



Cisco Smart+Connected 7" In-wall Display Reference Guide

This document provides additional information about the features of the Cisco Smart+Connected 7" In-wall Display (SCH-7IN-TS-B/W).

Refer to the following topics for more information:

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Overview

The Cisco Smart+Connected 7" In-wall Display is a stylish way to offer total control where the resident needs it most, such as next to the front door, in the kitchen, or in the living room. Since the Cisco In-wall Display supports both Ethernet and Wi-Fi connectivity, it can be securely mounted in any area of the residence to provide consistent and reliable network access. The Cisco In-wall Display also supports Power over Ethernet (PoE), allowing the device to receive power directly from the Ethernet cable, eliminating the need for a separate power connection. Residents can also use the built-in camera to view video from a Cisco Video Door Station or from the lobby (note that the Cisco Video Door Station is a separate product that must be purchased separately.) Features include:

- Integrated camera with full-motion video for high-quality audio and video communications with the Cisco Smart+Connected Video Door Station and Cisco Portable Tablet.
- Audio and video intercom integration with other Cisco In-wall Displays and Cisco Portable Tablets installed in the residence.
- Sleek look and feel with edge-to-edge capacitive glass and low-profile.
- Four customizable buttons allow one touch to set a scene (for example, a sleep scene could turn off the lights, reduce the temperature, and lock the doors).
- G.722 wideband audio intercom featuring beamforming microphones for crystal-clear communications.
- Flexible power (AC or Power over Ethernet) and network connectivity (Ethernet or Wi-Fi) options.

Figure 1 *Cisco In-wall Display*



The available network and power options are:

- **Option 1: Ethernet with PoE**—The Ethernet network connection is provided through the PoE Injector. No additional wiring is needed.
- **Option 2: Ethernet with AC**—Connect the touchscreen to one of the RJ-45 LAN ports on the gateway/router using the RJ-45 Ethernet cable.
- **Option 3: Wi-Fi with AC**—The internal Wi-Fi will communicate with the LAN's WAP. If the LAN has a WAP set up, no additional wiring is needed.

**Note**

Video intercom using 802.11b is not recommended or supported for video intercom. We recommend Wireless-N for video intercom. See “Wireless Network Limitations” and “Power and Network Installation Options.”

Package Contents

Carefully unpack the Cisco In-wall Display and ensure the following items are included in the box.

**Caution**

Do not apply excessive pressure to the touchscreen display during handling. Doing so can crack the screen and damage the touchscreen.

- Cisco In-wall Display with camera
- Power box (used to power the touchscreen)
- Two (2) screws to attach the power box
- Warranty card

Requirements

To install the Cisco In-wall Display, the following is required:

- A Cisco Controller fully installed and configured.
- A custom Back Box installed. See the [“Back Box Options” section on page 4](#).
- If using Ethernet with PoE power:
 - Ethernet network installed and available that includes a gateway/router/switch.
 - A third-party PoE Injector or switch (certified to UL/ANSI standards).
 - Two (2) Ethernet CAT5 cables: (1) one that runs from the Ethernet gateway/router/switch to the PoE Injector/switch and (2) one that runs from the PoE Injector/switch to the Ethernet connection in the touchscreen’s Back Box.
- If using Ethernet with AC power:
 - Ethernet network installed and available that includes a gateway/router/switch.
 - Access to in-wall AC power (a neutral connection is required).
 - One (1) Ethernet CAT5 cable that runs from the Ethernet gateway/router/switch to the touchscreen.
 - A 14-gauge electrical wire long enough to pull between the touchscreen and the power source.
- If using wireless with AC power:
 - Wireless network (Wi-Fi 802.11 b/g/n) installed and available with a wireless access point (WAP).
 - Access to in-wall AC power (a neutral connection is required).
 - A 14-gauge electrical wire long enough to pull between the touchscreen and the power source.

Back Box Options

The Cisco In-wall Display Back Box is required for installation of a Cisco In-wall Display. It comes in plastic and metal, as a new installation or retrofit installation. The type of Back Box required is dependent on the specific project requirements. It must be purchased separately.

Table 1 **Back Box Part Numbers: Cisco In-wall Display**

Product	Part Number
Cisco Smart+Connected In-Wall Back Box, New Construction	SCH-NEWBB-PLS (for plastic) SCH-NEWBB-MET (for metal)
Cisco Smart+Connected In-Wall Back Box, Retrofit	SCH-RTRBB-PLS (for plastic) SCH-RTRBB-MET (for metal)

