

# Showcase Chrono Installation and Usage Manual

*A system for tracking obstacle course contestant times by Unit-e Technologies.*



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# 1 Showcase Chrono System Preparation

## *What is this document?*

This document will discuss what information is needed to configure, order, install, set up, and use a Showcase Chrono timer system, as well as what equipment will be required to properly install it. Installation will generally be a unique process for every location, but this document will provide wiring diagrams and common installation methods to help guide future installations. Further guidance is provided for operators to configure the system to their unique needs.

## 1.1 Before Ordering

### *What information should I provide when ordering?*





1. Cable Lengths – Be sure to check the wiring diagrams in this document and determine where each component ordered will be located. Then measure the length a cable will need to reach from the control box to each component. Provide an estimate of this length (ideally with 10-20% additional safety margin) to Unit-e when ordering.
2. Additional components – If you would like additional screens, sound systems, or would rather order screen mounts and sensor mounts from Unit-e, specify which when ordering.







# 2 Showcase Chrono Components

The Showcase Chrono system is built to be modular and expandable. The following lists give standard parts different pre-arranged systems, optional expansion kits, and parts the operators must supply or source separately.

## 2.1 Deluxe SCC System Components






The deluxe system is the most common arrangement of the Showcase Chrono timer and will serve most operators best. These are the components included with the purchase of a deluxe Showcase Chrono timer kit for one lane:

	<b>SCC control box</b>	1 pcs.	Central computer of a Showcase Chrono Timer. One needed per lane. Can drive up to two (2) displays via TV-mounted computers and one touchscreen or basic screen. Can be upgraded to control up to 255 displays if necessary.
	<b>TV-mounted computer</b>	1 pcs.	This tiny computer receives a signal from the main control box, then generates a picture for the screen to display current contestant time or a leaderboard, depending on settings. Each TV PC comes with an HDMI and USB cable to connect it to its television.
	<b>Touchscreen, 22"</b>	1 pcs.	This touchscreen is used to enter the names of each contestant after they have completed the course. It also grants easy access to the admin console.
	<b>TV Display, 40"-Class</b>	1 pcs.	In a deluxe system, this television display is used with a TV-mounted computer to display current contestant time or leaderboards. In a basic system it is connected directly to the SCC control box.

	<b>Multicolor Button Pedestal</b>	1 pcs.	Typically used as the finish button in a deluxe kit, this illuminated button pedestal has eye-catching lights and celebratory effects when pressed.
	<b>Light Gate</b>	1 pcs.	Typically used as the start sensor in a deluxe kit, this optical switch is similar to a garage door sensor. Comes with sensor and self-adhesive reflector, both required for use.
	<b>Sensor cables</b>	2 pcs.	(specify each of two lengths) These cables connect the start and stop sensors to the SCC control box for power and data transfer.
	<b>Ethernet cables</b>	1 pcs.	(specify length) These cables connect each TV computer to the SCC control box.
	<b>HDMI cables</b>	1 pcs.	(specify length) This cable connects the touchscreen to the SCC control box to transmit video data to the screen.
	<b>USB A-B cable</b>	1 pcs.	(specify length) This cable connects the touchscreen to the SCC control box and transmits touch input to the control box.

## 2.2 Basic System Components

The basic system leaves out user name input and flashy button pedestals but saves money. It includes the following:

	<b>SCC control box</b>	1 pcs.	Central computer of a Showcase Chrono Timer. One needed per lane. Can drive up to two (2) displays via TV-mounted computers and one touchscreen or basic screen. Can be upgraded to control up to 255 displays if necessary.
	<b>TV Display, 40"-Class</b>	1 pcs.	In a deluxe system, this television display is used with a TV-mounted computer to display current contestant time or leaderboards. In a basic system it is connected directly to the SCC control box.
	<b>Start Button Assembly, Dome Only</b>	1 pcs.	Typically used as the stop sensor in a basic kit, this dome button comes with all wires necessary for hookup, but will need a mounting solution.
	<b>Light Gate</b>	1 pcs.	Typically used as the start sensor in a deluxe kit, this optical switch is similar to a garage door sensor. Comes with sensor and self-adhesive reflector, both required for use.
	<b>Sensor cables</b>	2 pcs.	(specify each of two lengths) These cables connect the start and stop sensors to the SCC control box for power and data transfer.



**HDMI cables**

1 pcs.

(specify length) This cable connects the touchscreen to the SCC control box to transmit video data to the screen.

## 2.3 Show-Grade SCC System Components

Show-grade systems are meant for operators who want to make users feel like they're part of a TV show. It includes an extra, larger screen and dynamic celebratory effects which activate when the stop button is pressed. Below are the components included with the purchase of a show-grade Showcase Chrono timer kit for one lane:

**SCC DMX control box**

1 pcs.

Central computer of a Showcase Chrono Timer. One needed per lane. Can drive up to two (2) displays via TV-mounted computers and one touchscreen or basic screen. Can be expanded to control up to 255 displays. This model includes built-in DMX light show control.

**TV-mounted computer**

2 pcs.

This tiny computer receives a signal from the main control box, then generates a picture for the screen to display current contestant time or a leaderboard, depending on settings. Each TV PC comes with an HDMI and USB cable to connect it to its television.

**Touchscreen, 22"**

1 pcs.

This touchscreen is used to enter the names of each contestant after they have completed the course. It also grants easy access to the admin console.

**TV Display, 55"-Class**

2 pcs.

In a deluxe system, this television display is used with a TV-mounted computer to display current contestant time or leaderboards. In a basic system it is connected directly to the SCC control box.

**Multicolor Button Pedestal**

1 pcs.

Typically used as the finish button in a deluxe kit, this illuminated button pedestal has eye-catching lights and celebratory effects when pressed.

**Light Gate**

1 pcs.

Typically used as the start sensor in a deluxe kit, this optical switch is similar to a garage door sensor. Comes with sensor and self-adhesive reflector, both required for use.

**Sound effects/horn system**

1 pcs.

PA speaker and wiring to produce celebratory and other sound effects. Can be used with all Unit-e systems and includes inputs for additional sound sources.

**Fog Jet, DMX**







1 pcs.

Commercial fog jet for continuous duty use. DMX connected. Ideal for celebratory effects when users press finish buttons on obstacle courses.

**Light Bar, DMX**




1 pcs.




DMX controlled light bar. Face towards light walls or surfaces to wash with bright shifting colors. Displays celebratory effects when triggered or can produce continuous effects.

	<b>Sensor cables</b>	2 pcs.	(specify each of two lengths) These cables connect the start and stop sensors to the SCC control box for power and data transfer.
	<b>Ethernet cables</b>	2 pcs.	(specify length) These cables connect each TV computer to the SCC control box.
	<b>HDMI cables</b>	1 pcs.	(specify length) This cable connects the touchscreen to the SCC control box to transmit video data to the screen.
	<b>USB A-B cable</b>	1 pcs.	(specify length) This cable connects the touchscreen to the SCC control box and transmits touch input to the control box.
	<b>Audio cables</b>	1 pcs.	(specify length) 3.5mm TRS audio cable, shielded, male to male. Used for connecting control boxes or light show controllers to speakers.
	<b>DMX cables</b>	1 pcs.	(specify length) DMX specification XLR cable, male to female. Used for connecting fog machines or other DMX stage equipment to control boxes or light show controllers.

## 2.4 Outdoor System Components

For installation outdoors, this kit leaves out complicated items such as touchscreens and fog machines and replaces any item not already waterproof with the appropriate upgrade. Expansions are available to add more screens or a touchscreen as desired. The outdoor system includes the following:

	<b>SCC control box, Weather tight</b>	1 pcs.	Central computer of a Showcase Chrono Timer. One needed per lane. Can drive up to two (2) displays via TV-mounted computers and one touchscreen or basic screen. Can be upgraded to control up to 255 displays if necessary. Unit is rated IP56 weather tight with an enclosure for cable connections.
	<b>Weatherproof High Brightness TV Display, 42" &amp; 55"</b>	1 pcs.	These units are similar to the standard TVs, but are built from the ground up to be weatherproof and have a high brightness 700 nit display. They include a temperature and moisture control system and a watertight enclosure to house TV-mounted computers and cable connections. Unit is rated IP56 weather tight with an enclosure for cable connections.
	<b>IP68 Waterproof Capacitive Touch Button</b>	1 pcs.	This touch button is intended for harsh environments and direct sunlight. The UV stabilized plastic enclosure is built to keep water out and has no moving parts. Button triggering is handled through a powerful capacitive sensor which can detect hands through gloves and when wet. Lights in the touch panel illuminate in a variety of colors to signal users and provide feedback when triggered.

	<b>Light Gate</b>	1 pcs.	Typically used as the start sensor in a deluxe kit, this optical switch is similar to a garage door sensor. Comes with sensor and self-adhesive reflector, both required for use. Sensor is IP68 rated waterproof.
	<b>Sensor cables</b>	2 pcs.	(specify each of two lengths) These cables connect the start and stop sensors to the SCC control box for power and data transfer. M12 cables are rated IP68 watertight.
	<b>HDMI cables</b>	1 pcs.	(specify length) This cable connects the touchscreen to the SCC control box to transmit video data to the screen. Standard HDMI cables are not watertight, but in this application both ends are sealed in the control box and TV's weather tight enclosures.

## 2.5 Optional Upgrades and Extras

There are a number of options for personalizing or expanding a timer setup. Screens and TV-mounted computers can be added, either to show duplicate displays or to add leaderboards. Different buttons can be substituted with those normally supplied in the various kits for aesthetic or functional purposes. If weatherproofing is required, waterproof components are also listed below for substitution.



**TV Display, 40" & 55"**

To add an extra display, get one of these screens and a TV-mounted computer. In a deluxe system, this television display is used with a TV-mounted computer to display current contestant time or leaderboards. In a basic system it is connected directly to the SCC control box.



**Weatherproof TV Display, 40" & 55"**

These units are similar to the standard TVs, but are shielded from moisture in a weatherproof enclosure with a temperature and moisture control system. TV-mounted computers can be fitted inside the weatherproof enclosure which also protects cable ends so normal HDMI can be used.



**Weatherproof High Brightness TV Display, 42" & 55"**

These units are similar to the standard TVs, but are built from the ground up to be weatherproof and have a high brightness 700 nit display. They include a temperature and moisture control system and a watertight enclosure to house TV-mounted computers and cable connections.



**TV-mounted computer**

To add an extra display, get one of these TV-mounted computers and a screen. This tiny computer receives a signal from the main control box, then uses the screen to display current contestant time or a leaderboard. Each TV PC comes with an HDMI and USB cable to connect it to its television.



