



Nortel Norstar ICS or BCM System

LinkPlus Interface Guide

Link Wireless Telephone System

NetLink Wireless Telephone

Part Number: 72-0171-09
Issue C

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1. About LinkPlus

SpectraLink is the market leader in multi-cellular wireless telephone systems for the workplace. We manufacture a range of products to suit any size installation. All SpectraLink products use our LinkPlus digital integration technology to integrate with various digital switch platforms. Using LinkPlus technology, Wireless Telephones (handsets) emulate digital telephone sets to deliver advanced capabilities such as multiple line appearances and LCD display features. This document explains the programming or administration required to use the host digital switch with the following SpectraLink products:

Link Wireless Telephone System (Link WTS)– Link 3000 MCU

The Link WTS 3000 supports up to 3,200 handsets and up to 1,000 Base Stations. Up to 25 shelves can be interconnected for maximum system capacity.

Link Wireless Telephone System (Link WTS) – Link 150 MCU

Designed for smaller installations supporting up to 64 handsets and up to 16 Base Stations. Up to four MCU controllers can be interconnected for maximum system capacity.

NetLink Telephony Gateway

The NetLink Telephony Gateway is a wireless telephony product that provides high quality packetized voice communications using the Internet Protocol (IP).

1.1 Related Documents

Link 3000 MCU: Operator's Console (72-0059-02)

Link 150 M3 MCU: Installation and Operation (72-0075-01)

NetLink Telephony Gateway: Installation, Configuration, and Administration (72-0065-02)

NetLink e340/h340/i640 Wireless Telephone: Configuration and Administration (72-1065-09)

Available at <http://www.spectralink.com/consumer/resources/manuals.jsp>.

Telephone Switch Interface Matrix (72-0070-10). Available at

http://www.spectralink.com/consumer/resources/interface_guides.jsp.

1.2 Contacting SpectraLink

SpectraLink wants you to have a successful installation. If you have questions please contact our Customer Support Hotline at (800) 775-5330. The hotline is open Monday through Friday, 6:00 a.m. to 6:00 p.m. Mountain time.

1.3 Icons and Conventions

This manual uses the following icons and conventions.



Caution! Follow these instructions carefully to avoid danger.



Note these instructions carefully.

NORM

This typeface indicates a key, label, or button on SpectraLink hardware.

2. Plan the Interface

The system administrator programs the telephone system for use with the Wireless Telephone System using the normal administration terminal or procedures. Programming can be done after the handsets are registered.

Recommended programming includes assigning extension numbers to the handsets and programming features on the telephone system so they are easily accessible from the handsets.

For analog interfaces, macro codes are in the document relating to configuring the system. See *Link 3000 MCU: Operator's Console*, *Link 150 M3 MCU: Installation and Operation*, or *NetLink Telephony Gateway: Installation, Configuration, and Administration*.

The following information will help the system administrator set up the SpectraLink Wireless Telephones to operate in a way that feels familiar and comfortable to users.

2.1 Plan Programming

Digital Interface programming for the Wireless Telephone System will be faster if it is planned in advance by verifying the parameters and features on the current telephone system and wired phones. The system administrator must assign extension numbers to the handsets and plan the functions (trunk access, toll restrictions, system features, ringing options etc.) to be programmed for the handsets.

One of these scenarios concerning how the handsets are programmed should apply to this site:

- All handsets are programmed alike: All handsets will be programmed exactly the same. Depending on the capabilities of the switch, the system administrator can often program one handset and use it as a model for all other handsets.
- Groups of handsets are programmed alike: Handsets are grouped into classes that are programmed alike. Depending on the capabilities of the switch, the system administrator can program "model" handsets then use the model as a template to program the other handsets.
- All handsets are different: All handsets are programmed differently, so each handset will be programmed individually.

For specific programming instructions, refer to the section of the document for the type of telephone system at this site.

Determine System Template

When the Norstar system was installed, the site was configured with one of the default templates. Since the settings associated with these templates affect the installation and programming of the Wireless Telephone System, you need to determine which template was used to configure the site.

- Square (Key): Multiple lines ring on all telephones; there is a one-to-one correlation between trunks and buttons on key telephones
- Centrex: Individual lines ring on individual user telephones.