Figure 2 **New Installation Back Box Options**

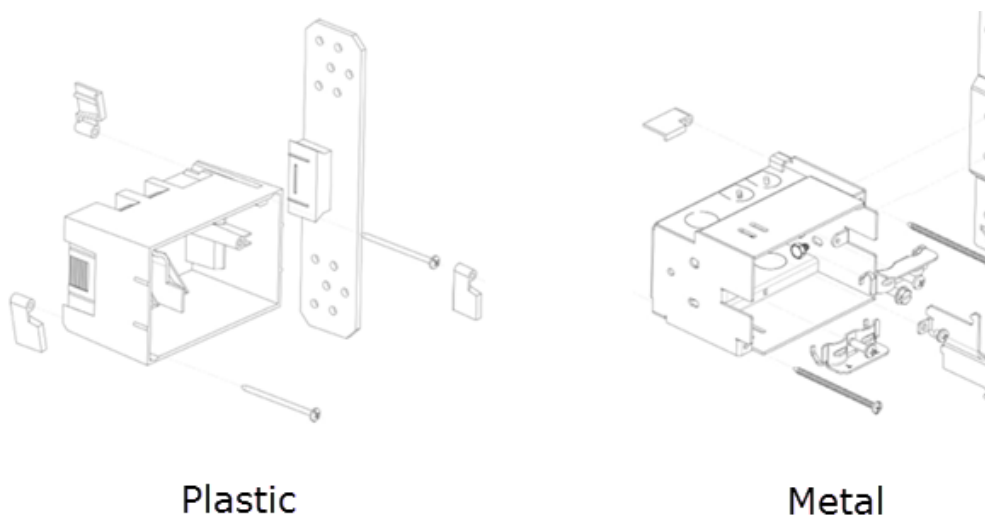
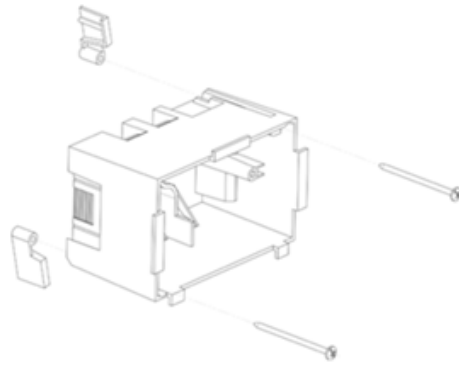
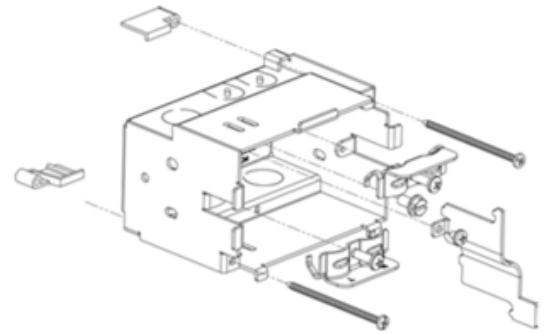


