



## Key Expansion Modules

---

- [Cisco IP Phone Key Expansion Module Setup Overview, page 1](#)
- [Set up the Key Expansion Module in Cisco Unified Communications Manager, page 4](#)
- [Column Mode for the Cisco IP Phone 8800 Key Expansion Module, page 5](#)
- [Connect a Key Expansion Module to a Cisco IP Phone, page 6](#)
- [Key Expansion Module Buttons, page 10](#)
- [Access Key Expansion Module Setup, page 11](#)
- [Place a Call on the Key Expansion Module, page 12](#)
- [Adjust the Key Expansion Module Screen Brightness, page 12](#)
- [Reset the Single LCD Screen Key Expansion Module, page 13](#)
- [Reset the Dual LCD Screen Key Expansion Module, page 13](#)
- [Troubleshoot the Key Expansion Module, page 13](#)
- [Key Expansion Module Power Information, page 14](#)

## Cisco IP Phone Key Expansion Module Setup Overview

Key expansion modules add extra line appearances, speed dials, or programmable buttons to the phone. The programmable buttons can be set up as phone line buttons, speed-dial buttons, or phone feature buttons. But Simplified dialing is not supported on expansion modules.



---

**Caution**

The slots in the side of the phone are designed only for use with the spine connectors on the key expansion module. Insertion of other objects permanently damages the phone.

---

There are 3 expansion modules available:

- Cisco IP Phone 8800 Key Expansion Module—Single LCD screen module, 18 line keys, 2 pages, configure with one or two column displays.
- Cisco IP Phone 8851/8861 Key Expansion Module—Dual LCD screen module for audio phones, 14 line keys, 2 pages, configure with one-column display only. If you use Enhanced line mode, and you

receive a call on a key expansion line, then a Call Alert displays on the phone, and the Caller ID displays on the expansion module line.

- Cisco IP Phone 8865 Key Expansion Module—Dual LCD screen module for video phones, 14 line keys, 2 pages, configure with one-column display only. If you receive a call on a key expansion line, then a Call Alert displays on the phone, and the Caller ID displays on the expansion module line.

The Cisco IP Phone 8851/8861 Key Expansion Module and the Cisco IP Phone 8865 Key Expansion Module require firmware release 12.0(1) or later, and Cisco Unified Communications Manager 10.5(2) or later to function.

You can use more than one expansion module per phone. The Cisco IP Phone 8851 and 8851NR support up to 2 modules. The Cisco IP Phone 8861, 8865, and 8865NR support up to 3 modules. But each module must be the same type. This means that you cannot mix audio expansion modules with video expansion modules. You also cannot use a video expansion module on an audio phone or an audio expansion module on a video phone.

Most calling features are supported on your expansion module, and they are configured by your administrator from the Cisco Unified Communications Manager. If a feature is available on the Self Care Portal, then you can add the feature to your expansion module.

When adding features to your expansion module, remember that each line button supports only one feature. You cannot add more features than the number of programmable line keys on your expansion module.

Also note the line mode when working with a key expansion module. In Session line mode, the first line key on the expansion module is line 6 of the phone template. In Enhanced line mode, it is line 11 of the phone template. Only the first 25 characters are displayed on a line.

**Table 1: Available Line Keys in Each Session Mode**

Cisco IP Phone Model	Single LCD screen expansion module	Dual LCD screen expansion module
Cisco IP Phone 8851 and 8851NR	Session Line Mode: 77	Session Line Mode: 61
	Enhanced Line Mode: Not supported	Enhanced Line Mode: 66
Cisco IP Phone 8861 Cisco IP Phone 8865 and 8865NR	Session Line Mode: 113	Session Line Mode: 89
	Enhanced Line Mode: Not supported	Enhanced Line Mode: 94

**Figure 1: Cisco IP Phone 8865 with Three Cisco IP Phone 8865 Key Expansion Modules**



**Figure 2: Cisco IP Phone 8861 with Three Cisco IP Phone 8800 Key Expansion Modules**



## Related Topics

[Accessory Support](#)

# Set up the Key Expansion Module in Cisco Unified Communications Manager

Expansion modules are enabled from the Expansion Module Information area of the Phone Configuration page on Cisco Unified Communications Manager. If you configure the expansion module incorrectly, an error message displays on the phone. You cannot configure the phone for a dual LCD module and then install a single LCD module. But your choice of expansion module is not permanent. You can configure another module if your needs change.