**Weatherproof, High Brightness Touchscreen, 19"**

Similar to the standard touchscreen, this upgrade is a sunlight-visible, waterproof touchscreen used to enter the names of each contestant after they have completed the course. It also grants easy access to the admin console.



**Start Button Assembly, Dome Only**

Typically provided in red for the stop sensor in a basic kit, this dome button can also function as a start sensor. Comes with all wires necessary for hookup, but will need a mounting solution. Available in a variety of colors upon request.





**IP68 Waterproof Capacitive Touch Button**

This replacement for the start or stop sensors is intended for harsh environments and direct sunlight. The UV stabilized plastic enclosure is built to keep water out and has no moving parts. Button triggering is handled through a powerful capacitive sensor which can detect hands through gloves and when wet. Lights in the touch panel illuminate in a variety of colors to signal users and provide feedback when triggered.



**Sound effects/horn system**

PA speaker and wiring to produce celebratory and other sound effects. Can be used with all Unit-e systems and includes inputs for additional sound sources.



**Fog Jet, DMX**

Commercial fog jet for continuous duty use. DMX connected. Ideal for celebratory effects when users press finish buttons on obstacle courses.



**Light Bar, DMX**

DMX controlled light bar. Face towards light walls or surfaces to wash with bright shifting colors. Displays celebratory effects when triggered or can produce continuous effects.



**DMX Aftermarket Upgrade Kit**

A system sold without an existing DMX light system control interface can be retrofitted with this upgrade to add the ability to control light show devices such as fog machines and addressable lighting.

## 2.6 Required Additional Components

The following components will be needed for installation depending on the kit tier purchased. They can be provided by Unit-e upon request or sourced separately.



**TV Truss Mount**

A flexible method for mounting screens to vertical or horizontal 12" truss sections.



**TV Wall Mount**

A flexible method for mounting screens to walls.



**Speaker Truss Mount**

Mounts are available for both vertical and horizontal truss sections.



**Speaker Wall Mount**

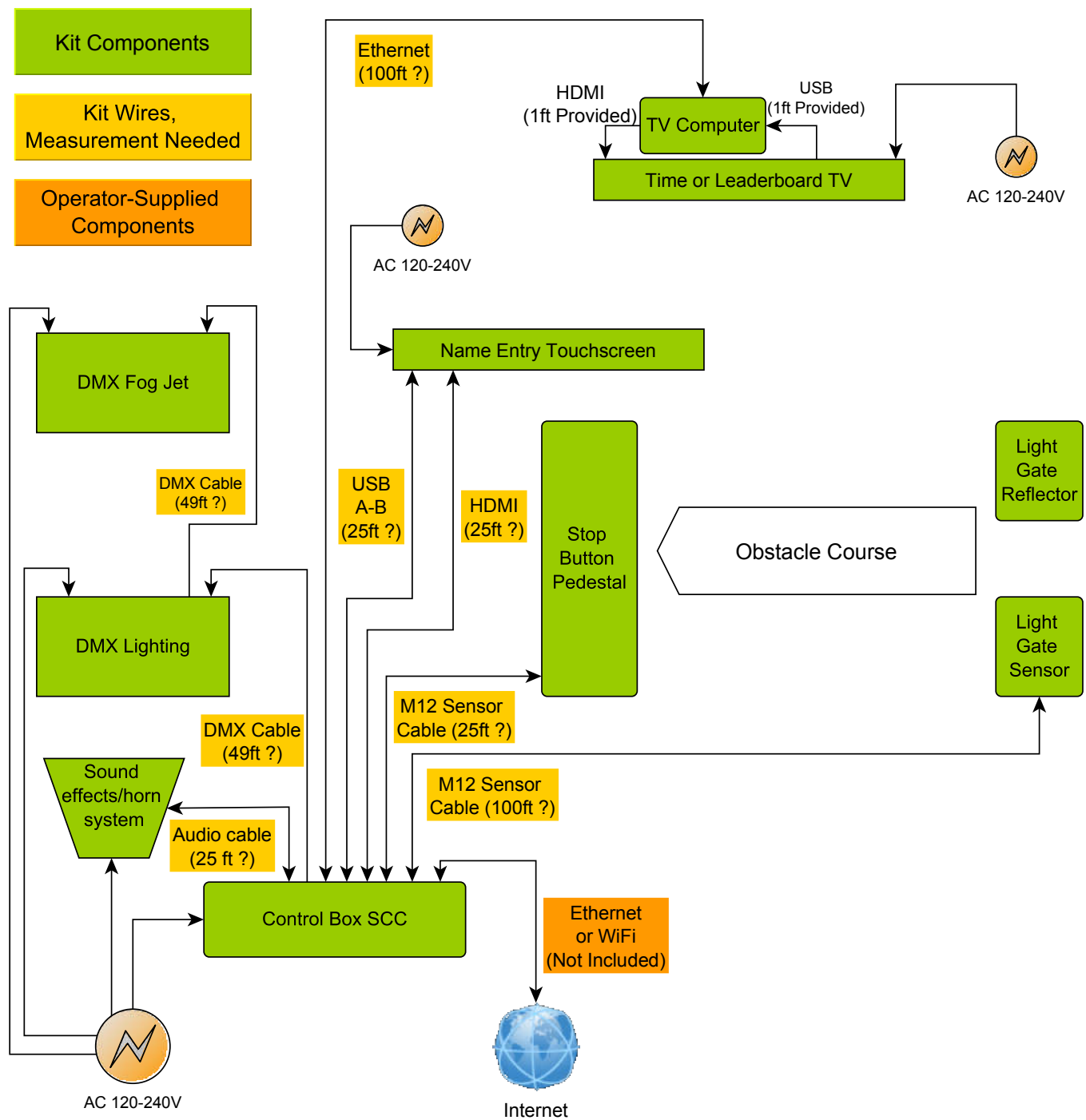
A flexible method for mounting PA speakers to walls.

### 3 Typical Showcase Chrono System Wiring Diagrams

The following subsections will give two examples of typical wiring diagrams for Showcase Chrono systems. The first is a deluxe system with horn upgrade and the second is a basic system by itself.

#### 3.1 Deluxe Timer Kit Wiring Diagram

The below figure shows the standard components of a deluxe Showcase Chrono timer kit as well as a sound effect/horn system upgrade. The lines represent the cables as they connect the system together. Relative positions will be discussed in greater detail in the following section. Additional time/leaderboard TVs are the same, but each has its own Ethernet connection to the main SCC control box.



### 3.2 Basic Timer Kit Wiring Diagram

The below figure shows the standard components of a basic Showcase Chrono timer kit. The lines represent the cables as they connect the system together. Relative positions will be discussed in greater detail in the following section. Additional TV displays can be added as shown in the deluxe system to serve as either time displays or leaderboards.

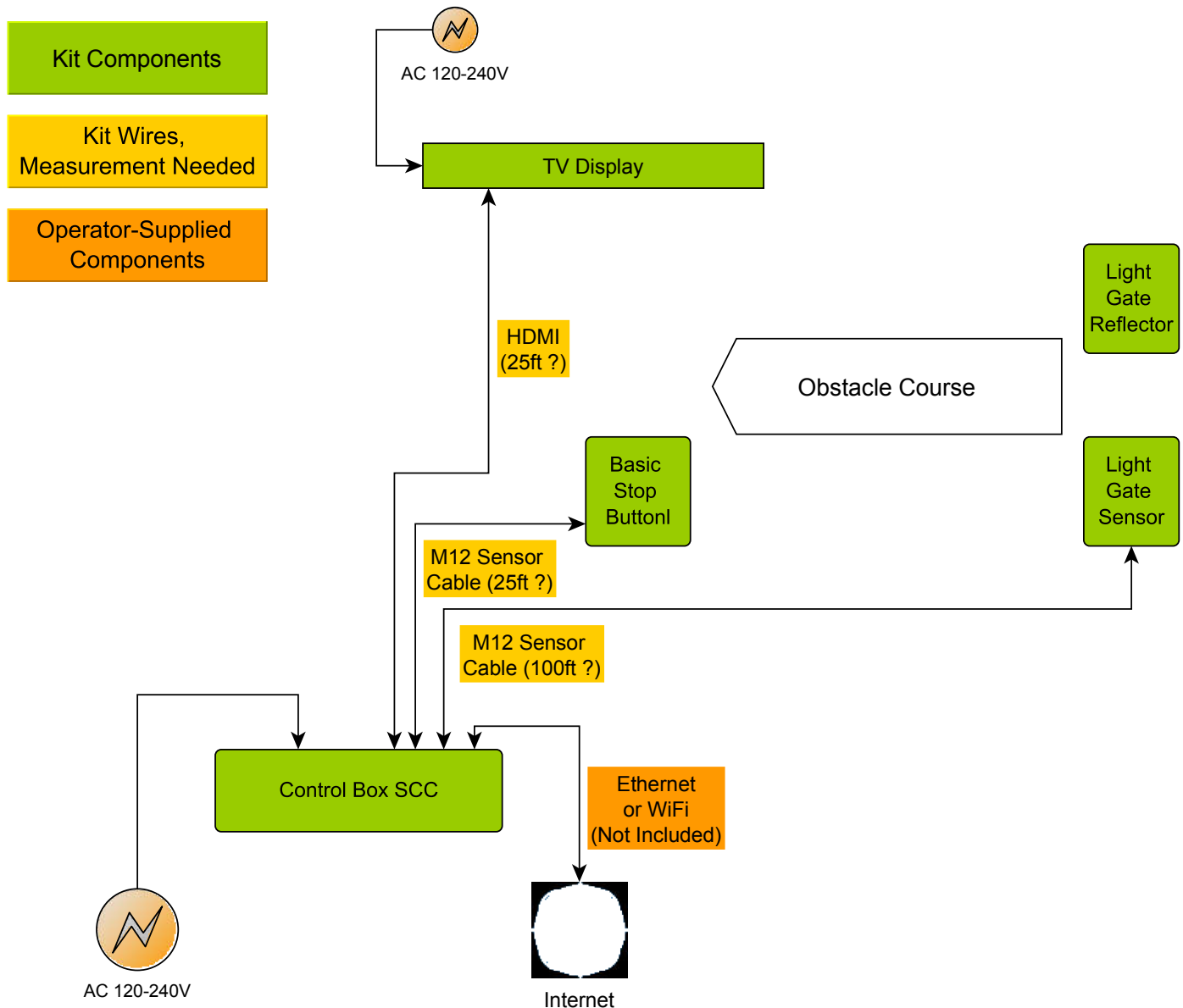
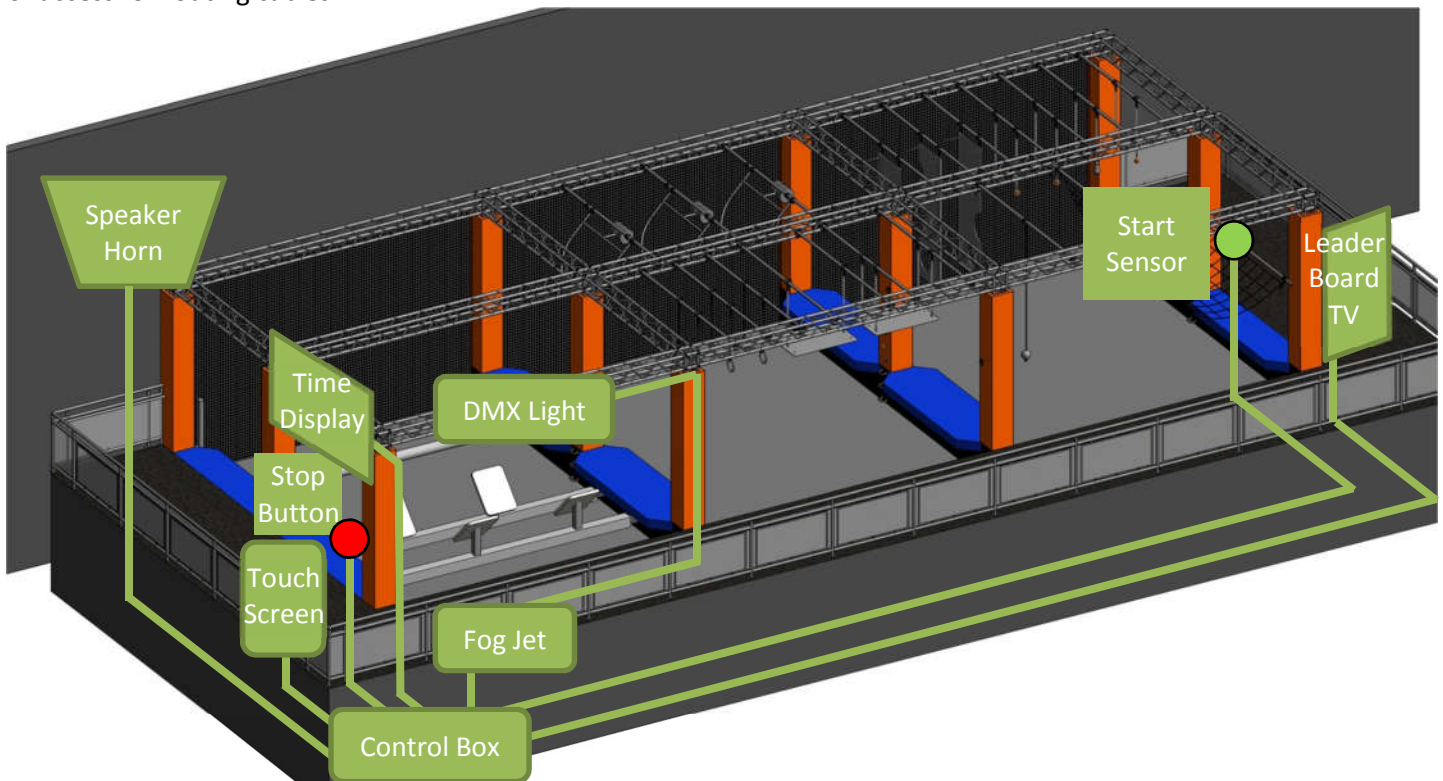


