STSD) Set-to-Set Messaging Denied. = STSA, Set-to-Set Messaging Allowed. ***Note 2:*** STSD and STSA class of service applies to M3903 and M3904. = (CRPD), Corporate Directory Denied. = CRPA, Corporate Directory Allowed. ***Note 3:*** (CRPD) and CRPA class of service applies to M3903 and M3904.
...	...	...

To clear or reset a Directory Password for the M3900 Series telephone

LD 32 – Clear Personal Directory Password for M3900 set

Prompt	Response	Description
.	CPWD l s c u	Change Directory Password. Terminal number. l = loop address. s = shelf address. c = card address. u = unit address. ***Note:*** This change command allows the system administrator to change the M3900 Directory password of the specified M3900 set. This allows a user to access the M3900 Directory if the password has been forgotten or if the user wants to change the current password.

Configure the Virtual Office Flexible Feature Codes

LD 57 – Configure the Flexible Feature Codes for the Virtual Office feature

Prompt	Response	Description
REQ	NEW	Add new data block information.
	CHG	Change data block information.
	OUT	Remove data block information.
	END	Exit data block overlay program.
TYPE	FFC	Flexible Feature Codes data block.
...	...	...
CODE	VTLN	FFC for logging a Virtual Terminal onto a Host Terminal.
	ALL	Every FFC is prompted.
	<CR>	No further prompt; returns to “REQ”.
VTLN	xxxx	Enter Virtual Terminal logging code.
	<CR>	Returns to “CODE”
CODE	VTLF	FFC type for logging off a Virtual Terminal.
	ALL	Every FFC is prompted.
	<CR>	No further prompt; returns to “REQ”.
VTLF	xxxx	Enter Virtual Terminal logging off code.
	<CR>	Returns to “CODE”.
		Note: Cannot move or copy a Virtual Terminal Number.

Print a list or count of Virtual Office telephones

LD 81 – Print a list or count of telephones with a specified class of service or feature

Prompt	Response	Description
REQ	LST	LST = Print list of telephones.
	CNT	CNT = Print count of telephones.
CUST	xx	xx = Designates a customer number.
	xx yy	xx yy = Designates a range of customer numbers.
	<CR>	<CR> = Carriage return prints all customers.
...	...	...
FEAT	aaaa	aaaa = Designates a feature mnemonic.
	3900	3900 = Prints M3900 type terminals, including virtual and host terminals.
	DCFW	DCFW = Prints default call forward phantom TNs, including virtual terminals.
...	...	...

Configure the Virtual Office Phantom loop

LD 97 – Configure a Phantom loop for the Virtual Office feature

Prompt	Response	Description
REQ	CHG	Change the loop configuration.
TYPE	SUPL	Superloops.
SUPL	Naaa	N = designates the superloop as a phantom loop. aaa = designates the superloop number.
...	...	...

Print data for Virtual and Host Terminals

LD 20 – Print Terminal Number Block (TNB) data for Virtual and Host Terminals

Prompt	Response	Description
REQ:	PRT	Print data block for the requested terminal type(s).
	LTN	List Terminal Numbers of the requested terminal type(s).
TYPE:	xxxxx	Enter appropriate telephone model where xxxxx:
	3903V	3903V = M3903 Virtual Terminal.
	3904V	3904V = M3904 Virtual Terminal.
	3903H	3903H = M3903 Host Terminal.
	3904H	3904H = M3904 Host Terminal.
	TNB	***Note 1:*** The only telephone types of the M3900 Series that can be configured as a Virtual or Host Terminal are the M3903 and M3904.
		Note 2: The Print TNB and List TNB requests always show the logged-off TNB data. In logged-in state, an indication of the logged-in TN (“HOST TN” or “VIRTUAL TN”) is added.
...	...	...

Print M3900 firmware versions found on the system disk

LD 22 – Print request for peripheral software versions

Prompt	Response	Description
REQ:	PRT	Print
TYPE:	PSWV	Peripheral software versions on disk.

The firmware versions for each M3900 Series set type will printed along with the versions of any other downloadable peripheral software.

Configure parameters for System-wide Flash Download

LD 97 – Configure parameters for System-wide Flash Download (Part 1 of 2)

Prompt	Response	Description
REQ	CHG	Change Flash Download Parameters.
	PRT	Print Flash Download Parameters.
TYPE	FDL	Flash Download for M3900 Sets
FDTP	t <CR>	Enter M3900 set type selected for Flash Download 3902 = M3902. 3903 = M3903. 3904 = M3904. 3905 = M3905. ALL = All of the above. NONE = None of the above (default). No further prompt; returns to “REQ”.
FDTM	(NO) YES <CR>	Time interval restriction for Flash Download NO = Do not change time intervals (default). YES = Proceed to change time intervals ***Note 1:*** Flash Download is automatically paused one hour before virtual midnight (see TODR in LD 17) to allow midnight routines to run. ***Note 2:*** This option is not applicable to reporting.
FDAY	dn <CR>	Enter day and number of time intervals for Flash Download. Prompt appears only if FDTM = YES Day is re-prompted until carriage return <CR> alone is entered. d = day of the week (0-6 for Sunday to Saturday) n = number of time intervals (0-4); to disallow download for the day, enter 0. ***Note:*** If two or more intervals are specified, they must be non-overlapping, non-consecutive, and in increasing order.
FINT	sl <CR>	Enter starting hour and length for a time interval. Prompted n times if n>0. s = starting hour (0-23) l = length of interval in hours (1-24)

LD 97 – Configure parameters for System-wide Flash Download (Part 2 of 2)

Prompt	Response	Description
FTNR	(NO) YES <CR>	TN range restriction option for Flash Download NO = no TN restriction (default) YES = specify TN range
FSTN	l s c u c u	Starting terminal number for Flash Download Prompt appears only if FTNR = YES.
FETN	l s c u c u	Ending terminal number for Flash Download Prompt appears only if FTNR = YES.
FDNR	(NO) YES <CR>	DN range restriction option for Flash Download NO = no DN restriction (default) YES = specify DN range
FDDN	c d1 d2 <CR>	Flash Download Prime Directory Number range Prompt appears only if FDNR = YES. c = Customer number (0-99) d1 = starting Prime DN d2 = ending Prime DN
FRCE	(NO) YES <CR>	System-wide Flash Download control option NO = Conditional (default). System-wide Flash Download (via FDLS in LD 32) applies only to an M3900 series set whose flash firmware version is different from the version currently found on the system disk YES = Forced. Force System-wide Flash Download to all of the specified M3900 series sets regardless of their current flash firmware versions. ***Note 1:*** Use this option with caution! Once the download tree is built (i.e., after executing FDLS in LD 32), this option automatically reverts to NO. ***Note 2:*** This option is not applicable to reporting.
FVER	v <CR>	Flash firmware version specified for full report v = Flash firmware version (0-99) If 0, report all versions (default). ***Note:*** This option is applicable to reporting only (via FSUM ALL in LD 32).