## Procedure

---

- Step 1** In Cisco Unified Communications Manager Administration, choose **Device > Phone**. The Find and List Phones window appears. You can search for one or more phones that you want to configure for the Cisco IP Phone 8800 Key Expansion Module.
- Step 2** Select and enter your search criteria and click **Find**. The Find and List Phones window appears with a list of phones that match your search criteria.
- Step 3** Click the phone that you want to configure for the Cisco IP Phone 8800 Key Expansion Module. The Phone Configuration window appears.
- Step 4** If you have an expansion module with a single LCD screen, scroll down to the Product Specific Configuration area. Enable the One Column Display for KEM field for one-column mode, or disable the field for two-column mode.
- Step 5** Scroll down to the Expansion Module Information section. Select the appropriate expansion module for the Module 1 field. Depending upon your phone, your choices may include:
- CP-8800-Video 28 Button Key Expansion Module
  - CP-8800-Audio 28 Button Key Expansion Module
  - BEKEM 36-Button Line Expansion Module
- Step 6** (Optional) Depending upon your phone model, you can add extra expansion modules. Repeat the previous step for Module 2, and Module 3.
- Step 7** Click **Save**.
- Step 8** Select **Apply Config**.
- Step 9** Restart the phone.
-

# Column Mode for the Cisco IP Phone 8800 Key Expansion Module

If you are using the Cisco IP Phone 8800 Key Expansion Module, you can set it up in one-column mode or two-column mode. Set your mode from the Product Specific Configuration area of your Cisco Unified Communications Manager Administration. Two-column mode is the default on the Cisco IP Phone 8800 Key Expansion Module.

The Cisco IP Phone 8851/8861 Key Expansion Module and the Cisco IP Phone 8865 Key Expansion Module do not support two-column mode.

**Note**

If the label is longer than the display space in both one- and two-column mode, the text contains an ellipsis (...).

## One-Column Mode

In one-column mode, each row in the display corresponds to one line accessed by either the left or right-side buttons. In this configuration, the key expansion module displays 9 lines on page 1, and 9 lines on page 2.

**Figure 3: A Cisco IP Phone 8800 Key Expansion Module in One Column Mode**



### Two-Column Mode

In two-column mode, each of the buttons on the left and right of the screen is assigned to different lines. In this configuration, the key expansion module displays 18 lines on page 1, and 18 lines on page 2.