- PBX: Calls come in to a central point and are distributed to individual telephones.
- Hybrid: Can have a mix of key system telephones and individual lines; every trunk does not necessarily appear on every telephone in the system.
- IP PBX: Calls come in to a central point and are distributed to individual telephones in circuit or packet switch format.

Plan Line Access Settings

Verify the settings on your Norstar "template" wired telephones, and plan the settings required for the handsets.

- Line Assignment: the handset supports a total of nine line and intercom resources.
- Answer DN: If you want the handset to ring whenever the user's wired set rings, you will need to use an Answer DN.
- Ringing Lines: Which lines ring for an incoming call? Which Answer DN's ring for an incoming call?
- Line Pool Access for External Lines: Is the wired set assigned access to a line pool?
- Intercom Keys: The handset supports a total of nine line and intercom resources. One intercom button is required if internal calls are to be made or received on the handset, and line pools are to be accessed. Two intercom buttons are required for establishing a transfer and conference call with other internal telephones.
- Prime Line: What line is automatically selected when a call is made?

Plan General Settings

For Full Handsfree, Automatic Handsfree, Handsfree Answerback, and Paging Zone, the handset requires specific settings, which are covered later in this section.

Determine the settings for the following items so the SpectraLink DN's can be programmed the same as the wired sets:

- Pickup Group
- Forward on busy and Forward no answer
- Forward delay
- Redirection
- Priority Call

Plan Required Memory Functions

The handset supports nine memory buttons. FCN 1 is reserved for Mute. Determine which are the most important functions for your users, so these can be assigned to the available function keys.

2.2 Assign Extension Numbers

The wire contractor should inform the system administrator which port numbers have been designated for the handsets.

The system administrator may use the Extension Assignments Worksheet at the end of this document to track the port numbers, extensions, users, and features assigned to handsets.

2.3 The SpectraLink Wireless Telephone Display

The Link Wireless Telephone has a two-line, 16-character alphanumeric display.

Certain characters may be used by the system that are not implemented in the handset. Flashing characters are not implemented on the handset, nor is rolling or scrolling of text.

Handset Icons

The line indicators are associated with line access keys. The status indicators are associated with voicemail (**MSG**), low battery function (**BATT**), and service interruption (**NO SVC**). In addition, a left or right arrow is displayed when the screen can be toggled either left or right to display more characters as described above.



Link PTB450 Display

When lines are programmed as shown on the key-map diagrams, the numeral icons on the handset display will be mapped to any deskset LEDs associated with the corresponding feature keys. The icons will be displayed as follows:

Line State	Handset Line Status Icon State
On-hook	Off
Off-hook	On
Ringing	Fast flash
On hold	Slow flash

2.4 Feature Programming Requirements

When planning the interface, the following information must be taken into account:

Line Sequences

The handset uses two types of key sequences to access PBX features and multiple lines. Line sequences are those where the user presses the **LINE** button and then a number button. The key-map design designates “line” keys that should be programmed for line appearance so that they correspond to line sequences on the handset.

The **LINE** icon on the handset will reflect activity on the corresponding deskset key. For this reason, it is recommended that line appearance keys be used only for line access. If only one line is assigned to a particular handset, leave the other designated line keys identified on the key map unassigned. The corresponding handset **LINE+** key sequences will then have no function.

Function Sequences

Function sequences are those where the handset user presses the FCN button and then a number button. Designated “function” deskset keys programmed to system features such as Transfer and Conference may have their corresponding menu items display on the handset function menu. See the key map diagram for the function keys that are available for feature programming.

2.5 Function Menu Programming

Link 3000 MCU

The function menu text defaults for the handsets associated with the Link 3000 MCU can be changed via the SpectraLink Operator’s Console.

Link 150 MCU

For the Link 150 MCU, the handset function menu text can only be changed via remote configuration through the services of SpectraLink’s Customer Support.

NetLink Telephony Gateways

Function menu text options can be changed in the Administration Console of the NetLink Telephony Gateways.

Hold

The Hold feature should be programmed to the Hold key as shown on the Key-map Diagrams so that when the **Hold** button is pressed on the handset, the call is placed on hold.