Figure 2: Wiring of a budget SCC system

## 4 Example Installation Walkthrough

This section will walk through the steps of a typical installation as an example of the process.

Figure 3 below shows an example cable routing arrangement for a single lane obstacle course with a deluxe Showcase Chrono timer kit. Note how the control box is located near the finish line of the course beneath the walkway. This makes cable runs generally shorter since there are four finish components and only two at the start, thus reducing the total length of all wires required. Other installations may prefer to locate the control box at the center of the course, making equal cable lengths between start and finish. This should be determined based upon user preference and ease of access for routing cables.



**Figure 3: Example of the physical wiring arrangement for one lane of a deluxe Showcase Chrono timer system.**

With the components and cables laid out, the following sequence of connections and mounts are made.

### TV installation

- TV is mounted to the wall with a TV VESA wall mount.
- TV receives power from wall receptacle.
- TV receives signal via HDMI (small cable) from the TVC unit.
- TVC unit receives power from USB (small cable) plugged into the TV.
- TVC unit receives signal via CAT5 Ethernet from the control box.
- TVC is paired to the control box via the service menu on the touchscreen.

### Touchscreen installation

- Touchscreen is mounted to the wall with a touchscreen wall mount. Make certain that the touchscreen cannot be rotated by players, as this will damage the cables and/or ports on the touchscreen.
- Touchscreen receives power from wall receptacle. Touchscreen receives signal via HDMI from the control box. Touchscreen relays input data via USB to the control box.

#### Light gate (start sensor) installation

- Light gate and reflector are mounted on opposite sides of the course entrance onto the start bollards (or any other surface). The laser must point directly at the reflector to operate. This can be tested after it's connected.
- Light gate transmits signal to the control box via a 4-pin M12 cable. This plugs into the "start" port.

#### Lighted button pedestal installation

- The button pedestal is mounted to the floor at the end of the course.
- The button pedestal draws power from and transmits signal to the control box via a 4-pin M12 cable. This plugs into the "finish" port.

#### Control box installation

- Mount within 25 feet of the touchscreen and without 100 feet of other devices, preferably hidden from customer view but accessible by an operator.
- Control box receives power from wall receptacle.
- Control box is the main input/output device and connects to / controls other devices as above.



## 5 Installation Considerations

This section will list items to consider when planning or installing each item in a deluxe kit.

### 5.1 SCC control box

**Location:** It is typically best to locate the control box where it can easily be accessed while installing cables and for future maintenance. Near the finish line is usually best so that it is near the touch screen, speaker, and stop button.

### 5.2 TV-mounted computer

**Location:** This will typically always be mounted to the back of the TV, though if longer HDMI and USB cables are used it can be mounted further away if required. Adhesive backing is provided to mount the case to the TV, but screw mounting is also possible.

### 5.3 Touchscreen

**Location:** This should be near the finish line in a location where it is safe to stand and operate while other users may be crashing over the finish line. Off to the side of the finish line is usually best. If a dedicated operator is using the screen instead of users, it may be mounted wherever convenient.

**Fixture:** It is critically important that the screen be fixed and unable to move or rotate more than a few degrees. Excess movement will often encourage young users to play with the moving screen and cause damage, especially to cables. This has happened at several locations where screens could be flipped between portrait and landscape orientation by users and the cables tore the ports out of the screen eventually.

### 5.4 TV Display, 40"-Class

**Location:** The score or leaderboard screens may be used wherever desired, but are often positioned where the audience can see them clearly. Many operators choose to have one time display near the finish line where those waiting for contestants may watch, and another in a lobby area where viewers can see how well a contestant is doing without climbing to the level of the course. If the screen is to be used in leaderboard mode, it must be oriented in portrait mode. For leaderboards, it is often best to have it placed low where people can stand close and view the smaller print of the many names on screen.

**Fixture:** Any screen placed where users can reach it should be fixed securely so that it cannot be moved or removed from its mounting bracket.

**Power:** The power source to the display screen should be accessible by some means in order to perform a hard shutdown of the screen. There are cases where the TV remote control is not enough to recover from a system crash and power must be disconnected. If the screen is not powered by an accessible extension cable, then the circuit to which it is plugged should have an accessible circuit breaker or power switch.

### 5.5 Multicolor Button Pedestal

**Location:** The button pedestal is most often used as a stop switch for the timer, and so should be positioned on or just beyond the finish line. While the pedestal is free standing, it is often best to position it against a padded wall or other padded structure to discourage users from tackling the pedestal and causing damage.

**Repairs:** The button pedestal is often the most abused component of the system, and so will take damage over time. The red dome button assembly is a wear component that can be replaced when necessary. Contact Unit-e Technologies L.C. for spare parts or advice. Please provide pictures of the damage to aid in identifying the best course of repairs.

## 5.6 Light Gate

**Location:** The light gate is often used as the start sensor and will trigger the moment the beam is broken. As such it must be placed directly on the desired starting line. The reflector must be positioned directly in the beam path to work.

**Mounting:** Mounting hardware can be provided upon request, but otherwise drill a 3/4" hole in any surface perpendicular to the starting line and use the provided nuts to fasten the sensor into the hole. The reflector provided uses a self-adhesive back and should be fixed to any smooth, clean surface directly in the beam path within about 12 feet of the sensor. If longer ranges are required, contact Unit-e.

## 5.7 Sensor cables

**Length:** The sensor cables have a length limit of approximately 150ft. Longer cables can be provided, but may incur additional cost.

## 5.8 Ethernet cables

**Length:** The CAT5 Ethernet cables used have a typical length limit of 100m (328ft). Longer runs may be provided, but will incur additional cost.

**Speed:** Data transfer between SCC computers is minimal and does not require great speed, so shielding and typical long run networking considerations are not typically required.

## 5.9 HDMI cables

**Length:** Typical HDMI distance limitations are around 25ft for good cables. As such it is strongly recommended to keep the touch screen within 25ft of the control box, including vertical rise. However, cables are available which can extend this range out to 100ft or more for additional cost. Unit-e will test any excessive lengths before shipping to confirm functionality, but it is typically best to keep runs short to minimize delays or additional costs.

## 5.10 USB cables

**Length:** Typical USB distance limitations are around 25ft for top quality cables. As such it is strongly recommended to keep the touch screen within 25ft of the control box, including vertical rise. However, methods are available which can extend USB range out to 100ft or more for additional cost. Unit-e will test any excessive lengths before shipping to confirm functionality, but it is typically best to keep runs short to minimize delays or additional costs.

## 6 Software Setup

Once the hardware has been installed, it will be necessary to tune the setup in software for proper operation. This section will detail the necessary software setup procedure. Optional software settings will be covered in a later section.

### 6.1 Initial Power On and Screen Features

After all components have been installed and connected together per the previous sections, powering on the whole system will allow the software to provide you with feedback as to whether everything is functioning correctly. Power on all of the big screens, the touchscreen, and the control box. The touchscreen should appear something like the below but with 00:00.00 for time during first startup.