**Figure 4: A Cisco IP Phone 8800 Key Expansion Module in Two Column Mode**

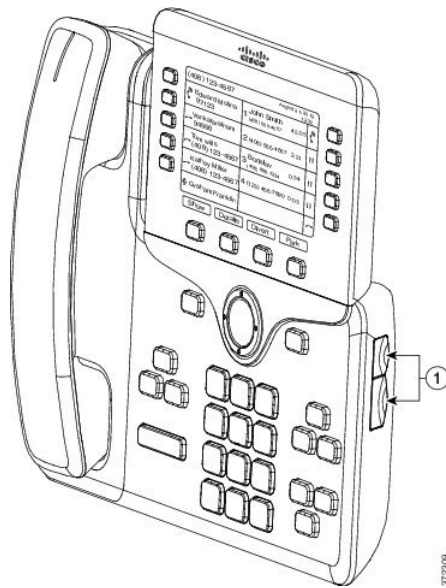


## Connect a Key Expansion Module to a Cisco IP Phone

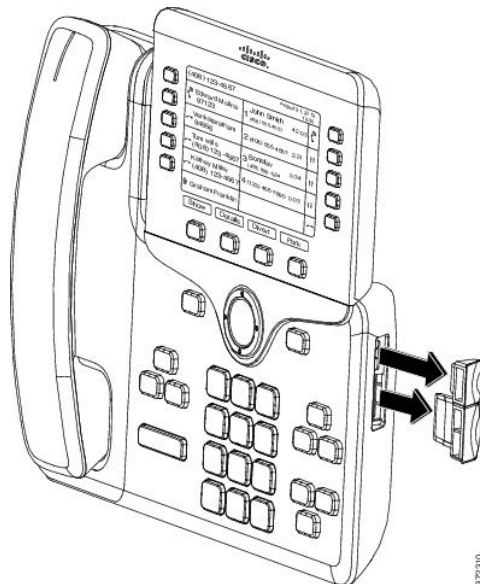
If you want to install more than one expansion module, you repeat steps 7-9 to connect the other expansion modules together.

### Procedure

- 
- Step 1** Unplug the Ethernet cable from the phone.
  - Step 2** If installed, remove the footstand from the phone.
  - Step 3** Locate the accessory connector covers on the side of the phone. This diagram shows the location.



**Step 4** Remove the two accessory connector covers, as shown in the diagram.



**Caution** The slots are designed for the spine connector only. Insertion of other objects will cause permanent damage to the phone.

**Step 5** Position the phone so that the front of the phone faces up.

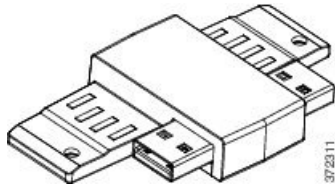
**Step 6** Connect one end of the key expansion module spine connector to the accessory connector on the Cisco IP Phone.

a) Align the spine connector with the accessory connector ports.

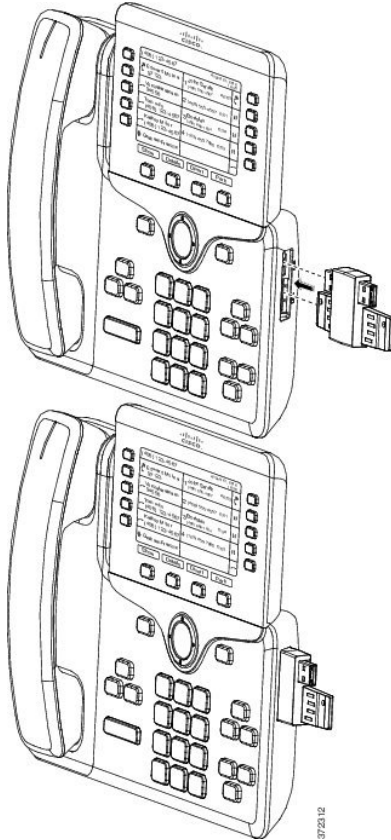
**Note** Install the connector in the orientation shown in the following diagrams.

b) Firmly press the spine connector into the phone.

This diagram shows the spine connector.

