TOUCHSTONE Control System Installation Guide

This guide provides the basic information required to install the components used in the TOUCHSTONE Control System. This guide is to be used with the Installation Sheet provided with each specific system configuration which lists the components required, and the interconnections to be made. After assembling a Control System, the operation of all the features per the specific Operating Instruction sheet should be thoroughly tested prior to shipping the whirlpool tub.

Table of Contents

Component Identification....2
Installation of CIMC, CISD, and CIAU Control Boxes....7
Installation of CITW Temperature and Capacitive Water Detection Unit....8
Installation of Conductive Water Sensing....9
Installation of CIDU Keypads....10
Installation of CICL Lights....11
Assembling Mini-DIN Connectors....12

Component Identification

The components used in the system are listed in the table below with reference to the figure showing the components:

Component	Description	Reference
CIMC-213	Main Control Unit	Figure 1.1
CIMC-263	Main Control Unit (Single Speed Pump only)	Figure 1.2
CIAU-214	Auxiliary Control Unit	Figure 1.3
CISD-237	Main Control Unit with Solenoid Drivers	Figure 1.4
CITW-209	Temperature and Capacitive Water Detection Unit	Figure 1.5
CICL-239	LED Color Light Unit	Figure 1.6
CIDU-252	4 Button Keypad with Indicator Lights	Figure 1.7
CIDU-254	2 Button Keypad with Digital Display	Figure 1.8
CIDU-215	Backlit Multi Button Keypad with Digital Display	Figure 1.9
CIDU-286	Backlit Multi Button Keypad with Digital Display and Infrared Eye	Figure 1.10
CIDU-287	Infrared Processer Module/Display - “Dongle”	Figure 1.11
CIIR-00-01-00	Tub Mounted Infrared Receiver Eye	Figure 1.12
CCBL-128	Conductive Water Sense Cable for CITW	Figure 1.13
CCBL-238	Conductive Water Sense Cable for CIDU-263 and CISD-237	Figure 1.14
CKIT-027	Conductive Water Sense Hardware Kit	Figure 1.15

Figure 1.1 - CIMC-213

The Figure below shows the CIMC-213 Main Control Unit labeled with features.

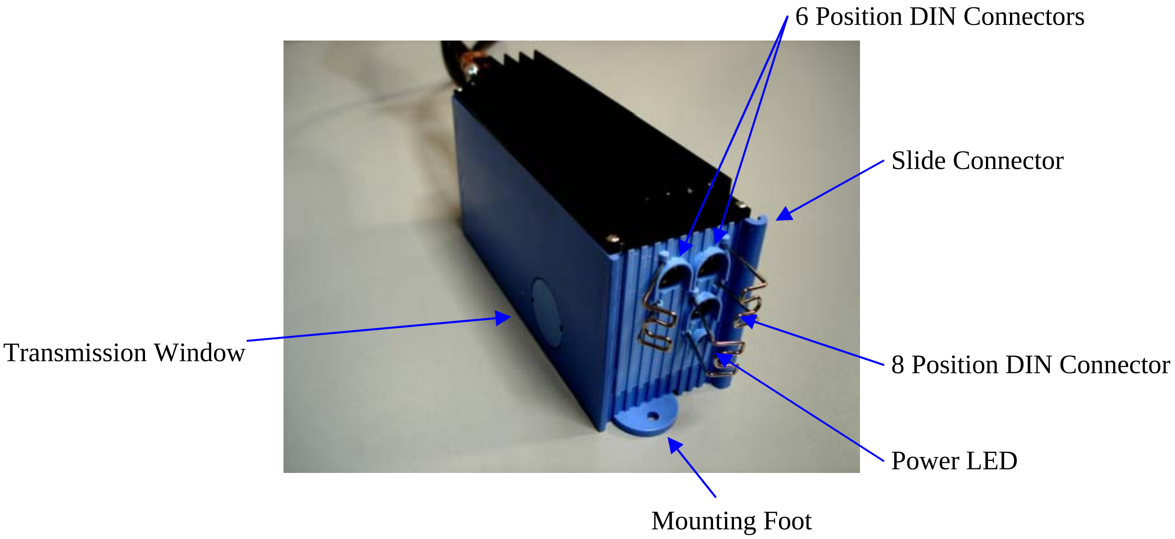

6 Position DIN Connectors
Slide Connector
Transmission Window
8 Position DIN Connector
Power LED
Mounting Foot

Figure 1.2 - CIMC-263

The Figure below shows the CIMC-263 Main Control Unit labeled with features.