New commands in LD 32 to support the Flash Download feature

LD 32 – Flash Download commands (Part 1 of 2)

Prompt	Response	Description
.	FDLU l s c u	Initiate conditional download to one telephone. Terminal number. l = loop address. s = shelf address. c = card address. u = unit address.
	FDLI l s c u	Initiate conditional download to an M3900 Series telephone when it becomes idle.
	FDLF l s c u	initiate a forced download to an M3900 Series telephone regardless of its version and state.
	FWVU l s c u	Query and print the firmware versions currently on an M3900 Series telephone.
	FDLS	Initiate system-wide flash download to all, or a specified type of M3900 Series telephones, based on parameters specified in LD 97
	FDLC	Cancel or gracefully stop the system-wide flash download for M3900 Series telephones.
	FSUM	Display summary report of current firmware versions on all M3900 Series telephones. The format of the report is as follows: * * M390x SUMMARY REPORT * * dd - ON DISK ff (cc) - nnnn SETS FOUND ff (cc) - nnnn SETS FOUND Where: x = 2 to 5 for M3902 to M3905 dd = the flash firmware version found on the system disk ff = the downloadable flash firmware version found on the sets cc = the core firmware found on the sets nnnn = the number of sets found with firmware version ff (cc)

LD 32 – Flash Download commands (Part 2 of 2)

Prompt	Response	Description
	FSUM ALL	Display a complete report on all M3900 Series telephones based on parameters specified in LD 97. The format of the report is as follows: TYPE: tttt CUST: cc PDN: ddddddd TN: l s c u FW: vv Where: tttt = 3902, 3903, 3904 or 3905 cc = 0-99 ddddddd = the Primary DN of the telephone vv = the flash firmware version

M3900 Series key descriptions

This section provides key description and key configuration information for each model of the M3900 series. This section also shows the physical placement of the keys on each model: M3901, M3902, M3903, M3904, and M3905.

M3901 key descriptions

Table 3 gives a description of the keys on the M3901. Figure 6 shows the physical placement of the keys on the M3901.

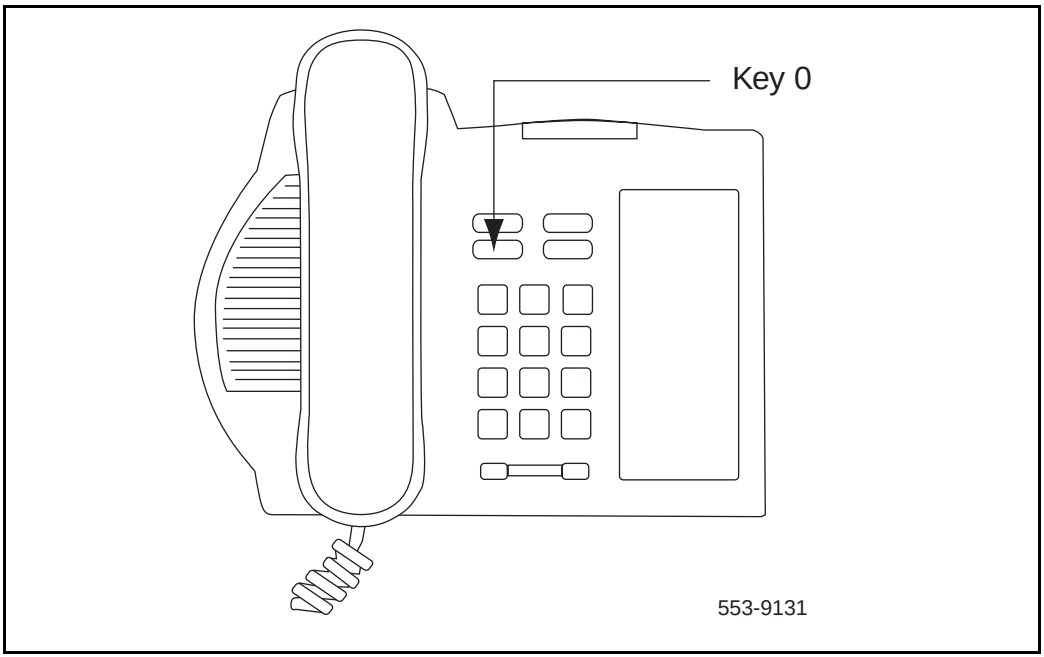
Table 3
M3901 key description

Key Number	Description
Key 0	Line (Directory Number). ***Note:*** The system administrator can configure Key 0 as a Voice Call (VCC), HotLine (HOT) Key, Single Call Non-ringing, Private Line Non-ringing, Multiple Call Non-ringing, Private Line Ringing, or Multiple Call Ringing.
Key 1	Feature or Auto Dial.
Key 2	Feature or Auto Dial.
Key 3	Feature or Auto Dial.

Table 3
M3901 key description

Key Number	Description
Key 4	Feature or Auto Dial.
Key 5	Feature or Auto Dial. ***Note:*** The system administrator can configure Keys 1 - 5 with any feature that does not require a display (DAG, DWG, DSP and RMK). ***Note:*** recommends that all features be used as Auto Dial. ***Note:*** Nortel Networks recommends that the M3901 is not configured as an ACD DN.

Figure 6
M3901 key positions



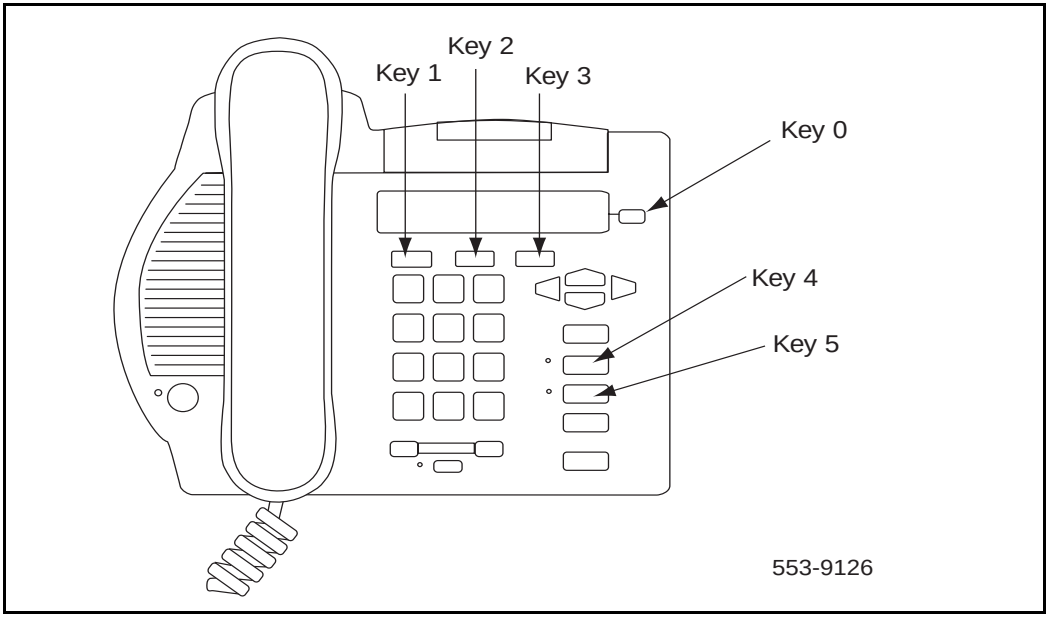
M3902 key descriptions

Table 4 gives a description of the keys on the M3902. Figure 7 shows the physical placement of the keys on the M3902.

Table 4
M3902 key description

Key	Description
Key 0	You must configure Key 0 as the Directory Number line. ***Note:*** You can configure Key 0 as a Voice Call (VCC), HotLine (HOT) Key, Single Call Non-ringing, Private Line Non-ringing, Multiple Call Non-ringing, Private Line Ringing, or Multiple Call Ringing.
Key 1	Feature or Auto Dial.
Key 2	Feature or Auto Dial.
Key 3	Feature or Auto Dial.
Key 4	Call Transfer (default) or 3 Party Conference or 6 Party Conference.
Key 5	Message Waiting. ***Note:*** Do not configure Keys 1-5 as: • Multiple Call Non-ringing • Multiple Call Ringing • Private Line Non-ringing • Private Line Ringing • Single Call Non-ringing • Single Call Ringing

Figure 7
M3902 key positions



M3903 key descriptions

Table 5 gives a description of the keys on the M3903. Figure 8 shows the physical placement of the keys on the M3903.

