



Avaya MERLIN LEGEND/MAGIX

# LinkPlus Interface Guide

SpectraLink 6000 System

SpectraLink 8000 System

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Version E



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# About this Guide

Polycom is the North American leader in workplace wireless telephony. 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 and/or administration required to use the host digital switch with the following Polycom products:

## **SpectraLink 6000 System – SpectraLink 6300 MCU**

The SpectraLink 6000 System 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.

## **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 LAN-based 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 button 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 features assigned to the wired phones should be verified to plan the system and extension programming required for the handsets. You may want to reference the System Planning Forms to check the programming.

### **Line assignment**

The handset supports up to nine line resources. Where will Intercom and/or System Access buttons be assigned? Which lines should ring at this handset (Ringing Line Preference) and which lines will be selected when the user goes off-hook (Idle Line Preference)?

### **Coverage**

Does anyone else share this line? To which line is this handset (or group of handsets) forwarded on busy/no answer? (Primary Coverage/Secondary Coverage). What Ringing Options are assigned?

### **Call pickup**

To which pickup group does this handset or group of handsets belong?

### **Calling privileges and restrictions**

Which lines are allowed to make outside calls? Long distance calls? Are there any Allowed Lists or Disallowed Lists assigned?

### **Feature buttons**

The handset supports six programmed buttons for telephone system features. Determine which features, if any, should be programmed on the handsets. These assignments should emulate assignments on the user's wired set.

It may help to 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 features 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.

Note that the handset shows only the first 16 of 24 characters available in MLX-16DP display. System prompts, such as the Menu Options in Programming Mode, have been abbreviated to account for this. Users should be aware that Posted Messages will display only the first 16 characters, and that English is the only language supported.

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

Note that the function menu defaults set for the handsets associated with the SpectraLink 6300 MCU can be changed via the SpectraLink Operator's Console. If the system uses softkeys, to minimize unwanted interaction between system display and the handset function menu display, configure the handset menu to include a delay of one function key. The user will then have to press **FCN** twice before the handset menu displays, allowing the first press of the **FCN** key to access softkey functions. See *SpectraLink 6300 MCU: Operator's Console* for further procedural information. Another option may be to disable the softkey menu at the system and exclusively use the SpectraLink menu. This would remove any unwanted interaction, but may restrict the number of available features to the number of programmable keys on the handset.

## SpectraLink 6100 MCU

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

## SpectraLink 8000 Telephony Gateways

Menu options can be changed in the Administration Console of the SpectraLink 8000 Telephony Gateway. The Delay function is used when the PBX uses softkeys. With Delay, when the **FCN** key is pressed, the handset displays the features that are associated with the softkeys so that one of these features can be selected first. If Delay is programmed, pressing the **FCN** key twice will bring up the menus immediately. Under the menu programming section of the Administration console there is an option to use Delay (same as the SpectraLink 6300 MCU). See the *SpectraLink 8000 Telephony Gateway: Administration Guide for SRP* document for further details. Also refer to the *SpectraLink 8000 Telephony Gateway: Administration Guide for SRP* document for details on configuring the telephone switch type

## 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 PTB 4xx 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.

## Voicemail

The message-waiting icon on the handset is activated with the message indication of the deskset. The voicemail feature on the deskset must be assigned to the feature key as shown in the key-map diagrams. Do not assign any other feature to this key, since the associated LED is directly mapped to the message-waiting icon on the handset. This LED assignment must be used in order to support the message-waiting icon. Using this key for any other feature or for line access could cause unacceptable system performance.

## Speakerphone

If a handset such as the PTB 4xx has no speaker, speakerphone function and functions that require the use of the volume keys will not be made available on the handset. In this case, disable all speakerphone features, particularly any hands-free features that activate the speaker with the telephone on-hook.

## 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.

# Interface Implementation

This section describes the recommended programming to use the SpectraLink 8000 Wireless Telephone System (MCU) or SpectraLink 6000 Wireless Telephones with a MERLIN LEGEND PBX. The procedures assume:

- The MERLIN LEGEND/MAGIX system is installed and operational in an approved configuration. See the *Telephone Switch Interface Matrix* document for tested configurations.
- A trained MERLIN LEGEND/MAGIX technician or system manager 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.

## MERLIN LEGEND Wiring

The MERLIN LEGEND digital station port is a four-wire digital circuit. Use a straight-through phone cord with RJ11 connector to an 8-pin RJ45 connector (as below) to connect the MCL45x MCU phone lines to MERLIN LEGEND modular jacks. The following table shows the pinout for the RJ45 connector on the MERLIN LEGEND side of the interface.

Pin	Function
3	Receive
4	Transmit
5	Transmit
6	Receive



Each digital pair is polarity insensitive. If you reverse polarity the system will still work.

See the documentation for your SpectraLink components for more information about wiring the four-wire interface on the demarc block or patch panel.

## 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 buttons. The configuration procedures are detailed in the *SpectraLink 6100 MCU Installation and Operation* document.