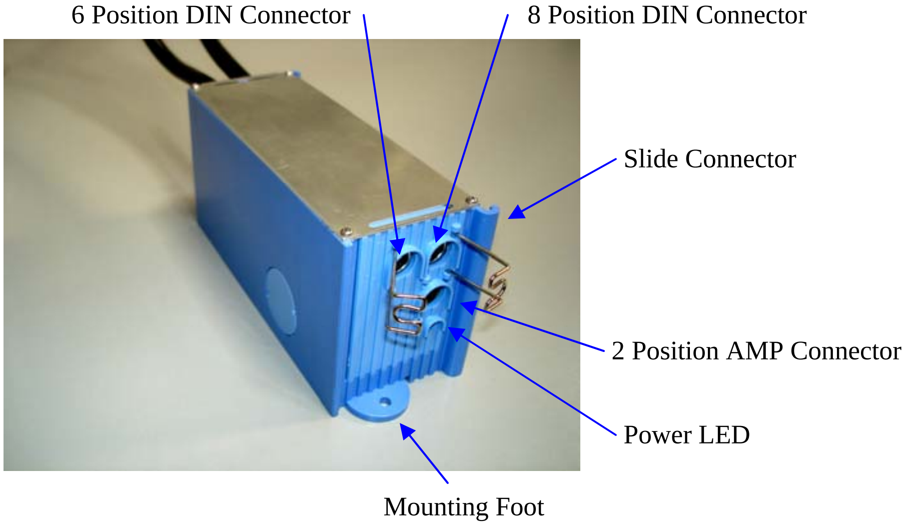

6 Position DIN Connector
8 Position DIN Connector
Slide Connector
2 Position AMP Connector
Power LED
Mounting Foot

Figure 1.3 - CIAU-214

The Figure below shows the CIAU-214 Auxiliary Control Unit labeled with features.

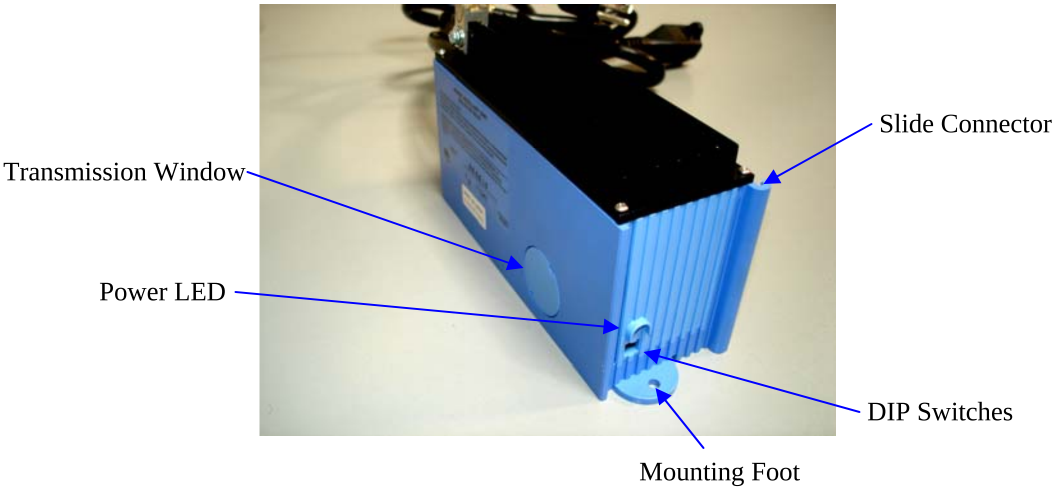

Slide Connector
Transmission Window
Power LED
DIP Switches
Mounting Foot

Figure 1.4 - CISD-237

The Figure below shows the CIMC-237 Main Control Unit with Solenoid Drivers labeled with features.