Speakerphone

Because the handset has no speaker, speakerphone function and functions that require the use of the volume keys will not be made available on the handset.

Ring Types

handset ring types (soft, normal, vibrate, etc.) are programmed by the handset user and are not accessible or changeable by the system switch. Whenever possible the

audible ringer on the handset will follow the cadence provided by the system switch. Call progress tones provided by the host system will be passed through to the handset.

3. Interface Implementation

This section describes the recommended programming to use the Wireless Telephone System with a Norstar ICS or BCM system. The procedures assume:

- The Norstar ICS or BCM system is installed and operational in an approved configuration. See the Telephone Switch Interface Matrix document for tested configurations.
- A trained Norstar technician or system administrator will be on site with the SpectraLink installer to program the system.
- The Link WTS or NetLink Telephony Gateway is installed and the handsets are available for programming.

3.1 Set the Switch Interface Type

Link 150 MCU

The Link 150 Master Control Unit requires the switch interface type to be configured using the front panel buttons. The configuration procedures are detailed in *Link 150 M3 MCU: Installation and Operation*.

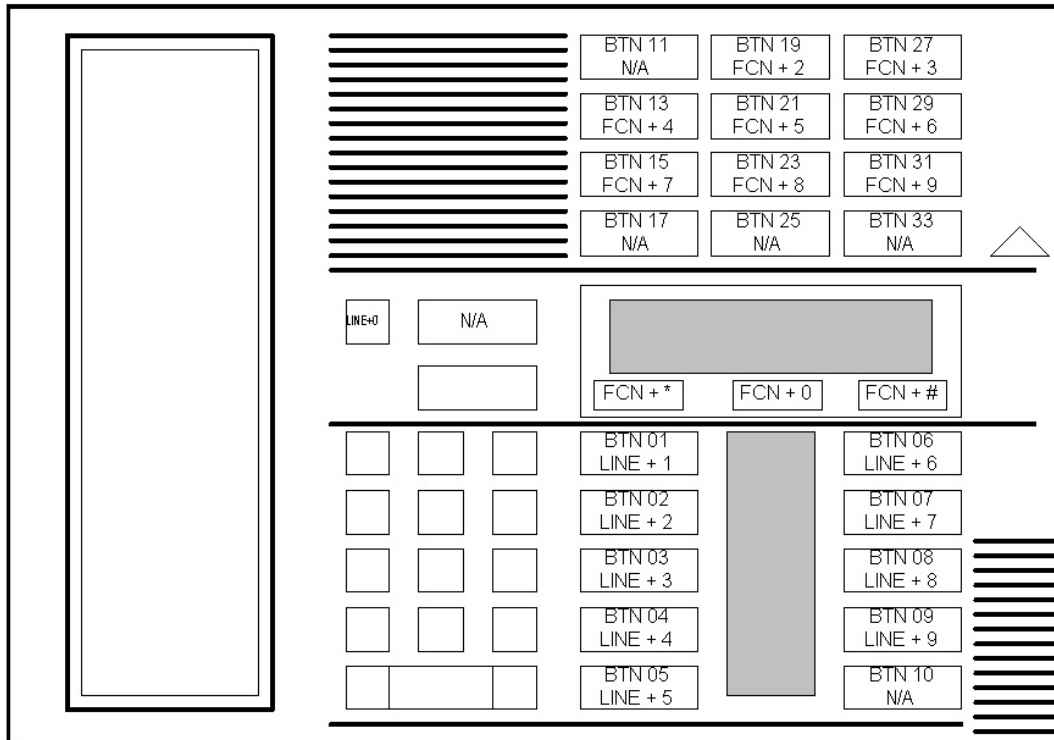
Link 3000 MCU

When configuring the Link 3000 MCU, the PBX interfaces are available as sub-menu selections when defining the Interface Module type using the Link 3000 MCU Operator's Console. Refer to *Link 3000 MCU: Operator's Console* for details on configuring the Interface Modules.

NetLink Telephony Gateways

Connect to the NetLink Telephony Gateway using the serial or modem interface. From the Main Menu, choose Gateway Configuration. Scroll to Telephone Switch Type and press enter to change this field, from the Submenu of PBX types, select Nortel Norstar. Refer to *NetLink Telephony Gateway: Installation, Configuration, and Administration* for details on configuring the Telephone Switch Type.