Table 5
M3903 key description (Part 1 of 3)

Key	Description
Key 0	Primary Directory Number.
Key 1	Secondary Directory Number or Feature or Auto Dial.
Key 2	Secondary Directory Number or Feature or Auto Dial.

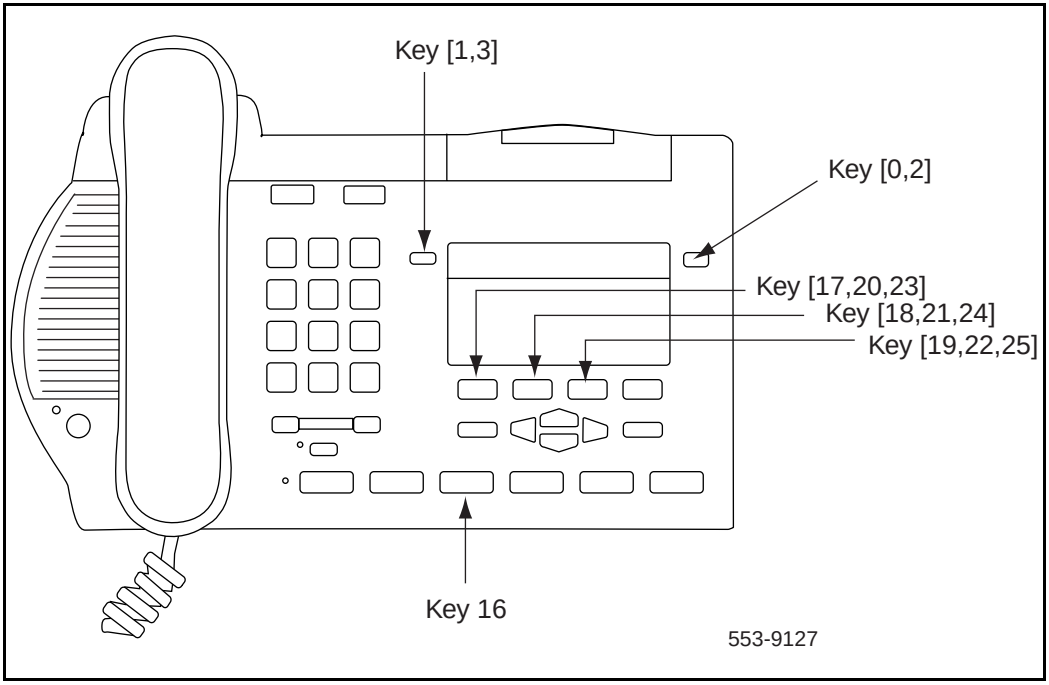
Table 5
M3903 key description (Part 2 of 3)

Key	Description
Key 3	Secondary Directory Number or Feature or Auto Dial. ***Note:*** Keys 1-3 cannot be configured as: • 3 Party Conference • 6 Party Conference • Call Forward • Account Charge • Calling Party Number • Call Park • Privacy Release • Ring Again • RPN • Call Transfer ***Note:*** Keys 1-3 can be configured as Speed Call (Speed Call, System Speed Call, Speed Call Controller and System Speed Call Controller). Nortel Networks recommends that Key 23 be used for Speed Call features.
Key 4-15	Not used at this time.
Key 16	Message Waiting.
Key 17	Call Transfer.
Key 18	A03 (3 Party Conference) or the A06 (6 Party Conference).
Key 19	Call Forward.
Key 20	Ring Again.
Key 21	Call Park.
Key 22	Ringing Number Pickup.
Key 23	Configure as: • Speed Call • System Speed Call • Speed Call Controller • System Speed Call Controller (manual configuration -needs speed call list #)

Table 5
M3903 key description (Part 3 of 3)

Key	Description
Key 24	Privacy Release.
Key 25	Charge Account.
Key 26	Calling Party number.
Keys 27-31	NUL.

Figure 8
M3903 key positions



M3904 key descriptions

Table 6 gives a description of the keys on the M3904. Figure 9 shows the physical placement of the keys on the M3904.

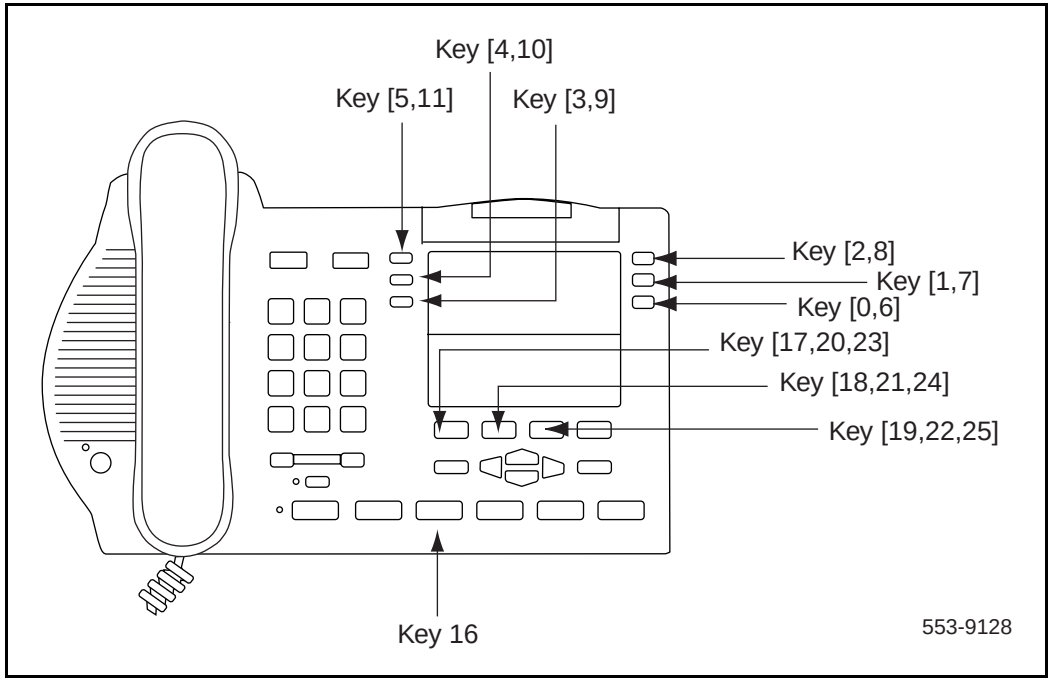
Table 6
M3904 key description (Part 1 of 2)

Key	Description
Key 0	Primary Directory Number.
Key 1-11	Secondary Directory Number or Feature or Auto Dial. ***Note:*** Keys 1-11 cannot be configured as: • Message Waiting • Transfer • 3 Party Conference • 6 Party Conference • Call Forward • Ring Again • Call Park • Ringing Number Pickup • Privacy Release • Charge Account • Call Party Number ***Note:*** Keys 1-11 can be configured as Speed Call (Speed Call, System Speed Call, Speed Call Controller and System Speed Call Controller). Nortel Networks recommends that Key 23 be used for Speed Call features.
Keys 12-15	Blocked.
Key 16	Message Waiting is not a default feature for this key.
Key 17	Call Transfer.