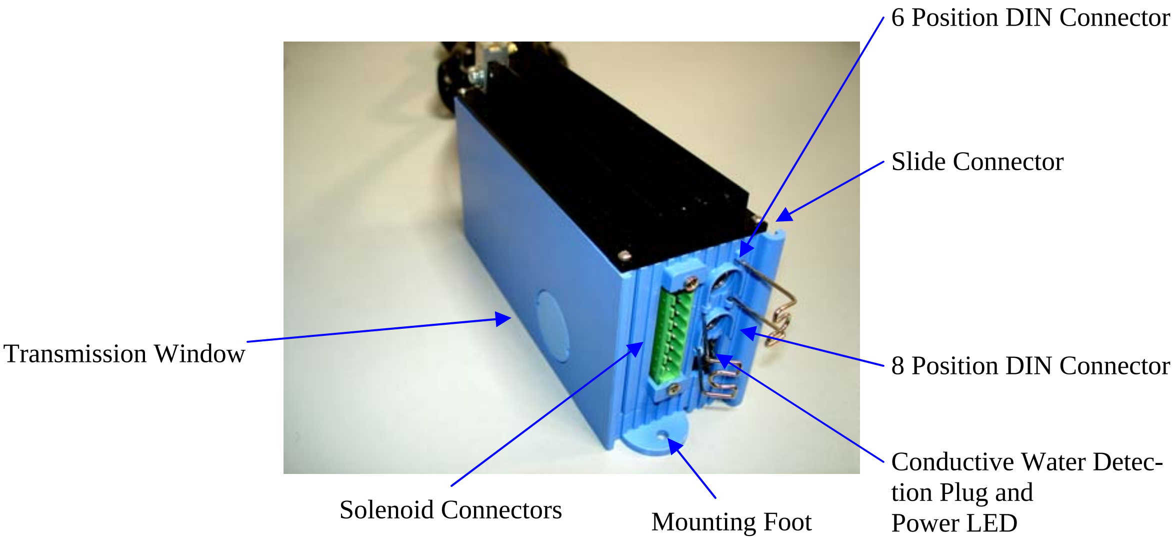

6 Position DIN Connector
Slide Connector
Transmission Window
8 Position DIN Connector
Conductive Water Detection Plug and Power LED
Solenoid Connectors
Mounting Foot

Figure 1.5 - CITW-209

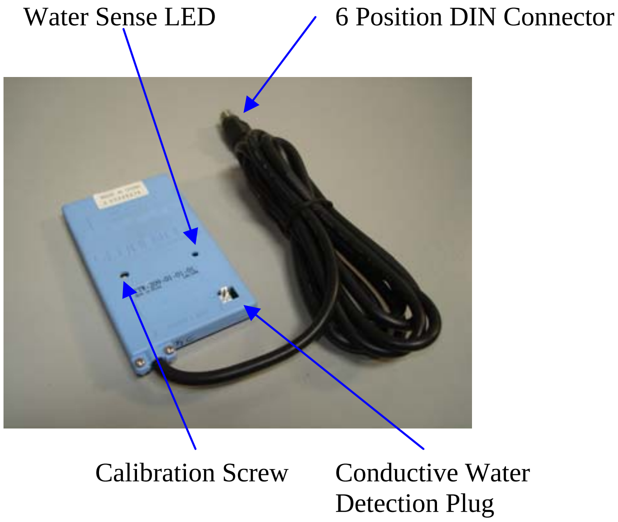

Water Sense LED
6 Position DIN Connector
Calibration Screw
Conductive Water Detection Plug

