



NEC NEAX 2000 and 2400 System

# LinkPlus Interface Guide

SpectraLink 6000 System

SpectraLink 8000 System

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# About this Guide

Polycom 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 Polycom 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 Polycom products:

## **SpectraLink 6000 System - SpectraLink 6300 MCU**

The SpectraLink 6300 MCU supports up to 3,200 handsets and up to 1,000 Base Stations. Up to 25 shelves can be interconnected for maximum system capacity.

## **SpectraLink 6000 System – SpectraLink 6100 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.

## **SpectraLink 8000 Telephony Gateway**

The SpectraLink 8000 Telephony Gateway is a wireless telephony product that provides high quality packetized voice communications using the Internet Protocol (IP).



Different models of SpectraLink Wireless Telephones vary in functional capabilities. This document covers the basic operational features of all handsets. However, certain handset or PBX features may not be supported by your emulation.

## Related Documents

*SpectraLink 6300 MCU : Operator's Console (1725-36125-001)*

*SpectraLink 6100 MCU: Installation and Operation (1725-36097-001)*

*SpectraLink 6020 Wireless Telephone and Accessories User Guide (1725-36092-001)*

Available at

[http://www.polycom.com/usa/en/support/voice/proprietary\\_wireless/proprietary\\_wireless.html](http://www.polycom.com/usa/en/support/voice/proprietary_wireless/proprietary_wireless.html)

*SpectraLink 8000 Telephony Gateway: Administration Guide for SRP (1725-36028-001)*

*SpectraLink 8020/8030 Wireless Telephone and Accessories User Guide (1725-36023-001)*

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

Available at

<http://www.polycom.com/usa/en/support/voice/wi-fi/wi-fi.html>

*Telephone Switch Interface Matrix (1725-36128-001)*

Available at

[http://www.polycom.com/usa/en/support/voice/wi-fi/pbx\\_integration.html](http://www.polycom.com/usa/en/support/voice/wi-fi/pbx_integration.html)

## Customer Support

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

For Technical Support: [technicalsupport@polycom.com](mailto:technicalsupport@polycom.com)

For Knowledge Base:

<http://www.polycom.com/usa/en/support/voice/voice.html>

## Icons and Conventions

This manual uses the following icons and conventions.



Caution! Follow these instructions carefully to avoid danger.



Note these instructions carefully.

**Label**

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



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# 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 *SpectraLink 6300 MCU: Operator's Console*, *SpectraLink 6100 MCU: Installation and Operation*, or *SpectraLink 8000 Telephony Gateway: Administration Guide for SRP*.

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.

## 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.

Before installation, the parameters of the wired phones should be verified to plan the parameters required for the handsets.

### **Line assignment**

The handset supports up to nine line resources. Which lines should ring at this handset and which lines will be selected when the user goes off-hook?

### **Line appearances**

Should this extension number appear on any other telephone? On which sets should it ring?

### **Coverage**

Where is this handset forwarded on busy/no answer? Does it belong to a pickup group?

### **Toll restrictions**

Should any special restrictions be assigned for incoming or outgoing calls?

### **Programmable keys**

Determine which features, if any, should be programmed on the handsets. These assignments may emulate assignments on the user's wired set.

If possible, identify a wired set that is programmed exactly or close to the way the handsets should be programmed. This set can be used to copy the programming to the new handsets.



## 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.

## The Wireless Telephone Display

The SpectraLink Wireless Telephone will display the telephone number as it is dialed.

The NEAX ETJ-16DC-2 has a two-line by 20 character display. The handset display is 2 lines by 16 characters; therefore, some NEAX messages will be truncated when displayed on the handset. The first two and last two characters will be truncated.

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 indicators

Line indicators are associated with line access keys. Status indicators or icons are associated with voicemail, low battery function, other functions, and service interruption. A left or right arrow is displayed when the screen can be toggled either left or right to display more characters.

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 line 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

## 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** key and then a number key. 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 maps 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** key and then a number key. 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.

## Function Menu Programming

### SpectraLink 6300 MCU

The function menu text defaults for the handsets associated with the SpectraLink 6300 MCU can be changed via the SpectraLink Operator’s Console.

## SpectraLink 6100 MCU

For the SpectraLink 6100 MCU, the handset function menu text can only be changed via remote configuration through the services of Polycom's Customer Support.

## SpectraLink 8000 Telephony Gateways

Function menu text options can be changed in the Administration Console of the SpectraLink 8000 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** key or softkey is pressed on the handset, the call is placed on hold.

### Mute

The handset Mute function is hard-coded to **FCN +1** on the PTB4xx handset. This function sequence is recommended, but the system administrator can assign the Mute function to any available function key sequence or leave the function unassigned. The SpectraLink 6000 and SpectraLink 8020/8030 Wireless Telephones use a **Mute** softkey.

### Speakerphone

If a handset such as the PTB 4xx has no speaker, the SPKR and ANS keys on the ETJ-16DC-2 are not mapped to keys 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.



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# NEC NEAX 2000 and 2400

This section describes the recommended programming to use the Wireless Telephone System with an NEC NEAX 2000 or NEAX 2400 telephone system. The procedures assume:

- The NEAX is installed and operational in an approved configuration. See *Telephone Switch Interface Matrix* for tested configurations.
- A trained NEAX technician or system administrator will be on site with the Installer to program the system.
- The SpectraLink 6000 System or SpectraLink 8000 Telephony Gateway is installed and the handsets are available for programming.