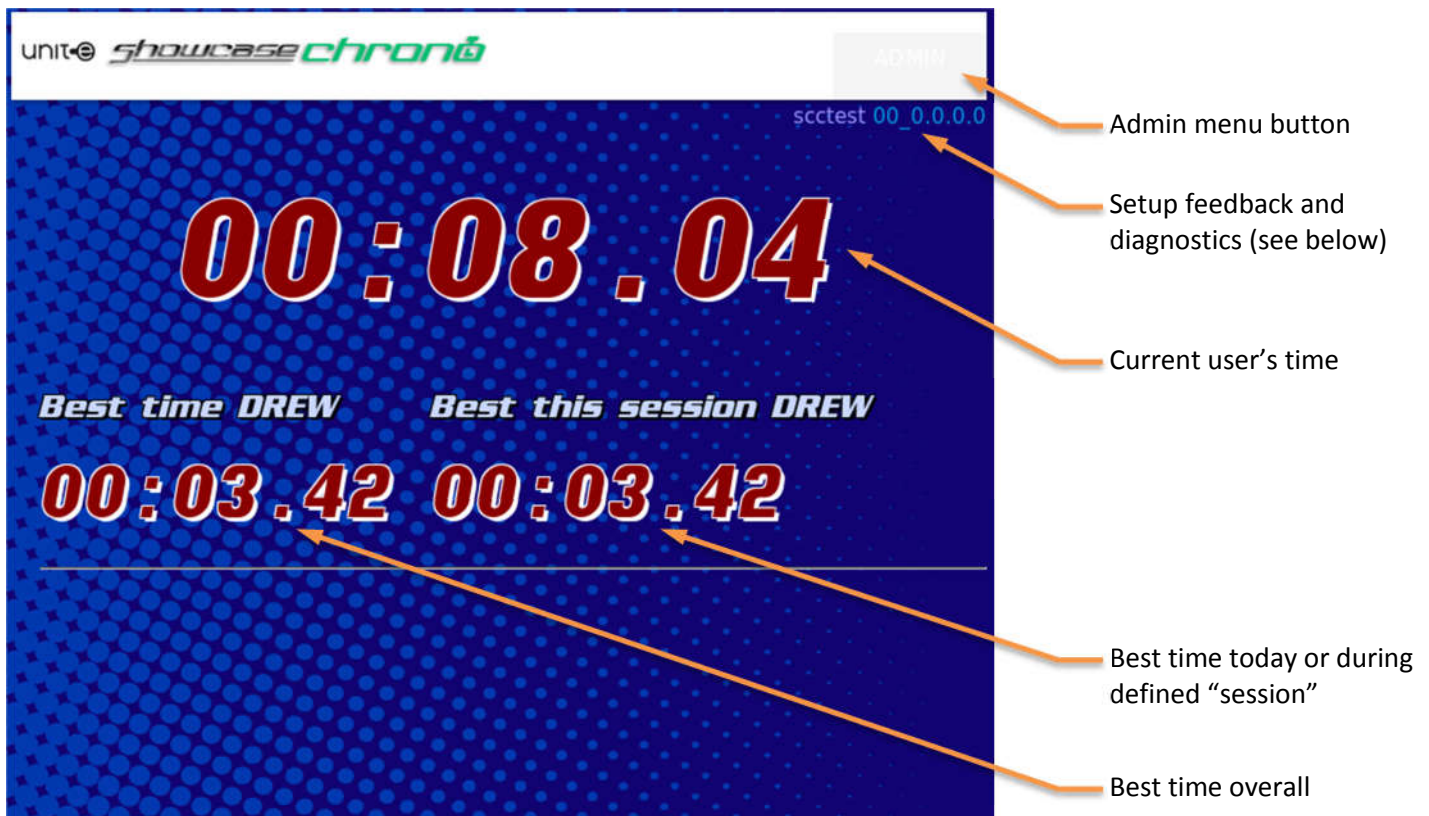


Figure 4: Touchscreen Features

The first problems to check for will be visible in the diagnostics feedback text in the top right of the screen. Below is a closeup of this information.

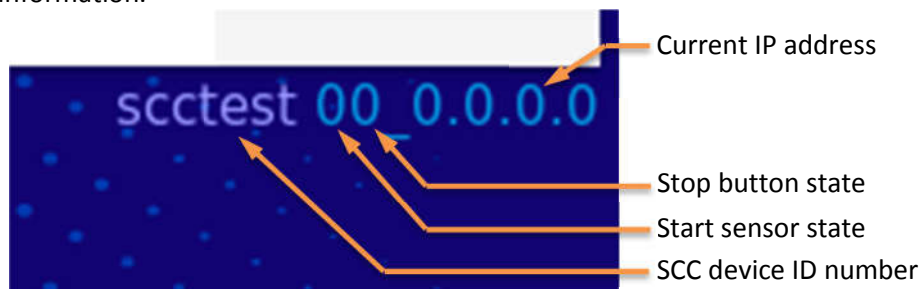


Figure 5: Diagnostic feedback details

Upon first startup, check the diagnostic feedback on the touchscreen for two things. Check that the numbers next to the SCC unit ID are both zero. If either is a 1, then it means a sensor is activated. This is most commonly "10\_", meaning the start sensor may be misaligned. Check the sensor for alignment and see that the light on the sensor turns

off when the light beam is correctly reflected and not blocked. In proper operation, the sensor's signal light should remain dark until a person blocks the beam.

If the other number is a 1, "01\_" then it means the stop button is stuck on. Check that the button clicks and that the lighted pedestal is not flashing. This is an uncommon failure and may require manufacturer assistance to correct.

Last, see that the IP address displays correctly and is not stuck as "connecting..." If it is stuck connecting, contact the manufacturer and report the SCC device ID number.

Next check each big screen to ensure it has connected. It is likely you will have to set these up through the touchscreen. The score display screens should appear as the below.



**Figure 6: Big screen score display**

Note the diagnostic data in the upper right same as with the touch screen. If it says "connecting" instead of an IP address like "192.168.88.###", it means it has not received communications from the control box. Ensure the Ethernet cables are connected at both ends and that the cable is plugged into one of the Ethernet ports on the control box labeled with a monitor symbol, not the internet port.

If the IP address displays correctly, check that the "Running" time displays as "00:00.00" and not "Screen\_Current\_Time" or some other text. If the display is text instead of numbers, it means the screen is connected, but you will need to configure the settings in the touchscreen. See Section 6.2 for instructions.

Leaderboard display screens will be similar in that you must ensure the IP address is displayed, but they will not display an error if not configured for the current control box, they simply will not update with new scores. If this happens, follow Section 6.2 for setup instructions.

## 6.2 Configure Big Screen Displays for Use

Though big screens are typically paired to their control boxes at the factory, it is common for them to be swapped and mismatched during setup or distribution. For this reason, users can pair them manually and set other preferences from the Admin menu.



Access the Admin menu from the touchscreen by tapping the faint “Admin” button in the upper right as shown in Figure 4. Upon tapping this, a login prompt will appear asking for a password. **The default password is “password”.** Operators are encouraged to change this from the Security Settings menu.

Once in the service menu, the user will see the following options.

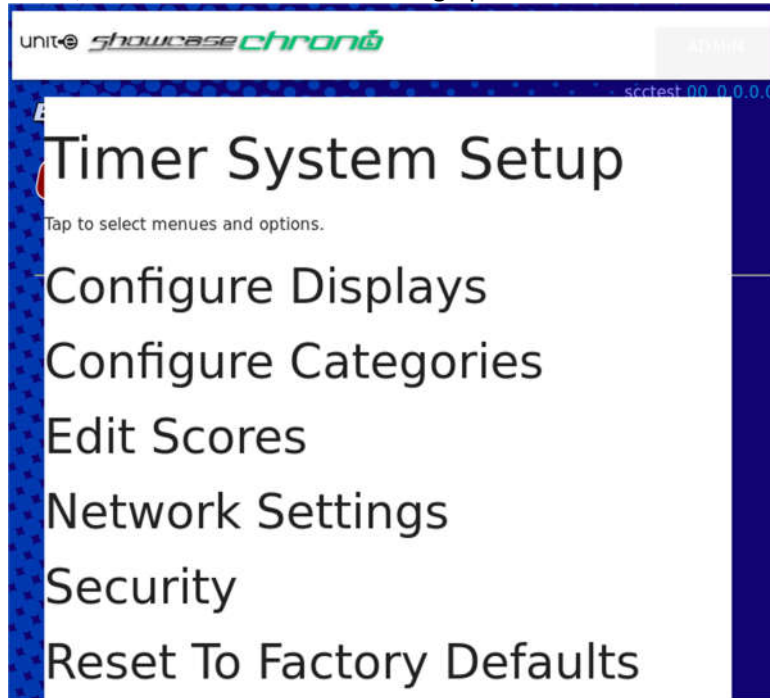


Figure 7: Service menu main options.

During this initial setup, “Configure Displays” will be most commonly needed. Access this option by tapping it. Once tapped it will expand into the following menu. There will be icons for various displays connected to the system. Tap each one to expand its options as seen below.

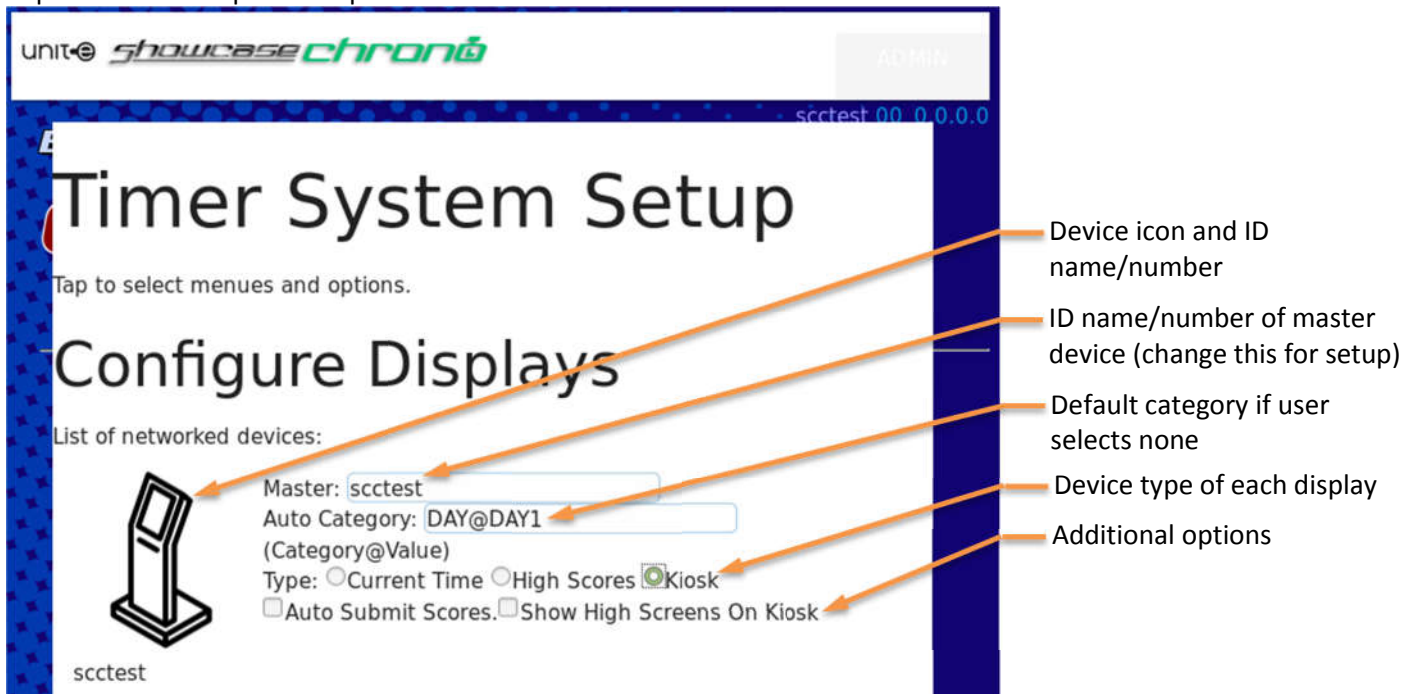


Figure 8: Configuring displays in the service menu.