Figure 1.6 - CICL-239

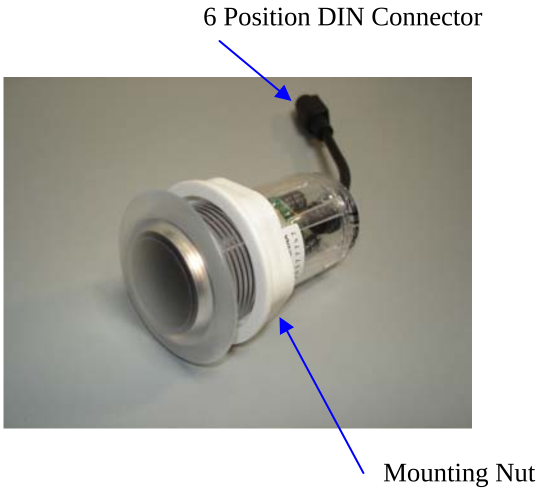

6 Position DIN Connector
Mounting Nut

Figure 1.7 - CIDU-254

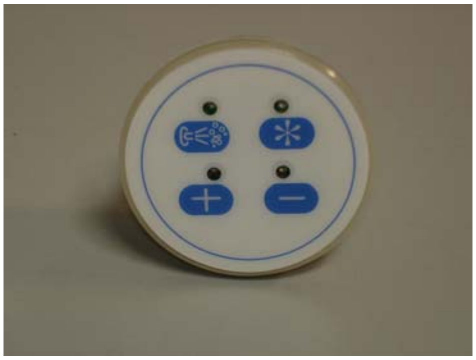


Figure 1.8 - CIDU-252

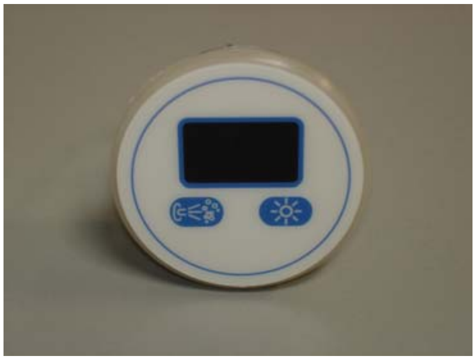


Figure 1.9 - CIDU-215

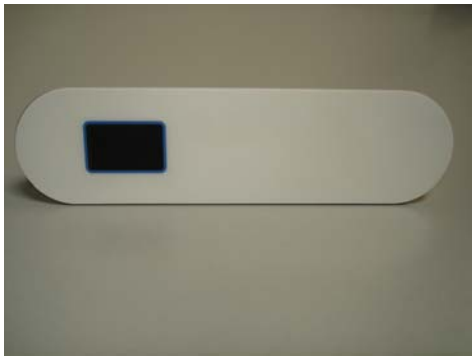


Figure 1.10 - CIDU-286

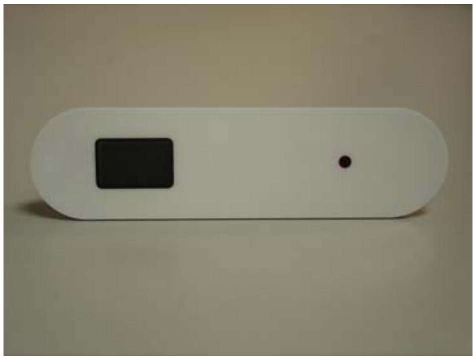


Figure 1.11 - CIDU-287

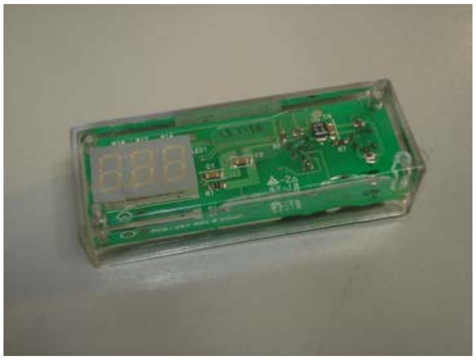


Figure 1.12 - CIIR-00-01-00

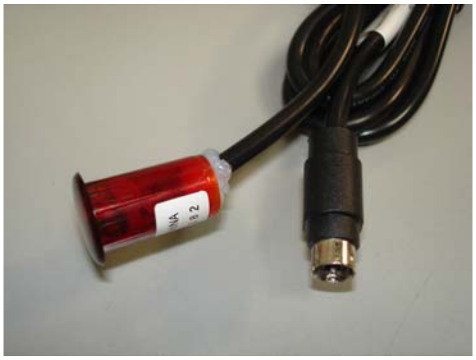


Figure 1.13 - CCBL-128

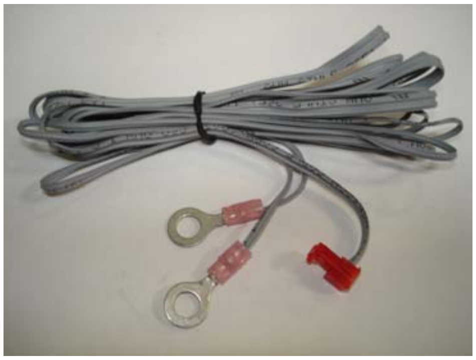


Figure 1.14 - CCBL-238

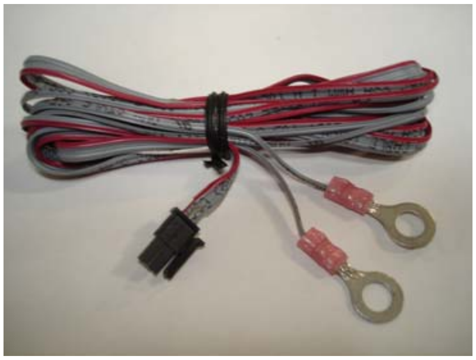
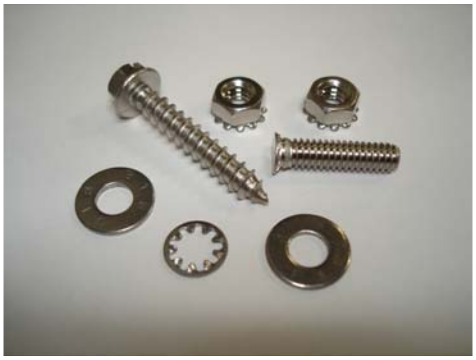


Figure 1.15 - CKIT-027



Installation of CIMC, CISD, and CIAU Control Boxes

(Refer to Figures 1.1-1.4)

For configurations requiring only one CIMC or CISD Control Box, mount the Box to a level, horizontal surface using #8 hardware (not supplied) appropriate to the surface material through the front mounting hole and rear mounting slot.

For configurations using multiple Control Boxes, follow the steps below:

1. Determine arrangement of Control Boxes:

   Refer to the Installation Instructions for the specific configuration and see the diagram for the required number and arrangement of Control Boxes.