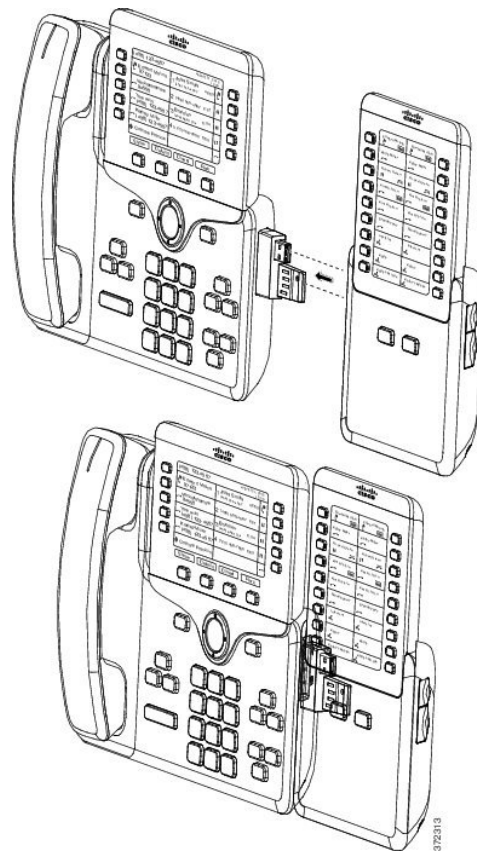


This diagram shows the installation of the spine connector.

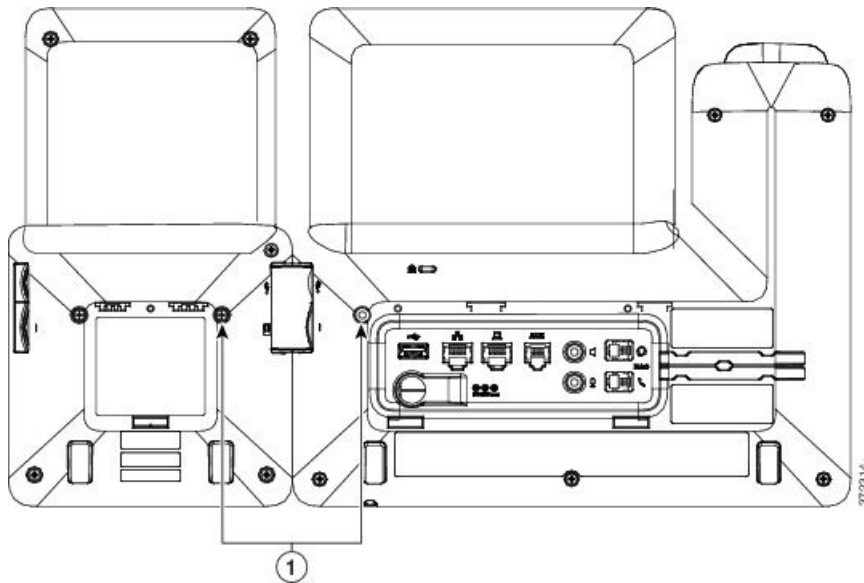


- Step 7** Connect the other end of the spine connector to the key expansion module as shown in this diagram.
- Align the spine connector with the key expansion module accessory connector ports.
  - Firmly press the key expansion module into the spine connector.





- Step 8** (Optional) Use a second key expansion module spine connector to connect the second key expansion module to the first key expansion module.
- Step 9** (Optional) Use a third key expansion module spine connector to connect the third key expansion module to the second key expansion module.
- Step 10** Use a screwdriver to fasten the screws into the phone.  
This step ensures that the phone and key expansion module remain connected at all times. This diagram shows the location of the screw holes on the phone and one key expansion module.



**Note** Make sure that the screws are fully inserted into the phone and tightened.

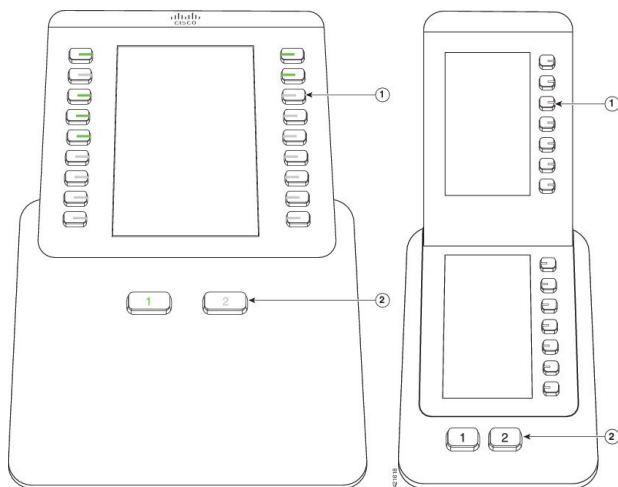
**Step 11** (Optional) Install the footstands on the phone and on the key expansion module, and adjust both footstands to rest evenly on the work surface.