Figure 3 **Retrofit Back Box Options**



Plastic

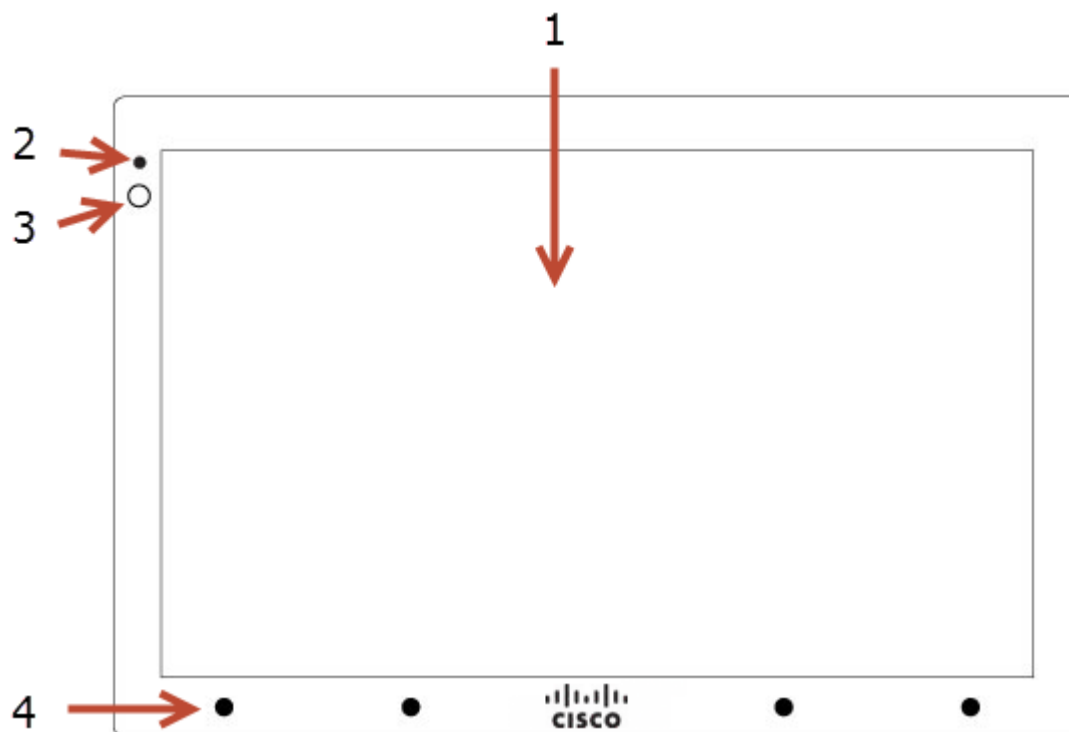


Metal

Device Illustrations and Descriptions

Front View

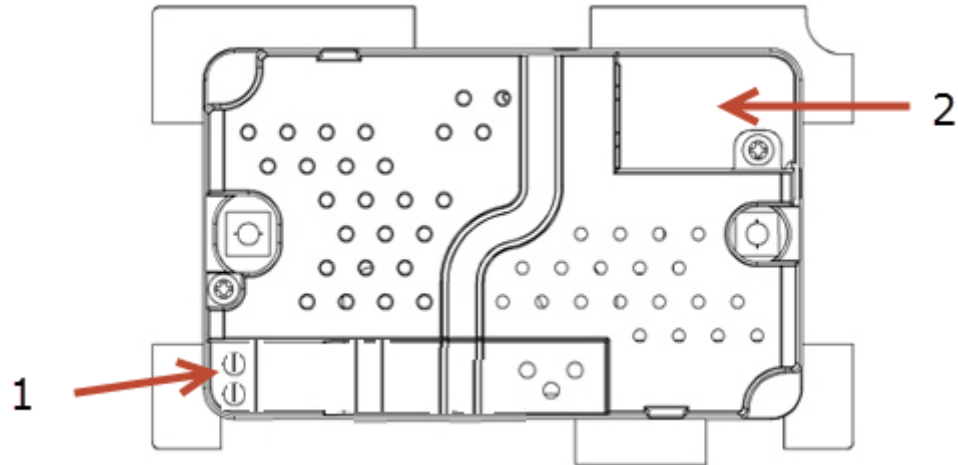
Figure 4 **Front View**



1	Display. 7 inch viewing area, touchscreen with 800 x 480 resolution.
2	Green LED. Lets you know the camera is on.
3	Camera. For video intercom calls.
4	Shortcut buttons (4). For custom programming; to initiate an action or sequence of actions. Use Composer Pro to configure these buttons.

Back View

Figure 5 *Back View with Camera and Power Box*



1	Wire Connection. Hot (H) uses Black wire; Return (R) uses White wire.
2	RJ-45 port for Ethernet Connection. Ethernet port available for either a standard Ethernet source that provides network communication only OR a PoE source that provides power to the device and network communication.

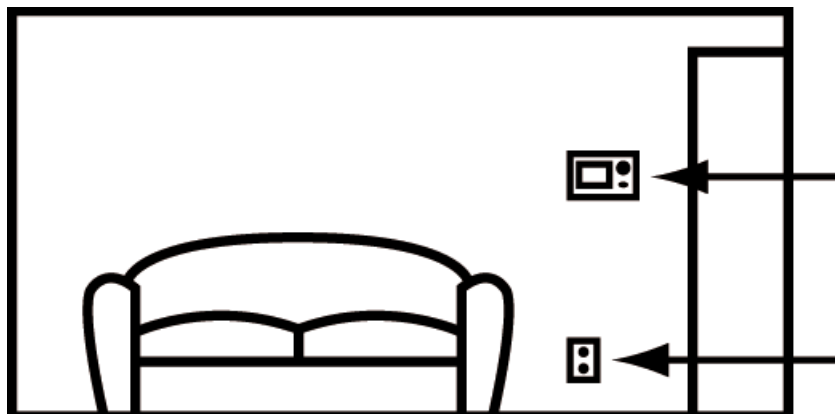
Touchscreen Placement

Place the touchscreen in a convenient location at eye level, typically near the entrance of the room, approximately 57 to 61 inches (145 cm to 155 cm) from the floor (see [Figure 6](#)).



Note

Consider the camera on the panel and the height of the people in the residence who will use the camera for video intercom.

Figure 6 Touchscreen Placement

1	New Device
2	AC Power (unless using PoE)

LED Indicator

The LED on the touchscreen indicates the camera status of the camera and booting information as described in the next table.

Table 2 LED Indicators

LED Color	Touchscreen Status
Off	Camera is Off
Green	Camera is On
Green (blinks slow)	Booting
Green (blinks rapidly)	Restoring (during a factory restore)

Installation

**Warning**

WARNING! Before installing the touchscreen, switch off the circuit breaker or remove the fuse from the fuse box.

AVERTISSEMENT! Pour l'endroit où vous installez l'écran tactile, coupez le disjoncteur ou enlevez le fusible de la boîte de fusible.

**Note**

IMPORTANT! Before you can complete the instructions below, you must have a Back Box installed according to the documentation provided in the Back Box kit. See the [“Back Box Options” section on page 4](#) for details.