2. In order for the Control Boxes to communicate with each other, adjacent units must have red transmission discs installed:

   Using a small screwdriver gently pop out the blue discs from the sides of the Control Boxes.

   Replace with clear red discs. Discs snap into the hole by hand.

   NOTE: The outside ends of the assembled Control Boxes need to have blue discs in transmission windows.

3. Assemble the Control Boxes together by aligning and sliding together using the dovetail slides on the edges of the boxes. The final assembly needs to be mounted to a flat surface to keep all of the boxes aligned to make proper communications between them.

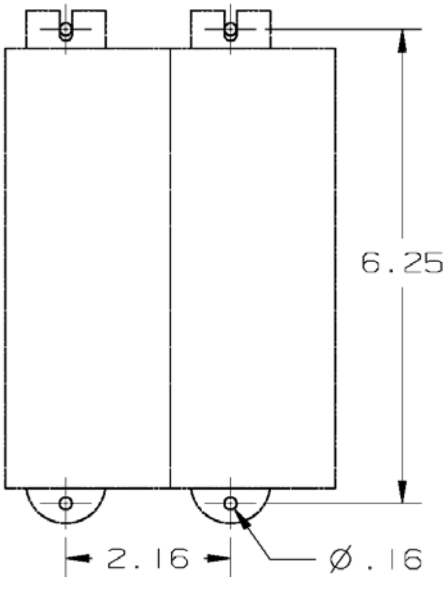
4. Mount the final assembly to a level, horizontal surface using #8 hardware (not supplied) appropriate to the surface material through the front mounting holes and rear mounting slots of the Boxes.

5. If more than two Control Boxes are assembled together, refer to the specific Installation Instructions for the configuration and set the DIP switches on the front of the Control Boxes to the settings indicated.

Connect the cord(s) marked “LOAD” to the appropriate pump or blower as shown on the Installation Instructions.

