

QuickStart Pro



User Guide



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Colorado Time Systems

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Introduction

Thank you for purchasing a Colorado Time Systems QuickStart Pro. Your QuickStart Pro features 15 training modes.

Introduction

This introductory section describes physical features of your QuickStart Pro.

Training Modes

This section, beginning on page 7, describes the training modes, including what the mode does and which other devices are needed for the mode.

Input Modes

Most of the various training modes require input from one or more of the following: touchpads, relay platform, pushbutton or start system. Plug the device(s) providing the input into the proper connector(s) on the side panel.

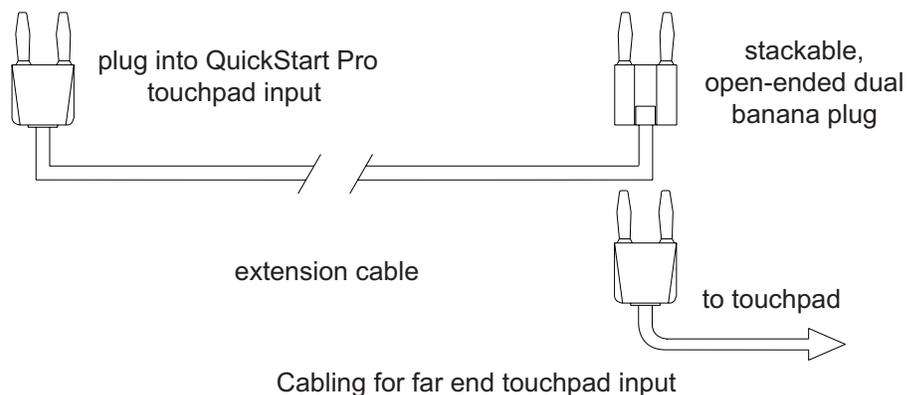
Most input connections are self-explanatory.

Pushbuttons

For all input connectors, a pushbutton operated by a human judge may be connected to provide input; however, some precision in timing will be lost. The QuickStart Pro records to a hundredth of a second, but a human with a pushbutton can't come close to that level of accuracy!

Touchpads

There are two touchpad inputs to allow for touchpad input from both ends of the pool. The two touchpad inputs are connected internally.



They are equivalent, and it makes no difference which one is used.

To take input from touchpads at both ends of the pool, plug the touchpad from one end of the pool into either touchpad input on the QuickStart Pro. Plug the touchpad from the other end into the other

touchpad input, using an extension cable (CTS SJ series) with a stackable, open-ended dual banana plug.

Power

AC Power

Connect the QuickStart Pro to AC power using the supplied (15 DVC) power brick. Plug the power brick 5-pin DIN connector into the QuickStart Pro, and plug the power brick in to AC power.

Battery

An internal battery can supply power to the QuickStart Pro. A fully charged battery will run the unit for a minimum of 6 hours. Leave the unit plugged in overnight to fully charge the battery after use. The battery charges any time the unit is plugged in to AC power.

Power Switch

The power switch is on the right side of the QuickStart Pro, next to the DIN connector for the power brick.

Intensity & Mode Setting

Use the Mode switch on the right side of the QuickStart Pro to set the intensity of the LED digits as follows:

Intensity

When a QuickStart Pro is turned on, it will first display **in** for Intensity. While **in** is displayed, the Mode switch adjusts the intensity of the display. Eight levels of intensity are available, from 1 (low) to 8 (high). These same settings can also be selected from 9 (low) to 16 (high).

Mode

After the Mode switch has been in the same intensity setting for 4 seconds, the clock will display the firmware revision, and then the current mode. At this point, the Mode switch changes the mode. The Mode switch will change *only* the mode until the clock is turned off and then on again.

Training Modes

Mode #	Mode Description	See Page #
1	Lap counter	7
2	Simple pace clock	8
3	Pace clock with cumulative splits	8
4	Pace clock with Lap Splits	9
5	Relay Exchanges	9
6	Start Reaction	10
7	Turn Speed	10
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9	Start Reaction and Breakout Time	11
10, 11, 12, 13, 14	Single Lane Timer (1, 2, 3, 4 or multiple laps)	12
15	Mid-race Timer	14
16	Test Mode	15

Lap counter

Mode 1

Equipment required:

Touchpad required; start system or pushbutton can be used to reset the clock.