**Step 12** Plug the Ethernet cable into the phone.











## Key Expansion Module Buttons

The following figure and table describes the function and appearance of the buttons on the key expansion module.

**Figure 5: Key Expansion Module Buttons**



**Table 2: Placement and Function of Key Expansion Module Buttons**

	<p>LCD screen—Displays the phone number, speed-dial number (or name or other text label), phone service, phone feature, or privacy assigned to each button.</p> <p>Icons that indicate line status resemble (in both appearance and function) the icons on the phone to which the key expansion module is attached.</p>
1	<p>Lighted buttons—Line buttons. Each button or pair of buttons corresponds to one line. The lights beneath each button indicate the state of the corresponding line as follows:</p> <ul style="list-style-type: none"> <li>•  Light off—Line available or a call is ringing on an inactive page.</li> <li>•  Green steady—Line in use by you, or you have a call on hold.</li> <li>•  Green, flashing—Enhanced line mode only. You have a call on hold.</li> <li>•  Red steady—Line in use by someone else or someone else has a call on hold on a shared line.</li> <li>•  Red, flashing—Enhanced line mode only. Someone else has a call on hold on a shared line.</li> <li>•  Amber steady—Line ringing.</li> <li>•  Amber, flashing—Enhanced line mode only. Line ringing.</li> </ul>
2	<p>Page buttons—2 buttons. The button for page 1 is labeled as <b>1</b> and the button for page 2 is labeled as <b>2</b>. The lights in each button indicate the state of the page as follows:</p> <ul style="list-style-type: none"> <li>•  Green steady—Page is in view.</li> <li>•  Light off—Page is not in view.</li> <li>•  Amber steady—Page is not in view with one or more alerting calls on the page.</li> </ul>

## Access Key Expansion Module Setup

After you install one or more key expansion modules on the phone and configure them in Cisco Unified Communications Manager Administration, the phone automatically recognizes the key expansion modules. When multiple key expansion modules are attached, they are numbered according to the order in which they connect to the phone:

- Key expansion module 1 is the expansion module closest to the phone.
- Key expansion module 2 is the expansion module in the middle.

- Key expansion module 3 is the expansion module farthest to the right.

You can select a key expansion module, and then choose one of the following softkeys:

- Exit: Returns to the Applications menu.
- Details: Provides details about the selected key expansion module.
- Setup: Allows you to configure the brightness of the selected key expansion module. Setting the brightness can also be done using the Preferences menu on the phone.

### Procedure

---

- Step 1** On the phone, press **Applications** .
- Step 2** Press **Accessories**.  
All properly installed and configured key expansion modules display in the list of accessories.
- 

## Place a Call on the Key Expansion Module

### Procedure


---

- Step 1** Press the line button on the key expansion module.
- Step 2** Dial a phone number.
- Step 3** Pick up your handset.
- 

## Adjust the Key Expansion Module Screen Brightness

### Procedure

---

- Step 1** Press **Applications** .
- Step 2** Select **Settings > Brightness > Brightness - Key expansion module x**, where x is the number of the key expansion module.
- Step 3** Press right on the Navigation pad to increase brightness. Press left on the Navigation pad to decrease brightness.
- Step 4** Press **Save**.
-

## Reset the Single LCD Screen Key Expansion Module

If you are having technical difficulties with your Cisco IP Phone 8800 Key Expansion Module, you can reset the module to the factory default settings.