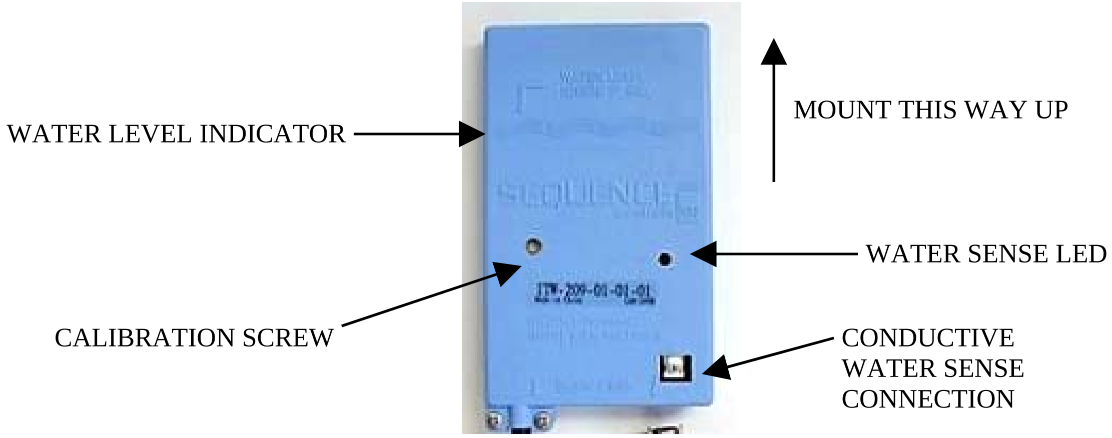
IMPORTANT: Connect the cord(s) marked “LINE” to the appropriate power supply ONLY after completing installation of all components of the system prior to final testing.

Mounting Dimensions



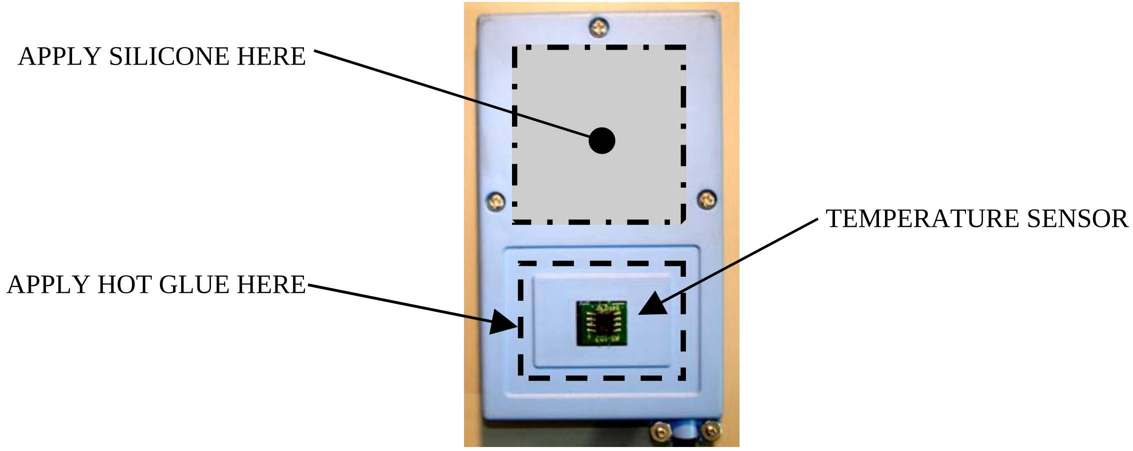
Installation of CITW Temperature and Capacitive Water Detection Unit

Locate an area on the outside surface of the bathtub to mount the CITW. The CITW should be mounted so that the "wave lines" shown on the surface of the unit are approximately 1- 2 inches above the highest water jet in the whirlpool system.



IMPORTANT: Clean the surface of the tub where the CITW will be mounted with isopropyl alcohol prior to mounting the CITW to assure that good adhesion will occur.

Apply an even 1/8" layer of silicone to the upper half of the CITW, and an even 1/4" bead of high-temperature hot melt glue in the trough surrounding the temperature sensor in the lower half of the CITW as shown below:



IMPORTANT: Do not get silicone or hot glue on the Temperature Sensor chip. If a spill occurs, clean the material off the chip before mounting the CITW to the bathtub.

Firmly press the CITW into place in the location previously selected and hold for approximately 30 seconds until the hot glue sets. Allow the unit to continue to set for 10 minutes before proceeding.

Plug the power cable into the appropriate 6-pin socket as shown in the specific Installation Instructions for the configuration being installed.

Calibration

Calibration of the CITW is performed by the manufacturer, therefore on-site calibration should not be required. In the unlikely event that on-site calibration is required, refer to the Touchstone Troubleshooting Guide for step-by-step calibration instructions.

NOTE: If the conductive water sense connection is not going to be used, clip the two metal leads off so they can not accidently be shorted together and cause a false water sensing.

Installation of Conductive Water Sensing

Conductive water sensing can be achieved by using CKIT-027 and CCBL-128 connected to the CITW, or by using CKIT-027 and CCBL-238 connected to the CISD control box. The installation of the CKIT-027 is the same for either method.