Table 6
M3904 key description (Part 2 of 2)

Key	Description
Key 18	A03 (3 Party Conference) or the A06 (6 Party Conference).
Key 19	Call Forward.
Key 20	Ring Again.
Key 21	Call Park.
Key 22	Ringing Number Pickup
Key 23	Configure as one of the following: • Speed Call • System Speed Call • Speed Call Controller • System Speed Call Controller ***Note:*** The above services are not a default feature for this key, these features can be used on any of the programmable keys.
Key 24	Privacy Release.
Key 25	Charge Account.
Key 26	Calling Party Number.
Keys 27-31	NUL.

Figure 9
M3904 key positions



M3905 key descriptions

Table 7 gives a description of the keys on the M3905. Figure 10 shows the physical placement of the keys on the M3905.

Table 7
M3905 key description (Part 1 of 3)

Key	Description
Key 0	Primary ACD Directory Number parallel to the *In-Calls Key. ***Note 1:*** The user can edit the label on Key 0 to display desired information. ***Note 2:*** The In-Calls fixed key and the Primary DN line key are linked together and both represent Key 0.
Key 1-4	Secondary Directory Number or Feature or Auto Dial. ***Note:*** Keys 1-4 cannot be configured as: • Message Waiting • Transfer • 3 Party Conference • 6 Party Conference • Call Forward • Ring Again • Call Park • Ringing Number Pickup • Privacy Release • Charge Account • Call Party Number ***Note:*** Keys 1-4 can be configured as Speed Call (Speed Call, System Speed Call, Speed Call Controller and System Speed Call Controller). Nortel Networks recommends that Key 23 be used for Speed Call features.
Key 5	Feature or future Application.
Key 6	Feature or future Application.
Key 7	Options.

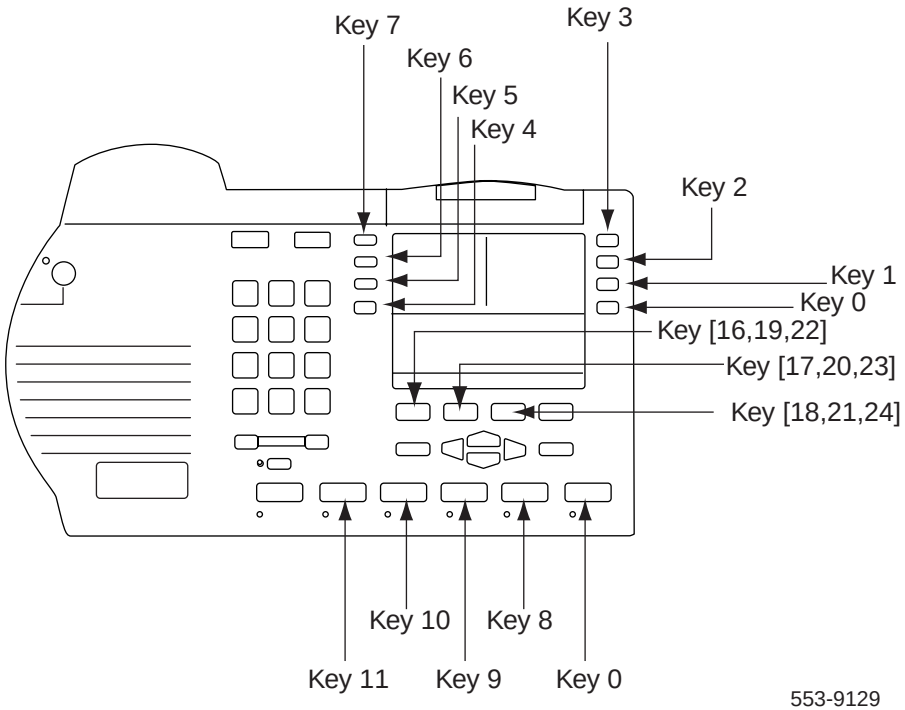
Table 7
M3905 key description (Part 2 of 3)

Key	Description
Key 8-11	Configured as one of the following standard Call Center features: Key 8 = * Make Set Busy Key 9 = * Not Ready (must have CLS = AGN). Key 10 = * Emergency (must have CLS = AGN). Key 11 = * Call Supervisor (must have CLS = AGN). The following features can be configured on any Key 8-11 with the change of the prelabeled key cap: Activity Code entry.Agent Answer. Answer Emergency Call. Display Queue = DWC (used with supervisor or agent telephones). Observe agent. Ring Agent (must have CLS = SPV). ***Note:*** Keys 8-11 are prelabeled in the factory; they are marked in this table with an Asterisk.
Key 16	Message Waiting key or another feature.
Key 17	Call Transfer key.
Key 18	A03 (3 Party Conference) or the A06 (6 Party Conference).
Key 19	Call Forward.
Key 20	Ring Again.
Key 21	Call Park.
Key 22	Ringing Number Pickup.
Key 23	Configured as one of the following speed call services: • Speed Call • System Speed Call • Speed Call Controller • System Speed Call Controller
Key 24	Privacy Release.

Table 7
M3905 key description (Part 3 of 3)

Key	Description
Key 25	Charge Account.
Key 26	Calling Party Number.
Keys 27-31	NUL.

Figure 10
M3905 key positions



Hardware options

Content list

The following are the topics in this section:

Table 8 lists the features and optional hardware available for each M3900 series telephone.

Table 8
M3900 Series telephone accessories

Accessory	M3901	M3902	M3903	M3904	M3905
Accessory Connection Module (ACM)	NA	Supports	Supports	Supports	Supports
Alternate key caps (feature)	NA	NA	NA	NA	Supports
Analog Terminal Adapter (ATA)	NA	Supports	Supports	Supports	Supports
Computer Telephony Integration Adapter (CTIA)	NA	Supports	Supports	Supports	NA
Display-based Expansion Module	NA	NA	NA	Supports	NA
Key-based Expansion Module	NA	NA	NA	Supports	Supports
External Alerter and Recording Interface	NA	Supports	Supports	Supports	Supports
Headset (non-amplified) connects thought he direct connect headset jack	NA	NA	Supports	Supports	Supports
Headset (amplified) connects through the headset jack	Supports	Supports	Supports	Supports	Supports
Handset	Standard	Standard	Standard	Standard	Optional

Accessory Connection Module (ACM)

The Accessory Connection Module provides the interface for adding the Analog Terminal Adapter, External Alerter and Recorder Interface, Computer Telephony Integration Adapter, and Personal Directory PC Utility. The ACM is available for the M3902, M3903, M3904 and the M3905. The ACM requires a wall transformer to power any of the accessory cartridges. You must order the wall transformer separately from your Nortel Networks distributor to power the ACM and/or the M3900 accessories.

Table 9
Accessory compatibility

	ATA	Key-based Expansion Module	Personal Directory PC Utility	External Alerter and Recording Interface	Display-based Expansion Module	CTIA
ATA	NA	YES	YES	YES	YES	YES
Key Expansion Module (2)	YES	NA	YES	YES	NO	YES
Personal Directory PC Utility	YES	YES	NA	YES	YES	YES
External Alerter and Recording Interface	YES	YES	YES	NA	YES	YES
Display Expansion Module (1)	YES	NO	YES	YES	NA	YES
Computer Telephony Integration Adapter (CTIA)	YES	YES	YES	YES	YES	NA

Note: Not all of the above accessories are supported on all telephones in the M3900 Series portfolio.

Alternate key caps for the M3905

The M3905 Call Center Telephone provides an alternate key cap kit to customize your M3905 telephone to fit your business needs. Use the Key Cap Tool to remove any of the middle four fixed programmable keys, located at bottom front of the M3905, and replace them with alternate keys. The alternate key caps include: Answer Emergency, Answer Agent, Activity Code, Call Agent, Observe Agent, and Display Queue.