Set up:

Connect the touchpad to either Touchpad input. If using a start system or pushbutton for resetting the display, connect the start system or a pushbutton to the Start System input, or connect a pushbutton to the Reset/Breakout input.

Operation:

The clock displays 01, indicating mode 1. The display will flash, and then show 0, indicating 0 laps completed. Each valid touchpad hit will cause the display to count up by 1.

A start input (either a start signal from the start system or one click on a pushbutton connected to the start input) or a double click on a pushbutton connected to the reset/breakout input will reset the counter to 0.

Simple Pace Clock

Mode 2

Equipment required:

None required for basic operation; start system or pushbutton can be used to reset the clock.

Set up:

If using a start system or pushbutton for resetting the clock, connect the start system or a pushbutton to the Start System input, or connect a pushbutton to the Reset/Breakout input.

Operation:

The clock displays 02, indicating mode 2. The display will flash, display :00, and begin counting up, showing the time in minutes, seconds and tenths. After displaying 59:59.9, the display will roll over to zero. A start input or a double click from the reset input will reset and start the clock.

Pace clock with Cumulative Splits

Mode 3

Equipment required:

Touchpad required; start system or pushbutton can be used to reset the clock.

Set up:

If using a start system or pushbutton for resetting the clock, connect the start system or a pushbutton to the Start System input, or connect a pushbutton to the Reset/Breakout input. Connect the touchpad to either Touchpad input.

Operation:

The clock displays 03, indicating mode 3. The display will flash, display :00, and begin counting up, showing the time as minutes, seconds and tenths.

At each valid touchpad hit, the display shows the time of the touchpad hit (cumulative split) in minutes, seconds and hundredths (M:SS.HH). Meanwhile, the running time continues internally. Following the cumulative split display the clock will resume displaying the running time as minutes, seconds and tenths. Once the running time is above ten minutes, the time of the touchpad hit is shown alternating between minutes, seconds and hundredths (M:SS.HH) and minutes, seconds and tenths (MM:SS.T).

A start input or a double click from the reset input will reset and start the clock any time the running time is displayed.

Pace clock with Lap Splits

Mode 4

Equipment required:

Touchpad required; start system or pushbutton can be used to reset the clock.

Set up:

Connect the touchpad to either Touchpad input. If using a start system or pushbutton for resetting the clock, connect the start system or a pushbutton to the Start System input, or connect a pushbutton to the Reset/Breakout input.

Operation:

The clock displays 04, indicating mode 4. The display will flash, display :00, and begin counting up, showing the time as minutes, seconds and tenths.

At each valid touchpad hit, the display shows the time of the touchpad hit (lap split) in minutes, seconds and hundredths (M:SS.HH). The running time is reset to 0 at the touchpad hit, and continues running internally. Following the lap split display, the clock will resume displaying the running time as minutes, seconds and tenths.

A start input or a double click from the reset input will reset and start the clock any time the running time is displayed.

Relay Exchanges

Mode 5

Equipment required:

Touchpad and relay judging platform (RJP).

Set up:

Connect the touchpad to either Touchpad input. Connect the RJP to the Relay Platform input.

Operation:

The clock displays 05, indicating mode 5. The numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting to record a relay exchange.

RJP input times are recorded, and the first touchpad hit is recorded. For a legal relay exchange (the touchpad hit occurred before the relay takeoff), the display shows the relay exchange time in seconds and hundredths (SS.HH). Exchanges of .2 seconds and faster are shown in green; exchanges of .21 seconds or greater are shown in yellow. For an illegal relay exchange (the touchpad hit occurred after the relay takeoff), the display shows the difference between the two, in red, preceded by a minus sign. If no valid RJP input is detected within 2 seconds of a touchpad input, "Err" will be displayed on the clock in red.

The clock displays the exchange time for 10 seconds, and then automatically resets itself for the next exchange.

Start Reaction

Mode 6

Equipment required:

Start system or pushbutton, and touchpad for backstroke starts or RJP for starting block starts. Optional pushbutton for reset.

Set up:

Connect the start system or a pushbutton to the Start System input. For backstroke starts, connect the touchpad to either Touchpad input. For starting block starts, connect the RJP to the Relay Platform input. If you would like to use a pushbutton to reset the clock after a start has been recorded, connect a pushbutton to Reset/Breakout.