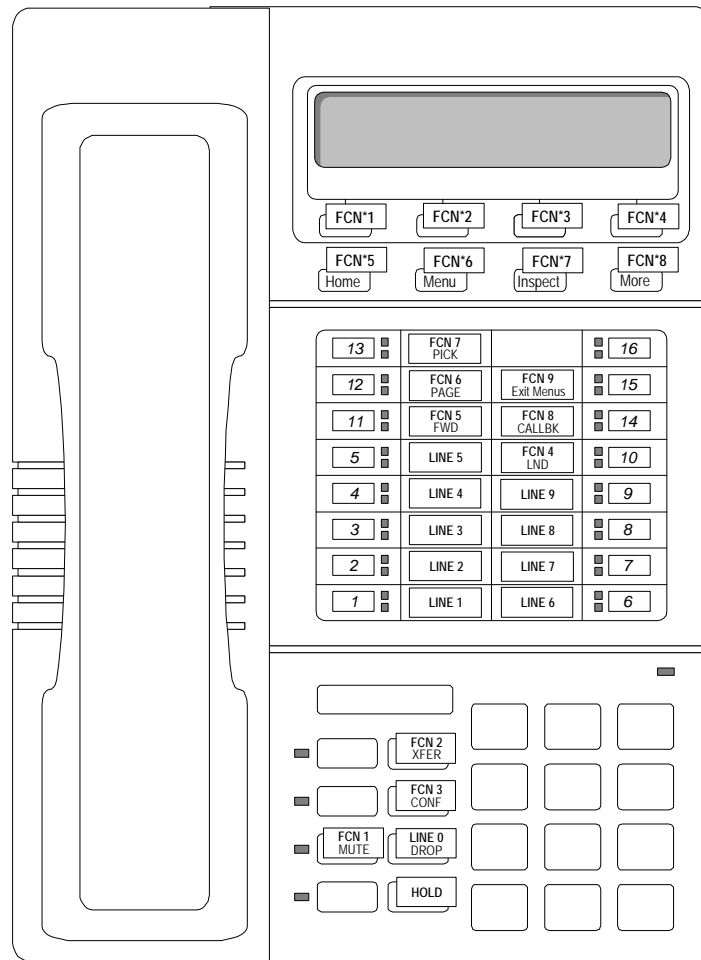
### SpectraLink 6300 MCU

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 the *SpectraLink 6300 MCU Operator's Console* document 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 **MERLIN LEGEND**. Refer to the *SpectraLink 8000 Telephony Gateway: Administration Guide for SRP* document for details on configuring the Telephone Switch Type.

# Key-mapping the Handset to Emulate MLX16DP Functionality



MERLIN LEGEND MLX 16DP 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 \* sequence is used to map to softkeys. Pressing the **FCN** key on the handset followed by the \* key and the [number] key is the sequence equivalent to pressing the corresponding softkey on the desk set.

The handset function menu default settings are shown on each corresponding button in the above diagram; 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 + 1</b>	MUTE	<b>FCN + 2</b>	XFER
<b>FCN + 3</b>	CONF	<b>FCN + 4</b>	LND
<b>FCN + 5</b>	FWD	<b>FCN + 6</b>	PAGE
<b>FCN + 7</b>	PICK	<b>FCN + 8</b>	CALLBK
<b>FCN + 9</b>	EXIT MENUS	<b>LINE + 0</b>	DROP

## Program MERLIN LEGEND

### Program Handsets

#### Assign Intercom or System Access buttons

The Merlin Technician should assign Intercom ring and voice (used to make or receive inside calls) and System Access ring and voice (used in PBX/Hybrid Mode to make or receive inside and outside calls) to the appropriate buttons on the handset.

The default programming may assign Intercom lines to buttons **1** and **2**. They should be assigned to buttons **8** and **9**. To move them, first assign Intercom Ring and Voice to buttons **8** and **9**, then delete the ICOM assignments on buttons **1** and **2**.

See *Assign Intercom or System Access Buttons* in the *MERLIN LEGEND Programming Manual* for complete instructions.

#### Assign lines and trunks

The technician should assign lines and trunks to buttons **1** through **7** as needed. See *Assign Trunks or Pools to Telephones* in the *MERLIN LEGEND Programming Manual* for complete instructions.

## Assign other features

The technician should assign features to available buttons (**10** through **15**) according to pre-installation planning. See the *MERLIN LEGEND Feature Reference* for more information.

- Auto Answer Intercom
- Auto Answer All

The Voice Announce to Busy, Voice Announce from QCC, and Intercom Voice Receive features should not be turned on.

Users should also be aware that the Personalized Ring feature is not supported on the handset.

## Copy programming

After the handset or phones have been programmed, use the **Line Copy** command to copy the line assignments to blocks of extensions. Use the **Copy Features** command to copy features to blocks of extensions. See the *MERLIN LEGEND Feature Reference* for information about which features can be copied.

## Assign individual intercom lines and features

After copying common features and line assignments, assign intercom lines and features to individual handsets as needed. This includes:

- Assigning Automatic Line Selection
- Assigning Ringing/Idle Line Preference
- Assigning features that cannot be copied using Copy Feature.

Note: In Release 4 and later the **Copy Features** command has been enhanced to copy more features. Please check the *Feature Reference* for your system.

The installer can now test the handsets.

Note that the handset shows only the first 16 of 24 characters available in MLX-16DP display. System prompts, such as the Menu Options in Programming Mode, have been abbreviated to account for this. Users should be aware that Posted Messages will display only the first 16 characters, and that English is the only language supported.



## 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		