## Set the Switch Interface Type

### SpectraLink 6100 MCU

The SpectraLink 6100 Master Control Unit requires the switch interface type to be configured using the front panel keys. The configuration procedures are detailed in *SpectraLink 6100 MCU: Installation and Operation*.

### SpectraLink 6300 MCU

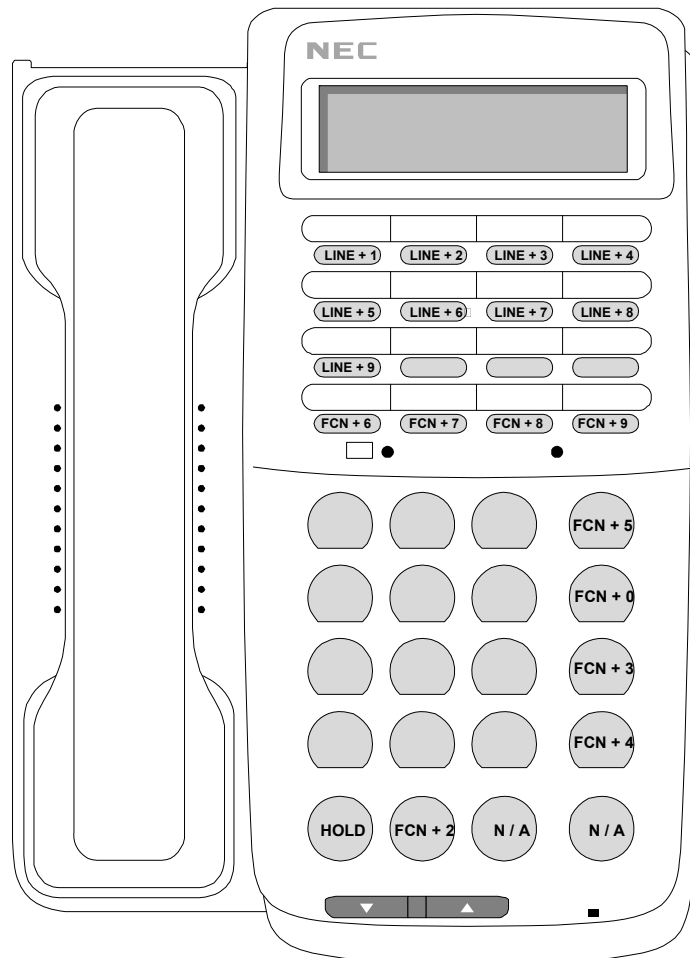
When configuring the SpectraLink 6300 MCU, the PBX interfaces are available as sub-menu selections when defining the Interface Module type using the SpectraLink 6300 MCU Operator's Console. Refer to *SpectraLink 6300 MCU: Operator's Console* for details on configuring the Interface Modules.

### SpectraLink 8000 Telephony Gateways

Connect to the SpectraLink 8000 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 NEC NEAX. Refer to *SpectraLink 8000 Telephony Gateway: Administration Guide for SRP* for details on configuring the Telephone Switch Type.

## Key-mapping the Handset to Emulate ETJ-16DC-2 Functionality



NEAX ETJ-16DC-2 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 handset function menu default settings are shown in the table below; these may be changed as described above in *Function Menu Programming*. Some of these functions (Mute, Redial, Forward, etc.) are activated by softkeys or **FCN** menu options on the SpectraLink 6000 and SpectraLink 8020/8030 Wireless Telephones.

<b>FCN + 0</b>	FNC	<b>FCN + 1</b>	MUTE
<b>FCN + 2</b>	TRF	<b>FCN + 3</b>	CNF
<b>FCN + 4</b>	LNR/SPD	<b>FCN + 5</b>	RECALL
<b>FCN + *</b>	EXIT MENUS		

## Program NEC NEAX

The System Administrator programs the NEAX for use with the SpectraLink 6000 System or SpectraLink handsets using the NEC Maintenance and Administration Terminal.

### Copy settings from a wired set

If possible, copy the settings from a wired telephone with similar settings and restrictions to a handset. Once this is done, you can program the options on one handset, then copy the programming to other handsets or groups of handsets. If your NEC systems are networked, you may prefer to build each set individually rather than use the Copy feature.

### Program features for handset

Program the following features for the handsets:

- **Prime Line:** Selects the line that users get when they go off hook. To give users inside dial tone when they go off-hook, assign Intercom as Prime Line.
- **Ringling Line Preference:** Controls the way a station answers a ringing line. To assign outside lines to display at all handsets, but not ring at all handsets, Disable Direct Ring.
- **Toll Restrictions:** Control which lines are allowed to make or receive outside calls. They are programmed through a series of toll tables, which are then assigned to lines and stations. If you copied an existing wired set, Toll Restrictions will be set correctly for the handset.

- **Class of Service:** Assign the handsets to the Class of Service with the appropriate features or functions. [delete dash to make this one sentence, or is it more correct to have a colon then a new sentence, imperative?]
- **Coverage and Pickup Groups:** Assign the handsets to a coverage and/or pickup group so unanswered calls will be appropriately covered.
- **Unused features:** Disable any speakerphone or loudspeaker features (such as voice announce) as these are not supported on the handset.

### **Copy settings to other SpectraLink Wireless Telephones**

After the handsets have been programmed, copy the programming to all “like” handsets.

The installer can now test the handsets.



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# 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		