IMPORTANT! En coupant l'ouverture pour la boîte de mur, ne coupez pas l'ouverture trop grande. Soyez conservateur et agrandissez-avec précaution la comme nécessaire.

**Note**

IMPORTANT! When cutting the opening for the Back Box, DO NOT cut the opening too large. Be conservative and cautiously enlarge it as needed.

IMPORTANT! En coupant l'ouverture pour la boîte de mur, ne coupez pas l'ouverture trop grande. Soyez conservateur et agrandissez-avec précaution la comme nécessaire.

Power and Network Installation Options

This device uses an Ethernet or Wi-Fi network connection, and can be powered using PoE or AC power. Choose one of the following options to install the power and network communication.

**Caution**

Do not attempt to use PoE and AC power at the same time. Choose only one power option.

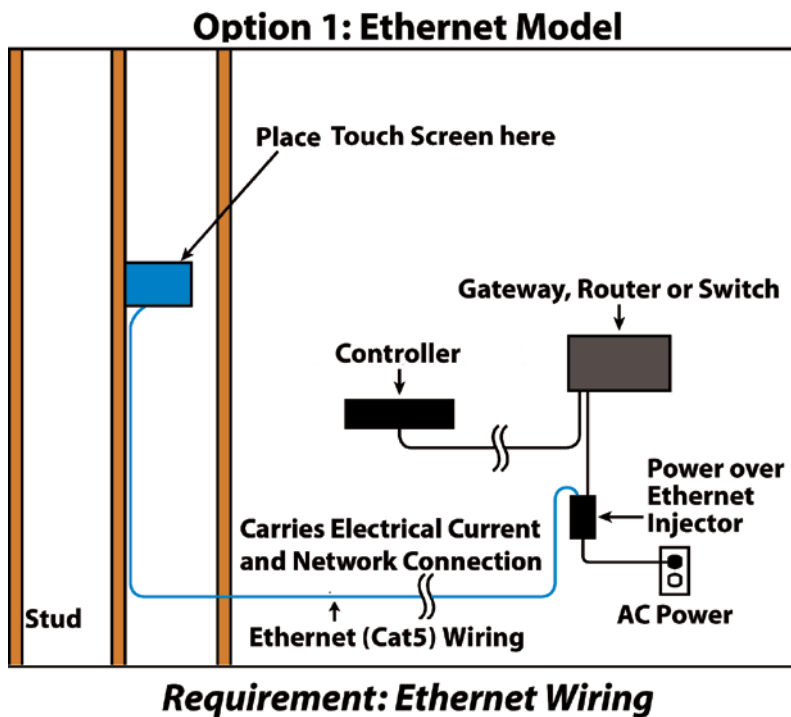
ATTENTION! Ne pas tenter d'utiliser PoE et AC en même temps. Choisir une seule option d'alimentation.

Option 1: Ethernet Connection with a PoE Injector or a Third-Party Injector or Switch

PoE supplies DC power on the Ethernet cable using a a third-party PoE solution to provide the touchscreen with power and a network connection. To set up your PoE and Ethernet connection with a PoE Injector, see [Figure 7](#).

- Step 1** Attach the PoE Injector according to the instructions in your PoE's installation guide if provided.
- Step 2** Pull the Ethernet cable from that location to where you want to install the touchscreen.

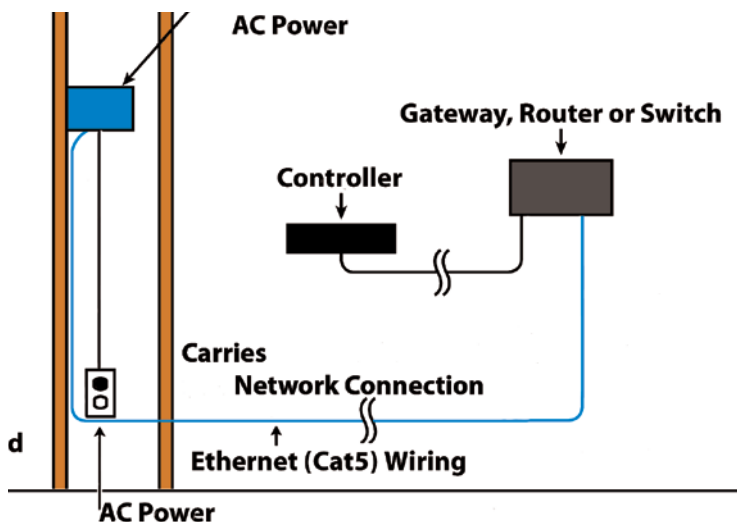
Figure 7 Ethernet with PoE - Requires Ethernet Connection to PoE Injector



Option 2: Ethernet Connection with AC

The Ethernet is connected directly to the switch (see [Figure 8](#)). This power connection requires both neutral and hot connections.