The Configure Displays menu has the following features to use:

- Device Icon** – When first opened, there will only be a list of device icons on the left side of the Configure Displays menu. They will appear as either a kiosk device or a TV device, seen in Figure 9. Below each is that device’s ID name/number. Tap each of these icons to expand its options.
- Master ID** – This is the device ID (seen under the device icons on the left) of the master device. There will always be one master in a timer setup and it is typically the kiosk. Even the kiosk needs to have itself set as its master. Note how in Figure 8 “sccsetup” is the kiosk’s device ID and it also has “sccsetup” set as the master; this is the correct configuration for this device.
- Auto Category** – This option lets an operator using categories (see Section 7.1) to set a default category which users who fail to choose a category will be entered into.
- Device Type** – This will allow you to change each device’s display between a current time screen, a leaderboard screen, or a kiosk display. Only the control box can be set as a kiosk, however. If the control box/master is set as anything but a kiosk, it should have auto submit enabled.
- Device Options** – Various devices will have different options available. These can be as follows:
- **Auto Submit Scores** – This is for use in budget systems where no touchscreen is involved. Only activate this on the master device which should be connected to the start and stop sensors. It will add scores to the database as soon as the stop button is pressed.
  - **Show High Screens on Kiosk** – This adds a leaderboard display to the bottom of the kiosk touchscreen. This will be useful to operators who have no dedicated leaderboard but do have a deluxe system.
  - **Show All-Time High Score on Bscreen** – This will display the high score of all time alongside the highest of the current session on the big screen.

Note the name under the icon for the kiosk displayed above, “scctest”. In a standard installation, this will be something like “scc120” to indicate the device number. To pair devices to a control box, ensure their “Master:” field is the same as the name under the kiosk icon. Even the kiosk device should have its own name in the “Master:” field so that it knows not to look elsewhere for start/stop sensor input. Big screen displays will have a TV icon, seen below.



**Figure 9: Kiosk and TV icons, respectively**

For standard usage, each device must have the correct type set in the “Type” section of its configuration as seen in Figure 8; the kiosk device will be a “Kiosk” and big screen devices either a “Current Time” or “Leaderboard”. It is also important that “Auto Submit Scores” be unchecked for deluxe systems with a touch screen. For basic systems, it should be checked for the kiosk, since users will not be able to touch the button to submit their score. It should always be unchecked for big screen displays.

Once all devices have the kiosk’s name entered correctly in their “Master:” field, they should function properly. Additional options will be discussed in the following section.

## 7 Additional Configuration Options

There are a variety of options available for operators to customize the setup to their needs. The below sections will detail these in each subsection of the service menu in the order they appear in Figure 7.

### 7.1 Configuring Categories of Users

The Configure Categories menu allows an operator to provide options for users to categorize themselves beyond just entering their name during score entry. These may be something like male/female, age groups, team 1 vs team 2, or any other groupings an operator and their customers may desire. These categories will be displayed in the leaderboard view as seen in **Error! Reference source not found.**. This way, scores can be separated by category so, say children under 10 are only compared to children of the same age group and not the older kids.

To set up these categories, access the service menu as discussed in Section 6.2 and tap the Configure Categories entry to expand the options. You will see a section like the one pictured below in Figure 10 but with blank entry fields.

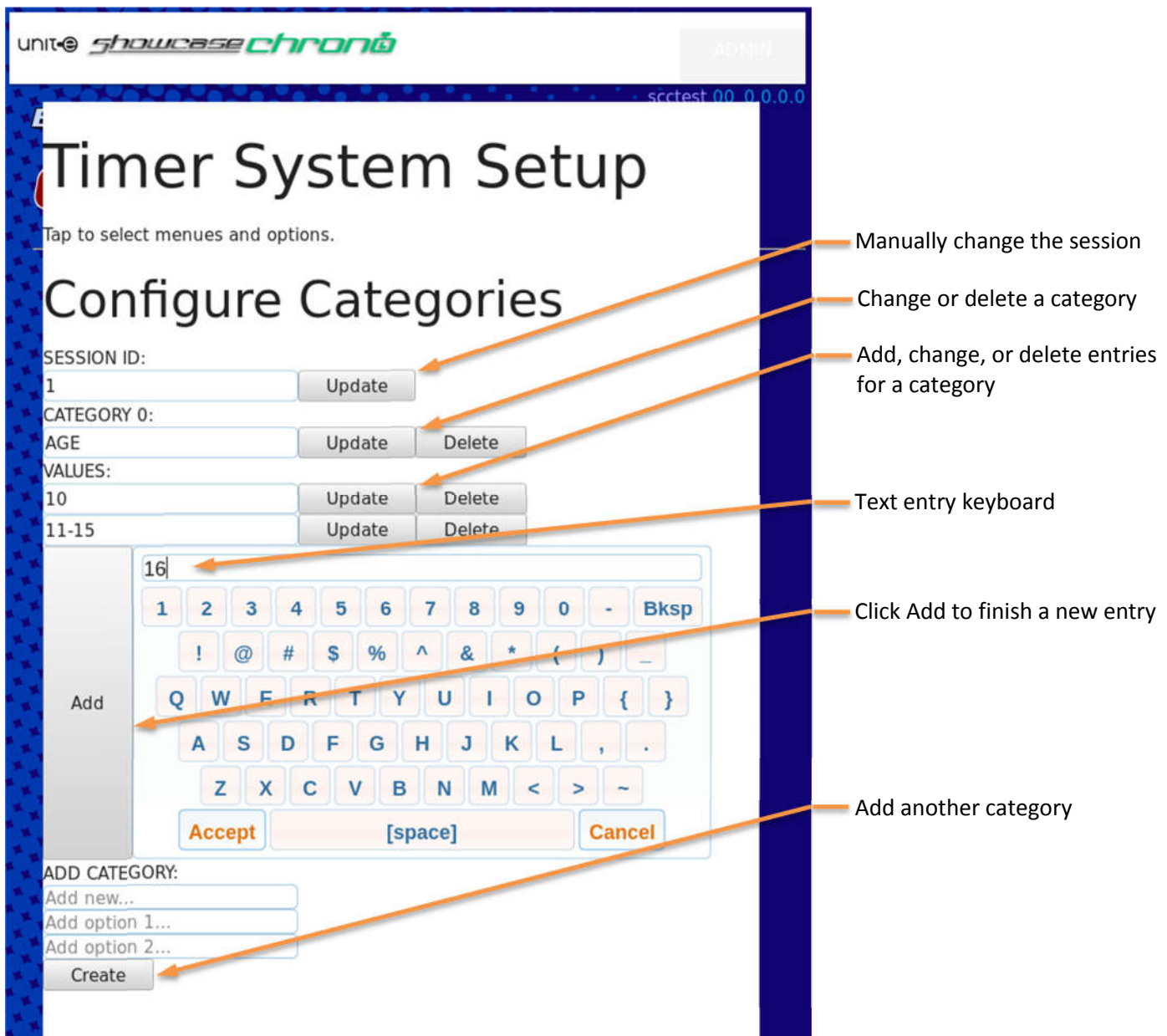


Figure 10: Configuring user categories in the service menu

- Session ID –** The session ID is an unnamed, hidden category system which separates one set of scores from another. It automatically changes each time the computer is restarted which is typically once each day. This way the users from today will mostly be competing with other users from today and only the “Best time” will reflect times from users in previous days/sessions. To manually change this, simply tap the entry field, type in a new or previous number with the pop up keyboard, then hit update. This is useful if a party uses the system from 4pm to 6pm after which the system may be reverted to the session from earlier so standard users can resume use without seeing their scores compared to the partygoers.
- Category –** As described above, the Category system lets users choose their own category in which their scores will be compared on the leaderboard. The category field of this menu sets the term used to prompt users, for example adding “Age” will be seen by users as “Your Age:”. By default the fields are empty, but to add Age as a category, tap the “CATEGORY 0:” text entry field and type in Age with the pop up keyboard, the hit update. You will then need to add values under that category for the different age groups.
- Values –** The values fields are where you enter the text which shall appear on buttons for users to see under a given category. Each new value added will be a new button. Tap an entry field and type in a value to be added. In the Age example, you might type in 11-15 for the young teens. There should always be an available blank value field below the existing ones to add a new value. Tap this, type in the new value and hit the Add button to add the new value. In Figure 10, an operator is currently filling in a new value for the 16 and up age group.
- Add Category –** Operators may have more than one category for users to select. Another example might be Gender as the category with Male and Female as the options.

With an age category set up as shown above, users will see the following options in Figure 12 when entering their name after hitting the stop button. If a leaderboard is in use, users may then see their name under their category as the leaderboard automatically cycles between the different categories in its display. Seen in Figure 11, below, a user “Jane” in the “Age: 10” category is currently the only entrant in this category.