3.2 Key-mapping the Handset to Emulate M7310 Functionality



Norstar M7310 Key-mapping

The **FCN** [number] and **LINE** [number] labels represent the key sequence on the handset mapped to the corresponding key on the desk set. The **FCN *** label indicates that pressing the **FCN** key on the handset followed by the ***** key and the [number] key is the sequence equivalent to pressing the corresponding button on the desk set.

The handset function menu has these default settings:

FCN + 1	MUTE	FCN + 2	XFER
FCN + 3	CONF	FCN + 4	LAST NO
FCN + 5	FWD	FCN + 6	SPEED
FCN + 7	PICK	FCN + 8	PAGE
FCN + 9	EXIT MENUS (Cancels out of the handset display)	LINE + 0	RLS
		LINE + *	FEATURE

3.3 Program the Norstar

Program handsets

Because the handset emulates an M7310 set, using the M7310 to perform programming will save time. Using this set allows the coordinator to copy both system and user data to all SpectraLink DNs once one handset is programmed. If an M7324 is used, the user data for each handset will have to be programmed differently, then copied to other SpectraLink DNs.

Program Memory Functions

To program memory buttons, plug the M7310 set into the line coming from the Norstar to the SpectraLink line port. Use this M7310 set to program each of the memory buttons as required. When finished, unplug the M7310 and reconnect the line to the SpectraLink port on the interface module. The DN for this handset has now been programmed with memory functions and can be used as the source to copy functions to the remaining handsets.

If there is no M7310 set available, program the buttons on the handset, using the following as a guide.

M7310 Programming Button	Equivalent handset Programming Sequence
RLS	(LINE + 0)
FEATURE	(LINE + *)

For example, to program Transfer as Function 2, the following would be programmed on the M7310, or on the handset if no M7310 is available.

M7310 Programming Sequence	Equivalent handset Programming Sequence
RLS	(LINE + 0)
FEATURE + * + 3	(LINE + *) + * + 3
Press memory button #2	FCN + 2
FEATURE + 7 + 0	(LINE + *) + 7 + 0
RLS	(LINE + 0)

Complete and Copy Programming

The rest of the programming steps depend on the way the handsets are used at your site.

At Your Site	Follow These Steps
All handsets Are Programmed Alike	Program General Settings Program Line Access Use Set Copy to copy programming to all other handsets
All handsets Are Programmed Different	Since all handsets are different, no programming is copied Program General Settings on each set Program Line Access on each set
Groups of handsets Are Programmed Alike	Use Set Copy to copy memory buttons to all handsets[soft return here?] Program General Settings for a group Program Line Access for a group Use Set Copy to copy to all handsets in a group

Program General Settings

From the Configuration Programming Mode on the Norstar, set the following options for the SpectraLink DNs.

- Full Handsfree: Y
- Auto Handsfree: N (or std)
- Handsfree Answer Back: N
- Page Zone: None

You may change or assign other General Settings or Set Abilities to match the wired telephones at your site, but the settings listed above must be set as indicated.

Program Line Access

From the Configuration Programming Mode on the Norstar, program the Line Access options for the SpectraLink DNs. This includes line assignment, Answer DNs, Ringing, Line Pool access, Intercom buttons, and Prime Line assignment. Options should be programmed for all "template" DNs or individual DNs, according to the pre-installation plan.

Set Copy

After the SpectraLink "template" DNs have been programmed, use the Set Copy function in Configuration Programming to copy the programming to all "like" SpectraLink DNs. You can copy both System and User programming if you are using an M7310 set.

The installer can now test the handsets.

4. Extension Assignments Worksheet

Shelf: _____ Interface Module: _____

Handset #	Ext. #	Name	Interface Module Circuit #	Comment	Handset Serial #
Handset 1			1		
Handset 2			2		
Handset 3			3		
Handset 4			4		
Handset 5			5		
Handset 6			6		
Handset 7			7		
Handset 8			8		
Handset 9			9		
Handset 10			10		
Handset 11			11		
Handset 12			12		
Handset 13			13		
Handset 14			14		
Handset 15			15		
Handset 16			16		