Figure 8 Ethernet - Requires a Connection to Ethernet and AC Power



Option 3: Wi-Fi Connection with AC

Place the touchscreen above a power source, for example, an outlet. Ensure that you have Wi-Fi in the residence (see [Figure 9](#)).



Note

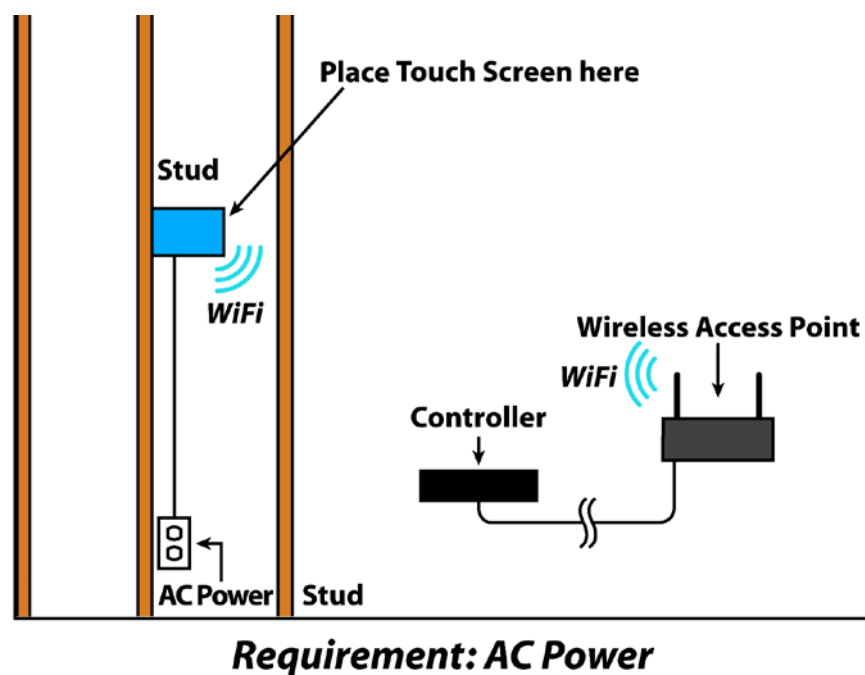
- Video intercom. Although this device supports b/g/n, 802.11 b is not supported for video intercom use.
- Wireless-N is recommended for video intercom.

Wireless Network Limitations

Many Wi-Fi Access Points handle Multicasts (Wi-Fi simultaneously sent to multiple devices, for example, when the touchscreen broadcasts video to all stations) by slowing down transmission speed to the 1 Mb basic rate. This can cause overall Wi-Fi congestion in the Wi-Fi network during the broadcast. Video intercom response times and images may degrade at each device.

If a residence requires a large number of Wi-Fi devices, ensure that you have a robust Wi-Fi network (possibly consisting of multiple access points).

Figure 9 *Wi-Fi - Requires AC Power and WAP*



Power Installation

Prepare the plastic power box for installation into the Back Box by inserting either the Ethernet cable or the AC power cable into the power box (see [Figure 10](#) and [Figure 11](#)), and then follow the instructions next.

AC Power Connection

The steps below represent a typical U.S. installation.

- Step 1

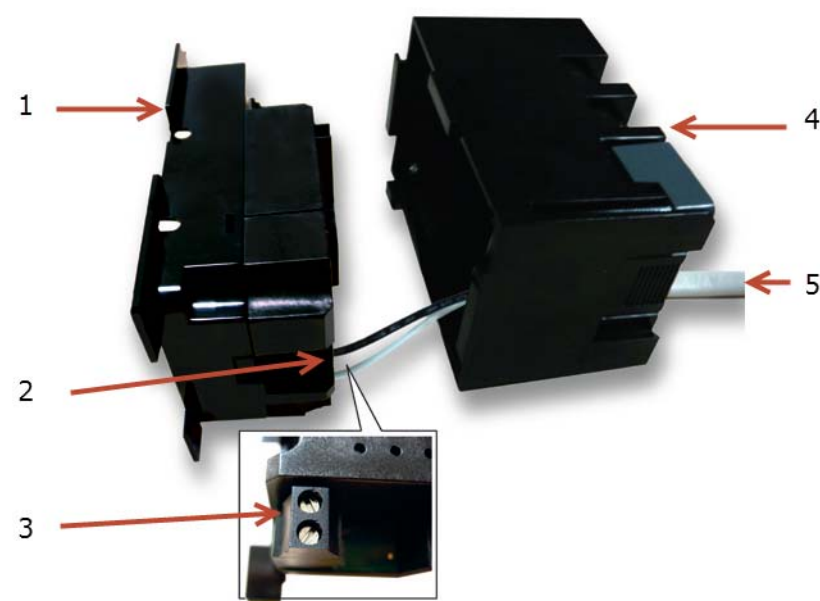
Connect the wires to the AC power source for the touchscreen according to the national and local electrical codes. Installation may require alternative wires and the use of a terminal block.
- Step 2

Thread the power cable through the bottom back hole of the Back Box to the terminal block (see [Figure 10](#)).
- Step 3

Strip the black and white power wire ends to 1/4" as necessary. Using a flathead screwdriver, loosen the screws on the power box's terminal block and connect the power wires to each terminal (see [Figure 10](#)).
- Step 4

Cap the ground wire from the wall if you are using a plastic Back Box. Attach the ground wire to the Back Box if using a metal Back Box.