Operation:

The clock displays 06, indicating mode 6. The numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting for a start input. The start input starts the clock and the display counts up in hundredths of a second for 2 seconds. All touchpad or RJP inputs detected during this time are recorded, and the last one recorded is displayed at the end of the 2-second window. Start reaction times of .55 to .74 seconds are shown in green; .75 to 2.00 seconds are shown in yellow; .54 seconds and below would be considered early starts and are shown in red.

The start reaction time (the difference between the start input and the swimmer's departure) is displayed until the clock is reset with a double click from the Reset/Breakout input, or a new start input.

If a start input is received and no RJP or touchpad input is detected within 2 seconds, the clock will display "Err" in red.

Turn Speed

Mode 7

Equipment required:

Touchpad

Set up:

Connect the touchpad to either of the Touchpad inputs.

Operation:

The clock displays 07, indicating mode 7. The numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting for a touchpad input (typically hand touch). All touchpad releases detected during the next 3 seconds are recorded. The last one recorded (departure) is displayed at the end of the 3-second window, showing the time it took for the turn (the difference between the two).

The clock displays the turn time for 10 seconds, and then automatically resets itself for the next turn.

Breakout Time

Equipment required:

Start system, and breakout timer or pushbutton.

Set up:

Connect the start system to the Start System input, and connect the pushbutton or other breakout timer to the Reset/Breakout input.

Operation:

The clock displays 08, indicating mode 8. The numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting for a start input. The start input starts the clock and the display counts up in hundredths of a second until a breakout input is detected.

The breakout time (the difference between the start input and breakout input) is displayed until the clock is reset with a double click from the Reset/Breakout input, or until a new start input starts the clock from zero.

Start Reaction and Breakout Time

Equipment required:

Start system, breakout timer or pushbutton, and touchpad or relay platform.

Set up:

Connect the start system to the Start System input, and connect the pushbutton or other breakout timer to the Reset/Breakout input. Connect the touchpad to either Touchpad input or connect the RJP to the Relay Platform input.

Operation:

The clock displays 09, indicating mode 9. The numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting for a start input. The start input starts the clock and the display counts up internally for 2 seconds. All touchpad or RJP inputs detected during this time are recorded, and the last one recorded is displayed at the end of the 2-second window. The clock continues to count internally while it displays this time (start reaction time). Running time resumes on the display, until a breakout/reset input is detected. The breakout time is then displayed until the clock is reset with a double click from the Reset/Breakout input or a new start input.

Single Lane Timer

Modes: 10, 11, 12, 13 and 14

1, 2, 3, 4 or multiple laps with optional Start Reaction Time and optional Relay Exchange Time

Equipment required:

Start system or pushbutton, and touchpad; relay platform for start reaction time from starting block starts; pushbutton for timing more than 4 laps

Set up:

Connect the start system or the pushbutton to the Start System input, and connect the touchpad to either Touchpad input.

For start reaction time from starting block starts, connect the RJP to the Relay Platform input. For start reaction time from backstroke starts, inputs from the touchpad that is already connected will be recorded and used.

For mode 14 (multiple lap timing), connect a pushbutton to the Reset/Breakout input.

Operation:

The clock displays 10, 11, 12, 13 or 14 indicating the mode. These modes are the same except for the number of touchpad inputs expected. In all five of these modes, the numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting for a start input. The start input starts the clock and the display counts up in tenths of a second.

Single Lane Timing: Start Reaction

The first option in all five modes is start reaction time. All touchpad or RJP inputs detected during the initial 2 seconds from start input are recorded, and the last one recorded is displayed at the end of the 2-second window. Start reaction times of .55 to .74 seconds are shown in green; .75 to 2.00 seconds are shown in yellow; .54 seconds and below would be considered early starts and are shown in red. The start reaction time (the difference between the start input and the swimmer's departure) is displayed, after which the display resumes counting up in tenths of a second.

If there are no touchpad or RJP inputs during the 2 seconds after the start input, the display simply continues to count up in tenths of a second.

Single Lane Timing: Lap Timing (& Length Timing)

For lap timing, this assumes that the touchpad is at the same end of the pool as the starting blocks, and therefore the swimmer swims to the other end and back before touching the touchpad. Length timing can also be done, with a touchpad at each end of the pool: one con-

nected to the QuickStart Pro at Touchpad 1 and the other at Touchpad 2 (see page 5 for cabling this option).