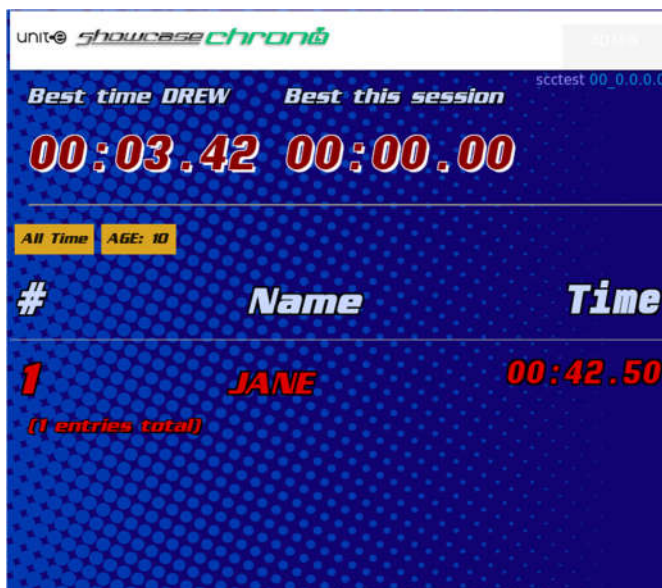


Figure 11: Category display on the leaderboard

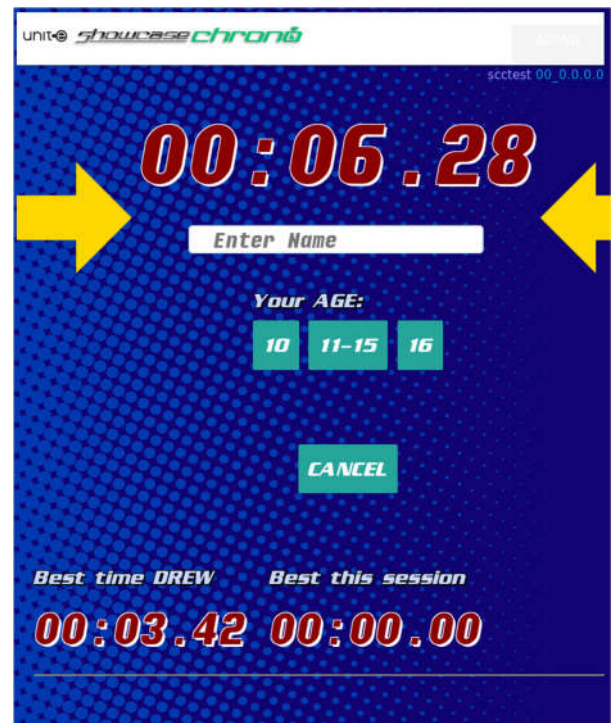
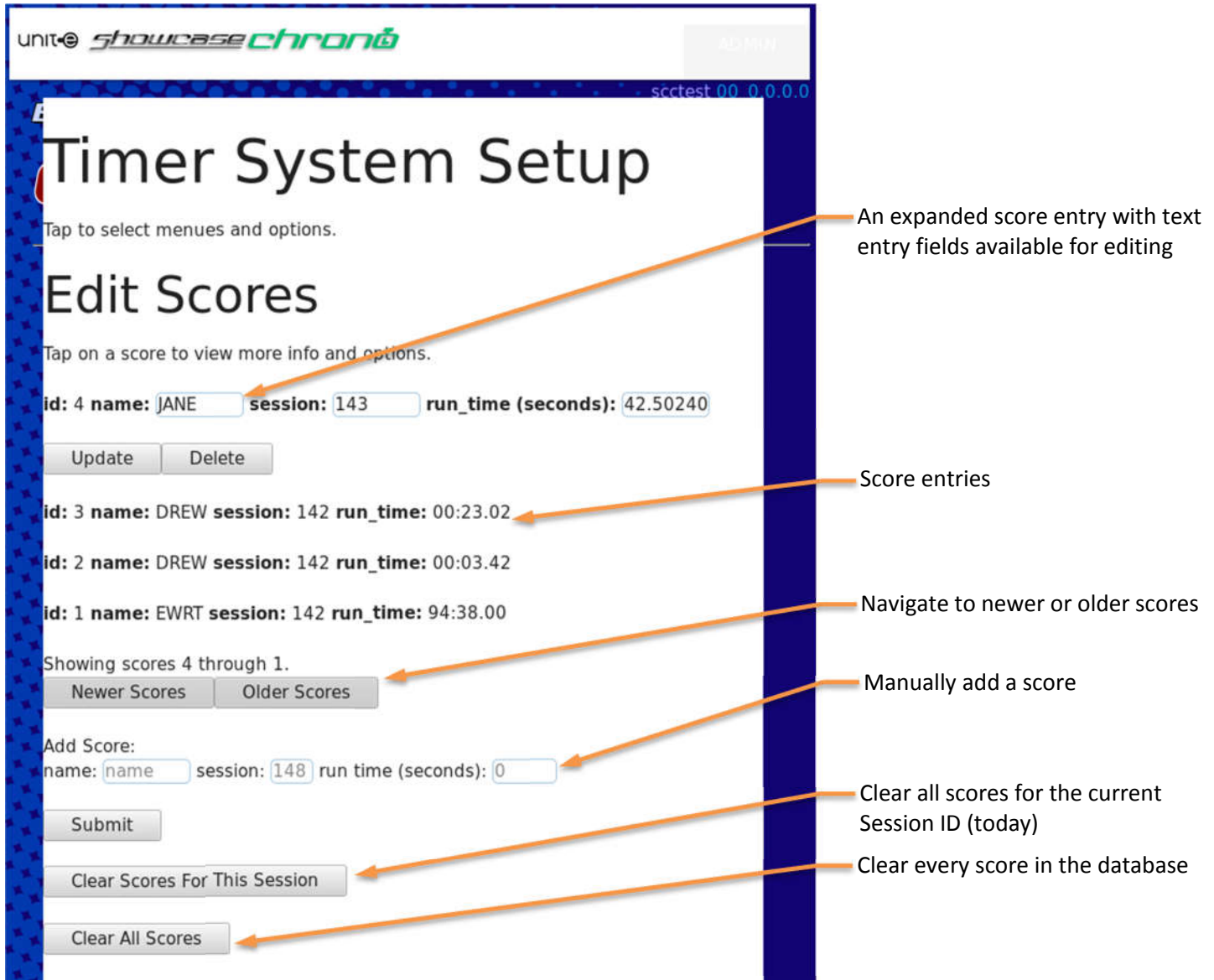


Figure 12: Category options visible to users

## 7.2 Edit Scores Menu

It is often necessary for operators to manually change or remove scores during a serious competition. This can be done in the Edit Scores menu. Figure 13 below identifies the details of the edit scores menu and the following text will detail their functions.



**Figure 13: Editing scores in the service menu**

**Score Entries** – Displayed here will be a list in descending order of all scores in the database. By tapping on any line in this list, that line will expand.

**Expanded Entry** – Once an entry is tapped it will become available for editing. Note how the name, session ID, and time have become text entry boxes. Tap any entry box to bring up the keyboard and make changes. Tap the update button when complete, or the delete button to remove the entry entirely.

**Manually Add Score** – Tap the fields under Add Score, type in the pop up keyboard to fill each field, then hit the Submit button below the entries to add the new score to the database. This may be useful if you wish to clear all scores, but retain the highest score by adding it after clearing.

**Clear Scores for Session** – This button will clear all scores that have the same session ID as currently set in the Categories menu previously discussed.

**Clear All Scores** – This button will delete every score in the database after confirming you didn't accidentally press it.



### 7.3 Network Settings Menu

For software updates and remote service assistance, it is necessary to connect the Showcase Chrono control box to the internet. The most secure way to do this is via a hard line Ethernet cable plugged into the internet port on the box. This isn't always possible, so the Network Settings menu allows you to attempt a connection to a local wifi network. The below Figure 14 details the features of this menu, though your list of local wifi networks will vary.

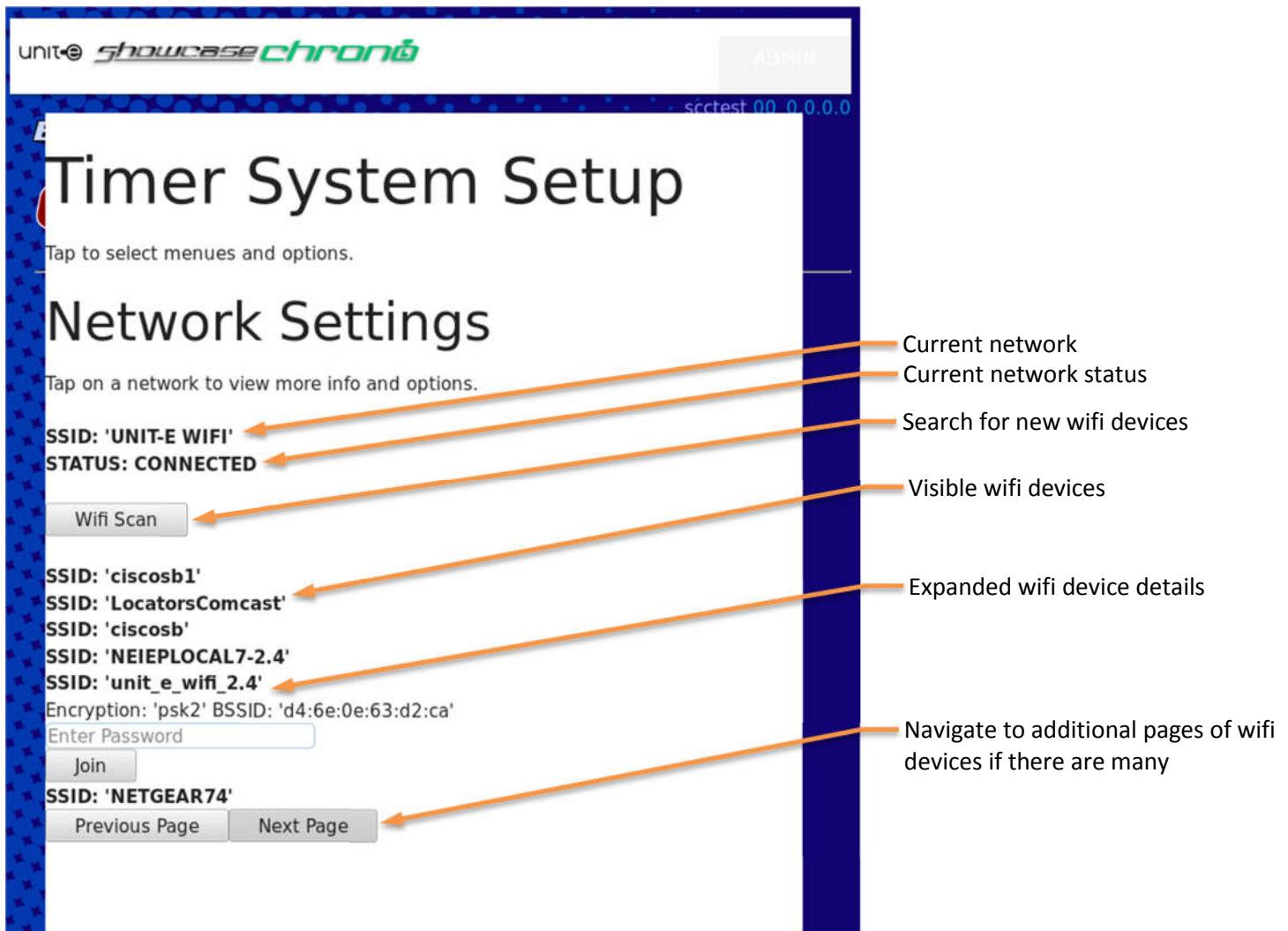


Figure 14: Setting up wifi in the service menu

**Current Network** – This entry “SSID:” will tell you which device network the SCC system will currently attempt to connect to whether or not it is visible.