Analog Terminal Adapter (ATA)

The Analog Terminal Adapter (ATA) lets you connect an analog device such as a fax machine or modem to your telephone. You can have simultaneous use of the telephone and the analog device. The ATA is available for the M3902, M3903, M3904 and the M3905 models.

Computer Telephony Integration Adapter (CTIA)

The Computer Telephony Integration Adapter (CTIA) along with the TAPI software provides an interface to connect a Personal Computer (PC) to the M3900 telephone.

An RS-232C cable is required to connect the PC to the CTIA. The CTIA connects to the M3900 Series telephone through the Accessory Connection Module (ACM). The CTIA is a small cartridge accessory and can be inserted into either the small or large footstand opening.

The CTIA is powered through the ACM. The ACM receives power through the telephone via the telephone line cord which is connected to a Teladapt wall transformer power supply (see Figure 12 on page 71). Check with your Nortel Networks distributor for the recommended wall transformer for the M3900 accessories. Install the Accessory Connection Module (ACM) into your M3900 Series Meridian Digital Telephone (refer to the ACM Installation Sheet) before you install your CTIA.

The CTIA cartridge provides the user:

- connectivity to the PC
- voice call control

Telephone Application Programming Interface (TAPI) software

TAPI software accompanies your CTIA Cartridge. The TAPI software allows a user to program telephone-line-based devices to work independently from their computer or other devices.

Personal Directory PC Utility Software

In addition to the TAPI software which is included with the CTIA, you may wish to purchase the Personal Directory PC Utility Software. The Personal Directory PC Utility software uses your CTIA Cartridge to connect your PC and M3904 telephone so that you may exchange data between your PC and your telephone's directory. For more information see Personal Directory PC Utility.

Personal Directory PC Utility

The Personal Directory PC Utility software provides a faster, easier way to create or modify a Personal Directory on the M3904 telephone. You can enter names and numbers into a Personal Directory file on your Personal Computer (PC). You can download (program) the PC file directly to the M3904 telephone. You can upload (read) a directory from the M3904 to your PC to modify the directory.

An RS-232C cable is required to connect the PC to the Personal Directory PC Utility Interface Cartridge. The cartridge connects to the M3900 Series telephone through the Accessory Connection Module (ACM). The Personal Directory PC Utility Interface Cartridge is a small cartridge accessory and can be inserted into either the small or large footstand opening.

The Personal Directory PC Utility Interface Cartridge is powered through the ACM. The ACM receives power through the telephone via the telephone line cord which is connected to a Teladapt wall transformer power supply (see Figure 12 on page 71). Check with your Nortel Networks distributor for the recommended wall transformer for the M3900 accessories. You must install the Accessory Connection Module (ACM) into your M3900 Series Meridian Digital Telephone (refer to the ACM Installation Sheet) before you install your Personal Directory PC Utility Interface Cartridge.

> ***Note:*** The CTIA Cartridge and the Personal Directory PC Utility Interface Cartridge are identical.

The Personal Directory PC Utility supports the following languages: English, French, Spanish, German, Danish, Portuguese, Italian, Norwegian, Swedish, Finnish, Dutch. The default language is English.

Expansion Modules

Display-based Expansion Module

The Display-based Expansion Module (DBA) provides additional Line/Programmable Feature Keys (Self-labeled) for the M3904. The DBA supports up to three layers of eight additional keys for a total of 24 keys.

A Page fixed key located on the DBA allows a user to switch between the three layers of Self-labeled Programmable Feature Keys. Visual indication is also provided to indicate which page (or layer) of Self-labeled Programmable Feature Keys is in use. Feature activation and deactivation on the DBA Keys is the same as the Programmable Feature Keys on the M3904.

The user may change the feature key labels by selecting “Change feature key label” from the Options List on the M3904.

The Display-based Expansion Module is only supported on the M3904. You can attach a maximum of one Display-based Expansion Module to a M3904.

Key-based Expansion Module

The Key-based Expansion Module (KBA) attaches to the M3904 and M3905 Meridian Digital Telephone. The KBA provides 22 additional Line/Feature Keys. You can attach a maximum of two Key-based Expansion Modules to the M3904 and M3905.

External Alerter and Recording Interface

The External Alerter and Recording Interface provides an interface for a remote ringer device installed in a location separate from the telephone. The External Alerter and Recording Interface provides access to a standard, off-the-shelf remote ringer, call status relay, audio recorder or visual indicator.

You can program the External Alerter interface to activate a ringer (or light) when the telephone rings or when the telephone is in use (off hook).

> ***Note:*** The External Alerter is an interface only, the ringer, light, buzzer etc. is available through a third party vendor.

Handset option for the M3905 Call Center Telephone

The Handset does not accompany the M3905 Call Center Telephone. The Handset kit is a hardware option for the M3905 Call Center Telephone. The handset can be added to the M3905 by removing the front plate of the telephone. A handset kit is available for the M3905.

Headset options

The M3901, M3902, M3904, and M3905 supports an amplified headset when the headset connects to the handset jack.

The M3903, M3904 and M3905 have a dedicated headset jack which supports a non-amplified headset. The M3903, M3904 and M3905 have a Headset Fixed Feature Key to turn the Headset on and off.

Contact your Nortel Networks distributor for recommended headset equipment.

Telephone Wall Mount Kit

The telephone wall mount bracket kit contains a one piece wall mount plate that attaches the M3903, M3904 and M3905 telephone to the wall. The Wall Mount Kit is available from your local Nortel Networks distributor. The M3901 and M3902 have built in wall mount brackets.

Installation

Content list

The following are the topics in this section:

This section provides installation instructions for the M3900 Series telephone and accessories.

To install the M3900 Series Meridian Digital Telephones

1. Complete the wiring and cross-connections (loop power).
2. Connect the telephone to the connecting block.
3. Place the telephone upright on the desk in the normal operating position.
4. Supply the user with a quick reference guide.

CAUTION

Before handling internal telephone components, you must discharge static electricity from your hands and tools by touching any grounded metal surface or conductor.

Telephone positions

Your M3903, M3904 and M3905 Meridian Digital Telephones have several different height selections for the desktop positions.

To change the telephone position:

1. Press the tilt handle located at the top back side of the telephone.
2. With the tilt handle pressed in, raise or lower the telephone to the desired angle or height.
3. Release the tilt handle to lock the telephone in the desired position.

Note: The M3903 and M3904 can be wall mounted using the optional wall mount bracket.

The M3901 and M3902 Meridian Digital Telephones have three different angled height desktop positions.

To change the telephone angle:

1. Move the top of the footstand away from the telephone base (it has a snap connection).
2. Place the footstand in the desired position and snap the top of the footstand back into place.

To wall mount the telephone

The telephone wall mount bracket kit contains a one piece wall mount plate to attach the telephone to the wall.

To wall mount the telephone:

1. Place the wall mount bracket against the wall and mark the spot to insert the screws.

   Note: M3901 and M3902 have built-in wall mount brackets.

2. Screw the five screws in and leave about 3 1/2 mm (1/8 inch) between the head of the screw and the wall.
3. Remove the footstand from the telephone by sliding the footstand down (using the plastic hinges) about 7 mm (1/4 inch).
4. Swing the footstand away from the telephone base and remove from the telephone.
5. Attach the wall mount bracket onto the back of the telephone by placing the telephone at the top edge of the wall mount bracket and sliding the telephone into place.
6. Mount the wall mount bracket, attached to the telephone onto the screws located on the wall.