At each valid touchpad input, the display shows the time elapsed since the start input (cumulative split) in hundredths (M:SS.HH). If the elapsed time is ten minutes or more, the display will alternate between tenths (MM:SS.T) and hundredths (M:SS.HH).

In mode 10 (single lap timing), the display shows the first elapsed time until a reset or new start input is detected.

In mode 11 (two lap timing with splits), running time continues internally while the display shows the cumulative split. The display then resumes running time until a second touchpad input is detected, indicating a second lap completed. This final time is displayed until a reset or a new start input is detected.

In mode 12 (three lap timing with splits), running time continues internally while the display shows the cumulative split. The display then resumes running time after displaying each cumulative split until the third touchpad input. This final time is displayed until a reset or a new start input is detected.

In mode 13 (four lap timing with splits), running time continues internally while the display shows the cumulative split. The display then resumes running time after displaying each cumulative split until the fourth touchpad input. This final time is displayed until a reset or a new start input is detected.

In mode 14, running time continues internally while the display shows the cumulative split. The display then resumes running time after displaying each cumulative split until a single Reset input (also know as "Finish Arm") is detected. The clock then stops timing after the next touchpad hit. This final time is displayed until a reset or a new start input is detected.

Single Lane Timing: Relay Exchange Timing

All Single Lane Timing Modes with multiple laps (or lengths, if length timing is being done) have optional relay exchange timing capabilities at each touchpad hit before the final one.

The first touchpad hit (cumulative split) is recorded, disabling the touchpad and starting a 2-second window. During the 2-second window, RJP input times continue to be recorded. After the 2-second window expires, RJP input will be disabled and the cumulative split will be displayed.

If a valid RJP input was detected, the display will then show the relay exchange time. For a legal relay exchange (the touchpad hit occurred before the relay takeoff), the display will then show the relay exchange time in seconds and hundredths (SS.HH). Exchanges of .2 seconds and faster are shown in green; exchanges of .21 seconds or greater are shown in yellow. For an illegal relay exchange (the touchpad hit occurred after the relay takeoff), the display shows the difference between the two, in red, preceded by a minus sign.

If no valid RJP input is detected within 2 seconds before or after a touchpad input, only the cumulative split will be displayed on the clock, as described in the Lap & Length Timing section above.

Mid-Race Timing

Mode 15

Mid-race timing is designed to time the middle portion of a race, eliminating both the start and the finish. It can be done with touchpads at both ends of the pool, or only at one end.

- 1) With a touchpad at one end only, the timing will include one lap and three turns.
- 2) With a touchpad at each end, the timing will include one length and two turns.

Equipment required:

Start system or pushbutton, and touchpad(s).

Set up:

Connect the pushbutton to the Reset/Breakout input, or connect the start system or a pushbutton to the Start System input. If using one touchpad, connect it to either Touchpad input. If using touchpads at both ends of the pool, connect the touchpad from one end of the pool into either touchpad input on the QuickStart Pro. Plug the touchpad from the other end into the other touchpad input, using an extension cable (CTS SJ series) with a stackable, open-ended dual banana plug (see page 5).

Operation:

The clock displays 15, indicating mode 15. The numbers on the display go blank, leaving a colon and a decimal lit. The clock is waiting for a touchpad input (first hit of turn). The first touchpad input starts the clock, and the display begins counting up in hundredths of a second. The touchpad input is inactive for 3 seconds after the first hit, to allow the swimmer to exit the pad.

The clock records the next touchpad hits. The last one recorded (push off) is compared with the initial touchpad touch and the difference between the two is displayed.

With a touchpad at one end, this is the time it took the swimmer to make an initial turn, swim down the lane, turn at the other end, swim back and complete the turn at the end with the touchpad.

With a touchpad at each end, this is the time it took the swimmer to make an initial turn, swim down the lane and complete the turn at the other end.

The clock displays the mid-race time until the clock is reset with a double click from the Reset/Breakout input, or a start input.

Test Mode

Operation:

Mode 16

The clock displays 16, indicating mode 16. It will then cycle through a digit test. Note that the colons between the third, fourth and fifth digits are never used, and will not light during the digit test.

Input ports can also be tested. When an input port receives a signal the clock shows which input port was triggered, as shown:

Touchpad	PAd
RJP	rJP
Start	StArt
Reset/Breakout	rESET



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