Figure 10 AC Power Connection



1	Power Box
2	Terminal Block
3	Connect Wires to Terminal Block
4	Back Box
5	Power Cable

Step 5 Align and bend the wires carefully to fit them inside the Back Box.

Step 6 Align and carefully slide the power box into the Back Box.

Step 7 Secure the power box into the Back Box using the screws provided.

**Note**

NOTE: Overtightening the power box screws could result in a poor connection between the touchscreen and the power box and could also cause the touchscreen to warp.

Step 8 Align and slide the back of the touchscreen into the power box. The touchscreen is magnetic and should snap into place easily.

Step 9 (Optional) To secure the touchscreen inside the power box, remove the tape covering the bottom security pin (see [Figure 12](#)) before attaching the touchscreen to the power box.

Power Over Ethernet (PoE) Connection

Connect the PoE Injector to power and the network, and then connect it to the power box.

The steps below describe how to install a PoE Injector.

Step 1 Connect the PoE Injector to an AC outlet using the power cord.

Step 2 Connect one of the RJ-45 LAN ports on the gateway/router/switch to the PoE Injector's LAN port using the RJ-45 Ethernet cable.

Step 3 Connect the PoE Injector's PWR LAN-OUT port to the RJ-45 Ethernet cable that will be connected to the touchscreen.

Step 4 Pull the Ethernet cable through the top back hole of the Back Box to the Ethernet connector on the top back of the power box, and then connect it (see [Figure 11](#)).

Step 5 Align and carefully slide the power box into the Back Box until the touchscreen is attached to the power box.

Figure 11 Ethernet Connection

1	Ethernet Connection
2	Power Box
3	Back Box

Step 6 Secure the power box into the Back Box using the screws provided.

**Note**

Overtightening the power box screws could result in a poor connection between the touchscreen and the power box and could also cause the touchscreen to warp.

Step 7 Align and slide the back of the touchscreen into the power box. The touchscreen is magnetic and should snap into place easily.

Step 8 (Optional) To secure the touchscreen inside the power box, remove the tape covering the bottom security pin before attaching the touchscreen to the power box.

Configuration

If the touchscreen will connect to the wireless network, you must configure the Wi-Fi settings on the device. Use Composer Pro to add the touchscreen driver to your project and configure the device features.

Refer to the following for more information:

- [Configure for Wireless, page 15](#)
- [Configure in Composer Pro, page 16](#)

Configure for Wireless

(Wi-Fi only) Complete the following procedure to connect to a WAP using the touchscreen.

Procedure

-
- | | |
|----------------|--|
| Step 1 | After initialization, press and hold the large White 4 in the center of the touchscreen to enter the configuration screen. |
| Step 2 | Press the Network button on the touchscreen's configuration page. The network configuration screen displays. |
| Step 3 | Under Wireless, select Enable . If you don't see the network you want, select Other . |
| Step 4 | At Network Name, select to add the SSID or wireless network when the keyboard appears. Select Done . |
| Step 5 | At Security, select None , WEP 64 , WEP 128 , WPA , or WPA2 . |
| Step 6 | At Password, type the password on the keyboard that appears. Press Done . |
| Step 7 | Select Connect . Notice that the IP settings change. The IP address is set to DHCP by default. |
| Step 8 | (Optional) If you need to set a static IP address instead, complete the following steps: <ul style="list-style-type: none"> a. On the Network page, press Static. b. Select each box one at a time and type the address: IP Address, Subnet Mask, Default Gateway, Preferred DNS, and Alternate DNS. c. When the keyboard appears, type the address, and then press Done. |
| Step 9 | Press OK to return to the Network page. You can now connect to a Director (Cisco Controller) on the network. |
| Step 10 | Press OK . |
-

Configure in Composer Pro

When the touchscreen is physically installed and appears on the residential network, you can add and configure it for the System using Composer Pro. Choose the **In-Wall 7” Touch Screen V2** driver in Composer Pro and add it to your project.

See the [Cisco Smart+Connected Residential Installation and Configuration Guide](#) for more information.

Troubleshooting

Boot Up

When the device is booting up, it may take 30 seconds or longer before the Green LED turns on. When it turns on, it blinks slowly for a time and then turns off. After that, you will see an image on the touchscreen.