Accessory Connection Module (ACM)

To install the ACM:

1. Disconnect the line cord from the telephone base before installing the ACM.
2. Slide the footstand down (using the plastic hinges) about 7 mm (1/4 in.) and swing the footstand away from the telephone base.
3. Snap the ACM into the rectangular opening on the back of the telephone.
4. Connect the ACM cable to the back of the telephone.

5 Put the ACM attached ribbon cable into the track running down the back of the telephone base.

6 Put the hard plastic cable cover over the ACM ribbon cable.

7 Snap the ACM plastic cable cover into place.

8 Place the footstand on the hinges.

9 Swing the footstand back into place.

10 Snap the footstand into a non-movable position.

11 Reconnect the line cord to the telephone base.

12 Return the telephone to an upright position.

There is a cutout on the base of the footstand which displays the ACM connector ports. When ready to attach an accessory, insert the appropriate cartridge into the port slot. There is one accessory port available on the M3902. There are two accessory ports available on the M3903, M3904 and M3905.

Note: A wall transformer is required to power any accessory cartridges. The transformer does not come with the ACM unit. Contact your Nortel Networks local distributor to order this ACM compatible wall transformer.

Note: The accessories you attach to the telephone must be compatible. The table “Accessory compatibility” on page 59 shows the compatibility of the available options.

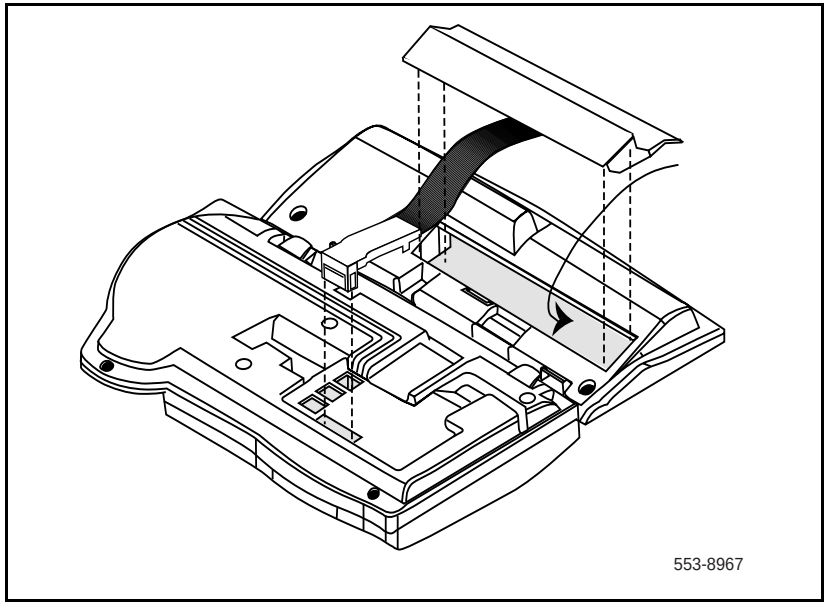
Figure 11 shows the installation of the ACM into the telephone footstand.

Accessory keying

On the M3903, M3904, and M3905, there are two accessory ports on the back of the telephone footstand. On the M3902, there is a single accessory port on the back of the footstand. Each port can support one cartridge accessory.

You cannot use two accessories that require the same port type at the same time. For example, you cannot use two accessories that require a serial port connection at the same time.

Figure 11
ACM module



The shape and size of the plug in the accessory cartridge prevents the user from accidentally connecting incompatible accessories. To check the compatibility of accessories, refer to Table 9 which shows the optional accessories and their compatibility.

Make sure you refer to the compatibility chart Table 9 “Accessory compatibility” on page 59 before you purchase your optional hardware accessories.

To install the Analog Terminal Adapter

The Analog Terminal Adapter (ATA) allows an off-the-shelf analog device (FAX, modem, or analog telephone (500/2500)) to work simultaneously with your M3902, M3903, M3904, or M3905 Meridian Digital Telephone. The ATA is not supported on the M3901 telephone.

Install the Accessory Connection Module (ACM) into your M3900 Series Meridian Digital Telephone (refer to the ACM Installation) before you install your ATA. The ACM provides connection capabilities between the M3902, M3903, M3904, and M3905 telephones and the ATA.

To install the ATA:

1 Disconnect the line cord from the telephone before installing the ATA.

2 Insert the ATA accessory cartridge into the ACM. The latch should be at the top.

3 Connect the commercial device you have selected to use, either your FAX machine, modem, or analog (500/2500) telephone, to the connection on your ATA cartridge interface.

4 Plug the transformer into the electrical outlet (use only the transformer designed for your ACM accessories).

5 Connect the Adapter plug, attached to your transformer, into the telephone wall jack.

The wall transformer Adapter plug attaches between the telephone line cord and the telephone wall jack.

6 Connect the line cord to the Adapter jack attached to the wall transformer.

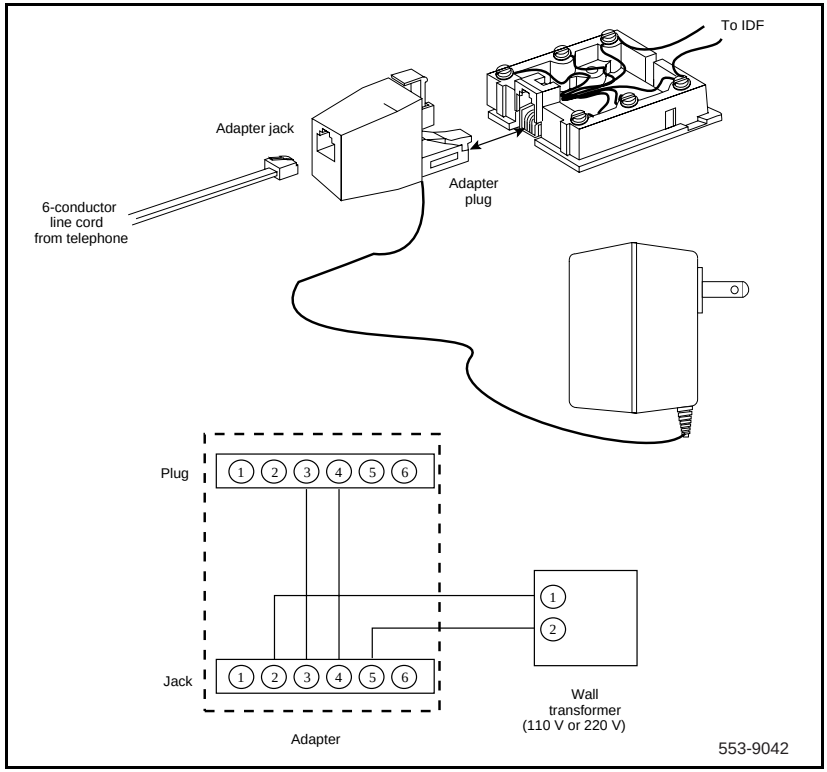
7 Reconnect the line cord back to your telephone base.

Figure 12 shows the connections for the wall transformer.

Note: Refer to the manufacturer's documentation for complete installation and configuration instructions for your external analog device (FAX machine, modem, or 500/2500 telephone).

Note: The ATA supports connections to POTS services only. ATA does not support Features such as Message Waiting, Switchhook Flash/Link, Transfer, Conference, and CLASS type services.

Figure 12
Wall transformer connection



A red LED status light located on the ATA indicates the status of the ATA.

- **Flashing red** indicates that the ATA is operating normally. For more troubleshooting guidelines, refer to the user documentation that came with your analog device.
- **Solid red** indicates that the ATA is not operating normally. Contact your system administrator.
- **Red light off** indicates that there is no power going to the ATA or the unit is not operating correctly. Check the power connections to the ATA. If problems continue, contact your system administrator.