**Network Status** – The “Status:” entry will tell you whether a connection to the above network has been achieved.

**Wifi Scan** – When first accessing the network menu, a scan will commence. However, if the Wifi network you wish to join was powered on after accessing the menu, you may need to press the scan button to find it.

**Device List** – Below the scan button is a list of entries starting with “SSID:” which is all of the networks currently visible to the control box. Tap on any line to expand it.

**Expanded Entry** – Once an SSID line has been expanded, you may enter the password needed to join it and press the Join button. It may take some time to react while the system attempts the connection. Once a connection has been established, the entry will close and the current network SSID entry should change to the new one. In a few moments, the Network Status section should change to Connected.

**Navigate Pages** – If the list of devices is very long, it may be necessary to use these page buttons to find your network.



## 8 Using the Showcase Chrono System

While the system is designed to be easy enough for average users to figure out on their own, there are some features and aspects of its use which are not as obvious. This section will act as a short training guide to teach new operators how to guide their users through the use of the Showcase Chrono system.

### 8.1 Starting the Timer

Starting the timer is as simple as breaking the light beam start sensor. However, there are three things to note about a user starting a new timer run:

1. The previous timer must be stopped before a new timer begins, though the new user may start before the previous finishes typing their name.
2. Though the start sensor is usually mounted beyond the start line, users often get excited and lean past the line, causing a false start. For competitive play, ensure users are warned of this and stand back from the line.
3. You may cancel any current timer run by two methods:
  - a. Hold a hand over the start sensor to block the beam for five (5) seconds and the timer will reset.
  - b. Hit the stop button and then touch the blue cancel button below the main time on the touchscreen.

### 8.2 Timer in Operation

During operation, the timer should appear as seen in Figure 15 on the big screens and on the touchscreen when the previous user finishes entering their name. There is one major item for operators to watch out for during operation:

- If spectators or the next user in line leans over the start line to observe the current user, they may accidentally cancel the current run by blocking the start sensor for five seconds. Be sure to warn them back during competitive use.

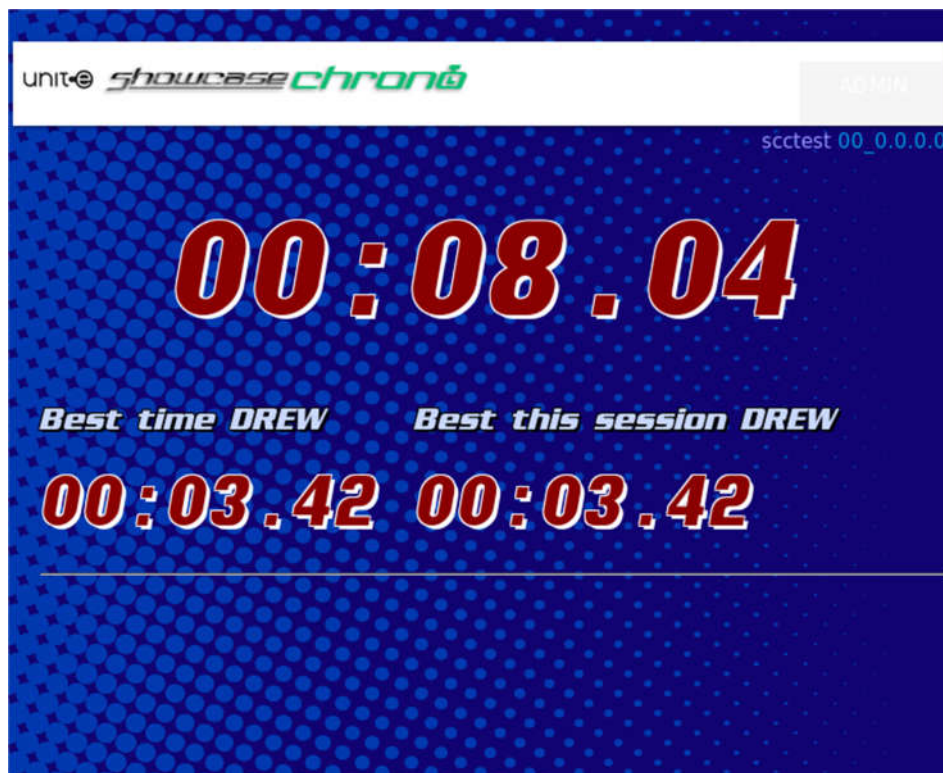


Figure 15: Time display during use

### 8.3 Ending the Timer and Entering Data

When a user reaches the end of the course they must trigger the stop sensor to complete the course and save their time. They may then enter their time into the database via the following steps.

1. After triggering the stop button or sensor, the touchscreen (if applicable) will display the final time with a name entry prompt as seen in Figure 16 left.
2. A user must touch the Enter Name box where the arrows draw attention and a pop up keyboard will appear as seen in Figure 16 right.
3. After typing in a name, the user may hit Accept to close the keyboard, or may simply hit SUBMIT to submit the score with their name immediately.
4. If categories are set, other blue buttons will be available which the user may select to enter their category before tapping SUBMIT.
5. Pressing cancel at any time will invalidate the score and clear the screen for the next user.




Figure 16: User entering their name and submitting score

## 9 Troubleshooting and Repairs

Please always try cycling power to the system before anything else. Many problems can be fixed by a restart.



The following section contains instructions that may require accessing high voltage components of the SCC system. Only qualified service personnel should attempt these steps.

 The following section is provided to assist qualified in-shop personnel and industry specialists. None of the procedures herein should be attempted by personnel inexperienced with the handling of high voltage electronics.

### 9.1 How to Read the Troubleshooting Guide

You should read each bullet in order working your way down from the top. Sub bullets pertain to things to try if their parent bullet produced a result. If a bullet with sub bullets didn't produce a result, you can usually skip it.

When performing any troubleshooting, try printing out this list and checking off what you have tried and crossing off results that are negative and circling results that are positive. This will help everyone figure out how to resolve the issue once you have or cannot identify it.

### 9.2 Disassembling the Control Box

If it becomes necessary to disassemble the control box, please note the following things:

1. THERE IS LIVE 120V POWER EXPOSED. Always unplug the case before opening and do not touch the inside of the case if it must be powered on open.
2. Do not remove any screws on the white faceplates front or back. Only the eight large Phillips head screws on the sides should be removed for disassembly.
3. After the Phillips head screws are removed from the beige lid halves, you may gently pry each lid section up from the aluminum frame with a flat blade screwdriver, exposing the interior.



### 9.3 Disassembling the Lighted Button Pedestal

The lighted button pedestal takes great abuse and there are times when it may need service. Disassembly is very simple, but not obvious. Many have damaged the pedestal by attempting forceful disassembly. Please follow the below steps:

1. Do not touch the four screws protruding from the plastic cylinder. These are do not aid disassembly and will be problematic to replace.
2. Remove the four bolts mounting the metal bracket to the ground or truss structures.
3. Unplug the power cord where it connects about 3ft from the pedestal and lay the pedestal down on its side.
4. There is one Phillips or Torx screw directly in the center of the underside of the metal base. Remove this.
5. With the single bottom screw removed, you may work a fingernail or flat blade driver under the black bezel of the stop button and the white plastic cylinder and pry the button up gently. It should move easily and the entire core will lift out. Mind the power cable as it feeds through the hole.

Reassembly of the pedestal is the reverse of these steps. When feeding the button core into the cylinder, note the cross shaped locating tabs at the bottom and ensure they fit between the studs sticking out near the bottom of the tube. Ensure the two index tabs in the underside of the button engage the holes drilled for them atop the white plastic cylinder. When replacing the single screw in the bottom, DO NOT TIGHTEN IT. Too much torque will either damage the button or the light core. Turn the screw only until you can't easily slip a fingernail beneath the button bezel, then stop.

### 9.3.1 Replacing the button or switch on the lighted button pedestal

The button is the most frequent point of failure for the timer system and will often need to be replaced yearly. Contact Unit-e Technologies for a replacement part and you may consider ordering a few at once for discounts. After following the above steps to disassemble the pedestal, follow the next to replace the button assembly.

1. With the button core removed, you must disconnect the switch holder before unscrewing the button.
  - a. Grip the switch assembly with the wires protruding from it and give it a quarter turn left (counter clockwise from the bottom of the button).
  - b. You may need to actually rotate the whole button to do this.
  - c. When the switch assembly pops and is loose in its socket you have released it and should move to the next step. Don't worry about getting it out of the cramped space it's in until after the button is removed.
2. Remove the button by unscrewing the black plastic nut.
  - a. Grip the nut with needle nose pliers then turn the whole button assembly counter clockwise by hand until it is completely unscrewed.
3. Lift the whole button assembly out and carefully reverse this whole process to install the new button over top of the existing nut and switch holder.
4. In most cases, you will not need to replace the switch or switch holder, so do not unplug the wires from these. If they are unplugged or must be replaced, the following wiring applies:
  - a. Black and green go on the bottom two pins of the switch (COM and NO)
  - b. Red and blue or white go on the two pins of the switch holder leading to the bulb. There is a faint + symbol visible on the large flat side of the holder where the red wire should go. The bulb should also have a + on one side of it which indicates the red wire side. If these are reversed, the bulb will not light. You may want to test power before reassembling everything to ensure the bulb works.

As stated, reassembly of the pedestal is the reverse of Section 9.3. Just be sure not to over tighten the single screw in the bottom.