Restore to Factory Default

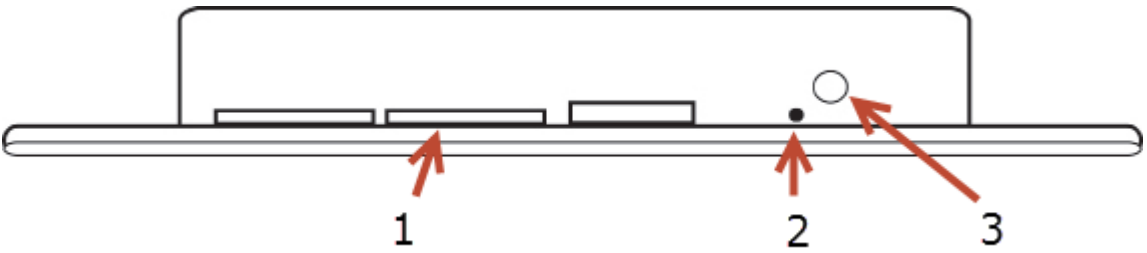
If the camera’s LED blinks on and off for more than 30 seconds, the device will need to be restored. To access the Factory Restore switch, you’ll first need to remove the touchscreen.


Note

If there’s tape on the bottom of the power box, simply lift the touchscreen off. Remove the tape to lock the touchscreen in place. If there’s no tape, the touchscreen is locked into place. In this case, follow the instructions below.

Step 1 Locate the small hole underneath the touchscreen’s faceplate (see [Figure 12](#) through [Figure 15](#)).

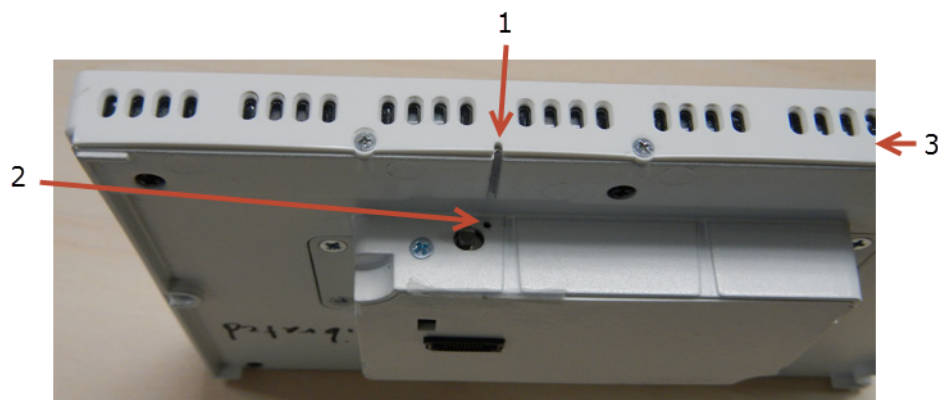
Figure 12 Touchscreen Underside - Pin and Pinhole



1	Speaker
2	Insert paper clip here to remove touchscreen
3	Security pin

- Step 2** Using a small unbent paper clip, insert the paper clip straight up and into the small hole (about 1/4") or as far as you can. There's another small hole inside the touchscreen which the paper clip needs to insert into also (see [Figure 13](#) through [Figure 15](#)). You may need to wiggle the paper clip a bit to get it into the second small hole.

Figure 13 *Locate the Touchscreen Hole*

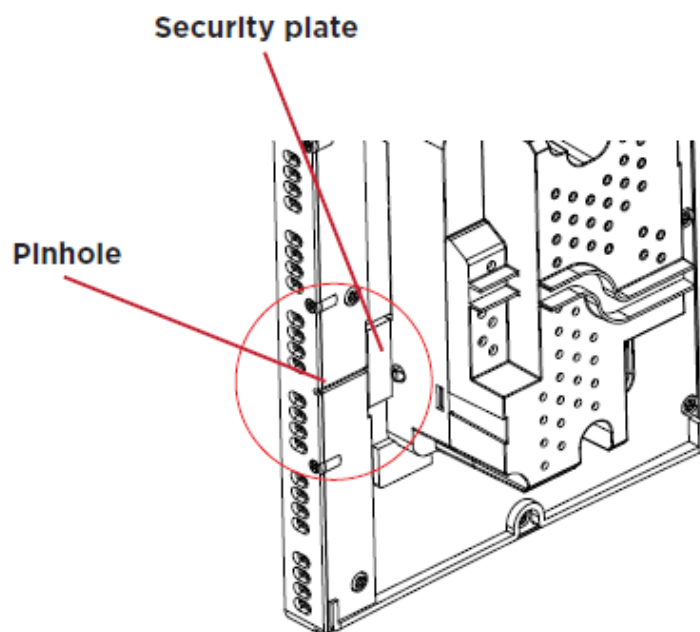


1	Insert the paper clip through this slot
2	Continue to insert the paper clip through the small hole
3	Bottom of the touchscreen

Figure 14 *Insert the Paper Clip Though the Small Hole*



Figure 15 *Paper Clip Needs to Engage Release Plate*



- Step 3** With both hands, tilt the bottom of the touchscreen out and gently remove the touchscreen.
- Step 4** On the back of the touchscreen locate the small switch (see [Figure 16](#)).

Figure 16 *Factory Restore Switch*



- Step 5** Using the tip of a straight pin or paper clip, change the position of the switch, for example, if the switch is in the down position, push it to the up position. The touchscreen will then sense the change on the next power up, and will initiate the restore process.
- Step 6** When you are finished with the restore, reattach the touchscreen into the power box in the wall— top first—and then snap the bottom of the touchscreen back into place.
- Step 7** The touchscreen will reboot and the factory default firmware image will be installed. All settings will reset to the factory default settings. See the [“LED Indicator” section on page 8](#) for information about how the LED behaves during a factory restore.
- Step 8** After a restore, the touchscreen will need to be updated to the same image version of the project (e.g., OS 2.2.2 or later).

Specifications

Table 3 *Cisco In-wall Display Specifications*

Basic Specifications	Description
Display	
Integrated camera	640 x 480 VGA, 30 fps Min. lumination: 5 Lux Viewing angle: 60 degrees
Display dimensions	7-inch TFT LCD
Pixel resolution	800 x 480
Touchscreen	Capacitive touch
Programmable buttons	4
Intercom	
Microphone	Dual microphones Voice pick up from 10 feet away, Beamforming
Speaker	Internal
Video and audio	Full-duplex video (H.264) and audio (G.722)
Communications	
Wi-Fi	Wireless-N (2.4-GHz 802.11n/g/b) RF frequency: 2.4 GHz Antenna: Internal Encryption: 64/128 Wired Equivalent Privacy (WEP), Temporal Key Integrity Protocol (TKIP)/Advanced Encryption Standard (AES) Authentication: Wi-Fi Protected Setup (WPS), WEP, Wi-Fi Protected Access (WPA), WPA2
Ethernet	10/100 Base-T Ethernet RJ-45
Power	
Power supply	PoE (IEEE 802.3af) AC 100V to 240V, 50 to 60 Hz
Power over Ethernet	Yes
Other	
Audio	G.722 Wideband Audio
Environmental	

Table 3 Cisco In-wall Display Specifications (continued)

Operating temperature	32°F to 104°F (0°C to 40°C) Relative humidity: 95%
Storage temperature	–4°F to 149°F (–20°C to 65°C)
Buttons and Outputs	
Reset	Reset: Run a magnet from left to right along bottom of panel Restore Factory Defaults: Remove panel from wall, toggle the two-position switch behind the panel, remount panel on the wall. This will reset the display to default settings and may require the device to be updated in the project.
Dimensions	
W x H x D	4 7/8" x 1 1/8" x 7 1/4" (124mm x 29mm x 184mm)
Mounting	In-wall

Regulatory/Safety Information

To review regulatory information, go to www.cisco.com/go/smartconnectedresidential/docs.

Related Documentation

For more information about the Cisco Smart+Connected Residential products, see the following documents and websites:

Subject / Document Title	Location
General	
Product Information and Home Page	www.cisco.com/go/smartconnectedresidential
Cisco 1-Year Limited Hardware Warranty Terms	www.cisco.com/go/smartconnectedresidential/warranty
Regulatory Compliance and Safety Information for Cisco Smart+Connected Residential Products	www.cisco.com/go/smartconnectedresidential/docs
Cisco Support	www.cisco.com/cisco/web/support/
Technical Documentaion	

Installation and Configuration Cisco Smart+Connected Residential Installation and Configuration Guide Cisco RMS Installation and Administration Cisco Smart+Connected Remote Management Console Administration Guide Cisco Smart+Connected Remote Management Server Installation Guide Reference Guides Cisco Smart+Connected Controller 200 Reference Guide Cisco Smart+Connected Controller 250 Reference Guide Cisco Smart+Connected Controller 800 Reference Guide Cisco Smart+Connected 7" In-wall Display Reference Guide Cisco Smart+Connected Portable Tablet Reference Guide Cisco Smart+Connected I/O Extender Reference Guide Cisco Smart+Connected Universal Remote 150 Reference Guide Cisco Smart+Connected Universal Remote 250 Reference Guide Cisco Smart+Connected Video Door Station Reference Guide	www.cisco.com/go/smartconnectedresidential/docs
Cisco Smart+Connected Residential Licensing Guide	See your Cisco representative or partner for more information.
Smart Device Compatibility and other information: Cisco Smart+Connected Smart Device License for Real Estate Developers	www.cisco.com/go/smartconnectedresidential
Composer Pro User Guide	http://www.control4.com/documentation/Composer_Pro_User_Guide/index.htm

Warranty

A Cisco 1-year warranty applies. Go to the following URL for more information:

www.cisco.com/go/smartconnectedresidentialwarranty

Service and Support

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