Flexible voice and data capabilities allow you to have continuous use of both the Meridian Digital Telephone and the attached analog device. Your system administrator configures the flexible voice and data capabilities for your telephone on the system equipment. Contact your system administrator for more information about flexible voice and data capability.

When there is a power failure to the ATA, the Analog Device does not store or keep information (for example, outgoing FAX from your FAX machine). You must send the information again when power returns.

Table 10 shows prompts and responses when configuring the ATA.

Table 10
ATA configuration

Prompt	Response	Description
REQ	NEW	Input new data
	CHG	Change current data.
CLS	aaaa	Class of Service options where aaaa: = (FLXD) - Flexible voice/data denied = FLXA - Flexible voice/data allowed, required if ATA equipped. = (VCE) - Voice terminal, required if ATA equipped. = DTA - Data terminal. ***Note:*** If ATA is installed, CLS must be FLXA, VCE.

To install Personal Directory PC Utility software

The Personal Directory PC Utility provides a faster, easier way to create or modify a personal directory. You can enter names and numbers into a Personal Directory file on your Personal Computer (PC). You can download the PC file directly to the M3904 telephone. You can upload a directory from the M3904 to a PC to modify the M3904 directory.

To install the Personal Directory PC Utility Software:

1 Close all open applications before installing the Personal Directory PC Utility.

2 Insert the Personal Directory PC Utility disk into your floppy disk drive.

3 Click on Start.

4 Select Run.

5 Enter a:\setup (assuming that drive “a” is your floppy disk drive).

6 Click on OK. The Nortel Networks logo screen appears while the installation utility loads.

7 The Welcome screen appears. Click on Next to continue installation.

8 If you agree to the terms of the Software License Agreement, click on Yes.

9 Continue to Click on Next until the installation is complete.

10 When asked to, remove the disk from your floppy disk drive.

11 Click on Finish.

Note: You must restart your PC to access the Personal Directory PC Utility.

12 To select a port for the Personal Directory PC Utility; click on Phone. Click on Set port. The pull-down menu shows available PC ports:

- Com1
- Com2

Note: The program selects the same port each time until you change it.

To install the Key-based Expansion Module

The Key-based Expansion Module provides 22 additional line/feature keys for the M3904 and M3905 Meridian Digital Telephone. You can add up to two Key-based Expansion Modules providing a total of 75 line/feature keys.

To install the Key-based Expansion Module:

1 While depressing the telephone tilt handle, pull the telephone away from the footstand until it clears the final stop. Gently pull the footstand off the clips.

Note: If an ACM is installed, leave the ACM cable plugged into the telephone, and swing the front edge of the footstand under the ACM cable to access the 10-pin slot.

2 Place the telephone and the Module face down on a padded level surface, and align them.

3. Plug the cable from the Module into the 10-pin connection port on the telephone.
4. Wrap the clamp (provided) around the cable, and screw the clamp into the back of the telephone with a 3x8 mm screw (provided).
5. Thread the cable through the opening in the side of the telephone.
6. Insert the clips on the telephone into the hinges on the footstand, then press on the front of the footstand until it snaps into place.
7. While squeezing the telephone tilt handle, swing the footstand into the desired position.
8. Insert the clips on the Module into the hinges on the Module footstand, then while squeezing the Module tilt handle, swing the footstand into the desired position.
9. Hook the Module footstand into the telephone footstand, and carefully turn the new assembly upright.

   Note: To add a second Key-based Expansion Module, connect the second Key-based Expansion Module to the side of the first Key-based Expansion Module (daisy chain them together).

To install the Display-based Expansion Module

The Display-based Expansion Module gives you three layers of eight Programmable Line/Feature (Self-labeled) Keys. The Display-based Expansion Module gives you a total of 24 Programmable Line/Feature Keys (Key 32 through 55).

The Page button allows you to scroll to each key layer. The Self-labeled field is 10 characters in length. You can customize the Display-based Expansion labels using the program mode and the dial pad keys.

To install the Display-based Expansion Module:

1. While depressing the telephone tilt handle, pull the telephone away from the footstand until it clears the final stop. Gently pull the footstand off the clips.
2. Place the telephone and the Display-based Expansion Module face down on a padded level surface, and align them.
3. Lower the Module into place, and insert the 10-pin plug on the Module into the 10-pin slot on the telephone. Push in gently until the retaining tabs snap into place.

4 Insert the clips on the telephone into the hinges on the footstand, then press on the front of the footstand until it snaps into place.

5 While depressing the telephone tilt handle, swing the footstand into the desired position, then release the handle.

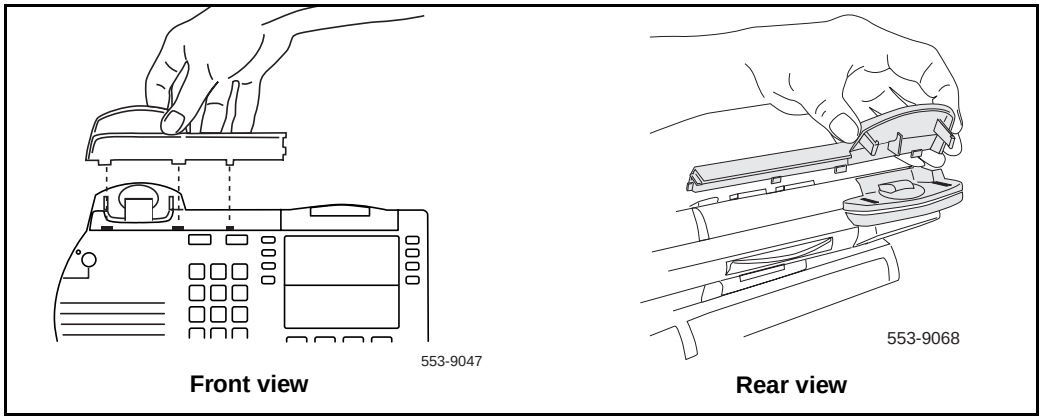
6 Carefully turn the new assembly upright.

To install the handset option for the M3905 Call Center Telephone

The Handset Kit is a hardware option for the M3905 Call Center Telephone. The handset does not accompany the M3905 Call Center Telephone. The handset can be added to the M3905 by removing the front plate of the telephone.

Note: Nortel Networks recommends that a systems administrator complete this installation.

Figure 13
Removal of the Hook Switch Cover



There are five tabs and two hidden snaps on the HookSwitch cover. There are two tabs along the right and three along the bottom edge (Front view). To remove the cover, the hidden snaps must be released (Rear view).

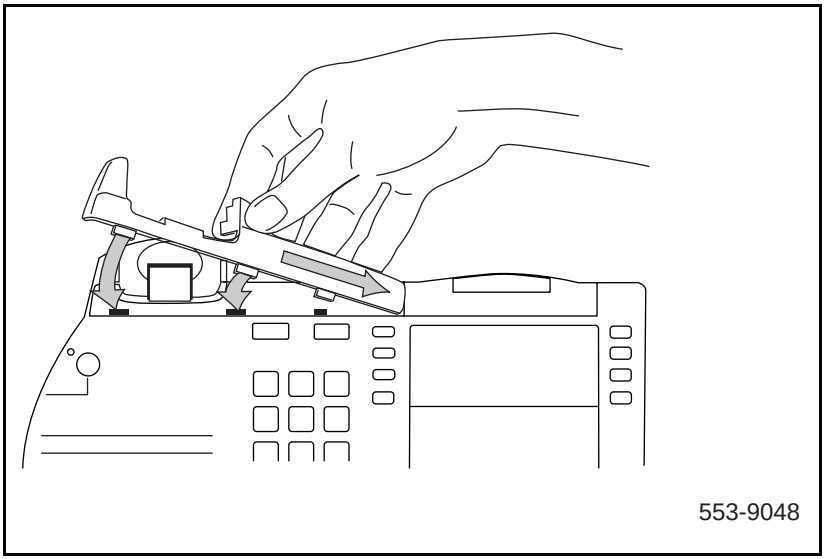
To remove the HookSwitch cover:

1 Ease the cover to the left and pull on the left side to release the left snap.

2 While holding the left snap out, ease the cover to the right and pull on the right side to release the right snap.

3 Carefully maneuver the cover out from the three bottom slots and rotate the cover to release the two side tabs.

Figure 14
Installation of the cradle



To install the cradle:

1 Hold the cradle in the same position as when you removed the Hook Switch Cover; move the cradle to the right to place the tab into the slot.