Drill a 1/4” hole for the PEM stud in the bathtub wall 1-2” above the highest jet in a suitable location. Insert the PEM stud through the hole and apply a small bead of silicone around the back of the stud, closest to the tub wall. Install one self-locking nut onto the stud and tighten hand tight. Install one ring terminal of CCBL-128 or CCBL-238 over the stud and secure with the other self-locking nut.

In a suitable location of rigid PVC piping (preferably in the 1-12” suction line) or in a rigid elbow, drill a 7/32” hole for the self-tapping screw. Place a small bead of silicone around the hole.

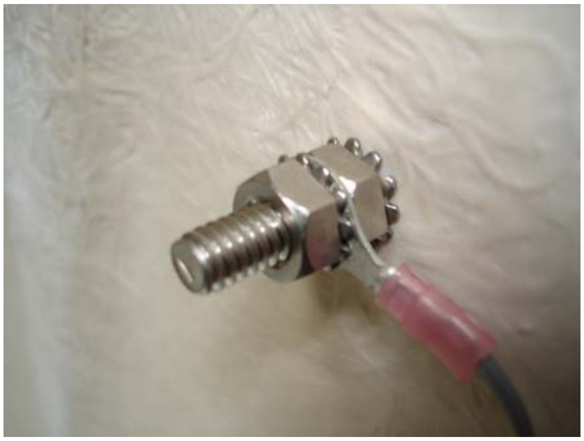
Split the leads of the water sense cable so that the other ring terminal reaches the hole for the self-tapping screw.

Place one flat washer on the self-tapping screw, followed by the ring terminal, followed by the other flat washer, followed by the lock washer.

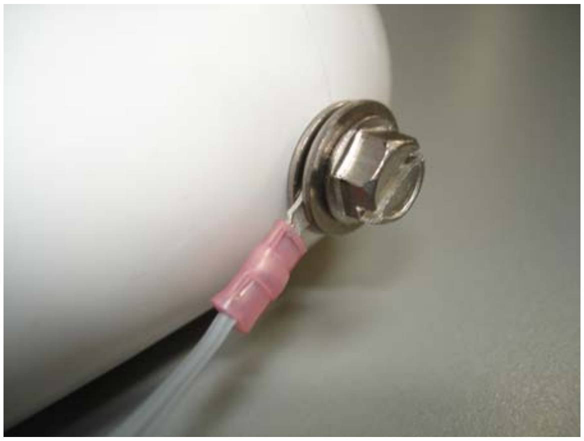
Install the self-tapping screw into the hole until hand-tight, being careful not to over-tighten and stripping out the hole.

IMPORTANT: Be sure not to use too much silicone when installing the PEM stud and self-tapping screw, or else the metal-to-metal connection to the ring terminal will not be made and the water sensing will not work.

NOTE: Either wire of the cable may be attached in either spot; polarity is not an issue.



STUD / CABLE ATTACHMENT



SCREW / CABLE ATTACHMENT

Install the other end of the conductive water sense cable to the connector (CITW for CCBL-128, CISD for CCBL-238).

Installation of CIDU Keypads

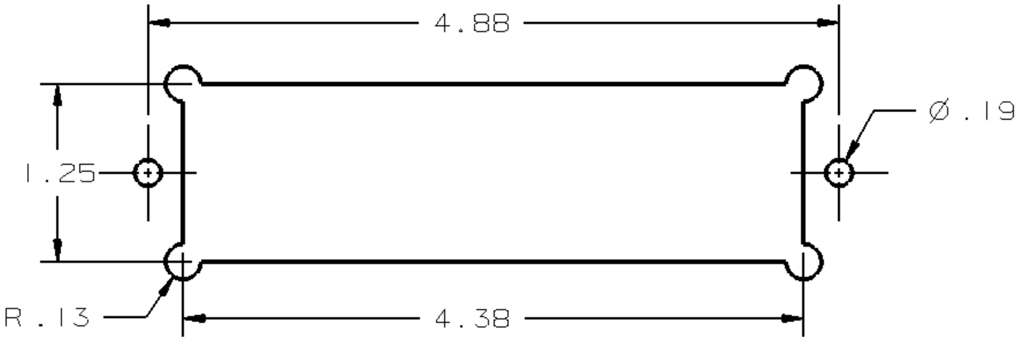
2 and 4 Button (CIDU-254, CIDU-252) Round Keypads

At the desired location, drill a 1-9/16” hole for mounting. Remove the paper lining from the adhesive on the keypad flange and press firmly in place. Be certain to properly orient the keypad before affixing to the tub.