## 9.4 Troubleshooting Procedures

### 9.4.1 Touchscreen starts, big screen doesn't

- If big screen starts but shows text instead of times:
  - Ensure the diagnostic detail (Figure 5) in the upper right shows an IP address. If it does:
    - See section 6.2 for software configuration of the screen.
  - If there is no IP address, see the Ethernet troubleshooting details below.
- If big screen never displays the boot screen:
  - Check big screen power, try plugging into an extension cord from somewhere else, making sure there is really power.
  - Use supplied remote to manually power on big screen
  - Try the physical power button on the big screen
  - If all three options together fail to power on the screen, the screen may be dead; contact Unit-e Technologies for a replacement.
- If big screen does display boot screen, but won't show scores:
  - If screen shows blank times even when player is running course
    - No connection is established to the TV computer
    - Ensure both ends of the Ethernet cable are plugged in.
    - Try the "Screen 2" port in the SCC control box instead of the "Screen 1" port or vice versa
    - In the SCC Control Box, ensure the router is powered on by checking for its flashing lights
      - If it is off, ensure the power button is pressed in on the back



- Also check that its power cord is in place and plugged in inside the control box
  - If it cannot be powered on, contact Unit-e Technologies with this result
- Check the lights on the router and see that one flashes indicating a connection to the big screen
  - Try unplugging the big screen's Ethernet cable from the control box while the big screen is on and note which light goes out on the router.
  - Plug it back in and watch for the light to begin flashing again
  - If there is no change in the lights it suggests the Ethernet cable is bad.
- If the router is fine and the Ethernet cables are plugged in properly, try replacing the Ethernet cable
- If you cannot replace the Ethernet cable easily, try plugging a laptop or other computer into the big screen with a "crossover" Ethernet cable
  - You should see a device on a network
  - You may also try plugging in through your own router if you don't have a crossover cable available
  - The goal is to see if the screen is communicating at all or if its internal network card died
- If you can see the big screen on the network when you plug your computer into it, try plugging your computer into the "Screen 1" or "Screen 2" ports on the SCC Control Box
  - If you can see a network available, this tells you the control box's network is working fine
  - The problem will be the Ethernet cable and it must be replaced
- If all of the above does not solve the problem or identify a cause, contact Unit-e Technologies with this info
  - If the big screen shows the boot screen at any point when powering up, but doesn't show anything after, contact Unit-e Technologies with this info
- If the big screen doesn't show a boot screen but does show scores
  - What are you complaining about?

#### 9.4.2 Big screen starts, touch screen doesn't

(Also budget system big screen won't start)

- Ensure the touchscreen works
  - Try powering the touchscreen on
  - If it powers on, try plugging something else into it, like a laptop
  - If it displays properly, look to the SCC Control box
- Try having someone run the course, testing the start and stop switches.
  - If the big screen shows a current time and stops when it's supposed to, you know the SCC Control Box computer is working; look to the HDMI port in the Control Box for problems
  - If it doesn't change when people start and stop, look to the SCC Control Box for problems with the computer
- Check power in SCC Control Box, lights should be lit on the three circuit boards inside, as well as the silver metal power supply. (Only qualified service personnel should attempt access to the internals of the SCC control box, as high voltage power is within. Always unplug the AC power cord to remove power before working within the control box.)
  - If the mid-sized computer circuit board appears to have no red or green lights
    - Ensure its power cable is plugged in at both ends
    - Ensure the main power supply is powering on.
    - Try plugging a standard micro USB cell phone charger into the circuit board to power it
      - If that suddenly makes it work, let Unit-e Technologies know you need a new power supply





- If all of the above fail to power on the computer circuit board, contact Unit-e Technologies for a replacement computer
- If the larger circuit board has lights
  - Try plugging your HDMI cable directly into the larger circuit board by unplugging the HDMI extension that is currently connected to it
    - If that works, you may contact Unit-e Technologies for a new HDMI 1ft panel mount extension
  - Try plugging some other monitor into the HDMI port in the Control Box or directly to the circuit board inside to see if it displays anything
    - If it says “video mode unsupported” or otherwise displays a picture, then the computer is putting out video properly, and the problem is likely with the HDMI cable you have.
  - If you can’t get a picture or some sign of life with another monitor, contact Unit-e Technologies with this info and ask for a new computer board.

### 9.4.3 Timer won’t start

- On the deluxe system, look to the debug code in the upper right of the touchscreen, detailed in Figure 5.
  - When not running, it should read “00\_”.
    - If it is running, hit the stop button
      - The debug code should briefly show “01\_”.
      - If it won’t stop, you’re in the wrong section of this guide. What are you doing here?
    - If not running, have someone cover the start sensor and note if the number changes.
      - When the start sensor is covered, it should briefly show “10\_”.
      - If it stays “10\_” all the time, that means the sensor is misaligned.
      - If it doesn’t change, move on to checking the sensor
      - If it DOES change, contact Unit-e Technologies and describe this, as it’s probably a software malfunction
- Check the light gate sensor (most common start sensor)
  - In a typical ninja course installation, this sensor is inside a metal bollard at the start of the course with a black cap on top.
  - Pry that black cap off and have a look at the clear back section of the light gate sensor.
  - If there is a solid yellow light
    - It means the beam is blocked or otherwise not seeing its reflection from the reflector.
    - Check for obstructions
    - Check that the sensor’s black lens is clean and undamaged
    - Check that the bollard has not been moved or misaligned
    - Check that the reflector on the other bollard is clean and undamaged
      - We have seen some reflectors get shattered, leaving only a white disc behind. It should have a jagged, faceted mirror clearly visible. If that’s missing, it’s been damaged.
    - Try holding a reflective object or backup reflector a few inches from the front of the sensor
      - If the light goes out, the beam is unbroken and it is working
        - Try moving the reflector further away slowly while trying to keep the light off.
        - It’s probably just misaligned, but if you can’t keep the light off at the range needed for your course, it’s possible the sensor is damaged; contact Unit-e Technologies for a replacement Light Gate Sensor.
      - If you can’t get the yellow light to go out, the sensor is broken; contact Unit-e Technologies for a replacement Light Gate Sensor.
  - If there is not a solid yellow light when you check the sensor, try blocking the sensor with your hand.
    - If a light comes on, the sensor is working, but the signal must not be reaching the computer

- Look inside the SCC Control Box at the smallest circuit board with two bright lights on it, one white, one blue
- Have someone block the sensor
  - If a light goes out and stays out while they're blocking it, contact Unit-e Technologies and say you need a new computer IO cable
  - If a light does not go out, contact Unit-e Technologies and tell them there is a break in your start cable somewhere (we don't expect you to go through all that trouble trying to locate the break)
- If a light does not come on, the sensor is unpowered, check the SCC Control Box
- Ensure the (usually green) metal connector is firmly plugged into the Control Box and locked in place
- Ensure the (usually green) metal connector between the light gate and the control box is properly plugged into any extensions you may have added
- Ensure the connector on the back of the light gate sensor is screwed in all the way.
- Is your lighted button pedestal or stop button illuminated?
  - If no, check the power supply inside the SCC Control Box
  - Look inside the SCC Control Box and ensure the green light is on the silver metal power supply. (Be careful around this power supply, as it has 120v AC power flowing into it)
    - If not, make sure it's power leads are connected securely to the power inlet.
    - If it's off and connected, contact Unit-e Technologies and describe this result; it could be a bad power supply or a short circuit somewhere else
  - If the light is on the power supply, but none of your lighted things are working, check that the twisted pair of wires running from that power supply to the tiniest circuit board is plugged into said board
  - If it is, contact Unit-e Technologies and tell them your power supply is likely failing or the IO interface board has failed
- Look inside the SCC Control Box and ensure the Green cable between the metal connector for the start switch and the smallest circuit board is plugged into that tiny board
- Failing that, keep careful notes of what you've tried here and contact Unit-e Technologies; this might be an exotic problem

**WARNING**

#### 9.4.4 Timer won't stop

- Same as for timer won't start, but with the red wires, and no light curtain
- If the lighted button pedestal flashes when the button is pressed, we know the switch is working and that there is power; the problem is either the wire or the IO board
  - Check all connections
  - Check if the smallest circuit board (IO board) lights change when someone presses the button
    - If a light goes out and stays out while they're pressing it, contact Unit-e Technologies and say you need a new computer IO cable
    - If a light does not go out, contact Unit-e Technologies and tell them there is a break in your start cable somewhere (we don't expect you to go through all that trouble trying to locate the break, but you can if you're determined)
- If the pedestal is lighted, but doesn't flash when you press the switch, the pedestal will require maintenance, and it's probably best to contact Unit-e Technologies and say the switch in the pedestal is bad (there are some other possibilities in there, but it's tedious!)

- If the pedestal flashes continuously, this means the switch is stuck on. It may be damaged or otherwise failed.
- If the lighted button pedestal (or your big red button) is not lit, check the power supply.
  - Look inside the SCC Control Box and ensure the green light is on the silver metal power supply. (Be careful around this power supply, as it has 120v AC power flowing into it)
    - If not, make sure it's power leads are connected securely to the power inlet.
    - If it's off and connected properly, contact Unit-e Technologies and describe this result; it could be a bad power supply or a short circuit somewhere else
  - Look inside the SCC Control Box and ensure the red cable between the metal connector for the stop switch and the smallest circuit board is plugged into that tiny board (you probably shouldn't go fishing around in there anyway)
  - Failing that, keep careful notes of what you've tried here and contact Unit-e Technologies; this might be an exotic problem

**WARNING**

#### 9.4.5 Lighted button pedestal won't light

- Check if your light gate sensor works by starting the timer, then holding it for five seconds to cancel; if it doesn't work:
  - Your power supply is probably at fault
  - Look inside the SCC Control Box and check if the green light is on the silver metal power supply. (Be careful around this power supply, as it has 120v AC power flowing into it)
    - If not, make sure it's power leads are connected securely to the power inlet.
    - If it's off and connected properly, contact Unit-e Technologies and describe this result; it could be a bad power supply or a short circuit somewhere else
  - If the light is on the power supply, but none of your lighted things are working, check that the twisted pair of wires running from that power supply to the tiniest circuit board is plugged into said board
  - If it is, contact Unit-e Technologies and tell them your power supply is likely failing or the IO interface board is fried
- If the light gate sensor at the start of your installation works fine
  - Your power supply must be working
  - Check all connections to the button pedestal
  - Unmount the button pedestal and move it close to the SCC Control Box, plugging it directly into the box without the extension cord in between
    - If that makes it work, contact Unit-e Technologies about a failed stop extension cord.
  - Look inside the SCC Control Box and ensure the red cable between the metal connector for the stop switch and the smallest circuit board is plugged into that tiny board (you probably shouldn't go fishing around in there anyway)
  - Contact Unit-e Technologies about a problem with the stop switch IO

**WARNING**