2 Ease the other tabs on the bottom edge of the cradle into the slots.

3 When all tabs are in the proper position, secure the cradle into place by pushing straight downward.

Headset options

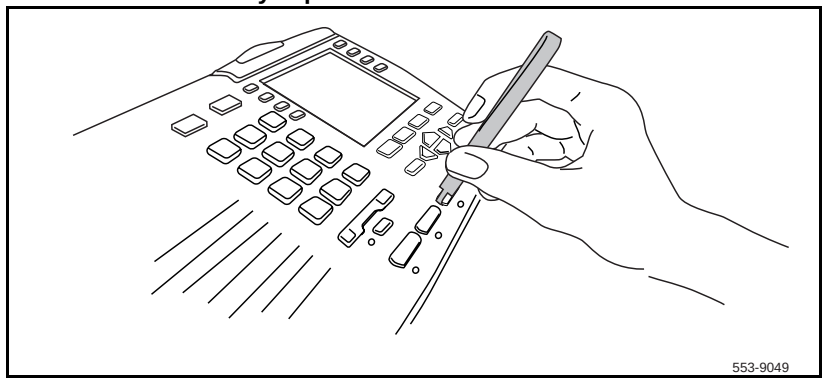
The M3901, M3902, M3904, and M3905 supports an amplified headset when the headset connects to the handset jack.

The M3903, M3904 and M3905 have a dedicated headset jack which supports a non-amplified headset. The M3903, M3904 and M3905 have a Headset Fixed Feature Key to turn the Headset on and off.

To install alternate key caps for the M3905

Use the Key Extractor Tool with the M3905 Call Center Telephone to remove the programmable keys and replace them with alternate keys customizing your telephone to fit your need.

Figure 15
Install the alternate key caps



As shown in Figure 15, place the tips of the tool into the slots at the right and left of the key, grip tightly and pull straight upward.

To install the key caps:

1 Fit the two small elastomer posts into two slots on the undersides of the keys and firmly press downward.

2 The key releases immediately after pressure is applied.

Note: If the key does not release, remove it. Attempt the installation again making sure that the posts and the slots are properly aligned.

Environmental and safety considerations

Content list

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Digital Telephone Line Engineering* (553-2201-180)

This section addresses special considerations for the M3900 Series Meridian Digital Telephone:

- temperature and humidity
- safety and electromagnetic compatibility
- headset considerations
- line engineering

Temperature and humidity

Operating state:	
Temperature range	0° to 50°C (32° to 104°F)
Relative humidity	5% to 95% (noncondensing). At temperatures above 34°C (93°F) relative humidity limited to 53 mbar of water vapor pressure.

Storage:	
Temperature range	–50° to 70°C (–58° to 158°F)
Relative humidity	5% to 95% (noncondensing). At temperatures above 34°C (93°F) relative humidity limited to 53 mbar of water vapor pressure.

Safety and Electromagnetic Compatibility

The M3900 Series Meridian Digital Telephones have been tested and found to comply with the following Safety and Electromagnetic Compatibility (EMC) Standards.

Safety	Description
EN 60950 / IEC 950	Safety of Information Technology Equipment including Electrical Business Equipment (Europe).
EN 41003	Particular Safety Requirements for Equipment to be connected to Telecommunications Network (Europe).
UL 1459	Safety Telecom (USA)
UL 1950	Safety Information Technology Equipment (USA)
CSA 22.2 225	Safety Telecom (Canada)
CSA 22.2 950	Safety Information Technology Equipment (Canada)
AS3260, TS001, TA-1302	Safety (Australia)
EMKO-TSE (74-SEC) 203/92	Nordic Deviations to EN 60950
BABT	Safety (UK)
JATE	Safety (Japan)

EMC - Radiated and Conducted	Description
EN55022 / CISPR 22 Class B	Radiated Emissions Basic Standard (Europe)
FCC Part 15 Class A	Radiated Emissions (USA)
CSA C108.8	Radiated Emissions (Canada)
VCCI	EMC (Japan)
AS/NZS 3548	EMC (Australia / New Zealand)

EMC - Immunity	Description
EN50082-1	Electromagnetic Compatibility - Generic immunity standard Part 1: Residential, commercial and light industry (Europe)
IEC 801-2 (level 4)	Electro Static Discharge (Europe)
IEC 801-3 (level 2)	Radiated Immunity (Europe)
IEC 801-4 (level 3)	Fast Transient/Burst Immunity (Europe)

Headset considerations

Test the headset with the telephone before using. In a noisy environment, an amplified headset is an option. When the amplified headset is used, there are two choices of volume control: the rocker control on the telephone and the switch on the headset. The user should adjust the telephone volume before adjusting the headset volume. To provide the best communication with the least amount of distortion, the amplifier should have a higher setting than the telephone volume control.

Handsfree Allowed Class of Service is required for the M3903 and M3904 in order for the headset to function properly.

Refer to your distributor for the latest product bulletin from Nortel Networks recommending headset types for use with the M3900 Series Digital Telephone.

Line engineering

The M3900 Series Meridian Digital Telephones use twisted pair wiring on transmission lines determined by the rules in *Digital Telephone Line Engineering* (553-2201-180). The maximum acceptable loop length is 1067 m. (3500 ft), assuming 24 AWG (0.5 mm) standard twisted wire with no bridge taps. A 15.5 dB loss at 256 kHz defines the loop length limit. Longer lengths are possible, depending on the wire's gauge and insulation.

CAUTION

Use only the line cord provided with the telephone. A line cord designed for another telephone can cause damage to the equipment.

List of Acronyms

ACD

Automatic Call Distribution

ACM

Accessory Connection Module

ATA

Analogue Terminal Adapter

COS

Class of Service

CCOS

Controlled Class of Service

CPM

Call Progress Monitor

CPND

Calling Party Name Display

DBA

Display-Based Accessory (Configuration prompt for Display-based Expansion Module)

DLC

Digital Line Card

DN

Directory Number

EIA

Electronic Industries Association

FCC

Federal Communications Commission

FFC

Flexible Feature Code

IDF

Intermediate Distribution Frame

KBA

Key-Based Accessory (Configuration prompt for Key-based Expansion Module)

LCD

Liquid Crystal Display

LED

Light Emitting Diode (lamp)

MDF

Main Distribution Frame

MSB

Make Set Busy

MWI

Message Wait Indicator

SCPL

Station Controlled Password Length

SCPW

Station Controlled Password, part of station configuration

TN

Terminal Number

VOT

Virtual Office Terminal

M3900 Series
Meridian Digital Telephones
Description, Installation and Administration

Information is subject to change without notice. Nortel Networks reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant. This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules, and the radio interference regulations of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.
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