### Procedure

---

- Step 1** Restart the expansion module by disconnecting the power source, waiting a few seconds, and then reconnecting it.
  - Step 2** As the expansion module powers up, press and hold **Page 1**. As the LCD screen turns white, continue pressing **Page 1** for at least one second.
  - Step 3** Release **Page 1**. The LEDs turn red.
  - Step 4** Immediately press **Page 2** and continue pressing **Page 2** for at least one second.
  - Step 5** Release **Page 2**. The LEDs turn amber.
  - Step 6** Press Lines **5, 14, 1, 18, 10,** and **9** in sequence.  
The LCD screen turns blue. A spinning icon is displayed in the center of the screen.  
The key expansion module resets.
- 

## Reset the Dual LCD Screen Key Expansion Module

If you are having technical difficulties with your dual LCD screen key expansion module, you can reset the module to the factory default settings. This task applies only to the Cisco IP Phone 8865 Key Expansion Module and the Cisco IP Phone 8851/8861 Key Expansion Module.

### Procedure

---

- Step 1** Restart the module by disconnecting it and then reconnecting it to the phone.
  - Step 2** As the module powers up, hold down both of the page keys until the LEDs on the first 7 line keys turn green.
- 

## Troubleshoot the Key Expansion Module

### Procedure

---

- Step 1** Open a CLI.
- Step 2** Enter the following command to enter debug mode:  
debugsh

- Step 3** Enter ? to see all available commands and options.
- Step 4** Use the applicable commands and options to find the desired information.
- Step 5** To exit debug mode, press **Ctrl-C**.

## Key Expansion Module Power Information

If you use a key expansion module with your phone, then Power over Ethernet (PoE) is often enough to power your expansion modules. But a power cube is required for a Cisco IP Phone 8851/8861 Key Expansion Module or a Cisco IP Phone 8865 Key Expansion Module supported by 802.3af PoE. A power cube is also needed for smartphone or tablet charging when your expansion module is attached.

### Cisco IP Phone 8800 Key Expansion Module Power Consumption

48V DC, 5W per key expansion module

### Cisco IP Phone 8851/8861 Key Expansion Module and Cisco IP Phone 8865 Key Expansion Module Power Consumption

48V DC, 3.5W per key expansion module

### Cisco IP Phone 8800 Key Expansion Module, Cisco IP Phone 8851/8861 Key Expansion Module, and Cisco IP Phone 8865 Key Expansion Module Power Scheme

The phone can power one key expansion module directly. For more information, see the Power-Supply Compatibility Table.

If you are charging a smartphone or a tablet, the side USB draws up to 500mA/2.5W.

**Table 3: Power-Supply Compatibility Table**

Configuration	802.3af Power over Ethernet (PoE)	802.3at PoE	Cisco IP Phone Power Cube 4
8851 and 1 expansion module	Yes	Yes	Yes
8851 and 2 expansion modules	No	No See the third note.	Yes
8861 and 1 expansion module	No	Yes	Yes
8861 and 2 expansion modules	No	Yes See the first note.	Yes
8861 and 3 expansion modules	No	Yes See the first note.	Yes
8865 and 1 expansion module	No	Yes	Yes

Configuration	802.3af Power over Ethernet (PoE)	802.3at PoE	Cisco IP Phone Power Cube 4
8865 and 2 expansion modules	No	Yes See the second note.	Yes
8865 and 3 expansion modules	No	Yes See the second note.	Yes

**Note**

Be familiar with the following items:

- Cisco IP Phone 8861 using 802.3at PoE: The fast-charging feature on the back USB is not supported when more than one expansion module is used.
- Cisco IP Phone 8865: The fast-charging feature on the back USB requires Cisco Universal PoE (UPoE) when more than one expansion module is attached.
- Cisco IP Phone 8851 with 2 expansion modules: 802.3at PoE is supported only with v08 or later hardware. You can find the phone version information on the lower back of the phone as part of the TAN and PID label. Version information is also located on the individual phone packaging.