If an optional trim ring is desired, press and snap the trim ring over the keypad.

Multi-Button (CIDU-215) Keypad

At the desired location, cut out a mounting hole as shown below:



Insert the keypad holder (CRING-60-BASE) into the rectangular opening and secure with #6 hardware (not supplied).

Place the IDU into the trim ring (CRING-60-xx) and while holding the two pieces aligned, gently but firmly insert into the keypad holder until the keypad snaps into place.

The assembled keypad is shown below:

Installation of CICL Lights

Determine the location for each Light to be installed and drill a 1-11/16" hole.

Apply a thin bead of silicone to the flange of the light, and insert it through the hole.

Assemble the nut to the Light until hand tight.

SINGLE LIGHT INSTALLATION WIRING:

Attach one end of the CCBL-170 to the pigtail connector on the light. This joint may be secured using a 2-1/2" long piece of 5/8" heat shrink tubing, or two wraps of electrical tape.

Attach the other end of the cable into the appropriate 6-pin socket as shown in the specific Installation Instructions for the configuration being installed.

MULTIPLE LIGHT INSTALLATION WIRING:

Attach one end of the CCBL-170 to the pigtail connector on the light farthest from the control box. Bring the other end of this cable to the next closest Light. Attach the end of the CCBL-170 to the female socket of CCBL-233. Attach the male socket on the same end of the CCBL-233 to the pigtail connector of the second Light. If more Lights are installed (up to four) repeat this process until all Lights are connected. These joint may be secured using a 2-1/2" long piece of 5/8" heat shrink tubing, or two wraps of electrical tape.

Attach the last end of CCBL-233 into the appropriate 6-pin socket as shown in the specific Installation Instructions for the configuration being installed.

Assembling Mini-DIN Connectors

The TOUCHSTONE Control System uses cables with 6-position and 8-position Mini-DIN connections.

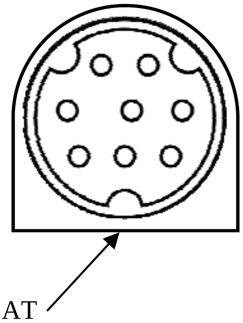
Keypads use 8-position connections, while all other Mini-DIN connections are 6-position connections. The 8-position connections run on different voltage from the 6-position connections, so it is imperative that the circuits are not mixed. Doing so can cause damage or failure to the circuitry.

It is possible, with additional force, to mistakenly plug an 8-position cable into a 6-position socket. To avoid this, pay close attention to the specific Installation Instructions for the configuration being installed which clearly shows where each connection is to be made.

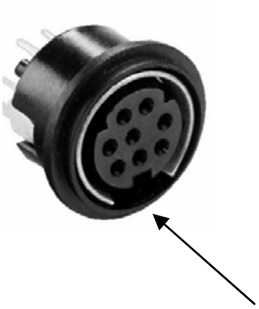
To easily align the cable ends to the sockets for installation, each cable has a molded flat to identify orientation.

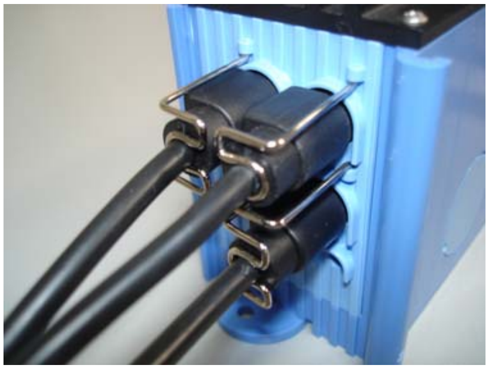
As shown below, identify the notch in the socket, and align the flat on the cable to it. The cable will easily insert into the socket with out any stress to the pins on the cable.

8-pin Cable



8-pin Socket



Where wire retainers are provided, after inserting the cable into the socket, clip the wire retainer over the cable to hold it securely in place and provide strain relief from accidental tugging on the cable, as shown below: