

# ETC Installation Guide

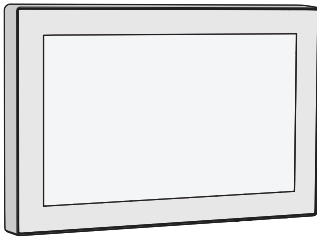
## EchoTouch Controller

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### Overview

EchoTouch is an all-in-one flush or surface mounted graphic touchscreen controller that provides control of up to 16 Echo Zones and connectivity with other Echo control and output products.

EchoTouch also provides local control of a full universe of DMX outputs, and sACN or Art-Net outputs. EchoTouch is compatible with all RDM enabled devices.



EchoTouch features:

- 64 Presets shared across the Echo control system
- 40 Zones of control (with the first 16 shared across the Echo control system)
- 4 internal Sequences (DMX, sACN and Art-Net only)

### Prepare for Installation

EchoTouch ships with the touchscreen, a mounting collar, and an installation termination kit. It is designed for installation into a US standard three-gang deep flush mount back box (sold separately) or a surface mount back box (ETC part number 7186A1116-4).

The EchoTouch controller includes the following installation parts and supplies:

- (1) 5-position screw terminal connector - J3228-F
- (1) 3-position screw terminal connector - J30193-F
- (1) 3-position Cat5 insulation displacement connector - J30187-F
- (3) cable ties for DMX out cable preparation
- Heat shrink - various sizes and lengths for DMX out cable preparation
- Receptacle spacers
- Mounting screws – (4) 6-32x3/4" and (4) 6-32x1 3/4"
- ESD Ground pigtail (2-wires with spade terminal)
- (1) 3-position WAGO 221 Series LEVER-NUTS®



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### Specifications

#### Ambient Environment

For indoor use only.

- 32°F to 104°F (0°C to 40°C) operating temperatures in 0–95% non-condensing humidity.

#### Compliance

- UL and cUL listed
- Conforms to EN 62368-1 (Part 1 Safety Requirements)
- CE listed
- FCC compliant

#### Electrical and Auxiliary Wiring Specification

- EchoTouch is powered by either Auxiliary power or by Power over Ethernet (PoE 802.3af).



**Note:** *This product is intended for use with a Listed power source (LPS) marked "Class 2", or LPS rated 24 VDC, minimum 0.59 A, or 48 VDC (PoE), minimum 0.234 A.*

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- **Auxiliary Power** - 24 VDC auxiliary power requires two 16 AWG (1.5 mm<sup>2</sup>) wires and terminates to the provided removable pluggable connector. The unit draws 400 mA (typical) during normal operation, with a maximum of 750 mA draw.
  - **Power over Ethernet** - PoE requires Category 5 cable or approved equal with an RJ45 (Category 5 compliant) connector. EchoTouch includes an RJ45 receptacle on the back panel for connection of PoE. As required, separately order an Ethernet Cat5 Termination Kit from ETC (order part number 4101A2003) which includes building wire termination supplies, instructions, and an Ethernet patch cable.
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**Note:** *PoE and all interconnected information technology equipment (ITE) are intended for intra-building connection.*

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**Note:** *When both 24 VDC auxiliary power and PoE are connected to EchoTouch, auxiliary power will be the preferred input.*

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- EchoTouch requires an ESD Ground wire regardless of installation of grounded metal conduit.
- **ESD Ground** - requires one 14 AWG (2.5 mm<sup>2</sup>) building wire and utilizes the provided ESD ground wire pigtail and 3-position WAGO 221 Series LEVER-NUTS<sup>®</sup> provided in the installation termination kit.

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### Control Wiring Specification

EchoTouch can be used with the Echo control system using EchoConnect, and provides 512 channels of DMX out, and 512 channels of sACN out to a networked system.

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**Note:** Know the intent of use for this controller in your installation. All terminations may not be required.

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Control Type - Preferred Wire	Notes
<b>EchoConnect</b> using Belden 8471 (or equivalent)	EchoConnect is a bidirectional protocol that uses one pair of wires (data+ and data-). The total combined length of an EchoConnect wire run (using recommended Belden 8471) may not exceed 1,640 feet (500 m).  When using Category5 (or equivalent) cable on the EchoConnect communication bus, please note that not all topologies are supported. Careful planning is required to ensure the proper termination and the wire is pulled appropriately. Refer to the installation guide that is provided with the Cat5 Station Termination Kit (7186A1207) for information to terminate Cat5 wiring.
<b>DMX out</b> using Belden 9729 (or equivalent)	DMX is installed in a daisy chain topology and includes one pair of wires (data+ and data-, plus common). The maximum recommended length of the wire run is 1,600' (487 m). Cable preparation is required before termination.
<b>DMX out</b> using Category 5 (or higher)	DMX can optionally use Category 5 cable following the ANSI standard E1.27-2 (data+ and data-, plus common), terminated to T-568B scheme.
<b>sACN out</b> using Ethernet network	sACN control is over a network using an Ethernet connection to a gateway or network switch. As required, order an Ethernet Cat5 Termination Kit (ETC part number 4101A2003) which includes building wire termination supplies, instructions, and an Ethernet patch cable.

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**Note:** Wiring should only be installed and terminated by a qualified technician and should follow standard wiring installation practices. Leave approximately 8" (20 cm) of wiring in the back box for connection and to allow slack for future service needs.

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### Configuration

This document guides you through the installation of the EchoTouch controller. For more detailed information about graphic configuration options available, reference the integrated help system.

### Installation



**Note:** The installation must follow local codes and standard practices.

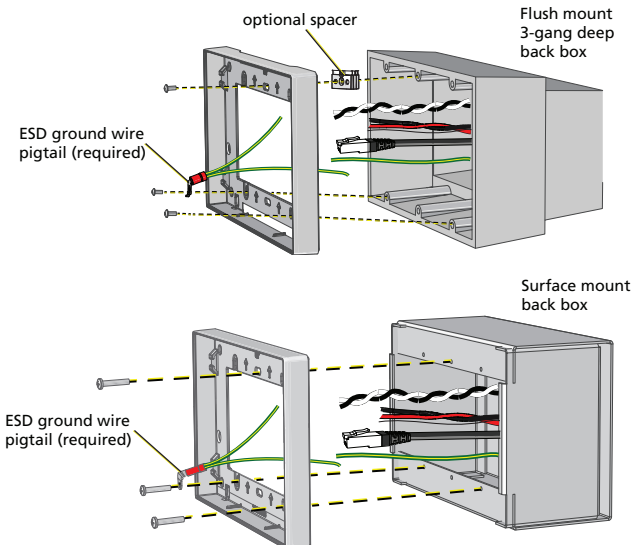


**Note:** EchoTouch must be mounted to a vertical surface.

### Install the Mounting Collar

EchoTouch installs to a 3-gang deep back box, to the EchoTouch surface mount back box, or to an EchoTouch Rack-mount kit.

- Listed 3-gang deep back box (by others) - in accordance with NEC and local electrical codes.
- EchoTouch Surface-mount back box available from ETC (order part number 7186A1116-4). If using a surface-mount back box by others, it must be in accordance with NEC and local electrical codes.
- EchoTouch Rack-mount kit available from ETC (order part number 7186A1117). Reference the Rack-mount kit installation instructions before proceeding with the installation.



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1. Install the back box.
  - Flush-mount back box - when preparing the installation location, carefully cut the hole in the wall surface material and ensure there are no gaps around the box.
  - Surface mount back box - installation hardware is not provided. The installation location must support up to 5 lbs. (2.3 kg), which includes the EchoTouch, surface mount back box, and wiring. Align the surface mount back box to the installation location and secure in place using four 1/4" (6 mm) mounting bolts or screws (not provided).
2. Run all power and control wires to the installation location. Reference [Specifications on page 2](#) and [Control Wiring Specification on page 3](#) for details.



**Note:** *The installation must follow local codes and standard practices. Use conduit if required.*

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3. Install the mounting collar to the back box.
  - a. Align the mounting collar to the back box with the arrows directed up.
  - b. Use three mounting screws (provided) to loosely install the mounting collar to the back box. Install two screws on the bottom and one screw installed on the center top mounting slot (as pictured on the previous page) for optimal leveling adjustment.
  - c. Adjust the mounting collar in the slotted mounting holes for a flush and level installation, then tighten the mounting screws.



**Note:** *For flush-mount back box installations, receptacle spacers and two sizes of mounting screws are provided to accommodate a flush installation. To use spacers, fold the spacer to the thickness needed, trim and discard the unused sections, then insert the mounting screws through the spacers when attaching to the back box.*

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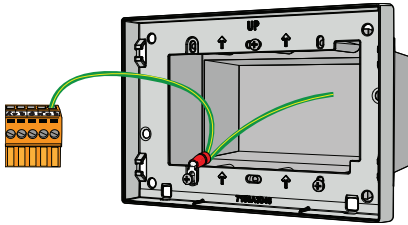
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### ESD Ground Termination

#### Install ESD Ground Wire Pigtail



1. Locate the ESD ground pigtail (2 green/yellow wires with spade terminal) in the termination kit. This pigtail will be installed on the bottom left side, between the mounting screw and the mounting collar on the touchscreen side (as shown above).
  - a. Loosen the bottom left screw on the mounting collar and insert the spade terminal.
  - b. Re-tighten the screw for a secure fit.
  - c. Gently bend the ESD ground wire spade terminal so the wires are directed toward the back box.
2. Locate the 5-position screw terminal connector in the termination kit.
3. Strip 1/4" (6 mm) of insulation from the end of one ESD ground wire and insert it into the terminal labeled "Echo  $\perp$ ", and secure.

#### ESD Without Grounded Metal Conduit

1. Pull an additional ESD ground wire (typically green/yellow) to the installed back box.
2. Strip 1/4" (6 mm) of insulation from the end of the incoming wire and the remaining ESD ground wire from the pigtail.
3. Locate the 3-position WAGO in the termination kit.
4. Insert the incoming wire one terminal and the remaining ESD ground wire pigtail into another terminal, closing the terminal levers onto each wire. Use the third terminal in the WAGO to continue the ground wire run as needed.

#### ESD With Grounded Metal Conduit

1. Strip 3/8" (1 cm) of insulation from the end of the remaining ESD ground wire from the pigtail.
2. Terminate ground wire pigtail to a ground screw inside the grounded back box.

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### EchoConnect Termination

This instruction assumes preparation of Belden 8471 (or equivalent) cable terminating to the 5-position screw terminal connector provided in the termination kit.

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**Note:** When using Category5 (or equivalent) cable on the EchoConnect communication bus, please note that not all topologies are supported. Careful planning is required to ensure the proper termination and the wire is pulled appropriately. Refer to the installation guide that is provided with the Cat5 Station Termination Kit (7186A1207) for information to terminate Cat5 wiring.

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1. Pull all required wiring (data+, data-) into the back box.
2. Strip 1/4" (6 mm) of insulation from the ends of each wire.
3. Terminate EchoConnect wires to the 5-position screw terminal connector provided. EchoConnect is topology free, you may install the wires in any combination of bus, star, loop, or home-run.
  - a. Insert the data - (typically black) wire into the terminal labeled "Echo -" and secure.
  - b. Insert the data + (typically white) wire into the terminal labeled "Echo +" and secure.



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### 24 VDC Auxiliary Power Termination

EchoTouch requires external power, provided by either a 24 VDC (Class 2) auxiliary power supply or Power over Ethernet (PoE IEEE 802.3af).

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**Note:** *Power over Ethernet (PoE IEEE 802.3af) connects to the RJ45 receptacle on the rear panel.*

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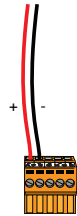


**Note:** *NEC Class 2 product are to be wired in accordance with NEC Article 725 and local jurisdiction requirements. All power and control wiring should be installed and terminated by a qualified installer and should follow standard wiring installation practices.*

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Terminate 24 VDC auxiliary power to the 5-position screw terminal connector provided in the termination kit.

1. Pull all required wiring (typically a 16 AWG black and red wire pair) into the back box.
2. Strip 1/4" (6 mm) of insulation from the end of each wire.
3. Terminate 24 VDC wires to the 5-position screw terminal connector provided.
  - a. Insert the negative voltage wire (black wire typical) into the terminal labeled "24V -" and secure.
  - b. Insert the positive voltage wire (red wire typical) into the terminal labeled "24V +" and secure.





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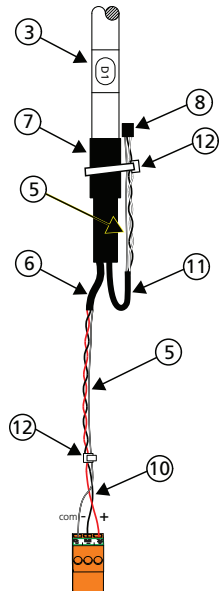
### DMX Cable Preparation and Termination



**Note:** Not for use with Cat5, Cat5e, or Cat6 cable. When running DMX with these cable types, use the provided 3-position IDC connector and reference [DMX Cat5 Cable Preparation and Termination on the next page](#).

This instruction assumes preparation of Belden 9729 (or equivalent) cable for termination to the 3-position screw terminal connector provided.

1. Cut cable so that an 8" (20 cm) tail extends from the edge of the installed back box.
2. Strip 7" (18 cm) off the outer jacket.
3. Label the cable with the data type and run designation. (DMX1, DMX2, etc.)
4. Strip the foil shielding from each wire set to within 1/4" (6 mm) of the outer jacket.
5. Untwist the shield wire from each pair and apply a piece of 1/16" (1.6 mm) clear heat shrink to each shield wire.
6. Twist each shield wire back onto its data pair, and then apply a 1.5" (4 cm) piece of 3/16" (0.5 cm) heat shrink all the way down each 3-wire set. Make sure to capture the foil shielding at the base.
7. Apply the 2" (5 cm) piece of the 3/8" (1 cm) heat shrink, centered on the end of the cable jacket and the bases of all the wires in the cable.
8. Cap the ends of the unused pair of wires with a 1" (2.5 cm) piece of 3/16" (0.5 cm) heat shrink centered over the end of the wires.
9. Strip 1/4" (6 mm) of insulation from all of the wires to be used.
10. Maintain the wire pair twist as close to the screw terminal connector as possible and terminate the wires.
  - a. Insert the common (shield) wire into the terminal labeled "DMX ↓" and secure.
  - b. Insert the data - wire (typically black) into the terminal labeled "DMX -" and secure.
  - c. Insert the data + wire (typically red or white) into the terminal labeled "DMX +" and secure.



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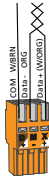
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11. Bend back the unused set of wires and secure them to the cable with a wire tie.
12. Secure the terminated wire sets together with a wire tie 2" (5 cm) from the connector.

### DMX Cat5 Cable Preparation and Termination

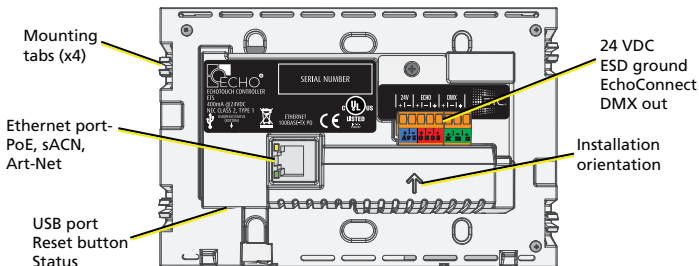
This instruction assumes use of Cat5 (or equivalent) cable for termination to the 3-position Cat5 insulation displacement connector provided in the termination kit.

1. Follow normal Cat5 wire installation procedures to remove 2" (50 mm) from the end of the cable jacket.
2. Separate the White/Brown, Orange, and White/Orange conductors from the cable. These conductors are required for DMX out.
3. Cut the remaining unused conductors from the cable flush to the cable jacket.
4. Label the cable with the data type and run designation (for example D1 for DMX run 1).
5. Twist the White/Orange and Orange conductors as close to the 3-position IDC as possible and insert the conductors through the labeled terminals as follows:
  - Common (White/Brown) to terminal 1
  - Data - (Orange) to terminal 2
  - Data + (White/Orange) to terminal 3
6. Fully depress each terminal, closing it onto the wire.
7. Use side-cutters to trim the excess wire from the connector.



### Install Touchscreen

1. Align but do not install the touchscreen to the mounting collar. Ensure the touchscreen is oriented with the label text and molded rear panel arrow directed up.



2. Install the prepared 5-position screw terminal connector (24 VDC, ESD Ground, and EchoConnect control wires) and the utilized 3-position connector (DMX) to the designated receptacle(s) on the rear panel of

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the unit. This instruction assumes you have prepared the cables and terminated them according to the provided instructions for your installation type.

3. If using Power over Ethernet to power the EchoTouch, install the Ethernet cable to the receptacle on the rear panel of the unit.
4. Press the touchscreen into the mounting collar until the screen is flush. You will hear an audible click when the mounting tabs have fully seated into position.
5. Apply power to the unit. After boot up, press the {?} button located at the top left of the display to access the EchoTouch online help system which provides information to setup and configure your touchscreen.

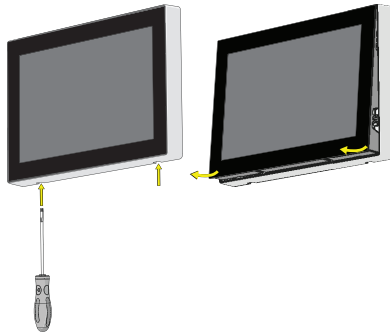
### Release EchoTouch from the Mounting Collar

Access to the back of the touchscreen is required for the following operations:

- to access the provided USB port for firmware update (see [Update Firmware on the next page](#))
- to download a configuration file (see online help system)
- to troubleshoot control wiring

This procedure requires a flat blade jewelers screwdriver (not provided).

1. Gently press the tip of a jewelers screwdriver up into the provided slot on either side of the mounting collar to release the touchscreen mounting clips. You will hear and feel an audible click when the clip is released, and the bottom of the EchoTouch touchscreen will be free of the collar.
2. Repeat for the opposite side of the touchscreen.



3. Carefully pull on each vertical edge of the touchscreen to remove it from the collar.



**Note:** Be careful not to pull on any of the installed cables.

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### Update Firmware

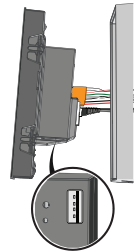
1. Copy the firmware update file on the root directory of a USB drive that has been formatted to FAT32. The file will be named similarly to ETC\_CS\_Console\_#.#.#.#.fw, where # will be replaced with the version numbers.



**Note:** Please make sure the software file is not inside any other folder or subdirectory, as this will hide it from the EchoTouch update function.

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2. The EchoTouch should remain powered, but carefully removed from the mounting collar to gain access to the rear panel. Reference [Release EchoTouch from the Mounting Collar on the previous page](#) for instructions.
3. Insert the USB drive into the EchoTouch USB receptacle located on the underside of the rear panel.
4. Access the front of the touchscreen and navigate to Setup >Files >Advanced >Update Firmware. A confirmation message will display. Select “Yes” to continue with the update



**CAUTION:** The update process may take a few minutes. Do not shutdown or remove power from the touchscreen until the update process has finished. When prompted, restart the touchscreen by pressing the Reset button located near the USB port.

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5. When the touchscreen has booted, navigate to the General tab in Settings to verify the updated software version number is displayed.
6. Disconnect the USB drive from the rear panel of the unit.
7. Check that all connectors and cables are fully seated then reinstall the touchscreen into the mounting collar.